

Atlantic Richfield Company

Chuck Carmel
Environmental Business Manager

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8:51 am, Oct 06, 2010

Alameda County
Environmental Health

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3803
Fax: (925) 275-3815
E-Mail: charles.carmel@bp.com

October 1, 2010

Re: Third Quarter 2010 Semi-Annual Groundwater Monitoring Report
Atlantic Richfield Company Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

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

Submitted by,



Chuck Carmel
Environmental Business Manager

Attachment:

Prepared for

Mr. Chuck Carmel
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by



**Third Quarter 2010 Semi-Annual
Groundwater Monitoring Report**
Atlantic Richfield Company Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

875 Cotting Lane, Suite G
Vacaville, California 95688
(707) 455-7290
www.broadbentinc.com

October 1, 2010

Project No. 06-88-602

Broadbent & Associates, Inc.
875 Cotting Ln., Suite G
Vacaville, CA 95688
(707) 455-7290 Tel
(707) 455-7295 Fax



October 1, 2010

Project No. 06-88-602

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

Attn.: Mr. Chuck Carmel

Re: Third Quarter 2010 Semi-Annual Groundwater Monitoring Report, Atlantic Richfield Company Station #374, 6407 Telegraph Avenue, Oakland, Alameda County, California
ACEH Case #RO0000078

Dear Mr. Carmel:

Attached is the *Third Quarter 2010 Semi-Annual Groundwater Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #374 located at 6407 Telegraph Avenue, Oakland, California (Site). This report presents results of groundwater monitoring conducted at the Site during the Third Quarter of 2010.

Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (707) 455-7290.

Sincerely,

BROADBENT & ASSOCIATES, INC.

A handwritten signature in blue ink that reads "Thomas A. Sparrowe".

Thomas A. Sparrowe, P.G.
Senior Geologist



Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

STATION #374 GROUNDWATER MONITORING REPORT

Facility: #374	Address:	6407 Telegraph Avenue, Oakland, California
Environmental Business Manager:	Mr. Chuck Carmel	
Consulting Co./Contact Persons:	Broadbent & Associates, Inc.(BAI)/Mr. Tom Sparrowe , PG (707) 455-7290	
Consultant Project No.:	06-88-602	
Primary Agency/Regulatory ID No.:	Alameda County Environmental Health (ACEH) ACEH Case #RO0000078	
Facility Permits/Permitting Agency:	NA	

WORK PERFORMED THIS QUARTER (Third Quarter 2010):

1. Prepared and submitted *Second Quarter 2009 Status Report* (BAI, 07/19/2010).
2. Conducted groundwater monitoring/sampling for Third Quarter 2010. Work performed on August 10, 2010 by BAI.
3. On August 12, 2010 ACEH approved BAI's May 11, 2010 *Work Plan for Soil and Ground-Water Investigation*.

WORK PROPOSED FOR NEXT QUARTER (Fourth Quarter 2010):

1. Prepare and submit this *Third Quarter 2010 Semi-Annual Groundwater Monitoring Report* (contained herein).
2. Conduct soil and groundwater investigation field work, presently scheduled at the Site for October 2010.
3. Prepare and submit a Soil & Groundwater Investigation Report to ACEH by November 10, 2010.

RESULTS SUMMARY:

Current phase of project:	<u>Groundwater monitoring/sampling/characterization</u>
Frequency of groundwater monitoring:	<u>Semi-Annually: MW-1, MW-2, MW-3, MW-4, MW-5, MW-6</u>
Frequency of groundwater sampling:	<u>Semi-Annually (1Q and 3Q): MW-1, MW-2 and MW-4</u> <u>Annually (3Q): MW-3, MW-5, and MW-6</u>
Is free product (FP) present on-site:	<u>No</u>
Current remediation techniques:	<u>NA</u>
Depth to ground water (below TOC):	<u>5.02 ft (MW-6) to 8.03 ft (MW-5)</u>
General groundwater flow direction:	<u>Southwest</u>
Approximate hydraulic gradient:	<u>0.03 ft/ft</u>

DISCUSSION:

Third quarter 2010 groundwater monitoring and sampling was conducted at Station #374 on August 10, 2010 by BAI. Water levels were gauged in all six wells at the Site. No irregularities were noted in the field during this quarter's water level gauging. Depth-to-water measurements ranged from 5.02 ft at MW-6 to 8.05 ft at MW-5. Resulting groundwater surface elevations ranged from 156.99 ft above datum in well MW-1 to 152.09 ft at well MW-3. Water level elevations are summarized in Table 1. Water level elevations yielded a potentiometric groundwater flow direction and gradient to the southwest at approximately 0.03 ft/ft. Groundwater monitoring field data sheets are provided within Appendix A. Measured depths to groundwater and respective groundwater elevations are summarized in Table 1. Current and historic groundwater flow directions and gradients are provided in Table 3. A Site

Location Map is provided as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Consistent with the current groundwater sampling schedule, water samples were collected from wells MW-1 through MW-6 at the Site. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. of Garden Grove, California, for analysis of Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl ether (DIPG), Tert-Butyl Alcohol (TBA), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), and Ethanol by EPA Method 8260B. No significant irregularities were noted during laboratory analysis of the samples. Groundwater sampling field data sheets and the laboratory analytical report, including chain-of-custody documentation, are provided in Appendix A.

GRO was only detected above the laboratory reporting limits in well MW-4 at a concentration of 9,700 micrograms per liter ($\mu\text{g/L}$). Benzene, Ethylbenzene, Toluene, and Total Xylenes were detected above the laboratory reporting limit in well MW-4 at concentrations of 1,500 $\mu\text{g/L}$, 400 $\mu\text{g/L}$, 120 $\mu\text{g/L}$ and 400 $\mu\text{g/L}$, respectively. MTBE was detected above the laboratory reporting limit in four of the six wells sampled at concentrations ranging from 1.6 $\mu\text{g/L}$ in MW-3 to 230 $\mu\text{g/L}$ in MW-1. TAME was detected above the laboratory reporting limit in one of the six wells sampled at a concentration of 1.2 $\mu\text{g/L}$ in MW-3. No ETBE, DIPG, TBA, 1,2-DCA or Ethanol was detected above the laboratory reporting limits in the wells sampled. The remaining fuel constituents were not detected above their laboratory reporting limits in the six wells sampled this quarter. Historic 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 B.

CONCLUSIONS AND RECOMMENDATIONS:

Water level elevations were within historical minimum and maximum ranges in each well. The potentiometric groundwater flow direction and gradient was generally consistent with historical data. Detected analyte concentrations were within the historic minimum and maximum ranges recorded for each well. Hydrocarbon concentrations remained relatively stable in comparison to recent sampling events. On August 12 2010, ACEH approved BAI's May 11, 2010 Soil & Groundwater Investigation Work Plan (Work Plan) to further characterize the soil and groundwater conditions at the Site. On October 11 and 12, 2010 BAI will drill and sample four soil borings and convert three borings into groundwater monitoring wells. BAI will prepare a Soil and Groundwater Investigation report that will be submitted to ACEH by November 10, 2010 followed by the preparation a Feasibility Study and/or Corrective Action Plan by January 12, 2011. The next groundwater monitoring and sampling event will be conducted during the First Quarter of 2011.

CLOSURE:

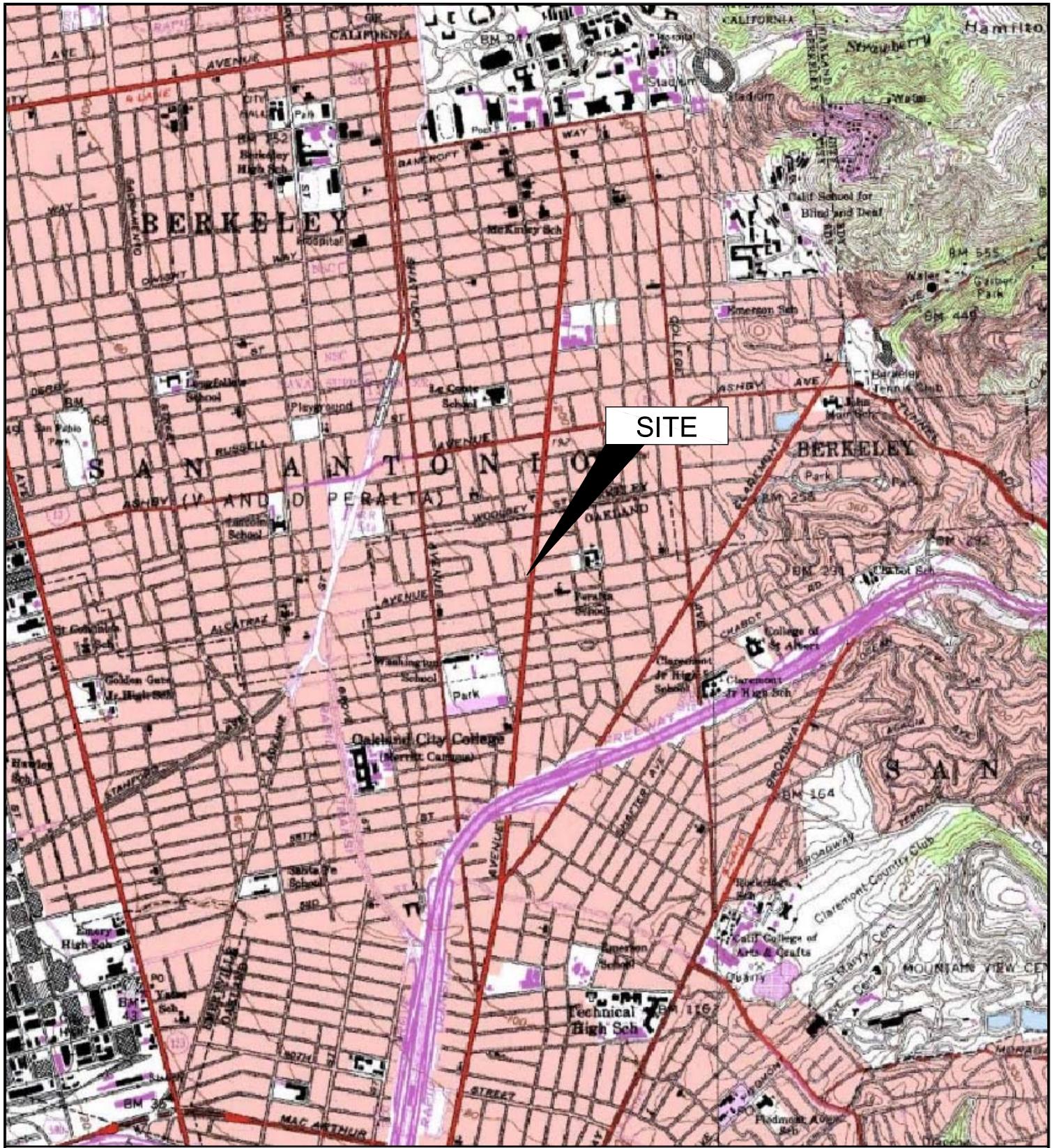
The findings presented in this report are based upon: observations of BAI field personnel (see Appendix A), the points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, California). Our services were performed in accordance with the 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 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, Station #374, 6407 Telegraph Avenue, Oakland, California
- Drawing 2. Groundwater Elevation Contours and Analytical Summary Map, August 10, 2010,
Station #374, 6407 Telegraph Avenue, Oakland, California
- Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #374, 6407 Telegraph Ave., Oakland, California
- Table 2. Summary of Fuel Additives Analytical Data, Station #374, 6407 Telegraph Ave.,
Oakland, California
- Table 3. Historical Groundwater Flow Direction and Gradient, Station #374, 6407 Telegraph Ave., Oakland, California
- Appendix A. BAI Groundwater Sampling Data Package (Includes Field Data Sheets, Non-Hazardous Waste Data Form, Laboratory Analytical Report with Chain-of-Custody Documentation, and Field Procedures)
- Appendix B. GeoTracker Upload Confirmation Receipts

DRAWINGS



0 2000 4000
APPROXIMATE SCALE (ft)

IMAGE SOURCE: USGS

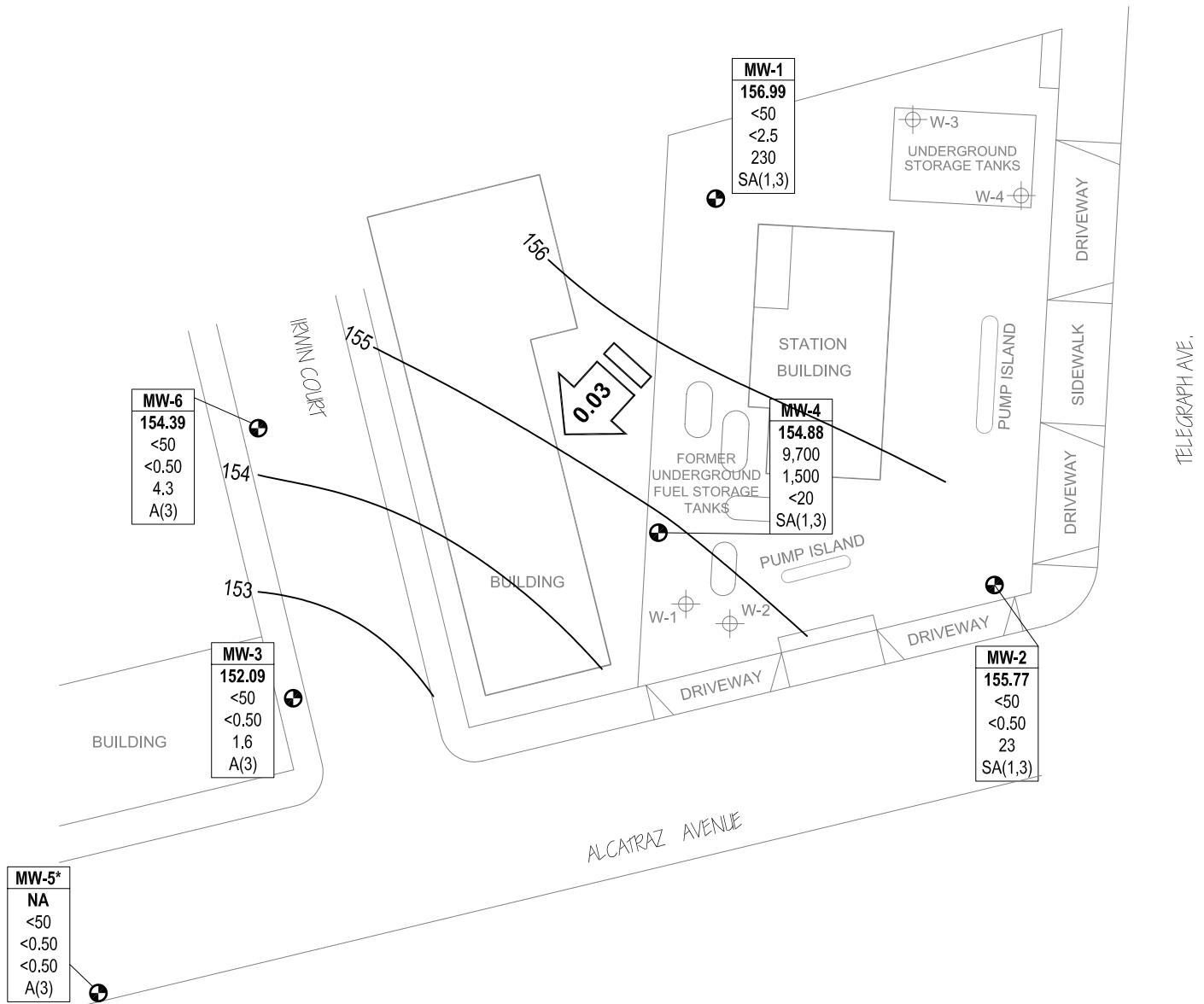


BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-602 Date: 10/30/09

Station #374
6407 Telegraph Ave.
Oakland, California

Site Location Map

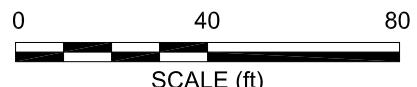
Drawing 1



LEGEND

- MONITORING WELL
- TANK PIT MONITORING WELL
- WELL DESIGNATION
- ELEV GRO Benzene MTBE A/Q/SA
- GROUND-WATER ELEVATION (FT)
- GRO, BENZENE & MTBE CONCENTRATIONS IN GROUND WATER ($\mu\text{g/L}$)
- SAMPLING FREQUENCY
- < NOT DETECTED AT OR ABOVE LABORATORY LIMITS
- Q SAMPLED QUARTERLY
- SA(1,3) SAMPLED SEMI-ANNUALLY, 1ST & 3RD QUARTERS
- A(3) SAMPLED ANNUALLY, 3RD QUARTER
- NS/NA NOT SAMPLED/ NOT AVAILABLE
- 0.03 APPROXIMATE GROUND-WATER FLOW AND DIRECTION (FT/FT)
- 153 GROUND-WATER ELEVATION CONTOUR (FT)

* Elevation not used for contours



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



TABLES

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-1															
6/20/2000	--		158.91	7.00	27.0	6.86	152.05	--	--	--	--	--	--	--	--
9/28/2000	--		158.91	7.00	27.0	7.50	151.41	--	--	--	--	--	--	--	--
12/17/2000	--		158.91	7.00	27.0	7.49	151.42	--	--	--	--	--	--	--	--
3/23/2001	--		158.91	7.00	27.0	5.90	153.01	<50	<0.5	<0.5	<0.5	<0.5	2,710	--	--
6/21/2001	--		158.91	7.00	27.0	7.45	151.46	--	--	--	--	--	--	--	--
9/23/2001	--		158.91	7.00	27.0	8.46	150.45	--	--	--	--	--	--	--	--
12/31/2001	--		158.91	7.00	27.0	5.50	153.41	--	--	--	--	--	--	--	--
3/21/2002	--		158.91	7.00	27.0	4.71	154.20	<5,000	<50	<50	<50	<50	2,000	--	--
4/17/2002	--		158.91	7.00	27.0	5.54	153.37	--	--	--	--	--	--	--	--
8/12/2002	--		158.91	7.00	27.0	7.77	151.14	--	--	--	--	--	--	--	--
12/6/2002	--		158.91	7.00	27.0	7.65	151.26	--	--	--	--	--	--	--	--
1/29/2003	--	b	158.91	7.00	27.0	5.88	153.03	--	--	--	--	--	--	--	--
5/23/2003	--		158.91	7.00	27.0	5.62	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1
9/4/2003	--		158.91	7.00	27.0	7.85	151.06	--	--	--	--	--	--	--	--
11/20/2003	P		158.91	7.00	27.0	8.17	150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7
02/02/2004	P	f	164.57	7.00	27.0	6.71	157.86	--	--	--	--	--	--	1.0	--
05/14/2004	P		164.57	7.00	27.0	7.08	157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6
09/02/2004	P		164.57	7.00	27.0	8.12	156.45	580	<5.0	<5.0	<5.0	<5.0	660	3.8	6.7
11/04/2004	P		164.57	7.00	27.0	7.38	157.19	1,700	<10	<10	<10	<10	580	6.0	6.5
02/08/2005	P		164.57	7.00	27.0	6.60	157.97	<1,000	<10	<10	<10	<10	610	0.71	6.5
05/09/2005	P	e	164.57	7.00	27.0	6.84	157.73	540	<5.0	<5.0	<5.0	<5.0	620	3.12	6.6
08/11/2005	P		164.57	7.00	27.0	7.36	157.21	540	<2.5	<2.5	<2.5	<2.5	4.0	390	0.8
11/18/2005	P	e	164.57	7.00	27.0	8.02	156.55	350	<2.5	<2.5	<2.5	<2.5	340	2.6	6.7
02/16/2006	P	e	164.57	7.00	27.0	6.44	158.13	350	<2.5	<2.5	<2.5	<2.5	340	1.6	6.7
5/30/2006	P		164.57	7.00	27.0	6.87	157.70	270	<2.5	<2.5	<2.5	<2.5	420	4.73	6.4
8/24/2006	P		164.57	7.00	27.0	7.75	156.82	95	<5.0	<5.0	<5.0	<5.0	180	0.65	6.9
11/1/2006	P		164.57	7.00	27.0	8.28	156.29	120	<5.0	<5.0	<5.0	<5.0	220	1.65	7.07
2/7/2007	NP	e	164.57	7.00	27.0	7.40	157.17	120	<5.0	<5.0	<5.0	<5.0	190	1.88	7.45
5/8/2007	P		164.57	7.00	27.0	6.50	158.07	<500	<5.0	<5.0	<5.0	<5.0	420	1.21	6.94
8/8/2007	NP	e	164.57	7.00	27.0	8.17	156.40	82	<0.50	<0.50	<0.50	<0.50	<0.50	110	1.16
11/14/2007	NP		164.57	7.00	27.0	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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	
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1 Cont.																
2/22/2008	P		164.57	7.00	27.0	6.00	158.57	<50	<0.50	<0.50	<0.50	<0.50	250	2.57	6.65	
5/24/2008	NP		164.57	7.00	27.0	7.58	156.99	<50	<5.0	<5.0	<5.0	<5.0	380	2.28	6.81	
8/21/2008	NP		164.57	7.00	27.0	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98	
11/19/2008	NP		164.57	7.00	27.0	8.88	155.69	<50	<0.50	<0.50	<0.50	<0.50	30	2.12	7.27	
2/23/2009	P		164.57	7.00	27.0	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03	
5/14/2009	P		164.57	7.00	27.0	6.67	157.90	53	<0.50	<0.50	<0.50	<0.50	200	1.75	6.69	
8/20/2009	NP	i (GRO)	164.57	7.00	27.0	8.25	156.32	150	<2.0	<2.0	<2.0	<2.0	170	2.14	6.25	
2/19/2010	P		164.57	7.00	27.0	6.07	158.50	<50	<0.50	<0.50	<0.50	<0.50	170	0.92	6.66	
8/10/2010	NP		164.57	7.00	27.0	7.58	156.99	<50	<2.5	<2.5	<2.5	<2.5	230	3.86	7.1	
MW-2																
6/20/2000	--		157.92	7.00	27.0	7.67	150.25	--	--	--	--	--	--	--	--	
9/28/2000	--		157.92	7.00	27.0	8.51	149.41	--	--	--	--	--	--	--	--	
12/17/2000	--		157.92	7.00	27.0	8.14	149.78	--	--	--	--	--	--	--	--	
3/23/2001	--		157.92	7.00	27.0	7.21	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		157.92	7.00	27.0	7.99	149.93	--	--	--	--	--	--	--	--	
9/23/2001	--		157.92	7.00	27.0	8.52	149.40	--	--	--	--	--	--	--	--	
12/31/2001	--		157.92	7.00	27.0	6.01	151.91	--	--	--	--	--	--	--	--	
3/21/2002	--		157.92	7.00	27.0	5.95	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	--	--	
4/17/2002	--		157.92	7.00	27.0	6.45	151.47	--	--	--	--	--	--	--	--	
8/12/2002	--		157.92	7.00	27.0	8.08	149.84	--	--	--	--	--	--	--	--	
12/6/2002	--		157.92	7.00	27.0	8.29	149.63	--	--	--	--	--	--	--	--	
1/29/2003	--	b	157.92	7.00	27.0	7.22	150.70	--	--	--	--	--	--	--	--	
5/23/2003	--		157.92	7.00	27.0	6.85	151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2	
9/4/2003	--		157.92	7.00	27.0	7.94	149.98	--	--	--	--	--	--	--	--	
11/20/2003	--		157.92	7.00	27.0	8.05	149.87	--	--	--	--	--	--	--	--	
02/02/2004	P	f	163.46	7.00	27.0	7.00	156.46	74	<0.50	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9
05/14/2004	--		163.46	7.00	27.0	7.97	155.49	--	--	--	--	--	--	--	--	
09/02/2004	P		163.46	7.00	27.0	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9	
11/04/2004	--		163.46	7.00	27.0	7.54	155.92	--	--	--	--	--	--	--	--	
02/08/2005	P		163.46	7.00	27.0	6.72	156.74	<50	<0.50	<0.50	<0.50	<0.50	30	0.86	6.7	

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-2 Cont.															
05/09/2005	--		163.46	7.00	27.0	7.16	156.30	--	--	--	--	--	--	--	--
08/11/2005	P		163.46	7.00	27.0	7.85	155.61	<50	<0.50	<0.50	<0.50	<0.50	35	1.0	6.6
11/18/2005	--		163.46	7.00	27.0	8.23	155.23	--	--	--	--	--	--	--	--
02/16/2006	P		163.46	7.00	27.0	6.82	156.64	<50	<0.50	<0.50	<0.50	<0.50	39	1.3	7.0
5/30/2006	--		163.46	7.00	27.0	7.23	156.23	--	--	--	--	--	--	--	--
8/24/2006	P		163.46	7.00	27.0	8.00	155.46	60	<0.50	<0.50	<0.50	<0.50	25	0.90	6.8
11/1/2006	--		163.46	7.00	27.0	8.38	155.08	--	--	--	--	--	--	--	--
2/7/2007	NP		163.46	7.00	27.0	7.88	155.58	<50	0.50	<0.50	<0.50	<0.50	7.2	0.94	7.39
5/8/2007	--		163.46	7.00	27.0	7.28	156.18	--	--	--	--	--	--	--	--
8/8/2007	NP		163.46	7.00	27.0	8.38	155.08	88	3.2	<0.50	<0.50	<0.50	7.2	0.94	7.75
11/14/2007	--		163.46	7.00	27.0	8.10	155.36	--	--	--	--	--	--	--	--
2/22/2008	P		163.46	7.00	27.0	6.75	156.71	<50	<0.50	<0.50	<0.50	<0.50	24	2.18	7.02
5/24/2008	--		163.46	7.00	27.0	7.98	155.48	--	--	--	--	--	--	--	--
8/21/2008	NP		163.46	7.00	27.0	8.58	154.88	<50	2.6	<0.50	<0.50	<0.50	4.9	2.20	7.11
11/19/2008	--		163.46	7.00	27.0	8.66	154.80	--	--	--	--	--	--	--	--
2/23/2009	P		163.46	7.00	27.0	6.67	156.79	74	1.0	<0.50	<0.50	<0.50	24	2.25	6.16
5/14/2009	--		163.46	7.00	27.0	7.02	156.44	--	--	--	--	--	--	--	--
8/20/2009	NP		163.46	7.00	27.0	8.41	155.05	82	2.4	<0.50	<0.50	<0.50	8.4	2.19	6.37
2/19/2010	NP		163.46	7.00	27.0	7.36	156.10	<50	<0.50	<0.50	<0.50	<0.50	22	0.81	6.90
8/10/2010	NP		163.46	7.00	27.0	7.69	155.77	<50	<0.50	<0.50	<0.50	<0.50	23	2.40	7.67
MW-3															
6/20/2000	--		153.64	7.00	27.0	6.42	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--
9/28/2000	--		153.64	7.00	27.0	7.31	146.33	--	--	--	--	--	--	--	--
12/17/2000	--		153.64	7.00	27.0	6.45	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		153.64	7.00	27.0	6.01	147.63	--	--	--	--	--	--	--	--
6/21/2001	--		153.64	7.00	27.0	6.80	146.84	110	5.5	<0.5	5.4	4.1	2.5	--	--
9/23/2001	--		153.64	7.00	27.0	7.32	146.32	--	--	--	--	--	--	--	--
12/31/2001	--		153.64	7.00	27.0	4.48	149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	--	--
3/21/2002	--		153.64	7.00	27.0	4.36	149.28	--	--	--	--	--	--	--	--
4/17/2002	--		153.64	7.00	27.0	5.31	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	--	--

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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	
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-3 Cont.																
8/12/2002	--		153.64	7.00	27.0	7.00	146.64	--	--	--	--	--	--	--	--	
12/6/2002	--		153.64	7.00	27.0	7.32	146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7	
1/29/2003	--	b	153.64	7.00	27.0	6.07	147.57	--	--	--	--	--	--	--	--	
5/23/2003	--		153.64	7.00	27.0	6.45	147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7	
9/4/2003	--	c	153.64	7.00	27.0	6.93	146.71	--	--	--	--	--	--	--	--	
11/20/2003	--	c	153.64	7.00	27.0	7.04	146.60	--	--	--	--	--	--	--	--	
02/02/2004	--	f	159.21	7.00	27.0	5.92	153.29	--	--	--	--	--	--	--	--	
05/14/2004	--		159.21	7.00	27.0	7.52	151.69	--	--	--	--	--	--	--	--	
09/02/2004	P		159.21	7.00	27.0	7.19	152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9	
11/04/2004	--		159.21	7.00	27.0	6.40	152.81	--	--	--	--	--	--	--	--	
02/08/2005	--		159.21	7.00	27.0	6.01	153.20	--	--	--	--	--	--	--	--	
05/09/2005	--		159.21	7.00	27.0	6.74	152.47	--	--	--	--	--	--	--	--	
08/11/2005	P		159.21	7.00	27.0	6.77	152.44	<50	<0.50	<0.50	<0.50	<0.50	11	1.9	6.5	
11/18/2005	--		159.21	7.00	27.0	7.83	151.38	--	--	--	--	--	--	--	--	
02/16/2006	--		159.21	7.00	27.0	7.26	151.95	--	--	--	--	--	--	--	--	
5/30/2006	--		159.21	7.00	27.0	5.82	153.39	--	--	--	--	--	--	--	--	
8/24/2006	P		159.21	7.00	27.0	7.00	152.21	<50	<0.50	<0.50	<0.50	<0.50	7.6	1.15	6.4	
11/1/2006	--		159.21	7.00	27.0	7.50	151.71	--	--	--	--	--	--	--	--	
2/7/2007	--		159.21	7.00	27.0	6.90	152.31	--	--	--	--	--	--	--	--	
5/8/2007	--		159.21	7.00	27.0	5.95	153.26	--	--	--	--	--	--	--	--	
8/8/2007	NP		159.21	7.00	27.0	7.47	151.74	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.21	6.93	
11/14/2007	--		159.21	7.00	27.0	7.05	152.16	--	--	--	--	--	--	--	--	
2/22/2008	--		159.21	7.00	27.0	5.50	153.71	--	--	--	--	--	--	--	--	
5/24/2008	--		159.21	7.00	27.0	7.03	152.18	--	--	--	--	--	--	--	--	
8/21/2008	NP		159.21	7.00	27.0	7.80	151.41	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.11	6.84	
11/19/2008	--		159.21	7.00	27.0	7.69	151.52	--	--	--	--	--	--	--	--	
2/23/2009	--		159.21	7.00	27.0	7.28	151.93	--	--	--	--	--	--	--	--	
5/14/2009	--		159.21	7.00	27.0	6.17	153.04	--	--	--	--	--	--	--	--	
8/20/2009	NP		159.21	7.00	27.0	7.38	151.83	<50	<0.50	<0.50	<0.50	<0.50	2.2	2.05	7.01	
2/19/2010	--		159.21	7.00	27.0	5.31	153.90	--	--	--	--	--	--	--	--	
8/10/2010	NP		159.21	7.00	27.0	7.12	152.09	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	1.27	7.33

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Well and Sample Date	P/NP	Comments	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
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-3															
MW-4															
6/20/2000	--	c	156.53	7.00	27.0	7.50	149.03	20,000	5,100	440	1,000	1,700	<250	--	--
9/28/2000	--		156.53	7.00	27.0	8.20	148.33	--	--	--	--	--	--	--	--
12/17/2000	--		156.53	7.00	27.0	8.11	148.42	4,320	1,240	<20	27.2	249	<100	--	--
3/23/2001	--		156.53	7.00	27.0	6.69	149.84	--	--	--	--	--	--	--	--
6/21/2001	--		156.53	7.00	27.0	8.01	148.52	2,800	470	16	19	160	130	--	--
9/23/2001	--		156.53	7.00	27.0	8.91	147.62	--	--	--	--	--	--	--	--
12/31/2001	--		156.53	7.00	27.0	4.42	152.11	4,600	1,500	100	160	210	160	--	--
3/21/2002	--		156.53	7.00	27.0	4.98	151.55	--	--	--	--	--	--	--	--
4/17/2002	--		156.53	7.00	27.0	6.23	150.30	7,100	2,200	110	290	450	<250	--	--
8/12/2002	--		156.53	7.00	27.0	8.24	148.29	--	--	--	--	--	--	--	--
12/6/2002	--	a	156.53	7.00	27.0	8.42	148.11	1,500	410	6.8	20	29	43	1.1	6.7
1/29/2003	--	b	156.53	7.00	27.0	7.20	149.33	--	--	--	--	--	--	--	--
5/23/2003	--		156.53	7.00	27.0	7.18	149.35	<5,000	1,300	89	210	260	<50	1.4	6.9
9/4/2003	--	c	156.53	7.00	27.0	8.15	148.38	--	--	--	--	--	--	--	--
11/20/2003	--	c	156.53	7.00	27.0	8.73	147.80	--	--	--	--	--	--	--	--
02/02/2004	P	c, f, g	163.25	7.00	27.0	6.25	157.00	980	280	21	29	38	29	1.4	10.6
05/14/2004	--	g	163.25	7.00	27.0	8.38	154.87	--	--	--	--	--	--	--	--
09/02/2004	P	g	163.25	7.00	27.0	8.36	154.89	260	11	<1.0	5.5	14	28	2.4	7.4
11/04/2004	--	c, g	163.25	7.00	27.0	7.71	155.54	--	--	--	--	--	--	--	--
02/08/2005	P	g	163.25	7.00	27.0	6.27	156.98	7,500	1,700	320	480	920	45	0.65	6.5
05/09/2005	--	g	163.25	7.00	27.0	5.90	157.35	--	--	--	--	--	--	--	--
08/11/2005	P	g	163.25	7.00	27.0	7.96	155.29	3,100	1,100	41	160	110	32	0.6	6.5
11/18/2005	--	g	163.25	7.00	27.0	8.57	154.68	--	--	--	--	--	--	--	--
02/16/2006	P	g	163.25	7.00	27.0	6.28	156.97	9,400	1,800	130	600	420	35	0.5	6.8
5/30/2006	--	g	162.47	7.00	27.0	7.02	155.45	--	--	--	--	--	--	--	--
8/24/2006	P		162.47	7.00	27.0	8.26	154.21	3,600	1,400	21	110	70	39	1.00	6.8
11/1/2006	--		162.47	7.00	27.0	8.67	153.80	--	--	--	--	--	--	--	--
2/7/2007	NP		162.47	7.00	27.0	8.02	154.45	3,100	570	17	170	110	67	0.95	7.07
5/8/2007	--		162.47	7.00	27.0	7.03	155.44	--	--	--	--	--	--	--	--

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								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-4 Cont.															
8/8/2007	NP		162.47	7.00	27.0	8.60	153.87	2,900	630	22	67	57	72	0.93	6.79
11/14/2007	--		162.47	7.00	27.0	8.53	153.94	--	--	--	--	--	--	--	--
2/22/2008	P		162.47	7.00	27.0	6.25	156.22	3,900	880	39	180	92	70	2.31	6.87
5/24/2008	--	d	162.47	7.00	27.0	--	--	--	--	--	--	--	--	--	--
8/21/2008	NP		162.47	7.00	27.0	8.96	153.51	3,700	1,100	26	85	130	53	2.26	6.80
11/19/2008	--		162.47	7.00	27.0	9.20	153.27	--	--	--	--	--	--	--	--
2/23/2009	P		162.47	7.00	27.0	6.35	156.12	3,000	220	9.1	23	19	39	2.21	6.51
5/14/2009	--		162.47	7.00	27.0	7.00	155.47	--	--	--	--	--	--	--	--
8/20/2009	NP		162.47	7.00	27.0	8.05	154.42	5,700	1,100	35	110	100	23	2.17	6.81
2/19/2010	P	i	162.47	7.00	27.0	5.71	156.76	12,000	1,200	120	230	390	<5.0	0.81	6.70
8/10/2010	NP		162.47	7.00	27.0	7.59	154.88	9,700	1,500	120	400	400	<20	3.81	6.8
MW-5															
6/20/2000	--		151.33	10.00	23.0	7.84	143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--
9/28/2000	--		151.33	10.00	23.0	8.37	142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/17/2000	--		151.33	10.00	23.0	8.36	142.97	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		151.33	10.00	23.0	7.55	143.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/21/2001	--		151.33	10.00	23.0	8.20	143.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/23/2001	--		151.33	10.00	23.0	8.68	142.65	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/31/2001	--		151.33	10.00	23.0	7.57	143.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		151.33	10.00	23.0	6.12	145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--
4/17/2002	--		151.33	10.00	23.0	6.61	144.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/12/2002	--		151.33	10.00	23.0	8.14	143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6
12/6/2002	--		151.33	10.00	23.0	8.65	142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8
1/29/2003	--	b	151.33	10.00	23.0	7.22	144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1	6.6
5/23/2003	--		151.33	10.00	23.0	7.31	144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6
9/4/2003	--		151.33	10.00	23.0	9.50	141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7
11/20/2003	--		151.33	10.00	23.0	8.31	143.02	--	--	--	--	--	--	--	--
02/02/2004	--	c, f, h	151.33	10.00	23.0	6.92	144.41	--	--	--	--	--	--	--	--
05/14/2004	--	h	151.33	10.00	23.0	8.56	142.77	--	--	--	--	--	--	--	--
09/02/2004	P	h	151.33	10.00	23.0	8.79	142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8

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								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-5 Cont.															
11/04/2004	--	c, h	151.33	10.00	23.0	8.33	143.00	--	--	--	--	--	--	--	--
02/08/2005	--	h	151.33	10.00	23.0	7.28	144.05	--	--	--	--	--	--	--	--
05/09/2005	--	h	151.33	10.00	23.0	8.19	143.14	--	--	--	--	--	--	--	--
08/11/2005	P	h	151.33	10.00	23.0	8.39	142.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.6
11/18/2005	--	h	151.33	10.00	23.0	11.25	140.08	--	--	--	--	--	--	--	--
02/16/2006	--	h	151.33	10.00	23.0	9.22	142.11	--	--	--	--	--	--	--	--
5/30/2006	--	h	--	10.00	23.0	7.52	--	--	--	--	--	--	--	--	--
8/24/2006	P		--	10.00	23.0	7.95	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6
11/1/2006	--		--	10.00	23.0	8.32	--	--	--	--	--	--	--	--	--
2/7/2007	--		--	10.00	23.0	8.25	--	--	--	--	--	--	--	--	--
5/8/2007	--		--	10.00	23.0	7.60	--	--	--	--	--	--	--	--	--
8/8/2007	P		--	10.00	23.0	8.12	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26
11/14/2007	--		--	10.00	23.0	9.10	--	--	--	--	--	--	--	--	--
2/22/2008	--		--	10.00	23.0	7.48	--	--	--	--	--	--	--	--	--
5/24/2008	--		--	10.00	23.0	8.12	--	--	--	--	--	--	--	--	--
8/21/2008	P		--	10.00	23.0	8.65	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.14
11/19/2008	--		--	10.00	23.0	11.86	--	--	--	--	--	--	--	--	--
2/23/2009	--		--	10.00	23.0	10.20	--	--	--	--	--	--	--	--	--
5/14/2009	--		--	10.00	23.0	9.63	--	--	--	--	--	--	--	--	--
8/20/2009	P		--	10.00	23.0	8.52	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.01
2/19/2010	--	d	--	10.00	23.0	--	--	--	--	--	--	--	--	--	--
8/10/2010	P		--	10.00	23.0	8.05	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.1
MW-6															
6/20/2000	--		153.84	5.00	15.0	4.79	149.05	--	--	--	--	--	--	--	--
9/28/2000	--		153.84	5.00	15.0	5.39	148.45	--	--	--	--	--	--	--	--
12/17/2000	--		153.84	5.00	15.0	4.71	149.13	--	--	--	--	--	--	--	--
3/23/2001	--		153.84	5.00	15.0	4.69	149.15	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5	--
6/21/2001	--		153.84	5.00	15.0	5.22	148.62	--	--	--	--	--	--	--	--
9/23/2001	--		153.84	5.00	15.0	5.40	148.44	--	--	--	--	--	--	--	--
12/31/2001	--		153.84	5.00	15.0	3.95	149.89	--	--	--	--	--	--	--	--

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								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-6 Cont.															
3/21/2002	--		153.84	5.00	15.0	2.94	150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--
4/17/2002	--		153.84	5.00	15.0	5.11	148.73	--	--	--	--	--	--	--	--
8/12/2002	--		153.84	5.00	15.0	5.23	148.61	--	--	--	--	--	--	--	--
12/6/2002	--		153.84	5.00	15.0	5.29	148.55	--	--	--	--	--	--	--	--
1/29/2003	--	b	153.84	5.00	15.0	4.79	149.05	--	--	--	--	--	--	--	--
5/23/2003	--		153.84	5.00	15.0	4.31	149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7
09/04/03	--	d	153.84	5.00	15.0	--	--	--	--	--	--	--	--	--	--
11/20/2003	--		153.84	5.00	15.0	6.31	147.53	--	--	--	--	--	--	--	--
02/02/2004	--	f	159.41	5.00	15.0	4.78	154.63	--	--	--	--	--	--	--	--
05/14/2004	--		159.41	5.00	15.0	6.29	153.12	--	--	--	--	--	--	--	--
09/02/2004	--	d	159.41	5.00	15.0	5.79	153.62	--	--	--	--	--	--	--	--
11/04/2004	--	d	159.41	5.00	15.0	--	--	--	--	--	--	--	--	--	--
02/08/2005	--		159.41	5.00	15.0	5.13	154.28	--	--	--	--	--	--	--	--
05/09/2005	--		159.41	5.00	15.0	4.52	154.89	--	--	--	--	--	--	--	--
08/11/2005	P		159.41	5.00	15.0	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	7.9	2.1	6.6
11/18/2005	--		159.41	5.00	15.0	6.31	153.10	--	--	--	--	--	--	--	--
02/16/2006	--		159.41	5.00	15.0	4.24	155.17	--	--	--	--	--	--	--	--
5/30/2006	--		159.41	5.00	15.0	4.45	154.96	--	--	--	--	--	--	--	--
8/24/2006	P		159.41	5.00	15.0	5.18	154.23	<50	<0.50	<0.50	<0.50	<0.50	12	3.4	6.8
11/1/2006	--		159.41	5.00	15.0	6.05	153.36	--	--	--	--	--	--	--	--
2/7/2007	--		159.41	5.00	15.0	5.00	154.41	--	--	--	--	--	--	--	--
5/8/2007	--		159.41	5.00	15.0	4.30	155.11	--	--	--	--	--	--	--	--
8/8/2007	NP		159.41	5.00	15.0	5.51	153.90	<50	<0.50	<0.50	<0.50	<0.50	0.57	2.94	6.87
11/14/2007	--		159.41	5.00	15.0	5.38	154.03	--	--	--	--	--	--	--	--
2/22/2008	--		159.41	5.00	15.0	4.70	154.71	--	--	--	--	--	--	--	--
5/24/2008	--		159.41	5.00	15.0	5.25	154.16	--	--	--	--	--	--	--	--
8/21/2008	NP		159.41	5.00	15.0	6.14	153.27	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.99	7.13
11/19/2008	--		159.41	5.00	15.0	5.94	153.47	--	--	--	--	--	--	--	--
2/23/2009	--		159.41	5.00	15.0	5.00	154.41	--	--	--	--	--	--	--	--
5/14/2009	--		159.41	5.00	15.0	4.60	154.81	--	--	--	--	--	--	--	--
8/20/2009	NP		159.41	5.00	15.0	5.65	153.76	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.98	6.81

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

ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	Comments	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
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-6 Cont.															
2/19/2010	--		159.41	5.00	15.0	7.28	152.13	--	--	--	--	--	--	--	--
8/10/2010	NP		159.41	5.00	15.0	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	4.3	1.99	6.93

SYMBOLS AND ABBREVIATIONS:

-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft below TOC
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 = Well was not purged prior to sampling
P = Well was 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 = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g.
b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates.
c = Wells gauged with ORC sock in well.
d = Well inaccessible
e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range.
f = Well resurveyed on 1/27/2004 to NAVD88
g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.
h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable. Historic data prior to 5/30/2006 (change in consultant) not modified.
i = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.

NOTES:

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

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

Values for DO and pH were obtained through field measurements.

The DTW's and TOC's for wells MW-5 and MW-6 were taken from Delta Environmental sampling sheets because the well logs were not available.

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.

Note: 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 #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
5/23/2003	<20,000	<4,000	1,600	<100	<100	<100	--	--	
11/20/2003	<2,000	<400	1,500	<10	<10	<10	--	--	a
05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
11/04/2004	<2,000	<400	580	<10	<10	<10	<10	<10	
02/08/2005	<2,000	<400	610	<10	<10	<10	<10	<10	
05/09/2005	<1,000	<200	620	<5.0	<5.0	<5.0	<5.0	<5.0	a
08/11/2005	<500	250	390	<2.5	<2.5	2.6	<2.5	<2.5	a
11/18/2005	<500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	a
02/16/2006	<1,500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	
5/30/2006	<1,500	<100	420	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/24/2006	<3,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
11/1/2006	<3,000	<200	220	<5.0	<5.0	<5.0	<5.0	<5.0	a
2/7/2007	<3,000	<200	190	<5.0	<5.0	<5.0	<5.0	<5.0	
5/8/2007	<3,000	<200	420	<5.0	<5.0	<5.0	<5.0	<5.0	
8/8/2007	<300	<20	110	<0.50	<0.50	<0.50	<0.50	<0.50	
11/14/2007	<1,500	<100	210	<2.5	<2.5	<2.5	<2.5	<2.5	
2/22/2008	<300	<10	250	<0.50	<0.50	1.5	<0.50	<0.50	
5/24/2008	<3,000	<100	380	<5.0	<5.0	<5.0	<5.0	<5.0	
8/21/2008	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
10/19/2008	<300	<10	30	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<1,500	<50	240	<2.5	<2.5	<2.5	<2.5	<2.5	
5/14/2009	<300	<10	200	<0.50	<0.50	1.3	<0.50	<0.50	
8/20/2009	<1,200	<40	170	<2.0	<2.0	<2.0	<2.0	<2.0	
2/19/2010	<300	<10	170	<0.50	<0.50	1.2	<0.50	<0.50	
8/10/2010	<1,500	<50	230	<2.5	<2.5	<2.5	<2.5	<2.5	
MW-2									
5/23/2003	<100	<20	55	<0.50	<0.50	0.53	--	--	
02/02/2004	<100	<20	37	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
02/08/2005	<100	<20	30	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
08/11/2005	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/16/2006	<300	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/19/2010	<300	<10	22	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	23	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	7.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
5/23/2003	<10,000	<2,000	<50	<50	<50	<50	--	--	
02/02/2004	<500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	
09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
02/08/2005	<5,000	<1,000	45	<25	<25	<25	<25	<25	
08/11/2005	<2,000	<400	32	<10	<10	<10	<10	<10	
02/16/2006	<6,000	<400	35	<10	<10	<10	<10	<10	
8/24/2006	<1,500	<100	39	<2.5	<2.5	<2.5	<2.5	<2.5	
2/7/2007	<6,000	<400	67	<10	<10	<10	<10	<10	
8/8/2007	<6,000	<400	72	<10	<10	<10	<10	<10	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
2/22/2008	<6,000	<200	70	<10	<10	<10	<10	<10	
8/21/2008	<12,000	<400	53	<20	<20	<20	<20	<20	
2/23/2009	<3,000	<100	39	<5.0	<5.0	<5.0	<5.0	<5.0	
8/20/2009	<12,000	<400	23	<20	<20	<20	<20	<20	
2/19/2010	<3,000	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
8/10/2010	<12,000	<400	<20	<20	<20	<20	<20	<20	
MW-5									
1/29/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
5/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
9/4/2003	<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	
8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
5/23/2003	<100	<20	9.4	<0.50	<0.50	<0.50	--	--	
08/11/2005	<100	<20	7.9	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	0.57	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	

SYMBOLS AND 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 continuing calibration verification for ethanol was outside of client contractual limits, however, it was within method acceptance limits. The data should still be useful for its intended purpose.

NOTES:

All volatile organic compounds analyzed using EPA Method 8260B.

Note: 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 Ground-Water Flow Direction and Gradient
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
1/31/1996	Southwest	0.04
4/10/1996	Southwest	0.04
7/16/1996	Southwest	0.03
10/14/1996	Southwest	0.03
3/27/1997	Southwest	0.04
5/27/1997	Southwest	0.03
8/12/1997	Southwest	0.04
11/17/1997	Southwest	0.03
3/16/1998	Southwest	0.03
5/12/1998	Southwest	0.04
7/27/1998	Southwest	0.04
10/15/1998	Southwest	0.02
2/18/1999	Southwest	0.05
5/24/1999	Southwest	0.03
8/27/1999	Southwest	0.03
10/26/1999	Southwest	0.03
2/3/2000	Southwest	0.047
6/20/2000	Southwest	0.035
9/28/2000	Southwest	0.034
12/17/2000	Southwest	0.032
3/23/2001	Southwest	0.034
6/21/2001	Southwest	0.032
9/23/2001	Southwest	0.029
12/31/2001	Southwest	0.043
3/21/2002	Southwest	0.038
4/17/2002	Southwest	0.031
8/12/2002	Southwest	0.032
12/6/2002	Southwest	0.020
1/29/2003	Southwest	0.027
5/23/2003	Southwest	0.039
9/4/2003	Southwest	0.033
11/20/2003	Southwest	0.029
2/2/2004	Southwest	0.043 (a)
5/14/2004	Southwest	0.037 (a)
9/2/2004	Southwest	0.027 (a)
11/4/2004	Southwest	0.034 (a)
2/8/2005	Southwest	0.061 (a)
5/9/2005	Southwest	0.08 (a)
8/11/2005	Southwest	0.06 (a)
11/18/2005	Southwest	0.07 (a)
2/16/2006	Southwest	0.09 (a)
5/30/2006	Southwest	0.06 (a)

Table 3. Historical Ground-Water Flow Direction and Gradient
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
8/24/2006	Southwest	0.03
11/1/2006	Southwest	0.02
2/7/2007	Southwest	0.03
5/8/2007	Southwest	0.03
8/8/2007	Southwest	0.03
11/14/2007	Southwest	0.03
2/22/2008	Southwest	0.03
5/24/2008	Southwest	0.03
8/21/2008	Southwest	0.03
11/19/2008	Southwest	0.03
2/23/2009	Southwest	0.04
5/14/2009	Southwest	0.03
8/20/2009	Southwest	0.03
2/19/2010	West-Southwest	0.05
8/10/2010	Southwest	0.03

a = Gradients potentially suspect due to error in MW-4 and MW-5 TOC measuring point elevations discovered third quarter 2006.

Note: 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

BAI GROUNDWATER SAMPLING DATA PACKAGE

(Includes Field Data Sheets, Non-Hazardous Waste Data Form, Laboratory Analytical Report
with Chain-Of-Custody Documentation, and Field Procedures)

DATE: 8/10/10

PERSONNEL: SB-EP

WEATHER: Wondful

PROJECT NO.: 06-88-602

COMMENTS:

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
1	1306		7.58									
2	1257		7.69									
3	1108		7.08	7.12								
4	1231		7.59									
5	1205		8.05									
6	1143		5.02	5.02								



Groundwater Sampling Data Sheet

Well I.D.: MW-1

Project Name/Location: BP 374 Project #: 06-88-602

Sampler's Name: EFSB Date: 8/10/10

Purging Equipment: -

Sampling Equipment: Bn. Lr

Casing Type: PVC

Casing Diameter: _____ inch *UNIT CASING VOLUMES

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

Depth to Water: _____ 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	1315	5.66	-20		784,0	66.5	7.1	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 0 gallons

Depth to Water at Sample Collection: 0 feet

Sample Collection Time: 1315 Purged Dry? (Y/N) N

Comments:

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Groundwater Sampling Data Sheet

Well I.D.: MW-2
 Project Name/Location: BP 374 Project #: 06-88-602
 Sampler's Name: BP SB Date: 8/16/10
 Purging Equipment:
 Sampling Equipment: Ba-W

Casing Type: PVC

Casing Diameter: _____ inch *UNIT CASING VOLUMES

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

Depth to Water: _____ 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 (μ S)	Temperature (Fahrenheit)	pH	Observations
0	1258	2.40	-112		608.4	68.8	7.67	
		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: _____ Purged Dry? (Y/N)

Comments: _____



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ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.:

MW-3
BP 374

Project #: 06-88-602

Project Name/Location:

GFSB

Date: 8/10/10

Sampler's Name:

-

Purging Equipment:

Bn. W

Sampling Equipment:

Casing Type: PVC

Casing Diameter:

inch

***UNIT CASTING VOLUMES**

Total Well Depth:

feet

2" = 0.16 gal/lin ft.

Depth to Water:

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	1/35	1.27	51		53.9	66.7	7.33	
		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: 1/35

Purged Dry? (Y/N)

Comments: NP



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.:

MW-4

Project Name/Location:

BP374

Project #: 06-88-602

Sampler's Name:

EF SB

Date: 8/10/10

Purging Equipment:

-

Sampling Equipment:

Bu. Bu.

Casing Type: PVC

Casing Diameter:

inch

***UNIT CASING VOLUMES**

Total Well Depth:

feet

2" = 0.16 gal/lin ft.

Depth to Water:

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	1240	3.81	68		988.4	65.5	6.9	
		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: _____ Purged Dry? (Y/N)

Comments: NP


BROADBENT & ASSOCIATES, INC.
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.:

MW-S

Project Name/Location:

BP 374

 Project #: 06.88.602

Sampler's Name:

EF SB

 Date: 8/10/10

Purging Equipment:

Bailor

Sampling Equipment:

Bailor

Casing Type: PVC

4

inch

***UNIT CASING VOLUMES**

Casing Diameter:

23.09

feet

2" = 0.16 gal/lin ft.

Total Well Depth:

8.05

feet

3" = 0.37 gal/lin ft.

Depth to Water:

14.99

feet

4" = 0.65 gal/lin ft.

Water Column Thickness:

0.65

gallon / foot

6" = 1.47 gal/lin ft.

Unit Casing Volume*:

9.74

gallons

Casing Water Volume:

3

each

Casing Volume:

29.23

gallons

Estimated Purge Volume:

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (μS)	Temperature (Fahrenheit)	pH	Observations
0	1205	1.15	43		597.7	69.1	7.2	
5	1214	X	X	X	591.2	68.8	7.1	
10	1219	X	X	X	592.7	68.1	7.1	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

 Total Water Volume Purged: 10 gallons

 Depth to Water at Sample Collection: — feet

 Sample Collection Time: 1220

Purged Dry? (Y/N)

Comments:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-6

Project Name/Location: BL 374

Project #: 06.89.602

Sampler's Name: EC SB

Date: 8/16/10

Purging Equipment: -

Sampling Equipment: Bn.L

Casing Type: PVC

Casing Diameter: _____ inch

***UNIT CASING VOLUMES**

Total Well Depth: _____ feet

2" = 0.16 gal/lin ft.

Depth to Water: _____ 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	1150	1.99	34		650.0	675	6.93	
		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: _____

Purged Dry? (Y/N) N

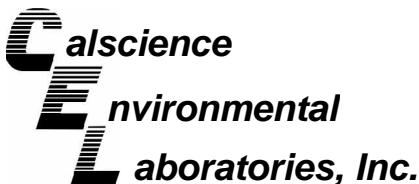
Comments:

NO. 857310

NON-HAZARDOUS WASTE DATA FORM

		1. BESI #				
GENERATOR	2. Generator's Name and Mailing Address	Generator's Site Address (if different than mailing address)				
	BP WEST COAST PRODUCTS, LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688	<i>BP 374 6401 Telg rap^h Oakland, CA</i>				
	Generator's Phone: (949) 460-5200	24-HOUR EMERGENCY PHONE: (949) 699-3706				
	3. Transporter 1 Company Name	Phone #				
	Broadbent & Associates, Inc.	(530) 566-1400				
	4. Transporter 2 Company Name	Phone #				
	Gomes Excavating	(707) 374-2881				
	5. Designated Facility Name and Site Address	Phone #				
	INTRAT, INC. 1105 AIRPORT RD #C RIO VISTA, CA 94571	(530) 763-1829				
	6. Waste Shipping Name and Description	7. Containers		8. Total Quantity	9. Unit Wt/Vol	10. Profile No.
A. NON-HAZARDOUS WATER	No.	Type	10	G		
B.						
C.						
D.						
11. Special Handling Instructions and Additional Information						
WEAR ALL APPROPRIATE PROTECTIVE CLOTHING						
WELL PURGING / DECON WATER						
12. GENERATOR'S CERTIFICATION: I certify the materials described above on this data form are non-hazardous.						
Generator's/Offeree's Printed/Typed Name		Signature		Month Day Year		
<i>Eric Fawcett</i>		<i>[Signature]</i>		8 16 10		
TRANSPORTER	13. Transporter Acknowledgment of Receipt of Materials					
	Transporter 1 Printed/Typed Name		Signature		Month Day Year	
	<i>Eric Fawcett</i>		<i>[Signature]</i>		8 16 10	
	Transporter 2 Printed/Typed Name		Signature		Month Day Year	
14. Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.						
Printed/Typed Name		Signature		Month Day Year		

GENERATOR (ORIGINAL)



August 20, 2010

Tom Sparrowe
Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Subject: **Calscience Work Order No.: 10-08-1070**
Client Reference: ARCO 374

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 8/13/2010 and analyzed in accordance with the attached chain-of-custody.

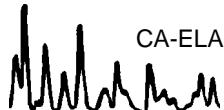
Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink that reads "Richard Villafania".

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager



CA-ELAP ID: 1230

NELAP ID: 03220CA

CSDLAC ID: 10109

SCAQMD ID: 93LA0830

7440 Lincoln Way, Garden Grove, CA 92841-1427 . TEL:(714) 895-5494 . FAX: (714) 894-7501



Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	10-08-1070-1-A	08/10/10 13:15	Aqueous	GC 1	08/13/10	08/13/10 19:05	100813B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	76	38-134			

MW-2	10-08-1070-2-A	08/10/10 12:58	Aqueous	GC 1	08/13/10	08/13/10 20:41	100813B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	74	38-134			

MW-3	10-08-1070-3-A	08/10/10 11:35	Aqueous	GC 1	08/13/10	08/13/10 21:12	100813B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	76	38-134			

MW-4	10-08-1070-4-A	08/10/10 12:40	Aqueous	GC 1	08/13/10	08/13/10 21:44	100813B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	9700	500	10		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	88	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 374

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-5	10-08-1070-5-A	08/10/10 12:20	Aqueous	GC 1	08/13/10	08/13/10 22:48	100813B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	77	38-134			

MW-6	10-08-1070-6-A	08/10/10 11:50	Aqueous	GC 1	08/13/10	08/13/10 23:20	100813B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	72	38-134			

Method Blank	099-12-695-879	N/A	Aqueous	GC 1	08/13/10	08/13/10 17:30	100813B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u> <u>REC (%)</u> <u>Control Limits</u> <u>Qual</u>					
1,4-Bromofluorobenzene	72	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1427 · TEL:(714) 895-5494 · FAX: (714) 894-7501



Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: ARCO 374

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	10-08-1070-1-F	08/10/10 13:15	Aqueous	GC/MS L	08/18/10	08/18/10 18:22	100818L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	2.5	5		Methyl-t-Butyl Ether (MTBE)	230	5.0	10	
1,2-Dibromoethane	ND	2.5	5		Tert-Butyl Alcohol (TBA)	ND	50	5	
1,2-Dichloroethane	ND	2.5	5		Diisopropyl Ether (DIPE)	ND	2.5	5	
Ethylbenzene	ND	2.5	5		Ethyl-t-Butyl Ether (ETBE)	ND	2.5	5	
Toluene	ND	2.5	5		Tert-Amyl-Methyl Ether (TAME)	ND	2.5	5	
Xylenes (total)	ND	2.5	5		Ethanol	ND	1500	5	
Surrogates:	REC (%)	Control	Qual		Surrogates:	REC (%)	Control	Qual	
		Limits					Limits		
1,2-Dichloroethane-d4	117	80-128			Dibromofluoromethane	124	80-127		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	93	68-120		
MW-2	10-08-1070-2-F	08/10/10 12:58	Aqueous	GC/MS L	08/18/10	08/18/10 18:52			100818L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	23	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control	Qual		Surrogates:	REC (%)	Control	Qual	
		Limits					Limits		
1,2-Dichloroethane-d4	119	80-128			Dibromofluoromethane	120	80-127		
Toluene-d8	103	80-120			1,4-Bromofluorobenzene	91	68-120		
MW-3	10-08-1070-3-F	08/10/10 11:35	Aqueous	GC/MS L	08/18/10	08/18/10 19:23			100818L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	1.6	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control	Qual		Surrogates:	REC (%)	Control	Qual	
		Limits					Limits		
1,2-Dichloroethane-d4	118	80-128			Dibromofluoromethane	113	80-127		
Toluene-d8	96	80-120			1,4-Bromofluorobenzene	91	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: ARCO 374

Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	10-08-1070-4-F	08/10/10 12:40	Aqueous	GC/MS L	08/18/10	08/18/10 19:53	100818L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1500	40	80		Methyl-t-Butyl Ether (MTBE)	ND	20	40	
1,2-Dibromoethane	ND	20	40		Tert-Butyl Alcohol (TBA)	ND	400	40	
1,2-Dichloroethane	ND	20	40		Diisopropyl Ether (DIPE)	ND	20	40	
Ethylbenzene	400	20	40		Ethyl-t-Butyl Ether (ETBE)	ND	20	40	
Toluene	120	20	40		Tert-Amyl-Methyl Ether (TAME)	ND	20	40	
Xylenes (total)	400	20	40		Ethanol	ND	12000	40	
Surrogates:	REC (%)	Control	Qual		Surrogates:	REC (%)	Control	Qual	
		Limits					Limits		
1,2-Dichloroethane-d4	121	80-128			Dibromofluoromethane	121	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	98	68-120		

MW-5	10-08-1070-5-F	08/10/10 12:20	Aqueous	GC/MS L	08/18/10	08/18/10 20:23	100818L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control	Qual		Surrogates:	REC (%)	Control	Qual	
		Limits					Limits		
1,2-Dichloroethane-d4	117	80-128			Dibromofluoromethane	117	80-127		
Toluene-d8	103	80-120			1,4-Bromofluorobenzene	92	68-120		

MW-6	10-08-1070-6-F	08/10/10 11:50	Aqueous	GC/MS L	08/18/10	08/18/10 20:53	100818L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	4.3	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control	Qual		Surrogates:	REC (%)	Control	Qual	
		Limits					Limits		
1,2-Dichloroethane-d4	119	80-128			Dibromofluoromethane	121	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	90	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B
Units: ug/L

Project: ARCO 374

Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-703-1,427	N/A	Aqueous	GC/MS L	08/18/10	08/18/10 11:51	100818L01

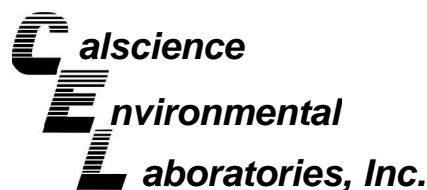
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control		Qual	Surrogates:	REC (%)	Control		Qual
		Limits					Limits		
1,2-Dichloroethane-d4	117	80-128			Dibromofluoromethane	125	80-127		
Toluene-d8	103	80-120			1,4-Bromofluorobenzene	89	68-120		

Method Blank	099-12-703-1,430	N/A	Aqueous	GC/MS L	08/19/10	08/19/10 12:09	100819L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control		Qual	Surrogates:	REC (%)	Control		Qual
		Limits					Limits		
1,2-Dichloroethane-d4	114	80-128			Dibromofluoromethane	116	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	86	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

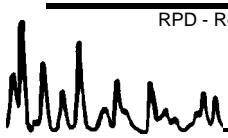
Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8015B (M)

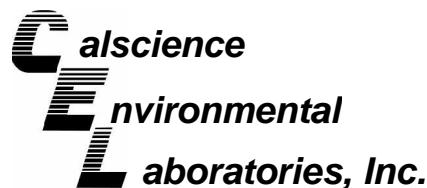
Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-1	Aqueous	GC 1	08/13/10	08/13/10	100813S01

Parameter	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	97	96	38-134	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc.
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Chico, CA 95926-2642

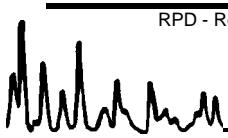
Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B

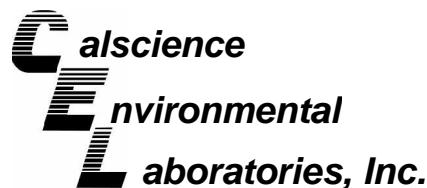
Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-08-1071-2	Aqueous	GC/MS L	08/18/10	08/18/10	100818S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	101	76-124	3	0-20	
Carbon Tetrachloride	116	111	74-134	5	0-20	
Chlorobenzene	102	99	80-120	3	0-20	
1,2-Dibromoethane	110	104	80-120	5	0-20	
1,2-Dichlorobenzene	103	99	80-120	4	0-20	
1,2-Dichloroethane	108	106	80-120	2	0-20	
Ethylbenzene	105	102	78-126	2	0-20	
Toluene	108	105	80-120	4	0-20	
Trichloroethylene	103	101	77-120	2	0-20	
Methyl-t-Butyl Ether (MTBE)	120	119	67-121	0	0-49	
Tert-Butyl Alcohol (TBA)	97	105	36-162	7	0-30	
Diisopropyl Ether (DIPE)	111	111	60-138	0	0-45	
Ethyl-t-Butyl Ether (ETBE)	117	117	69-123	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	110	112	65-120	1	0-20	
Ethanol	89	104	30-180	16	0-72	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: 08/13/10
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B

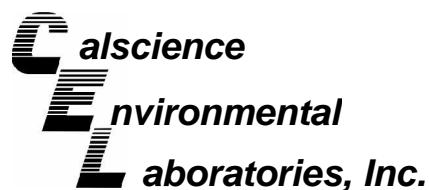
Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-08-0969-1	Aqueous	GC/MS L	08/19/10	08/19/10	100819S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	101	76-124	3	0-20	
Carbon Tetrachloride	110	110	74-134	0	0-20	
Chlorobenzene	104	104	80-120	0	0-20	
1,2-Dibromoethane	104	105	80-120	1	0-20	
1,2-Dichlorobenzene	107	105	80-120	3	0-20	
1,2-Dichloroethane	98	103	80-120	5	0-20	
Ethylbenzene	107	104	78-126	3	0-20	
Toluene	104	102	80-120	2	0-20	
Trichloroethylene	97	101	77-120	4	0-20	
Methyl-t-Butyl Ether (MTBE)	117	117	67-121	0	0-49	
Tert-Butyl Alcohol (TBA)	95	100	36-162	4	0-30	
Diisopropyl Ether (DIPE)	107	106	60-138	1	0-45	
Ethyl-t-Butyl Ether (ETBE)	114	112	69-123	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	109	109	65-120	0	0-20	
Ethanol	95	100	30-180	5	0-72	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc.
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Chico, CA 95926-2642

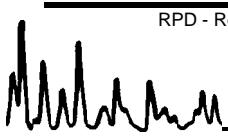
Date Received: N/A
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8015B (M)

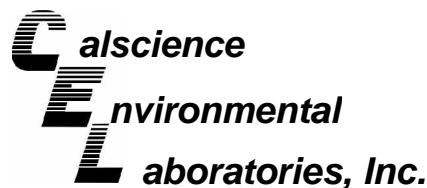
Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-879	Aqueous	GC 1	08/13/10	08/13/10	100813B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	93	93	78-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: N/A
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed		LCS/LCSD Batch Number	
099-12-703-1,427	Aqueous	GC/MS L	08/18/10	08/18/10		100818L01	
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	108	103	80-120	73-127	5	0-20	
Carbon Tetrachloride	112	109	74-134	64-144	3	0-20	
Chlorobenzene	108	107	80-120	73-127	1	0-20	
1,2-Dibromoethane	100	100	79-121	72-128	0	0-20	
1,2-Dichlorobenzene	107	100	80-120	73-127	7	0-20	
1,2-Dichloroethane	103	106	80-120	73-127	3	0-20	
Ethylbenzene	111	107	80-120	73-127	3	0-20	
Toluene	111	106	80-120	73-127	4	0-20	
Trichloroethene	105	106	79-127	71-135	1	0-20	
Methyl-t-Butyl Ether (MTBE)	106	103	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	95	92	63-123	53-133	3	0-20	
Diisopropyl Ether (DIPE)	104	101	59-137	46-150	3	0-37	
Ethyl-t-Butyl Ether (ETBE)	105	104	69-123	60-132	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	103	106	70-120	62-128	3	0-20	
Ethanol	95	105	28-160	6-182	10	0-57	

Total number of LCS compounds : 15

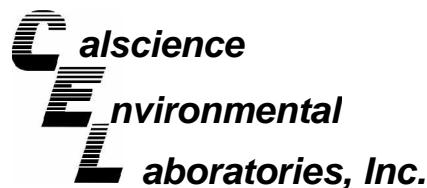
Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc.
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Date Received: N/A
Work Order No: 10-08-1070
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed		LCS/LCSD Batch Number	
099-12-703-1,430	Aqueous	GC/MS L	08/19/10	08/19/10		100819L01	
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	105	107	80-120	73-127	3	0-20	
Carbon Tetrachloride	116	111	74-134	64-144	4	0-20	
Chlorobenzene	110	109	80-120	73-127	1	0-20	
1,2-Dibromoethane	103	101	79-121	72-128	2	0-20	
1,2-Dichlorobenzene	105	108	80-120	73-127	2	0-20	
1,2-Dichloroethane	104	101	80-120	73-127	3	0-20	
Ethylbenzene	112	109	80-120	73-127	3	0-20	
Toluene	105	110	80-120	73-127	5	0-20	
Trichloroethene	105	103	79-127	71-135	2	0-20	
Methyl-t-Butyl Ether (MTBE)	107	104	69-123	60-132	3	0-20	
Tert-Butyl Alcohol (TBA)	102	94	63-123	53-133	8	0-20	
Diisopropyl Ether (DIPE)	106	107	59-137	46-150	1	0-37	
Ethyl-t-Butyl Ether (ETBE)	108	106	69-123	60-132	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	105	103	70-120	62-128	2	0-20	
Ethanol	96	83	28-160	6-182	14	0-57	

Total number of LCS compounds : 15

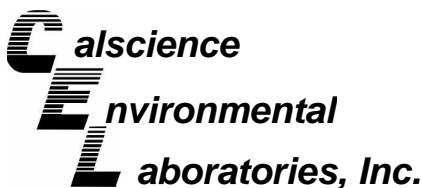
Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



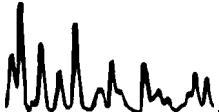


Glossary of Terms and Qualifiers



Work Order Number: 10-08-1070

<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; analyte not detected.
IH	Calibrn. verif. recov. below method CL for this analyte.
IJ	Calibrn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.



Work Order Number: 10-08-1070

<u>Qualifier</u>	<u>Definition</u>
LW	Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
LX	Quantitation of unknown hydrocarbon(s) in sample based on diesel.
MB	Analyte present in the method blank.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
PC	Sample taken from VOA vial with air bubble > 6mm diameter.
PI	Primary and confirm results varied by > than 40% RPD.
RB	RPD exceeded method control limit; % recoveries within limits.
SG	A silica gel cleanup procedure was performed. Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.



Laboratory Management Program LaMP Chain of Custody Record

Page _____ of _____

BP/ARC Project Name: ARCO 374
BP/ARC Facility No: 374

Req Due Date (mm/dd/yy): STD-TAT
Lab Work Order Number: 1070

Rush TAT: Yes No X

Lab Name: Cal Science				BP/ARC Facility Address: 6407 Telegraph Avenue								Consultant/Contractor: Broadbent & Associates, Inc.														
Lab Address: 7440 Lincoln Way				City, State, ZIP Code: Oakland, CA 94609								Consultant/Contractor Project No: 06-88-602-5-822														
Lab PM: Richard Villafania				Lead Regulatory Agency: ACEH								Address: 875 Cotting Ln., Suite G, Vacaville, CA 95688														
Lab Phone: 714-895-5494 / 714-895-7501 (fax)				California Global ID No.: T0600100106								Consultant/Contractor PM: Tom Sparrowe														
Lab Shipping Acct: 9255				Enfos Proposal No: 000XK-0011								Phone: 707-455-7290 / 707-455-7295 (fax)														
Lab Bottle Order No:				Accounting Mode: Provision <u>X</u> OOC-BU _____ OOC-RM _____								Email EDD To: tsparrowe@broadbentinc.com														
Other Info:				Stage: Operate (5) Activity: Monitoring/MNA (822)								Invoice To: BP/ARC _____ Contractor _____														
BP/ARC EBM: Chuck Carmel				Matrix		No. Containers / Preservative						Requested Analyses						Report Type & QC Level								
EBM Phone: 925-275-3803				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	GRO (8015M)	BTEX / 5 Oxy's (8260)	EDB / 1,2-DCA (8260)	EOH (8260)							Standard <u>X</u>			
EBM Email: charles.carmel@bp.com																								Full Data Package _____		
Lab No.	Sample Description	Date	Time	Comments																						
				Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.																						
				1	MW-1	8/10/10	1315	x			6			x			x	x	x	x						
				2	MW-2		1258	x			6			x			x	x	x	x						
				3	MW-3		1135	x			6			x			x	x	x	x						
				4	MW-4		1240	x			6			x			x	x	x	x						
				5	MW-5		1220	x			6			x			x	x	x	x						
				6	MW-6		1150	x			6			x			x	x	x	x						
7	TB - 374 -			x			2			x												ON HOLD				
Sampler's Name: Eric Faw				Relinquished By / Affiliation								Date	Time	Accepted By / Affiliation				Date	Time							
Sampler's Company: BAI				<u>Eric</u>								8/11/10	1600	Wchart CEE				8/13/10	1000							
Shipment Method: 65C				Ship Date: 6/10/10																						
Shipment Tracking No: 106193782																										
Special Instructions: Please cc results to bpedf@broadbentinc.com																										
THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No				Temp Blank: Yes / No				Cooler Temp on Receipt: _____ °F/C				Trip Blank: Yes / No				MS/MSD Sample Submitted: Yes / No										
BP/ARC LaMP COC Rev. 6 01/01/2009																										

(1070)

DATE	10/10/01
COMPANY	<i>AC</i>
ADDRESS	<i>Cottages</i>
ADDRESS	
CITY	<i>Wick</i>
SENDER'S NAME	<i>Mike Foss</i>
COMPANY	<i>L.A. SCIENCE</i>
NAME	
ADDRESS	<i>1000 N. MAYWOOD DR.</i>
ADDRESS	
CITY	<i>MARSHAL GROVE</i>
YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE	
CIAL RUCTIONS	
PHONE NUMBER	714-535-6434
STE/ ROOM	
ZIP CODE	92644



GOLDEN STATE OVERNIGHT

1-800-322-5555**WWW.GSO.COM****SHIPPING AIR BILL****4 PACKAGE INFORMATION**

- LETTER (MAX 8 OZ)
 PACKAGE (WT) _____
 DECLARED VALUE \$ _____
 COD AMOUNT \$ _____
(CASH NOT ACCEPTED)

- 5 DELIVERY SERVICE** PRIORITY OVERNIGHT BY 10:30 AM EARLY PRIORITY BY 8:00 AM SATURDAY DELIVERY

*DELIVERY TIMES MAY BE LATER IN SOME AREAS - CONSULT YOUR SERVICE GUIDE OR CALL GOLDEN STATE OVERNIGHT

- 6 RELEASE SIGNATURE** _____

SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

7

- 8 PICK UP INFORMATION** _____

TIME _____ DRIVER # _____ ROUTE # _____

106193782PEEL
OFF
HERE

- 9 GSO TRACKING NUMBER** **106193782**

PACKAGE
LABEL

SAMPLE RECEIPT FORM Cooler 1 of 1

CLIENT: BAT

DATE: 08/13/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.6 °C + 0.5 °C (CF) = 2.1 °C Blank Sample

- Sample(s) outside temperature criteria (PM/APM contacted by: _____).
- Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.
- Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: Air Filter Metals Only PCBs Only

Initial: WB

CUSTODY SEALS INTACT:

<input type="checkbox"/> Cooler	<input type="checkbox"/> _____	<input type="checkbox"/> No (Not Intact)	<input checked="" type="checkbox"/> Not Present	<input type="checkbox"/> N/A	Initial: <u>WB</u>
<input type="checkbox"/> Sample	<input type="checkbox"/> _____	<input type="checkbox"/> No (Not Intact)	<input checked="" type="checkbox"/> Not Present	<input type="checkbox"/> N/A	Initial: <u>WB</u>

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collection date/time, matrix, and/or # of containers logged in based on sample labels.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unpreserved vials received for Volatiles analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® TerraCores® _____
Water: VOA VOAh VOAna₂ 125AGB 125AGBh 125AGBp 1AGB 1AGBna₂ 1AGBs
 500AGB 500AGJ 500AGJs 250AGB 250CGB 250CGBs 1PB 500PB 500PBna
 250PB 250PBn 125PB 125PBznna 100PJ 100PJna₂ _____ _____

Air: Tedlar® Summa® **Other:** _____ **Trip Blank Lot#:** 100709A **Labeled/Checked by:** WB

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** RS

Preservative: h: HCL n: HNO₃ na₂:Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ znna: ZnAc₂+NaOH f: Field-filtered **Scanned by:** WB

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

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

UPLOADING A EDF FILE

SUCCESS

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

Submittal Type: EDF - Monitoring Report - Semi-Annually
Submittal Title: 3Q10 GW Monitoring
Facility Global ID: T0600100106
Facility Name: ARCO #0374
File Name: 10081070.zip
Organization Name: Broadbent & Associates, Inc.
Username: BROADBENT-C
IP Address: 67.118.40.90
Submittal Date/Time: 9/3/2010 10:09:22 AM
Confirmation Number: **4239054381**

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)