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Environmental Health

ARCADIS U.S., Inc.
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San Francisco, California 94105
Tel 415.374.2744
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Re: First Quarter 2011 Monitoring Report
Former BP Station #4931
731 MacArthur Blvd
Oakland, California
ACEH Case #RO0000076

ENVIRONMENTAL

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

Date:
04/29/2011

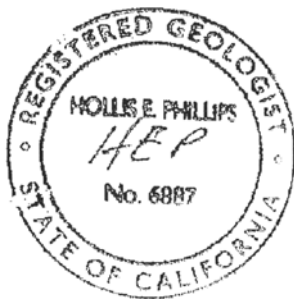
Submitted by:
ARCADIS U.S., Inc.

Contact:
Hollis E. Phillips

Phone:
415.374.2744 ext 13

Hollis E. Phillips, PG
Project Manager

Email:
Hollis.phillips@arcadis-us.com



Our ref:
GP09BPNA.C112

First Quarter 2011 Monitoring Report
Former Atlantic Richfield Company Station #4931
731 MacArthur Blvd, Oakland, California
ACEH Case #RO0000076

Prepared for
Ms. Hollis Phillips, PG
Senior Geologist
ARCADIS-US, Inc.
100 Montgomery Street, Ste. 300
San Francisco, California 94104

On behalf of
Atlantic Richfield Company
PO Box 1257
San Ramon, California 94583

Prepared by



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(530) 566-1400
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April 29, 2011

Project No. 09-88-624

Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926
Voice (530) 566-1400
Fax (530) 566-1401



April 29, 2011

Project No. 09-88-624

ARCADIS-US, Inc.
100 Montgomery Street, Ste. 300
San Francisco, California 94104

Attn.: Ms. Hollis Phillips, PG

Re: First Quarter 2011 Monitoring Report, Former Atlantic Richfield Company Station #4931, 731 West MacArthur Blvd, Oakland, California; ACEH Case #RO0000076

Dear Ms. Phillips:

Attached is the *First Quarter 2011 Monitoring Report* for Former Atlantic Richfield Company Station #4931 located at 731 West MacArthur Boulevard, Oakland, Alameda County, California. 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.

A handwritten signature in black ink that reads 'Jason Duda'.

Jason Duda
Project Scientist

A handwritten signature in black ink that reads 'Thomas A. Venus'.

Thomas A. Venus, P.E.
Senior Engineer



Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH FTP site)
Mr. Nick Goyal, Owner, electronic copy e-mailed (nick@vintnersdist.com)
Electronic copy uploaded to GeoTracker

**FIRST QUARTER 2011
MONITORING REPORT
STATION #4931, OAKLAND, CALIFORNIA**

Broadbent & Associates, Inc. (BAI) is pleased to present this *First Quarter 2011 Monitoring Report* on behalf ARCADIS US., Inc and of Atlantic Richfield Company (a BP affiliated company) for Station #4931 located in Oakland, Alameda County, California. Monitoring activities at the site were performed in accordance with the reporting requirements issued by the Alameda County Environmental Health Services Agency (ACEH). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	<u>Station #4931 / 731 MacArthur Blvd., Oakland</u>
Client Project Manager / Title:	<u>Ms. Hollis Phillips, PG</u>
BAI Contact:	<u>Jason Duda, (530) 566-1400</u>
BAI Project No.:	<u>09-88-624</u>
Primary Regulatory Agency / ID No.:	<u>ACEH, Case #RO0000076</u>
Current phase of project:	<u>Monitoring and Sampling</u>
List of Acronyms / Abbreviations:	<u>See end of report text for list of acronyms/abbreviations used in report.</u>

WORK PERFORMED THIS QUARTER (First Quarter 2011):

1. Submitted *Fourth Quarter 2010 Groundwater Monitoring Report*.
2. Conducted groundwater monitoring/sampling for First Quarter 2011 on March 18, 2011.

WORK SCHEDULED FOR NEXT QUARTER (Second Quarter 2011):

1. Submit *First Quarter 2011 Monitoring Report* (contained herein).
2. No environmental work is scheduled for Second Quarter 2011.

ADDITIONAL WORK RECOMMENDED FOR NEXT QUARTER (Second Quarter 2011)

1. None.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	<u>A-2 through A-5, A-7 through A-13, AR-1 through AR-3</u>	(Semi-Annually: 1Q & 3Q)
Groundwater sample collection:	<u>A-3, A-4, A-5 and A-8 A-2, A-7, A-9, A-10, A-11 and A-12</u>	(Semi-Annually: 1Q & 3Q) (Annually: 3Q)
Biodegradation indicator parameter monitoring:	<u>None</u>	

QUARTERLY RESULTS SUMMARY:

LNAPL

LNAPL observed this quarter:	<u>No</u>	
LNAPL recovered this quarter:	<u>None</u>	(gal)
Cumulative LNAPL recovered:	<u>None</u>	(gal)

Groundwater Elevation and Gradient:

Depth to groundwater:	<u>2.89 (A-2) to 6.33 (A-13)</u>	(ft below TOC)
Gradient direction:	<u>West-northwest</u>	(compass direction)
Gradient magnitude:	<u>0.04</u>	(ft/ft)
Average change in elevation:	<u>-4.05</u>	(ft since last measurement)

Laboratory Analytical Data

Summary:	<u>GRO detected in two of the wells at concentrations up to 2000 µg/ in well A-8. Benzene detected in well A-8 at a concentration 620 µg/L. MTBE detected in two of the wells at concentrations up to 87 µg/L in well A-8.</u>
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ACTIVITIES CONDUCTED & RESULTS:

First Quarter 2011 groundwater monitoring was conducted on March 18, 2011 by BAI personnel in accordance with the monitoring plan summary above. BAI personnel noted during water level gauging that wells A-11, A-12, and AR-2 were not monitored due to A-11 & A-12 needing traffic control and AR-2 had a truck parked over the well. Depth to water measurements ranged from 2.89 ft at A-2 to 6.33 ft at A-13. Resulting groundwater surface elevations ranged from 52.87 ft at A-10 to 57.76 ft at A-2. Groundwater elevations are summarized in Table 1. Water level elevations yielded a potentiometric groundwater flow direction and horizontal gradient to the west-northwest at approximately 0.04 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on March 18, 2011, consistent with the current monitoring schedule. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (Pleasanton, California) for analysis of Gasoline-Range Organics (GRO, C6-C12), 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 C.

Hydrocarbons in the GRO range were detected above the laboratory reporting limit in two wells sampled at concentrations up to 2000 micrograms per liter ($\mu\text{g/L}$, parts per billion, ppb) in well A-8. Benzene was detected above the laboratory reporting limit in two wells sampled at concentrations up to 620 $\mu\text{g/L}$ in well A-8. Toluene was detected above the laboratory reporting limit in one of the wells sampled at a concentration 4.7 $\mu\text{g/L}$ in well A-8. Ethylbenzene was detected above the laboratory reporting limit in two wells sampled at concentrations up to 1.9 $\mu\text{g/L}$ in well A-4. Total Xylenes was detected above the laboratory reporting limit in one of the wells sampled at a concentration 1.4 $\mu\text{g/L}$ in well A-8. MTBE was detected above the laboratory reporting limit in two wells sampled at concentrations up to 87 $\mu\text{g/L}$ in well A-8. TAME was detected above the laboratory reporting limit in two wells sampled at concentrations up to 43 $\mu\text{g/L}$ in well A-8. TBA was detected above the laboratory reporting limit in two wells sampled at concentrations up to 1400 $\mu\text{g/L}$ in well A-4. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this last monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. Groundwater monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix D.

DISCUSSION:

Groundwater levels were between historic minimum and maximum elevations for well A-3. New historic maximum groundwater elevations were established in all wells except for A-3. Likely reason for new historic maximums is from a rain event occurring prior to the monitoring and sampling event. Groundwater elevations yielded a potentiometric groundwater flow direction and horizontal gradient to the west-northwest at approximately 0.04 ft/ft, within the variable range of the historic flow direction and gradient data presented in Table 3.

This event's detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well. Analytes that were detected above laboratory limits this quarter stayed

within range/ decreased from the last sampling event except for TBA in A-8, it increased significantly from non-detect to 220 µg/L from last sampling event. Recent and historic laboratory analytical results are summarized in Table 1 and Table 2.

RECOMMENDATIONS:

No environmental work is currently scheduled to occur for the Second Quarter of 2011. The next environmental work to be conducted is scheduled for the Third Quarter of 2011.

LIMITATIONS:

The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by TestAmerica Laboratories, Inc. (Pleasanton, California), and our understanding of ACEH requirements. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of ARCADIS US., Inc and 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 March 18, 2011
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 Flow Direction and Gradient
Appendix A:	Field Methods
Appendix B:	Field Data Sheets
Appendix C:	Laboratory Report and Chain-of-Custody Documentation
Appendix D:	GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH:	Alameda County Environmental Health	ft/ft:	feet per foot
BAI:	Broadbent & Associates, Inc.	gal:	Gallons
BTEX:	Benzene, Toluene, Ethylbenzene, Total Xylenes	GRO:	Gasoline-Range Organics
1,2-DCA:	1,2-Dichloroethane	LNAPL:	Light Non-Aqueous Phase Liquid
DIPE:	Di-Isopropyl Ether	MTBE:	Methyl Tertiary Butyl Ether
DO:	Dissolved Oxygen	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:	Tertiary Butyl Ether
ETBE:	Ethyl Tertiary Butyl Ether	TOC:	Top of Casing
Fe ²⁺ :	Ferrous Iron	µg/L:	micrograms per liter

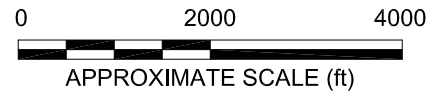
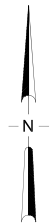
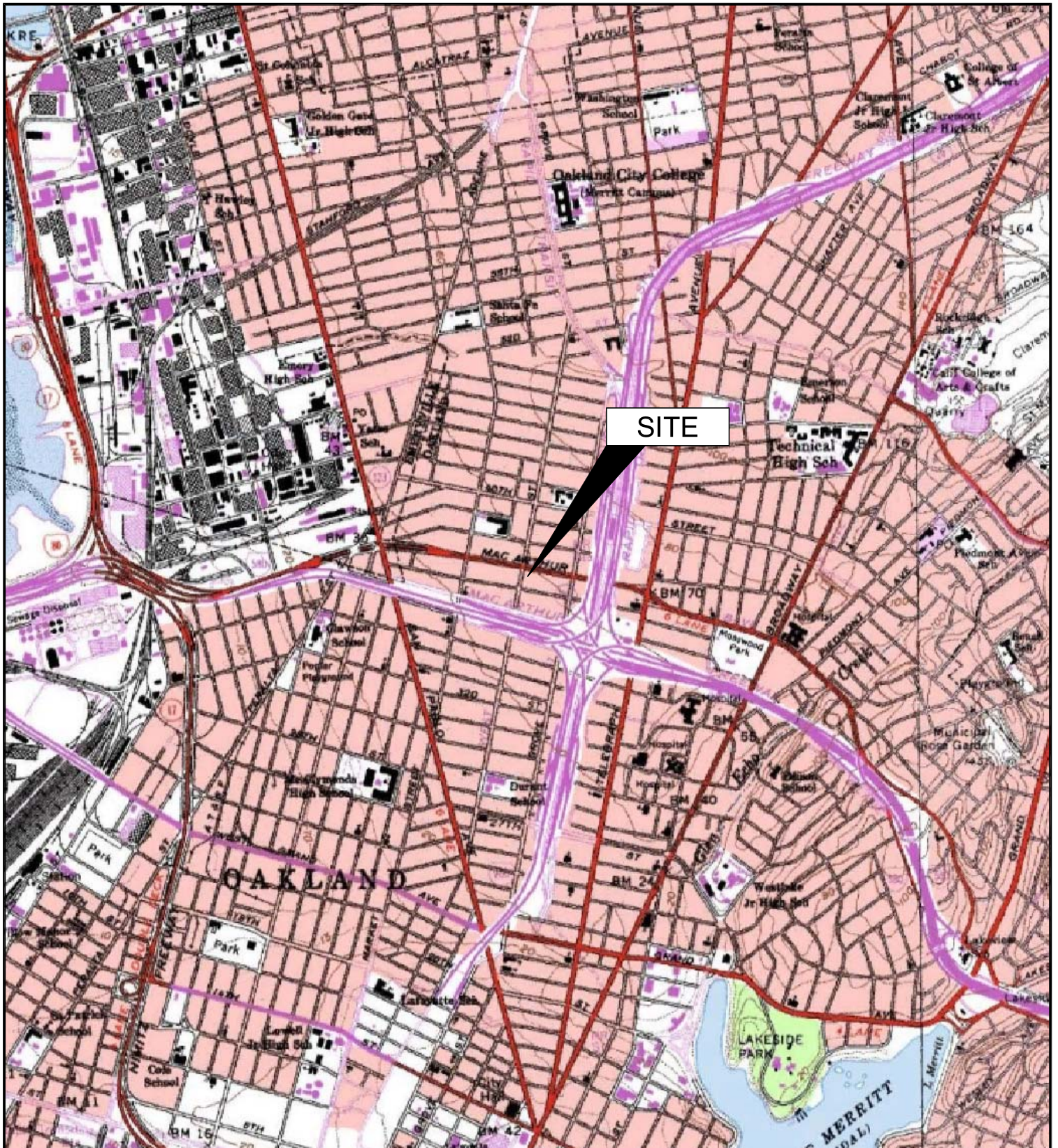


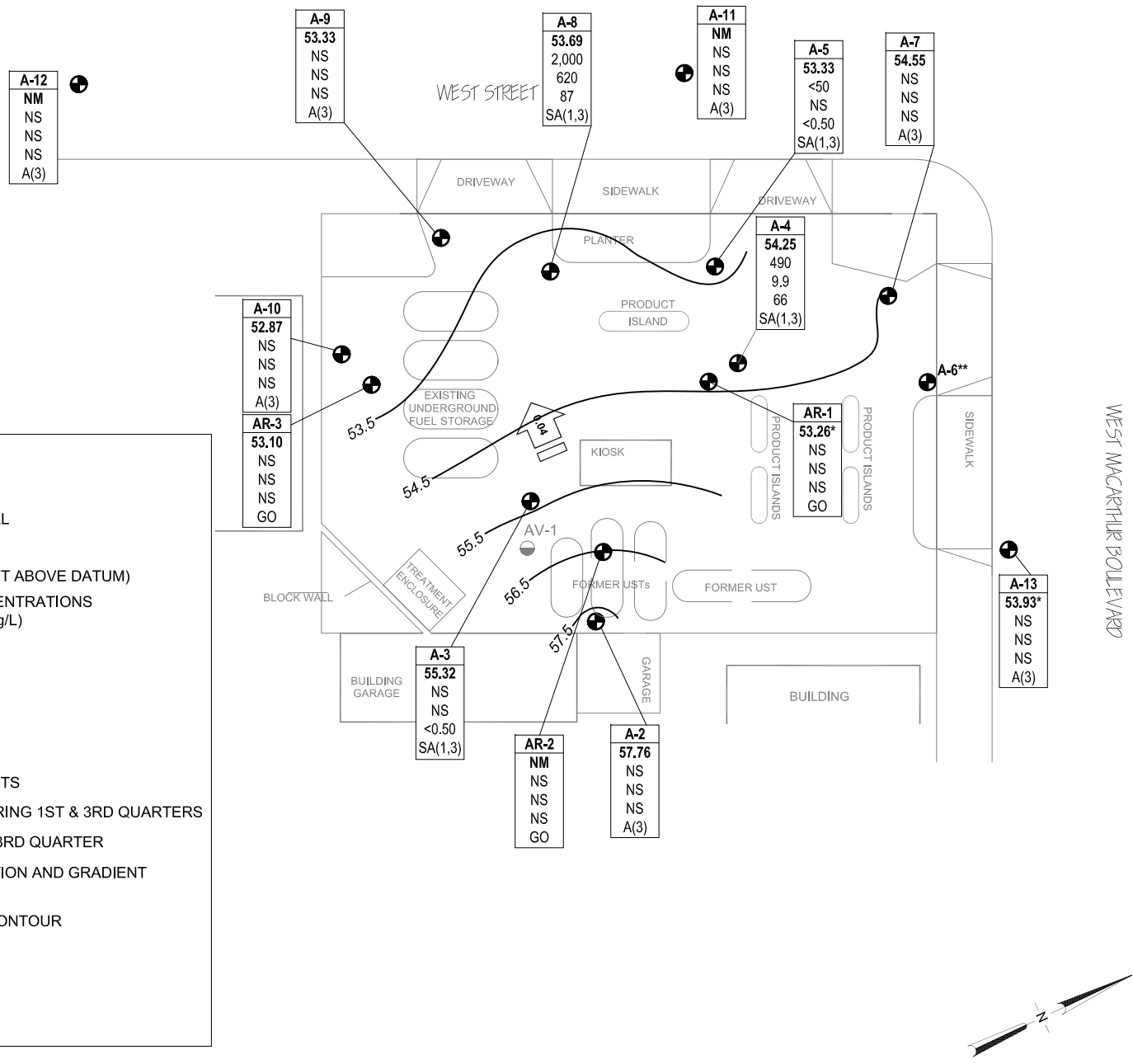
IMAGE SOURCE: USGS

BROADBENT & ASSOCIATES, INC
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
 1324 Mangrove Ave. Suite 212, Chico, CA 95926
 Project No.: 06-88-624 Date: 10/1/09

Station #4931
 731 West MacArthur Boulevard
 Oakland, California

Site Location Map

Drawing
1



LEGEND

- ⊕ MONITORING WELL
- SOIL VAPOR EXTRACTION WELL

Well	WELL DESIGNATION
ELEV	GROUNDWATER ELEVATION (FT ABOVE DATUM)
GRO	GRO, BENZENE & MTBE CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)
Benzene	
MTBE	
A/Q/SA	SAMPLING FREQUENCY

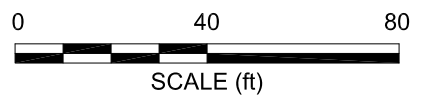
- GO GAUGE ONLY
- NM NOT MEASURED
- NS NOT SAMPLED
- < NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
- SA(1,3) SAMPLED SEMI-ANNUALLY DURING 1ST & 3RD QUARTERS
- A(3) SAMPLED ANNUALLY DURING 3RD QUARTER

← 0.024 GROUNDWATER FLOW DIRECTION AND GRADIENT (FEET/FOOT)

— 57.5 GROUNDWATER ELEVATION CONTOUR (FT ABOVE DATUM)

- * NOT USED IN CONTOURING
- ** PAVED OVER

NOTE: SITE MAP ADAPTED FROM URS FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926
Project No.: 09-88-624 Date: 4/21/2011

Station #4931
731 West MacArthur Boulevard
Oakland, California

Groundwater Elevation Contours
and Analytical Summary Map
March 18, 2011

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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															
6/21/2000	--	55.48	5.00	20.00	6.85	48.63	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	
9/20/2000	--		5.00	20.00	10.45	45.03	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/26/2000	--		5.00	20.00	6.27	49.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		5.00	20.00	4.57	50.91	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/12/2001	--		5.00	20.00	9.27	46.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		5.00	20.00	10.75	44.73	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/31/2001	--		5.00	20.00	4.13	51.35	<50	<0.5	<0.5	1	3.2	<2.5	--	--	
3/21/2002	--		5.00	20.00	3.26	52.22	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/17/2002	--		5.00	20.00	3.72	51.76	<50	<0.5	<0.5	<0.5	<0.5	3.1	--	--	
8/12/2002	NP		5.00	20.00	9.95	45.53	<10	<0.10	<0.10	<0.10	<0.10	<0.50	3.1	7.7	
12/6/2002	NP		5.00	20.00	10.01	45.47	<50	<0.50	<0.50	<0.50	<0.50	6	3.1	6.1	
1/30/2003	NP		5.00	20.00	5.08	50.40	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.6	6.7	
5/28/2003	--		5.00	20.00	4.82	50.66	<50	<0.50	<0.50	<0.50	<0.50	1.1	5.7	6.8	
8/6/2003	--		5.00	20.00	9.73	45.75	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.3	7.7	
11/14/2003	--		5.00	20.00	9.36	46.12	--	--	--	--	--	--	--	--	
02/02/2004	--	60.65	5.00	20.00	4.45	56.20	--	--	--	--	--	--	--	--	g
05/04/2004	--		5.00	20.00	6.79	53.86	--	--	--	--	--	--	--	--	
09/02/2004	NP		5.00	20.00	10.51	50.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.1	--	
11/10/2004	--		5.00	20.00	6.10	54.55	--	--	--	--	--	--	--	--	
02/02/2005	--		5.00	20.00	4.00	56.65	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	20.00	4.35	56.30	--	--	--	--	--	--	--	--	
08/11/2005	NP		5.00	20.00	9.08	51.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.9	h
11/18/2005	--		5.00	20.00	8.53	52.12	--	--	--	--	--	--	--	--	
02/15/2006	--		5.00	20.00	3.89	56.76	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	20.00	4.45	56.20	--	--	--	--	--	--	--	--	
8/11/2006	NP		5.00	20.00	9.03	51.62	160	<0.50	<0.50	<0.50	<0.50	3.6	0.16	5.9	
11/1/2006	--		5.00	20.00	9.98	50.67	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	20.00	7.51	53.14	--	--	--	--	--	--	--	--	
5/9/2007	--		5.00	20.00	4.57	56.08	--	--	--	--	--	--	--	--	
8/7/2007	NP		5.00	20.00	9.67	50.98	<50	<0.50	<0.50	<0.50	<0.50	3.4	2.18	7.17	

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
11/14/2007	--	60.65	5.00	20.00	7.84	52.81	--	--	--	--	--	--	--	--	
2/28/2008	--		5.00	20.00	3.30	57.35	--	--	--	--	--	--	--	--	
5/23/2008	--		5.00	20.00	8.80	51.85	--	--	--	--	--	--	--	--	
8/13/2008	NP		5.00	20.00	10.20	50.45	<50	<0.50	<0.50	<0.50	<0.50	19	0.87	9.29	
11/19/2008	--		5.00	20.00	9.20	51.45	--	--	--	--	--	--	--	--	
2/10/2009	--		5.00	20.00	7.83	52.82	--	--	--	--	--	--	--	--	
5/7/2009	--		5.00	20.00	4.40	56.25	--	--	--	--	--	--	--	--	
9/3/2009	NP		5.00	20.00	10.07	50.58	<50	<0.50	<0.50	<0.50	<0.50	12	1.03	6.86	k
3/23/2010	--		5.00	20.00	3.67	56.98	--	--	--	--	--	--	--	--	
8/16/2010	NP		5.00	20.00	9.40	51.25	<50	<0.50	<0.50	<0.50	<1.0	6.1	0.89	6.94	
3/18/2011	--		5.00	20.00	2.89	57.76	--	--	--	--	--	--	--	--	
A-3															
6/21/2000	--	54.66	5.00	20.00	9.48	45.18	<50	<0.5	<0.5	<0.5	<1.0	46	--	--	
9/20/2000	--		5.00	20.00	10.24	44.42	<50	<0.5	<0.5	<0.5	<0.5	89.6	--	--	
12/26/2000	--		5.00	20.00	9.58	45.08	<50	<0.5	<0.5	<0.5	<0.5	7.11	--	--	
3/20/2001	--		5.00	20.00	6.34	48.32	--	--	--	--	--	--	--	--	
6/12/2001	--		5.00	20.00	9.76	44.90	<50	<0.5	<0.5	<0.5	<0.5	86	--	--	
9/23/2001	--		5.00	20.00	10.55	44.11	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	20.00	3.70	50.96	<50	<0.5	<0.5	<0.5	1	60	--	--	
3/21/2002	--		5.00	20.00	5.75	48.91	--	--	--	--	--	--	--	--	
4/17/2002	--		5.00	20.00	7.27	47.39	<50	<0.5	<0.5	<0.5	<0.5	45	--	--	
8/12/2002	--		5.00	20.00	9.71	44.95	--	--	--	--	--	--	--	--	
12/6/2002	P		5.00	20.00	9.55	45.11	<500	<5.0	<5.0	<5.0	<5.0	150	2.4	6.6	
1/30/2003	--		5.00	20.00	6.05	48.61	--	--	--	--	--	--	--	--	
1/30/2003	--		5.00	20.00	6.05	48.61	--	--	--	--	--	--	--	--	
1/30/2003	--		5.00	20.00	6.05	48.61	--	--	--	--	--	--	--	--	
1/30/2003	--		5.00	20.00	6.05	48.61	--	--	--	--	--	--	--	--	
5/28/2003	--		5.00	20.00	8.06	46.60	74	<0.50	<0.50	<0.50	<0.50	43	1.5	6.9	
8/6/2003	--		5.00	20.00	9.91	44.75	--	--	--	--	--	--	--	--	
11/14/2003	--		5.00	20.00	9.52	45.14	--	--	--	--	--	--	--	--	

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
02/02/2004	P	59.32	5.00	20.00	5.63	53.69	<50	<0.50	<0.50	<0.50	<0.50	13	1.2	7.1	g
05/04/2004	--		5.00	20.00	8.14	51.18	--	--	--	--	--	--	--	--	
09/02/2004	P		5.00	20.00	10.10	49.22	<250	<2.5	<2.5	<2.5	<2.5	62	1.3	6.6	
11/10/2004	--		5.00	20.00	7.89	51.43	--	--	--	--	--	--	--	--	
02/02/2005	P		5.00	20.00	5.00	54.32	<50	<0.50	<0.50	<0.50	<0.50	6.8	1.9	6.9	
05/09/2005	--		5.00	20.00	5.96	53.36	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	20.00	9.28	50.04	<50	<0.50	<0.50	<0.50	<0.50	39	1.8	5.5	h
11/18/2005	--		5.00	20.00	8.61	50.71	--	--	--	--	--	--	--	--	
02/15/2006	P		5.00	20.00	4.36	54.96	<50	<0.50	<0.50	<0.50	<0.50	2.2	3.6	7.2	
5/30/2006	--		5.00	20.00	6.28	53.04	--	--	--	--	--	--	--	--	
8/11/2006	P		5.00	20.00	9.27	50.05	<50	<0.50	<0.50	<0.50	<0.50	4.1	2.10	6.4	
11/1/2006	--		5.00	20.00	9.52	49.80	--	--	--	--	--	--	--	--	
2/7/2007	NP		5.00	20.00	7.90	51.42	<50	<0.50	<0.50	<0.50	<0.50	0.58	1.74	7.70	
5/9/2007	--		5.00	20.00	6.55	52.77	--	--	--	--	--	--	--	--	
8/7/2007	NP		5.00	20.00	9.57	49.75	<50	<0.50	<0.50	<0.50	<0.50	3.9	0.95	6.82	
11/14/2007	--		5.00	20.00	8.00	51.32	--	--	--	--	--	--	--	--	
2/28/2008	P		5.00	20.00	3.75	55.57	<50	<0.50	<0.50	<0.50	<0.50	0.58	6.16	6.92	
5/23/2008	--		5.00	20.00	9.10	50.22	--	--	--	--	--	--	--	--	
8/13/2008	NP		5.00	20.00	9.80	49.52	<50	<0.50	<0.50	<0.50	<0.50	0.55	0.69	8.63	
11/19/2008	--		5.00	20.00	8.31	51.01	--	--	--	--	--	--	--	--	
2/10/2009	NP		5.00	20.00	7.30	52.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.90	7.14	
5/7/2009	--		5.00	20.00	6.10	53.22	--	--	--	--	--	--	--	--	
9/3/2009	NP		5.00	20.00	9.50	49.82	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.01	6.95	
3/23/2010	NP		5.00	20.00	4.45	54.87	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.58	6.71	
8/16/2010	NP		5.00	20.00	9.45	49.87	<50	<0.50	<0.50	<0.50	<1.0	0.72	1.05	7.45	
3/18/2011	NP		5.00	20.00	4.00	55.32	--	--	--	--	--	<0.50	1.15	7.7	
A-4															
6/21/2000	--	54.73	5.00	20.00	9.49	45.24	2,100	110	2.1	11	5.9	2,000	--	--	
9/20/2000	--		5.00	20.00	10.33	44.40	1,540	127	<5.0	9.07	7.42	1,940	--	--	
12/26/2000	--		5.00	20.00	9.34	45.39	1,550	42.7	<5.0	11	10.9	1,210	--	--	

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
3/20/2001	--	54.73	5.00	20.00	7.56	47.17	913	40.9	<5.0	15.5	14.6	<25	--	--	
6/12/2001	--		5.00	20.00	9.83	44.90	2,000	230	<20	21	<20	4,700	--	--	
9/23/2001	--		5.00	20.00	10.54	44.19	1,600	35	<10	<10	<10	3,000	--	--	
12/31/2001	--		5.00	20.00	5.42	49.31	<500	<5.0	<5.0	<5.0	<5.0	880	--	--	
3/21/2002	--		5.00	20.00	6.18	48.55	<5,000	<50	<50	<50	<50	1,400	--	--	
4/17/2002	--		5.00	20.00	7.34	47.39	1,300	79	31	17	55	2,200	--	--	
8/12/2002	P		5.00	20.00	9.56	45.17	2,400	120	<5.0	<5.0	<5.0	2,100	2	7.2	a
12/6/2002	P		5.00	20.00	10.02	44.71	2,200	110	10	42	56	2,000	--	6.7	
1/30/2003	P		5.00	20.00	7.55	47.18	6,000	180	<50	85	<50	2,100	1.8	6.8	
5/28/2003	--		5.00	20.00	8.94	45.79	6,000	120	<50	<50	<50	2,500	1.5	6.7	
8/6/2003	--		5.00	20.00	10.03	44.70	5,800	100	<25	<25	33	2,500	1.5	6.7	
11/14/2003	P		5.00	20.00	10.37	44.36	1,000	17	<5.0	<5.0	<5.0	310	1.6	6.8	d, f
02/02/2004	P	59.59	5.00	20.00	6.70	52.89	3,600	46	<25	<25	<25	1,500	1.0	7.1	d, g
05/04/2004	P		5.00	20.00	9.12	50.47	<5,000	<50	<50	<50	<50	2,300	6.4	6.8	d
09/02/2004	P		5.00	20.00	9.95	49.64	3,000	<25	<25	<25	<25	1,200	9.1	6.8	
11/10/2004	P		5.00	20.00	8.68	50.91	1,800	16	<10	<10	<10	1,100	2.0	7.2	
02/02/2005	P		5.00	20.00	6.92	52.67	3,300	120	<10	66	11	1,700	1.5	6.5	
05/09/2005	P		5.00	20.00	7.21	52.38	<5,000	140	<50	62	<50	1,800	1.64	6.6	
08/11/2005	P		5.00	20.00	9.71	49.88	1,700	51	<10	<10	<10	1,200	--	6.9	f, h
11/18/2005	P		5.00	20.00	9.45	50.14	1,300	23	<2.5	7.2	11	310	1.4	6.7	
02/15/2006	P		5.00	20.00	7.12	52.47	2,200	46	<2.5	29	7.0	910	0.9	6.8	
5/30/2006	P		5.00	20.00	7.95	51.64	3,300	95	<10	55	<10	1,200	1.76	6.5	
8/11/2006	P		5.00	20.00	9.50	50.09	350	93	<10	<10	<10	1,200	1.4	6.6	
11/1/2006	P		5.00	20.00	9.93	49.66	1,300	<10	<10	<10	<10	360	4.56	6.94	
2/7/2007	NP		5.00	20.00	8.82	50.77	4,900	85	<10	40	<10	1,500	0.72	6.86	
5/9/2007	NP		5.00	20.00	7.56	52.03	1,700	19	<10	<10	<10	340	3.00	7.03	
8/7/2007	NP		5.00	20.00	9.80	49.79	2,700	69	<5.0	<5.0	<5.0	510	1.04	6.95	
11/14/2007	NP		5.00	20.00	8.65	50.94	500	4.9	<0.50	<0.50	<0.50	280	1.27	6.94	
2/28/2008	NP		5.00	20.00	6.15	53.44	850	17	<0.50	4.4	1.4	350	1.76	7.03	
5/23/2008	NP		5.00	20.00	9.40	50.19	1,900	75	<20	<20	<20	1,000	1.28	6.58	

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ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
8/13/2008	NP	59.59	5.00	20.00	9.92	49.67	3,100	47	<10	<10	<10	530	0.89	8.97	
11/19/2008	NP		5.00	20.00	9.19	50.40	1,800	70	<10	21	<10	430	0.83	6.50	
2/10/2009	NP		5.00	20.00	7.68	51.91	1,900	33	<10	14	<10	400	0.87	7.31	
5/7/2009	NP		5.00	20.00	7.31	52.28	<50	<0.50	<0.50	<0.50	<0.50	9.9	2.40	7.10	
9/3/2009	NP		5.00	20.00	10.02	49.57	3,800	49	<10	<10	<10	360	0.79	6.75	
3/23/2010	NP		5.00	20.00	6.62	52.97	820	17	<0.50	5.0	1.3	150	1.37	6.54	
8/16/2010	NP		5.00	20.00	9.85	49.74	1,600	18	0.50	0.56	<1.0	160	0.10	6.64	
3/18/2011	NP		5.00	20.00	5.34	54.25	490	9.9	<0.50	1.9	<1.0	66	3.39	6.7	
A-5															
6/21/2000	--	54.17	3.00	24.00	9.29	44.88	980	<0.5	<0.5	<0.5	<1.0	2,000	--	--	
9/20/2000	--		3.00	24.00	10.23	43.94	--	--	--	--	--	--	--	--	
12/26/2000	--		3.00	24.00	9.65	44.52	525	<0.5	<0.5	<0.5	<0.5	1,200	--	--	
3/20/2001	--		3.00	24.00	8.05	46.12	--	--	--	--	--	--	--	--	
6/12/2001	--		3.00	24.00	9.81	44.36	830	<5.0	<5.0	<5.0	<5.0	3,200	--	--	
9/23/2001	--		3.00	24.00	10.42	43.75	--	--	--	--	--	--	--	--	
12/31/2001	--		3.00	24.00	6.03	48.14	320	<0.5	<0.5	<0.5	<0.5	60	--	--	
3/21/2002	--		3.00	24.00	6.71	47.46	--	--	--	--	--	--	--	--	
4/17/2002	--		3.00	24.00	8.01	46.16	1,600	<10	<10	<10	<10	3,200	--	--	
8/12/2002	--		3.00	24.00	9.87	44.30	--	--	--	--	--	--	--	--	
12/6/2002	P		3.00	24.00	9.66	44.51	310	<0.50	<0.50	<0.50	<0.50	330	1.9	6.6	
1/30/2003	--		3.00	24.00	7.67	46.50	--	--	--	--	--	--	--	--	
5/28/2003	--		3.00	24.00	8.56	45.61	<5,000	<50	<50	<50	<50	1,500	1.6	6.6	
8/6/2003	--		3.00	24.00	9.58	44.59	--	--	--	--	--	--	--	--	
11/14/2003	--		3.00	24.00	9.81	44.36	--	--	--	--	--	--	--	--	
02/02/2004	P	58.78	3.00	24.00	7.43	51.35	390	<2.5	9.2	<2.5	2.6	140	1.0	6.8	ug
05/04/2004	--		3.00	24.00	9.98	48.80	--	--	--	--	--	--	--	--	
09/02/2004	P		3.00	24.00	9.65	49.13	<250	<2.5	<2.5	<2.5	<2.5	66	1.1	6.4	
11/10/2004	--		3.00	24.00	8.48	50.30	--	--	--	--	--	--	--	--	
02/02/2005	P		3.00	24.00	7.10	51.68	68	<0.50	<0.50	<0.50	<0.50	17	1.0	7.2	
05/09/2005	--		3.00	24.00	7.20	51.58	--	--	--	--	--	--	--	--	

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ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
02/15/2006	P	58.78	3.00	24.00	7.16	51.62	<50	<0.50	<0.50	<0.50	<0.50	5.1	1.2	6.9	
5/30/2006	--		3.00	24.00	7.87	50.91	--	--	--	--	--	--	--	--	
8/11/2006	P		3.00	24.00	8.90	49.88	920	<0.50	<0.50	<0.50	<0.50	12	1.4	6.7	
11/1/2006	--		3.00	24.00	9.30	49.48	--	--	--	--	--	--	--	--	
2/7/2007	NP		3.00	24.00	8.50	50.28	60	<0.50	<0.50	<0.50	<0.50	1.5	0.73	7.14	i
5/9/2007	--		3.00	24.00	7.60	51.18	--	--	--	--	--	--	--	--	
8/7/2007	NP		3.00	24.00	9.30	49.48	<50	<0.50	<0.50	<0.50	<0.50	0.81	0.41	7.18	
11/14/2007	--		3.00	24.00	8.48	50.30	--	--	--	--	--	--	--	--	
2/28/2008	NP		3.00	24.00	6.21	52.57	<50	<0.50	<0.50	<0.50	<0.50	0.97	2.24	7.40	
5/23/2008	--		3.00	24.00	8.97	49.81	--	--	--	--	--	--	--	--	
8/13/2008	NP		3.00	24.00	9.42	49.36	<50	<0.50	<0.50	<0.50	<0.50	0.69	0.62	8.96	
11/19/2008	--		3.00	24.00	8.91	49.87	--	--	--	--	--	--	--	--	
2/10/2009	NP		3.00	24.00	7.80	50.98	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.85	7.52	
5/7/2009	--		3.00	24.00	7.37	51.41	--	--	--	--	--	--	--	--	
9/3/2009	NP		3.00	24.00	9.33	49.45	<50	<0.50	<0.50	<0.50	<0.50	20	0.91	6.68	
3/23/2010	NP		3.00	24.00	6.84	51.94	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.20	6.67	
8/16/2010	NP		3.00	24.00	8.85	49.93	<50	<0.50	<0.50	<0.50	<1.0	7.9	0.97	6.84	
3/18/2011	NP		3.00	24.00	5.45	53.33	<50	--	--	--	--	<0.50	2.72	6.6	
A-6															
6/21/2000	--	55.17	3.00	25.00	8.67	46.50	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	
9/20/2000	--		3.00	25.00	9.34	45.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/26/2000	--		3.00	25.00	8.65	46.52	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		3.00	25.00	6.84	48.33	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/12/2001	--		3.00	25.00	8.93	46.24	<50	<0.5	<0.5	<0.5	<0.5	7	--	--	
9/23/2001	--		3.00	25.00	9.74	45.43	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/31/2001	--		3.00	25.00	4.81	50.36	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--	
3/21/2002	--		3.00	25.00	5.44	49.73	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/17/2002	--		3.00	25.00	6.95	48.22	<50	<0.5	<0.5	<0.5	<0.5	3.1	--	--	
8/12/2002	NP		3.00	25.00	8.90	46.27	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.3	7.9	
12/6/2002	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e

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ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
8/12/2002	NP	55.17	3.00	25.00	8.90	46.27	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.3	7.9	
12/6/2002	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
1/30/2003	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
5/28/2003	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
8/6/2003	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
11/14/2003	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	Well inaccessible e
02/02/2004	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	Well inaccessible e
05/04/2004	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	Well inaccessible e
09/02/2004	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	Well inaccessible e
11/10/2004	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	Well inaccessible e
02/02/2005	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
05/09/2005	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
08/11/2005	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
11/18/2005	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
2/15/2006	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
5/30/2006	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
8/11/2006	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
11/1/2006	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	e
A-7															
6/21/2000	--	54.71	3.00	22.00	8.58	46.13	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	
9/20/2000	--		3.00	22.00	9.19	45.52	--	--	--	--	--	--	--	--	
12/26/2000	--		3.00	22.00	8.50	46.21	--	--	--	--	--	--	--	--	
3/20/2001	--		3.00	22.00	6.75	47.96	--	--	--	--	--	--	--	--	
6/12/2001	--		3.00	22.00	8.80	45.91	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		3.00	22.00	9.59	45.12	--	--	--	--	--	--	--	--	
12/31/2001	--		3.00	22.00	4.78	49.93	--	--	--	--	--	--	--	--	
3/21/2002	--		3.00	22.00	5.35	49.36	--	--	--	--	--	--	--	--	
4/17/2002	--		3.00	22.00	6.88	47.83	<50	<0.5	<0.5	<0.5	<0.5	2.5	--	--	
8/12/2002	--		3.00	22.00	8.77	45.94	--	--	--	--	--	--	--	--	
12/6/2002	--		3.00	22.00	9.07	45.64	--	--	--	--	--	--	--	--	

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ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-7 Cont.															
1/30/2003	--	54.71	3.00	22.00	6.65	48.06	--	--	--	--	--	--	--	--	
5/28/2003	--		3.00	22.00	7.63	47.08	<50	<0.50	<0.50	<0.50	<0.50	3.8	2.3	6.7	
8/6/2003	--		3.00	22.00	8.90	45.81	--	--	--	--	--	--	--	--	
11/14/2003	--		3.00	22.00	9.08	45.63	--	--	--	--	--	--	--	--	
02/02/2004	--	59.75	3.00	22.00	5.96	53.79	--	--	--	--	--	--	--	--	g
05/04/2004	--		3.00	22.00	8.21	51.54	--	--	--	--	--	--	--	--	
09/02/2004	P		3.00	22.00	9.02	50.73	<50	<0.50	<0.50	<0.50	<0.50	8.9	3.0	6.7	
11/10/2004	--		3.00	22.00	7.50	52.25	--	--	--	--	--	--	--	--	
02/02/2005	--		3.00	22.00	6.10	53.65	--	--	--	--	--	--	--	--	
05/09/2005	--		3.00	22.00	6.48	53.27	--	--	--	--	--	--	--	--	
08/11/2005	P		3.00	22.00	8.45	51.30	<50	<0.50	<0.50	<0.50	<0.50	18	1.6	6.6	h
11/18/2005	--		3.00	22.00	8.65	51.10	--	--	--	--	--	--	--	--	
02/15/2006	--		3.00	22.00	6.51	53.24	--	--	--	--	--	--	--	--	
5/30/2006	--		3.00	22.00	7.13	52.62	--	--	--	--	--	--	--	--	
8/11/2006	P		3.00	22.00	8.46	51.29	<50	<0.50	<0.50	<0.50	<0.50	3.6	1.7	6.7	
11/1/2006	--		3.00	22.00	8.99	50.76	--	--	--	--	--	--	--	--	
2/7/2007	--		3.00	22.00	8.12	51.63	--	--	--	--	--	--	--	--	
5/9/2007	--		3.00	22.00	7.04	52.71	--	--	--	--	--	--	--	--	
8/7/2007	NP		3.00	22.00	9.10	50.65	<50	<0.50	<0.50	<0.50	<0.50	2.7	1.34	7.09	
11/14/2007	--		3.00	22.00	8.00	51.75	--	--	--	--	--	--	--	--	
2/28/2008	--		3.00	22.00	5.81	53.94	--	--	--	--	--	--	--	--	
5/23/2008	--		3.00	22.00	8.74	51.01	--	--	--	--	--	--	--	--	
8/13/2008	NP		3.00	22.00	9.27	50.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.05	8.45	
11/19/2008	--		3.00	22.00	8.67	51.08	--	--	--	--	--	--	--	--	
2/10/2009	--		3.00	22.00	7.47	52.28	--	--	--	--	--	--	--	--	
5/7/2009	--		3.00	22.00	6.88	52.87	--	--	--	--	--	--	--	--	
9/3/2009	NP		3.00	22.00	9.25	50.50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.93	6.78	
3/23/2010	--		3.00	22.00	6.33	53.42	--	--	--	--	--	--	--	--	
8/16/2010	NP		3.00	22.00	9.13	50.62	<50	<0.50	<0.50	<0.50	<1.0	<0.50	0.73	6.72	
3/18/2011	--		3.00	22.00	5.20	54.55	--	--	--	--	--	--	--	--	

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-8															
6/21/2000	--	53.77	3.00	25.00	9.07	44.70	810	<0.5	<0.5	<0.5	810	1,500	--	--	
9/20/2000	--		3.00	25.00	9.72	44.05	10,800	2,680	46	439	370	4,410	--	--	
12/26/2000	--		3.00	25.00	9.20	44.57	7,700	1,440	<50	202	106	2,230	--	--	
3/20/2001	--		3.00	25.00	7.51	46.26	<5,000	1,280	<50	53.9	<50	2,880	--	--	
6/12/2001	--		3.00	25.00	9.53	44.24	5,600	1,700	<50	61	54	2,900	--	--	
9/23/2001	--		3.00	25.00	10.08	43.69	10,000	3,500	<50	110	64	6,500	--	--	
12/31/2001	--		3.00	25.00	4.34	49.43	4,300	610	<10	60	24	520	--	--	
3/21/2002	--		3.00	25.00	6.67	47.10	6,600	1,400	<50	130	<50	2,700	--	--	
4/17/2002	--		3.00	25.00	7.72	46.05	3,800	540	<10	<10	12	3,100	--	--	
8/12/2002	NP		3.00	25.00	9.64	44.13	9,400	1,800	<20	35	28	4,200	1	6.7	
12/6/2002	NP		3.00	25.00	9.62	44.15	5,300	1,100	11	11	<10	2,200	1.4	6.7	b
1/30/2003	NP		3.00	25.00	7.49	46.28	<10,000	1,100	<100	<100	<100	2,200	1.5	6.9	
5/28/2003	--		3.00	25.00	9.17	44.60	7,700	1,700	<50	<50	<50	2,100	1	6.8	
8/6/2003	--		3.00	25.00	9.67	44.10	13,000	2,400	<50	<50	<50	3,000	0.9	6.5	
11/14/2003	NP		3.00	25.00	9.80	43.97	3,100	570	<5.0	<5.0	<5.0	850	2.3	6.2	d
02/02/2004	NP	58.70	3.00	25.00	7.10	51.60	3,900	300	<25	<25	<25	1,100	1.1	6.8	d, g
05/04/2004	NP		3.00	25.00	9.44	49.26	<5,000	490	<50	<50	<50	1,600	1.0	6.9	
09/02/2004	NP		3.00	25.00	9.67	49.03	<2,500	30	<25	<25	<25	680	1.0	6.2	
11/10/2004	NP		3.00	25.00	8.15	50.55	580	61	<2.5	<2.5	<2.5	290	1.5	6.4	
02/02/2005	NP		3.00	25.00	6.53	52.17	5,000	890	<25	<25	<25	1,900	1.0	7.4	
05/09/2005	NP		3.00	25.00	6.31	52.39	69	0.90	<0.50	<0.50	<0.50	66	4.1	7.2	
08/11/2005	NP		3.00	25.00	9.15	49.55	1,400	1,300	<12	<12	<12	1,100	0.7	6.4	h
11/18/2005	NP		3.00	25.00	8.89	49.81	1,200	420	<5.0	<5.0	<5.0	340	0.7	7.0	
02/15/2006	NP		3.00	25.00	6.34	52.36	3,200	970	<10	<10	<10	1,100	0.9	6.1	
5/30/2006	NP		3.00	25.00	7.53	51.17	510	210	<2.5	<2.5	<2.5	140	2.6	6.7	
8/11/2006	P		3.00	25.00	8.90	49.80	1,300	500	<5.0	<5.0	<5.0	290	0.7	7.0	i
11/1/2006	P		3.00	25.00	9.15	49.55	4,800	790	6.6	<5.0	<5.0	910	1.72	7.11	
2/7/2007	NP		3.00	25.00	8.48	50.22	7,600	2,300	<25	<25	<25	1,200	1.25	7.11	
5/9/2007	NP		3.00	25.00	7.25	51.45	750	180	<2.5	<2.5	<2.5	55	1.75	7.14	
8/7/2007	NP		3.00	25.00	9.17	49.53	2,100	700	4.0	<2.5	<2.5	430	0.77	6.95	

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ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-8 Cont.															
11/14/2007	NP	58.70	3.00	25.00	7.77	50.93	990	300	2.5	0.68	0.96	100	1.01	6.73	
2/28/2008	NP		3.00	25.00	5.14	53.56	2,100	670	<5.0	<5.0	<5.0	220	1.67	7.09	
5/23/2008	--		3.00	25.00	--	--	--	--	--	--	--	--	--	--	j
8/13/2008	NP		3.00	25.00	9.48	49.22	3,100	970	<25	<25	<25	250	0.84	8.73	
11/19/2008	NP		3.00	25.00	8.87	49.83	3,800	1,000	<20	<20	<20	230	0.89	6.87	
2/10/2009	NP		3.00	25.00	7.11	51.59	3,600	1,300	<25	<25	<25	320	0.89	6.87	
5/7/2009	NP		3.00	25.00	6.47	52.23	270	65	<1.0	<1.0	<1.0	12	0.97	6.56	
9/3/2009	NP		3.00	25.00	9.47	49.23	3,200	1,400	<25	<25	<25	100	0.87	6.51	
3/23/2010	NP		3.00	25.00	6.12	52.58	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.69	6.75	
8/16/2010	NP		3.00	25.00	9.27	49.43	4,300	1,600	12	5.3	6.1	110	1.05	6.70	
3/18/2011	NP		3.00	25.00	5.01	53.69	2,000	620	4.7	0.96	1.4	87	4.36	6.8	
A-9															
6/21/2000	--	53.04	5.00	40.00	8.56	44.48	<50	<0.5	<0.5	<0.5	<1.0	5	--	--	
9/20/2000	--		5.00	40.00	9.05	43.99	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/26/2000	--		5.00	40.00	8.49	44.55	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		5.00	40.00	6.95	46.09	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/12/2001	--		5.00	40.00	8.67	44.37	<50	<0.5	<0.5	<0.5	<0.5	4.8	--	--	
9/23/2001	--		5.00	40.00	9.21	43.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/31/2001	--		5.00	40.00	4.57	48.47	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		5.00	40.00	5.60	47.44	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/17/2002	--		5.00	40.00	6.89	46.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/12/2002	P		5.00	40.00	8.71	44.33	<50	<0.50	<0.50	<0.50	<0.50	<2.5	4	7.6	
12/6/2002	P		5.00	40.00	8.77	44.27	<50	<0.50	<0.50	<0.50	<0.50	<2.0	1.1	6.7	
1/30/2003	P		5.00	40.00	6.88	46.16	<50	<0.50	<0.50	<0.50	<0.50	1.1	0.9	6.8	
5/28/2003	--		5.00	40.00	9.75	43.29	<50	<0.50	<0.50	<0.50	<0.50	0.74	1.9	6.8	
8/6/2003	--		5.00	40.00	9.00	44.04	<50	<0.50	<0.50	<0.50	<0.50	1.8	2.2	6.7	
11/14/2003	--		5.00	40.00	8.82	44.22	--	--	--	--	--	--	--	--	d
02/02/2004	--	57.73	5.00	40.00	7.10	50.63	--	--	--	--	--	--	--	--	d, g
05/04/2004	--		5.00	40.00	8.12	49.61	--	--	--	--	--	--	--	--	
09/02/2004	P		5.00	40.00	8.78	48.95	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.6	6.5	

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-9 Cont.															
11/10/2004	--	57.73	5.00	40.00	7.88	49.85	--	--	--	--	--	--	--	--	
02/02/2005	--		5.00	40.00	6.40	51.33	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	40.00	6.82	50.91	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	40.00	8.37	49.36	<50	<0.50	<0.50	<0.50	<0.50	1.5	1.8	6.7	
11/18/2005	--		5.00	40.00	8.24	49.49	--	--	--	--	--	--	--	--	
02/15/2006	--		5.00	40.00	6.38	51.35	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	40.00	7.17	50.56	--	--	--	--	--	--	--	--	
8/11/2006	P		5.00	40.00	8.20	49.53	<50	<0.50	<0.50	<0.50	<0.50	1.6	1.02	6.6	
11/1/2006	--		5.00	40.00	8.90	48.83	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	40.00	7.83	49.90	--	--	--	--	--	--	--	--	
5/9/2007	--		5.00	40.00	6.92	50.81	--	--	--	--	--	--	--	--	
8/7/2007	NP		5.00	40.00	8.58	49.15	<50	<0.50	<0.50	<0.50	<0.50	0.64	1.81	6.90	
11/14/2007	--		5.00	40.00	7.77	49.96	--	--	--	--	--	--	--	--	
2/28/2008	--		5.00	40.00	5.61	52.12	--	--	--	--	--	--	--	--	
5/23/2008	--		5.00	40.00	--	--	--	--	--	--	--	--	--	--	j
8/13/2008	NP		5.00	40.00	8.65	49.08	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.55	9.04	
11/19/2008	--		5.00	40.00	8.49	49.24	--	--	--	--	--	--	--	--	
2/10/2009	--		5.00	40.00	7.07	50.66	--	--	--	--	--	--	--	--	
5/7/2009	--		5.00	40.00	6.65	51.08	--	--	--	--	--	--	--	--	
9/3/2009	NP		5.00	40.00	8.56	49.17	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.89	6.86	
3/23/2010	--		5.00	40.00	5.98	51.75	--	--	--	--	--	--	--	--	
8/16/2010	NP		5.00	40.00	8.32	49.41	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.06	6.82	
3/18/2011	--		5.00	40.00	4.40	53.33	--	--	--	--	--	--	--	--	
A-10															
6/21/2000	--	54.26	5.00	30.00	10.47	43.79	--	--	--	--	--	--	--	--	
9/20/2000	--		5.00	30.00	10.76	43.50	--	--	--	--	--	--	--	--	
12/26/2000	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
3/20/2001	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
9/23/2001	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	

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

ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-10 Cont.															
3/21/2002	--	54.26	5.00	30.00	--	--	--	--	--	--	--	--	--	--	
4/17/2002	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
8/12/2002	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
12/6/2002	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
1/30/2003	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
5/28/2003	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
8/6/2003	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	
11/14/2003	--		5.00	30.00	10.37	43.89	--	--	--	--	--	--	--	--	
02/02/2004	--	59.39	5.00	30.00	7.97	51.42	--	--	--	--	--	--	--	--	g
05/04/2004	--		5.00	30.00	8.69	50.70	--	--	--	--	--	--	--	--	
09/02/2004	P		5.00	30.00	10.55	48.84	<500	<5.0	<5.0	<5.0	<5.0	270	0.8	6.6	
11/10/2004	--		5.00	30.00	9.16	50.23	--	--	--	--	--	--	--	--	
02/02/2005	--		5.00	30.00	7.90	51.49	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	30.00	8.21	51.18	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	30.00	10.02	49.37	69	<0.50	<0.50	<0.50	<0.50	97	0.9	6.6	h, i
11/18/2005	--		5.00	30.00	9.86	49.53	--	--	--	--	--	--	--	--	
02/15/2006	--		5.00	30.00	7.53	51.86	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	30.00	8.82	50.57	--	--	--	--	--	--	--	--	
8/11/2006	P		5.00	30.00	9.88	49.51	<50	<0.50	<0.50	<0.50	<0.50	46	1.3	6.8	
11/1/2006	--		5.00	30.00	10.28	49.11	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	30.00	9.50	49.89	--	--	--	--	--	--	--	--	
5/9/2007	--		5.00	30.00	8.67	50.72	--	--	--	--	--	--	--	--	
8/7/2007	NP		5.00	30.00	10.25	49.14	<50	<0.50	<0.50	<0.50	<0.50	8.9	0.59	6.89	
11/14/2007	--		5.00	30.00	9.48	49.91	--	--	--	--	--	--	--	--	
2/28/2008	--		5.00	30.00	7.23	52.16	--	--	--	--	--	--	--	--	
5/23/2008	--		5.00	30.00	9.94	49.45	--	--	--	--	--	--	--	--	
8/13/2008	NP		5.00	30.00	10.30	49.09	<50	<0.50	<0.50	<0.50	<0.50	28	0.74	9.16	
11/19/2008	--		5.00	30.00	9.90	49.49	--	--	--	--	--	--	--	--	
2/10/2009	--		5.00	30.00	8.74	50.65	--	--	--	--	--	--	--	--	
5/7/2009	--		5.00	30.00	8.23	51.16	--	--	--	--	--	--	--	--	1

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-10 Cont.															
9/3/2009	--	59.39	5.00	30.00	--	--	--	--	--	--	--	--	--	--	j, l
3/23/2010	--		5.00	30.00	7.65	51.74	--	--	--	--	--	--	--	--	
8/16/2010	NP		5.00	30.00	10.05	49.34	<50	<0.50	<0.50	<0.50	<1.0	3.9	1.02	7.03	
3/18/2011	--		5.00	30.00	6.52	52.87	--	--	--	--	--	--	--	--	
A-11															
6/21/2000	--	53.74	5.00	30.00	9.54	44.20	<50	<0.5	<0.5	<0.5	<1.0	4	--	--	
9/20/2000	--		5.00	30.00	10.62	43.12	--	--	--	--	--	--	--	--	
12/26/2000	--		5.00	30.00	10.03	43.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		5.00	30.00	8.49	45.25	--	--	--	--	--	--	--	--	
6/12/2001	--		5.00	30.00	10.21	43.53	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		5.00	30.00	10.77	42.97	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	30.00	6.06	47.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		5.00	30.00	7.14	46.60	--	--	--	--	--	--	--	--	
4/17/2002	--		5.00	30.00	8.41	45.33	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/12/2002	--		5.00	30.00	10.25	43.49	--	--	--	--	--	--	--	--	
12/6/2002	P		5.00	30.00	10.43	43.31	<50	<0.50	<0.50	<0.50	<0.50	<2.0	2.4	6.7	
1/30/2003	--		5.00	30.00	8.42	45.32	--	--	--	--	--	--	--	--	
5/28/2003	--		5.00	30.00	9.30	44.44	<50	<0.50	<0.50	<0.50	<0.50	0.53	1.8	7	
8/6/2003	--		5.00	30.00	10.28	43.46	--	--	--	--	--	--	--	--	
11/14/2003	--		5.00	30.00	10.40	43.34	--	--	--	--	--	--	--	--	
02/02/2004	--	59.16	5.00	30.00	7.95	51.21	--	--	--	--	--	--	--	--	g
05/04/2004	--		5.00	30.00	8.72	50.44	--	--	--	--	--	--	--	--	
09/02/2004	P		5.00	30.00	10.44	48.72	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.6	6.6	
11/10/2004	--		5.00	30.00	9.20	49.96	--	--	--	--	--	--	--	--	
02/02/2005	--		5.00	30.00	7.95	51.21	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	30.00	8.07	51.09	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	30.00	9.87	49.29	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.8	6.7	h
11/18/2005	--		5.00	30.00	8.88	50.28	--	--	--	--	--	--	--	--	
02/15/2006	--		5.00	30.00	7.90	51.26	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	30.00	8.78	50.38	--	--	--	--	--	--	--	--	

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ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-11 Cont.															
8/11/2006	P	59.16	5.00	30.00	10.33	48.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.8	6.8	
11/1/2006	--		5.00	30.00	10.10	49.06	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	30.00	9.35	49.81	--	--	--	--	--	--	--	--	
5/9/2007	--		5.00	30.00	8.48	50.68	--	--	--	--	--	--	--	--	
8/7/2007	NP		5.00	30.00	10.10	49.06	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.67	7.07	
11/14/2007	--		5.00	30.00	9.31	49.85	--	--	--	--	--	--	--	--	
2/28/2008	--		5.00	30.00	7.12	52.04	--	--	--	--	--	--	--	--	
5/23/2008	--		5.00	30.00	9.77	49.39	--	--	--	--	--	--	--	--	
8/13/2008	NP		5.00	30.00	10.08	49.08	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.89	8.94	
11/19/2008	--		5.00	30.00	9.75	49.41	--	--	--	--	--	--	--	--	
2/10/2009	--		5.00	30.00	8.67	50.49	--	--	--	--	--	--	--	--	
5/7/2009	--		5.00	30.00	8.20	50.96	--	--	--	--	--	--	--	--	
9/3/2009	NP		5.00	30.00	10.15	49.01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.98	6.78	
3/23/2010	--		5.00	30.00	7.70	51.46	--	--	--	--	--	--	--	--	
8/16/2010	NP		5.00	30.00	9.90	49.26	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.60	6.86	
3/18/2011	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	m
A-12															
6/21/2000	--	52.05	5.00	30.00	9.28	42.77	<50	<0.5	<0.5	<0.5	<1.0	18	--	--	
9/20/2000	--		5.00	30.00	9.55	42.50	--	--	--	--	--	--	--	--	
12/26/2000	--		5.00	30.00	9.05	43.00	<50	<0.5	<0.5	<0.5	<0.5	17.3	--	--	
3/20/2001	--		5.00	30.00	7.92	44.13	--	--	--	--	--	--	--	--	
6/12/2001	--		5.00	30.00	9.26	42.79	<50	<0.5	<0.5	<0.5	<0.5	25	--	--	
9/23/2001	--		5.00	30.00	9.68	42.37	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	30.00	5.74	46.31	<50	<0.5	<0.5	<0.5	<0.5	9.5	--	--	
3/21/2002	--		5.00	30.00	6.64	45.41	--	--	--	--	--	--	--	--	
4/17/2002	--		5.00	30.00	7.68	44.37	<50	<0.5	<0.5	<0.5	<0.5	29	--	--	
8/12/2002	--		5.00	30.00	9.30	42.75	--	--	--	--	--	--	--	--	
12/06/02	P		5.00	30.00	9.38	42.67	<50	<0.50	<0.50	<0.50	<0.50	13	2.3	6.5	c
1/30/2003	--		5.00	30.00	7.87	44.18	--	--	--	--	--	--	--	--	
5/28/2003	--		5.00	30.00	8.51	43.54	50	<0.50	<0.50	<0.50	<0.50	10	1.4	7	

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Well and Sample Date	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-12 Cont.															
8/6/2003	--	52.05	5.00	30.00	9.28	42.77	--	--	--	--	--	--	--	--	
11/14/2003	--		5.00	30.00	9.37	42.68	--	--	--	--	--	--	--	--	
02/02/2004	P	57.06	5.00	30.00	7.90	49.16	<50	<0.50	<0.50	<0.50	<0.50	0.91	1.0	6.9	g
05/04/2004	--		5.00	30.00	8.74	48.32	--	--	--	--	--	--	--	--	
09/02/2004	P		5.00	30.00	9.41	47.65	<50	<0.50	<0.50	<0.50	<0.50	6.2	1.1	6.5	
11/10/2004	--		5.00	30.00	8.32	48.74	--	--	--	--	--	--	--	--	
02/02/2005	P		5.00	30.00	7.45	49.61	<50	<0.50	<0.50	<0.50	<0.50	8.3	1.4	7.1	
05/09/2005	--		5.00	30.00	7.57	49.49	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	30.00	9.05	48.01	<50	<0.50	<0.50	<0.50	<0.50	5.4	0.9	6.4	h
11/18/2005	--		5.00	30.00	8.90	48.16	--	--	--	--	--	--	--	--	
02/15/2006	--		5.00	30.00	7.47	49.59	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	30.00	8.21	48.85	--	--	--	--	--	--	--	--	
8/11/2006	P		5.00	30.00	8.85	48.21	<50	<0.50	<0.50	<0.50	<0.50	7.4	1.8	6.9	
11/1/2006	--		5.00	30.00	9.17	47.89	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	30.00	8.58	48.48	--	--	--	--	--	--	--	--	
5/9/2007	--		5.00	30.00	7.93	49.13	--	--	--	--	--	--	--	--	
8/7/2007	NP		5.00	30.00	9.20	47.86	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.49	7.34	
11/14/2007	--		5.00	30.00	8.52	48.54	--	--	--	--	--	--	--	--	
2/28/2008	--		5.00	30.00	7.04	50.02	--	--	--	--	--	--	--	--	
5/23/2008	--		5.00	30.00	9.00	48.06	--	--	--	--	--	--	--	--	
8/13/2008	NP		5.00	30.00	9.38	47.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.03	8.39	
11/19/2008	--		5.00	30.00	9.01	48.05	--	--	--	--	--	--	--	--	
2/10/2009	--		5.00	30.00	8.10	48.96	--	--	--	--	--	--	--	--	
5/7/2009	--		5.00	30.00	7.80	49.26	--	--	--	--	--	--	--	--	
9/3/2009	NP		5.00	30.00	9.40	47.66	<50	<0.50	<0.50	<0.50	<0.50	3.6	0.98	7.14	
3/23/2010	--		5.00	30.00	7.68	49.38	--	--	--	--	--	--	--	--	
8/16/2010	NP		5.00	30.00	9.30	47.76	<50	<0.50	<0.50	<0.50	<1.0	3.6	--	6.72	
3/18/2011	--		5.00	30.00	--	--	--	--	--	--	--	--	--	--	m
A-13															
6/21/2000	--	55.11	10.00	10.00	--	--	--	--	--	--	--	--	--	--	

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Well and Sample Date	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-13 Cont.															
9/20/2000	--	55.11	10.00	10.00	--	--	--	--	--	--	--	--	--	--	
12/26/2000	--		10.00	10.00	--	--	--	--	--	--	--	--	--	--	
3/20/2001	--		10.00	10.00	--	--	--	--	--	--	--	--	--	--	
6/12/2001	--		10.00	10.00	--	--	--	--	--	--	--	--	--	--	
9/23/2001	--		10.00	10.00	--	--	--	--	--	--	--	--	--	--	
12/31/2001	--		10.00	10.00	--	--	--	--	--	--	--	--	--	--	
3/21/2002	--		10.00	10.00	6.70	48.41	--	--	--	--	--	--	--	--	
4/17/2002	--		10.00	10.00	7.95	47.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/12/2002	--		10.00	10.00	10.11	45.00	--	--	--	--	--	--	--	--	
12/6/2002	--		10.00	10.00	10.26	44.85	--	--	--	--	--	--	--	--	
1/30/2003	--		10.00	10.00	7.81	47.30	--	--	--	--	--	--	--	--	
5/28/2003	--		10.00	10.00	9.06	46.05	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.9	6.5
8/6/2003	--		10.00	10.00	10.22	44.89	--	--	--	--	--	--	--	--	
11/14/2003	--		10.00	10.00	10.27	44.84	--	--	--	--	--	--	--	--	
02/02/2004	--	60.26	10.00	10.00	7.92	52.34	--	--	--	--	--	--	--	--	ug
05/04/2004	--		10.00	10.00	10.06	50.20	--	--	--	--	--	--	--	--	
09/02/2004	P		10.00	10.00	10.34	49.92	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.0	6.6	
11/10/2004	--		10.00	10.00	8.95	51.31	--	--	--	--	--	--	--	--	
02/02/2005	--		10.00	10.00	7.28	52.98	--	--	--	--	--	--	--	--	
05/09/2005	--		10.00	10.00	7.85	52.41	--	--	--	--	--	--	--	--	
08/11/2005	--		10.00	10.00	9.70	50.56	--	--	--	--	--	--	--	--	
11/18/2005	--		10.00	10.00	9.27	50.99	--	--	--	--	--	--	--	--	
02/15/2006	--		10.00	10.00	7.24	53.02	--	--	--	--	--	--	--	--	
5/30/2006	--		10.00	10.00	8.38	51.88	--	--	--	--	--	--	--	--	
8/11/2006	--		10.00	10.00	9.55	50.71	--	--	--	--	--	--	--	--	
11/1/2006	--		10.00	10.00	9.98	50.28	--	--	--	--	--	--	--	--	
2/7/2007	--		10.00	10.00	9.07	51.19	--	--	--	--	--	--	--	--	
5/9/2007	--		10.00	10.00	8.15	52.11	--	--	--	--	--	--	--	--	
8/7/2007	--		10.00	10.00	10.05	50.21	--	--	--	--	--	--	--	--	
11/14/2007	--		10.00	10.00	9.20	51.06	--	--	--	--	--	--	--	--	

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							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-13 Cont.															
2/28/2008	--	60.26	10.00	10.00	6.82	53.44	--	--	--	--	--	--	--	--	
5/23/2008	--		10.00	10.00	9.67	50.59	--	--	--	--	--	--	--	--	
8/13/2008	--		10.00	10.00	10.17	50.09	--	--	--	--	--	--	--	--	
11/19/2008	--		10.00	10.00	9.63	50.63	--	--	--	--	--	--	--	--	
2/10/2009	--		10.00	10.00	8.48	51.78	--	--	--	--	--	--	--	--	
5/7/2009	--		10.00	10.00	7.97	52.29	--	--	--	--	--	--	--	--	
9/3/2009	--		10.00	10.00	10.14	50.12	--	--	--	--	--	--	--	--	
3/23/2010	--		10.00	10.00	7.29	52.97	--	--	--	--	--	--	--	--	
8/16/2010	--		10.00	10.00	9.92	50.34	--	--	--	--	--	--	--	--	
3/18/2011	--		10.00	10.00	6.33	53.93	--	--	--	--	--	--	--	--	
AR-1															
6/21/2000	--	54.72	10.00	30.00	--	--	--	--	--	--	--	--	--	--	
9/20/2000	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	
12/26/2000	--		10.00	30.00	9.95	44.77	--	--	--	--	--	--	--	--	
3/20/2001	--		10.00	30.00	8.34	46.38	--	--	--	--	--	--	--	--	
6/12/2001	--		10.00	30.00	10.17	44.55	--	--	--	--	--	--	--	--	
9/23/2001	--		10.00	30.00	10.72	44.00	--	--	--	--	--	--	--	--	
12/31/2001	--		10.00	30.00	5.91	48.81	--	--	--	--	--	--	--	--	
3/21/2002	--		10.00	30.00	7.00	47.72	--	--	--	--	--	--	--	--	
4/17/2002	--		10.00	30.00	8.33	46.39	--	--	--	--	--	--	--	--	
8/12/2002	--		10.00	30.00	10.18	44.54	--	--	--	--	--	--	--	--	
12/6/2002	--		10.00	30.00	10.21	44.51	--	--	--	--	--	--	--	--	
1/30/2003	--		10.00	30.00	8.22	46.50	--	--	--	--	--	--	--	--	
5/28/2003	--		10.00	30.00	9.62	45.10	--	--	--	--	--	--	--	--	
8/6/2003	--		10.00	30.00	10.47	44.25	--	--	--	--	--	--	--	--	
11/14/2003	--		10.00	30.00	10.40	44.32	--	--	--	--	--	--	--	--	d
02/02/2004	--	59.52	10.00	30.00	7.96	51.56	--	--	--	--	--	--	--	--	d, g
05/04/2004	--		10.00	30.00	10.17	49.35	--	--	--	--	--	--	--	--	d
09/02/2004	--		10.00	30.00	10.28	49.24	--	--	--	--	--	--	--	--	
11/10/2004	--		10.00	30.00	9.15	50.37	--	--	--	--	--	--	--	--	

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Well and Sample Date	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.															
02/02/2005	--	59.52	10.00	30.00	7.80	51.72	--	--	--	--	--	--	--	--	
05/09/2005	--		10.00	30.00	7.03	52.49	--	--	--	--	--	--	--	--	
08/11/2005	--		10.00	30.00	9.82	49.70	--	--	--	--	--	--	--	--	
11/18/2005	--		10.00	30.00	9.83	49.69	--	--	--	--	--	--	--	--	
02/15/2006	--		10.00	30.00	7.78	51.74	--	--	--	--	--	--	--	--	
5/30/2006	--		10.00	30.00	8.65	50.87	--	--	--	--	--	--	--	--	
8/11/2006	--		10.00	30.00	9.69	49.83	--	--	--	--	--	--	--	--	
11/1/2006	--		10.00	30.00	10.07	49.45	--	--	--	--	--	--	--	--	
2/7/2007	--		10.00	30.00	9.33	50.19	--	--	--	--	--	--	--	--	
5/9/2007	--		10.00	30.00	8.45	51.07	--	--	--	--	--	--	--	--	
8/7/2007	--		10.00	30.00	10.12	49.40	--	--	--	--	--	--	--	--	
11/14/2007	--		10.00	30.00	9.31	50.21	--	--	--	--	--	--	--	--	
2/28/2008	--		10.00	30.00	7.05	52.47	--	--	--	--	--	--	--	--	
5/23/2008	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	j
8/13/2008	--		10.00	30.00	10.20	49.32	--	--	--	--	--	--	--	--	
11/19/2008	--		10.00	30.00	9.73	49.79	--	--	--	--	--	--	--	--	
2/10/2009	--		10.00	30.00	8.61	50.91	--	--	--	--	--	--	--	--	
5/7/2009	--		10.00	30.00	8.17	51.35	--	--	--	--	--	--	--	--	
9/3/2009	--		10.00	30.00	10.19	49.33	--	--	--	--	--	--	--	--	
3/23/2010	--		10.00	30.00	7.61	51.91	--	--	--	--	--	--	--	--	
8/16/2010	--		10.00	30.00	9.88	49.64	--	--	--	--	--	--	--	--	
3/18/2011	--		10.00	30.00	6.26	53.26	--	--	--	--	--	--	--	--	
AR-2															
6/21/2000	--	54.77	8.00	28.00	--	--	--	--	--	--	--	--	--	--	
9/20/2000	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	
12/26/2000	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	
3/20/2001	--		8.00	28.00	3.13	51.64	--	--	--	--	--	--	--	--	
6/12/2001	--		8.00	28.00	4.51	50.26	--	--	--	--	--	--	--	--	
9/23/2001	--		8.00	28.00	6.05	48.72	--	--	--	--	--	--	--	--	
12/31/2001	--		8.00	28.00	2.79	51.98	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
3/21/2002	--	54.77	8.00	28.00	7.75	47.02	--	--	--	--	--	--	--	--	
4/17/2002	--		8.00	28.00	2.24	52.53	--	--	--	--	--	--	--	--	
8/12/2002	--		8.00	28.00	4.93	49.84	--	--	--	--	--	--	--	--	
12/6/2002	--		8.00	28.00	6.09	48.68	--	--	--	--	--	--	--	--	
1/30/2003	--		8.00	28.00	3.89	50.88	--	--	--	--	--	--	--	--	
5/28/2003	--		8.00	28.00	3.33	51.44	--	--	--	--	--	--	--	--	
8/6/2003	--		8.00	28.00	5.05	49.72	--	--	--	--	--	--	--	--	
11/14/2003	--		8.00	28.00	6.01	48.76	--	--	--	--	--	--	--	--	
02/02/2004	--	59.18	8.00	28.00	3.88	55.30	--	--	--	--	--	--	--	--	g
05/04/2004	--		8.00	28.00	6.01	53.17	--	--	--	--	--	--	--	--	
09/02/2004	--		8.00	28.00	5.65	53.53	--	--	--	--	--	--	--	--	
11/10/2004	--		8.00	28.00	5.48	53.70	--	--	--	--	--	--	--	--	
02/02/2005	--		8.00	28.00	2.62	56.56	--	--	--	--	--	--	--	--	
05/09/2005	--		8.00	28.00	2.84	56.34	--	--	--	--	--	--	--	--	
08/11/2005	--		8.00	28.00	4.33	54.85	--	--	--	--	--	--	--	--	
11/18/2005	--		8.00	28.00	5.34	53.84	--	--	--	--	--	--	--	--	
02/15/2006	--		8.00	28.00	2.49	56.69	--	--	--	--	--	--	--	--	
5/30/2006	--		8.00	28.00	3.02	56.16	--	--	--	--	--	--	--	--	
8/11/2006	--		8.00	28.00	4.32	54.86	--	--	--	--	--	--	--	--	
11/1/2006	--		8.00	28.00	5.25	53.93	--	--	--	--	--	--	--	--	
2/7/2007	--		8.00	28.00	4.64	54.54	--	--	--	--	--	--	--	--	
5/9/2007	--		8.00	28.00	3.15	56.03	--	--	--	--	--	--	--	--	
8/7/2007	--		8.00	28.00	4.55	54.63	--	--	--	--	--	--	--	--	
11/14/2007	--		8.00	28.00	5.03	54.15	--	--	--	--	--	--	--	--	
2/28/2008	--		8.00	28.00	1.82	57.36	--	--	--	--	--	--	--	--	
5/23/2008	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	j
8/13/2008	--		8.00	28.00	5.05	54.13	--	--	--	--	--	--	--	--	
11/19/2008	--		8.00	28.00	5.49	53.69	--	--	--	--	--	--	--	--	
2/10/2009	--		8.00	28.00	5.10	54.08	--	--	--	--	--	--	--	--	
5/7/2009	--		8.00	28.00	2.90	56.28	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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.															
9/3/2009	--	59.18	8.00	28.00	5.99	53.19	--	--	--	--	--	--	--	--	
3/23/2010	--		8.00	28.00	1.94	57.24	--	--	--	--	--	--	--	--	
8/16/2010	--		8.00	28.00	4.37	54.81	--	--	--	--	--	--	--	--	
3/18/2011	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	j
AR-3															
6/21/2000	--	54.19	10.00	30.00	--	--	--	--	--	--	--	--	--	--	
9/20/2000	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	
12/26/2000	--		10.00	30.00	9.70	44.49	--	--	--	--	--	--	--	--	
3/20/2001	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	
6/12/2001	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	
9/23/2001	--		10.00	30.00	10.43	43.76	--	--	--	--	--	--	--	--	
12/31/2001	--		10.00	30.00	5.18	49.01	--	--	--	--	--	--	--	--	
3/21/2002	--		10.00	30.00	6.78	47.41	--	--	--	--	--	--	--	--	
4/17/2002	--		10.00	30.00	8.06	46.13	--	--	--	--	--	--	--	--	
8/12/2002	--		10.00	30.00	9.94	44.25	--	--	--	--	--	--	--	--	
12/6/2002	--		10.00	30.00	9.99	44.20	--	--	--	--	--	--	--	--	
1/30/2003	--		10.00	30.00	7.96	46.23	--	--	--	--	--	--	--	--	
5/28/2003	--		10.00	30.00	8.94	45.25	--	--	--	--	--	--	--	--	
8/6/2003	--		10.00	30.00	9.94	44.25	--	--	--	--	--	--	--	--	
11/14/2003	--		10.00	30.00	10.03	44.16	--	--	--	--	--	--	--	--	
02/02/2004	--	59.10	10.00	30.00	6.90	52.20	--	--	--	--	--	--	--	--	uc
05/04/2004	--		10.00	30.00	9.12	49.98	--	--	--	--	--	--	--	--	
09/02/2004	--		10.00	30.00	10.15	48.95	--	--	--	--	--	--	--	--	
11/10/2004	--		10.00	30.00	8.79	50.31	--	--	--	--	--	--	--	--	
02/02/2005	--		10.00	30.00	7.30	51.80	--	--	--	--	--	--	--	--	
05/09/2005	--		10.00	30.00	7.71	51.39	--	--	--	--	--	--	--	--	
08/11/2005	--		10.00	30.00	9.54	49.56	--	--	--	--	--	--	--	--	
11/18/2005	--		10.00	30.00	9.43	49.67	--	--	--	--	--	--	--	--	
02/15/2006	--		10.00	30.00	7.50	51.60	--	--	--	--	--	--	--	--	
5/30/2006	--		10.00	30.00	8.82	50.28	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	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-3 Cont.															
8/11/2006	--	59.10	10.00	30.00	9.38	49.72	--	--	--	--	--	--	--	--	
11/1/2006	--		10.00	30.00	9.75	49.35	--	--	--	--	--	--	--	--	
2/7/2007	--		10.00	30.00	9.00	50.10	--	--	--	--	--	--	--	--	
5/9/2007	--		10.00	30.00	8.12	50.98	--	--	--	--	--	--	--	--	
8/7/2007	--		10.00	30.00	9.75	49.35	--	--	--	--	--	--	--	--	
11/14/2007	--		10.00	30.00	8.91	50.19	--	--	--	--	--	--	--	--	
2/28/2008	--		10.00	30.00	6.73	52.37	--	--	--	--	--	--	--	--	
5/23/2008	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	j
8/13/2008	--		10.00	30.00	9.85	49.25	--	--	--	--	--	--	--	--	
11/19/2008	--		10.00	30.00	9.35	49.75	--	--	--	--	--	--	--	--	
2/10/2009	--		10.00	30.00	8.29	50.81	--	--	--	--	--	--	--	--	
5/7/2009	--		10.00	30.00	7.83	51.27	--	--	--	--	--	--	--	--	
9/3/2009	--		10.00	30.00	9.80	49.30	--	--	--	--	--	--	--	--	
3/23/2010	--		10.00	30.00	7.34	51.76	--	--	--	--	--	--	--	--	
8/16/2010	--		10.00	30.00	--	--	--	--	--	--	--	--	--	--	Unable to open
3/18/2011	--		10.00	30.00	6.00	53.10	--	--	--	--	--	--	--	--	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
ft bgs = feet below ground surface
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft
mg/L = Milligrams per liter
MTBE = Methyl tert butyl ether
NP = Not purged prior to sampling
P = Purged prior to sampling
TOC = Top of casing measured in ft
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
BTEX = Benzene, toluene, ethylbenzene and xylenes

Footnotes:

a = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel for GRO/TPH-g
b = The concentration indicated for this analyte (MTBE) was an estimated value above the calibration range of the instrument
c = This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose
d = ORC sock in well
e = Well inaccessible; well paved over
f = Sheen in well
g = Well surveyed to NAVD '88 datum on January 28, 2004
h = Possible low bias due to CCV falling outside acceptance criteria for GRO
i = Hydrocarbon result partly due to individual peak(s) in quantitative range for GRO
j = Well inaccessible
k = Sample taken from VOA vial with air bubble > 6mm diameter
l = Incorrect TOC utilized in 2nd and 3rd Quarter 2009 Groundwater Monitoring Report
m = Well inaccessible; need traffic control

Notes:

Top and bottom of screen measurements for wells A-2 through A-5 were estimated from the EMCON sampling sheet

Beginning in the first quarter 2003 (1/30/2003), groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates. Prior to 1/30/03, TPH-g was analyzed using EPA Method 8015B modified and MTBE by 8021B unless otherwise noted

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-TPHg 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

Values for DO and pH were obtained through field measurements

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

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

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-2									
6/21/2000	--	--	<3.0	--	--	--	--	--	
9/20/2000	--	--	<2.5	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
3/20/2001	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	<2.5	--	--	--	--	--	
9/23/2001	--	--	<2.5	--	--	--	--	--	
12/31/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	3.1	--	--	--	--	--	
8/12/2002	--	--	<0.50	--	--	--	--	--	
12/6/2002	--	--	6	--	--	--	--	--	
1/30/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	a
5/28/2003	<100	<20	1.1	<0.50	<0.50	<0.50	--	--	
8/6/2003	<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	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/7/2007	<300	<20	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/13/2008	<300	<10	19	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	<10	12	<0.50	<0.50	<0.50	<0.50	<0.50	d
8/16/2010	<100	<4.0	6.1	<0.50	<0.50	<0.50	<0.50	<0.50	
A-3									
6/21/2000	--	--	46	--	--	--	--	--	
9/20/2000	--	--	89.6	--	--	--	--	--	
12/26/2000	--	--	7.11	--	--	--	--	--	
6/12/2001	--	--	86	--	--	--	--	--	
12/31/2001	--	--	60	--	--	--	--	--	
4/17/2002	--	--	45	--	--	--	--	--	
12/6/2002	--	--	150	--	--	--	--	--	
5/28/2003	<100	<20	43	<0.50	<0.50	24	--	--	
02/02/2004	<100	<20	13	<0.50	<0.50	4.6	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-3 Cont.									
09/02/2004	<500	<100	62	<2.5	<2.5	15	<2.5	<2.5	
02/02/2005	<100	<20	6.8	<0.50	<0.50	2.4	<0.50	<0.50	b
08/11/2005	<100	<20	39	<0.50	<0.50	4.2	<0.50	<0.50	
02/15/2006	<300	<20	2.2	<0.50	<0.50	0.58	<0.50	<0.50	
8/11/2006	<300	<20	4.1	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	0.58	<0.50	<0.50	<0.50	<0.50	<0.50	
8/7/2007	<300	<20	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	b
2/28/2008	<300	<10	0.58	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2008	<300	<10	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/23/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	<100	<4.0	0.72	<0.50	<0.50	<0.50	<0.50	<0.50	
3/18/2011	--	--	<0.50	--	--	--	--	--	
A-4									
6/21/2000	--	--	2,000	--	--	--	--	--	
9/20/2000	--	--	1,940	--	--	--	--	--	
12/26/2000	--	--	1,210	--	--	--	--	--	
3/20/2001	--	--	<25	--	--	--	--	--	
6/12/2001	--	--	4,700	--	--	--	--	--	
9/23/2001	--	--	3,000	--	--	--	--	--	
12/31/2001	--	--	880	--	--	--	--	--	
3/21/2002	--	--	1,400	--	--	--	--	--	
4/17/2002	--	--	2,200	--	--	--	--	--	
8/12/2002	--	--	2,100	--	--	--	--	--	
12/6/2002	--	--	2,000	--	--	--	--	--	
1/30/2003	<4,000	<2,000	2,100	<50	<50	530	--	--	a
5/28/2003	<10,000	<2,000	2,500	<50	<50	590	--	--	
8/6/2003	<5,000	<1,000	2,500	<25	<25	560	<25	<25	
11/14/2003	<1,000	320	310	<5.0	<5.0	76	--	--	
02/02/2004	<5,000	<1,000	1,500	<25	<25	350	<25	<25	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-4 Cont.									
05/04/2004	<10,000	<2,000	2,300	<50	<50	510	<50	<50	
09/02/2004	<5,000	1,200	1,200	<25	<25	280	<25	<25	
11/10/2004	<2,000	910	1,100	<10	<10	270	<10	<10	
02/02/2005	<2,000	2,100	1,700	<10	<10	430	<10	<10	b
05/09/2005	<10,000	2,000	1,800	<50	<50	460	<50	<50	
08/11/2005	<2,000	2,400	1,200	<10	<10	310	<10	<10	
11/18/2005	<500	1,400	310	<2.5	<2.5	98	<2.5	<2.5	b
02/15/2006	<1,500	2,700	910	<2.5	<2.5	270	<2.5	<2.5	
5/30/2006	<6,000	3,000	1,200	<10	<10	340	<10	<10	
8/11/2006	<6,000	3,200	1,200	<10	<10	350	<10	<10	
11/1/2006	<6,000	1,700	360	<10	<10	95	<10	--	b
2/7/2007	<6,000	3,000	1,500	<10	<10	460	<10	<10	
5/9/2007	<6,000	2,200	340	<10	<10	91	<10	<10	
8/7/2007	<3,000	1,800	510	<5.0	<5.0	140	<5.0	<5.0	b
11/14/2007	<300	600	280	<0.50	<0.50	90	<0.50	<0.50	
2/28/2008	<300	1,600	350	<0.50	<0.50	73	<0.50	<0.50	
5/23/2008	<12,000	2,500	1,000	<20	<20	270	<20	<20	
8/13/2008	<6,000	3,200	530	<10	<10	190	<10	<10	
11/19/2008	<6,000	2,000	430	<10	<10	140	<10	<10	
2/10/2009	<6,000	2,300	400	<10	<10	120	<10	<10	
5/7/2009	<300	11	9.9	<0.50	<0.50	2.0	<0.50	<0.50	
9/3/2009	<6,000	3,200	360	<10	<10	120	<10	<10	
3/23/2010	<100	1,600	150	<0.50	<0.50	45	<0.50	<0.50	
8/16/2010	<100	3,400	160	<0.50	<0.50	47	<0.50	<0.50	
3/18/2011	<250	1,400	66	<0.50	<0.50	18	<0.50	<0.50	
A-5									
6/21/2000	--	--	2,000	--	--	--	--	--	
12/26/2000	--	--	1,200	--	--	--	--	--	
6/12/2001	--	--	3,200	--	--	--	--	--	
12/31/2001	--	--	60	--	--	--	--	--	
4/17/2002	--	--	3,200	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-5 Cont.									
12/6/2002	--	--	330	--	--	--	--	--	
5/28/2003	<10,000	<2,000	1,500	<50	<50	620	--	--	
02/02/2004	<500	170	140	<2.5	<2.5	54	<2.5	<2.5	
09/02/2004	<500	150	66	<2.5	<2.5	29	<2.5	<2.5	
02/02/2005	<100	840	17	<0.50	<0.50	7.6	<0.50	<0.50	
08/11/2005	<100	530	6.8	<0.50	<0.50	7.1	<0.50	<0.50	
02/15/2006	<300	460	5.1	<0.50	<0.50	4.2	<0.50	<0.50	
8/11/2006	<300	1,100	12	<0.50	<0.50	5.0	<0.50	<0.50	
2/7/2007	<300	600	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/7/2007	<300	79	0.81	<0.50	<0.50	<0.50	<0.50	<0.50	b
2/28/2008	<300	230	0.97	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2008	<300	33	0.69	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2009	<300	18	1.6	<0.50	<0.50	0.59	<0.50	<0.50	
9/3/2009	<300	<10	20	<0.50	<0.50	9.1	<0.50	<0.50	
3/23/2010	<100	33	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	<100	35	7.9	<0.50	<0.50	3.1	<0.50	<0.50	
3/18/2011	--	--	<0.50	--	--	--	--	--	
A-6									
6/21/2000	--	--	<3.0	--	--	--	--	--	
9/20/2000	--	--	<2.5	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
3/20/2001	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	7	--	--	--	--	--	
9/23/2001	--	--	<2.5	--	--	--	--	--	
12/31/2001	--	--	3.2	--	--	--	--	--	
3/21/2002	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	3.1	--	--	--	--	--	
8/12/2002	--	--	<2.5	--	--	--	--	--	
11/14/2003	--	--	--	--	--	--	--	--	Well inaccessible
02/02/2004	--	--	--	--	--	--	--	--	Well inaccessible
05/04/2004	--	--	--	--	--	--	--	--	Well inaccessible

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote	
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB		
A-6 Cont.										
09/02/2004	--	--	--	--	--	--	--	--	--	Well inaccessible
11/10/2004	--	--	--	--	--	--	--	--	--	Well inaccessible
08/11/2005	--	--	--	--	--	--	--	--	--	Well inaccessible
8/11/2006	--	--	--	--	--	--	--	--	--	Well inaccessible
A-7										
6/21/2000	--	--	<3.0	--	--	--	--	--	--	
6/12/2001	--	--	<2.5	--	--	--	--	--	--	
4/17/2002	--	--	2.5	--	--	--	--	--	--	
5/28/2003	<100	<20	3.8	<0.50	<0.50	0.94	--	--	--	
09/02/2004	<100	<20	8.9	<0.50	<0.50	3.0	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	18	<0.50	<0.50	4.4	<0.50	<0.50	<0.50	
8/11/2006	<300	<20	3.6	<0.50	<0.50	0.91	0.54	<0.50	<0.50	
8/7/2007	<300	<20	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/13/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
A-8										
6/21/2000	--	--	1,500	--	--	--	--	--	--	
9/20/2000	--	--	4,410	--	--	--	--	--	--	
12/26/2000	--	--	2,230	--	--	--	--	--	--	
3/20/2001	--	--	2,880	--	--	--	--	--	--	
6/12/2001	--	--	2,900	--	--	--	--	--	--	
9/23/2001	--	--	6,500	--	--	--	--	--	--	
12/31/2001	--	--	520	--	--	--	--	--	--	
3/21/2002	--	--	2,700	--	--	--	--	--	--	
4/17/2002	--	--	3,100	--	--	--	--	--	--	
8/12/2002	--	--	4,200	--	--	--	--	--	--	
12/6/2002	--	--	2,200	--	--	--	--	--	--	
1/30/2003	<8,000	<4,000	2,200	<100	<100	900	--	--	--	a
5/28/2003	<10,000	<2,000	2,100	<50	<50	1,100	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-8 Cont.									
8/6/2003	<10,000	<2,000	3,000	<50	<50	1,200	<50	<50	
11/14/2003	<1,000	<200	850	<5.0	<5.0	320	--	--	
02/02/2004	<5,000	<1,000	1,100	<25	<25	380	<25	<25	
05/04/2004	<10,000	<2,000	1,600	<50	<50	440	<50	<50	
09/02/2004	<5,000	<1,000	680	<25	<25	170	<25	<25	
11/10/2004	<500	<100	290	<2.5	<2.5	66	<2.5	<2.5	
02/02/2005	<5,000	<1,000	1,900	<25	<25	510	<25	<25	b
05/09/2005	<100	<20	66	<0.50	<0.50	2.9	<0.50	<0.50	
08/11/2005	<2,500	<500	1,100	<12	<12	310	<12	<12	
11/18/2005	<1,000	<200	340	<5.0	<5.0	120	<5.0	<5.0	b
02/15/2006	<6,000	880	1,100	<10	<10	330	<10	<10	
5/30/2006	<1,500	<100	140	<2.5	<2.5	43	<2.5	<2.5	
8/11/2006	<3,000	<200	290	<5.0	<5.0	92	<5.0	<5.0	
11/1/2006	<3,000	1,200	910	<5.0	<5.0	250	<5.0	<5.0	
2/7/2007	<15,000	<1,000	1,200	<25	<25	330	<25	<25	
5/9/2007	<1,500	<100	55	<2.5	<2.5	16	<2.5	<2.5	
8/7/2007	<1,500	140	430	<2.5	<2.5	160	<2.5	<2.5	b
11/14/2007	<300	28	100	<0.50	<0.50	44	<0.50	<0.50	
2/28/2008	<3,000	230	220	<5.0	<5.0	72	<5.0	<5.0	
5/23/2008	--	--	--	--	--	--	--	--	c
8/13/2008	<15,000	<500	250	<25	<25	86	<25	<25	
11/19/2008	<12,000	<400	230	<20	<20	100	<20	<20	
2/10/2009	<15,000	<500	320	<25	<25	120	<25	<25	
5/7/2009	<600	20	12	<1.0	<1.0	3.3	<1.0	<1.0	
9/3/2009	<15,000	<500	100	<25	<25	52	<25	<25	
3/23/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	<100	<4.0	110	<0.50	<0.50	41	<0.50	<0.50	
3/18/2011	<250	220	87	<0.50	<0.50	43	<0.50	<0.50	
A-9									
6/21/2000	--	--	5	--	--	--	--	--	
9/20/2000	--	--	<2.5	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-9 Cont.									
12/26/2000	--	--	<2.5	--	--	--	--	--	
3/20/2001	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	4.8	--	--	--	--	--	
9/23/2001	--	--	<2.5	--	--	--	--	--	
12/31/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/12/2002	--	--	<2.5	--	--	--	--	--	
12/6/2002	--	--	<2.0	--	--	--	--	--	
1/30/2003	<40	<20	1.1	<0.50	<0.50	<0.50	--	--	
5/28/2003	<100	<20	0.74	<0.50	<0.50	<0.50	--	--	
8/6/2003	<100	<20	1.8	<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	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/11/2006	<300	<20	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/7/2007	<300	<20	0.64	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/13/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
A-10									
09/02/2004	<1,000	<200	270	<5.0	<5.0	44	<5.0	<5.0	
08/11/2005	<100	<20	97	<0.50	<0.50	14	<0.50	<0.50	
8/11/2006	<300	<20	46	<0.50	<0.50	7.3	<0.50	<0.50	
8/7/2007	<300	<20	8.9	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/13/2008	<300	<10	28	<0.50	<0.50	6.9	<0.50	<0.50	
8/16/2010	<100	<4.0	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	
A-11									
6/21/2000	--	--	4	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	<2.5	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-11 Cont.									
12/31/2001	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
12/6/2002	--	--	<2.0	--	--	--	--	--	
5/28/2003	<100	<20	0.53	<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	
8/7/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/13/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
A-12									
6/21/2000	--	--	18	--	--	--	--	--	
12/26/2000	--	--	17.3	--	--	--	--	--	
6/12/2001	--	--	25	--	--	--	--	--	
12/31/2001	--	--	9.5	--	--	--	--	--	
4/17/2002	--	--	29	--	--	--	--	--	
12/06/02	--	--	13	--	--	--	--	--	
5/28/2003	<100	<20	10	<0.50	<0.50	2.5	--	--	
02/02/2004	<100	<20	0.91	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	6.2	<0.50	<0.50	1.7	<0.50	<0.50	
02/02/2005	<100	<20	8.3	<0.50	<0.50	2.2	<0.50	<0.50	b
08/11/2005	<100	<20	5.4	<0.50	<0.50	1.1	<0.50	<0.50	
8/11/2006	<300	<20	7.4	<0.50	<0.50	2.5	<0.50	<0.50	
8/7/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/13/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	<10	3.6	<0.50	<0.50	1.0	<0.50	<0.50	
8/16/2010	<100	<4.0	3.6	<0.50	<0.50	0.85	<0.50	<0.50	
A-13									
4/17/2002	--	--	<2.5	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-13 Cont.									
5/28/2003	<100	<20	<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	
AR-1									
AR-2									
AR-3									

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available

< = Not detected at or above the laboratory reporting limit

1,2-DCA = 1,2-Dichloroethane

DIPE = Di-isopropyl ether

EDB = 1,2-Dibromoethane

ETBE = Ethyl tert-butyl ether

MTBE = Methyl tert-butyl ether

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

µg/L = Micrograms per Liter

Footnotes:

a = The result for TBA was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria

b = The calibration verification for ethanol was within the method limits but outside the contract limits

c = Well Inaccessible

d = Sample taken from VOA vial with air bubble > 6mm diameter

Notes:

All volatile organic compounds analyzed using EPA Method 8260B

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

Table 3. Historical Groundwater Flow Direction and Gradient
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
6/21/2000	West-Southwest	0.031
9/20/2000	Southwest	0.013
12/26/2000	West	0.028
3/20/2001	West	0.046
6/12/2001	West	0.014
9/23/2001	West	0.012
12/31/2001	West	0.024
3/21/2002	West	0.047
4/17/2002	West	0.03
8/12/2002	West	0.016
12/6/2002	West	0.015
1/30/2003	West	Variable
5/28/2003	West	0.022 a
8/6/2003	West-Southwest	0.018
11/14/2003	West	0.02
2/2/2004	West	0.04
5/4/2004	West to North	0.025 to 0.033
9/2/2004	West	0.033
11/10/2004	West	0.031
2/2/2005	West-Southwest	0.04
5/9/2005	Northwest-Southwest	0.04
8/11/2005	West	0.02
11/18/2005	West	0.03
2/15/2006	Southwest	0.04
5/30/2006	West	0.05
8/11/2006	West	0.01
11/1/2006	West	0.01
2/7/2007	West	0.02
5/9/2007	West	0.05
8/7/2007	West	0.02
11/14/2007	West	0.02
2/28/2008	West	0.05
5/23/2008	West	0.03
8/13/2008	West	0.01
11/19/2008	West-Southwest	0.02
2/10/2009	West	0.02
5/7/2009	West	0.03
9/3/2009	West	0.01
3/23/2010	West	0.03
8/16/2010	West-Southwest	0.01
3/18/2011	West-Northwest	0.04

Table 3. Historical Groundwater Flow Direction and Gradient
ARCO Service Station #4931, 731 West MacArthur Blvd., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
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Footnotes:

a = Using wells AR-1 and A-9

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

BROADBENT & ASSOCIATES INC. FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

Field protocols have been implemented to enhance the accuracy and reliability of data collection, ground-water sample collection, transportation and laboratory analysis. Discussion of these protocols is provided below.

A.1.1 Water Level & Free-Product Measurement

Prior to ground-water sample collection from each monitoring well, the presence of separate-phase hydrocarbons (SPH or free product, FP) and depth to ground water shall be measured. Depth to ground water will be measured with a standard water level indicator that has been decontaminated prior to its use in accordance with procedures discussed below. Depth to groundwater will be gauged from a saw cut notch at the top of the well casing on each well head. Where FP is suspected, the initial gauging will be done with an oil-water interface probe. Once depth to water has been measured, the first retrieval of a new disposable bailer will be scrutinized for the presence of SPH/FP.

A.1.2 Monitoring Well Purging

Subsequent to measuring depth to ground water and prior to the collection of ground-water samples, purging of standing water within the monitoring well will be performed if called for. Consistent with the American Society for Testing and Materials (ASTM) Standard D6452-99, Section 7.1, the well will be purged of approximately three wetted-casing volumes of water, or until the well is dewatered, or until monitored field parameters indicate stabilization. The well will be purged using a pre-cleaned disposable bailer or submersible pump and disposable plastic tubing dedicated to each individual well. The well will be purged at a low flow rate to minimize the possibility of purging the well dry. So that the sample collected is representative of formation water, several field parameters will be monitored during the purging process. The sample will not be collected until these parameters (i.e. temperature, pH, and conductivity) have stabilized to within 10% of the previously measured value. If a well is purged dry, the sample should not be collected until the well has recovered to a minimum 50% of its initial volume.

A.1.3 Ground-Water Sample Collection

Once the wells are satisfactorily purged, water samples will be collected from each well. Water samples for organic analyses will be collected using a pre-cleaned, new, disposable bailer and transferred into the appropriate, new, laboratory-prepared containers such that no head space or air bubbles are present in the sample container (if appropriate to the analysis). The samples will be properly labeled (i.e. sample identification, sampler initials, date/time of collection, site location, requested analyses), placed in an ice chest with bagged ice or ice substitute, and delivered to the contracted analytical laboratory.

A.1.4 Surface Water Sample Collection

Unless specified otherwise, surface water samples will be collected from mid-depth in the central area of the associated surface water body. Water samples will be collected into appropriate, new, laboratory-prepared containers by dipping the container into the surface water unless the container has a preservative present. If a sample preservative is present, a new, cleaned non-preserved surrogate container will be used to obtain the sample which will then be directly transferred into a new, laboratory-provided, preserved container. Samples will be properly labeled and transported as described above.

A.1.5 Decontamination Protocol

Prior to use in each well, re-usable ground-water sampling equipment (e.g., water level indicator, oil-interface probe, purge pump, etc.) will be decontaminated. Decontamination protocol will include thoroughly cleaning with a solution of Liquinox, rinsing with clean water, and final rinsing with control water (potable water of known quality, distilled, or de-ionized water). Pre-cleaned new disposable bailers and disposable plastic tubing will be dedicated to each individual well.

A.1.6 Chain of Custody Procedures

Sample identification documents will be carefully prepared so identification and chain of custody can be maintained and sample disposition can be controlled. The sample identification documents include Chain-of-Custody (COC) records and Daily Field Report forms. Chain of custody procedures are outlined below.

Field Custody Procedures

The field sampler is individually responsible for the care and custody of the samples collected until they are properly transferred.

Samples will have unique labels. The information on these labels will correspond to the COC which shows the identification of individual samples and the contents of the shipping container. The original COC will accompany the shipment and a copy will be retained by the field sampler.

Transfer of Custody and Shipment

A COC will accompany samples during transfer and shipment. When transferring samples, the individual relinquishing and the individual receiving the samples will each sign, date, and note the time on the COC. This documents the sample custody transfer.

Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis, with a separate COC accompanying each shipment. Shipments will be accompanied by the original COC. Samples will be delivered by BAI personnel to the laboratory, or shipped by responsible courier. When a shipping courier is utilized, the sample shipment number will be identified on the COC.

A.1.7 Field Records

In addition to sample identification numbers and COC records, Daily Field Report records will be maintained by field staff to provide daily records of significant events, observations, and measurements during field investigations. These documents will contain observed information such as: the personnel present, site conditions, sampling procedures, measurement procedures, calibration records, equipment used, supplies used, etc. Field measurements will be recorded on the appropriate forms. Entries on the data forms will be signed and dated. The data forms will be kept as permanent file records.

APPENDIX B

FIELD DATA SHEETS

Project: BP 4931 Project No.: 09-88-624

Field Representative(s): SB Day: Friday Date: 3/18/11

Time Onsite: From 0820 To: 1040; From: _____ To: _____; From: _____ To: _____

- Signed HASP
- Safety Glasses
- Hard Hat
- Steel Toe Boots
- Safety Vest
- UST Emergency System Shut-off Switches Located
- Proper Gloves
- Proper Level of Barricading
- Other PPE (describe) _____

Weather: Rain

Equipment In Use: _____

Visitors: _____

TIME:	WORK DESCRIPTION:
<u>0820</u>	<u>on site</u>
<u>0930</u>	<u>Set up on A-4 Sample (C) 0930</u>
<u>0940</u>	<u>Set up on A-5 Sample (C) 0955</u>
<u>0957</u>	<u>Set up on A-8 Sample (C) 1005</u>
<u>1010</u>	<u>Set up on A-3 Sample (C) 1020</u>
<u>1040</u>	<u>left site</u>

Signature: _____

DATE: 3/18/11
PERSONNEL: SB
WEATHER: Rain

PROJECT NO.: 09-88-624
COMMENTS: BP 4931

Equip:	Geosquirt	Tubing	Bailers	DO	wli	Ec/pH
--------	-----------	--------	---------	----	-----	-------

Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	pH	Cond. (X100)	Temp. (C/F)	DO (mg/l)	Redox (mV)	Iron (mg/l)	Alk. (mg/l)	WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC
A-2	0853	TDC	2.89									
S A-3	0850		4.00									
S A-4	0923		5.34									
S A-5	0948		85.01									
A-7	0833		5.20									
S A-8	1001		5.01									
A-9	0843		4.40									
A-10	0845		6.52									need traffic control
A-11	—		—									need traffic control
A-12	—		—									
A-13	1033		6.3									
AR-1	0919		6.26									boxes in truck parked over
AR-2	—		—									
AR-3	0847	✓	6.00									

Groundwater Sampling Data Sheet

Well I.D.: A-3

Project Name/Location: BP 4931 Project #: 09-88-624

Sampler's Name: SB Date: 3/18/11

Purging Equipment: _____

Sampling Equipment: Dawber

Casing Type: PVC

Casing Diameter: 4 inch ***UNIT CASING VOLUMES**

Total Well Depth: _____ feet 2" = 0.16 gal/lin ft.

Depth to Water: 4.00 feet 3" = 0.37 gal/lin ft.

Water Column Thickness: = _____ feet 4" = 0.65 gal/lin ft.

Unit Casing Volume*: x _____ gallon / foot 6" = 1.47 gal/lin ft.

Casing Water Volume: = _____ gallons

Casing Volume: x 3 each

Estimated Purge Volume: = _____ gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1019	1.15	-15	-	599.1	15.1°C	7.7	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: _____ gallons

Depth to Water at Sample Collection: _____ feet

Sample Collection Time: 1020 Purged Dry? (Y/N) (N)

Comments: NP Screen to surface

Groundwater Sampling Data Sheet

Well I.D.: A-4
 Project Name/Location: RP 4531 Project #: 09-88-624
 Sampler's Name: SB Date: 3/18/11
 Purging Equipment: _____
 Sampling Equipment: booster

Casing Type: PVC

Casing Diameter: 4 inch

***UNIT CASING VOLUMES**

Total Well Depth: _____ feet

2" = 0.16 gal/lin ft.

Depth to Water: 5.34 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = _____ feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x _____ gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = _____ gallons

Casing Volume: x 3 each

Estimated Purge Volume: = _____ gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	0930	3.34	245	-	608	16.7	6.7	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: _____ gallons

Depth to Water at Sample Collection: _____ feet

Sample Collection Time: 0930

Purged Dry? (Y/N) (N)

Comments: NP @ 5'

Groundwater Sampling Data Sheet

Well I.D.: A-5

Project Name/Location: BP 4739 Project #: 09-88-624

Sampler's Name: SB Date: 3/18/11

Purging Equipment: -

Sampling Equipment: bucket

Casing Type: PVC

Casing Diameter: 3 inch

***UNIT CASING VOLUMES**

Total Well Depth: _____ feet

2" = 0.16 gal/lin ft.

Depth to Water: 5.45 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = _____ feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x _____ gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = _____ gallons

Casing Volume: x 3 each

Estimated Purge Volume: = _____ gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
<u>0</u>	<u>0955</u>	<u>2.72</u>	<u>-72</u>	<u>—</u>	<u>845.3</u>	<u>15.4°C</u>	<u>6.6</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 2 gallons

Depth to Water at Sample Collection: _____ feet

Sample Collection Time: 0955

Purged Dry? (Y/N) (N)

Comments: NP @ 3'

Groundwater Sampling Data Sheet

Well I.D.: A-8
 Project Name/Location: B8 4931 Project #: 09-38-629
 Sampler's Name: SA Date: 3/18/11
 Purging Equipment: -
 Sampling Equipment: bucket

Casing Type: PVC

Casing Diameter: 3 inch

***UNIT CASING VOLUMES**

Total Well Depth: _____ feet

2" = 0.16 gal/lin ft.

Depth to Water: 5.01 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = _____ feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x _____ gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = _____ gallons

Casing Volume: x 3 each

Estimated Purge Volume: = _____ gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
<u>0</u>	<u>1004</u>	<u>9.36</u>	<u>66</u>	<u>-</u>	<u>032.0</u>	<u>15.8</u>	<u>6.8</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: _____ gallons

Depth to Water at Sample Collection: _____ feet

Sample Collection Time: 1005

Purged Dry? (Y/N) (N)

Comments: NPE 3'

APPENDIX C

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 720-34042-1
Client Project/Site: BP #4931, Oakland

For:
ARCADIS U.S., Inc.
155 Montgomery Street
Suite 1500
San Francisco, California 94104

Attn: Project Manager Hollis Phillips



Authorized for release by:
03/31/2011 02:02:56 PM
Afsaneh Salimpour
Project Manager I
afsaneh.salimpour@testamericainc.com

Designee for
Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



Table of Contents

Cover Page	1
Table of Contents	2
Definitions	3
Case Narrative	4
Detection Summary	5
Client Sample Results	6
QC Sample Results	8
QC Association	13
Chronicle	14
Certification Summary	15
Method Summary	16
Sample Summary	17
Chain of Custody	18
Sample Receipt Checklist	19

Qualifier Definition/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Job ID: 720-34042-1

Laboratory: TestAmerica San Francisco

Narrative

Job Narrative
720-34042-1

Comments

No additional comments.

Receipt

All samples were received in good condition within temperature requirements.

GC/MS VOA

No analytical or quality issues were noted.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: ARCADIS U.S., Inc.
 Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Client Sample ID: A-3 (3/18/11)

Lab Sample ID: 720-34042-1

No Detections.

Client Sample ID: A-4 (3/18/11)

Lab Sample ID: 720-34042-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
MTBE	66		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA
Benzene	9.9		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA
Ethylbenzene	1.9		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA
Gasoline Range Organics (GRO) -C6-C12	490		50		ug/L	1			8260B/CA_LUFTM	Total/NA
TBA	1400		4.0		ug/L	1			8260B/CA_LUFTM	Total/NA
TAME	18		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA

Client Sample ID: A-5 (3/18/11)

Lab Sample ID: 720-34042-3

No Detections.

Client Sample ID: A-8 (3/18/11)

Lab Sample ID: 720-34042-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
MTBE	87		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA
Benzene	620		5.0		ug/L	10			8260B/CA_LUFTM	Total/NA
Ethylbenzene	0.96		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA
Toluene	4.7		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA
Xylenes, Total	1.4		1.0		ug/L	1			8260B/CA_LUFTM	Total/NA
Gasoline Range Organics (GRO) -C6-C12	2000		500		ug/L	10			8260B/CA_LUFTM	Total/NA
TBA	220		4.0		ug/L	1			8260B/CA_LUFTM	Total/NA
TAME	43		0.50		ug/L	1			8260B/CA_LUFTM	Total/NA

Analytical Data

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Client Sample ID: A-3 (3/18/11)

Lab Sample ID: 720-34042-1

Date Collected: 03/18/11 10:20

Matrix: Water

Date Received: 03/21/11 14:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			03/23/11 01:16	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		67 - 130					03/23/11 01:16	1
1,2-Dichloroethane-d4 (Surr)	110		67 - 130					03/23/11 01:16	1
Toluene-d8 (Surr)	96		70 - 130					03/23/11 01:16	1

Client Sample ID: A-4 (3/18/11)

Lab Sample ID: 720-34042-2

Date Collected: 03/18/11 09:30

Matrix: Water

Date Received: 03/21/11 14:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	66		0.50		ug/L			03/23/11 02:47	1
Benzene	9.9		0.50		ug/L			03/23/11 02:47	1
EDB	ND		0.50		ug/L			03/23/11 02:47	1
1,2-DCA	ND		0.50		ug/L			03/23/11 02:47	1
Ethylbenzene	1.9		0.50		ug/L			03/23/11 02:47	1
Toluene	ND		0.50		ug/L			03/23/11 02:47	1
Xylenes, Total	ND		1.0		ug/L			03/23/11 02:47	1
Gasoline Range Organics (GRO)	490		50		ug/L			03/23/11 02:47	1
-C6-C12									
TBA	1400		4.0		ug/L			03/23/11 02:47	1
Ethanol	ND		250		ug/L			03/23/11 02:47	1
DIPE	ND		0.50		ug/L			03/23/11 02:47	1
TAME	18		0.50		ug/L			03/23/11 02:47	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/23/11 02:47	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		67 - 130					03/23/11 02:47	1
1,2-Dichloroethane-d4 (Surr)	113		67 - 130					03/23/11 02:47	1
Toluene-d8 (Surr)	99		70 - 130					03/23/11 02:47	1

Client Sample ID: A-5 (3/18/11)

Lab Sample ID: 720-34042-3

Date Collected: 03/18/11 09:55

Matrix: Water

Date Received: 03/21/11 14:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			03/23/11 05:50	1
Gasoline Range Organics (GRO)	ND		50		ug/L			03/23/11 05:50	1
-C6-C12									
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		67 - 130					03/23/11 05:50	1
1,2-Dichloroethane-d4 (Surr)	106		67 - 130					03/23/11 05:50	1
Toluene-d8 (Surr)	97		70 - 130					03/23/11 05:50	1

Analytical Data

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Client Sample ID: A-8 (3/18/11)

Lab Sample ID: 720-34042-4

Date Collected: 03/18/11 10:05

Matrix: Water

Date Received: 03/21/11 14:23

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	87		0.50		ug/L			03/23/11 06:20	1
Benzene	620		5.0		ug/L			03/24/11 13:24	10
EDB	ND		0.50		ug/L			03/23/11 06:20	1
1,2-DCA	ND		0.50		ug/L			03/23/11 06:20	1
Ethylbenzene	0.96		0.50		ug/L			03/23/11 06:20	1
Toluene	4.7		0.50		ug/L			03/23/11 06:20	1
Xylenes, Total	1.4		1.0		ug/L			03/23/11 06:20	1
Gasoline Range Organics (GRO)	2000		500		ug/L			03/24/11 13:24	10
-C6-C12									
TBA	220		4.0		ug/L			03/23/11 06:20	1
Ethanol	ND		250		ug/L			03/23/11 06:20	1
DIPE	ND		0.50		ug/L			03/23/11 06:20	1
TAME	43		0.50		ug/L			03/23/11 06:20	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/23/11 06:20	1

Surrogate	% Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		67 - 130		03/23/11 06:20	1
4-Bromofluorobenzene	106		67 - 130		03/24/11 13:24	10
1,2-Dichloroethane-d4 (Surr)	105		67 - 130		03/23/11 06:20	1
1,2-Dichloroethane-d4 (Surr)	113		67 - 130		03/24/11 13:24	10
Toluene-d8 (Surr)	100		70 - 130		03/23/11 06:20	1
Toluene-d8 (Surr)	102		70 - 130		03/24/11 13:24	10

Quality Control Data

Client: ARCADIS U.S., Inc.
 Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

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

Lab Sample ID: MB 720-88124/4
Matrix: Water
Analysis Batch: 88124

Client Sample ID: MB 720-88124/4
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L			03/22/11 19:40	1
MTBE	ND		0.50		ug/L			03/22/11 19:40	1
Benzene	ND		0.50		ug/L			03/22/11 19:40	1
EDB	ND		0.50		ug/L			03/22/11 19:40	1
1,2-DCA	ND		0.50		ug/L			03/22/11 19:40	1
Ethylbenzene	ND		0.50		ug/L			03/22/11 19:40	1
Toluene	ND		0.50		ug/L			03/22/11 19:40	1
Xylenes, Total	ND		1.0		ug/L			03/22/11 19:40	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/22/11 19:40	1
TBA	ND		4.0		ug/L			03/22/11 19:40	1
Ethanol	ND		250		ug/L			03/22/11 19:40	1
DIPE	ND		0.50		ug/L			03/22/11 19:40	1
TAME	ND		0.50		ug/L			03/22/11 19:40	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/22/11 19:40	1
Surrogate	% Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		67 - 130					03/22/11 19:40	1
1,2-Dichloroethane-d4 (Surr)	103		67 - 130					03/22/11 19:40	1
Toluene-d8 (Surr)	97		70 - 130					03/22/11 19:40	1

Lab Sample ID: LCS 720-88124/5
Matrix: Water
Analysis Batch: 88124

Client Sample ID: LCS 720-88124/5
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits	
Methyl tert-butyl ether	25.0	26.2		ug/L		105	62 - 130	
MTBE	25.0	26.2		ug/L		105	62 - 130	
Benzene	25.0	26.4		ug/L		105	82 - 127	
EDB	25.0	27.9		ug/L		111	70 - 130	
1,2-DCA	25.0	25.8		ug/L		103	70 - 126	
Ethylbenzene	25.0	26.0		ug/L		104	86 - 135	
Toluene	25.0	25.6		ug/L		102	83 - 129	
TBA	500	480		ug/L		96	82 - 116	
Ethanol	500	633		ug/L		127	31 - 216	
DIPE	25.0	26.2		ug/L		105	74 - 155	
TAME	25.0	26.7		ug/L		107	79 - 129	
Ethyl t-butyl ether	25.0	25.8		ug/L		103	70 - 130	
Surrogate	% Recovery	Qualifier	Limits					
4-Bromofluorobenzene	102		67 - 130					
1,2-Dichloroethane-d4 (Surr)	102		67 - 130					
Toluene-d8 (Surr)	99		70 - 130					

Quality Control Data

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

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

Lab Sample ID: 720-34042-1 MS

Matrix: Water

Analysis Batch: 88124

Client Sample ID: A-3 (3/18/11)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS MS		Unit	D	% Rec	% Rec. Limits
	Result	Qualifier		Result	Qualifier				
MTBE	ND		25.0	26.6		ug/L		106	60 - 138
Benzene	ND		25.0	26.9		ug/L		108	60 - 140
EDB	ND		25.0	28.4		ug/L		113	60 - 140
1,2-DCA	ND		25.0	26.9		ug/L		108	60 - 140
Ethylbenzene	ND		25.0	26.0		ug/L		104	60 - 140
Toluene	ND		25.0	25.9		ug/L		104	60 - 140
TBA	ND		500	495		ug/L		99	60 - 140
Ethanol	ND		500	698		ug/L		140	60 - 140
DIPE	ND		25.0	27.2		ug/L		109	60 - 140
TAME	ND		25.0	26.6		ug/L		106	60 - 140
Ethyl t-butyl ether	ND		25.0	26.2		ug/L		105	60 - 140

Surrogate	MS MS		Limits
	% Recovery	Qualifier	
4-Bromofluorobenzene	101		67 - 130
1,2-Dichloroethane-d4 (Surr)	106		67 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: 720-34042-1 MSD

Matrix: Water

Analysis Batch: 88124

Client Sample ID: A-3 (3/18/11)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MSD MSD		Unit	D	% Rec	% Rec. Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
Methyl tert-butyl ether	ND		25.0	26.8		ug/L		107	60 - 138	1	20
MTBE	ND		25.0	26.8		ug/L		107	60 - 138	1	20
Benzene	ND		25.0	27.6		ug/L		110	60 - 140	3	20
EDB	ND		25.0	28.1		ug/L		112	60 - 140	1	20
1,2-DCA	ND		25.0	26.9		ug/L		108	60 - 140	0	20
Ethylbenzene	ND		25.0	26.9		ug/L		108	60 - 140	3	20
Toluene	ND		25.0	26.7		ug/L		107	60 - 140	3	20
TBA	ND		500	517		ug/L		103	60 - 140	4	20
Ethanol	ND		500	704	F	ug/L		141	60 - 140	1	20
DIPE	ND		25.0	27.8		ug/L		111	60 - 140	2	20
TAME	ND		25.0	27.4		ug/L		109	60 - 140	3	20
Ethyl t-butyl ether	ND		25.0	27.4		ug/L		109	60 - 140	4	20

Surrogate	MSD MSD		Limits
	% Recovery	Qualifier	
4-Bromofluorobenzene	101		67 - 130
1,2-Dichloroethane-d4 (Surr)	101		67 - 130
Toluene-d8 (Surr)	99		70 - 130

Lab Sample ID: MB 720-88252/4

Matrix: Water

Analysis Batch: 88252

Client Sample ID: MB 720-88252/4

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		0.50		ug/L			03/24/11 10:07	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/24/11 10:07	1

Quality Control Data

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

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

Lab Sample ID: MB 720-88252/4
Matrix: Water
Analysis Batch: 88252

Client Sample ID: MB 720-88252/4
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	% Recovery	Qualifier				
4-Bromofluorobenzene	103		67 - 130		03/24/11 10:07	1
1,2-Dichloroethane-d4 (Surr)	115		67 - 130		03/24/11 10:07	1
Toluene-d8 (Surr)	103		70 - 130		03/24/11 10:07	1

Lab Sample ID: LCS 720-88252/5
Matrix: Water
Analysis Batch: 88252

Client Sample ID: LCS 720-88252/5
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Benzene	25.0	24.6		ug/L		99	82 - 127

Surrogate	LCS LCS		Limits
	% Recovery	Qualifier	
4-Bromofluorobenzene	106		67 - 130
1,2-Dichloroethane-d4 (Surr)	107		67 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCS 720-88252/7
Matrix: Water
Analysis Batch: 88252

Client Sample ID: LCS 720-88252/7
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Gasoline Range Organics (GRO) -C6-C12	500	426		ug/L		85	58 - 106

Surrogate	LCS LCS		Limits
	% Recovery	Qualifier	
4-Bromofluorobenzene	106		67 - 130
1,2-Dichloroethane-d4 (Surr)	111		67 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 720-88252/6
Matrix: Water
Analysis Batch: 88252

Client Sample ID: LCSD 720-88252/6
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	Limit
Benzene	25.0	25.4		ug/L		102	82 - 127	3	20

Surrogate	LCSD LCSD		Limits
	% Recovery	Qualifier	
4-Bromofluorobenzene	105		67 - 130
1,2-Dichloroethane-d4 (Surr)	110		67 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 720-88252/8
Matrix: Water
Analysis Batch: 88252

Client Sample ID: LCSD 720-88252/8
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	Limit
Gasoline Range Organics (GRO) -C6-C12	500	438		ug/L		88	58 - 106	3	20

Quality Control Data

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

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

Lab Sample ID: LCSD 720-88252/8

Matrix: Water

Analysis Batch: 88252

Client Sample ID: LCSD 720-88252/8

Prep Type: Total/NA

Surrogate	LCSD		Limits
	% Recovery	Qualifier	
4-Bromofluorobenzene	107		67 - 130
1,2-Dichloroethane-d4 (Surr)	112		67 - 130
Toluene-d8 (Surr)	103		70 - 130

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QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

GC/MS VOA

Analysis Batch: 88124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-34042-1	A-3 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
720-34042-1 MS	A-3 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
720-34042-1 MSD	A-3 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
720-34042-2	A-4 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
720-34042-3	A-5 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
720-34042-4	A-8 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
MB 720-88124/4	MB 720-88124/4	Total/NA	Water	8260B/CA_LUF TMS	
LCS 720-88124/5	LCS 720-88124/5	Total/NA	Water	8260B/CA_LUF TMS	
LCSD 720-88124/6	LCSD 720-88124/6	Total/NA	Water	8260B/CA_LUF TMS	
LCS 720-88124/7	LCS 720-88124/7	Total/NA	Water	8260B/CA_LUF TMS	
LCSD 720-88124/8	LCSD 720-88124/8	Total/NA	Water	8260B/CA_LUF TMS	

Analysis Batch: 88252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-34042-4	A-8 (3/18/11)	Total/NA	Water	8260B/CA_LUF TMS	
MB 720-88252/4	MB 720-88252/4	Total/NA	Water	8260B/CA_LUF TMS	
LCS 720-88252/5	LCS 720-88252/5	Total/NA	Water	8260B/CA_LUF TMS	
LCSD 720-88252/6	LCSD 720-88252/6	Total/NA	Water	8260B/CA_LUF TMS	
LCS 720-88252/7	LCS 720-88252/7	Total/NA	Water	8260B/CA_LUF TMS	
LCSD 720-88252/8	LCSD 720-88252/8	Total/NA	Water	8260B/CA_LUF TMS	

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Client Sample ID: A-3 (3/18/11)

Date Collected: 03/18/11 10:20

Date Received: 03/21/11 14:23

Lab Sample ID: 720-34042-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUF TMS		1	88124	03/23/11 01:16	LL	TestAmerica San Francisco

Client Sample ID: A-4 (3/18/11)

Date Collected: 03/18/11 09:30

Date Received: 03/21/11 14:23

Lab Sample ID: 720-34042-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUF TMS		1	88124	03/23/11 02:47	LL	TestAmerica San Francisco

Client Sample ID: A-5 (3/18/11)

Date Collected: 03/18/11 09:55

Date Received: 03/21/11 14:23

Lab Sample ID: 720-34042-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUF TMS		1	88124	03/23/11 05:50	LL	TestAmerica San Francisco

Client Sample ID: A-8 (3/18/11)

Date Collected: 03/18/11 10:05

Date Received: 03/21/11 14:23

Lab Sample ID: 720-34042-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUF TMS		1	88124	03/23/11 06:20	LL	TestAmerica San Francisco
Total/NA	Analysis	8260B/CA_LUF TMS		10	88252	03/24/11 13:24	LL	TestAmerica San Francisco

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

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

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

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

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

Protocol References:

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

Laboratory References:

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



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-34042-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-34042-1	A-3 (3/18/11)	Water	03/18/11 10:20	03/21/11 14:23
720-34042-2	A-4 (3/18/11)	Water	03/18/11 09:30	03/21/11 14:23
720-34042-3	A-5 (3/18/11)	Water	03/18/11 09:55	03/21/11 14:23
720-34042-4	A-8 (3/18/11)	Water	03/18/11 10:05	03/21/11 14:23

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Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 720-34042-1

Login Number: 34042

List Source: TestAmerica San Francisco

List Number: 1

Creator: Hoang, Julie

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

APPENDIX D

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!

<u>Submittal Type:</u>	EDF - Monitoring Report - Semi-Annually
<u>Submittal Title:</u>	1Q11 GW Monitoring
<u>Facility Global ID:</u>	T0600100110
<u>Facility Name:</u>	ARCO #04931
<u>File Name:</u>	720-34042-1.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	4/21/2011 12:34:50 PM
<u>Confirmation Number:</u>	4591166198

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[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!

<u>Submittal Type:</u>	GEO_WELL
<u>Submittal Title:</u>	1Q11 GEO_WELL 4931
<u>Facility Global ID:</u>	T0600100110
<u>Facility Name:</u>	ARCO #04931
<u>File Name:</u>	GEO_WELL.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	4/27/2011 1:25:42 PM
<u>Confirmation Number:</u>	9653592705