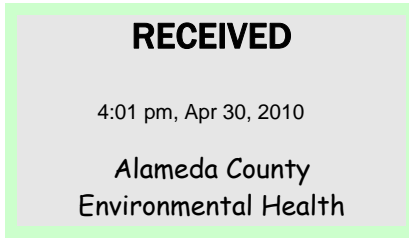


# Atlantic Richfield Company

**Chuck Carmel**  
Environmental Business Manager



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

30 April 2010

Re: First Quarter 2010 Semi-Annual Ground-Water Monitoring Report  
Atlantic Richfield Company Station #2169  
889 West Grand Avenue, Oakland, California  
ACEH Case #RO0000072

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

Submitted by,

A handwritten signature in black ink, appearing to be "Chuck Carmel", enclosed within a hand-drawn oval.

Chuck Carmel  
Environmental Business Manager

Attachment

**First Quarter 2010 Semi-Annual  
Ground-Water Monitoring Report**  
Atlantic Richfield Company Station #2169  
889 W. Grand Avenue, Oakland, California  
ACEH Case #RO0000072

Prepared for

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

Prepared by



1324 Mangrove Avenue, Suite 212  
Chico, California 95926  
(530) 566-1400  
*www.broadbentinc.com*

30 April 2010

Project No. 06-88-621

30 April 2010

Project No. 06-88-621

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

Attn.: Mr. Chuck Carmel

Re: First Quarter 2010 Semi-Annual Ground-Water Monitoring Report, Atlantic Richfield Company Station #2169, 889 West Grand Avenue, Oakland, California;  
ACEH Case #RO000072

Dear Mr. Carmel:

Provided herein is the *First Quarter 2010 Semi-Annual Ground-Water Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #2169 located at 889 West Grand Avenue, Oakland, Alameda County, California (Site). This report presents a status update and the results of ground-water monitoring conducted at the Site during First Quarter 2010.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.



Thomas A. Venus, PE  
Senior Engineer



Enclosures

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

## STATION #2169 GROUND-WATER MONITORING REPORT

Facility: #2169	Address:	889 West Grand Avenue, Oakland
Environmental Business Manager:		Mr. Chuck Carmel
Consulting Co./Contact Persons:		Broadbent & Associates, Inc.(BAI)/Mr. Tom Venus, PE (530) 566-1400
Consultant Project No.:		06-88-621
Primary Agency/Regulatory ID No.:		Alameda County Environmental Health (ACEH) ACEH Case #RO000072
Facility Permits/Permitting Agency:		NA

### WORK PERFORMED THIS QUARTER (First Quarter 2010):

1. Prepared and submitted *Fourth Quarter 2010 Status Report* (BAI, 1/22/2010).
2. Conducted ground-water monitoring/sampling for First Quarter 2010. Work performed on 5 March 2010 by BAI.
3. Attempted to acquire off-site property access in order to complete soil and ground-water investigation as proposed in the *Preferential Pathway Evaluation and Soil and Ground-Water Investigation Work Plan* submitted on April 6, 2009 and approved by ACEH in their letter dated May 1, 2009.

### WORK PROPOSED FOR NEXT QUARTER (Second Quarter 2010):

1. Prepared and submitted First Quarter 2010 Semi-Annual Ground-Water Monitoring Report (contained herein).
2. Continue attempts to obtain off-site property access to begin implementation of the soil and water investigation. Assistance of ACEH desired with private property owners. Provide ACEH with documentation and/or summary timeline of correspondence with property owner who is not favorably responsive to requests for off-site access.
3. Initiate soil and ground-water investigation work activities once signed property access agreements are received.
4. No ground-water monitoring activities are scheduled at the Site for the Second Quarter of 2010.

### RESULTS SUMMARY:

Current phase of project:	<b>Ground-water monitoring/sampling</b>
Frequency of ground-water monitoring:	<b>Semi-Annually(1Q &amp; 3Q): A-1 through A-6, AR-1, AR-2, ADR-1, ADR-2</b>
Frequency of ground-water sampling:	<b>Semi-Annually (1Q &amp; 3Q): Wells A-1, A-5, A-6, ADR-1 Annually (3Q): Wells A-2, AR-1, AR-2, ADR-2</b>
Is free product (FP) present on-site:	<b>No</b>
FP recovered this quarter:	<b>None</b>
Cumulative FP recovered:	<b>4.8 gallons: Wells ADR-1 and ADR-2</b>
Current remediation techniques:	<b>Soil Vapor Extraction System shut down in Dec. 2001</b>
Depth to ground water (below TOC):	<b>7.27 ft (A-6) to 9.13 ft (A-3)</b>
General ground-water flow direction:	<b>West-Northwest</b>
Approximate hydraulic gradient:	<b>0.006 ft/ft</b>

## DISCUSSION:

The semi-annual round of ground-water monitoring and sampling was conducted at Station #2169 on 5 March 2010 by BAI. Water levels were gauged in each of the ten wells at the Site. No irregularities were noted during water level gauging. Depth to water measurements ranged from 7.27 ft at well A-6 to 9.13 ft at well A-3. Resulting ground-water surface elevations ranged from 10.37 ft above datum (NAVD88) in up-gradient well A-4 to 8.54 ft at down-gradient well A-5. Water level elevations were observed at historic maximums for each well gauged, as summarized in Table 1. Water level elevations yielded a potentiometric ground-water flow direction and gradient to the west-northwest at approximately 0.006 ft/ft, generally consistent with historical data (see Table 3). Ground-water monitoring field data sheets are provided within Appendix A. Measured depths to ground water and respective ground-water elevations are summarized in Table 1. A Site Location Map is provided as Drawing 1. Potentiometric ground-water elevation contours are presented in Drawing 2.

Ground-water samples were collected from wells A-1, A-5, A-6, and ADR-1, consistent with the sampling schedule. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (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 tert-Amyl methyl ether (TAME), tert-Butyl alcohol (TBA), Di-isopropyl ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Ethanol, Ethyl tert-butyl ether (ETBE), and Methyl tert-butyl ether (MTBE) by EPA Method 8260B. No significant irregularities were encountered during laboratory analysis of the samples. Ground-water sampling field data sheets and the laboratory analytical report, including chain-of-custody documentation, are provided in Appendix A.

Gasoline range organics (GRO) were detected above the laboratory reporting limits in each of the four wells sampled at concentrations up to 800 micrograms per liter ( $\mu\text{g/L}$ ) in well A-1. Benzene was detected above the laboratory reporting limit in two of the four wells sampled at concentrations of 12  $\mu\text{g/L}$  in well A-1 and 1.4  $\mu\text{g/L}$  in well A-5. Toluene was detected above the laboratory reporting limits in one of the eight wells sampled (A-1) at a concentration of 1.3  $\mu\text{g/L}$ . Ethylbenzene was detected above the laboratory reporting limits in two of the four wells sampled at concentrations of 5.6  $\mu\text{g/L}$  in well A-1 and 6.1  $\mu\text{g/L}$  in well A-5. Total Xylenes were detected above the laboratory reporting limits in two of the four wells sampled at concentrations of 3.6  $\mu\text{g/L}$  in well A-1 and 7.3  $\mu\text{g/L}$  in well A-5. MTBE was detected above the laboratory reporting limits in three of the four wells sampled at concentrations up to 4.1  $\mu\text{g/L}$  in well A-6. The remaining fuel additives and oxygenates were not detected above their laboratory reporting limits in the four wells sampled this quarter.

Detected analyte concentrations were within the historic minimum and maximum ranges recorded for each well (dating back to June 2000). Historic laboratory analytical results are summarized in Table 1 and Table 2. A copy of the laboratory analytical report, including chain-of-custody documentation is provided in Appendix A. Ground-water 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:

The *Preferential Pathway Evaluation and Soil and Ground-Water Investigation Work Plan* submitted on April 6, 2009 was approved by ACEH in their letter dated May 1, 2009. The proposed soil boring locations are exhibited in Drawing 3. Off-site property access required for the implementation of the work plan was initiated in 2009. However, the two off-site property owners have so far been

unresponsive to phone calls and letters sent via mail. An email was sent to Mr. Paresh Khatri of ACEH on July 21, 2009 requesting a deadline extension for the submittal of a soil and ground-water investigation report. It was requested that the July 30, 2009 deadline for submittal of the report be amended to 90 days following receipt of signed property access agreements. After numerous unsuccessful attempts to contact the off-site property owners, the assistance of ACEH has been requested to help acquire off-site property access.

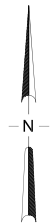
#### **CLOSURE:**

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 ground-water 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, ARCO Service Station #2169, 889 West Grand Avenue, Oakland, California
- Drawing 2. Ground-Water Elevation Contours and Analytical Summary Map, 5 March 2010, Station #2169, 889 W. Grand Ave., Oakland, California
- Drawing 3. Site Map with Proposed Boring Locations, Station #2169, 889 W. Grand Ave., Oakland, California
- Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #2169, 889 W. Grand Ave., Oakland, California
- Table 2. Summary of Fuel Additives Analytical Data, Station #2169, 889 W. Grand Ave., Oakland, California
- Table 3. Historical Ground-Water Flow Direction and Gradient, Station #2169, 889 W. Grand Ave., Oakland, California
- Appendix A. BAI Ground-Water Sampling Data Package (Includes Field Data Sheets, Non-Haz Waste Data Form, Laboratory Analytical Report with Chain-of-Custody Documentation, and Field Procedures)
- Appendix B. GeoTracker Upload Confirmation Receipts





APPROXIMATE SCALE (mi)

IMAGE SOURCE: DELORME

**BROADBENT & ASSOCIATES, INC**  
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL  
 1324 Mangrove Ave. Suite 212, Chico, CA 95926  
 Project No.: 06-88-621 Date: 3/23/2010

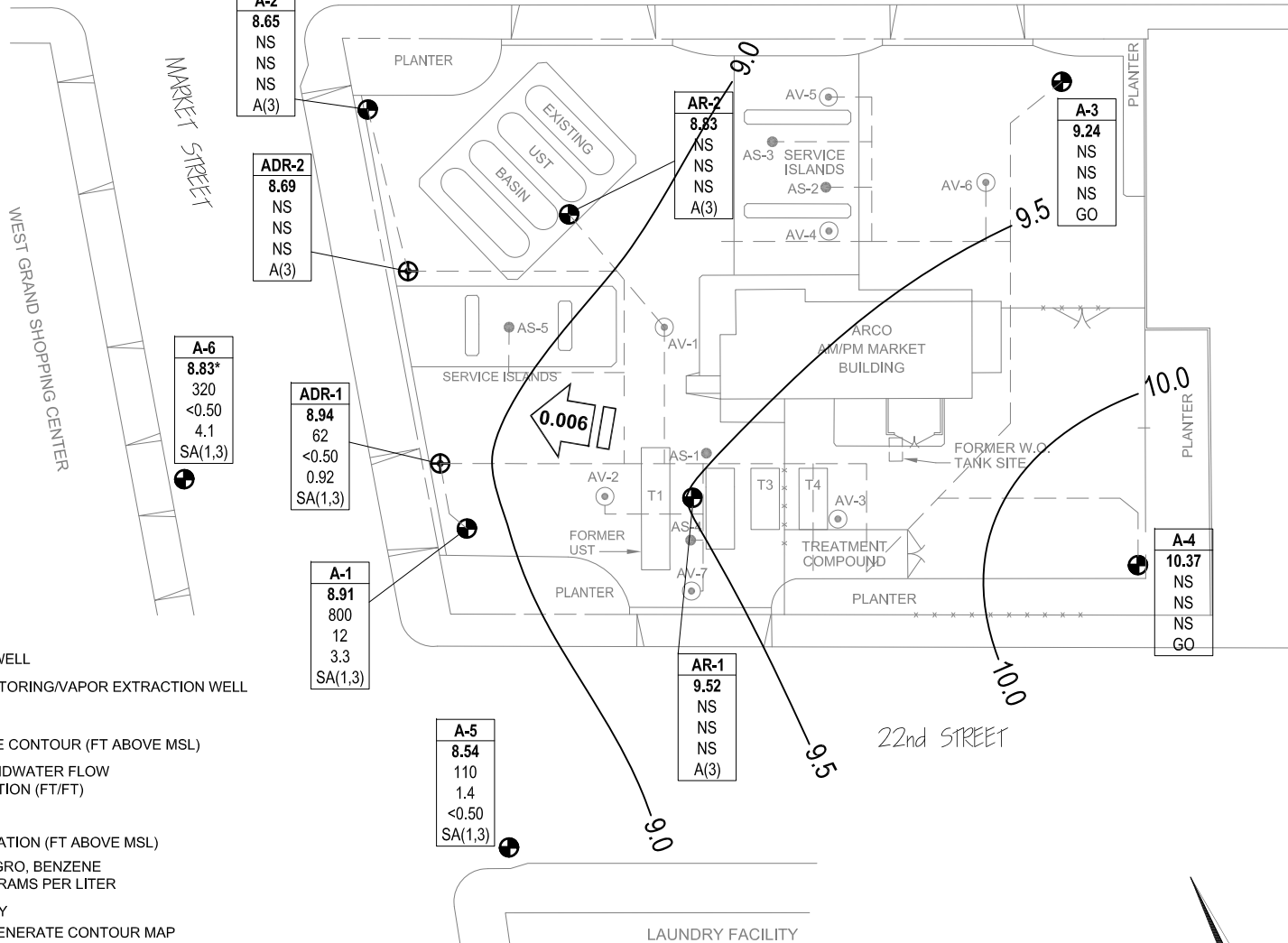
ARCO Service Station #2169  
 889 West Grand Avenue  
 Oakland, California

Site Location Map

Drawing

1

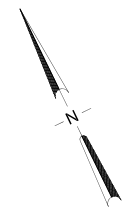
WEST GRAND AVENUE



**LEGEND**

- MONITORING WELL
  - VAPOR EXTRACTION WELL
  - GROUNDWATER MONITORING/VAPOR EXTRACTION WELL
  - AIR SPARGING WELL
  - 9.0 GROUNDWATER TABLE CONTOUR (FT ABOVE MSL)
  - APPROXIMATE GROUNDWATER FLOW GRADIENT AND DIRECTION (FT/FT)
- | Well    | WELL DESIGNATION   |
|---------|--|
| ELEV    | GROUNDWATER ELEVATION (FT ABOVE MSL)                           |
| GRO     | CONCENTRATION OF GRO, BENZENE AND MTBE IN MICROGRAMS PER LITER |
| Benzene |  |
| MTBE    |  |
| A/Q     | SAMPLING FREQUENCY   |
- \* WELL NOT USED TO GENERATE CONTOUR MAP
  - < NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
  - NS NOT SAMPLED
  - A(3) SAMPLED ANNUALLY, 3RD QUARTER
  - SA SAMPLED SEMI-ANNUALLY, 1ST & 3RD QUARTERS
  - GO GAUGE ONLY
  - — REMEDIATION PIPING

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

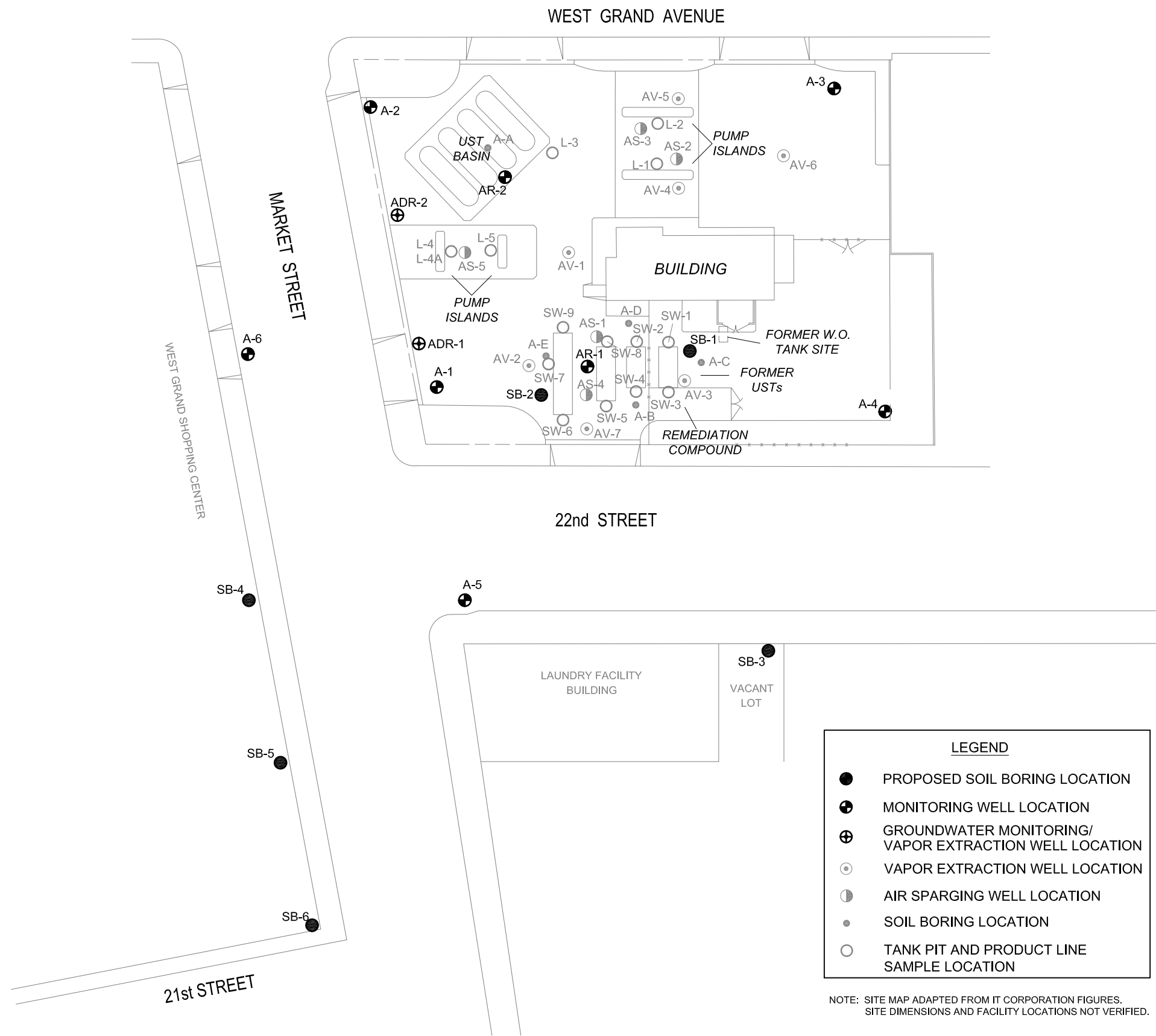


**BROADBENT & ASSOCIATES, INC.**  
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL  
1324 Mangrove Ave. Suite 212, Chico, California 95926  
Project No.: 06-88-621 Date: 3/23/2010

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

Ground-Water Elevation Contour  
and Analytical Summary Map  
3 March 2010





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

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>A-1</b>															
6/26/2000	--		14.16	9.00	25.00	10.75	3.41	--	--	--	--	--	--	--	--
7/20/2000	--		14.16	9.00	25.00	11.01	3.15	3,900	1,100	28	12	46	25	--	--
9/19/2000	--		14.16	9.00	25.00	11.26	2.90	4,800	2,400	27	20	57	32	--	--
12/26/2000	--		14.16	9.00	25.00	10.96	3.20	429	104	2.85	12.2	9.91	18.7	--	--
3/20/2001	--		14.16	9.00	25.00	9.59	4.57	<500	13.9	7.12	13.9	23.2	<25	--	--
6/12/2001	--		14.16	9.00	25.00	10.83	3.33	140	2.2	<0.5	8.7	9.2	25	--	--
9/23/2001	--		14.16	9.00	25.00	11.43	2.73	<50	<0.50	<0.50	<0.50	<0.50	4.5	--	--
12/28/2001	--		14.16	9.00	25.00	8.66	5.50	930	250	7.6	21	13	<25	--	--
3/21/2002	--		14.16	9.00	25.00	8.43	5.73	<50	<0.5	<0.5	<0.5	1.2	<2.5	--	--
4/17/2002	--		14.16	9.00	25.00	9.36	4.80	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/14/2002	--	b	14.16	9.00	25.00	11.12	3.04	170	8.4	<0.5	<0.5	1.4	4.9	5.7	7.4
11/27/2002	--	b	14.16	9.00	25.00	11.11	3.05	98	2.9	0.75	<0.5	<0.5	6.4	1.6	7.0
2/12/2003	--	d	14.16	9.00	25.00	10.10	4.06	73	9.3	<0.50	1	0.53	2.9	2.1	7.2
5/22/2003	--		14.16	9.00	25.00	10.18	3.98	400	88	1.6	4.6	11	4.9	1.3	7.4
7/23/2003	--		14.16	9.00	25.00	10.85	3.31	140	3.2	<0.50	<0.50	0.56	10	10.8	7.4
11/13/2003	P	f	14.16	9.00	25.00	11.35	2.81	<50	0.64	<0.50	<0.50	<0.50	4.2	4.3	7.75
02/16/2004	P	f, i	16.75	9.00	25.00	9.65	7.10	99	18	<0.50	1.2	0.96	3.2	7.2	7.6
05/06/2004	P		16.75	9.00	25.00	10.57	6.18	<50	0.73	<0.50	<0.50	<0.50	1.9	1.23	6.93
09/02/2004	P		16.75	9.00	25.00	11.05	5.70	64	1.1	<0.50	<0.50	<0.50	1.7	12.1	8.7
11/29/2004	P		16.75	9.00	25.00	10.50	6.25	<50	1.4	<0.50	<0.50	<0.50	<0.50	0.62	7.0
02/02/2005	P		16.75	9.00	25.00	9.18	7.57	56	14	<0.50	<0.50	0.55	5.1	3.2	7.2
05/09/2005	P		16.75	9.00	25.00	9.28	7.47	52	7.8	<0.50	0.53	0.52	2.7	2.1	7.2
08/11/2005	P		16.75	9.00	25.00	10.70	6.05	420	61	<0.50	1.8	1.0	4.2	3.2	6.8
02/09/2006	P	o	16.75	9.00	25.00	9.04	7.71	170	60	1.5	3.5	5.1	5.6	1.69	7.1
8/11/2006	P		16.75	9.00	25.00	10.44	6.31	200	18	<0.50	0.73	0.60	3.7	--	7.2
2/7/2007	NP		16.75	9.00	25.00	10.34	6.41	270	5.5	<0.50	0.95	1.2	20	1.15	7.27
8/14/2007	NP		16.75	9.00	25.00	10.43	6.32	3,500	350	21	110	68	1.8	1.32	7.46
2/22/2008	P		16.75	9.00	25.00	8.75	8.00	2,600	160	7.2	16	11	<2.5	4.16	7.65
8/12/2008	NP		16.75	9.00	25.00	10.30	6.45	7,400	420	28	190	170	<2.5	0.54	9.38
1/8/2009	NP		16.75	9.00	25.00	10.07	6.68	14,000	400	130	530	790	<10	0.49	7.26
9/4/2009	NP		16.75	9.00	25.00	11.22	5.53	990	19	2.2	0.80	1.5	7.4	0.48	7.25

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>A-1 Cont.</b>															
<b>3/5/2010</b>	<b>P</b>		<b>16.75</b>	<b>9.00</b>	<b>25.00</b>	<b>7.84</b>	<b>8.91</b>	<b>800</b>	<b>12</b>	<b>1.3</b>	<b>5.6</b>	<b>3.6</b>	<b>3.3</b>	<b>0.84</b>	<b>7.09</b>
<b>A-2</b>															
6/26/2000	--		14.55	10.00	25.00	11.27	3.28	--	--	--	--	--	--	--	--
7/20/2000	--		14.55	10.00	25.00	11.52	3.03	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--
9/19/2000	--		14.55	10.00	25.00	11.63	2.92	--	--	--	--	--	--	--	--
12/26/2000	--		14.55	10.00	25.00	11.44	3.11	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/20/2001	--		14.55	10.00	25.00	10.08	4.47	--	--	--	--	--	--	--	--
6/12/2001	--		14.55	10.00	25.00	11.35	3.20	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/23/2001	--		14.55	10.00	25.00	11.92	2.63	--	--	--	--	--	--	--	--
12/28/2001	--		14.55	10.00	25.00	9.31	5.24	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		14.55	10.00	25.00	9.05	5.50	--	--	--	--	--	--	--	--
4/17/2002	--		14.55	10.00	25.00	9.88	4.67	52	<0.5	<0.5	<0.5	<0.5	26	--	--
8/14/2002	--	c	14.55	10.00	25.00	11.62	2.93	<50	<0.5	<0.5	<0.5	1.2	<2.5	3.7	7.2
11/27/2002	--		14.55	10.00	25.00	11.56	2.99	--	--	--	--	--	--	--	--
2/12/2003	--	d	14.55	10.00	25.00	10.75	3.80	<50	<0.50	<0.50	<0.50	<0.50	12	2.9	7.1
5/22/2003	--		14.55	10.00	25.00	10.72	3.83	--	--	--	--	--	--	--	--
7/23/2003	--		14.55	10.00	25.00	11.39	3.16	<50	<0.50	<0.50	<0.50	<0.50	2.6	1.3	6.8
11/13/2003	--		14.55	10.00	25.00	11.60	2.95	--	--	--	--	--	--	--	--
02/16/2004	--	i	17.18	10.00	25.00	10.27	6.91	--	--	--	--	--	--	--	--
05/06/2004	--		17.18	10.00	25.00	11.05	6.13	--	--	--	--	--	--	--	--
09/02/2004	P		17.18	10.00	25.00	11.45	5.73	130	<0.50	<0.50	<0.50	<0.50	2.5	5.1	7.4
11/29/2004	--		17.18	10.00	25.00	11.12	6.06	--	--	--	--	--	--	--	--
02/02/2005	--		17.18	10.00	25.00	9.73	7.45	--	--	--	--	--	--	--	--
05/09/2005	--		17.18	10.00	25.00	12.82	4.36	--	--	--	--	--	--	--	--
08/11/2005	P	m	17.18	10.00	25.00	11.29	5.89	120	<0.50	<0.50	<0.50	<0.50	1.2	1.6	7.1
02/09/2006	--		17.18	10.00	25.00	10.43	6.75	--	--	--	--	--	--	--	--
8/11/2006	P		17.18	10.00	25.00	11.12	6.06	<50	<0.50	<0.50	<0.50	<0.50	1.4	1.1	7.0
2/7/2007	--		17.18	10.00	25.00	11.07	6.11	--	--	--	--	--	--	--	--
8/14/2007	NP		17.18	10.00	25.00	11.28	5.90	<50	<0.50	<0.50	<0.50	<0.50	0.65	0.64	7.57
2/22/2008	--		17.18	10.00	25.00	9.50	7.68	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>A-2 Cont.</b>															
8/12/2008	NP		17.18	10.00	25.00	11.28	5.90	64	<0.50	<0.50	<0.50	<0.50	0.96	0.57	9.44
1/8/2009	--		17.18	10.00	25.00	10.90	6.28	--	--	--	--	--	--	--	--
9/4/2009	NP		17.18	10.00	25.00	11.77	5.41	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.43	7.39
<b>3/5/2010</b>	<b>--</b>		<b>17.18</b>	<b>10.00</b>	<b>25.00</b>	<b>8.53</b>	<b>8.65</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>A-3</b>															
6/26/2000	--		15.75	9.00	29.50	11.98	3.77	--	--	--	--	--	--	--	--
7/20/2000	--		15.75	9.00	29.50	12.21	3.54	--	--	--	--	--	--	--	--
9/19/2000	--		15.75	9.00	29.50	12.50	3.25	--	--	--	--	--	--	--	--
12/26/2000	--		15.75	9.00	29.50	12.17	3.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/20/2001	--		15.75	9.00	29.50	10.70	5.05	--	--	--	--	--	--	--	--
6/12/2001	--		15.75	9.00	29.50	12.09	3.66	--	--	--	--	--	--	--	--
9/23/2001	--		15.75	9.00	29.50	12.65	3.10	--	--	--	--	--	--	--	--
12/28/2001	--		15.75	9.00	29.50	9.94	5.81	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		15.75	9.00	29.50	9.69	6.06	--	--	--	--	--	--	--	--
4/17/2002	--		15.75	9.00	29.50	10.61	5.14	--	--	--	--	--	--	--	--
8/14/2002	--		15.75	9.00	29.50	12.27	3.48	--	--	--	--	--	--	--	--
11/27/2002	--		15.75	9.00	29.50	12.22	3.53	--	--	--	--	--	--	--	--
2/12/2003	--	d	15.75	9.00	29.50	11.40	4.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.9
5/22/2003	--		15.75	9.00	29.50	11.42	4.33	--	--	--	--	--	--	--	--
7/23/2003	--		15.75	9.00	29.50	12.00	3.75	--	--	--	--	--	--	--	--
02/16/2004	--	g, i	18.37	9.00	29.50	10.94	7.43	--	--	--	--	--	--	--	--
05/06/2004	--		18.37	9.00	29.50	11.75	6.62	--	--	--	--	--	--	--	--
09/02/2004	--		18.37	9.00	29.50	12.15	6.22	--	--	--	--	--	--	--	--
11/29/2004	--		18.37	9.00	29.50	11.87	6.50	--	--	--	--	--	--	--	--
02/02/2005	--		18.37	9.00	29.50	10.42	7.95	--	--	--	--	--	--	--	--
05/09/2005	--		18.37	9.00	29.50	10.49	7.88	--	--	--	--	--	--	--	--
08/11/2005	--		18.37	9.00	29.50	12.02	6.35	--	--	--	--	--	--	--	--
02/09/2006	--		18.37	9.00	29.50	11.27	7.10	--	--	--	--	--	--	--	--
8/11/2006	--		18.37	9.00	29.50	11.83	6.54	--	--	--	--	--	--	--	--
2/7/2007	--		18.37	9.00	29.50	11.82	6.55	--	--	--	--	--	--	--	--

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

Station #2169, 889 W. Grand 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		
<b>A-3 Cont.</b>															
8/14/2007	--		18.37	9.00	29.50	12.06	6.31	--	--	--	--	--	--	--	--
2/22/2008	--		18.37	9.00	29.50	10.25	8.12	--	--	--	--	--	--	--	--
8/12/2008	--		18.37	9.00	29.50	12.10	6.27	--	--	--	--	--	--	--	--
1/8/2009	--		18.37	9.00	29.50	11.71	6.66	--	--	--	--	--	--	--	--
9/4/2009	--		18.37	9.00	29.50	12.57	5.80	--	--	--	--	--	--	--	--
<b>3/5/2010</b>	<b>--</b>		<b>18.37</b>	<b>9.00</b>	<b>29.50</b>	<b>9.13</b>	<b>9.24</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>A-4</b>															
6/26/2000	--		15.25	8.00	28.00	10.99	4.26	--	--	--	--	--	--	--	--
7/20/2000	--		15.25	8.00	28.00	11.16	4.09	--	--	--	--	--	--	--	--
9/19/2000	--		15.25	8.00	28.00	11.97	3.28	--	--	--	--	--	--	--	--
12/26/2000	--		15.25	8.00	28.00	11.19	4.06	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/20/2001	--		15.25	8.00	28.00	9.81	5.44	--	--	--	--	--	--	--	--
6/12/2001	--		15.25	8.00	28.00	11.12	4.13	--	--	--	--	--	--	--	--
9/23/2001	--		15.25	8.00	28.00	11.63	3.62	--	--	--	--	--	--	--	--
12/28/2001	--		15.25	8.00	28.00	8.41	6.84	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		15.25	8.00	28.00	8.63	6.62	--	--	--	--	--	--	--	--
4/17/2002	--		15.25	8.00	28.00	9.68	5.57	--	--	--	--	--	--	--	--
8/14/2002	--		15.25	8.00	28.00	11.31	3.94	--	--	--	--	--	--	--	--
11/27/2002	--		15.25	8.00	28.00	11.25	4.00	--	--	--	--	--	--	--	--
2/12/2003	--	d	15.25	8.00	28.00	10.37	4.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.9	7.1
5/22/2003	--		15.25	8.00	28.00	10.42	4.83	--	--	--	--	--	--	--	--
7/23/2003	--		15.25	8.00	28.00	11.02	4.23	--	--	--	--	--	--	--	--
02/16/2004	--	g, i	18.01	8.00	28.00	9.65	8.36	--	--	--	--	--	--	--	--
05/06/2004	--		18.01	8.00	28.00	10.68	7.33	--	--	--	--	--	--	--	--
09/02/2004	--		18.01	8.00	28.00	10.83	7.18	--	--	--	--	--	--	--	--
11/29/2004	--		18.01	8.00	28.00	10.50	7.51	--	--	--	--	--	--	--	--
02/02/2005	--		18.01	8.00	28.00	9.22	8.79	--	--	--	--	--	--	--	--
05/09/2005	--		18.01	8.00	28.00	8.98	9.03	--	--	--	--	--	--	--	--
08/11/2005	--		18.01	8.00	28.00	10.99	7.02	--	--	--	--	--	--	--	--
02/09/2006	--		18.01	8.00	28.00	10.15	7.86	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>A-4 Cont.</b>															
8/11/2006	--		18.01	8.00	28.00	10.30	7.71	--	--	--	--	--	--	--	--
2/7/2007	--		18.01	8.00	28.00	10.63	7.38	--	--	--	--	--	--	--	--
8/14/2007	--		18.01	8.00	28.00	10.70	7.31	--	--	--	--	--	--	--	--
2/22/2008	--		18.01	8.00	28.00	8.90	9.11	--	--	--	--	--	--	--	--
8/12/2008	--		18.01	8.00	28.00	10.60	7.41	--	--	--	--	--	--	--	--
1/8/2009	--		18.01	8.00	28.00	10.90	7.11	--	--	--	--	--	--	--	--
9/4/2009	--		18.01	8.00	28.00	11.80	6.21	--	--	--	--	--	--	--	--
<b>3/5/2010</b>	<b>--</b>		<b>18.01</b>	<b>8.00</b>	<b>28.00</b>	<b>7.64</b>	<b>10.37</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>A-5</b>															
6/26/2000	--		13.51	8.00	30.00	10.04	3.47	--	--	--	--	--	--	--	--
7/20/2000	--		13.51	8.00	30.00	10.31	3.20	730	140	11	<0.5	8.9	3	--	--
9/19/2000	--		13.51	8.00	30.00	10.55	2.96	160	13	<0.5	2.8	1.9	<3	--	--
12/26/2000	--		13.51	8.00	30.00	10.37	3.14	8,120	465	108	659	1,450	<250	--	--
3/20/2001	--		13.51	8.00	30.00	8.81	4.70	7,990	1,110	473	611	1,580	<250	--	--
6/12/2001	--		13.51	8.00	30.00	10.13	3.38	450	91	18	35	95	<5.0	--	--
9/23/2001	--		13.51	8.00	30.00	10.80	2.71	110	20	<0.5	5	5	2.7	--	--
12/28/2001	--		13.51	8.00	30.00	8.17	5.34	320	24	2	20	27	5	--	--
3/21/2002	--		13.51	8.00	30.00	7.78	5.73	2,500	420	85	130	350	31	--	--
4/17/2002	--		13.51	8.00	30.00	8.68	4.83	1,300	190	36	67	210	<25	--	--
8/14/2002	--	b	13.51	8.00	30.00	10.41	3.10	840	150	<5.0	68	41	<25	1.4	6.8
11/27/2002	--	b	13.51	8.00	30.00	10.50	3.01	300	26	2.3	17	6	<0.5	1.16	7.2
2/12/2003	--	d	13.51	8.00	30.00	10.81	2.70	<500	74	7	34	45	<5.0	1.0	7.3
5/22/2003	--		13.51	8.00	30.00	9.46	4.05	500	100	9	28	47	<5.0	1.0	7.6
7/23/2003	--		13.51	8.00	30.00	10.29	3.22	900	100	5.7	65	57	<5.0	4.5	8.4
11/13/2003	NP	f	13.51	8.00	30.00	11.24	2.27	1,800	210	5.1	190	140	<5.0	4.3	7.32
02/16/2004	NP	h, i	16.09	8.00	30.00	9.45	6.64	680	52	15	50	77	<0.50	5.0	7.8
05/06/2004	P		16.09	8.00	30.00	10.28	5.81	1,500	140	13	72	110	<2.5	1.03	6.93
09/02/2004	NP		16.09	8.00	30.00	10.78	5.31	690	69	1.3	42	35	<1.0	1.3	7.1
11/29/2004	NP		16.09	8.00	30.00	10.05	6.04	<5,000	360	<50	190	290	<50	1.0	7.0
02/02/2005	NP		16.09	8.00	30.00	8.37	7.72	220	31	2.3	10	13	<0.50	0.6	7.4



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>A-5 Cont.</b>															
05/09/2005	NP		16.09	8.00	30.00	8.45	7.64	110	1.7	<0.50	1.4	1.1	<0.50	2.5	7.6
08/11/2005	NP		16.09	8.00	30.00	10.11	5.98	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.8	7.3
02/09/2006	NP	o	16.09	8.00	30.00	9.02	7.07	<50	0.62	<0.50	<0.50	<0.50	<0.50	0.89	7.3
8/11/2006	NP		16.09	8.00	30.00	9.77	6.32	400	13	3.4	8.0	58	<0.50	2.16	7.2
2/7/2007	P		16.09	8.00	30.00	9.90	6.19	10,000	670	120	1,100	3,100	<10	2.12	7.03
8/14/2007	NP		16.09	8.00	30.00	9.70	6.39	28,000	260	68	3,000	7,800	<10	1.37	7.80
2/22/2008	NP		16.09	8.00	30.00	8.02	8.07	27,000	410	98	2,600	4,400	<50	1.36	7.42
8/12/2008	NP		16.09	8.00	30.00	9.50	6.59	31,000	140	<50	1,800	3,900	<50	0.62	9.70
1/8/2009	NP		16.09	8.00	30.00	9.29	6.80	39,000	300	53	2,400	5,400	<50	0.67	7.59
9/4/2009	NP		16.09	8.00	30.00	10.42	5.67	130	<0.50	<0.50	<0.50	<0.50	<0.50	0.46	7.19
<b>3/5/2010</b>	<b>P</b>		<b>16.09</b>	<b>8.00</b>	<b>30.00</b>	<b>7.55</b>	<b>8.54</b>	<b>110</b>	<b>1.4</b>	<b>&lt;0.50</b>	<b>6.1</b>	<b>7.3</b>	<b>&lt;0.50</b>	<b>0.59</b>	<b>7.18</b>
<b>A-6</b>															
6/26/2000	--		13.51	8.00	28.50	10.09	3.42	--	--	--	--	--	--	--	--
7/20/2000	--		13.51	8.00	28.50	10.91	2.60	170	<0.5	<0.5	0.6	2	6	--	--
9/19/2000	--		13.51	8.00	28.50	11.27	2.24	<50	<0.5	<0.5	<0.5	<1.0	6	--	--
12/26/2000	--		13.51	8.00	28.50	10.65	2.86	56.2	<0.5	<0.5	<0.5	<0.5	8.17	--	--
3/20/2001	--		13.51	8.00	28.50	8.72	4.79	216	<0.5	<0.5	<0.5	1.8	19.9	--	--
6/12/2001	--		13.51	8.00	28.50	10.80	2.71	80	0.62	<0.5	<0.5	<0.5	15	--	--
9/23/2001	--		13.51	8.00	28.50	10.79	2.72	450	1.7	1.9	2.3	3.3	53	--	--
12/28/2001	--		13.51	8.00	28.50	8.05	5.46	270	0.98	3.5	0.77	1.4	26	--	--
3/21/2002	--		13.51	8.00	28.50	7.83	5.68	130	<0.5	<0.5	<0.5	<0.5	19	--	--
4/17/2002	--		13.51	8.00	28.50	8.73	4.78	<50	<0.5	<0.5	<0.5	<0.5	16	--	--
8/14/2002	--	b	13.51	8.00	28.50	10.43	3.08	980	4.8	2.6	2	4.9	75	1.5	7.1
11/27/2002	--	b	13.51	8.00	28.50	10.47	3.04	280	<0.5	0.74	<0.5	<0.5	16	0.9	6.9
2/12/2003	--	d	13.51	8.00	28.50	10.44	3.07	51	<0.50	<0.50	<0.50	<0.50	9.9	0.8	7.1
5/22/2003	--		13.51	8.00	28.50	9.43	4.08	<50	<0.50	<0.50	<0.50	<0.50	11	1.2	8.2
7/23/2003	--		13.51	8.00	28.50	10.27	3.24	120	<0.50	<0.50	<0.50	<0.50	14	>20	9.6
11/13/2003	NP	f	13.51	8.00	28.50	11.20	2.31	<50	<0.50	<0.50	<0.50	<0.50	2.3	6.2	9.0
02/16/2004	NP	h, i	16.10	8.00	28.50	9.76	6.34	50	<0.50	<0.50	<0.50	<0.50	3.9	6.5	8.3
05/06/2004	P		16.10	8.00	28.50	10.03	6.07	110	<0.50	<0.50	<0.50	<0.50	7.1	1.01	7.02

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>A-6 Cont.</b>															
09/02/2004	NP		16.10	8.00	28.50	10.47	5.63	56	<0.50	<0.50	<0.50	<0.50	4.4	3.2	7.4
11/29/2004	NP		16.10	8.00	28.50	9.99	6.11	<50	<0.50	<0.50	<0.50	<0.50	2.9	0.92	6.9
02/02/2005	NP		16.10	8.00	28.50	8.46	7.64	150	<0.50	<0.50	<0.50	<0.50	14	0.5	7.4
05/09/2005	NP		16.10	8.00	28.50	8.55	7.55	93	<0.50	<0.50	<0.50	<0.50	12	3.0	7.2
08/11/2005	NP		16.10	8.00	28.50	10.13	5.97	780	<0.50	<0.50	<0.50	<0.50	14	1.0	6.9
02/09/2006	NP	o	16.10	8.00	28.50	9.23	6.87	210	<0.50	<0.50	<0.50	<0.50	17	1.27	6.8
8/11/2006	NP		16.10	8.00	28.50	9.95	6.15	920	<0.50	<0.50	<0.50	<0.50	21	1.6	7.0
2/7/2007	P		16.10	8.00	28.50	9.72	6.38	170	<0.50	<0.50	<0.50	1.4	7.1	2.18	7.24
8/14/2007	NP		16.10	8.00	28.50	9.82	6.28	<50	<0.50	<0.50	<0.50	<0.50	2.3	1.72	8.22
2/22/2008	NP		16.10	8.00	28.50	8.07	8.03	350	<0.50	<0.50	<0.50	<0.50	11	0.79	7.48
8/12/2008	NP		16.10	8.00	28.50	9.70	6.40	<50	<0.50	<0.50	<0.50	<0.50	2.4	0.58	9.58
1/8/2009	NP		16.10	8.00	28.50	9.45	6.65	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.61	7.32
9/4/2009	NP		16.10	8.00	28.50	10.60	5.50	<50	<0.50	<0.50	<0.50	<0.50	4.9	0.51	7.18
<b>3/5/2010</b>	<b>P</b>		<b>16.10</b>	<b>8.00</b>	<b>28.50</b>	<b>7.27</b>	<b>8.83</b>	<b>320</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>4.1</b>	<b>0.65</b>	<b>7.11</b>
<b>ADR-1</b>															
6/26/2000	--		13.95	5.00	22.00	10.55	3.40	--	--	--	--	--	--	--	--
7/20/2000	--		13.95	5.00	22.00	10.85	3.10	180	29	<0.5	0.8	<1.0	22	--	--
9/19/2000	--		13.95	5.00	22.00	11.08	2.87	120	7.4	<0.5	1.2	<1.0	22	--	--
12/26/2000	--		13.95	5.00	22.00	10.93	3.02	<50	1.29	<0.5	<0.5	<0.5	14.7	--	--
3/20/2001	--		13.95	5.00	22.00	9.32	4.63	225	23.4	<0.5	8.71	4.13	10.8	--	--
6/12/2001	--		13.95	5.00	22.00	10.65	3.30	250	23	0.5	13	4.2	7.5	--	--
9/23/2001	--		13.95	5.00	22.00	11.25	2.70	<50	1.4	<0.5	<0.5	0.57	2.8	--	--
12/28/2001	--		13.95	5.00	22.00	8.43	5.52	250	16	<0.5	1.2	4.1	6.8	--	--
3/21/2002	--		13.95	5.00	22.00	8.27	5.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
4/17/2002	--		13.95	5.00	22.00	9.17	4.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/14/2002	--		13.95	5.00	22.00	11.88	2.07	<50	1.1	<0.5	<0.5	<0.5	<2.5	3.4	6.7
11/27/2002	--		13.95	5.00	22.00	10.91	3.04	<50	0.54	<0.5	<0.5	<0.5	1.1	1.8	6.8
2/12/2003	--	d	13.95	5.00	22.00	9.95	4.00	<50	<0.50	<0.50	<0.50	<0.50	0.73	1.9	7.2
5/22/2003	--		13.95	5.00	22.00	9.86	4.09	<50	0.96	<0.50	<0.50	<0.50	3.5	1.2	7.3
7/23/2003	--		13.95	5.00	22.00	10.59	3.36	<50	2.5	<0.50	0.56	<0.50	4	>20	9.4

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>ADR-1 Cont.</b>															
11/13/2003	--	f	13.95	5.00	22.00	11.15	2.80	<50	0.60	<0.50	<0.50	<0.50	1.6	8.5	8.2
02/16/2004	NP	f, i	16.56	5.00	22.00	9.43	7.13	<50	<0.50	<0.50	<0.50	<0.50	1.6	5.5	9.6
05/07/2004	NP		16.56	5.00	22.00	10.41	6.15	<500	5.3	<5.0	<5.0	<5.0	<5.0	1.72	7.0
09/02/2004	NP		16.56	5.00	22.00	10.73	5.83	<50	<0.50	<0.50	<0.50	<0.50	0.84	18.1	8.4
11/29/2004	NP		16.56	5.00	22.00	10.30	6.26	<50	3.0	<0.50	<0.50	<0.50	<0.50	0.77	6.9
02/02/2005	NP		16.56	5.00	22.00	9.02	7.54	<50	<0.50	<0.50	<0.50	<0.50	3.4	0.5	7.5
05/09/2005	NP		16.56	5.00	22.00	8.92	7.64	<50	<0.50	<0.50	<0.50	<0.50	2.6	2.9	7.3
08/11/2005	NP		16.56	5.00	22.00	10.57	5.99	67	2.8	<0.50	<0.50	<0.50	4.0	0.6	6.0
02/09/2006	NP	o	16.56	5.00	22.00	10.05	6.51	<50	<0.50	<0.50	<0.50	<0.50	2.9	1.09	7.0
8/11/2006	NP		16.56	5.00	22.00	10.20	6.36	76	<0.50	<0.50	<0.50	<0.50	2.2	1.06	7.1
2/7/2007	NP		16.56	5.00	22.00	10.15	6.41	<50	<0.50	<0.50	<0.50	<0.50	3.8	0.64	7.33
8/14/2007	NP		16.56	5.00	22.00	10.30	6.26	560	11	1.7	12	2.5	3.6	0.94	7.38
2/22/2008	NP		16.56	5.00	22.00	8.55	8.01	120	<0.50	<0.50	<0.50	<0.50	3.9	1.52	6.95
8/12/2008	NP		16.56	5.00	22.00	10.20	6.36	1,400	46	7.7	13	19	6.5	0.50	9.32
1/8/2009	NP		16.56	5.00	22.00	9.95	6.61	740	<0.50	0.94	<0.50	0.58	2.4	0.47	7.36
9/4/2009	NP		16.56	5.00	22.00	11.06	5.50	810	<0.50	0.65	<0.50	<0.50	<0.50	0.61	7.17
<b>3/5/2010</b>	<b>NP</b>		<b>16.56</b>	<b>5.00</b>	<b>22.00</b>	<b>7.62</b>	<b>8.94</b>	<b>62</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>0.92</b>	<b>1.33</b>	<b>7.01</b>
<b>ADR-2</b>															
6/26/2000	--		14.64	5.00	22.00	11.22	3.42	--	--	--	--	--	--	--	--
7/20/2000	--		14.64	5.00	22.00	11.60	3.04	12,000	410	2.5	540	720	23	--	--
9/19/2000	--		14.64	5.00	22.00	11.81	2.83	1,400	530	5	680	740	34	--	--
12/26/2000	--		14.64	5.00	22.00	11.52	3.12	901	26.6	<5.0	21.4	32.5	32.8	--	--
3/20/2001	--	j	14.64	5.00	22.00	10.10	4.54	--	--	--	--	--	--	--	--
6/12/2001	--	j	14.64	5.00	22.00	11.41	3.23	--	--	--	--	--	--	--	--
9/23/2001	--		14.64	5.00	22.00	11.98	2.66	5,300	370	<5.0	550	96	60	--	--
12/28/2001	--		14.64	5.00	22.00	9.48	5.16	2,600	190	<5.0	160	29	61	--	--
3/21/2002	--		14.64	5.00	22.00	9.10	5.54	180	6	<0.5	4.5	3.2	15	--	--
4/17/2002	--		14.64	5.00	22.00	9.93	4.71	730	86	<0.5	13	<0.5	<25	--	--
8/14/2002	--	b	14.64	5.00	22.00	12.09	2.55	1,300	170	<10	100	47	<50	0.9	7.0
11/27/2002	--	b	14.64	5.00	22.00	11.66	2.98	1,800	240	3.1	120	14	74	0.6	6.9

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>ADR-2 Cont.</b>															
2/12/2003	--	d	14.64	5.00	22.00	10.74	3.90	760	120	<5.0	15	5.2	22	1.3	7.1
5/22/2003	--		14.64	5.00	22.00	10.67	3.97	520	110	<5.0	7.1	<5.0	9.7	0.7	7.6
7/23/2003	--		14.64	5.00	22.00	11.38	3.26	140	2.8	<0.50	5	0.98	8.4	>20	9.4
02/16/2004	--	f, i	17.24	5.00	22.00	10.26	6.98	--	--	--	--	--	--	--	--
05/06/2004	--		17.24	5.00	22.00	11.05	6.19	--	--	--	--	--	--	--	--
09/02/2004	P		17.24	5.00	22.00	11.50	5.74	<500	67	<5.0	71	12	5.6	0.7	7.4
11/29/2004	--		17.24	5.00	22.00	11.20	6.04	--	--	--	--	--	--	--	--
02/02/2005	--		17.24	5.00	22.00	9.76	7.48	--	--	--	--	--	--	--	--
05/09/2005	--		17.24	5.00	22.00	11.18	6.06	--	--	--	--	--	--	--	--
08/11/2005	NP		17.24	5.00	22.00	11.30	5.94	1,900	200	<2.5	160	9.6	9.0	0.6	6.6
02/09/2006	--		17.24	5.00	22.00	9.60	7.64	--	--	--	--	--	--	--	--
8/11/2006	NP		17.24	5.00	22.00	11.13	6.11	570	54	<1.0	2.2	<1.0	4.6	0.8	7.1
2/7/2007	--		17.24	5.00	22.00	11.08	6.16	--	--	--	--	--	--	--	--
8/14/2007	NP		17.24	5.00	22.00	11.28	5.96	520	5.4	<0.50	3.6	<0.50	5.3	0.65	7.37
2/22/2008	--		17.24	5.00	22.00	9.47	7.77	--	--	--	--	--	--	--	--
8/12/2008	NP		17.24	5.00	22.00	11.27	5.97	560	0.92	<0.50	0.80	<0.50	4.2	0.71	9.40
1/8/2009	--		17.24	5.00	22.00	10.88	6.36	--	--	--	--	--	--	--	--
9/4/2009	NP		17.24	5.00	22.00	11.79	5.45	330	0.66	<0.50	<0.50	<0.50	1.9	0.55	7.38
<b>3/5/2010</b>	<b>--</b>		<b>17.24</b>	<b>5.00</b>	<b>22.00</b>	<b>8.55</b>	<b>8.69</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>AR-1</b>															
6/26/2000	--		15.61	8.00	28.00	11.59	4.02	--	--	--	--	--	--	--	--
7/20/2000	--		15.61	8.00	28.00	12.06	3.55	<50	<0.5	<0.5	<0.5	<1.0	6	--	--
9/19/2000	--		15.61	8.00	28.00	11.89	3.72	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--
12/26/2000	--		15.61	8.00	28.00	11.95	3.66	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
03/20/01	--	a	15.61	8.00	28.00	--	--	--	--	--	--	--	--	--	--
6/12/2001	--		15.61	8.00	28.00	11.87	3.74	<50	<0.5	<0.5	<0.5	<0.5	17	--	--
9/23/2001	--		15.61	8.00	28.00	12.42	3.19	--	--	--	--	--	--	--	--
12/28/2001	--		15.61	8.00	28.00	7.62	7.99	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		15.61	8.00	28.00	9.37	6.24	--	--	--	--	--	--	--	--
4/17/2002	--		15.61	8.00	28.00	10.43	5.18	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>AR-1 Cont.</b>															
8/14/2002	--		15.61	8.00	28.00	12.08	3.53	<50	<0.5	<0.5	<0.5	1.3	<2.5	2.2	7.9
11/27/2002	--		15.61	8.00	28.00	12.00	3.61	--	--	--	--	--	--	--	--
2/12/2003	--	d	15.61	8.00	28.00	10.89	4.72	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	7.9
5/22/2003	--		15.61	8.00	28.00	11.18	4.43	--	--	--	--	--	--	--	--
7/23/2003	--		15.61	8.00	28.00	11.73	3.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	7.7
11/13/2003	--		15.61	8.00	28.00	12.05	3.56	--	--	--	--	--	--	--	--
02/16/2004	--		18.18	8.00	28.00	10.35	7.83	--	--	--	--	--	--	--	--
05/06/2004	--		18.18	8.00	28.00	11.60	6.58	--	--	--	--	--	--	--	--
09/02/2004	P		18.18	8.00	28.00	11.88	6.30	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	7.8
11/29/2004	--		18.18	8.00	28.00	11.55	6.63	--	--	--	--	--	--	--	--
02/02/2005	--		18.18	8.00	28.00	9.92	8.26	--	--	--	--	--	--	--	--
05/09/2005	--		18.18	8.00	28.00	10.19	7.99	--	--	--	--	--	--	--	--
08/11/2005	P	n	18.18	8.00	28.00	11.80	6.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	7.4	7.6
02/09/2006	--		18.18	8.00	28.00	10.49	7.69	--	--	--	--	--	--	--	--
8/11/2006	P		18.18	8.00	28.00	11.48	6.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.42	8.1
2/7/2007	--	e	18.18	8.00	28.00	--	--	--	--	--	--	--	--	--	--
8/14/2007	--	e	18.18	8.00	28.00	--	--	--	--	--	--	--	--	--	--
2/22/2008	--	e	18.18	8.00	28.00	--	--	--	--	--	--	--	--	--	--
8/12/2008	NP		18.18	8.00	28.00	11.57	6.61	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.42	9.51
1/8/2009	--		18.18	8.00	28.00	11.43	6.75	--	--	--	--	--	--	--	--
9/4/2009	NP		18.18	8.00	28.00	12.52	5.66	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.62	7.61
<b>3/5/2010</b>	--		<b>18.18</b>	<b>8.00</b>	<b>28.00</b>	<b>8.66</b>	<b>9.52</b>	--	--	--	--	--	--	--	--
<b>AR-2</b>															
6/26/2000	--		15.28	8.50	28.50	11.79	3.49	--	--	--	--	--	--	--	--
7/20/2000	--		15.28	8.50	28.50	12.07	3.21	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--
9/19/2000	--		15.28	8.50	28.50	12.08	3.20	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--
12/26/2000	--		15.28	8.50	28.50	11.95	3.33	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/20/2001	--		15.28	8.50	28.50	10.50	4.78	--	--	--	--	--	--	--	--
6/12/2001	--		15.28	8.50	28.50	11.73	3.55	<50	<0.5	<0.5	<0.5	<0.5	82	--	--
9/23/2001	--		15.28	8.50	28.50	12.43	2.85	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #2169, 889 W. Grand 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		
<b>AR-2 Cont.</b>															
12/28/2001	--		15.28	8.50	28.50	8.60	6.68	<50	<0.5	<0.5	<0.5	<0.5	30	--	--
3/21/2002	--		15.28	8.50	28.50	9.49	5.79	--	--	--	--	--	--	--	--
4/17/2002	--		15.28	8.50	28.50	10.37	4.91	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--
8/14/2002	--		15.28	8.50	28.50	12.13	3.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.4	7.9
11/27/2002	--		15.28	8.50	28.50	12.08	3.20	--	--	--	--	--	--	--	--
2/12/2003	--	d	15.28	8.50	28.50	11.15	4.13	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	7.5
5/22/2003	--		15.28	8.50	28.50	11.18	4.10	--	--	--	--	--	--	--	--
7/23/2003	--		15.28	8.50	28.50	11.85	3.43	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	8.2
11/13/2003	--	f	15.28	8.50	28.50	11.98	3.30	--	--	--	--	--	--	--	--
02/16/2004	--	f, i	17.87	8.50	28.50	10.69	7.18	--	--	--	--	--	--	--	--
05/06/2004	--		17.87	8.50	28.50	11.55	6.32	--	--	--	--	--	--	--	--
09/02/2004	--	k	17.87	8.50	28.50	--	--	--	--	--	--	--	--	--	--
09/20/2004	NP		17.87	8.50	28.50	11.98	5.89	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.2	10.4
11/29/2004	--		17.87	8.50	28.50	12.62	5.25	--	--	--	--	--	--	--	--
02/02/2005	--		17.87	8.50	28.50	10.12	7.75	--	--	--	--	--	--	--	--
05/09/2005	--		17.87	8.50	28.50	10.13	7.74	--	--	--	--	--	--	--	--
08/11/2005	NP		17.87	8.50	28.50	11.73	6.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	7.3
02/09/2006	--		17.87	8.50	28.50	10.03	7.84	--	--	--	--	--	--	--	--
8/11/2006	NP		17.87	8.50	28.50	11.61	6.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.1	7.4
2/7/2007	--		17.87	8.50	28.50	11.52	6.35	--	--	--	--	--	--	--	--
8/14/2007	NP		17.87	8.50	28.50	11.75	6.12	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.86	7.41
2/22/2008	--		17.87	8.50	28.50	9.82	8.05	--	--	--	--	--	--	--	--
8/12/2008	NP		17.87	8.50	28.50	11.78	6.09	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.37	9.13
1/8/2009	--		17.87	8.50	28.50	11.40	6.47	--	--	--	--	--	--	--	--
9/4/2009	NP		17.87	8.50	28.50	11.32	6.55	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.53	7.56
<b>3/5/2010</b>	--		<b>17.87</b>	<b>8.50</b>	<b>28.50</b>	<b>9.04</b>	<b>8.83</b>	--	--	--	--	--	--	--	--



#### ABBREVIATIONS & SYMBOLS:

-- = Not analyzed/applicable/measured/available  
< = Not detected at or above specified laboratory reporting limit  
DO = Dissolved oxygen  
DTW = Depth to water in ft bgs  
ft bgs = Feet below ground surface  
ft MSL = Feet above mean sea level  
GRO = Gasoline range organics  
GWE = Groundwater elevation measured in ft MSL  
mg/L = Milligrams per liter  
MTBE = Methyl tert-butyl ether analyzed by EPA Method 8021B unless otherwise noted  
NP = Well not purged prior to sampling  
P = Well purged prior to sampling  
TOC = Top of casing measured in ft MSL  
TPH-g = Total petroleum hydrocarbons as gasoline  
µg/L = Micrograms per liter

#### FOOTNOTES:

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

#### NOTES:

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

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

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

Values for DO and pH were obtained through field measurements.

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

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**  
**Station #2169, 889 W. Grand Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>A-1</b>									
2/12/2003	<40	<20	2.9	<0.50	<0.50	<0.50	--	--	
5/22/2003	<100	<20	4.9	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	10	<0.50	<0.50	<0.50	<0.50	<0.50	
11/13/2003	<100	<20	4.2	<0.50	<0.50	<0.50	--	--	
02/16/2004	<100	<20	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
05/06/2004	<100	<20	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/02/2005	<100	<20	5.1	<0.50	<0.50	<0.50	<0.50	<0.50	a
05/09/2005	<100	<20	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/09/2006	<300	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/11/2006	<300	<20	3.7	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	20	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
2/22/2008	<1,500	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
8/12/2008	<1,500	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
1/8/2009	<6,000	<200	<10	<10	<10	<10	<10	<10	
9/4/2009	<300	<10	7.4	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>3/5/2010</b>	<b>&lt;300</b>	<b>&lt;10</b>	<b>3.3</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	
<b>A-2</b>									
2/12/2003	<40	<20	12	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/11/2006	<300	<20	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	0.65	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
8/12/2008	<300	<10	0.96	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>A-3</b>									

**Table 2. Summary of Fuel Additives Analytical Data**  
**Station #2169, 889 W. Grand Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>A-3 Cont.</b>									
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
<b>A-4</b>									
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
<b>A-5</b>									
2/12/2003	<400	<200	<5.0	<5.0	<5.0	<5.0	--	--	
5/22/2003	<1,000	<200	<5.0	<5.0	<5.0	<5.0	--	--	
7/23/2003	<1,000	<200	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
11/13/2003	<1,000	<200	<5.0	<5.0	<5.0	<5.0	--	--	
02/16/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
05/06/2004	<500	<100	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
09/02/2004	<200	<40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
11/29/2004	<10,000	<2,000	<50	<50	<50	<50	<50	<50	
02/02/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
05/09/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/11/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<6,000	<400	<10	<10	<10	<10	<10	<10	
8/14/2007	<6,000	<400	<10	<10	<10	<10	<10	<10	d (1,2-DCA)
2/22/2008	<30,000	<1,000	<50	<50	<50	<50	<50	<50	
8/12/2008	<30,000	<1,000	<50	<50	<50	<50	<50	<50	
1/8/2009	<30,000	<1,000	<50	<50	<50	<50	<50	<50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>3/5/2010</b>	<b>&lt;300</b>	<b>&lt;10</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	
<b>A-6</b>									
2/12/2003	<40	<20	9.9	<0.50	<0.50	<0.50	--	--	
5/22/2003	<100	<20	11	<0.50	<0.50	0.6	--	--	
7/23/2003	<100	<20	14	<0.50	<0.50	0.54	<0.50	<0.50	
11/13/2003	<100	<20	2.3	<0.50	<0.50	<0.50	--	--	
02/16/2004	<100	<20	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	

**Table 2. Summary of Fuel Additives Analytical Data**  
**Station #2169, 889 W. Grand Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>A-6 Cont.</b>									
05/06/2004	<100	<20	7.1	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	
02/02/2005	<100	<20	14	<0.50	<0.50	0.91	<0.50	<0.50	a
05/09/2005	<100	<20	12	<0.50	<0.50	0.66	<0.50	<0.50	
08/11/2005	<100	<20	14	<0.50	<0.50	2.2	<0.50	<0.50	a
02/09/2006	<300	<20	17	<0.50	<0.50	1.2	<0.50	<0.50	b
8/11/2006	<300	<20	21	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
2/22/2008	<300	<10	11	<0.50	<0.50	0.89	<0.50	<0.50	
8/12/2008	<300	<10	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	
1/8/2009	<300	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>3/5/2010</b>	<b>&lt;300</b>	<b>&lt;10</b>	<b>4.1</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	
<b>ADR-1</b>									
2/12/2003	<40	<20	0.73	<0.50	<0.50	<0.50	--	--	
5/22/2003	<100	<20	3.5	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	4	<0.50	<0.50	<0.50	<0.50	<0.50	
11/13/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
02/16/2004	<100	<20	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
05/07/2004	<1,000	<200	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
09/02/2004	<100	<20	0.84	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/02/2005	<100	<20	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	a
05/09/2005	<100	<20	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/09/2006	<300	<20	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/11/2006	<300	<20	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	3.8	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)

**Table 2. Summary of Fuel Additives Analytical Data  
Station #2169, 889 W. Grand Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>ADR-1 Cont.</b>									
2/22/2008	<300	<10	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/12/2008	<600	<20	6.5	<1.0	<1.0	<1.0	<1.0	<1.0	
1/8/2009	<300	<10	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>3/5/2010</b>	<b>&lt;300</b>	<b>&lt;10</b>	<b>0.92</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	
<b>ADR-2</b>									
2/12/2003	<400	<200	22	<5.0	<5.0	<5.0	--	--	
5/22/2003	<1,000	<200	9.7	<5.0	<5.0	<5.0	--	--	
7/23/2003	<100	<20	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<1,000	<200	5.6	<5.0	<5.0	<5.0	<5.0	<5.0	
08/11/2005	<500	<100	9.0	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/11/2006	<600	<40	4.6	<1.0	<1.0	<1.0	<1.0	<1.0	a, c
8/14/2007	<300	<20	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
8/12/2008	<300	<10	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>AR-1</b>									
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/11/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/12/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>AR-2</b>									
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/20/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/11/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)

**Table 2. Summary of Fuel Additives Analytical Data  
Station #2169, 889 W. Grand Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>AR-2 Cont.</b>									
8/12/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	



ABBREVIATIONS & SYMBOLS:

-- = Not analyzed/applicable/measured/available

< = Not detected at or above specified 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

g/L = Micrograms per Liter

FOOTNOTES:

a = Calibration verification was within method limits but outside contract limits for ethanol.

b = Initial analysis within holding time but failed QA/QC criteria.

c = Possible high bias due to CCV failing outside acceptance criteria for TBA.

d = CCV recovery above limit; analyte not detected.

NOTES:

All volatile organic compounds analyzed using EPA Method 8260B.

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  
Station #2169, 889 W. Grand Ave., Oakland, CA**

<b>Date Sampled</b>	<b>Approximate Flow Direction</b>	<b>Approximate Hydraulic Gradient</b>
7/20/2000	Northwest	0.004
9/19/2000	West-Northwest	0.003
12/26/2000	Northwest	0.004
3/20/2001	Northwest	0.003
6/12/2001	Northwest	0.004
9/23/2001	Northwest	0.004
12/28/2001	Variable	Variable
3/21/2002	Northwest	0.004
4/17/2002	Northwest	0.003
8/14/2002	West	0.003
11/27/2002	West	0.003
2/12/2003	South	0.005
5/22/2003	West to Northwest	0.002 to 0.003
7/23/2003	Southwest to Northwest	0.005 to 0.004
11/13/2003	Southwest	0.009
2/16/2004	Southwest	0.009
5/6/2004	Southwest	0.004
9/2/2004	West-Northwest	0.005
11/29/2004	West to Southwest	0.005 to 0.006
2/2/2005	Northwest to Southwest	0.005
5/9/2005	Northwest	0.01
8/11/2005	West	0.004
2/9/2006	West	0.003
8/11/2006	Northwest*	0.005
2/7/2007	North-Northwest*	0.004
8/14/2007	Northwest	0.005
2/22/2008	North-Northwest	0.005
8/12/2008	North-Northwest	0.005
1/8/2009	North-Northwest	0.003
9/4/2009	Northwest	0.002
<b>3/5/2010</b>	<b>West-Northwest</b>	<b>0.006</b>

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

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 GROUND-WATER SAMPLING DATA PACKAGE**

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





**Groundwater Sampling Data Sheet**

Well I.D.: A-1  
 Project Name/Location: BP 2/69 Project #: 06.48.62/  
 Sampler's Name: C. Parra T. Gaddis Date: 3/5/10  
 Purging Equipment: Boiler  
 Sampling Equipment: Boiler

Casing Type: PVC  
 Casing Diameter: 3 inch  
 Total Well Depth: 23.70 feet  
 Depth to Water: - 7.84 feet  
 Water Column Thickness: = 15.86 feet  
 Unit Casing Volume\*: x 0.37 gallon / foot  
 Casing Water Volume: = 5.86 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 17.6 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	1033	0.84	-87		863.8	64.1	7.09	
5	1039	X	X	X	849.9	65.5	7.07	
10	1046	1.95	X	X	818.5	65.8	7.09	
		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: 7.89 feet  
 Sample Collection Time: 10 50

Purged Dry? (Y/N) (N)

Comments: TD 23.70



**Groundwater Sampling Data Sheet**

Well I.D.: A-5  
 Project Name/Location: BP 2169 Project #: 06-88-621  
 Sampler's Name: T. Giddus E. Farrar Date: 3/5/10  
 Purging Equipment: Baker  
 Sampling Equipment: Baker

Casing Type: PVC  
 Casing Diameter: 2" inch  
 Total Well Depth: 27.73 feet  
 Depth to Water: - 7.55 feet  
 Water Column Thickness: = 20.18 feet  
 Unit Casing Volume\*: x .16 gallon / foot  
 Casing Water Volume: = 3.2 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 9.6 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	1111	0.59	-107		945.7	62.8	7.46	
3.5	1114	X	X	X	992.6	62.6	7.27	
5	1117	0.68	X	X	994.8	62.9	7.18	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 5 gallons  
 Depth to Water at Sample Collection: 8.41 feet  
 Sample Collection Time: 1125

Purged Dry? (Y/N) (N)

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Groundwater Sampling Data Sheet**

Well I.D.: A-6  
 Project Name/Location: BP 2169 Project #: 06-88-621  
 Sampler's Name: E. Farrer T. Bradlee Date: 3/5/10  
 Purging Equipment: Ball  
 Sampling Equipment: Ball

Casing Type: PVC  
 Casing Diameter: 2 inch  
 Total Well Depth: 26.95 feet  
 Depth to Water: - 7.27 feet  
 Water Column Thickness: = 19.68 feet  
 Unit Casing Volume\*: x 0.16 gallon / foot  
 Casing Water Volume: = 3.14 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 9.44 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	1143	.65	-110		782.7	65.1	7.16	
3	1148	X	X	X	759.6	67.2	7.08	
5	1150	X	X	X	718.6	67.6	7.10	
9	1155	1.76	X	X	691.3	68.1	7.11	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 9 gallons  
 Depth to Water at Sample Collection: 7.37 feet  
 Sample Collection Time: 1155 Purged Dry? (Y/N) (N)

Comments: TP27.CC



**Groundwater Sampling Data Sheet**

Well I.D.: ADR-1  
 Project Name/Location: BP 2169 Project #: 06-88-621  
 Sampler's Name: E. Farner T. Gaddis Date: \_\_\_\_\_  
 Purging Equipment: \_\_\_\_\_  
 Sampling Equipment: Bailer  
 Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 20.50 feet  
 Depth to Water: 7.62 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	1012	633	-96		954.4	64.0	7.01	
		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: 0 gallons  
 Depth to Water at Sample Collection: 7.62 feet  
 Sample Collection Time: 1015 Purged Dry? (Y/N) (N)

Comments: No purge @ 5' DTB 20.98  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



NON-HAZARDOUS WASTE DATA FORM

1. BESI #

2. Generator's Name and Mailing Address  
**BP WEST COAST PRODUCTS, LLC**  
**P.O. BOX 80249**  
**RANCHO SANTA MARGARITA, CA 92688**

Generator's Site Address (if different than mailing address)  
*BP 2169*  
*889 West Grand Ave*  
*Oakland, CA*

Generator's Phone: **(949) 460-5200**      **24-HOUR EMERGENCY PHONE: (949) 699-3706**

3. Transporter 1 Company Name  
**Broadbent & Associates, Inc.**

Phone #  
**(530) 566-1400**

4. Transporter 2 Company Name  
**Gomes Excavating**

Phone #  
**(707) 374-2881**

5. Designated Facility Name and Site Address  
**INTRAT, INC.**  
**1105 AIRPORT RD #C**  
**RIO VISTA, CA 94571**

Phone #  
**(530) 753-1829**

GENERATOR

6. Waste Shipping Name and Description	7. Containers		8. Total Quantity	9. Unit Wt/Vol	10. Profile No.
	No.	Type			
A. <b>NON-HAZARDOUS WATER</b>	1	TT	24	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/Offoror's Printed/Typed Name <i>R. J. G. S. D.</i>	Signature <i>Tracy Goides</i>	Month 3	Day 5	Year 10
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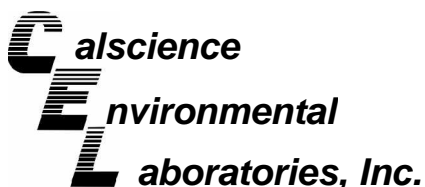
TRANSPORTER

13. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name <i>Tracy Goides</i>	Signature <i>Tracy Goides</i>	Month 3	Day 7	Year 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
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March 22, 2010

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

Subject: **Calscience Work Order No.: 10-03-0544**  
**Client Reference: ARCO 2169**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/6/2010 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. 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.  
1324 Mangrove Ave, Ste 212  
Chico, CA 95926-2642

Date Received: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 2169

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A-1	10-03-0544-1-D	03/05/10 10:50	Aqueous	GC 11	03/11/10	03/12/10 12:37	100311B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	800	250	5		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	97	38-134			

A-5	10-03-0544-2-D	03/05/10 11:25	Aqueous	GC 11	03/11/10	03/12/10 12:03	100311B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	110	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	95	38-134			

A-6	10-03-0544-3-E	03/05/10 11:55	Aqueous	GC 4	03/11/10	03/11/10 14:31	100311B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	320	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	95	38-134			

ADR-1	10-03-0544-4-E	03/05/10 10:15	Aqueous	GC 4	03/11/10	03/11/10 17:48	100311B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	62	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	90	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: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 2169

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	099-12-695-773	N/A	Aqueous	GC 4	03/11/10	03/11/10 12:52	100311B01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
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	96	38-134			

Method Blank	099-12-695-776	N/A	Aqueous	GC 11	03/11/10	03/11/10 23:10	100311B01
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
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	93	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: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 2169

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A-1	10-03-0544-1-A	03/05/10 10:50	Aqueous	GC/MS BB	03/16/10	03/16/10 13:55	100316L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	12	0.50	1		Methyl-t-Butyl Ether (MTBE)	3.3	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	5.6	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	1.3	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	3.6	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	98	80-128			Dibromofluoromethane	100	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	101	68-120		

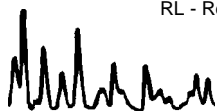
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A-5	10-03-0544-2-A	03/05/10 11:25	Aqueous	GC/MS BB	03/16/10	03/16/10 14:25	100316L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.4	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	6.1	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)	7.3	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	93	80-128			Dibromofluoromethane	107	80-127		
Toluene-d8	96	80-120			1,4-Bromofluorobenzene	98	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
A-6	10-03-0544-3-A	03/05/10 11:55	Aqueous	GC/MS BB	03/16/10	03/16/10 14:54	100316L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	4.1	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	92	80-128			Dibromofluoromethane	106	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	99	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: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 2169

Page 2 of 2


Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
ADR-1	10-03-0544-4-A	03/05/10 10:15	Aqueous	GC/MS BB	03/16/10	03/16/10 15:23	100316L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	0.92	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	92	80-128			Dibromofluoromethane	105	80-127		
Toluene-d8	96	80-120			1,4-Bromofluorobenzene	93	68-120		

Method Blank	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-703-1,264	N/A	Aqueous	GC/MS BB	03/16/10	03/16/10 12:26	100316L01

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	98	80-128			Dibromofluoromethane	107	80-127		
Toluene-d8	94	80-120			1,4-Bromofluorobenzene	87	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: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project ARCO 2169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
A-6	Aqueous	GC 4	03/11/10	03/11/10	100311S01

<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)	102	95	38-134	6	0-25	

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: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project ARCO 2169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-03-0623-2	Aqueous	GC 11	03/11/10	03/12/10	100311S02

<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)	93	85	38-134	8	0-25	

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: 03/06/10  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8260B

Project ARCO 2169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-03-0430-1	Aqueous	GC/MS BB	03/16/10	03/16/10	100316S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	99	106	76-124	7	0-20	
Carbon Tetrachloride	104	107	74-134	3	0-20	
Chlorobenzene	108	110	80-120	2	0-20	
1,2-Dibromoethane	104	110	80-120	6	0-20	
1,2-Dichlorobenzene	101	107	80-120	5	0-20	
1,1-Dichloroethene	98	101	73-127	4	0-20	
Ethylbenzene	107	110	78-126	3	0-20	
Toluene	105	114	80-120	8	0-20	
Trichloroethene	106	111	77-120	4	0-20	
Vinyl Chloride	97	99	72-126	3	0-20	
Methyl-t-Butyl Ether (MTBE)	97	102	67-121	3	0-49	
Tert-Butyl Alcohol (TBA)	117	115	36-162	1	0-30	
Diisopropyl Ether (DIPE)	90	93	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	99	101	69-123	2	0-30	
Tert-Amyl-Methyl Ether (TAME)	100	107	65-120	7	0-20	
Ethanol	115	84	30-180	31	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



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

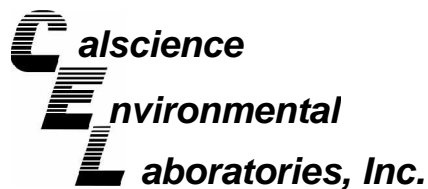
Date Received: N/A  
Work Order No: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 2169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-773	Aqueous	GC 4	03/11/10	03/11/10	100311B01

<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)	102	96	78-120	6	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: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 2169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-776	Aqueous	GC 11	03/11/10	03/11/10	100311B01

<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)	102	101	78-120	1	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: 10-03-0544  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: ARCO 2169

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,264	Aqueous	GC/MS BB	03/16/10	03/16/10	100316L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	101	103	80-120	73-127	2	0-20	
Carbon Tetrachloride	100	104	74-134	64-144	4	0-20	
Chlorobenzene	107	108	80-120	73-127	1	0-20	
1,2-Dibromoethane	108	106	79-121	72-128	1	0-20	
1,2-Dichlorobenzene	101	104	80-120	73-127	3	0-20	
1,1-Dichloroethene	96	101	78-126	70-134	5	0-28	
Ethylbenzene	109	109	80-120	73-127	0	0-20	
Toluene	107	110	80-120	73-127	3	0-20	
Trichloroethene	105	106	79-127	71-135	1	0-20	
Vinyl Chloride	89	89	72-132	62-142	0	0-20	
Methyl-t-Butyl Ether (MTBE)	100	103	69-123	60-132	3	0-20	
Tert-Butyl Alcohol (TBA)	102	104	63-123	53-133	1	0-20	
Diisopropyl Ether (DIPE)	91	94	59-137	46-150	2	0-37	
Ethyl-t-Butyl Ether (ETBE)	99	100	69-123	60-132	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	99	99	70-120	62-128	1	0-20	
Ethanol	79	86	28-160	6-182	8	0-57	

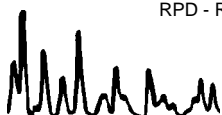
Total number of LCS compounds : 16

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: 10-03-0544
 

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<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	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.



<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.
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

BP/ARC Project Name: ARCO 2169  
 BP/ARC Facility No: 2169

Req Due Date (mm/dd/yy): STD-TAT Rush TAT: Yes  No   
 Lab Work Order Number: 10-03-0544

Lab Name: Cal science	BP/ARC Facility Address: 889 w. Grand Avenue	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Oakland, CA 94607	Consultant/Contractor Project No: 06-88-621-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave. Ste. 212, Chico, CA 95926
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600100112	Consultant/Contractor PM: Tom Venus
Lab Shipping Acct: 9255	Enfos Proposal No: 000WP-0035	Phone: 530-566-1400 / 530-566-1401 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: tvenus@broadbentinc.com
Other Info:	Stage: Operate (5) Activity: Monitoring/MNA (22)	Invoice To: BP/ARC <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

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 <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO (8015)	BTEX (8260)	5 Olys (8260)	EDB (8260)	1,2-DCA (8260)	Ethanol (8260)	Standard <input checked="" type="checkbox"/>	Full Data Package <input type="checkbox"/>
EBM Email: charles.carmel@bp.com																			Comments	
Lab No.	Sample Description	Date	Time																	
1	A-1	3/5/10	1050	X			6						X	X	X	X	X	X		
2	A-5	↓	1125	X			6						X	X	X	X	X	X		
3	A-6	↓	1155	X			6						X	X	X	X	X	X		
4	ADR-1	↓	1015	X			6						X	X	X	X	X	X		
5	TB - 2169 - 100305			X			2												ON HOLD	

Sampler's Name: <u>E. Farrell</u>	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: BAI	<u>[Signature]</u>		<u>3/5/10</u>	<u>1230</u>	<u>[Signature]</u> CEL		<u>3/6/10</u>	<u>9:30</u>
Shipment Method: <u>650</u>	Ship Date: <u>3/5/10</u>							
Shipment Tracking No: <u>106470758</u>								

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

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1 FROM  
2

DATE: 3/5/10  
SHIPPER'S GSO ACCOUNT NO. 5253

COMPANY: BAI

ADDRESS: 875 Catting Lane

ADDRESS:

CITY: Vacaville STE/ROOM: F  
ZIP CODE: 95588

SENDER'S NAME: Eric Farrow PHONE NUMBER: 7252477901

COMPANY NAME: CAL SCIENCE

ADDRESS: 7440 LINCOLN WAY

ADDRESS:

CITY: GARDEN GROVE STE/ROOM:  
ZIP CODE: 92841

YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS:



SHIPPING AIR BILL

4 PACKAGE INFORMATION

LETTER (MAX 8 OZ)

PACKAGE (WT) 40

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 CREDIT CARD  M/C  VISA  AM EX CREDIT CARD NUMBER EXP. DATE

8 PICK UP INFORMATION TIME DRIVER # ROUTE #

106470758

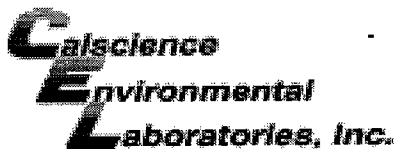


106470758

9 GSO TRACKING NUMBER

0544





WORK ORDER #: 10-03-0544

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent & Associates

DATE: 03/16/10

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

Temperature 2.3°C + 0.5°C (CF) = 2.8°C [x] 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: YL

CUSTODY SEALS INTACT:

[x] Cooler [ ] \_\_\_\_\_ [ ] No (Not Intact) [ ] Not Present [ ] N/A

Initial: YL

[ ] Sample [ ] \_\_\_\_\_ [ ] No (Not Intact) [x] Not Present

Initial: W.S.

SAMPLE CONDITION:

Table with 4 columns: Sample Condition, Yes, No, N/A. Rows include Chain-Of-Custody (COC) document(s) received with samples, COC document(s) received complete, Sampler's name indicated on COC, Sample container label(s) consistent with COC, Sample container(s) intact and good condition, Proper containers and sufficient volume for analyses requested, Analyses received within holding time, Proper preservation noted on COC or sample container, Volatile analysis container(s) free of headspace, Tedlar bag(s) free of condensation.

CONTAINER TYPE:

Solid: [ ] 4ozCGJ [ ] 8ozCGJ [ ] 16ozCGJ [ ] Sleeve (\_\_\_\_) [ ] EnCores® [ ] TerraCores® [ ] \_\_\_\_\_

Water: [ ] VOA [x] VOA<sup>6</sup>h [ ] VOAn<sub>2</sub> [ ] 125AGB [ ] 125AGBh [ ] 125AGBp [ ] 1AGB [ ] 1AGBna<sub>2</sub> [ ] 1AGBs

[ ] 500AGB [ ] 500AGJ [ ] 500AGJs [ ] 250AGB [ ] 250CGB [ ] 250CGBs [ ] 1PB [ ] 500PB [ ] 500PBna

[ ] 250PB [ ] 250PBn [ ] 125PB [ ] 125PBz<sub>2</sub>na [ ] 100PJ [ ] 100PJna<sub>2</sub> [ ] \_\_\_\_\_ [ ] \_\_\_\_\_ [ ] \_\_\_\_\_

Air: [ ] Tedlar® [ ] Summa® Other: [ ] \_\_\_\_\_ Trip Blank Lot#: 100128B Checked by: W.S.

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 na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> Na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> z<sub>2</sub>na: ZnAc<sub>2</sub>+NaOH f: Field-filtered Scanned by: W.S.

## 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**

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!

<b><u>Submittal Type:</u></b>	<b>GEO_WELL</b>
<b><u>Submittal Title:</u></b>	<b>1Q10 GEO_WELL 2169</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100112</b>
<b><u>Facility Name:</u></b>	<b>ARCO #02169</b>
<b><u>File Name:</u></b>	<b>GEO_WELL.zip</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>3/22/2010 2:42:04 PM</b>
<b><u>Confirmation Number:</u></b>	<b>6770371437</b>

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!

<b><u>Submittal Type:</u></b>	EDF - Monitoring Report - Quarterly
<b><u>Submittal Title:</u></b>	1Q10 GW Monitoring
<b><u>Facility Global ID:</u></b>	T0600100112
<b><u>Facility Name:</u></b>	ARCO #02169
<b><u>File Name:</u></b>	10030544.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
<b><u>Username:</u></b>	BROADBENT-C
<b><u>IP Address:</u></b>	67.118.40.90
<b><u>Submittal Date/Time:</u></b>	3/22/2010 2:42:58 PM
<b><u>Confirmation Number:</u></b>	<b>1094293057</b>

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)