

Atlantic Richfield Company

Shannon Couch
Operations Business Manager

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RECEIVED

9:34 am, Aug 01, 2011

Alameda County
Environmental Health

July 29, 2011

Re: Second Quarter 2011 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,



Shannon Couch
Operations Project Manager

Attachment:



July 29, 2011

Project No. 06-88-602

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

Attn.: Ms. Shannon Couch

Re: Second Quarter 2011, Monitoring Report, Atlantic Richfield Company Station #374,
6407 Telegraph Avenue, Oakland, Alameda County, California
ACEH Case #RO0000078

Dear Ms. Couch

Attached is the Second Quarter 2011 Monitoring Report for Atlantic Richfield Company (a BP affiliated company) for Station #374 located at 6407 Telegraph Avenue, Oakland, California (Site). 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.



James C. Ramos, E.I.T.
Staff Engineer



Thomas A. Sparrowe, P.G. #5065 (exp. 12/31/12)
Senior Geologist



enclosures

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

**SECOND QUARTER 2011
MONITORING REPORT
ATLANTIC RICHFIELD COMPANY STATION #374
OAKLAND, CALIFORNIA**

Broadbent & Associates, Inc. (BAI) is pleased to present this *Second Quarter 2011 Monitoring Report* on behalf of Atlantic Richfield Company (ARC, a BP affiliated company) for Station #374 located at 6407 Telegraph Avenue, Oakland, Alameda County, California. Monitoring activities at the site were performed in accordance with an agency directive issued by the Alameda County Environmental Health (ACEH). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	<u>Station #374 / 6407 Telegraph Avenue, Oakland, California</u>
Client Project Manager / Title:	<u>Ms. Shannon Couch / Operations Project Manager</u>
BAI Contact:	<u>Mr. Tom Sparrowe, (707) 455-7290</u>
BAI Project No.:	<u>06-88-602</u>
Primary Regulatory Agency / ID No.:	<u>Alameda County Environmental Health (ACEH) / ACEH Case #RO0000078</u>
Current phase of project:	<u>Monitoring</u>
List of Acronyms / Abbreviations:	<u>See end of report text for list of acronyms/abbreviations used in report.</u>

WORK PERFORMED THIS QUARTER (Second Quarter 2011):

1. Submitted *First Quarter 2011 Monitoring Report* on April 29, 2011.
2. Conducted groundwater monitoring/sampling for Second Quarter 2011 on May 20, 2011.
3. On June 6, 2011, ARC and BAI received an ACEH directive letter requesting that a Feasibility Study/Corrective Action Plan (FS/CAP) be prepared for the site.

WORK SCHEDULED FOR NEXT QUARTER (Third Quarter 2011):

1. Submit *Second Quarter 2011 Monitoring Report* (contained herein).
2. Conduct groundwater monitoring for Third Quarter 2011.

QUARTERLY MONITORING PLAN SUMMARY:

Groundwater level gauging:	MW-1 through MW-9	(Quarterly through 3Q11, then Semi-Annually, 1Q & 3Q)
Groundwater sample collection:	MW-7, MW8, and MW-9	(Quarterly through 3Q11, then Semi-Annually, 1Q & 3Q)
	MW-1, MW-2, and MW-4	(Semi-Annually, 1Q & 3Q)
	MW-3, MW-5, and MW-6	(Annually, 3Q)

QUARTERLY RESULTS SUMMARY:

LNAPL

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

Groundwater Elevation and Gradient:

Depth to groundwater:	<u>4.29 (MW-6) to 7.02 (MW-2)</u>	(ft below TOC)
Gradient direction:	<u>Southwest</u>	(compass direction)
Gradient magnitude:	<u>0.03</u>	(ft/ft)
Average change in elevation:	<u>0.53</u>	(ft since last measurement)

Laboratory Analytical Data

Summary:

GRO was detected above the laboratory reporting limits in MW-7 and MW-9. MTBE was detected above the laboratory reporting limits in MW-7, MW-8, and MW-9. Total Xylenes were detected above the laboratory reporting limits in MW-7. GRO and MTBE concentrations decreased in MW-7 and MW-8 and increased in MW-9 relative to First Quarter 2011. Total Xylenes decreased in MW-7 relative to the First Quarter 2011.

ACTIVITIES CONDUCTED & RESULTS:

Second Quarter 2011 groundwater monitoring was conducted on May 20, 2011 in accordance with the monitoring plan summary detailed above with the following exceptions: monitor well MW-5 was not gauged during this event due to a car parked over the well. Drawing 1 is a site location map for Station #374. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B.

Collected groundwater samples from MW-7 through MW-9 and were submitted to Calscience Environmental Laboratories, Inc. (Calscience) of Garden Grove, California for analysis of Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), 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. Temperature, pH and DO were measured as stabilizing parameters during purging.

LNAPL was not observed to be present in the wells monitored during Second Quarter 2011. Current and historic groundwater elevations and groundwater sample analytical data are provided in Tables 1 and 2. Drawing 2 is provided as a groundwater elevation contour and analytical summary map for May 20, 2011. Laboratory analytical report and chain of custody record are provided in Appendix C. 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.

Review of Tables 1 and 2 and Drawing 2 indicate the following:

- GRO was only detected in MW-7 (570 µg/L), above the RWQCB residential ESL of 100 µg/L where groundwater is a current or potential drinking water resource and the ESL of 210 µg/L where groundwater is *not* a current or potential source of drinking water for residential land use.
- Ethylbenzene was only detected in well MW-7 at 37 µg/L, above the RWQCB residential ESL of 30 µg/L where groundwater is a current or potential drinking water resource but below the ESL of 43 µg/L where groundwater is *not* a current or potential source of drinking water for residential land use.
- Total Xylenes were only detected in MW-7 at 25 µg/L above the RWQCB residential ESLs of 20 µg/L where groundwater is a current or potential drinking water resource but were below the ESL of 100 µg/L where groundwater is *not* a current or potential source of drinking water for residential land use.
- MTBE exceeded the residential ESL of 5.0 µg/L where groundwater is a current or potential drinking water resource in wells MW-8 (88 µg/L) and MW-9 (280 µg/L); however, these concentrations were below the ESL of 1,800 µg/L where groundwater is *not* a current or potential source of drinking water for residential land use.
- The remaining fuel constituents were not detected above laboratory reporting limits in the three wells sampled this quarter.

As shown on Drawing 2, groundwater gradient on May 20, 2011 was 0.03 ft/ft in a southwesterly direction. Historical groundwater gradient and direction information is provided in Table 3.

DISCUSSION:

Comparison of analytical results from the Second Quarter 2011 and the First Quarter 2011 sampling events indicates that GRO decreased in MW-7 (7,100 µg/L to 530 µg/L) and increased in MW-9 (<0.50 µg/L to 66 µg/L); benzene decreased in MW-7 (1,700 µg/L to <0.50 µg/L); MTBE concentrations decreased in MW-8 (110 µg/L to 88 µg/L) and slightly increased in MW-9 (270 µg/L to 280 µg/L); and Total Xylenes decreased in MW-7 (210 µg/L to 25 µg/L). These fluctuations are likely related to seasonal changes in groundwater elevation.

Review of historical groundwater gradient data indicates that the gradient measured during Second Quarter 2011 monitoring is consistent with predominant measurements observed historically at the site. During Second Quarter 2011, groundwater elevations increased an average of 0.53 feet across the site relative to measurements collected during First Quarter 2011.

On January 14, 2011, BAI submitted an *On-Site Soil and Groundwater Investigation Report* to ACDEH wherein it was recommended that “a Feasibility Study/Corrective Action Plan (FS/CAP) should be conducted to evaluate remediation alternatives mitigating the actual or potential adverse effects of the hydrocarbon release(s).” On June 6, 2011, ARC and BAI received an ACEH directive letter requesting that a Feasibility Study/Corrective Action Plan (FS/CAP) be prepared for the site.

After reviewing the ACEH directive letter, Ms. Shannon Couch of ARC issued a July 19, 2011 letter to ACEH recommending that the FS/CAP request be suspended indicating that shallow groundwater in the immediate vicinity of the Site is unlikely to be used as a source of supply, and that according to a Area Well Survey prepared by Closure Solutions, Inc. (February 28, 2011), the nearest drinking water well is over 1,500 feet from the Site. The groundwater hydrocarbon plume does not seem to show any evidence of migration, appears to be limited in extent, and it is highly unlikely that this particular limited pocket of shallow groundwater will be used directly as a source of drinking water. As of the date of this report a response from ACEH has not been received.

RECOMMENDATIONS:

Monitor wells MW-7, MW-8 and MW-9 were incorporated into the existing groundwater monitoring network since Fourth Quarter 2010 and have been sampled on a quarterly basis. The next scheduled environmental work is in Third Quarter of 2011. Following the Third Quarter of 2011 groundwater sampling event, BAI recommends that the sampling frequency of wells MW-7 through MW-9 be changed from Quarterly to Semi-Annually (1Q & 3Q). This change will coincide with the established monitoring program where wells MW-1, MW-2, and MW-4 will be sampled Semi-Annually (1Q & 3Q) and wells MW-3, MW-5, and MW-6 will be sampled Annually (3Q).

Because the groundwater hydrocarbon plume is vertically and horizontally defined in extent, does not seem to show any evidence of migration, and it is highly unlikely that this particular limited pocket of shallow groundwater will be used directly as a source of drinking water, we respectfully request that the directive to prepare an FS/CAP be suspended.

LIMITATIONS:

The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by Calscience and our understanding of ACEH guidelines. 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 (a BP affiliated company). It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

- Drawing 1: Site Location Map
- Drawing 2: Second Quarter 2011 Groundwater Elevation Contour and Analytical Summary Map

- Table 1: Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
- Table 2: Summary of Fuel Additives Analytical Data
- Table 3: Historical Groundwater Gradient Direction and Magnitude

- Appendix A: Field Methods
- Appendix B: Field Data Sheets
- 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	gal:	gallons
ARC:	Atlantic Richfield Company	GRO:	Gasoline Range Organics (C6-12)
BAI:	Broadbent & Associates, Inc.	LNAPL:	Light Non-Aqueous Phase Liquid
BTEX:	Benzene, Toluene, Ethylbenzene, Total Xylenes	MTBE:	Methyl Tertiary Butyl Ether
1,2-DCA:	1,2-Dichloroethane	RWQCB:	California Regional Water Quality Control Board-San Francisco Bay Region
DIPE:	Di-Isopropyl Ether		
DO:	Dissolved Oxygen	TAME:	Tert-Amyl Methyl Ether
ESLs:	RWQCB Environmental Screening Levels (revised May 2008)	TBA:	Tert-Butyl Alcohol
EDB:	1,2-Dibromomethane	TOC:	top of casing
ft/ft:	feet per foot	µg/L:	micrograms per liter

APPENDIX A
FIELD METHODS

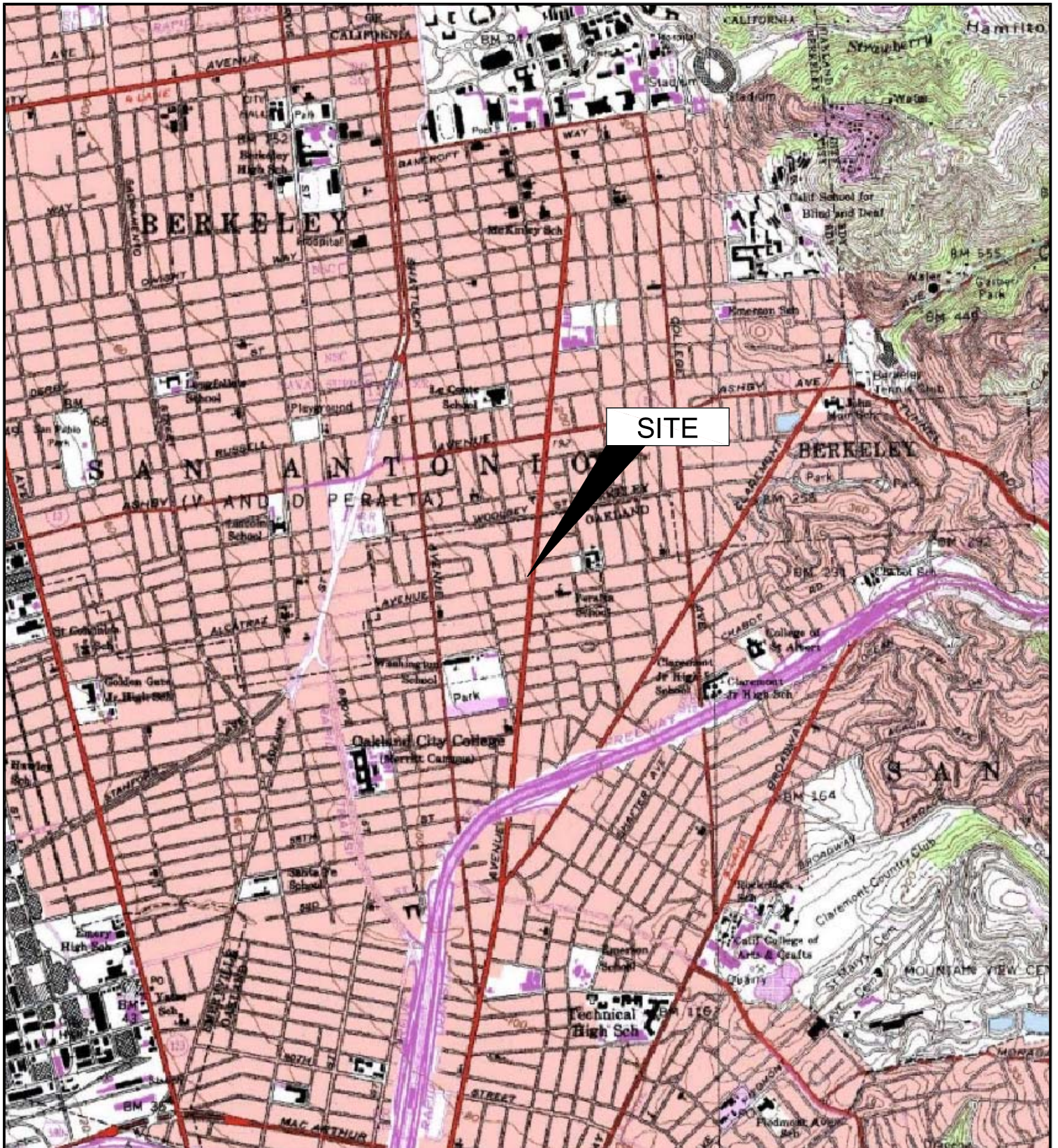
APPENDIX B
FIELD DATA SHEETS

APPENDIX C

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

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS



SITE

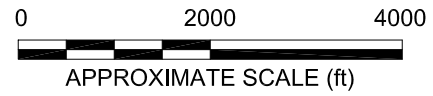
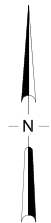
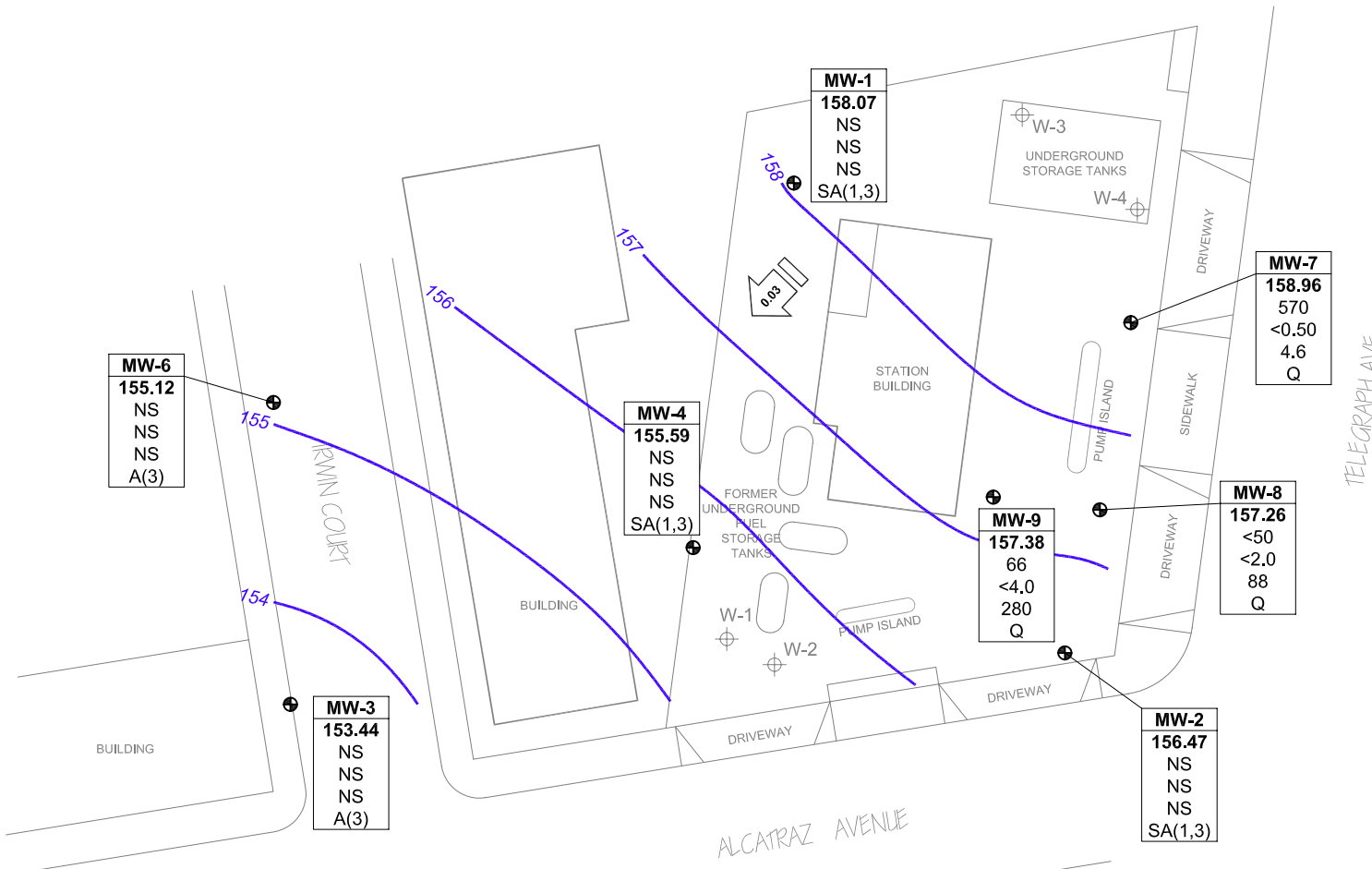


IMAGE SOURCE: USGS



MW-6
155.12
NS
NS
NS
A(3)

MW-3
153.44
NS
NS
NS
A(3)

MW-4
155.59
NS
NS
NS
SA(1,3)

MW-1
158.07
NS
NS
NS
SA(1,3)

MW-9
157.38
66
<4.0
280
Q

MW-8
157.26
<50
<2.0
88
Q

MW-7
158.96
570
<0.50
4.6
Q

MW-2
156.47
NS
NS
NS
SA(1,3)

MW-5
NM
NS
NS
NS
A(3)

LEGEND

- ⊕ Monitor Well Location
- ⊕ Tank Pit Monitor Well Location
- Groundwater Elevation Contour (Feet Above Site Datum)
- 0.03 Groundwater Gradient (ft/ft)
- A(3) Sampled Annually - Third Quarter
- SA(1,3) Sampled Semi-Annually - First and Third Quarter
- Q Sampled Quarterly
- NM Not Monitored
- NS Not Sampled

WELL	Well Designation
ELEV	Ground-Water Elevation (ft)
GRO	GRO, Benzene and MTBE
BZ	Concentrations (µg/L)
MTBE	
A/SA/Q	Sampling Frequency

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

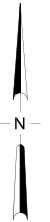


Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Well and Sample Date	P/NP	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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-1															
6/20/2000	--	158.91	7.00	27.00	6.86	152.05	--	--	--	--	--	--	--	--	
9/28/2000	--		7.00	27.00	7.50	151.41	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	7.49	151.42	--	--	--	--	--	--	--	--	
3/23/2001	--		7.00	27.00	5.90	153.01	<50	<0.5	<0.5	<0.5	<0.5	2,710	--	--	
6/21/2001	--		7.00	27.00	7.45	151.46	--	--	--	--	--	--	--	--	
9/23/2001	--		7.00	27.00	8.46	150.45	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	5.50	153.41	--	--	--	--	--	--	--	--	
3/21/2002	--		7.00	27.00	4.71	154.20	<5,000	<50	<50	<50	<50	2,000	--	--	
4/17/2002	--		7.00	27.00	5.54	153.37	--	--	--	--	--	--	--	--	
8/12/2002	--		7.00	27.00	7.77	151.14	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	7.65	151.26	--	--	--	--	--	--	--	--	
1/29/2003	--		7.00	27.00	5.88	153.03	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	5.62	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1	
9/4/2003	--		7.00	27.00	7.85	151.06	--	--	--	--	--	--	--	--	
11/20/2003	P		7.00	27.00	8.17	150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7	
02/02/2004	P	164.57	7.00	27.00	6.71	157.86	--	--	--	--	--	--	1.0	--	f
05/14/2004	P		7.00	27.00	7.08	157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6	
09/02/2004	P		7.00	27.00	8.12	156.45	580	<5.0	<5.0	<5.0	<5.0	660	3.8	6.7	
11/04/2004	P		7.00	27.00	7.38	157.19	1,700	<10	<10	<10	<10	580	6.0	6.5	
02/08/2005	P		7.00	27.00	6.60	157.97	<1,000	<10	<10	<10	<10	610	0.71	6.5	
05/09/2005	P		7.00	27.00	6.84	157.73	540	<5.0	<5.0	<5.0	5.5	620	3.12	6.6	e
08/11/2005	P		7.00	27.00	7.36	157.21	540	<2.5	<2.5	<2.5	4.0	390	0.8	6.6	
11/18/2005	P		7.00	27.00	8.02	156.55	350	<2.5	<2.5	<2.5	<2.5	340	2.6	6.7	e
02/16/2006	P		7.00	27.00	6.44	158.13	350	<2.5	<2.5	<2.5	<2.5	340	1.6	6.7	e
5/30/2006	P		7.00	27.00	6.87	157.70	270	<2.5	<2.5	<2.5	<2.5	420	4.73	6.4	
8/24/2006	P		7.00	27.00	7.75	156.82	95	<5.0	<5.0	<5.0	<5.0	180	0.65	6.9	
11/1/2006	P		7.00	27.00	8.28	156.29	120	<5.0	<5.0	<5.0	<5.0	220	1.65	7.07	
2/7/2007	NP		7.00	27.00	7.40	157.17	120	<5.0	<5.0	<5.0	<5.0	190	1.88	7.45	e

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ARCO Service Station #0374, 6407 Telegraph Ave., 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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-1 Cont.															
5/8/2007	P	164.57	7.00	27.00	6.50	158.07	<500	<5.0	<5.0	<5.0	<5.0	420	1.21	6.94	
8/8/2007	NP		7.00	27.00	8.17	156.40	82	<0.50	<0.50	<0.50	<0.50	110	1.16	7.00	e
11/14/2007	NP		7.00	27.00	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49	
2/22/2008	P		7.00	27.00	6.00	158.57	<50	<0.50	<0.50	<0.50	<0.50	250	2.57	6.65	
5/24/2008	NP		7.00	27.00	7.58	156.99	<50	<5.0	<5.0	<5.0	<5.0	380	2.28	6.81	
8/21/2008	NP		7.00	27.00	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98	
11/19/2008	NP		7.00	27.00	8.88	155.69	<50	<0.50	<0.50	<0.50	<0.50	30	2.12	7.27	
2/23/2009	P		7.00	27.00	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03	
5/14/2009	P		7.00	27.00	6.67	157.90	53	<0.50	<0.50	<0.50	<0.50	200	1.75	6.69	
8/20/2009	NP		7.00	27.00	8.25	156.32	150	<2.0	<2.0	<2.0	<2.0	170	2.14	6.25	i (GRO)
2/19/2010	P		7.00	27.00	6.07	158.50	<50	<0.50	<0.50	<0.50	<0.50	170	0.92	6.66	
8/10/2010	NP		7.00	27.00	7.58	156.99	<50	<2.5	<2.5	<2.5	<2.5	230	3.86	7.1	
12/16/2010	P	164.45	7.00	27.00	6.64	157.81	<50	<2.0	<2.0	<2.0	<2.0	140	1.20	6.86	j
2/14/2011	NP		7.00	27.00	7.10	157.35	<50	<2.5	<2.5	<2.5	<2.5	170	1.18	6.7	
5/20/2011	--		7.00	27.00	6.38	158.07	--	--	--	--	--	--	--	--	
MW-2															
6/20/2000	--	157.92	7.00	27.00	7.67	150.25	--	--	--	--	--	--	--	--	
9/28/2000	--		7.00	27.00	8.51	149.41	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	8.14	149.78	--	--	--	--	--	--	--	--	
3/23/2001	--		7.00	27.00	7.21	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		7.00	27.00	7.99	149.93	--	--	--	--	--	--	--	--	
9/23/2001	--		7.00	27.00	8.52	149.40	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	6.01	151.91	--	--	--	--	--	--	--	--	
3/21/2002	--		7.00	27.00	5.95	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	--	--	
4/17/2002	--		7.00	27.00	6.45	151.47	--	--	--	--	--	--	--	--	
8/12/2002	--		7.00	27.00	8.08	149.84	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	8.29	149.63	--	--	--	--	--	--	--	--	
1/29/2003	--		7.00	27.00	7.22	150.70	--	--	--	--	--	--	--	--	b

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	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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-2 Cont.															
5/23/2003	--	157.92	7.00	27.00	6.85	151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2	
9/4/2003	--		7.00	27.00	7.94	149.98	--	--	--	--	--	--	--	--	
11/20/2003	--		7.00	27.00	8.05	149.87	--	--	--	--	--	--	--	--	
02/02/2004	P	163.46	7.00	27.00	7.00	156.46	74	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9	f
05/14/2004	--		7.00	27.00	7.97	155.49	--	--	--	--	--	--	--	--	
09/02/2004	P		7.00	27.00	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9	
11/04/2004	--		7.00	27.00	7.54	155.92	--	--	--	--	--	--	--	--	
02/08/2005	P		7.00	27.00	6.72	156.74	<50	<0.50	<0.50	<0.50	<0.50	30	0.86	6.7	
05/09/2005	--		7.00	27.00	7.16	156.30	--	--	--	--	--	--	--	--	
08/11/2005	P		7.00	27.00	7.85	155.61	<50	<0.50	<0.50	<0.50	<0.50	35	1.0	6.6	
11/18/2005	--		7.00	27.00	8.23	155.23	--	--	--	--	--	--	--	--	
02/16/2006	P		7.00	27.00	6.82	156.64	<50	<0.50	<0.50	<0.50	<0.50	39	1.3	7.0	
5/30/2006	--		7.00	27.00	7.23	156.23	--	--	--	--	--	--	--	--	
8/24/2006	P		7.00	27.00	8.00	155.46	60	<0.50	<0.50	<0.50	<0.50	25	0.90	6.8	
11/1/2006	--		7.00	27.00	8.38	155.08	--	--	--	--	--	--	--	--	
2/7/2007	NP		7.00	27.00	7.88	155.58	<50	0.50	<0.50	<0.50	<0.50	7.2	0.94	7.39	
5/8/2007	--		7.00	27.00	7.28	156.18	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	8.38	155.08	88	3.2	<0.50	<0.50	<0.50	7.2	0.94	7.75	
11/14/2007	--		7.00	27.00	8.10	155.36	--	--	--	--	--	--	--	--	
2/22/2008	P		7.00	27.00	6.75	156.71	<50	<0.50	<0.50	<0.50	<0.50	24	2.18	7.02	
5/24/2008	--		7.00	27.00	7.98	155.48	--	--	--	--	--	--	--	--	
8/21/2008	NP		7.00	27.00	8.58	154.88	<50	2.6	<0.50	<0.50	<0.50	4.9	2.20	7.11	
11/19/2008	--		7.00	27.00	8.66	154.80	--	--	--	--	--	--	--	--	
2/23/2009	P		7.00	27.00	6.67	156.79	74	1.0	<0.50	<0.50	<0.50	24	2.25	6.16	
5/14/2009	--		7.00	27.00	7.02	156.44	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	8.41	155.05	82	2.4	<0.50	<0.50	<0.50	8.4	2.19	6.37	
2/19/2010	NP		7.00	27.00	7.36	156.10	<50	<0.50	<0.50	<0.50	<0.50	22	0.81	6.90	
8/10/2010	NP		7.00	27.00	7.69	155.77	<50	<0.50	<0.50	<0.50	<0.50	23	2.40	7.67	

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	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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-2 Cont.															
12/16/2010	P	163.49	7.00	27.00	7.12	156.37	<50	<0.50	<0.50	<0.50	<0.50	17	0.69	7.06	j
2/14/2011	NP		7.00	27.00	7.35	156.14	<50	<0.50	<0.50	<0.50	<0.50	11	0.87	7.0	
5/20/2011	--		7.00	27.00	7.02	156.47	--	--	--	--	--	--	--	--	
MW-3															
6/20/2000	--	153.64	7.00	27.00	6.42	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	
9/28/2000	--		7.00	27.00	7.31	146.33	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	6.45	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		7.00	27.00	6.01	147.63	--	--	--	--	--	--	--	--	
6/21/2001	--		7.00	27.00	6.80	146.84	110	5.5	<0.5	5.4	4.1	2.5	--	--	
9/23/2001	--		7.00	27.00	7.32	146.32	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	4.48	149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	--	--	
3/21/2002	--		7.00	27.00	4.36	149.28	--	--	--	--	--	--	--	--	
4/17/2002	--		7.00	27.00	5.31	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	--	--	
8/12/2002	--		7.00	27.00	7.00	146.64	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	7.32	146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7	
1/29/2003	--		7.00	27.00	6.07	147.57	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	6.45	147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7	
9/4/2003	--		7.00	27.00	6.93	146.71	--	--	--	--	--	--	--	--	c
11/20/2003	--		7.00	27.00	7.04	146.60	--	--	--	--	--	--	--	--	c
02/02/2004	--	159.21	7.00	27.00	5.92	153.29	--	--	--	--	--	--	--	--	f
05/14/2004	--		7.00	27.00	7.52	151.69	--	--	--	--	--	--	--	--	
09/02/2004	P		7.00	27.00	7.19	152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9	
11/04/2004	--		7.00	27.00	6.40	152.81	--	--	--	--	--	--	--	--	
02/08/2005	--		7.00	27.00	6.01	153.20	--	--	--	--	--	--	--	--	
05/09/2005	--		7.00	27.00	6.74	152.47	--	--	--	--	--	--	--	--	
08/11/2005	P		7.00	27.00	6.77	152.44	<50	<0.50	<0.50	<0.50	<0.50	11	1.9	6.5	
11/18/2005	--		7.00	27.00	7.83	151.38	--	--	--	--	--	--	--	--	
02/16/2006	--		7.00	27.00	7.26	151.95	--	--	--	--	--	--	--	--	

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	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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-3 Cont.															
5/30/2006	--	159.21	7.00	27.00	5.82	153.39	--	--	--	--	--	--	--	--	
8/24/2006	P		7.00	27.00	7.00	152.21	<50	<0.50	<0.50	<0.50	<0.50	7.6	1.15	6.4	
11/1/2006	--		7.00	27.00	7.50	151.71	--	--	--	--	--	--	--	--	
2/7/2007	--		7.00	27.00	6.90	152.31	--	--	--	--	--	--	--	--	
5/8/2007	--		7.00	27.00	5.95	153.26	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	7.47	151.74	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.21	6.93	
11/14/2007	--		7.00	27.00	7.05	152.16	--	--	--	--	--	--	--	--	
2/22/2008	--		7.00	27.00	5.50	153.71	--	--	--	--	--	--	--	--	
5/24/2008	--		7.00	27.00	7.03	152.18	--	--	--	--	--	--	--	--	
8/21/2008	NP		7.00	27.00	7.80	151.41	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.11	6.84	
11/19/2008	--		7.00	27.00	7.69	151.52	--	--	--	--	--	--	--	--	
2/23/2009	--		7.00	27.00	7.28	151.93	--	--	--	--	--	--	--	--	
5/14/2009	--		7.00	27.00	6.17	153.04	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	7.38	151.83	<50	<0.50	<0.50	<0.50	<0.50	2.2	2.05	7.01	
2/19/2010	--		7.00	27.00	5.31	153.90	--	--	--	--	--	--	--	--	
8/10/2010	NP		7.00	27.00	7.12	152.09	<50	<0.50	<0.50	<0.50	<0.50	1.6	1.27	7.33	
12/16/2010	--		7.00	27.00	5.65	153.56	--	--	--	--	--	--	--	--	j
2/14/2011	--		7.00	27.00	6.20	153.01	--	--	--	--	--	--	--	--	
5/20/2011	--		7.00	27.00	5.77	153.44	--	--	--	--	--	--	--	--	
MW-4															
6/20/2000	--	156.53	7.00	27.00	7.50	149.03	20,000	5,100	440	1,000	1,700	<250	--	--	c
9/28/2000	--		7.00	27.00	8.20	148.33	--	--	--	--	--	--	--	--	
12/17/2000	--		7.00	27.00	8.11	148.42	4,320	1,240	<20	27.2	249	<100	--	--	
3/23/2001	--		7.00	27.00	6.69	149.84	--	--	--	--	--	--	--	--	
6/21/2001	--		7.00	27.00	8.01	148.52	2,800	470	16	19	160	130	--	--	
9/23/2001	--		7.00	27.00	8.91	147.62	--	--	--	--	--	--	--	--	
12/31/2001	--		7.00	27.00	4.42	152.11	4,600	1,500	100	160	210	160	--	--	
3/21/2002	--		7.00	27.00	4.98	151.55	--	--	--	--	--	--	--	--	

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ARCO Service Station #0374, 6407 Telegraph Ave., 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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-4 Cont.															
4/17/2002	--	156.53	7.00	27.00	6.23	150.30	7,100	2,200	<i>110</i>	290	450	<250	--	--	
8/12/2002	--		7.00	27.00	8.24	148.29	--	--	--	--	--	--	--	--	
12/6/2002	--		7.00	27.00	8.42	148.11	1,500	410	6.8	20	29	43	1.1	6.7	a
1/29/2003	--		7.00	27.00	7.20	149.33	--	--	--	--	--	--	--	--	b
5/23/2003	--		7.00	27.00	7.18	149.35	< 5,000	1,300	89	210	260	<50	1.4	6.9	
9/4/2003	--		7.00	27.00	8.15	148.38	--	--	--	--	--	--	--	--	c
11/20/2003	--		7.00	27.00	8.73	147.80	--	--	--	--	--	--	--	--	c
02/02/2004	P	163.25	7.00	27.00	6.25	157.00	980	280	21	29	38	29	1.4	10.6	c, f, g
05/14/2004	--		7.00	27.00	8.38	154.87	--	--	--	--	--	--	--	--	g
09/02/2004	P		7.00	27.00	8.36	154.89	260	<i>11</i>	<1.0	5.5	14	28	2.4	7.4	g
11/04/2004	--		7.00	27.00	7.71	155.54	--	--	--	--	--	--	--	--	c, g
02/08/2005	P		7.00	27.00	6.27	156.98	7,500	1,700	320	480	920	45	0.65	6.5	g
05/09/2005	--		7.00	27.00	5.90	157.35	--	--	--	--	--	--	--	--	g
08/11/2005	P		7.00	27.00	7.96	155.29	3,100	1,100	41	160	110	32	0.6	6.5	g
11/18/2005	--		7.00	27.00	8.57	154.68	--	--	--	--	--	--	--	--	g
02/16/2006	P		7.00	27.00	6.28	156.97	9,400	1,800	<i>130</i>	600	420	35	0.5	6.8	g
5/30/2006	--	162.47	7.00	27.00	7.02	155.45	--	--	--	--	--	--	--	--	g
8/24/2006	P		7.00	27.00	8.26	154.21	3,600	1,400	21	110	70	39	1.00	6.8	
11/1/2006	--		7.00	27.00	8.67	153.80	--	--	--	--	--	--	--	--	
2/7/2007	NP		7.00	27.00	8.02	154.45	3,100	570	17	170	110	67	0.95	7.07	
5/8/2007	--		7.00	27.00	7.03	155.44	--	--	--	--	--	--	--	--	
8/8/2007	NP		7.00	27.00	8.60	153.87	2,900	630	22	67	57	72	0.93	6.79	
11/14/2007	--		7.00	27.00	8.53	153.94	--	--	--	--	--	--	--	--	
2/22/2008	P		7.00	27.00	6.25	156.22	3,900	880	39	180	92	70	2.31	6.87	
5/24/2008	--		7.00	27.00	--	--	--	--	--	--	--	--	--	--	d
8/21/2008	NP		7.00	27.00	8.96	153.51	3,700	1,100	26	85	130	53	2.26	6.80	
11/19/2008	--		7.00	27.00	9.20	153.27	--	--	--	--	--	--	--	--	
2/23/2009	P		7.00	27.00	6.35	156.12	3,000	220	9.1	23	19	39	2.21	6.51	

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							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-4 Cont.															
5/14/2009	--	162.47	7.00	27.00	7.00	155.47	--	--	--	--	--	--	--	--	
8/20/2009	NP		7.00	27.00	8.05	154.42	5,700	1,100	35	110	100	23	2.17	6.81	
2/19/2010	P		7.00	27.00	5.71	156.76	12,000	1,200	120	230	390	<5.0	0.81	6.70	i
8/10/2010	NP		7.00	27.00	7.59	154.88	9,700	1,500	120	400	400	<20	3.81	6.8	
12/16/2010	P	162.48	7.00	27.00	6.83	155.65	15,000	1,800	82	270	210	<25	0.49	6.81	j
2/14/2011	NP		7.00	27.00	7.33	155.15	260	<0.50	<0.50	2.7	11	13	0.80	7.10	
5/20/2011	--		7.00	27.00	6.89	155.59	--	--	--	--	--	--	--	--	
MW-5															
6/20/2000	--	151.33	10.00	23.00	7.84	143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	
9/28/2000	--		10.00	23.00	8.37	142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/17/2000	--		10.00	23.00	8.36	142.97	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/23/2001	--		10.00	23.00	7.55	143.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
6/21/2001	--		10.00	23.00	8.20	143.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		10.00	23.00	8.68	142.65	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/31/2001	--		10.00	23.00	7.57	143.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		10.00	23.00	6.12	145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--	
4/17/2002	--		10.00	23.00	6.61	144.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/12/2002	--		10.00	23.00	8.14	143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6	
12/6/2002	--		10.00	23.00	8.65	142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8	
1/29/2003	--		10.00	23.00	7.22	144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.50	1	6.6	b
5/23/2003	--		10.00	23.00	7.31	144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6	
9/4/2003	--		10.00	23.00	9.50	141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7	
11/20/2003	--		10.00	23.00	8.31	143.02	--	--	--	--	--	--	--	--	
02/02/2004	--		10.00	23.00	6.92	144.41	--	--	--	--	--	--	--	--	c, f, h
05/14/2004	--		10.00	23.00	8.56	142.77	--	--	--	--	--	--	--	--	h
09/02/2004	P		10.00	23.00	8.79	142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8	h
11/04/2004	--		10.00	23.00	8.33	143.00	--	--	--	--	--	--	--	--	c, h
02/08/2005	--		10.00	23.00	7.28	144.05	--	--	--	--	--	--	--	--	h

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ARCO Service Station #0374, 6407 Telegraph Ave., 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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-5 Cont.															
05/09/2005	--	151.33	10.00	23.00	8.19	143.14	--	--	--	--	--	--	--	--	h
08/11/2005	P		10.00	23.00	8.39	142.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.6	h
11/18/2005	--		10.00	23.00	11.25	140.08	--	--	--	--	--	--	--	--	h
02/16/2006	--		10.00	23.00	9.22	142.11	--	--	--	--	--	--	--	--	h
5/30/2006	--		10.00	23.00	7.52	143.81	--	--	--	--	--	--	--	--	h
8/24/2006	P		10.00	23.00	7.95	143.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6	
11/1/2006	--		10.00	23.00	8.32	143.01	--	--	--	--	--	--	--	--	
2/7/2007	--		10.00	23.00	8.25	143.08	--	--	--	--	--	--	--	--	
5/8/2007	--		10.00	23.00	7.60	143.73	--	--	--	--	--	--	--	--	
8/8/2007	P		10.00	23.00	8.12	143.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26	7.31	
11/14/2007	--		10.00	23.00	9.10	142.23	--	--	--	--	--	--	--	--	
2/22/2008	--		10.00	23.00	7.48	143.85	--	--	--	--	--	--	--	--	
5/24/2008	--		10.00	23.00	8.12	143.21	--	--	--	--	--	--	--	--	
8/21/2008	P		10.00	23.00	8.65	142.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.14	6.54	
11/19/2008	--		10.00	23.00	11.86	139.47	--	--	--	--	--	--	--	--	
2/23/2009	--		10.00	23.00	10.20	141.13	--	--	--	--	--	--	--	--	
5/14/2009	--		10.00	23.00	9.63	141.70	--	--	--	--	--	--	--	--	
8/20/2009	P		10.00	23.00	8.52	142.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.01	6.47	
2/19/2010	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
8/10/2010	P		10.00	23.00	8.05	143.28	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.1	
12/16/2010	--	156.90	10.00	23.00	8.10	148.80	--	--	--	--	--	--	--	--	j
2/14/2011	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
5/20/2011	--		10.00	23.00	--	--	--	--	--	--	--	--	--	--	d
MW-6															
6/20/2000	--	153.84	5.00	15.00	4.79	149.05	--	--	--	--	--	--	--	--	
9/28/2000	--		5.00	15.00	5.39	148.45	--	--	--	--	--	--	--	--	
12/17/2000	--		5.00	15.00	4.71	149.13	--	--	--	--	--	--	--	--	
3/23/2001	--		5.00	15.00	4.69	149.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	

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	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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-6 Cont.															
6/21/2001	--	153.84	5.00	15.00	5.22	148.62	--	--	--	--	--	--	--	--	
9/23/2001	--		5.00	15.00	5.40	148.44	--	--	--	--	--	--	--	--	
12/31/2001	--		5.00	15.00	3.95	149.89	--	--	--	--	--	--	--	--	
3/21/2002	--		5.00	15.00	2.94	150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--	
4/17/2002	--		5.00	15.00	5.11	148.73	--	--	--	--	--	--	--	--	
8/12/2002	--		5.00	15.00	5.23	148.61	--	--	--	--	--	--	--	--	
12/6/2002	--		5.00	15.00	5.29	148.55	--	--	--	--	--	--	--	--	
1/29/2003	--		5.00	15.00	4.79	149.05	--	--	--	--	--	--	--	--	b
5/23/2003	--		5.00	15.00	4.31	149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7	
09/04/03	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
11/20/2003	--		5.00	15.00	6.31	147.53	--	--	--	--	--	--	--	--	
02/02/2004	--	159.41	5.00	15.00	4.78	154.63	--	--	--	--	--	--	--	--	f
05/14/2004	--		5.00	15.00	6.29	153.12	--	--	--	--	--	--	--	--	
09/02/2004	--		5.00	15.00	5.79	153.62	--	--	--	--	--	--	--	--	d
11/04/2004	--		5.00	15.00	--	--	--	--	--	--	--	--	--	--	d
02/08/2005	--		5.00	15.00	5.13	154.28	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	15.00	4.52	154.89	--	--	--	--	--	--	--	--	
08/11/2005	P		5.00	15.00	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	7.9	2.1	6.6	
11/18/2005	--		5.00	15.00	6.31	153.10	--	--	--	--	--	--	--	--	
02/16/2006	--		5.00	15.00	4.24	155.17	--	--	--	--	--	--	--	--	
5/30/2006	--		5.00	15.00	4.45	154.96	--	--	--	--	--	--	--	--	
8/24/2006	P		5.00	15.00	5.18	154.23	<50	<0.50	<0.50	<0.50	<0.50	12	3.4	6.8	
11/1/2006	--		5.00	15.00	6.05	153.36	--	--	--	--	--	--	--	--	
2/7/2007	--		5.00	15.00	5.00	154.41	--	--	--	--	--	--	--	--	
5/8/2007	--		5.00	15.00	4.30	155.11	--	--	--	--	--	--	--	--	
8/8/2007	NP		5.00	15.00	5.51	153.90	<50	<0.50	<0.50	<0.50	<0.50	0.57	2.94	6.87	
11/14/2007	--		5.00	15.00	5.38	154.03	--	--	--	--	--	--	--	--	
2/22/2008	--		5.00	15.00	4.70	154.71	--	--	--	--	--	--	--	--	

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	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			
ESL - DW							100	1.0	40	30	20	5.0			
ESL - NDW							210	46	130	43	100	1,800			
MW-6 Cont.															
5/24/2008	--	159.41	5.00	15.00	5.25	154.16	--	--	--	--	--	--	--	--	
8/21/2008	NP		5.00	15.00	6.14	153.27	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.99	7.13	
11/19/2008	--		5.00	15.00	5.94	153.47	--	--	--	--	--	--	--	--	
2/23/2009	--		5.00	15.00	5.00	154.41	--	--	--	--	--	--	--	--	
5/14/2009	--		5.00	15.00	4.60	154.81	--	--	--	--	--	--	--	--	
8/20/2009	NP		5.00	15.00	5.65	153.76	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.98	6.81	
2/19/2010	--		5.00	15.00	7.28	152.13	--	--	--	--	--	--	--	--	
8/10/2010	NP		5.00	15.00	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	4.3	1.99	6.93	
12/16/2010	--		5.00	15.00	4.50	154.91	--	--	--	--	--	--	--	--	j
2/14/2011	--		5.00	15.00	4.80	154.61	--	--	--	--	--	--	--	--	
5/20/2011	--		5.00	15.00	4.29	155.12	--	--	--	--	--	--	--	--	
MW-7															
12/16/2010	P	164.80	5.00	20.00	6.52	158.28	700	<0.50	<0.50	15	32	62	--	7.08	j
2/14/2011	NP		5.00	20.00	6.77	158.03	7,100	1,700	98	260	210	<20	1.02	6.8	
5/20/2011	NP		5.00	20.00	5.84	158.96	570	<0.50	<0.50	37	25	4.6	1.66	6.7	1 (GRO)
MW-8															
12/16/2010	P	164.14	5.00	20.00	6.85	157.29	520	43	<0.50	4.1	21	150	0.46	7.12	j
2/14/2011	NP		5.00	20.00	7.30	156.84	<50	<2.0	<2.0	<2.0	<2.0	110	1.07	6.7	
5/20/2011	NP		5.00	20.00	6.88	157.26	<50	<2.0	<2.0	<2.0	<2.0	88	1.35	6.5	
MW-9															
12/16/2010	P	163.77	5.00	20.00	6.63	157.14	330	18	<0.50	11	38	390	0.57	6.97	j
2/14/2011	NP		5.00	20.00	6.85	156.92	<50	<4.0	<4.0	<4.0	<4.0	270	0.98	6.9	
5/20/2011	NP		5.00	20.00	6.39	157.38	66	<4.0	<4.0	<4.0	<4.0	280	1.64	6.7	1 (GRO)

Symbols & 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

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

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
j = Surveyed 12/9/2010
k = Grab groundwater sample
l = Quantitated against 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

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)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-1									
3/23/2001	--	--	2,710	--	--	--	--	--	
3/21/2002	--	--	2,000	--	--	--	--	--	
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	
11/19/2008	<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	
12/16/2010	<1,200	<40	140	<2.0	<2.0	<2.0	<2.0	<2.0	

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)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-1 Cont.									
2/14/2011	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
MW-2									
3/23/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	45	--	--	--	--	--	
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	
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	
12/16/2010	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2011	<300	<10	11	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
6/20/2000	--	--	<10	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
6/21/2001	--	--	2.5	--	--	--	--	--	
12/31/2001	--	--	4.9	--	--	--	--	--	
4/17/2002	--	--	8.7	--	--	--	--	--	
12/6/2002	--	--	6.2	--	--	--	--	--	

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)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-3 Cont.									
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									
6/20/2000	--	--	<250	--	--	--	--	--	
12/17/2000	--	--	<100	--	--	--	--	--	
6/21/2001	--	--	130	--	--	--	--	--	
12/31/2001	--	--	160	--	--	--	--	--	
4/17/2002	--	--	<250	--	--	--	--	--	
12/6/2002	--	--	43	--	--	--	--	--	
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	
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	

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)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-4 Cont.									
8/10/2010	<12,000	<400	<20	<20	<20	<20	<20	<20	
12/16/2010	<15,000	<500	<25	<25	<25	<25	<25	<25	
2/14/2011	<300	<10	13	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5									
6/20/2000	--	--	<10	--	--	--	--	--	
9/28/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/21/2001	--	--	<2.5	--	--	--	--	--	
9/23/2001	--	--	<2.5	--	--	--	--	--	
12/31/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	3.2	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/12/2002	--	--	<2.5	--	--	--	--	--	
12/6/2002	--	--	<2.5	--	--	--	--	--	
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									
3/23/2001	--	--	<2.5	--	--	--	--	--	
3/21/2002	--	--	5.2	--	--	--	--	--	

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)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
MW-6 Cont.									
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	
MW-7									
12/16/2010	<300	<10	62	<0.50	<0.50	<0.50	<0.50	<0.50	
2/14/2011	<1,2000	<400	<20	<20	<20	<20	<20	<20	
5/20/2011	<300	<10	4.6	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-8									
12/16/2010	<300	<10	150	<0.50	<0.50	1.7	<0.50	<0.50	
2/14/2011	<1,200	<40	110	<2.0	<2.0	<2.0	<2.0	<2.0	
5/20/2011	<1,200	<40	88	<2.0	<2.0	<2.0	<2.0	<2.0	
MW-9									
12/16/2010	<300	40	390	<0.50	<0.50	4.1	<0.50	<0.50	
2/14/2011	<2,400	<80	270	<4.0	<4.0	<4.0	<4.0	<4.0	
5/20/2011	<2,400	<80	280	<4.0	<4.0	<4.0	<4.0	<4.0	

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

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

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

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

Table 3. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
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 Groundwater Gradient - Direction and Magnitude
ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
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
12/16/2010	Southwest	0.03
2/14/2011	Southwest	0.03
5/20/2011	Southwest	0.03

Footnotes:

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

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

Groundwater Sampling Data Sheet

Well I.D.: MW-7
 Project Name/Location: BP/ARCO 374 Project #: 06-88-602
 Sampler's Name: SB + JR Date: 5/20/11
 Purging Equipment: _____
 Sampling Equipment: bauler

Casing Type: PVC
 Casing Diameter: 4 inch ***UNIT CASING VOLUMES**
 Total Well Depth: 19.90 feet 2" = 0.16 gal/lin ft.
 Depth to Water: 5.84 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	0943	1.66	—	—	641	19.3	6.7	
		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: 0945 Purged Dry? (Y/N) (N)

Comments: NP @ 5'

Groundwater Sampling Data Sheet

Well I.D.: mw-8
 Project Name/Location: BP/ARCO 374 Project #: 06-88-602
 Sampler's Name: SB & JR Date: 5/20/11
 Purging Equipment: _____
 Sampling Equipment: Dawler

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: 19.50 feet
 Depth to Water: 6.88 feet
 Water Column Thickness: = _____ feet
 Unit Casing Volume*: x _____ gallon / foot
 Casing Water Volume: = _____ gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = _____ gallons

***UNIT CASING VOLUMES**
 2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	0958	1.35	—	—	548	19.0	6.5	
		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: 1000 Purged Dry? (Y/N) (N)

Comments: NP @ 5'

Groundwater Sampling Data Sheet

Well I.D.: MW-9
 Project Name/Location: RP/AR10 374 Project #: 06-88-602
 Sampler's Name: SB + JR Date: 5/20/11
 Purging Equipment:
 Sampling Equipment: Ducker

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: 19.50 feet
 Depth to Water: 6.39 feet
 Water Column Thickness: = feet
 Unit Casing Volume*: x gallon / foot
 Casing Water Volume: = gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = gallons

***UNIT CASING VOLUMES**
 2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

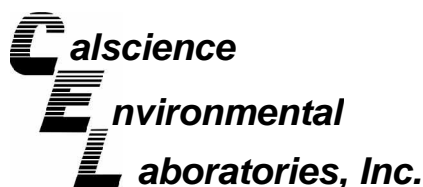
Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1013	1.64	—	—	608	18.5	6.7	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: gallons
 Depth to Water at Sample Collection: feet
 Sample Collection Time: 1015 Purged Dry? (Y/N) (N)

Comments: NP@5'

APPENDIX C

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



June 03, 2011

Tom Sparrowe
Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Subject: **CalScience Work Order No.: 11-05-1385**
Client Reference: ARCO 374

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/21/2011 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, appearing to read 'Richard Villafania'.

CalScience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Analytical Report



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 05/21/11
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: ARCO 374

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	11-05-1385-1-D	05/20/11 09:45	Aqueous	GC 57	05/27/11	05/27/11 22:50	110527B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	570	500	10		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	76	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8	11-05-1385-2-D	05/20/11 10:00	Aqueous	GC 57	05/27/11	05/27/11 19:42	110527B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	119	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9	11-05-1385-3-D	05/20/11 10:15	Aqueous	GC 57	05/27/11	05/27/11 20:13	110527B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	66	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	101	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-695-1,086	N/A	Aqueous	GC 57	05/27/11	05/27/11 11:20	110527B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	86	38-134	

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

Analytical Report



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 05/21/11
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

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-7	11-05-1385-1-B	05/20/11 09:45	Aqueous	GC/MS FFF	06/01/11	06/02/11 03:49	110601L05

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	4.6	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	37	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)	25	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	108	80-128			Dibromofluoromethane	104	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	99	68-120		

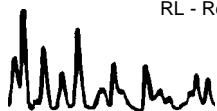
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8	11-05-1385-2-B	05/20/11 10:00	Aqueous	GC/MS FFF	06/01/11	06/02/11 05:12	110601L05

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	2.0	4		Methyl-t-Butyl Ether (MTBE)	88	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	ND	40	4	
1,2-Dichloroethane	ND	2.0	4		Diisopropyl Ether (DIPE)	ND	2.0	4	
Ethylbenzene	ND	2.0	4		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	4	
Toluene	ND	2.0	4		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	4	
Xylenes (total)	ND	2.0	4		Ethanol	ND	1200	4	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	101	80-128			Dibromofluoromethane	100	80-127		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	100	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9	11-05-1385-3-B	05/20/11 10:15	Aqueous	GC/MS FFF	06/01/11	06/02/11 05:40	110601L05

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	4.0	8		Methyl-t-Butyl Ether (MTBE)	280	4.0	8	
1,2-Dibromoethane	ND	4.0	8		Tert-Butyl Alcohol (TBA)	ND	80	8	
1,2-Dichloroethane	ND	4.0	8		Diisopropyl Ether (DIPE)	ND	4.0	8	
Ethylbenzene	ND	4.0	8		Ethyl-t-Butyl Ether (ETBE)	ND	4.0	8	
Toluene	ND	4.0	8		Tert-Amyl-Methyl Ether (TAME)	ND	4.0	8	
Xylenes (total)	ND	4.0	8		Ethanol	ND	2400	8	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	108	80-128			Dibromofluoromethane	103	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	99	68-120		

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



Analytical Report



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 05/21/11
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

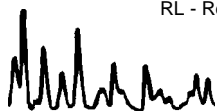
Project: ARCO 374

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-703-1,732	N/A	Aqueous	GC/MS FFF	06/01/11	06/02/11 02:54	110601L05

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	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	106	80-128			Dibromofluoromethane	102	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	100	68-120		

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





Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 05/21/11
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-05-1384-1	Aqueous	GC 57	05/27/11	05/27/11	110527S01

<u>Parameter</u>	<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)	88	85	38-134	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

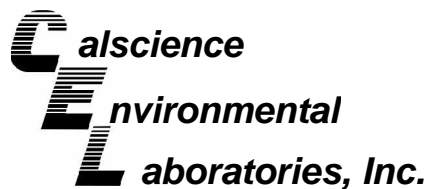
Date Received: 05/21/11
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8260B

Project ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-05-1384-2	Aqueous	GC/MS FFF	06/01/11	06/01/11	110601S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	95	76-124	9	0-20	
Carbon Tetrachloride	104	98	74-134	7	0-20	
Chlorobenzene	103	96	80-120	8	0-20	
1,2-Dibromoethane	104	94	80-120	10	0-20	
1,2-Dichlorobenzene	104	95	80-120	9	0-20	
1,2-Dichloroethane	106	91	80-120	12	0-20	
Ethylbenzene	103	97	78-126	6	0-20	
Toluene	104	95	80-120	9	0-20	
Trichloroethene	102	94	77-120	8	0-20	
Methyl-t-Butyl Ether (MTBE)	107	94	67-121	13	0-49	
Tert-Butyl Alcohol (TBA)	127	187	36-162	38	0-30	LM,BA,AY
Diisopropyl Ether (DIPE)	108	95	60-138	12	0-45	
Ethyl-t-Butyl Ether (ETBE)	110	97	69-123	12	0-30	
Tert-Amyl-Methyl Ether (TAME)	105	94	65-120	11	0-20	
Ethanol	100	104	30-180	5	0-72	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: N/A
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-1,086	Aqueous	GC 57	05/27/11	05/27/11	110527B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	88	87	78-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: N/A
Work Order No: 11-05-1385
Preparation: EPA 5030C
Method: EPA 8260B

Project: ARCO 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,732	Aqueous	GC/MS FFF	06/01/11	06/02/11	110601L05		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	106	96	80-120	73-127	10	0-20	
Carbon Tetrachloride	101	89	74-134	64-144	13	0-20	
Chlorobenzene	105	97	80-120	73-127	8	0-20	
1,2-Dibromoethane	108	99	79-121	72-128	8	0-20	
1,2-Dichlorobenzene	106	96	80-120	73-127	10	0-20	
1,2-Dichloroethane	107	98	80-120	73-127	9	0-20	
Ethylbenzene	104	95	80-120	73-127	9	0-20	
Toluene	106	95	80-120	73-127	10	0-20	
Trichloroethene	103	93	79-127	71-135	11	0-20	
Methyl-t-Butyl Ether (MTBE)	109	98	69-123	60-132	11	0-20	
Tert-Butyl Alcohol (TBA)	105	102	63-123	53-133	3	0-20	
Diisopropyl Ether (DIPE)	110	98	59-137	46-150	12	0-37	
Ethyl-t-Butyl Ether (ETBE)	112	101	69-123	60-132	10	0-20	
Tert-Amyl-Methyl Ether (TAME)	108	99	70-120	62-128	9	0-20	
Ethanol	111	115	28-160	6-182	4	0-57	

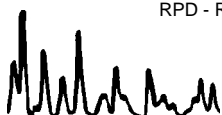
Total number of LCS compounds : 15

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

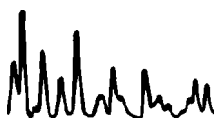
RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 11-05-1385

<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.
ET	Sample was extracted past end of recommended maximum 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 abovelimit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. 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.
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. All QC results are reported on a wet weight basis.





Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 374

Req Due Date (mm/dd/yy): STD-TAT Rush TAT: Yes ___ No X

BP/ARC Facility No: 374

Lab Work Order Number: 05-1385

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
Lab PM: Richard Villafania	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, 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-0041 <u>05TV-001/WR 232154</u>	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: <u>tsparrowe@broadbentinc.com</u>
Other Info:	Stage: Operate (5) Activity: <u>Monitoring/MNA (822)</u>	Invoice To: BP/ARC <u>X</u> 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 Oxys (8260)	EDB / 1,2-DCA (8260)	EtOH (8260)									Standard <u>X</u>	
EBM Email: charles.carmel@bp.com																									Full Data Package ___	
Lab No.	Sample Description	Date	Time																							Comments
1	MW-7	5-20-11	0945		X		6						X	X	X	X										
2	MW-8	5-20-11	1000		X		6						X	X	X	X										
3	MW-9	5-20-11	1015		X		6						X	X	X	X										
4	TB - 374 - <u>110520</u>	5-20-11	1020	X			2																			ON HOLD

Sampler's Name: <u>James Potts / Sam Berkley</u>	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: BAI	<u>James Potts</u>		5-20-11	1630	<u>[Signature]</u>			
Shipment Method: <u>GSO</u>	Ship Date: <u>5-20-11</u>				<u>[Signature]</u>		5/21/11	0930
Shipment Tracking No: <u>107158259</u>								

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

1385

ORC

GSO

GOLDEN STATE OVERNIGHT
1-800-322-5555
www.gso.com

GARDEN GROVE
92841

16 lb 1/AB4

D



91305455

1105202053

D92843A

CSL-06

BILL

1 FROM

DATE 5-20-11

COMPANY Broadbent & Associates, Inc.

ADDRESS 875 Cotting Lane, Suite G

ADDRESS

CITY Varaville

SENDERS NAME James Ramos
Sam Barkley

STE/ROOM

ZIP CODE 95688

PHONE NUMBER 707-455-7290

2 TO

COMPANY CAL SCIENCE

NAME Kistina

ADDRESS 7440 LINCOLN WAY

ADDRESS

CITY GARDEN GROVE

STE/ROOM

ZIP CODE 92841

PHONE NUMBER 714-896-6494

3 YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS

4 PACKAGE INFORMATION

GOLDEN STATE OVERNIGHT

1-800-322-5555

WWW.GSO.COM

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 #

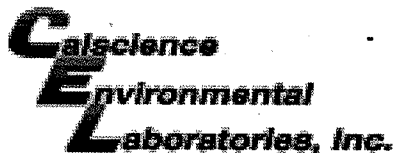
107158259

PEEL OFF HERE

9 GSO TRACKING NUMBER

107158259

PACKAGE SEL



WORK ORDER #: 11-05-1385

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent & Associates Inc

DATE: 05/21/11

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

Temperature 1.9 °C + 0.5 °C (CF) = 2.4 °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 Initial: YL

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A Initial: YL

Sample _____ No (Not Intact) Not Present Initial: TN

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"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
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 / Res. Chlorine / Diss. Sulfide / Diss. Oxygen 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"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
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 125PBz_{nna} 100PJ 100PJna₂ _____ _____ _____

Air: Tedlar® Summa® **Other:** _____ **Trip Blank Lot#:** 1104257 **Labeled/Checked by:** TN

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

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ z_{nna}: ZnAc₂+NaOH f: Field-filtered **Scanned by:** [Signature]

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

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

<u>Submittal Type:</u>	GEO_WELL
<u>Submittal Title:</u>	2Q11 GEO_WELL 374
<u>Facility Global ID:</u>	T0600100106
<u>Facility Name:</u>	ARCO #0374
<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>	6/21/2011 1:27:26 PM
<u>Confirmation Number:</u>	8632485926

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 - Quarterly
<u>Submittal Title:</u>	2Q11 GW Monitoring
<u>Facility Global ID:</u>	T0600100106
<u>Facility Name:</u>	ARCO #0374
<u>File Name:</u>	11051385.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>	6/21/2011 1:28:26 PM
<u>Confirmation Number:</u>	8661747753

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)