

# Atlantic Richfield Company

**Chuck Carmel**  
Environmental Business Manager

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**RECEIVED**

4:57 pm, Oct 29, 2010

Alameda County  
Environmental Health

October 27, 2010

Re: Third Quarter 2010 Semi-Annual Groundwater Monitoring Report  
Atlantic Richfield Company Station #771  
899 Rincon Avenue  
Livermore, California  
ACEH Case RO0000200

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

Submitted by,



Chuck Carmel  
Environmental Business Manager

Attachment

**Third Quarter 2010 Semi-Annual  
Groundwater Monitoring Report**  
Atlantic Richfield Company Station #771  
899 Rincon Avenue  
Livermore, California

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*

October 27, 2010

Project No. 06-82-608

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



October 27, 2010

Project No. 06-82-608

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

Attn.: Mr. Chuck Carmel

Re: Third Quarter 2010 Semi-Annual Groundwater Monitoring Report, Atlantic Richfield Company Station #771 899 Rincon Avenue, Livermore, California; ACEH Case #RO0000200

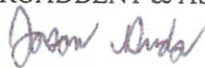
Dear Mr. Carmel:

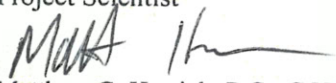
Attached is the *Third Quarter 2010 Semi-Annual Groundwater Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #771 (herein referred to as Station #771) located at 899 Rincon Avenue, Livermore, California (Site). This report presents a summary of Third Quarter 2010 groundwater monitoring results.

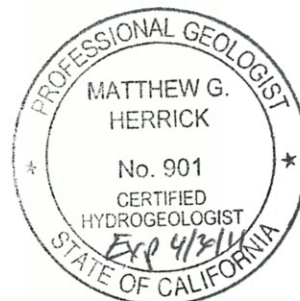
Should you have questions regarding this submittal, please do not hesitate to contact us at (530) 566-1400.

Sincerely,

BROADBENT & ASSOCIATES, INC.

  
Jason Duda  
Project Scientist

  
Matthew G. Herrick, P.G., C.H.G.  
Senior Hydrogeologist



Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)  
Mr. Paul M. Smith, Livermore-Pleasanton Fire Department, 3560 Nevada St., Pleasanton, California 94566  
Mr. Chuck Headlee, California Regional Water Quality Control Board – San Francisco Region (Submitted via GeoTracker)  
Electronic copy uploaded to GeoTracker

## STATION #771 SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Facility: #771 Address: 899 Rincon Avenue, Livermore, CA  
Environmental Business Manager: Mr. Chuck Carmel  
Consulting Co./Contact Person: Broadbent & Associates, Inc. (BAI) / Jason Duda and Matt Herrick (530) 566-1400  
Primary Agency/Regulatory ID No.: Alameda County Environmental Health (ACEH)/ ACEH Case RO0000200  
Consultant Project No.: 06-82-608  
Facility Permits/Permitting Agency: NA

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

1. Submitted Second Quarter 2010 Status Report (BAI, 07/20/0010).
2. Conducted semi-annual groundwater monitoring/sampling for Third Quarter 2010. Work performed by BAI.
3. Submitted Second Addendum Soil and Groundwater Investigation Work Plan (BAI, 08/13/2010).

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

1. Prepare and submit Third Quarter 2010 Semi-Annual Groundwater Monitoring Report (contained herein).
2. No groundwater monitoring/sampling work activities are scheduled to be conducted at the Site during the Fourth Quarter 2010.
3. Conduct soil and groundwater investigation.

### QUARTERLY RESULTS SUMMARY:

Current phase of project:	<b>Groundwater Monitoring</b>
Frequency of ground-water monitoring:	<b>Semi-Annual (1Q &amp; 3Q): MW-1 through MW-11, RW-1, VW-1</b>
Frequency of ground-water sampling:	<b>Semi-Annual (1Q &amp; 3Q): MW-4, MW-7, RW-1 Annual (3Q): MW-2, MW-5, MW-6, MW-11, VW-1</b>
Is free product (FP) present on-site:	<b>No</b>
FP recovered this quarter:	<b>NA (FP last recovered in 1992)</b>
Cumulative FP recovered:	<b>3.06 gallons (Wells MW-1, MW-2, and MW-5)</b>
Current remediation techniques:	<b>Operation of Air Diffusion System Discontinued on 03/30/10</b>
Depth to ground water (below TOC):	<b>23.65 ft (VW-1) to 35.28 ft (MW-8)</b>
General ground-water flow direction:	<b>North</b>
Approximate hydraulic gradient:	<b>0.04 ft/ft</b>

### DISCUSSION:

Third Quarter 2010 semi-annual groundwater monitoring and sampling was conducted at Station #771 on September 9, 2010 by BAI. Water levels were gauged in each of the thirteen wells (MW-1 through MW-11, RW-1 and VW-1) associated with the Site. No irregularities were noted during water level gauging activities. Depth-to-water measurements ranged from 23.65 ft at VW-1 to 35.28 ft at MW-8. Resulting ground-water surface elevations ranged from 429.64 ft above datum in well VW-1 to

416.52 ft in well MW-8. Water level elevations yielded a potentiometric groundwater flow direction and gradient to the north at approximately 0.04 ft/ft. Groundwater monitoring field data sheets are provided within Appendix A. Measured depths to ground-water and respective ground-water elevations are summarized in Table 1. Current and historic ground-water flow directions and gradients are provided in Table 3. A Site Location Map is presented as Drawing 1. Potentiometric ground-water elevation contours are presented in Drawing 2.

Consistent with the current groundwater sampling schedule, water samples were collected from wells MW-2, MW-4 through MW-7, MW-11, RW-1, and VW-1 on September 9, 2010. Dissolved oxygen (DO) was not collected during sampling activities due to a non-functional DO meter. No other 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-C12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), Tert-Butyl Alcohol (TBA), 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromomethane (EDB) and Ethanol by EPA Method 8260B. No significant irregularities were encountered during laboratory analysis of the samples. Groundwater sampling field data sheets and the laboratory analytical report, including chain-of-custody documentation, are provided in Appendix A.

GRO was detected above laboratory reporting limits in five of the eight wells sampled at concentrations ranging from 440 micrograms per liter ( $\mu\text{g/L}$ ) in well RW-1 to 6,200  $\mu\text{g/L}$  in well MW-2. Benzene was detected above the laboratory reporting limit in four of the eight wells sampled at concentrations ranging from 18  $\mu\text{g/L}$  in well MW-5 to 430  $\mu\text{g/L}$  in well MW-7. Toluene was detected above the laboratory reporting limit in three of the eight wells sampled at concentrations ranging from 1.4  $\mu\text{g/L}$  in well MW-5 to 11  $\mu\text{g/L}$  in well MW-7. Ethylbenzene was detected above the laboratory reporting limit in four of the eight wells sampled at concentrations ranging from 0.55  $\mu\text{g/L}$  in well MW-5 to 32  $\mu\text{g/L}$  in well MW-7. Total Xylenes were detected above the laboratory reporting limit in five of the eight wells sampled at concentrations ranging from 0.53  $\mu\text{g/L}$  in well RW-1 to 46  $\mu\text{g/L}$  in well MW-7. MTBE was detected above the laboratory reporting limit in five of the eight wells sampled at concentrations ranging from 1.9  $\mu\text{g/L}$  in well RW-1 to 110  $\mu\text{g/L}$  in well MW-7. TBA was detected above the laboratory reporting limit in four of the eight wells sampled at concentrations ranging from 41  $\mu\text{g/L}$  in well MW-2 to 880  $\mu\text{g/L}$  in well MW-4. The remaining fuel additives and oxygenates were not detected above their respective laboratory reporting limits in the eight wells sampled this quarter. Historic laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. 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 Third Quarter 2010 water level elevations were within historic minimum and maximum elevation ranges for each well. The current groundwater flow direction (north) and hydraulic gradient (0.04 ft/ft) were generally consistent with recent historical data. Detected analyte concentrations were within the historic minimum and maximum ranges recorded for each well. The next semi-annual groundwater monitoring and sampling event is scheduled to occur during the First Quarter of 2011.

The ACEH letter dated September 10, 2010 approved the *Second Addendum Soil and Ground-Water Investigation Work Plan* prepared by BAI and dated August 13, 2010. A property access agreement between the owners of the Livermore Shopping Center and BP has been finalized. Soil and

ground-water investigation activities are anticipated to occur during December 2010. The deadline of December 8, 2010 for submittal of the Soil and Ground-Water Investigation Report will not be met due to the delays associated with obtaining off-site property access. It is proposed to extend this deadline to February 11, 2011.

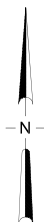
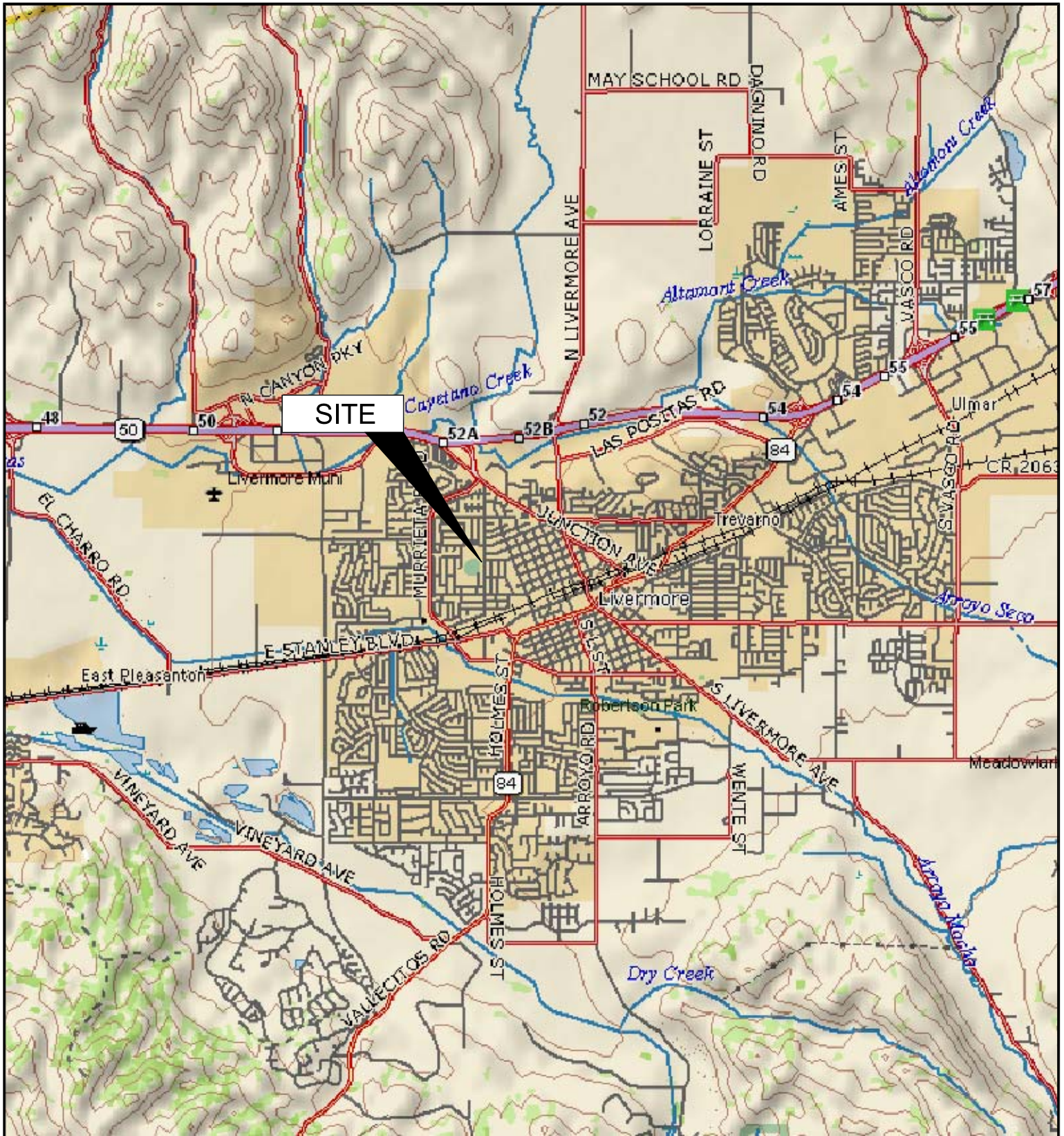
#### **CLOSURE:**

The findings presented in this report are based upon: observations of BAI field personnel (see Appendix A), the points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, CA). 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, Station #771, Livermore, CA
- Drawing 2. Ground-Water Elevation Contour and Analytical Summary Map, Station #771, Livermore, CA
  
- Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #771, Livermore, CA
- Table 2. Summary of Fuel Additives Analytical Data, Station #771, Livermore, CA
- Table 3. Historical Ground-Water Flow Direction and Gradient, Station #771, Livermore, CA
  
- Appendix A. BAI Groundwater Sampling Data (Includes Field Data Sheets, Non-hazardous Waste Data Form, Certified Laboratory Analytical Results, Chain of Custody Documentation, and Field Procedures)
  
- Appendix B. GeoTracker Upload Confirmations



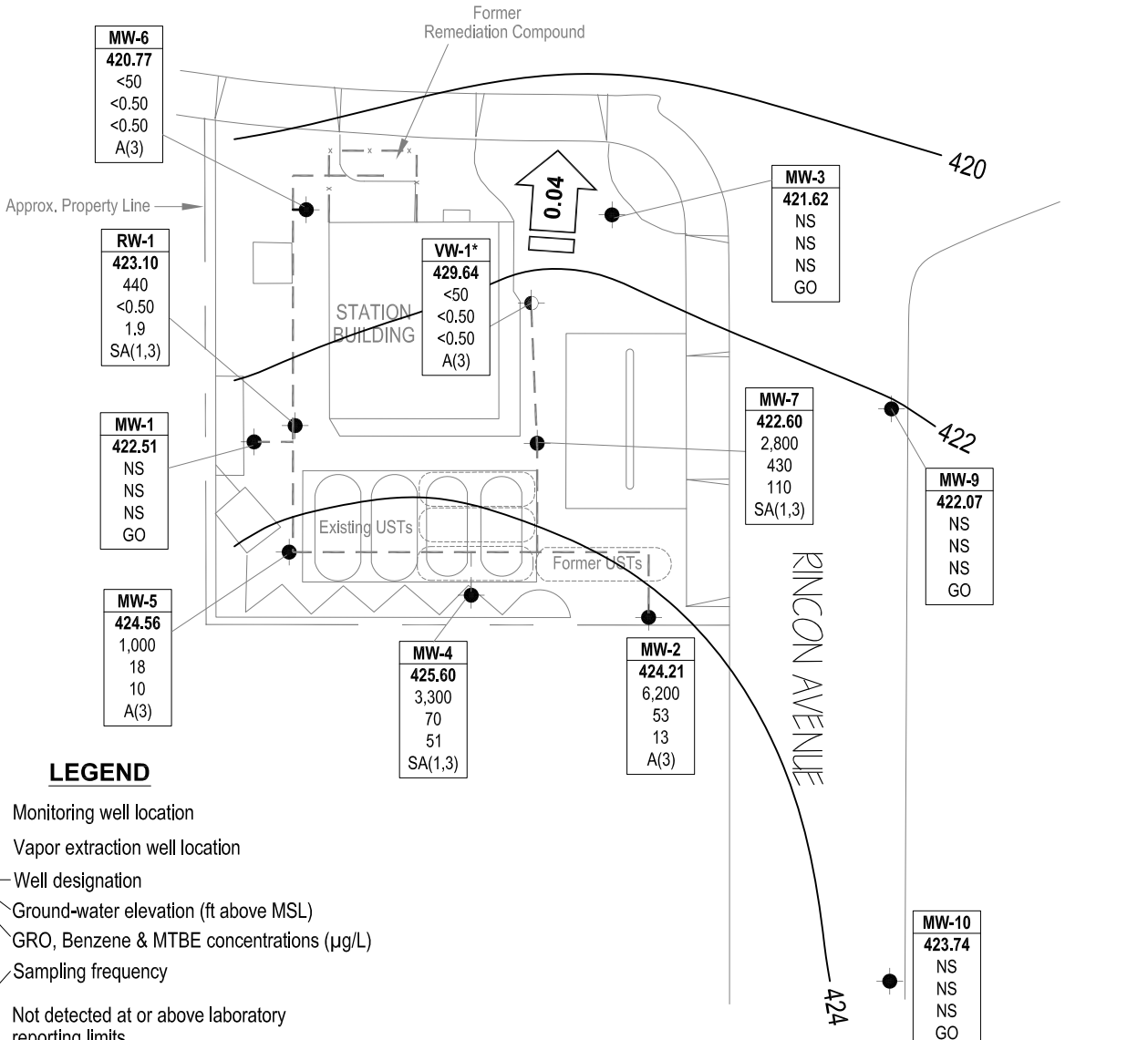


APPROXIMATE SCALE (mi)

IMAGE SOURCE: DELORME

<b>MW-11</b>
417.38
<50
<0.50
<0.50
A(3)

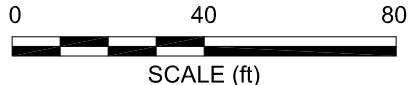
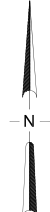
<b>MW-8</b>
416.52
NS
NS
NS
GO



**LEGEND**

- Monitoring well location
- Vapor extraction well location
- Well ID** — Well designation
- ELEV** — Ground-water elevation (ft above MSL)
- GRO** — GRO, Benzene & MTBE concentrations (µg/L)
- Benzene** —
- MTBE** —
- SA or A** — Sampling frequency
- < — Not detected at or above laboratory reporting limits
- \* — Not used in contouring
- NG — Not gauged
- NS — Not sampled
- A(3) — Sampled annually during 3rd quarter
- GO — Not sampled, gauged only
- SA(1,3) — Sampled semi-annually, 1st & 3rd quarters
- 424 — Ground-water elevation contour (ft above MSL)
- ↔ 0.04 — Approximate ground-water flow direction and gradient (ft/ft)
- Remediation piping

<b>MW-10</b>
423.74
NS
NS
NS
GO



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



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-1</b>															
3/20/1995	--		451.73	32.00	41.00	24.50	427.23	90,000	1,800	1,100	1,000	5,600	--	--	--
6/2/1995	--		451.73	32.00	41.00	25.60	426.13	81,000	2,000	1,400	990	4,600	--	--	--
8/23/1995	--		451.73	32.00	41.00	29.04	422.69	44,000	2,400	1,900	670	3,800	<300	--	--
12/4/1995	--		451.73	32.00	41.00	31.31	420.42	22,000	870	660	390	2,200	--	--	--
2/20/1996	--		451.73	32.00	41.00	22.26	429.47	21,000	1,500	1,200	650	3,500	<300	--	--
5/15/1996	--		451.73	32.00	41.00	23.42	428.31	36,000	3,000	2,500	960	5,700	<250	--	--
8/13/1996	--		451.73	32.00	41.00	26.83	424.90	19,000	730	580	450	2,500	<200	--	--
11/13/1996	--		451.73	32.00	41.00	31.05	420.68	6,600	47	16	74	160	<30	--	--
3/26/1997	--		451.73	32.00	41.00	26.29	425.44	1,900	100	55	37	200	<30	--	--
5/15/1997	--		451.73	32.00	41.00	28.65	423.08	16,000	490	250	250	1,100	<120	--	--
8/26/1997	--		451.73	32.00	41.00	31.53	420.20	190	6.7	3	6.3	25	<3	--	--
11/5/1997	--		451.73	32.00	41.00	33.93	417.80	63	0.5	<0.5	0.8	2.4	29	--	--
2/18/1998	--		451.73	32.00	41.00	20.46	431.27	23,000	1,500	610	550	3,000	<120	--	--
5/20/1998	--		451.73	32.00	41.00	23.84	427.89	50,000	4,400	1,900	1,400	80,000	<300	--	--
7/30/1998	P		451.73	32.00	41.00	26.94	424.79	150	<0.5	<0.5	<0.5	1.6	<3	8.74	--
10/29/1998	NP		451.73	32.00	41.00	32.58	419.15	<50	<0.5	<0.5	<0.5	1.8	<3	2.0	--
3/16/1999	P		451.73	32.00	41.00	26.20	425.53	3,200	160	32	89	390	270	2.0	--
5/5/1999	P		451.73	32.00	41.00	27.57	424.16	3,600	140	46	76	290	170	11.65	--
8/26/1999	P		451.73	32.00	41.00	30.25	421.48	3,200	210	29	100	220	120	1.43	--
12/3/1999	NP		451.73	32.00	41.00	32.70	419.03	53	<0.5	<0.5	<0.5	1	<3	2.12	--
3/13/2000	P		451.73	32.00	41.00	24.45	427.28	<50	<0.5	<0.5	<0.5	<1	<3	5.81	--
6/20/2000	P		451.73	32.00	41.00	27.79	423.94	356	40.1	7.17	11.9	22.7	<2.50	5.1	--
6/20/2000	--	b	451.73	32.00	41.00	--	--	67.4	3.88	<0.500	1.78	1.48	<2.50	--	--
8/31/2000	--		451.73	32.00	41.00	30.35	421.38	--	--	--	--	--	--	--	--
2/9/2001	--		451.73	32.00	41.00	30.95	420.78	--	--	--	--	--	--	--	--
9/17/2001	--		451.73	32.00	41.00	30.85	420.88	--	--	--	--	--	--	--	--
1/21/2002	--		451.73	32.00	41.00	30.61	421.12	--	--	--	--	--	--	--	--
7/19/2002	--		451.73	32.00	41.00	31.55	420.18	--	--	--	--	--	--	--	--
1/15/2003	--		451.73	32.00	41.00	22.99	428.74	--	--	--	--	--	--	--	--
7/9/2003	--		451.73	32.00	41.00	30.35	421.38	--	--	--	--	--	--	--	--
02/19/2004	--		451.73	32.00	41.00	26.24	425.49	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-1 Cont.</b>															
08/04/2004	--		454.23	32.00	41.00	26.36	427.87	--	--	--	--	--	--	--	--
01/18/2005	--		454.23	32.00	41.00	24.47	429.76	--	--	--	--	--	--	--	--
07/15/2005	--		454.23	32.00	41.00	29.44	424.79	--	--	--	--	--	--	--	--
01/10/2006	--		454.23	32.00	41.00	22.58	431.65	--	--	--	--	--	--	--	--
7/21/2006	--		454.23	32.00	41.00	20.73	433.50	--	--	--	--	--	--	--	--
1/17/2007	--		454.23	32.00	41.00	31.88	422.35	--	--	--	--	--	--	--	--
7/18/2007	--		454.23	32.00	41.00	32.85	421.38	--	--	--	--	--	--	--	--
1/15/2008	--		454.23	32.00	41.00	28.76	425.47	--	--	--	--	--	--	--	--
7/7/2008	--		454.23	32.00	41.00	35.56	418.67	--	--	--	--	--	--	--	--
1/7/2009	--		454.23	32.00	41.00	34.07	420.16	--	--	--	--	--	--	--	--
7/22/2009	--	Dry	454.23	32.00	41.00	--	--	--	--	--	--	--	--	--	--
3/12/2010	--		454.23	32.00	41.00	27.61	426.62	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>--</b>		<b>454.23</b>	<b>32.00</b>	<b>41.00</b>	<b>31.72</b>	<b>422.51</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>MW-2</b>															
3/20/1995	--		449.49	30.00	38.00	20.27	429.22	54,000	2,600	1,600	1,200	7,600	--	--	--
6/2/1995	--		449.49	30.00	38.00	22.32	427.17	37,000	2,200	800	980	4,800	--	--	--
8/23/1995	--		449.49	30.00	38.00	25.69	423.80	65,000	1,100	310	840	3,000	<500	--	--
12/4/1995	--		449.49	30.00	38.00	28.52	420.97	19,000	680	150	410	1,600	--	--	--
2/20/1996	--		449.49	30.00	38.00	19.00	430.49	22,000	1,200	240	590	2,200	<300	--	--
5/15/1996	--		449.49	30.00	38.00	20.03	429.46	25,000	1,200	240	610	2,100	<300	--	--
8/13/1996	--		449.49	30.00	38.00	24.44	425.05	19,000	640	110	420	1,200	<300	--	--
11/13/1996	--		449.49	30.00	38.00	28.42	421.07	15,000	260	52	220	640	<200	--	--
3/26/1997	--		449.49	30.00	38.00	22.98	426.51	17,000	580	120	360	980	<120	--	--
5/15/1997	--		449.49	30.00	38.00	25.40	424.09	18,000	420	63	340	730	<120	--	--
8/26/1997	--		449.49	30.00	38.00	28.38	421.11	5,300	210	26	140	270	<120	--	--
11/5/1997	--		449.49	30.00	38.00	31.93	417.56	560	42	2.6	7	9	<40	--	--
2/18/1998	--		449.49	30.00	38.00	16.87	432.62	18,000	710	120	480	1,100	130	--	--
5/20/1998	--		449.49	30.00	38.00	20.29	429.20	16,000	480	72	440	1,100	<120	--	--
7/30/1998	P		449.49	30.00	38.00	23.51	425.98	9,700	240	33	210	490	<120	9.21	--
10/29/1998	NP		449.49	30.00	38.00	30.08	419.41	58	<0.5	<0.5	<0.5	1.2	<3	1.0	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-2 Cont.</b>															
3/16/1999	P		449.49	30.00	38.00	23.22	426.27	4,700	120	13	90	220	60	2.0	--
5/5/1999	P		449.49	30.00	38.00	24.05	425.44	5,500	58	7.1	58	98	17	9.09	--
8/26/1999	P		449.49	30.00	38.00	26.44	423.05	3,700	55	11	60	64	26	1.9	--
12/3/1999	NP		449.49	30.00	38.00	30.15	419.34	130	<0.5	<0.5	0.7	1.8	<3	1.96	--
3/13/2000	P		449.49	30.00	38.00	20.68	428.81	<50	<0.5	<0.5	<0.5	<1	<3	--	--
6/20/2000	P		449.49	30.00	38.00	23.08	426.41	226	2.2	<0.500	4.83	7.88	<2.50	4.9	--
8/31/2000	P		449.49	30.00	38.00	26.71	422.78	87.1	1.78	<0.500	1.33	1.15	<2.50	1.59	--
2/9/2001	--		449.49	30.00	38.00	29.65	419.84	--	--	--	--	--	--	--	--
9/17/2001	P		449.49	30.00	38.00	27.62	421.87	3,100	300	12	8.8	18	120	1.7	--
1/21/2002	--		449.49	30.00	38.00	27.09	422.40	--	--	--	--	--	--	--	--
7/19/2002	P	a	449.49	30.00	38.00	27.82	421.67	4,700	280	13	120	19	16	0.8	7.4
1/15/2003	--		449.49	30.00	38.00	22.18	427.31	--	--	--	--	--	--	--	--
7/9/2003	--		449.49	30.00	38.00	26.40	423.09	3,900	170	<5.0	100	19	39	2.5	7.0
02/19/2004	--		449.49	30.00	38.00	23.85	425.64	--	--	--	--	--	--	--	--
08/04/2004	P		452.05	30.00	38.00	24.71	427.34	5,400	650	21	160	56	78	0.8	7.2
01/18/2005	--		452.05	30.00	38.00	20.86	431.19	--	--	--	--	--	--	--	--
07/15/2005	P		452.05	30.00	38.00	25.92	426.13	5,200	160	5.3	56	10	46	3.1	6.9
01/10/2006	--		452.05	30.00	38.00	19.25	432.80	--	--	--	--	--	--	--	--
7/21/2006	P		452.05	30.00	38.00	25.73	426.32	120	0.90	<0.50	<0.50	<0.50	<0.50	6.08	8.3
1/17/2007	--		452.05	30.00	38.00	28.70	423.35	--	--	--	--	--	--	--	--
7/18/2007	P		452.05	30.00	38.00	29.07	422.98	2,300	58	2.4	9.5	3.5	45	1.19	7.51
1/15/2008	--		452.05	30.00	38.00	24.65	427.40	--	--	--	--	--	--	--	--
7/7/2008	NP		452.05	30.00	38.00	32.41	419.64	3,600	28	<5.0	<5.0	<5.0	19	2.81	7.24
1/7/2009	--		452.05	30.00	38.00	31.67	420.38	--	--	--	--	--	--	--	--
7/22/2009	--		452.05	30.00	38.00	33.48	418.57	--	--	--	--	--	--	--	--
3/12/2010	--		452.05	30.00	38.00	23.84	428.21	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>P</b>		<b>452.05</b>	<b>30.00</b>	<b>38.00</b>	<b>27.84</b>	<b>424.21</b>	<b>6,200</b>	<b>53</b>	<b>3.8</b>	<b>18</b>	<b>9.5</b>	<b>13</b>	<b>--</b>	<b>6.8</b>
<b>MW-3</b>															
3/20/1995	--		450.28	32.00	40.00	22.19	428.09	94	<0.5	<0.5	<0.5	<0.5	--	--	--
6/2/1995	--		450.28	32.00	40.00	23.28	427.00	72	<0.5	<0.5	<0.5	<0.5	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-3 Cont.</b>															
8/23/1995	--		450.28	32.00	40.00	26.55	423.73	98	<0.5	<0.5	<0.6	0.5	<3	--	--
12/4/1995	--		450.28	32.00	40.00	29.52	420.76	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
2/20/1996	--		450.28	32.00	40.00	19.83	430.45	130	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1996	--		450.28	32.00	40.00	21.03	429.25	120	<0.5	<0.5	<0.5	<0.5	<0.5	--	--
8/13/1996	--		450.28	32.00	40.00	25.67	424.61	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
11/13/1996	--		450.28	32.00	40.00	21.57	428.71	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
3/26/1997	--		450.28	32.00	40.00	24.15	426.13	<50	1.1	<0.5	<0.5	<0.5	<3	--	--
5/15/1997	--		450.28	32.00	40.00	26.85	423.43	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
8/26/1997	--		450.28	32.00	40.00	30.07	420.21	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
11/5/1997	--		450.28	32.00	40.00	32.46	417.82	<50	<0.5	0.7	<0.5	<0.5	<3	--	--
2/18/1998	--		450.28	32.00	40.00	17.82	432.46	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/20/1998	--		450.28	32.00	40.00	21.41	428.87	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
7/30/1998	P		450.28	32.00	40.00	26.41	423.87	<50	<0.5	<0.5	<0.5	<0.5	<3	9.56	--
10/29/1998	P		450.28	32.00	40.00	31.33	418.95	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--
3/16/1999	P		450.28	32.00	40.00	24.61	425.67	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--
5/5/1999	P		450.28	32.00	40.00	25.75	424.53	140	<0.5	<0.5	0.6	<0.5	<3	4.43	--
8/26/1999	P		450.28	32.00	40.00	28.49	421.79	80	0.6	0.6	0.6	1	<3	1.69	--
12/3/1999	P		450.28	32.00	40.00	31.45	418.83	<50	<0.5	<0.5	<0.5	<1	<3	2.26	--
3/13/2000	P		450.28	32.00	40.00	22.18	428.10	<50	<0.5	<0.5	<0.5	<1	<3	4.41	--
6/20/2000	P		450.28	32.00	40.00	26.03	424.25	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	2.3	--
8/31/2000	--		450.28	32.00	40.00	28.75	421.53	--	--	--	--	--	--	--	--
2/9/2001	--		450.28	32.00	40.00	31.04	419.24	--	--	--	--	--	--	--	--
9/17/2001	--		450.28	32.00	40.00	29.04	421.24	--	--	--	--	--	--	--	--
1/21/2002	--		450.28	32.00	40.00	28.81	421.47	--	--	--	--	--	--	--	--
7/19/2002	--		450.28	32.00	40.00	28.92	421.36	--	--	--	--	--	--	--	--
1/15/2003	--		450.28	32.00	40.00	22.88	427.40	--	--	--	--	--	--	--	--
7/9/2003	--		450.28	32.00	40.00	28.00	422.28	--	--	--	--	--	--	--	--
02/19/2004	--		450.28	32.00	40.00	25.29	424.99	--	--	--	--	--	--	--	--
08/04/2004	--		452.75	32.00	40.00	27.40	425.35	--	--	--	--	--	--	--	--
01/18/2005	--		452.75	32.00	40.00	22.76	429.99	--	--	--	--	--	--	--	--
07/15/2005	--		452.75	32.00	40.00	25.95	426.80	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-3 Cont.</b>															
01/10/2006	--		452.75	32.00	40.00	21.18	431.57	--	--	--	--	--	--	--	--
7/21/2006	--		452.75	32.00	40.00	25.73	427.02	--	--	--	--	--	--	--	--
1/17/2007	--		452.75	32.00	40.00	30.51	422.24	--	--	--	--	--	--	--	--
7/18/2007	--		452.75	32.00	40.00	29.53	423.22	--	--	--	--	--	--	--	--
1/15/2008	--		452.75	32.00	40.00	27.65	425.10	--	--	--	--	--	--	--	--
7/7/2008	--		452.75	32.00	40.00	33.38	419.37	--	--	--	--	--	--	--	--
1/7/2009	--		452.75	32.00	40.00	34.09	418.66	--	--	--	--	--	--	--	--
7/22/2009	--		452.75	32.00	40.00	34.98	417.77	--	--	--	--	--	--	--	--
3/12/2010	--		452.75	32.00	40.00	25.89	426.86	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>--</b>		<b>452.75</b>	<b>32.00</b>	<b>40.00</b>	<b>31.13</b>	<b>421.62</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>MW-4</b>															
3/20/1995	--		451.09	26.00	42.00	22.68	428.41	12,000	1,000	100	450	700	--	--	--
6/2/1995	--		451.09	26.00	42.00	24.41	426.68	9,000	850	56	380	430	--	--	--
8/23/1995	--		451.09	26.00	42.00	27.72	423.37	5,300	400	25	240	170	<100	--	--
12/4/1995	--		451.09	26.00	42.00	29.85	421.24	6,700	100	<10	90	38	--	--	--
2/20/1996	--		451.09	26.00	42.00	21.16	429.93	7,000	360	22	180	160	<70	--	--
5/15/1996	--		451.09	26.00	42.00	22.18	428.91	--	--	--	--	--	--	--	--
8/13/1996	--		451.09	26.00	42.00	26.20	424.89	--	--	--	--	--	--	--	--
11/13/1996	--		451.09	26.00	42.00	29.72	421.37	--	--	--	--	--	--	--	--
3/26/1997	--		451.09	26.00	42.00	21.86	429.23	8,900	390	33	200	250	<70	--	--
5/15/1997	--		451.09	26.00	42.00	26.92	424.17	--	--	--	--	--	--	--	--
8/26/1997	--		451.09	26.00	42.00	29.30	421.79	--	--	--	--	--	--	--	--
11/5/1997	--		451.09	26.00	42.00	32.14	418.95	--	--	--	--	--	--	--	--
2/18/1998	--		451.09	26.00	42.00	19.30	431.79	5,300	220	19	160	130	120	--	--
5/20/1998	--		451.09	26.00	42.00	22.40	428.69	--	--	--	--	--	--	--	--
7/30/1998	--		451.09	26.00	42.00	25.74	425.35	--	--	--	--	--	--	--	--
10/29/1998	--		451.09	26.00	42.00	31.26	419.83	--	--	--	--	--	--	--	--
3/16/1999	P		451.09	26.00	42.00	25.05	426.04	1,900	49	<5	43	<5	82	1.5	--
5/5/1999	--		451.09	26.00	42.00	26.15	424.94	--	--	--	--	--	--	--	--
8/26/1999	--		451.09	26.00	42.00	28.60	422.49	--	--	--	--	--	--	1.43	--



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-4 Cont.</b>															
12/3/1999	--		451.09	26.00	42.00	31.53	419.56	--	--	--	--	--	--	--	--
3/13/2000	P		451.09	26.00	42.00	23.61	427.48	<50	<0.5	<0.5	<0.5	<1	<3	3.82	--
6/20/2000	--		451.09	26.00	42.00	26.38	424.71	--	--	--	--	--	--	0.4	--
8/31/2000	NP		451.09	26.00	42.00	29.55	421.54	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	1.04	--
2/9/2001	NP		451.09	26.00	42.00	30.30	420.79	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	1.39	--
9/17/2001	NP		451.09	26.00	42.00	29.90	421.19	3,400	51	<5.0	16	23	360	0.92	--
1/21/2002	NP		451.09	26.00	42.00	29.51	421.58	1,900	140	12	27	48	300	1.03	--
7/19/2002	NP	a	451.09	26.00	42.00	30.77	420.32	2,700	150	9.9	<5.0	<5.0	130	1.0	7.3
1/15/2003	--	a	451.09	26.00	42.00	23.56	427.53	4,800	150	5.3	28	46	150	1.3	7.0
7/9/2003	--		451.09	26.00	42.00	29.50	421.59	3,000	210	9.4	6	20	150	2.0	6.9
02/19/2004	P	c	451.09	26.00	42.00	26.35	424.74	4,800	270	11	25	19	180	1.8	6.2
08/04/2004	NP		453.80	26.00	42.00	26.48	427.32	4,200	410	13	49	59	300	0.7	6.7
01/18/2005	P		453.80	26.00	42.00	23.15	430.65	4,500	250	9.5	62	22	160	1.2	6.9
07/15/2005	NP		453.80	26.00	42.00	28.13	425.67	3,500	230	6.1	19	15	230	0.5	7.0
01/10/2006	P		453.80	26.00	42.00	21.49	432.31	5,500	250	7.6	37	25	190	1.3	7.1
7/21/2006	NP		453.80	26.00	42.00	28.88	424.92	66	0.60	<0.50	0.52	0.82	3.1	4.75	8.3
1/17/2007	NP		453.80	26.00	42.00	30.80	423.00	<50	<0.50	<0.50	<0.50	<0.50	11	6.19	8.03
7/18/2007	NP		453.80	26.00	42.00	32.00	421.80	2,400	140	6.8	1.3	4.1	74	5.03	7.12
1/15/2008	NP	f (MTBE)	453.80	26.00	42.00	27.30	426.50	220	1.2	<0.50	<0.50	0.50	61	3.29	6.94
7/7/2008	NP		453.80	26.00	42.00	34.78	419.02	<50	3.1	<0.50	<0.50	0.66	17	4.03	7.26
1/7/2009	NP		453.80	26.00	42.00	32.59	421.21	110	1.1	<0.50	<0.50	<0.50	37	2.79	7.26
7/22/2009	NP		453.80	26.00	42.00	36.77	417.03	3,000	320	7.8	5.3	16	63	10.82	7.45
3/12/2010	NP		453.80	26.00	42.00	26.38	427.42	1,700	150	4.6	8.3	2.3	43	1.14	7.08
<b>9/9/2010</b>	<b>NP</b>		<b>453.80</b>	<b>26.00</b>	<b>42.00</b>	<b>28.20</b>	<b>425.60</b>	<b>3,300</b>	<b>70</b>	<b>&lt;2.5</b>	<b>3.6</b>	<b>3.6</b>	<b>51</b>	<b>--</b>	<b>6.8</b>
<b>MW-5</b>															
3/20/1995	--		451.40	31.50	41.00	23.20	428.20	26,000	1,300	180	890	2,900	--	--	--
6/2/1995	--		451.40	31.50	41.00	24.80	426.60	39,000	940	160	740	1,900	--	--	--
8/23/1995	--		451.40	31.50	41.00	28.10	423.30	14,000	490	74	250	890	<300	--	--
12/4/1995	--		451.40	31.50	41.00	29.83	421.57	7,600	230	13	61	80	--	--	--
2/20/1996	--		451.40	31.50	41.00	21.63	429.77	4,300	220	12	45	130	<50	--	--

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**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-5 Cont.</b>															
5/15/1996	--		451.40	31.50	41.00	22.87	428.53	2,200	380	17	58	84	<40	--	--
8/13/1996	--		451.40	31.50	41.00	26.48	424.92	1,700	150	16	24	35	47	--	--
11/13/1996	--		451.40	31.50	41.00	29.68	421.72	850	150	11	19	37	66	--	--
3/26/1997	--		451.40	31.50	41.00	25.14	426.26	2,400	440	21	79	210	68	--	--
5/15/1997	--		451.40	31.50	41.00	27.38	424.02	3,900	510	19	140	240	48	--	--
8/26/1997	--		451.40	31.50	41.00	29.89	421.51	76	4.9	<0.5	1.5	2	9	--	--
11/5/1997	--		451.40	31.50	41.00	32.57	418.83	63	0.8	<0.5	<0.5	1.2	34	--	--
2/18/1998	--		451.40	31.50	41.00	19.99	431.41	6,200	630	70	320	640	320	--	--
5/20/1998	--		451.40	31.50	41.00	23.21	428.19	2,300	340	21	110	140	62	--	--
7/30/1998	P		451.40	31.50	41.00	26.19	425.21	<50	0.8	<0.5	0.6	0.9	<3	8.83	--
10/29/1998	NP		451.40	31.50	41.00	31.92	419.48	<50	<0.5	<0.5	<0.5	<0.5	<3	2.0	--
3/16/1999	P		451.40	31.50	41.00	25.80	425.60	1,300	170	8	59	65	120	2.0	--
5/5/1999	P		451.40	31.50	41.00	27.09	424.31	320	31	1.1	13	13	19	12.09	--
8/26/1999	P		451.40	31.50	41.00	29.67	421.73	260	13	1.7	4.2	6.3	150	1.31	--
12/3/1999	--	d	451.40	31.50	41.00	--	--	--	--	--	--	--	--	--	--
3/13/2000	P		451.40	31.50	41.00	24.51	426.89	<50	<0.5	<0.5	<0.5	<1	<3	4.41	--
6/20/2000	P		451.40	31.50	41.00	27.37	424.03	60.8	4.84	<0.500	1.9	1.59	<2.50	5.3	--
8/31/2000	P		451.40	31.50	41.00	30.21	421.19	<50.0	1.18	<0.500	<0.500	<0.500	3.83	0.97	--
2/9/2001	--		451.40	31.50	41.00	30.19	421.21	--	--	--	--	--	--	--	--
9/17/2001	P		451.40	31.50	41.00	30.71	420.69	2,700	120	10	90	77	330	0.81	--
1/21/2002	--		451.40	31.50	41.00	30.40	421.00	--	--	--	--	--	--	--	--
7/19/2002	P	a	451.40	31.50	41.00	31.93	419.47	1,600	170	7	120	<5.0	180	1.7	7.2
1/15/2003	--		451.40	31.50	41.00	23.12	428.28	--	--	--	--	--	--	--	--
7/9/2003	--		451.40	31.50	41.00	30.95	420.45	2,000	160	5.7	67	27	260	1.5	6.9
02/19/2004	--		451.40	31.50	41.00	26.73	424.67	--	--	--	--	--	--	--	--
08/04/2004	P		453.52	31.50	41.00	26.61	426.91	2,100	250	5.3	73	22	250	2.7	7.0
01/18/2005	--		453.52	31.50	41.00	24.10	429.42	--	--	--	--	--	--	--	--
07/15/2005	P		453.52	31.50	41.00	29.27	424.25	1,600	61	<5.0	8.7	<5.0	270	2.1	6.9
01/10/2006	--		453.52	31.50	41.00	22.19	431.33	--	--	--	--	--	--	--	--
7/21/2006	P		453.52	31.50	41.00	30.36	423.16	2,100	29	<5.0	7.5	11	14	2.98	7.1
1/17/2007	--		453.52	31.50	41.00	31.77	421.75	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-5 Cont.</b>															
7/18/2007	NP		453.52	31.50	41.00	33.42	420.10	470	36	0.84	0.97	2.2	110	1.73	7.50
1/15/2008	--		453.52	31.50	41.00	28.60	424.92	--	--	--	--	--	--	--	--
7/7/2008	NP		453.52	31.50	41.00	35.80	417.72	<50	<0.50	<0.50	<0.50	<0.50	<0.50	7.55	7.79
1/7/2009	--		453.52	31.50	41.00	33.14	420.38	--	--	--	--	--	--	--	--
7/22/2009	NP		453.52	31.50	41.00	37.84	415.68	100	3.0	<0.50	<0.50	<0.50	12	12.34	7.24
3/12/2010	--		453.52	31.50	41.00	27.29	426.23	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>P</b>		<b>453.52</b>	<b>31.50</b>	<b>41.00</b>	<b>28.96</b>	<b>424.56</b>	<b>1,000</b>	<b>18</b>	<b>1.4</b>	<b>0.55</b>	<b>3.2</b>	<b>10</b>	<b>--</b>	<b>6.9</b>
<b>MW-6</b>															
3/20/1995	--		451.37	32.00	42.00	25.19	426.18	2,600	210	87	82	140	--	--	--
6/2/1995	--		451.37	32.00	42.00	25.75	425.62	1,600	55	7.9	40	26	--	--	--
8/23/1995	--		451.37	32.00	42.00	29.53	421.84	1,400	42	2.5	36	13	<20	--	--
12/4/1995	--		451.37	32.00	42.00	32.28	419.09	2,500	52	5.8	59	13	--	--	--
2/20/1996	--		451.37	32.00	42.00	22.27	429.10	2,500	120	16	73	12	<30	--	--
5/15/1996	--		451.37	32.00	42.00	23.86	427.51	2,000	71	6.4	47	25	<15	--	--
8/13/1996	--		451.37	32.00	42.00	28.55	422.82	3,800	91	8.2	69	25	<20	--	--
11/13/1996	--		451.37	32.00	42.00	32.04	419.33	1,900	55	3.3	55	8.5	16	--	--
3/26/1997	--		451.37	32.00	42.00	26.84	424.53	1,800	51	5	32	15	<30	--	--
5/15/1997	--		451.37	32.00	42.00	29.58	421.79	2,400	46	3	29	9	<12	--	--
8/26/1997	--		451.37	32.00	42.00	32.67	418.70	1,400	61	6	33	10	<12	--	--
11/5/1997	--		451.37	32.00	42.00	34.62	416.75	690	29	2.7	18	3.4	9	--	--
2/18/1998	--		451.37	32.00	42.00	20.09	431.28	1,800	74	5	24	12	19	--	--
5/20/1998	--		451.37	32.00	42.00	24.05	427.32	1,900	280	4	31	16	9	--	--
7/30/1998	P		451.37	32.00	42.00	28.72	422.65	2,300	110	7	36	20	<15	--	--
10/29/1998	P		451.37	32.00	42.00	32.77	418.60	2,500	14	13	17	12	<12	1.0	--
3/16/1999	P		451.37	32.00	42.00	26.45	424.92	1,200	65	4	27	13	18	0.5	--
5/5/1999	P		451.37	32.00	42.00	27.86	423.51	2,200	53	4	26	6	25	5.59	--
8/26/1999	P		451.37	32.00	42.00	30.49	420.88	1,100	11	6	10	4	13	2.35	--
12/3/1999	P		451.37	32.00	42.00	32.35	419.02	370	<0.5	<0.5	0.8	<1	4	2.36	--
3/13/2000	P		451.37	32.00	42.00	28.36	423.01	54	2.1	0.5	0.9	1.4	<3	4.22	--
6/20/2000	P		451.37	32.00	42.00	28.35	423.02	195	1.83	<0.500	0.528	<0.500	<2.50	3.5	--

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

**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-6 Cont.</b>															
8/31/2000	P		451.37	32.00	42.00	30.20	421.17	276	3.52	0.788	1.15	0.621	8.73	7.0	--
2/9/2001	--	b	451.37	32.00	42.00	--	--	222	4.49	2.73	0.579	0.523	57.1	--	--
2/9/2001	P		451.37	32.00	42.00	30.70	420.67	253	5.44	2.93	0.924	0.977	48.9	0.59	--
9/17/2001	--	b	451.37	32.00	42.00	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--
9/17/2001	P		451.37	32.00	42.00	30.94	420.43	<50	<0.50	<0.50	<0.50	<0.50	<2.5	2.79	--
1/21/2002	P		451.37	32.00	42.00	30.55	420.82	<50	<0.50	<0.50	<0.50	<0.50	<5.0	1.9	--
7/19/2002	P	a	451.37	32.00	42.00	30.27	421.10	60	2	<0.50	<0.50	<0.50	<0.50	3.5	7.9
1/15/2003	--	a	451.37	32.00	42.00	22.86	428.51	83	9.1	<0.50	3.4	4.6	1	2.5	7.2
7/9/2003	P		451.37	32.00	42.00	29.41	421.96	110	<0.50	<0.50	<0.50	<0.50	0.98	2.6	7.1
02/19/2004	--		451.37	32.00	42.00	43.25	408.12	--	--	--	--	--	--	--	--
08/04/2004	P		453.83	32.00	42.00	27.71	426.12	540	36	3.8	17	24	5.2	3.5	7.1
01/18/2005	--		453.83	32.00	42.00	24.56	429.27	--	--	--	--	--	--	--	--
07/15/2005	P		453.83	32.00	42.00	27.61	426.22	4,600	210	44	150	670	32	3.5	7.1
01/10/2006	--		453.83	32.00	42.00	23.75	430.08	--	--	--	--	--	--	--	--
7/21/2006	P		453.83	32.00	42.00	27.96	425.87	260	<0.50	<0.50	<0.50	0.86	5.1	2.60	7.2
1/17/2007	--		453.83	32.00	42.00	30.57	423.26	--	--	--	--	--	--	--	--
7/18/2007	P		453.83	32.00	42.00	30.96	422.87	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.95	7.57
1/15/2008	--		453.83	32.00	42.00	28.89	424.94	--	--	--	--	--	--	--	--
7/7/2008	NP		453.83	32.00	42.00	34.57	419.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.00	7.19
1/7/2009	--		453.83	32.00	42.00	34.75	419.08	--	--	--	--	--	--	--	--
7/22/2009	NP		453.83	32.00	42.00	35.84	417.99	<50	<0.50	<0.50	<0.50	<0.50	<0.50	16.67	7.68
3/12/2010	--		453.83	32.00	42.00	27.89	425.94	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>NP</b>		<b>453.83</b>	<b>32.00</b>	<b>42.00</b>	<b>33.06</b>	<b>420.77</b>	<b>&lt;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>--</b>	<b>7.2</b>
<b>MW-7</b>															
3/20/1995	--		450.33	30.00	40.00	22.07	428.26	31,000	2,300	400	620	2,900	--	--	--
6/2/1995	--		450.33	30.00	40.00	23.42	426.91	40,000	1,400	280	610	2,400	--	--	--
8/23/1995	--		450.33	30.00	40.00	27.13	423.20	25,000	1,400	200	600	1,600	350	--	--
12/4/1995	--		450.33	30.00	40.00	29.45	420.88	23,000	1,100	74	490	720	--	--	--
2/20/1996	--		450.33	30.00	40.00	20.25	430.08	39,000	1,200	140	640	1,800	<400	--	--
5/15/1996	--		450.33	30.00	40.00	21.38	428.95	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-7 Cont.</b>															
8/13/1996	--		450.33	30.00	40.00	25.52	424.81	--	--	--	--	--	--	--	--
11/13/1996	--		450.33	30.00	40.00	29.38	420.95	--	--	--	--	--	--	--	--
3/26/1997	--		450.33	30.00	40.00	24.36	425.97	35,000	1,100	180	460	1,700	<300	--	--
5/15/1997	--		450.33	30.00	40.00	26.90	423.43	--	--	--	--	--	--	--	--
8/26/1997	--		450.33	30.00	40.00	30.21	420.12	--	--	--	--	--	--	--	--
11/5/1997	--		450.33	30.00	40.00	32.49	417.84	--	--	--	--	--	--	--	--
2/18/1998	--		450.33	30.00	40.00	18.10	432.23	19,000	1,100	120	460	1,700	240	--	--
5/20/1998	--		450.33	30.00	40.00	21.68	428.65	--	--	--	--	--	--	--	--
7/30/1998	--		450.33	30.00	40.00	26.07	424.26	--	--	--	--	--	--	--	--
10/29/1998	--		450.33	30.00	40.00	31.13	419.20	--	--	--	--	--	--	--	--
3/16/1999	P		450.33	30.00	40.00	24.45	425.88	8,600	430	51	200	680	<120	1.5	--
5/5/1999	--		450.33	30.00	40.00	25.84	424.49	--	--	--	--	--	--	--	--
8/26/1999	--		450.33	30.00	40.00	28.28	422.05	--	--	--	--	--	--	1.51	--
12/3/1999	--		450.33	30.00	40.00	31.57	418.76	--	--	--	--	--	--	--	--
3/13/2000	--	d	450.33	30.00	40.00	--	--	--	--	--	--	--	--	--	--
6/20/2000	--		450.33	30.00	40.00	25.91	424.42	--	--	--	--	--	--	5.4	--
8/31/2000	--		450.33	30.00	40.00	28.40	421.93	8,410	344	58.9	276	581	202	0.09	--
2/9/2001	--		450.33	30.00	40.00	30.04	420.29	2,030	203	12	17.9	49.4	128	1.55	--
9/17/2001	P		450.33	30.00	40.00	29.03	421.30	4,800	200	14	9.9	27	160	0.29	--
1/21/2002	P		450.33	30.00	40.00	28.98	421.35	4,200	350	20	52	63	99	0.81	--
1/21/2002	--	b	450.33	30.00	40.00	--	--	2,600	280	17	41	50	97	--	--
7/19/2002	P	a	450.33	30.00	40.00	28.70	421.63	5,700	630	31	330	160	64	0.7	7.3
1/15/2003	--	a	450.33	30.00	40.00	21.91	428.42	12,000	470	19	340	310	91	1.5	7.0
7/9/2003	P		450.33	30.00	40.00	27.88	422.45	6,700	590	23	280	92	110	1.0	6.9
02/19/2004	P	c	450.33	30.00	40.00	25.12	425.21	8,900	670	24	470	120	100	0.8	6.6
08/04/2004	P		452.70	30.00	40.00	25.92	426.78	9,100	930	29	460	130	140	0.6	7.2
01/18/2005	P		452.70	30.00	40.00	22.31	430.39	16,000	770	33	590	220	87	1.0	6.9
07/15/2005	P		452.70	30.00	40.00	27.20	425.50	12,000	1,000	38	490	220	150	1.5	6.9
01/10/2006	P		452.70	30.00	40.00	20.61	432.09	13,000	1,200	50	760	330	120	0.8	7.1
7/21/2006	P		452.70	30.00	40.00	28.10	424.60	8,000	110	<50	380	180	54	3.20	7.8
1/17/2007	P		452.70	30.00	40.00	29.70	423.00	5,600	16	<2.5	26	12	3.1	1.08	7.83



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-7 Cont.</b>															
7/18/2007	P		452.70	30.00	40.00	29.73	422.97	2,400	140	2.8	9.1	7.3	67	4.86	7.67
1/15/2008	P		452.70	30.00	40.00	26.18	426.52	3,500	120	3.6	9.0	29	26	3.16	7.07
7/7/2008	NP		452.70	30.00	40.00	33.10	419.60	70	0.76	<0.50	<0.50	<0.50	0.69	7.81	8.24
1/7/2009	NP		452.70	30.00	40.00	33.21	419.49	<50	1.5	<0.50	<0.50	<0.50	<0.50	3.00	7.73
7/22/2009	NP		452.70	30.00	40.00	34.54	418.16	<50	<0.50	<0.50	<0.50	<0.50	0.53	11.95	7.65
3/12/2010	P		452.70	30.00	40.00	25.46	427.24	2,600	36	1.0	14	9.1	11	0.42	8.07
<b>9/9/2010</b>	<b>NP</b>		<b>452.70</b>	<b>30.00</b>	<b>40.00</b>	<b>30.10</b>	<b>422.60</b>	<b>2,800</b>	<b>430</b>	<b>11</b>	<b>32</b>	<b>46</b>	<b>110</b>	<b>--</b>	<b>--</b>
<b>MW-8</b>															
3/20/1995	--		449.43	27.50	42.50	24.75	424.68	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
6/2/1995	--		449.43	27.50	42.50	24.95	424.48	--	--	--	--	--	--	--	--
8/23/1995	--		449.43	27.50	42.50	30.94	418.49	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
12/4/1995	--		449.43	27.50	42.50	31.99	417.44	--	--	--	--	--	--	--	--
2/20/1996	--		449.43	27.50	42.50	21.13	428.30	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1996	--		449.43	27.50	42.50	21.96	427.47	--	--	--	--	--	--	--	--
8/13/1996	--		449.43	27.50	42.50	30.20	419.23	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
11/13/1996	--		449.43	27.50	42.50	33.24	416.19	--	--	--	--	--	--	--	--
3/26/1997	--		449.43	27.50	42.50	26.85	422.58	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1997	--		449.43	27.50	42.50	29.69	419.74	--	--	--	--	--	--	--	--
8/26/1997	--		449.43	27.50	42.50	34.00	415.43	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
11/5/1997	--		449.43	27.50	42.50	35.94	413.49	--	--	--	--	--	--	--	--
2/18/1998	--		449.43	27.50	42.50	18.18	431.25	<50	0.6	0.6	<0.5	1.1	<3	--	--
5/20/1998	--		449.43	27.50	42.50	22.85	426.58	--	--	--	--	--	--	--	--
7/30/1998	NP		449.43	27.50	42.50	30.31	419.12	<50	<0.5	<0.5	<0.5	<0.5	<3	8.21	--
10/29/1998	--		449.43	27.50	42.50	35.88	413.55	--	--	--	--	--	--	--	--
3/16/1999	NP		449.43	27.50	42.50	28.50	420.93	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--
5/5/1999	--		449.43	27.50	42.50	29.76	419.67	--	--	--	--	--	--	--	--
8/26/1999	P		449.43	27.50	42.50	33.51	415.92	<50	<0.5	<0.5	<0.5	<0.5	<3	4.93	--
12/3/1999	--		449.43	27.50	42.50	35.83	413.60	--	--	--	--	--	--	--	--
3/13/2000	P		449.43	27.50	42.50	26.12	423.31	<50	<0.5	<0.5	<0.5	<1	<3	2.81	--
6/20/2000	--		449.43	27.50	42.50	30.91	418.52	--	--	--	--	--	--	5.8	--

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

**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-8 Cont.</b>															
8/31/2000	--		449.43	27.50	42.50	33.70	415.73	--	--	--	--	--	--	--	--
2/9/2001	--		449.43	27.50	42.50	30.90	418.53	--	--	--	--	--	--	--	--
9/17/2001	--		449.43	27.50	42.50	33.95	415.48	--	--	--	--	--	--	--	--
1/21/2002	--		449.43	27.50	42.50	33.71	415.72	--	--	--	--	--	--	--	--
7/19/2002	--		449.43	27.50	42.50	35.30	414.13	--	--	--	--	--	--	--	--
1/15/2003	--		449.43	27.50	42.50	27.10	422.33	--	--	--	--	--	--	--	--
7/9/2003	--		449.43	27.50	42.50	33.10	416.33	--	--	--	--	--	--	--	--
02/19/2004	--		449.43	27.50	42.50	28.92	420.51	--	--	--	--	--	--	--	--
08/04/2004	--		451.80	27.50	42.50	34.28	417.52	--	--	--	--	--	--	--	--
01/18/2005	--		451.80	27.50	42.50	26.76	425.04	--	--	--	--	--	--	--	--
07/15/2005	--		451.80	27.50	42.50	31.14	420.66	--	--	--	--	--	--	--	--
01/10/2006	--		451.80	27.50	42.50	22.88	428.92	--	--	--	--	--	--	--	--
7/21/2006	--		451.80	27.50	42.50	30.84	420.96	--	--	--	--	--	--	--	--
1/17/2007	--		451.80	27.50	42.50	33.20	418.60	--	--	--	--	--	--	--	--
7/18/2007	--		451.80	27.50	42.50	31.92	419.88	--	--	--	--	--	--	--	--
1/15/2008	--		451.80	27.50	42.50	31.52	420.28	--	--	--	--	--	--	--	--
7/7/2008	--		451.80	27.50	42.50	36.32	415.48	--	--	--	--	--	--	--	--
1/7/2009	--		451.80	27.50	42.50	40.52	411.28	--	--	--	--	--	--	--	--
7/22/2009	--		451.80	27.50	42.50	40.38	411.42	--	--	--	--	--	--	--	--
3/12/2010	--		451.80	27.50	42.50	31.48	420.32	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>--</b>		<b>451.80</b>	<b>27.50</b>	<b>42.50</b>	<b>35.28</b>	<b>416.52</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>MW-9</b>															
3/20/1995	--		449.21	29.50	39.50	19.11	430.10	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
6/2/1995	--		449.21	29.50	39.50	21.23	427.98	--	--	--	--	--	--	--	--
8/23/1995	--		449.21	29.50	39.50	24.33	424.88	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
12/4/1995	--		449.21	29.50	39.50	27.90	421.31	--	--	--	--	--	--	--	--
2/20/1996	--		449.21	29.50	39.50	17.86	431.35	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1996	--		449.21	29.50	39.50	18.69	430.52	--	--	--	--	--	--	--	--
8/13/1996	--		449.21	29.50	39.50	24.17	425.04	--	--	--	--	--	--	--	--
11/13/1996	--		449.21	29.50	39.50	28.01	421.20	--	--	--	--	--	--	--	--

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

**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-9 Cont.</b>															
3/26/1997	--		449.21	29.50	39.50	22.58	426.63	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1997	--		449.21	29.50	39.50	25.12	424.09	--	--	--	--	--	--	--	--
8/26/1997	--		449.21	29.50	39.50	28.28	420.93	--	--	--	--	--	--	--	--
11/5/1997	--		449.21	29.50	39.50	31.18	418.03	--	--	--	--	--	--	--	--
2/18/1998	--		449.21	29.50	39.50	16.03	433.18	<50	0.6	0.5	<0.5	1	<3	--	--
5/20/1998	--		449.21	29.50	39.50	19.31	429.90	--	--	--	--	--	--	--	--
7/30/1998	--		449.21	29.50	39.50	24.90	424.31	--	--	--	--	--	--	--	--
10/29/1998	--		449.21	29.50	39.50	30.08	419.13	--	--	--	--	--	--	--	--
3/16/1999	P		449.21	29.50	39.50	22.68	426.53	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--
5/5/1999	--		449.21	29.50	39.50	23.82	425.39	--	--	--	--	--	--	--	--
8/26/1999	--		449.21	29.50	39.50	26.57	422.64	--	--	--	--	--	--	5.08	--
12/3/1999	--	d	449.21	29.50	39.50	--	--	--	--	--	--	--	--	--	--
3/13/2000	P		449.21	29.50	39.50	25.62	423.59	<50	<0.5	<0.5	<0.5	<1	<3	5.43	--
6/20/2000	--		449.21	29.50	39.50	23.55	425.66	--	--	--	--	--	--	6.2	--
8/31/2000	--		449.21	29.50	39.50	27.39	421.82	--	--	--	--	--	--	--	--
2/9/2001	--		449.21	29.50	39.50	28.65	420.56	--	--	--	--	--	--	--	--
9/17/2001	--		449.21	29.50	39.50	27.51	421.70	--	--	--	--	--	--	--	--
1/21/2002	--		449.21	29.50	39.50	27.09	422.12	--	--	--	--	--	--	--	--
7/19/2002	--		449.21	29.50	39.50	27.06	422.15	--	--	--	--	--	--	--	--
1/15/2003	--		449.21	29.50	39.50	21.78	427.43	--	--	--	--	--	--	--	--
7/9/2003	--		449.21	29.50	39.50	26.18	423.03	--	--	--	--	--	--	--	--
02/19/2004	--		449.21	29.50	39.50	23.45	425.76	--	--	--	--	--	--	--	--
08/04/2004	--		451.63	29.50	39.50	29.24	422.39	--	--	--	--	--	--	--	--
01/18/2005	--		451.63	29.50	39.50	20.64	430.99	--	--	--	--	--	--	--	--
07/15/2005	--		451.63	29.50	39.50	25.72	425.91	--	--	--	--	--	--	--	--
01/10/2006	--		451.63	29.50	39.50	18.86	432.77	--	--	--	--	--	--	--	--
7/21/2006	--		451.63	29.50	39.50	25.58	426.05	--	--	--	--	--	--	--	--
1/17/2007	--		451.63	29.50	39.50	29.11	422.52	--	--	--	--	--	--	--	--
7/18/2007	--	d	451.63	29.50	39.50	--	--	--	--	--	--	--	--	--	--
1/15/2008	--		451.63	29.50	39.50	24.89	426.74	--	--	--	--	--	--	--	--
7/7/2008	--		451.63	29.50	39.50	32.06	419.57	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-9 Cont.</b>															
1/7/2009	--		451.63	29.50	39.50	32.65	418.98	--	--	--	--	--	--	--	--
7/22/2009	--		451.63	29.50	39.50	33.74	417.89	--	--	--	--	--	--	--	--
3/12/2010	--		451.63	29.50	39.50	23.44	428.19	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>--</b>		<b>451.63</b>	<b>29.50</b>	<b>39.50</b>	<b>29.56</b>	<b>422.07</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>MW-10</b>															
3/20/1995	--		449.22	29.00	37.00	20.96	428.26	--	--	--	--	--	--	--	--
6/2/1995	--		449.22	29.00	37.00	22.15	427.07	--	--	--	--	--	--	--	--
8/23/1995	--		449.22	29.00	37.00	24.47	424.75	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
12/4/1995	--		449.22	29.00	37.00	26.97	422.25	--	--	--	--	--	--	--	--
2/20/1996	--		449.22	29.00	37.00	18.40	430.82	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1996	--	d	449.22	29.00	37.00	--	--	--	--	--	--	--	--	--	--
8/13/1996	--		449.22	29.00	37.00	23.70	425.52	--	--	--	--	--	--	--	--
11/13/1996	--		449.22	29.00	37.00	27.15	422.07	--	--	--	--	--	--	--	--
3/26/1997	--		449.22	29.00	37.00	22.23	426.99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1997	--		449.22	29.00	37.00	24.57	424.65	--	--	--	--	--	--	--	--
8/26/1997	--		449.22	29.00	37.00	27.62	421.60	--	--	--	--	--	--	--	--
11/5/1997	--		449.22	29.00	37.00	30.79	418.43	--	--	--	--	--	--	--	--
2/18/1998	--	d	449.22	29.00	37.00	--	--	--	--	--	--	--	--	--	--
5/20/1998	--		449.22	29.00	37.00	--	--	--	--	--	--	--	--	--	--
7/30/1998	--		449.22	29.00	37.00	23.90	425.32	--	--	--	--	--	--	--	--
10/29/1998	--		449.22	29.00	37.00	30.55	418.67	--	--	--	--	--	--	--	--
3/16/1999	P		449.22	29.00	37.00	23.05	426.17	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--
5/5/1999	--		449.22	29.00	37.00	24.00	425.22	--	--	--	--	--	--	--	--
8/26/1999	--		449.22	29.00	37.00	26.50	422.72	--	--	--	--	--	--	5.15	--
12/3/1999	--		449.22	29.00	37.00	30.80	418.42	--	--	--	--	--	--	--	--
3/13/2000	--	d	449.22	29.00	37.00	26.21	423.01	--	--	--	--	--	--	--	--
6/20/2000	--		449.22	29.00	37.00	23.52	425.70	--	--	--	--	--	--	5.5	--
8/31/2000	--		449.22	29.00	37.00	27.52	421.70	--	--	--	--	--	--	--	--
2/9/2001	--		449.22	29.00	37.00	28.71	420.51	--	--	--	--	--	--	--	--
9/17/2001	--		449.22	29.00	37.00	27.94	421.28	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-10 Cont.</b>															
1/21/2002	--		449.22	29.00	37.00	27.44	421.78	--	--	--	--	--	--	--	--
7/19/2002	--		449.22	29.00	37.00	27.80	421.42	--	--	--	--	--	--	--	--
1/15/2003	--		449.22	29.00	37.00	23.09	426.13	--	--	--	--	--	--	--	--
7/9/2003	--		449.22	29.00	37.00	26.87	422.35	--	--	--	--	--	--	--	--
02/19/2004	--		449.22	29.00	37.00	23.39	425.83	--	--	--	--	--	--	--	--
01/18/2005	--		451.65	29.00	37.00	21.40	430.25	--	--	--	--	--	--	--	--
07/15/2005	--		451.65	29.00	37.00	25.37	426.28	--	--	--	--	--	--	--	--
01/10/2006	--		451.65	29.00	37.00	19.81	431.84	--	--	--	--	--	--	--	--
7/21/2006	--		451.65	29.00	37.00	25.16	426.49	--	--	--	--	--	--	--	--
1/17/2007	--		451.65	29.00	37.00	28.95	422.70	--	--	--	--	--	--	--	--
7/18/2007	--	d	451.65	29.00	37.00	--	--	--	--	--	--	--	--	--	--
1/15/2008	--		451.65	29.00	37.00	24.62	427.03	--	--	--	--	--	--	--	--
7/7/2008	--	d	451.65	29.00	37.00	--	--	--	--	--	--	--	--	--	--
1/7/2009	--	d	451.65	29.00	37.00	--	--	--	--	--	--	--	--	--	--
7/22/2009	--	Dry	451.65	29.00	37.00	--	--	--	--	--	--	--	--	--	--
3/12/2010	--		451.65	29.00	37.00	24.13	427.52	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>--</b>		<b>451.65</b>	<b>29.00</b>	<b>37.00</b>	<b>27.91</b>	<b>423.74</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>MW-11</b>															
3/20/1995	--		448.02	29.00	39.00	25.02	423.00	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
6/2/1995	--		448.02	29.00	39.00	23.82	424.20	--	--	--	--	--	--	--	--
8/23/1995	--		448.02	29.00	39.00	30.15	417.87	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
12/4/1995	--		448.02	29.00	39.00	31.63	416.39	--	--	--	--	--	--	--	--
2/20/1996	--		448.02	29.00	39.00	20.94	427.08	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1996	--		448.02	29.00	39.00	23.03	424.99	--	--	--	--	--	--	--	--
8/13/1996	--		448.02	29.00	39.00	29.19	418.83	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
11/13/1996	--		448.02	29.00	39.00	31.96	416.06	--	--	--	--	--	--	--	--
3/26/1997	--		448.02	29.00	39.00	26.61	421.41	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
5/15/1997	--		448.02	29.00	39.00	29.39	418.63	--	--	--	--	--	--	--	--
8/26/1997	--		448.02	29.00	39.00	33.47	414.55	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
11/5/1997	--		448.02	29.00	39.00	35.12	412.90	--	--	--	--	--	--	--	--



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

**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-11 Cont.</b>															
2/18/1998	--		448.02	29.00	39.00	18.03	429.99	<50	<0.5	<0.5	<0.5	1	<3	--	--
5/20/1998	--		448.02	29.00	39.00	23.00	425.02	--	--	--	--	--	--	--	--
7/30/1998	P		448.02	29.00	39.00	29.30	418.72	<50	<0.5	<0.5	<0.5	<0.5	<3	5.59	--
10/29/1998	--		448.02	29.00	39.00	34.47	413.55	--	--	--	--	--	--	--	--
3/16/1999	P		448.02	29.00	39.00	27.88	420.14	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--
5/5/1999	--		448.02	29.00	39.00	26.85	421.17	--	--	--	--	--	--	--	--
8/26/1999	P		448.02	29.00	39.00	32.74	415.28	<50	<0.5	<0.5	<0.5	<0.5	<3	4.59	--
12/3/1999	--		448.02	29.00	39.00	34.70	413.32	--	--	--	--	--	--	--	--
3/13/2000	P		448.02	29.00	39.00	25.94	422.08	<50	<0.5	<0.5	<0.5	<1	<3	3.21	--
6/20/2000	--		448.02	29.00	39.00	30.40	417.62	--	--	--	--	--	--	3.3	--
8/31/2000	NP		448.02	29.00	39.00	32.68	415.34	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.4	--
8/31/2000	--	b	448.02	29.00	39.00	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--
2/9/2001	--		448.02	29.00	39.00	31.17	416.85	--	--	--	--	--	--	--	--
9/17/2001	NP		448.02	29.00	39.00	32.98	415.04	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.62	--
1/21/2002	--		448.02	29.00	39.00	31.05	416.97	--	--	--	--	--	--	--	--
7/19/2002	P		448.02	29.00	39.00	31.67	416.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.7	7.7
1/15/2003	--		448.02	29.00	39.00	23.75	424.27	--	--	--	--	--	--	--	--
7/9/2003	P		448.02	29.00	39.00	31.06	416.96	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.4	6.6
02/19/2004	--		448.02	29.00	39.00	27.21	420.81	--	--	--	--	--	--	--	--
08/04/2004	P		450.41	29.00	39.00	31.71	418.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.3	7.1
01/18/2005	--		450.41	29.00	39.00	24.80	425.61	--	--	--	--	--	--	--	--
07/15/2005	P		450.41	29.00	39.00	29.15	421.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.7	7.1
01/10/2006	--		450.41	29.00	39.00	20.87	429.54	--	--	--	--	--	--	--	--
7/21/2006	P		450.41	29.00	39.00	29.30	421.11	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.7	7.2
1/17/2007	--		450.41	29.00	39.00	31.59	418.82	--	--	--	--	--	--	--	--
7/18/2007	NP		450.41	29.00	39.00	29.22	421.19	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.35	7.12
1/15/2008	--		450.41	29.00	39.00	29.12	421.29	--	--	--	--	--	--	--	--
7/7/2008	NP		450.41	29.00	39.00	34.21	416.20	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.08	7.94
1/7/2009	--		450.41	29.00	39.00	37.45	412.96	--	--	--	--	--	--	--	--
7/22/2009	NP		450.41	29.00	39.00	37.33	413.08	<50	<0.50	<0.50	<0.50	<0.50	<0.50	15.97	7.81
3/12/2010	--		450.41	29.00	39.00	28.47	421.94	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>MW-11 Cont.</b>															
9/9/2010	NP		450.41	29.00	39.00	33.03	417.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.2
<b>RW-1</b>															
3/20/1995	--		451.67	25.50	40.50	23.76	427.91	15,000	1,000	140	310	950	--	--	--
6/2/1995	--		451.67	25.50	40.50	25.12	426.55	12,000	1,300	280	420	1,100	--	--	--
8/23/1995	--		451.67	25.50	40.50	28.80	422.87	8,200	520	190	240	610	<50	--	--
12/4/1995	--		451.67	25.50	40.50	31.15	420.52	2,600	140	59	83	210	--	--	--
2/20/1996	--		451.67	25.50	40.50	21.45	430.22	6,300	410	160	180	650	<40	--	--
5/15/1996	--		451.67	25.50	40.50	22.97	428.70	--	--	--	--	--	--	--	--
8/13/1996	--		451.67	25.50	40.50	24.74	426.93	--	--	--	--	--	--	--	--
11/13/1996	--		451.67	25.50	40.50	30.69	420.98	--	--	--	--	--	--	--	--
3/26/1997	--		451.67	25.50	40.50	25.69	425.98	500	57	3	6.4	18	54	--	--
5/15/1997	--		451.67	25.50	40.50	28.19	423.48	--	--	--	--	--	--	--	--
8/26/1997	--		451.67	25.50	40.50	31.21	420.46	--	--	--	--	--	--	--	--
11/5/1997	--		451.67	25.50	40.50	33.67	418.00	--	--	--	--	--	--	--	--
2/18/1998	--		451.67	25.50	40.50	20.14	431.53	9,400	200	70	190	710	<60	--	--
5/20/1998	--		451.67	25.50	40.50	23.43	428.24	--	--	--	--	--	--	--	--
7/30/1998	--		451.67	25.50	40.50	27.42	424.25	--	--	--	--	--	--	--	--
10/29/1998	--		451.67	25.50	40.50	32.47	419.20	--	--	--	--	--	--	--	--
3/16/1999	NP		451.67	25.50	40.50	25.45	426.22	1,100	140	19	45	83	530	1.0	--
5/5/1999	--		451.67	25.50	40.50	27.23	424.44	--	--	--	--	--	--	--	--
8/26/1999	--		451.67	25.50	40.50	29.98	421.69	--	--	--	--	--	--	1.39	--
12/3/1999	--		451.67	25.50	40.50	32.38	419.29	--	--	--	--	--	--	--	--
3/13/2000	NP		451.67	25.50	40.50	25.53	426.14	1,100	130	3.5	0.7	95	230	4.43	--
6/20/2000	--		451.67	25.50	40.50	28.31	423.36	--	--	--	--	--	--	1.9	--
8/31/2000	NP		451.67	25.50	40.50	30.61	421.06	<50.0	<0.500	<0.500	<0.500	<0.500	82.5	3.21	--
2/9/2001	NP		451.67	25.50	40.50	31.14	420.53	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.84	--
9/17/2001	NP		451.67	25.50	40.50	31.70	419.97	<50	<0.50	<0.50	<0.50	<0.50	<2.5	1.51	--
1/21/2002	NP		451.67	25.50	40.50	30.15	421.52	<50	7.7	<0.50	<0.50	1.5	18	0.63	--
7/19/2002	NP		451.67	25.50	40.50	31.15	420.52	<50	<0.50	<0.50	<0.50	<0.50	13	1.4	6.6
1/15/2003	--	a	451.67	25.50	40.50	22.20	429.47	860	9	1.6	17	42	1.5	2.8	7.2

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>RW-1 Cont.</b>															
7/9/2003	--		451.67	25.50	40.50	29.56	422.11	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	7.1
02/19/2004	NP	c	451.67	25.50	40.50	23.53	428.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.4	6.7
08/04/2004	P		454.11	25.50	40.50	22.45	431.66	600	<0.50	<0.50	3.3	3.4	<0.50	4.4	7.2
01/18/2005	P		454.11	25.50	40.50	23.57	430.54	1,400	8.0	1.9	22	68	<0.50	3.6	6.9
07/15/2005	NP		454.11	25.50	40.50	29.02	425.09	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.1	7.8
01/10/2006	P		454.11	25.50	40.50	21.88	432.23	480	4.3	0.67	8.3	18	0.54	4.4	7.1
7/21/2006	--	d	454.11	25.50	40.50	--	--	--	--	--	--	--	--	--	--
1/17/2007	P		454.11	25.50	40.50	31.48	422.63	6,900	17	2.8	22	31	2.6	4.08	7.74
7/18/2007	NP		454.11	25.50	40.50	32.45	421.66	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.33	7.48
1/15/2008	NP		454.11	25.50	40.50	28.39	425.72	<50	<0.50	<0.50	<0.50	<0.50	8.3	2.73	6.87
7/7/2008	NP		454.11	25.50	40.50	35.19	418.92	<50	<0.50	<0.50	<0.50	<0.50	0.53	2.51	7.05
1/7/2009	NP		454.11	25.50	40.50	33.31	420.80	120	0.96	<0.50	<0.50	<0.50	1.6	2.13	6.84
7/22/2009	NP		454.11	25.50	40.50	36.15	417.96	<50	<0.50	<0.50	<0.50	<0.50	0.84	10.39	7.40
3/12/2010	P		454.11	25.50	40.50	25.01	429.10	240	15	<0.50	<0.50	<0.50	2.7	0.78	7.06
<b>9/9/2010</b>	<b>NP</b>		<b>454.11</b>	<b>25.50</b>	<b>40.50</b>	<b>31.01</b>	<b>423.10</b>	<b>440</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>0.53</b>	<b>1.9</b>	<b>--</b>	<b>7.3</b>
<b>VW-1</b>															
8/31/2000	P		--	18.50	28.50	20.61	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	10.08	--
2/9/2001	P		--	18.50	28.50	22.10	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.53	--
9/17/2001	P		--	18.50	28.50	21.99	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	6.59	--
1/21/2002	P		--	18.50	28.50	21.50	--	<50	<0.50	<0.50	<0.50	<0.50	<5.0	0.7	--
7/19/2002	P		--	18.50	28.50	22.42	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.9	7.1
1/15/2003	--		--	18.50	28.50	22.59	--	<50	<0.50	<0.50	0.63	1.7	<0.50	5.4	7.2
7/9/2003	--		--	18.50	28.50	22.50	--	<50	<0.50	<0.50	<0.50	0.61	<0.50	2.0	7.0
02/19/2004	--		--	18.50	28.50	21.04	--	--	--	--	--	--	--	--	--
08/04/2004	P		453.29	18.50	28.50	20.48	432.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.7	7.0
01/18/2005	--		453.29	18.50	28.50	21.72	431.57	--	--	--	--	--	--	--	--
07/15/2005	P		453.29	18.50	28.50	22.50	430.79	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.1	7.4
01/10/2006	--		453.29	18.50	28.50	20.17	433.12	--	--	--	--	--	--	--	--
7/21/2006	P	e	453.29	18.50	28.50	22.50	430.79	220	<0.50	<0.50	<0.50	<0.50	<0.50	5.91	7.3
1/17/2007	--		453.29	18.50	28.50	21.67	431.62	--	--	--	--	--	--	--	--

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, 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>VW-1 Cont.</b>															
7/18/2007	NP		453.29	18.50	28.50	23.58	429.71	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.45	8.52
1/15/2008	--		453.29	18.50	28.50	21.87	431.42	--	--	--	--	--	--	--	--
7/7/2008	NP		453.29	18.50	28.50	23.70	429.59	<50	<0.50	<0.50	<0.50	<0.50	<0.50	7.54	8.46
1/7/2009	--		453.29	18.50	28.50	22.00	431.29	--	--	--	--	--	--	--	--
7/22/2009	NP		453.29	18.50	28.50	23.95	429.34	<50	<0.50	<0.50	<0.50	<0.50	<0.50	10.12	7.66
3/12/2010	--		453.29	18.50	28.50	21.85	431.44	--	--	--	--	--	--	--	--
<b>9/9/2010</b>	<b>NP</b>		<b>453.29</b>	<b>18.50</b>	<b>28.50</b>	<b>23.65</b>	<b>429.64</b>	<b>&lt;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>--</b>	<b>6.93</b>

SYMBOLS AND ABBREVIATIONS:

--/- - = Not analyzed/applicable/sampled/measured  
< = 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, range C4-C12  
GWE = Groundwater elevation in ft MSL  
g/L = Micrograms per liter  
mg/L = Milligrams per liter  
MTBE = Methyl tert-butyl ether  
NP = Not purged before sampling  
P = Purged before sampling  
TPH-g = Total petroleum hydrocarbons as gasoline  
TOC = Top of casing elevation in ft MSL

FOOTNOTES:

a = Chromatogram Pattern: Gasoline C6-C10  
b = Duplicate sample  
c = GRO analyzed by EPA Method 8015B modified  
d = Well inaccessible  
e = Hydrocarbon result partly due to individ. peak(s) in quant. range.  
f = Sample > 4x spike concentration.

NOTES:

For previous historical GWE and analytical data please refer to Fourth Quarter 1995 Groundwater Monitoring Program Results and Remediation System Performance Evaluation Report, ARCO Service Station 771, Livermore, California, (EMCON, March 1, 1996).

Please note that 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 inclusion of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported.

All analytes unless otherwise notes utilized EPA Method 8260B, EPA method 8015B modified prior to 1/15/03, and EPA method 8020 prior to 12/03/99.

Site wells were resurveyed to NAVD '88 datum on March 8, 2004.

Top of screen and bottom of screen depths for MW-3 and MW-6 are estimated from cross-sections.

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

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

**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-1</b>									
<b>MW-2</b>									
7/9/2003	<1,000	<200	39	<5.0	<5.0	<5.0	<5.0	<5.0	
08/04/2004	<2,000	<400	78	<10	<10	<10	<10	<10	
07/15/2005	<500	120	46	<2.5	<2.5	<2.5	<2.5	<2.5	
7/21/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/18/2007	<600	89	45	<1.0	<1.0	<1.0	<1.0	<1.0	
7/7/2008	--	<100	19	<5.0	<5.0	<5.0	<5.0	--	
<b>9/9/2010</b>	<b>&lt;600</b>	<b>41</b>	<b>13</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	
<b>MW-3</b>									
<b>MW-4</b>									
7/9/2003	<1,000	750	150	<5.0	<5.0	<5.0	<5.0	<5.0	
02/19/2004	<1,000	630	180	<10	<10	<10	<5.0	<5.0	
08/04/2004	<2,000	1,300	300	<10	<10	<10	<10	<10	
01/18/2005	<1,000	630	160	<5.0	<5.0	<5.0	<5.0	<5.0	a
07/15/2005	<1,000	850	230	<5.0	<5.0	<5.0	<5.0	<5.0	
01/10/2006	<1,500	810	190	<2.5	<2.5	<2.5	<2.5	<2.5	
7/21/2006	<300	35	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
1/17/2007	<300	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	
7/18/2007	<300	830	74	<0.50	<0.50	<0.50	0.76	<0.50	
1/15/2008	<300	280	61	<0.50	<0.50	<0.50	<0.50	<0.50	b (MTBE)
7/7/2008	--	19	17	<0.50	<0.50	<0.50	<0.50	--	
1/7/2009	--	74	37	<0.50	<0.50	<0.50	<0.50	<0.50	
7/22/2009	<300	580	63	0.85	<0.50	<0.50	<0.50	<0.50	
3/12/2010	<300	460	43	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</b>	<b>&lt;1,500</b>	<b>880</b>	<b>51</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	
<b>MW-5</b>									
7/9/2003	<1,000	1,100	260	<5.0	<5.0	<5.0	<5.0	<5.0	
08/04/2004	<1,000	850	250	<5.0	<5.0	<5.0	<5.0	<5.0	
07/15/2005	<1,000	720	270	<5.0	<5.0	<5.0	<5.0	<5.0	

**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-5 Cont.</b>									
7/21/2006	<3,000	<200	14	<5.0	<5.0	<5.0	<5.0	<5.0	
7/18/2007	<300	260	110	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2008	--	<10	<0.50	<0.50	<0.50	<0.50	<0.50	--	
7/22/2009	<300	11	12	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</b>	<b>&lt;300</b>	<b>420</b>	<b>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>MW-6</b>									
7/9/2003	<100	<20	0.98	<0.50	<0.50	<0.50	<0.50	<0.50	
08/04/2004	<100	<20	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	
07/15/2005	<500	110	32	<2.5	<2.5	<2.5	<2.5	<2.5	
7/21/2006	<300	<20	5.1	<0.50	<0.50	<0.50	<0.50	<0.50	
7/18/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2008	--	<10	<0.50	<0.50	<0.50	<0.50	<0.50	--	
7/22/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</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>MW-7</b>									
7/9/2003	<1,000	350	110	<5.0	<5.0	<5.0	<5.0	<5.0	
02/19/2004	<1,000	420	100	<10	<10	<10	<5.0	<5.0	
08/04/2004	<5,000	<1,000	140	<25	<25	<25	<25	<25	
01/18/2005	<1,000	260	87	<5.0	<5.0	<5.0	<5.0	<5.0	a
07/15/2005	<5,000	<1,000	150	<25	<25	<25	<25	<25	
01/10/2006	<30,000	<2,000	120	<50	<50	<50	<50	<50	
7/21/2006	<30,000	<2,000	54	<50	<50	<50	<50	<50	
1/17/2007	<1,500	<100	3.1	<2.5	<2.5	<2.5	<2.5	<2.5	
7/18/2007	<600	220	67	<1.0	<1.0	<1.0	<1.0	<1.0	
1/15/2008	<1,500	<100	26	<2.5	<2.5	<2.5	<2.5	<2.5	
7/7/2008	--	<10	0.69	<0.50	<0.50	<0.50	<0.50	--	
1/7/2009	--	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/22/2009	<300	<10	0.53	<0.50	<0.50	<0.50	<0.50	<0.50	
3/12/2010	<300	51	11	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</b>	<b>&lt;300</b>	<b>180</b>	<b>110</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>	

**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-8</b>									
<b>MW-9</b>									
<b>MW-10</b>									
<b>MW-11</b>									
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/04/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/15/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/21/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/18/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2008	--	<10	<0.50	<0.50	<0.50	<0.50	<0.50	--	
7/22/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</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>RW-1</b>									
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/19/2004	<100	<20	<0.50	<1.0	<1.0	<1.0	<0.50	<0.50	
08/04/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
01/18/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
07/15/2005	<100	<20	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
01/10/2006	<300	<20	0.54	<0.50	<0.50	<0.50	<0.50	<0.50	
1/17/2007	<1,500	<100	2.6	<2.5	<2.5	<2.5	<2.5	<2.5	
7/18/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1/15/2008	<300	<20	8.3	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2008	--	<10	0.53	<0.50	<0.50	<0.50	<0.50	--	
1/7/2009	--	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
7/22/2009	<300	12	0.84	<0.50	<0.50	<0.50	<0.50	<0.50	
3/12/2010	<300	13	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</b>	<b>&lt;300</b>	<b>&lt;10</b>	<b>1.9</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>VW-1</b>									
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/04/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	



**Table 2. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>VW-1 Cont.</b>									
07/15/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/21/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/18/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2008	--	<10	<0.50	<0.50	<0.50	<0.50	<0.50	--	
7/22/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>9/9/2010</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>	

SYMBOLS AND ABBREVIATIONS:

-- = Not analyzed/sampled

< = 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

µg/L = Micrograms per liter

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

FOOTNOTES:

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

b = Sample >4x spike concentration.

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

**Table 3. Historical Ground-Water Flow Direction and Gradient  
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA**

<b>Date Sampled</b>	<b>Approximate Flow Direction</b>	<b>Approximate Hydraulic Gradient</b>
3/20/1995	Northwest	0.030
6/2/1995	North-Northwest	0.014
8/23/1995	North-Northwest	0.030
12/4/1995	North-Northwest	0.030
2/20/1996	Northwest	0.016
5/15/1996	Northwest	0.024
8/13/1996	North-Northwest	0.030
11/13/1996	North-Northwest	0.031
3/26/1997	North-Northwest	0.044
5/15/1997	North-Northwest	0.031
8/26/1997	North-Northwest	0.042
11/5/1997	North-Northwest	0.030
2/18/1998	Northwest	0.010
5/20/1998	Northwest	0.030
7/30/1998	North	0.040
10/29/1998	North	0.005
3/16/1999	North-Northwest	0.030
5/5/1999	North	0.040
8/26/1999	North-Northwest	0.050
12/3/1999	North-Northeast	0.060
3/13/2000	North-Northwest	0.066
6/20/2000	North-Northwest	0.050
8/31/2000	North-Northwest	0.062
2/9/2001	North-Northeast	0.014
9/17/2001	North-Northwest	0.061
1/21/2002	North-Northwest	0.050
7/19/2002	North-Northwest	0.044
1/15/2003	Northeast to Southeast	0.038 - 0.016
7/9/2003	Northwest to North-Northwest	0.009 - 0.063
2/19/2004	North	0.044
8/4/2004	Northeast	0.071
1/18/2005	North-Northeast	0.04
7/15/2005	Northeast and Southwest	0.05 and 0.02
1/10/2006	North	0.02
7/21/2006	North and Southwest	0.05 and 0.02
1/17/2007	North-Northeast and Southwest	0.03 and 0.02
7/18/2007	North-Northeast to Southwest	0.03 and 0.04
1/15/2008	North	0.04
7/7/2008	North	0.03
1/7/2009	North	0.06
7/22/2009	North	0.04
3/12/2010	North	0.05

**Table 3. Historical Ground-Water Flow Direction and Gradient  
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA**

<b>Date Sampled</b>	<b>Approximate Flow Direction</b>	<b>Approximate Hydraulic Gradient</b>
9/9/2010	North	0.04

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

**APPENDIX A**

**BAI GROUNDWATER SAMPLING DATA  
(INCLUDES FIELD DATA SHEETS, NON-HAZARDOUS WASTE DATA FORM,  
CERTIFIED LABORATORY ANALYTICAL RESULTS, CHAIN OF CUSTODY  
DOCUMENTATION, AND FIELD PROCEDURES)**

DATE: 9/9/10  
PERSONNEL: SB & EF  
WEATHER: partly cloudy

PROJECT NO.: 06-82-608  
COMMENTS:

Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	COMMENTS:						WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC	
					Equip:	Geosquirt	Tubing	Bailers	DO	wli		Ec/pH
MW-1	1036		31.72									
MW-2	1153		27.84									BP
MW-3	1255		31.13									NP
MW-4	1059		28.20									P
MW-5	1113		28.96									NP
MW-6	1022		33.06									NP
MW-7	1224		30.10									NP
MW-8	0957		35.28									
MW-9	0953		29.56									
MW-10	0945		27.91									
MW-11	1002		33.03									NP
RW-1	1039		31.01									NP
VW-1	1228		23.65									NP

**Groundwater Sampling Data Sheet**

Well I.D.: MW-7  
 Project Name/Location: AKIO 771 Project #: 06-62-608  
 Sampler's Name: SB&EP Date: 9/9/10  
 Purging Equipment:                       
 Sampling Equipment: boiler

Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 39.65 feet  
 Depth to Water: - 36.10 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
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged:                      gallons

Depth to Water at Sample Collection:                      feet

Sample Collection Time: 1750 Purged Dry? (Y/N)

Comments: NP

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**Groundwater Sampling Data Sheet**

Well I.D.: VW-1  
 Project Name/Location: 771 Project #: 06-82-604  
 Sampler's Name: EPSP Date: 9/9/10  
 Purging Equipment: -  
 Sampling Equipment: Boiler

Casing Type: PVC

Casing Diameter: \_\_\_\_\_ inch  
 Total Well Depth: \_\_\_\_\_ feet  
 Depth to Water: - \_\_\_\_\_ 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
<u>0</u>	<u>1235</u>		<u>190</u>		<u>796.6</u>	<u>79.0</u>	<u>6.93</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: \_\_\_\_\_ gallons

Depth to Water at Sample Collection: \_\_\_\_\_ feet

Sample Collection Time: NP 1235

Purged Dry? (Y/N) (N)

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



**Groundwater Sampling Data Sheet**

Well I.D.: MW-2  
 Project Name/Location: 777 Project #: 00-92-607  
 Sampler's Name: SBEF Date: 09.09.10  
 Purging Equipment: -  
 Sampling Equipment: Beiler

Casing Type: PVC

Casing Diameter: 4 inch

**\*UNIT CASING VOLUMES**

Total Well Depth: 33.82 feet

2" = 0.16 gal/lin ft.

Depth to Water: - 27.84 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = 5.98 feet

4" = 0.65 gal/lin ft.

Unit Casing Volume\*: x 0.65 gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = 3.8 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 11.6 gallons

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1158	—	121	—	986.6	72.0	7.0	
3.0	1212	X	X	X	1028	73.3	6.9	
5.0	1216	X	X	X	1035	73.3	6.8	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 5.0 gallons

Depth to Water at Sample Collection: \_\_\_\_\_ feet

Sample Collection Time: 1220

Purged Dry? (Y/N) (N)

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



**Groundwater Sampling Data Sheet**

Well I.D.: MW-5  
 Project Name/Location: ARCO 271 Project #: 06-82-608  
 Sampler's Name: SB FER Date: 9/9/10  
 Purging Equipment: boiler  
 Sampling Equipment: boiler

Casing Type: PVC

Casing Diameter: 4 inch

**\*UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.

Total Well Depth: 40.23 feet

3" = 0.37 gal/lin ft.

Depth to Water: - 40.23 feet 28.90

4" = 0.65 gal/lin ft.

Water Column Thickness: = 11.27 feet

6" = 1.47 gal/lin ft.

Unit Casing Volume\*: x 0.65 gallon / foot

Casing Water Volume: = 7.3 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 22.0 gallons

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1117	—	23	—	1108	69.1	6.7	
4.0	1123	X	X	X	1085	68.3	6.9	
8.0	1130	X	X	X	1091	68.4	6.9	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 8.0 gallons

Depth to Water at Sample Collection: \_\_\_\_\_ feet

Sample Collection Time: 1135

Purged Dry? (Y/N) (N)

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

**Groundwater Sampling Data Sheet**

Well I.D.: MW-4  
 Project Name/Location: 771 Project #: 06-82-608  
 Sampler's Name: ESB Date: 9/9/10  
 Purging Equipment: -  
 Sampling Equipment: Boiler

Casing Type: PVC

Casing Diameter: 4 inch

Total Well Depth: \_\_\_\_\_ feet

Depth to Water: - 28.20 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
<u>0</u>	<u>1105</u>	<u>-</u>	<u>89</u>	<u>-</u>	<u>1163</u>	<u>72.2</u>	<u>6.8</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 0 gallons

Depth to Water at Sample Collection: - feet

Sample Collection Time: 1105

Purged Dry? (Y/N) (N)

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

**Groundwater Sampling Data Sheet**

Well I.D.: RW-2  
 Project Name/Location: S&B ARCO 771 Project #: 06-82-608  
 Sampler's Name: S&B Date: 9/9/10  
 Purging Equipment: \_\_\_\_\_  
 Sampling Equipment: braker

Casing Type: PVC  
 Casing Diameter: 6 inch **\*UNIT CASING VOLUMES**  
 Total Well Depth: \_\_\_\_\_ feet 2" = 0.16 gal/lin ft.  
 Depth to Water: - 31.01 feet 3" = 0.37 gal/lin ft.  
 Water Column Thickness: = \_\_\_\_\_ feet 4" = 0.65 gal/lin ft.  
 Unit Casing Volume\*: x \_\_\_\_\_ gallon / foot 6" = 1.47 gal/lin ft.  
 Casing Water Volume: = \_\_\_\_\_ gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = \_\_\_\_\_ gallons

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
<u>0</u>	<u>1043</u>	<u>-</u>	<u>124</u>	<u>-</u>	<u>708.8</u>	<u>72.9</u>	<u>7.3</u>	
		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: - feet  
**Sample Collection Time:** 1045 Purged Dry? (Y/N) (N)

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



**Groundwater Sampling Data Sheet**

Well I.D.: MW-6  
 Project Name/Location: 771 Project #: 0082-608  
 Sampler's Name: EFSB Date: 9/1/10  
 Purging Equipment: -  
 Sampling Equipment: Bailer  
 Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: \_\_\_\_\_ feet  
 Depth to Water: - 33.06 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
<u>0</u>	<u>1030</u>	<u>-</u>		<u>-</u>	<u>539.5</u>	<u>69.8</u>	<u>7.2</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 0 gallons

Depth to Water at Sample Collection: \_\_\_\_\_ feet

Sample Collection Time: 1030

Purged Dry? (Y/N) (N)

Comments: NP

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**Groundwater Sampling Data Sheet**

Well I.D.: MW-11  
 Project Name/Location: BP/ARCO 771 Project #: 06-82-608  
 Sampler's Name: SB & EP Date: 9/9/10  
 Purging Equipment: \_\_\_\_\_  
 Sampling Equipment: bucket

Casing Type: PVC

Casing Diameter: 2 inch

**\*UNIT CASING VOLUMES**

Total Well Depth: \_\_\_\_\_ feet

2" = 0.16 gal/lin ft.

Depth to Water: - 33.03 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = \_\_\_\_\_ feet

4" = 0.65 gal/lin ft.

Unit Casing Volume\*: x \_\_\_\_\_ gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = \_\_\_\_\_ gallons

Casing Volume: x 3 each

Estimated Purge Volume: = \_\_\_\_\_ gallons

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
<u>0</u>	<u>1005</u>	<u>—</u>	<u>211</u>	<u>—</u>	<u>524.7</u>	<u>70.1</u>	<u>7.2</u>	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: \_\_\_\_\_ gallons

Depth to Water at Sample Collection: \_\_\_\_\_ feet

Sample Collection Time: 1010

Purged Dry? (Y/N) (N)

Comments: NP

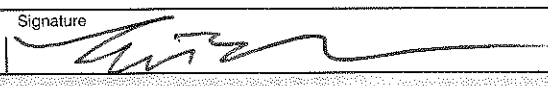
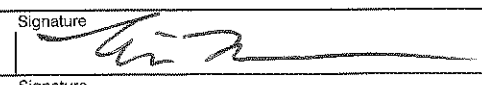
Do meter not working

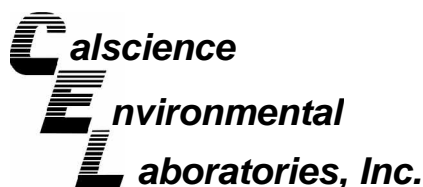
\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NO. 857315

# NON-HAZARDOUS WASTE DATA FORM

1. BESI #

GENERATOR	2. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)				
	BP WEST COAST PRODUCTS, LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688		BP 771 899 Rincon Ave Livermore, CA				
	Generator's Phone: (949) 460-5200		24-HOUR EMERGENCY PHONE: (949) 699-3706				
	3. Transporter 1 Company Name		Phone #				
	Broadbent & Associates, Inc.		(530) 566-1400				
4. Transporter 2 Company Name		Phone #					
Gomes Excavating		(707) 374-2881					
5. Designated Facility Name and Site Address		Phone #					
INTRAT, INC. 1105 AIRPORT RD #C RIO VISTA, CA 94571		(530) 753-1829					
6. Waste Shipping Name and Description		7. Containers		8. Total Quantity	9. Unit Wt/Vol	10. Profile No.	
		No.	Type				
A. NON-HAZARDOUS WATER		1	TT	13	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/Officer's Printed/Typed Name		Signature			Month	Day	Year
ERIC FARRAR					9	20	10
13. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name		Signature			Month	Day	Year
ERIC FARRAR					9	20	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



September 24, 2010

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

Subject: **CalScience Work Order No.: 10-09-0768**  
**Client Reference: ARCO 771**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/10/2010 and analyzed in accordance with the attached chain-of-custody.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Villafania".

CalScience Environmental  
Laboratories, Inc.  
Richard Villafania  
Project Manager



**10-09-0768 CASE NARRATIVE**

For the 8260C analysis, the CCV recovery for 1,2 – Dichloroethane was high and outside of the acceptance criteria. Due to this deficiency, there is a possible high bias for reported concentrations of 1,2 – Dichloroethane.

## Analytical Report



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

Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 771

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-2</b>	<b>10-09-0768-1-E</b>	<b>09/09/10 12:20</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>09/11/10</b>	<b>09/11/10 22:10</b>	<b>100911B01</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	6200	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	204	38-134		LH,AY	

<b>MW-4</b>	<b>10-09-0768-2-E</b>	<b>09/09/10 11:05</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>09/11/10</b>	<b>09/11/10 22:44</b>	<b>100911B01</b>
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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)	3300	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	123	38-134			

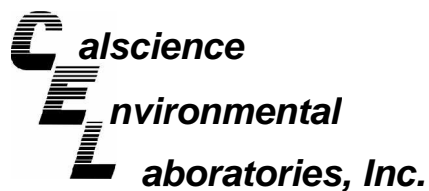
<b>MW-5</b>	<b>10-09-0768-3-E</b>	<b>09/09/10 11:35</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>09/11/10</b>	<b>09/11/10 23:52</b>	<b>100911B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	1000	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	109	38-134			

<b>MW-6</b>	<b>10-09-0768-4-E</b>	<b>09/09/10 10:30</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>09/11/10</b>	<b>09/12/10 00:26</b>	<b>100911B01</b>
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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	102	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: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 771

Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	10-09-0768-5-E	09/09/10 12:50	Aqueous	GC 11	09/11/10	09/12/10 01:34	100911B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	2800	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	124	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	10-09-0768-6-E	09/09/10 10:10	Aqueous	GC 11	09/11/10	09/12/10 02:07	100911B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	100	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RW-1	10-09-0768-7-E	09/09/10 10:45	Aqueous	GC 11	09/11/10	09/12/10 02:41	100911B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	440	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	106	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VW-1	10-09-0768-8-E	09/09/10 12:35	Aqueous	GC 11	09/11/10	09/12/10 03:15	100911B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	99	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: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 771

Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-695-903	N/A	Aqueous	GC 11	09/11/10	09/11/10 15:25	100911B01

<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	97	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: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C  
Units: ug/L

Project: ARCO 771

Page 1 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	10-09-0768-1-B	09/09/10 12:20	Aqueous	GC/MS L	09/20/10	09/20/10 21:17	100920L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	53	1.0	2		Methyl-t-Butyl Ether (MTBE)	13	1.0	2	
1,2-Dibromoethane	ND	1.0	2		Tert-Butyl Alcohol (TBA)	41	20	2	
1,2-Dichloroethane	ND	1.0	2		Diisopropyl Ether (DIPE)	ND	1.0	2	
Ethylbenzene	18	1.0	2		Ethyl-t-Butyl Ether (ETBE)	ND	1.0	2	
Toluene	3.8	1.0	2		Tert-Amyl-Methyl Ether (TAME)	ND	1.0	2	
Xylenes (total)	9.5	1.0	2		Ethanol	ND	600	2	
<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	105	80-127		
Toluene-d8	115	80-120			1,4-Bromofluorobenzene	97	68-120		

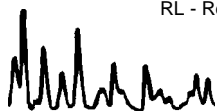
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	10-09-0768-2-A	09/09/10 11:05	Aqueous	GC/MS L	09/18/10	09/18/10 22:02	100918L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	70	2.5	5		Methyl-t-Butyl Ether (MTBE)	51	2.5	5	
1,2-Dibromoethane	ND	2.5	5		Tert-Butyl Alcohol (TBA)	880	50	5	
1,2-Dichloroethane	ND	2.5	5		Diisopropyl Ether (DIPE)	ND	2.5	5	
Ethylbenzene	3.6	2.5	5		Ethyl-t-Butyl Ether (ETBE)	ND	2.5	5	
Toluene	ND	2.5	5		Tert-Amyl-Methyl Ether (TAME)	ND	2.5	5	
Xylenes (total)	3.6	2.5	5		Ethanol	ND	1500	5	
<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	102	80-128			Dibromofluoromethane	102	80-127		
Toluene-d8	105	80-120			1,4-Bromofluorobenzene	91	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-5	10-09-0768-3-A	09/09/10 11:35	Aqueous	GC/MS L	09/18/10	09/19/10 01:23	100918L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	18	0.50	1		Methyl-t-Butyl Ether (MTBE)	10	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	420	50	5	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	0.55	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	1.4	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	3.2	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	103	80-128			Dibromofluoromethane	100	80-127		
Toluene-d8	104	80-120			1,4-Bromofluorobenzene	90	68-120		

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



## Analytical Report



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

Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C  
Units: ug/L

Project: ARCO 771

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	10-09-0768-4-A	09/09/10 10:30	Aqueous	GC/MS L	09/18/10	09/19/10 02:49	100918L02

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	103	80-128			Dibromofluoromethane	91	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	91	68-120		

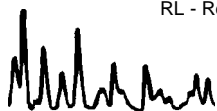
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	10-09-0768-5-A	09/09/10 12:50	Aqueous	GC/MS L	09/18/10	09/19/10 03:18	100918L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	430	10	20		Methyl-t-Butyl Ether (MTBE)	110	10	20	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	180	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	32	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	11	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	46	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	94	80-128			Dibromofluoromethane	105	80-127		
Toluene-d8	108	80-120			1,4-Bromofluorobenzene	95	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	10-09-0768-6-A	09/09/10 10:10	Aqueous	GC/MS L	09/18/10	09/19/10 03:46	100918L02

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	123	80-128			Dibromofluoromethane	110	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	83	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: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C  
Units: ug/L

Project: ARCO 771

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RW-1	10-09-0768-7-A	09/09/10 10:45	Aqueous	GC/MS L	09/18/10	09/19/10 04:15	100918L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	1.9	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)	0.53	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	102	80-128			Dibromofluoromethane	96	80-127		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	87	68-120		

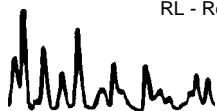
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VW-1	10-09-0768-8-A	09/09/10 12:35	Aqueous	GC/MS L	09/18/10	09/19/10 04:44	100918L02

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	104	80-128			Dibromofluoromethane	90	80-127		
Toluene-d8	88	80-120			1,4-Bromofluorobenzene	80	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-122-3	N/A	Aqueous	GC/MS L	09/18/10	09/18/10 16:44	100918L01

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	122	80-128			Dibromofluoromethane	106	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	79	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: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C  
Units: ug/L

Project: ARCO 771

Page 4 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-14-122-5	N/A	Aqueous	GC/MS L	09/18/10	09/19/10 00:54	100918L02

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	110	80-128			Dibromofluoromethane	102	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	80	68-120		

Method Blank	099-14-122-6	N/A	Aqueous	GC/MS L	09/20/10	09/20/10 18:24	100920L01
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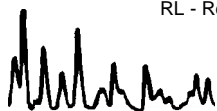
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<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	136	80-128		LH*	Dibromofluoromethane	122	80-127		
Toluene-d8	104	80-120			1,4-Bromofluorobenzene	78	68-120		

Method Blank	099-14-122-10	N/A	Aqueous	GC/MS BB	09/22/10	09/22/10 14:34	100922L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<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	113	80-128			Dibromofluoromethane	108	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	92	68-120		

\* - Internal standards and other surrogates are in control, no further clarification needed.

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

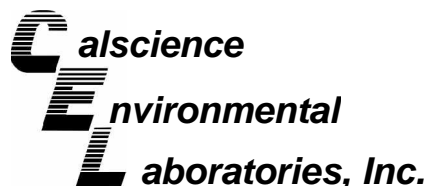
Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-0760-3	Aqueous	GC 11	09/11/10	09/11/10	100911S01

<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)	95	97	38-134	2	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

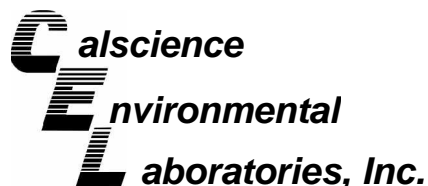
Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-0764-1	Aqueous	GC/MS L	09/18/10	09/18/10	100918S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	106	107	76-124	1	0-20	
Carbon Tetrachloride	100	103	74-134	4	0-20	
Chlorobenzene	97	99	80-120	1	0-20	
1,2-Dibromoethane	108	113	80-120	5	0-20	
1,2-Dichlorobenzene	106	109	80-120	3	0-20	
1,2-Dichloroethane	112	113	80-120	1	0-20	
Ethylbenzene	100	103	78-126	3	0-20	
Toluene	108	110	80-120	2	0-20	
Trichloroethene	101	102	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	91	101	67-121	9	0-49	
Tert-Butyl Alcohol (TBA)	102	112	36-162	7	0-30	
Diisopropyl Ether (DIPE)	104	94	60-138	10	0-45	
Ethyl-t-Butyl Ether (ETBE)	109	120	69-123	10	0-30	
Tert-Amyl-Methyl Ether (TAME)	114	119	65-120	4	0-20	
Ethanol	132	126	30-180	4	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



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

Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-5	Aqueous	GC/MS L	09/18/10	09/19/10	100918S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	95	108	76-124	5	0-20	
Carbon Tetrachloride	93	92	74-134	1	0-20	
Chlorobenzene	93	95	80-120	2	0-20	
1,2-Dibromoethane	100	100	80-120	1	0-20	
1,2-Dichlorobenzene	96	104	80-120	8	0-20	
1,2-Dichloroethane	104	109	80-120	5	0-20	
Ethylbenzene	93	96	78-126	3	0-20	
Toluene	96	103	80-120	6	0-20	
Trichloroethene	90	97	77-120	8	0-20	
Methyl-t-Butyl Ether (MTBE)	101	104	67-121	2	0-49	
Tert-Butyl Alcohol (TBA)	0	0	36-162	0	0-30	LN,AY
Diisopropyl Ether (DIPE)	96	100	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	105	107	69-123	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	107	116	65-120	8	0-20	
Ethanol	105	107	30-180	2	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



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

Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-0760-1	Aqueous	GC/MS L	09/20/10	09/20/10	100920S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	111	110	76-124	1	0-20	
Carbon Tetrachloride	110	107	74-134	3	0-20	
Chlorobenzene	104	103	80-120	1	0-20	
1,2-Dibromoethane	104	102	80-120	2	0-20	
1,2-Dichlorobenzene	105	105	80-120	0	0-20	
1,2-Dichloroethane	117	116	80-120	1	0-20	
Ethylbenzene	106	103	78-126	3	0-20	
Toluene	113	110	80-120	3	0-20	
Trichloroethene	99	99	77-120	0	0-20	
Methyl-t-Butyl Ether (MTBE)	104	106	67-121	2	0-49	
Tert-Butyl Alcohol (TBA)	111	102	36-162	6	0-30	
Diisopropyl Ether (DIPE)	115	89	60-138	25	0-45	
Ethyl-t-Butyl Ether (ETBE)	104	108	69-123	4	0-30	
Tert-Amyl-Methyl Ether (TAME)	105	109	65-120	4	0-20	
Ethanol	124	118	30-180	4	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



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

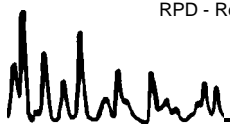
Date Received: 09/10/10  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-09-1095-1	Aqueous	GC/MS BB	09/22/10	09/22/10	100922S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	109	108	76-124	1	0-20	
Carbon Tetrachloride	130	124	74-134	5	0-20	
Chlorobenzene	107	106	80-120	1	0-20	
1,2-Dibromoethane	112	105	80-120	7	0-20	
1,2-Dichlorobenzene	101	101	80-120	0	0-20	
1,2-Dichloroethane	126	127	80-120	1	0-20	LM,AY
Ethylbenzene	108	105	78-126	2	0-20	
Toluene	110	110	80-120	1	0-20	
Trichloroethene	109	110	77-120	0	0-20	
Methyl-t-Butyl Ether (MTBE)	101	96	67-121	5	0-49	
Tert-Butyl Alcohol (TBA)	116	98	36-162	17	0-30	
Diisopropyl Ether (DIPE)	100	94	60-138	6	0-45	
Ethyl-t-Butyl Ether (ETBE)	94	92	69-123	2	0-30	
Tert-Amyl-Methyl Ether (TAME)	100	97	65-120	3	0-20	
Ethanol	103	119	30-180	14	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: 10-09-0768  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-903	Aqueous	GC 11	09/11/10	09/11/10	100911B01

<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)	99	99	78-120	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



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

Date Received: N/A  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-14-122-3	Aqueous	GC/MS L	09/18/10	09/18/10	100918L01		
<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>ME CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	101	97	80-120	73-127	4	0-20	
Carbon Tetrachloride	98	91	74-134	64-144	7	0-20	
Chlorobenzene	108	104	80-120	73-127	4	0-20	
1,2-Dibromoethane	107	107	79-121	72-128	0	0-20	
1,2-Dichlorobenzene	107	104	80-120	73-127	3	0-20	
1,2-Dichloroethane	101	98	80-120	73-127	3	0-20	
Ethylbenzene	109	103	80-120	73-127	6	0-20	
Toluene	106	97	80-120	73-127	9	0-20	
Trichloroethene	100	95	79-127	71-135	5	0-20	
Methyl-t-Butyl Ether (MTBE)	103	101	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	108	100	63-123	53-133	8	0-20	
Diisopropyl Ether (DIPE)	99	94	59-137	46-150	6	0-37	
Ethyl-t-Butyl Ether (ETBE)	103	98	69-123	60-132	5	0-20	
Tert-Amyl-Methyl Ether (TAME)	104	104	70-120	62-128	1	0-20	
Ethanol	115	117	28-160	6-182	2	0-57	

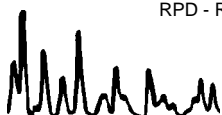
Total number of LCS compounds : 15

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



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

Date Received: N/A  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-14-122-5	Aqueous	GC/MS L	09/18/10	09/18/10	100918L02		
<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>ME CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	100	99	80-120	73-127	0	0-20	
Carbon Tetrachloride	96	96	74-134	64-144	0	0-20	
Chlorobenzene	103	98	80-120	73-127	5	0-20	
1,2-Dibromoethane	107	103	79-121	72-128	3	0-20	
1,2-Dichlorobenzene	101	106	80-120	73-127	5	0-20	
1,2-Dichloroethane	100	102	80-120	73-127	2	0-20	
Ethylbenzene	103	94	80-120	73-127	9	0-20	
Toluene	95	100	80-120	73-127	5	0-20	
Trichloroethene	95	99	79-127	71-135	4	0-20	
Methyl-t-Butyl Ether (MTBE)	96	105	69-123	60-132	9	0-20	
Tert-Butyl Alcohol (TBA)	93	94	63-123	53-133	1	0-20	
Diisopropyl Ether (DIPE)	97	99	59-137	46-150	2	0-37	
Ethyl-t-Butyl Ether (ETBE)	103	104	69-123	60-132	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	107	106	70-120	62-128	0	0-20	
Ethanol	110	85	28-160	6-182	25	0-57	

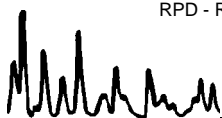
Total number of LCS compounds : 15

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit







## Quality Control - LCS/LCS Duplicate



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

Date Received: N/A  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-14-122-6	Aqueous	GC/MS L	09/20/10	09/20/10	100920L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	103	112	80-120	73-127	9	0-20	
Carbon Tetrachloride	102	101	74-134	64-144	0	0-20	
Chlorobenzene	109	102	80-120	73-127	7	0-20	
1,2-Dibromoethane	107	103	79-121	72-128	4	0-20	
1,2-Dichlorobenzene	113	105	80-120	73-127	7	0-20	
1,2-Dichloroethane	105	116	80-120	73-127	10	0-20	
Ethylbenzene	110	101	80-120	73-127	8	0-20	
Toluene	104	108	80-120	73-127	4	0-20	
Trichloroethene	101	95	79-127	71-135	6	0-20	
Methyl-t-Butyl Ether (MTBE)	100	100	69-123	60-132	1	0-20	
Tert-Butyl Alcohol (TBA)	99	89	63-123	53-133	10	0-20	
Diisopropyl Ether (DIPE)	107	105	59-137	46-150	2	0-37	
Ethyl-t-Butyl Ether (ETBE)	107	106	69-123	60-132	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	105	116	70-120	62-128	9	0-20	
Ethanol	127	116	28-160	6-182	9	0-57	

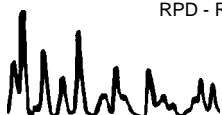
Total number of LCS compounds : 15

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



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

Date Received: N/A  
Work Order No: 10-09-0768  
Preparation: EPA 5030C  
Method: EPA 8260C

Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-14-122-10	Aqueous	GC/MS BB	09/22/10	09/22/10	100922L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	113	109	80-120	73-127	3	0-20	
Carbon Tetrachloride	131	131	74-134	64-144	0	0-20	
Chlorobenzene	111	112	80-120	73-127	1	0-20	
1,2-Dibromoethane	104	112	79-121	72-128	7	0-20	
1,2-Dichlorobenzene	103	109	80-120	73-127	5	0-20	
1,2-Dichloroethane	120	120	80-120	73-127	0	0-20	
Ethylbenzene	113	112	80-120	73-127	0	0-20	
Toluene	116	110	80-120	73-127	5	0-20	
Trichloroethene	115	113	79-127	71-135	2	0-20	
Methyl-t-Butyl Ether (MTBE)	91	97	69-123	60-132	6	0-20	
Tert-Butyl Alcohol (TBA)	109	108	63-123	53-133	1	0-20	
Diisopropyl Ether (DIPE)	101	102	59-137	46-150	2	0-37	
Ethyl-t-Butyl Ether (ETBE)	93	96	69-123	60-132	3	0-20	
Tert-Amyl-Methyl Ether (TAME)	95	98	70-120	62-128	3	0-20	
Ethanol	167	152	28-160	6-182	9	0-57	LQ

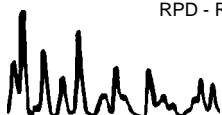
Total number of LCS compounds : 15

Total number of ME compounds : 1

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 10-09-0768
 

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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.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
PC	Sample taken from VOA vial with air bubble > 6mm diameter.
PI	Primary and confirm results varied by > than 40% RPD.
RB	RPD exceeded method control limit; % recoveries within limits.
SG	A silica gel cleanup procedure was performed.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture.





Laboratory Management Program LaMP Chain of Custody Record

0768 Page 1 of 1

BP/ARC Project Name: ARCO 771

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

BP/ARC Facility No: 771

Lab Work Order Number:

Lab Name: Cal Science	BP/ARC Facility Address: 899 Rincon Avenue	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Livermore, CA 94551	Consultant/Contractor Project No: 06-82-608-5-822
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.: T0600100113	Consultant/Contractor PM: Jason Duda
Lab Shipping Acct: 9255	Enfos Proposal No: 000VQ-0007	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: jduda@broadbentinc.com
Other Info:	Stage: Operate (5) Activity: Monitoring/MNA (822)	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 (8015M)	BTEX / 5 Oxys (8260)	EDB / 1,2-DCA (8260)	EtOH (8260)	Standard <input checked="" type="checkbox"/>				
EBM Email: charles.carmel@bp.com																	Full Data Package <input type="checkbox"/>				
Lab No.	Sample Description	Date	Time														Comments				
1	MW-2	9/9/10	1220	X			6						X	X	X	X					
2	MW-4		1105	X			6						X	X	X	X					
3	MW-5		1135	X			6						X	X	X	X					
4	MW-6		1030	X			6						X	X	X	X					
5	MW-7		1250	X			6						X	X	X	X					
6	MW-11		1010	X			6						X	X	X	X					
7	RW-1		1045	X			6						X	X	X	X					
8	VW-1		1235	X			6						X	X	X	X					
9	TB - 771 - 100909	9/9/10		X			2										ON HOLD				

Sampler's Name: Eric Farrier	Relinquished By / Affiliation: <i>[Signature]</i> / BAI		Date: 9/9/10	Time: 1600	Accepted By / Affiliation: <i>[Signature]</i>		Date: 9/10/10	Time: 1030
Sampler's Company: BAI								
Shipment Method: 650	Ship Date: 9/9/10							
Shipment Tracking No: 106193869								

Special Instructions: Please cc results to bpedf@broadbentinc.com

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

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0768

DATE 4/9/10  
 COMPANY BAI  
 ADDRESS 875 Cottingham Lane  
 ADDRESS  
 CITY Vacaville  
 SENDERS NAME ERIC FARRER  
 STE/ROOM G  
 ZIP CODE 94989  
 PHONE NUMBER 705-247-7901

---

COMPANY CAL SCIENCE  
 NAME  
 ADDRESS 7400 LINCOLN WAY  
 ADDRESS  
 CITY GARDEN GROVE  
 STE/ROOM  
 ZIP CODE 92841

YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

INSTRUCTIONS

**GSO**  
 GOLDEN STATE OVERNIGHT  
 1-800-322-5555  
 WWW.GSO.COM

**SHIPPING AIR BILL**

**4 PACKAGE INFORMATION**

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

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

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

**6 RELEASE SIGNATURE** \_\_\_\_\_  
 SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

**7**

**8 PICK UP INFORMATION**

TIME DRIVER # ROUTE #

106193869 PEEL OFF HERE

**9 GSO TRACKING NUMBER** 106193869

**PACKAGE LABEL**

**ORC**

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

**PDS**

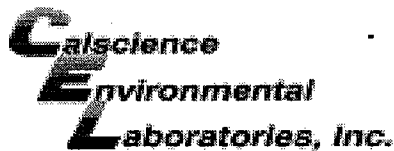
**D**

GARDEN GROVE  
 92841 29 Tb 3/SAZ

**D92843A**

84574979 1009092010

CSL-06



WORK ORDER #: 10-09-076B

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent

DATE: 09/10/10

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

Temperature 3.4°C + 0.5°C (CF) = 3.9°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: HP

CUSTODY SEALS INTACT:

- [X] Cooler [ ] \_\_\_\_\_ [ ] No (Not Intact) [ ] Not Present [ ] N/A
[ ] Sample [ ] \_\_\_\_\_ [ ] No (Not Intact) [X] Not Present

Initial: JS
Initial: WSC

SAMPLE CONDITION:

Table with 4 columns: Item, Yes, No, N/A. Rows include Chain-Of-Custody (COC) document(s) received with samples, COC document(s) received complete, Collection date/time, matrix, and/or # of containers logged in based on sample labels, No analysis requested, Not relinquished, No date/time relinquished, 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, pH / Residual Chlorine / Dissolved Sulfide received within 24 hours, Proper preservation noted on COC or sample container, Unpreserved vials received for Volatiles analysis, 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] VOAh [ ] VOAna2 [ ] 125AGB [ ] 125AGBh [ ] 125AGBp [ ] 1AGB [ ] 1AGBna2 [ ] 1AGBs
[ ] 500AGB [ ] 500AGJ [ ] 500AGJs [ ] 250AGB [ ] 250CGB [ ] 250CGBs [ ] 1PB [ ] 500PB [ ] 500PBna
[ ] 250PB [ ] 250PBn [ ] 125PB [ ] 125PBzanna [ ] 100PJ [ ] 100PJna2 [ ] \_\_\_\_\_ [ ] \_\_\_\_\_ [ ] \_\_\_\_\_

Air: [ ] Tedlar® [ ] Summa® Other: [ ] \_\_\_\_\_ Trip Blank Lot#: 10079A Labeled/Checked by: WSC
Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: JS
Preservative: h: HCL n: HNO3 na2: Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 zanna: ZnAc2+NaOH f: Field-filtered Scanned by: WSC

## 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 CONFIRMATIONS**

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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>3Q10 GEO_WELL 771</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100113</b>
<b><u>Facility Name:</u></b>	<b>ARCO #00771</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>9/28/2010 9:47:28 AM</b>
<b><u>Confirmation Number:</u></b>	<b>8595071256</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 - Semi-Annually
<b><u>Submittal Title:</u></b>	3Q10 GW Monitoring
<b><u>Facility Global ID:</u></b>	T0600100113
<b><u>Facility Name:</u></b>	ARCO #00771
<b><u>File Name:</u></b>	10090768.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>	9/28/2010 9:48:31 AM
<b><u>Confirmation Number:</u></b>	<b>9338083922</b>

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)