

Atlantic Richfield Company

Shannon Couch
Project Manager

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RECEIVED

3:59 pm, Oct 28, 2011

Alameda County
Environmental Health

October 17, 2011

Re: Third Quarter 2011 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,



Shannon Couch
Project Manager

Attachment

THIRD QUARTER 2011 MONITORING REPORT

Atlantic Richfield Company Station #771
899 Rincon Avenue, Livermore, California
ACEH Case No. RO0000200

Prepared for

Ms. Shannon Couch
Project 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
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October 17, 2011

Project No. 06-82-608

Broadbent & Associates, Inc
1324 Mangrove Ave Suite 212
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Creating Valuable Solutions, Building Trust



October 17, 2011

Project No. 06-82-608

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

Attn.: Ms. Shannon Couch

Re: Third Quarter 2011 Monitoring Report, Atlantic Richfield Company Station #771, 899 Rincon Avenue, Livermore, California; ACEH Case No. RO0000200

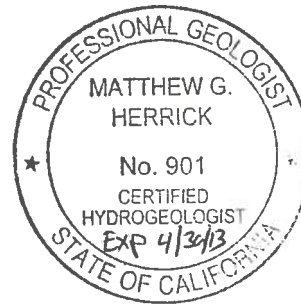
Dear Ms. Couch:

Attached is the Third Quarter 2011 Monitoring Report for Atlantic Richfield Company Station #771 located at 899 Rincon Avenue, Livermore, California. Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Jason Duda
Project Scientist

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



Enclosure

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

**THIRD QUARTER 2011
MONITORING REPORT
ARCO STATION #771, LIVERMORE, CALIFORNIA**

Broadbent & Associates, Inc. (BAI) is pleased to present this *Third Quarter 2011 Monitoring Report* on behalf of Atlantic Richfield Company (a BP affiliated company) for ARCO Station #771 located in Livermore, Alameda County, California. Reporting is being submitted to Alameda County Environmental Health (ACEH) consistent with their requirements under the legal authority of the California Regional Water Quality Control Board, as codified by the California Code of Regulations Title 23, Section 2652(d). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	<u>ARCO Station #771 / 899 Rincon Avenue</u>
Client Project Manager / Title:	<u>Ms. Shannon Couch / Project Manager</u>
BAI Contact:	<u>Jason Duda, (530) 566-1400</u>
BAI Project No.:	<u>06-82-608</u>
Primary Regulatory Agency / ID No.:	<u>ACEH / Case #RO0000200</u>
Current phase of project:	<u>Monitoring and Case Closure Evaluation</u>
List of Acronyms / Abbreviations:	<u>See end of report text for list of acronyms/abbreviations used in report.</u>

WORK PERFORMED THIS QUARTER (Third Quarter 2011):

1. Submitted *Second Quarter 2011 Status Report* (BAI, 7/29/2011).
2. Conducted groundwater monitoring/sampling for Third Quarter 2011 on July 7, 2011.
3. Prepare and submit *Third Quarter 2011 Monitoring Report* (contained herein).

WORK SCHEDULED FOR NEXT QUARTER (Fourth Quarter 2011):

1. No environmental field work is presently scheduled during the Fourth Quarter of 2011.
2. Prepare and submit Case Evaluation and Justification for No Further Action.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	<u>Semi-Annual (1Q & 3Q): MW-1 through MW-11, RW-1, VW-1</u>	(1Q and 3Q)
Groundwater sample collection:	<u>Semi-Annual (1Q & 3Q): MW-4, MW-7, RW-1</u> <u>Annual (3Q): MW-2, MW-5, MW-6, MW-11, VW-1</u>	(1Q and 3Q)
Biodegradation indicator parameter monitoring:	<u>NA</u>	

QUARTERLY RESULTS SUMMARY:

LNAPL

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

Groundwater Elevation and Gradient:

Depth to groundwater:	<u>25.17 (VW-1) to 32.74 (MW-8)</u>	(ft below TOC)
Gradient direction:	<u>North</u>	(compass direction)
Gradient magnitude:	<u>0.04</u>	(ft/ft)
Average change in elevation:	<u>+0.23</u>	(ft since last measurement)

Laboratory Analytical Data

Summary:	<u>GRO detected in six of the eight wells sampled at a maximum concentration of 2,600 µg/L in MW-7. Benzene detected in five of the eight wells sampled at a maximum concentration of 310 µg/L in MW-7. MTBE detected in six of the eight wells sampled at a maximum concentration of 150 µg/L in MW-7.</u>
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ACTIVITIES CONDUCTED & RESULTS:

Third Quarter 2011 groundwater monitoring was conducted on July 7, 2011 by BAI personnel in accordance with the monitoring plan summary detailed above. No irregularities were noted during water level gauging. Light, Non-Aqueous Phase Liquid (LNAPL, or free product) was not noted to be present in the wells monitored during this event. Depth to water measurements ranged from 25.17 ft at VW-1 to 32.74 ft at MW-8. Resulting groundwater surface elevations ranged from 418.97 ft at MW-11 to 428.12 ft at VW-1. Groundwater elevations are summarized in Table 1. Water level elevations yielded a potentiometric groundwater gradient to the north at approximately 0.04 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on July 7, 2011, consistent with the current monitoring schedule. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove, California) for analysis of Gasoline-Range Organics (GRO, C6-C12) by EPA Method 8015M; for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Tert-Butyl Alcohol (TBA) and Ethanol by EPA Method 8260B. The laboratory noted that the GRO concentrations detected in wells MW-2, MW-4 through MW-7, and RW-1 were “quantitated against gasoline.” No other significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix C.

Hydrocarbons in the GRO range were detected above the laboratory reporting limit in six of the eight wells sampled at concentrations ranging from 430 micrograms per liter ($\mu\text{g/L}$) in well MW-6 to 2,600 $\mu\text{g/L}$ in well MW-7. Benzene was detected above the laboratory reporting limit in five of the eight wells sampled at concentrations ranging from 2.4 $\mu\text{g/L}$ in well RW-1 to 310 $\mu\text{g/L}$ in well MW-7. Toluene was detected above the laboratory reporting limit in four of the eight wells sampled at concentrations ranging from 0.6 $\mu\text{g/L}$ in well MW-5 to 8.3 $\mu\text{g/L}$ in well MW-7. Ethylbenzene was detected above the laboratory reporting limit in three of the eight wells sampled at concentrations ranging from 0.64 $\mu\text{g/L}$ in well RW-1 to 7.5 $\mu\text{g/L}$ in well MW-7. Total Xylenes were detected above the laboratory limit in five of the eight wells sampled at concentrations ranging from 0.61 $\mu\text{g/L}$ in well MW-5 to 46 $\mu\text{g/L}$ in well MW-7. MTBE was detected above the laboratory reporting limit in six of the eight wells sampled with concentrations ranging from 2.2 $\mu\text{g/L}$ in well RW-1 to 150 $\mu\text{g/L}$ in well MW-7. TBA was detected above the laboratory limit in four of the eight wells sampled at concentrations ranging from 19 $\mu\text{g/L}$ in well MW-6 to 580 $\mu\text{g/L}$ in well MW-4. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this last monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. Groundwater monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix D.

DISCUSSION:

Groundwater levels were between historic minimum and maximum elevations for each well gauged this quarter with the exception of VW-1 reaching a historic minimum groundwater elevation of 428.12 ft. Groundwater elevations yielded a potentiometric groundwater gradient to the north at approximately 0.04 ft/ft, generally consistent with the historic flow direction and gradient data presented in Table 3.

This event's detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well. Recent and historic laboratory analytical results are summarized in Table 1 and Table

2. The next semi-annual groundwater monitoring and sampling event is scheduled to be conducted during the Third Quarter 2011.

RECOMMENDATIONS:

It is recommended that semi-annual groundwater monitoring continue at the Site for now in accordance with the plan summary detailed above. The *Off-Site Soil and Groundwater Investigation Report* was submitted to ACEH on April 29, 2011. Due to the results obtained during the off-site investigation, a Case Evaluation and Justification For No Further Action is being prepared. It is anticipated that this report will be submitted during the Fourth Quarter 2011.

LIMITATIONS:

The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, California), and our understanding of SFBRWQCB requirements. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of the Atlantic Richfield Company. It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

- Drawing 1: Site Location Map
- Drawing 2: Groundwater Elevation Contour and Analytical Summary Map, July 7, 2011

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

- Appendix A: Field Methods
- Appendix B: Field Data Sheets
- Appendix C: Laboratory Report and Chain-of-Custody Documentation
- Appendix D: GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH:	Alameda County Environmental Health	ft/ft:	feet per foot
BAI:	Broadbent & Associates, Inc.	gal:	Gallons
BTEX:	Benzene, Toluene, Ethylbenzene, Total Xylenes	GRO:	Gasoline-Range Organics
1,2-DCA:	1,2-Dichloroethane	LNAPL:	Light Non-Aqueous Phase Liquid
DIPE:	Di-Isopropyl Ether	MTBE:	Methyl Tertiary Butyl Ether
DO:	Dissolved Oxygen	NO ₃ :	Nitrate as Nitrogen
DRO:	Diesel-Range Organics	ppb:	parts per billion
EDB:	1,2-Dibromomethane	SO ₄ :	Sulfate
Eh:	Oxidation Reduction Potential	TAME:	Tert-Amyl Methyl Ether
EPA:	Environmental Protection Agency	TBA:	Tertiary Butyl Ether
ETBE:	Ethyl Tertiary Butyl Ether	TOC:	Top of Casing
Fe ²⁺ :	Ferrous Iron	µg/L:	micrograms per liter

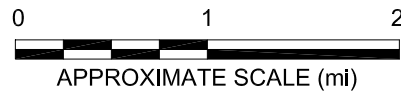
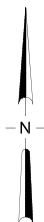
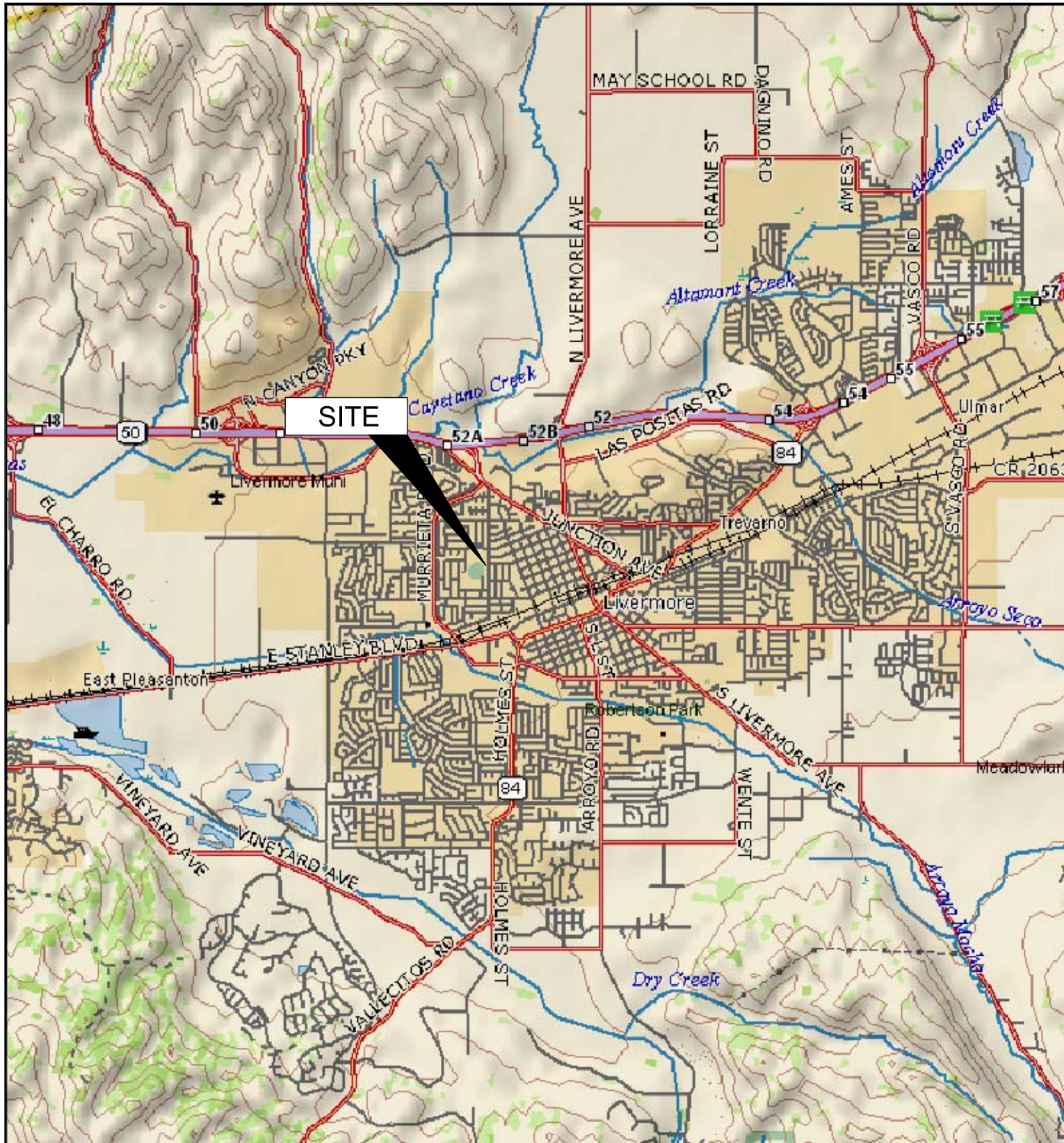
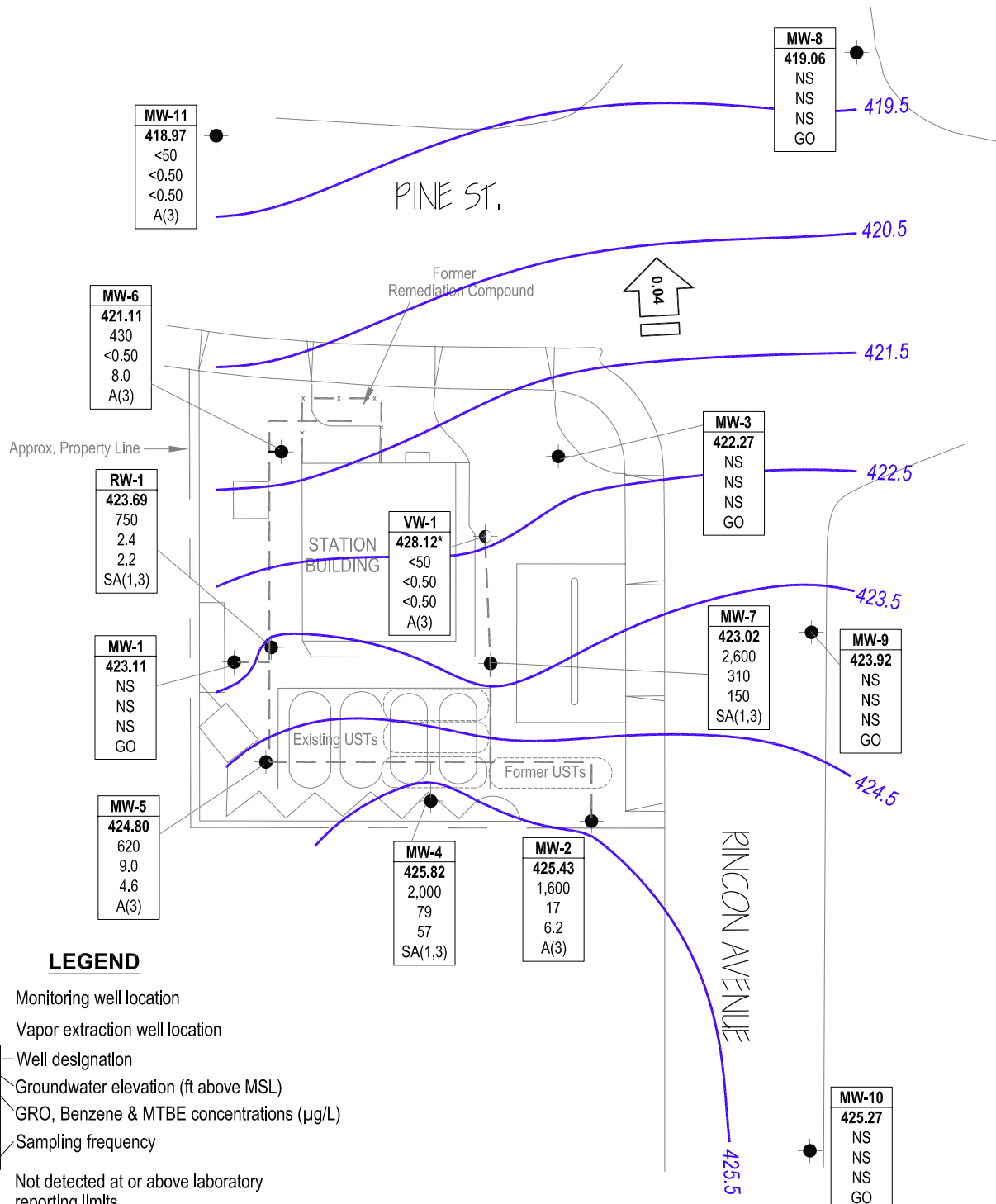
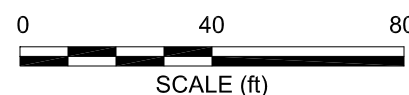


IMAGE SOURCE: DELORME



LEGEND

- Monitoring well location
- ◉ Vapor extraction well location
- Well ID** — Well designation
- ELEV** — Groundwater elevation (ft above MSL)
- GRO** — GRO, Benzene & MTBE concentrations (µg/L)
- Benzene**
- MTBE** — Sampling frequency
- SA or A**
- < — 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
- 425.5 — Groundwater elevation contour (ft above MSL)
- ← 0.04 — Approximate groundwater flow direction and gradient (ft/ft)
- — Remediation piping



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

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1															
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	--		32.00	41.00	25.60	426.13	81,000	2,000	1,400	990	4,600	--	--	--	
8/23/1995	--		32.00	41.00	29.04	422.69	44,000	2,400	1,900	670	3,800	<300	--	--	
12/4/1995	--		32.00	41.00	31.31	420.42	22,000	870	660	390	2,200	--	--	--	
2/20/1996	--		32.00	41.00	22.26	429.47	21,000	1,500	1,200	650	3,500	<300	--	--	
5/15/1996	--		32.00	41.00	23.42	428.31	36,000	3,000	2,500	960	5,700	<250	--	--	
8/13/1996	--		32.00	41.00	26.83	424.90	19,000	730	580	450	2,500	<200	--	--	
11/13/1996	--		32.00	41.00	31.05	420.68	6,600	47	16	74	160	<30	--	--	
3/26/1997	--		32.00	41.00	26.29	425.44	1,900	100	55	37	200	<30	--	--	
5/15/1997	--		32.00	41.00	28.65	423.08	16,000	490	250	250	1,100	<120	--	--	
8/26/1997	--		32.00	41.00	31.53	420.20	190	6.7	3	6.3	25	<3	--	--	
11/5/1997	--		32.00	41.00	33.93	417.80	63	0.5	<0.5	0.8	2.4	29	--	--	
2/18/1998	--		32.00	41.00	20.46	431.27	23,000	1,500	610	550	3,000	<120	--	--	
5/20/1998	--		32.00	41.00	23.84	427.89	50,000	4,400	1,900	1,400	80,000	<300	--	--	
7/30/1998	P		32.00	41.00	26.94	424.79	150	<0.5	<0.5	<0.5	1.6	<3	8.74	--	
10/29/1998	NP		32.00	41.00	32.58	419.15	<50	<0.5	<0.5	<0.5	1.8	<3	2.0	--	
3/16/1999	P		32.00	41.00	26.20	425.53	3,200	160	32	89	390	270	2.0	--	
5/5/1999	P		32.00	41.00	27.57	424.16	3,600	140	46	76	290	170	11.65	--	
8/26/1999	P		32.00	41.00	30.25	421.48	3,200	210	29	100	220	120	1.43	--	
12/3/1999	NP		32.00	41.00	32.70	419.03	53	<0.5	<0.5	<0.5	1	<3	2.12	--	
3/13/2000	P		32.00	41.00	24.45	427.28	<50	<0.5	<0.5	<0.5	<1	<3	5.81	--	
6/20/2000	--		32.00	41.00	27.79	423.94	67.4	3.88	<0.500	1.78	1.48	<2.50	--	--	b
6/20/2000	P		32.00	41.00	27.79	423.94	356	40.1	7.17	11.9	22.7	<2.50	5.1	--	
8/31/2000	--		32.00	41.00	30.35	421.38	--	--	--	--	--	--	--	--	
2/9/2001	--		32.00	41.00	30.95	420.78	--	--	--	--	--	--	--	--	
9/17/2001	--		32.00	41.00	30.85	420.88	--	--	--	--	--	--	--	--	
1/21/2002	--		32.00	41.00	30.61	421.12	--	--	--	--	--	--	--	--	
7/19/2002	--		32.00	41.00	31.55	420.18	--	--	--	--	--	--	--	--	
1/15/2003	--		32.00	41.00	22.99	428.74	--	--	--	--	--	--	--	--	
7/9/2003	--		32.00	41.00	30.35	421.38	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1 Cont.															
02/19/2004	--	451.73	32.00	41.00	26.24	425.49	--	--	--	--	--	--	--	--	
08/04/2004	--	454.23	32.00	41.00	26.36	427.87	--	--	--	--	--	--	--	--	
01/18/2005	--		32.00	41.00	24.47	429.76	--	--	--	--	--	--	--	--	
07/15/2005	--		32.00	41.00	29.44	424.79	--	--	--	--	--	--	--	--	
01/10/2006	--		32.00	41.00	22.58	431.65	--	--	--	--	--	--	--	--	
7/21/2006	--		32.00	41.00	20.73	433.50	--	--	--	--	--	--	--	--	
1/17/2007	--		32.00	41.00	31.88	422.35	--	--	--	--	--	--	--	--	
7/18/2007	--		32.00	41.00	32.85	421.38	--	--	--	--	--	--	--	--	
1/15/2008	--		32.00	41.00	28.76	425.47	--	--	--	--	--	--	--	--	
7/7/2008	--		32.00	41.00	35.56	418.67	--	--	--	--	--	--	--	--	
1/7/2009	--		32.00	41.00	34.07	420.16	--	--	--	--	--	--	--	--	
7/22/2009	--		32.00	41.00	--	--	--	--	--	--	--	--	--	--	Dry
3/12/2010	--		32.00	41.00	27.61	426.62	--	--	--	--	--	--	--	--	
9/9/2010	--		32.00	41.00	31.72	422.51	--	--	--	--	--	--	--	--	
2/17/2011	--		32.00	41.00	32.11	422.12	--	--	--	--	--	--	--	--	
7/7/2011	--		32.00	41.00	31.12	423.11	--	--	--	--	--	--	--	--	
MW-2															
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	--		30.00	38.00	22.32	427.17	37,000	2,200	800	980	4,800	--	--	--	
8/23/1995	--		30.00	38.00	25.69	423.80	65,000	1,100	310	840	3,000	<500	--	--	
12/4/1995	--		30.00	38.00	28.52	420.97	19,000	680	150	410	1,600	--	--	--	
2/20/1996	--		30.00	38.00	19.00	430.49	22,000	1,200	240	590	2,200	<300	--	--	
5/15/1996	--		30.00	38.00	20.03	429.46	25,000	1,200	240	610	2,100	<300	--	--	
8/13/1996	--		30.00	38.00	24.44	425.05	19,000	640	110	420	1,200	<300	--	--	
11/13/1996	--		30.00	38.00	28.42	421.07	15,000	260	52	220	640	<200	--	--	
3/26/1997	--		30.00	38.00	22.98	426.51	17,000	580	120	360	980	<120	--	--	
5/15/1997	--		30.00	38.00	25.40	424.09	18,000	420	63	340	730	<120	--	--	
8/26/1997	--		30.00	38.00	28.38	421.11	5,300	210	26	140	270	<120	--	--	
11/5/1997	--		30.00	38.00	31.93	417.56	560	42	2.6	7	9	<40	--	--	
2/18/1998	--		30.00	38.00	16.87	432.62	18,000	710	120	480	1,100	130	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-2 Cont.															
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		30.00	38.00	23.51	425.98	9,700	240	33	210	490	<120	9.21	--	
10/29/1998	NP		30.00	38.00	30.08	419.41	58	<0.5	<0.5	<0.5	1.2	<3	1.0	--	
3/16/1999	P		30.00	38.00	23.22	426.27	4,700	120	13	90	220	60	2.0	--	
5/5/1999	P		30.00	38.00	24.05	425.44	5,500	58	7.1	58	98	17	9.09	--	
8/26/1999	P		30.00	38.00	26.44	423.05	3,700	55	11	60	64	26	1.9	--	
12/3/1999	NP		30.00	38.00	30.15	419.34	130	<0.5	<0.5	0.7	1.8	<3	1.96	--	
3/13/2000	P		30.00	38.00	20.68	428.81	<50	<0.5	<0.5	<0.5	<1	<3	--	--	
6/20/2000	P		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		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	--		30.00	38.00	29.65	419.84	--	--	--	--	--	--	--	--	
9/17/2001	P		30.00	38.00	27.62	421.87	3,100	300	12	8.8	18	120	1.7	--	
1/21/2002	--		30.00	38.00	27.09	422.40	--	--	--	--	--	--	--	--	
7/19/2002	P		30.00	38.00	27.82	421.67	4,700	280	13	120	19	16	0.8	7.4	a
1/15/2003	--		30.00	38.00	22.18	427.31	--	--	--	--	--	--	--	--	
7/9/2003	--		30.00	38.00	26.40	423.09	3,900	170	<5.0	100	19	39	2.5	7.0	
02/19/2004	--		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	--		30.00	38.00	20.86	431.19	--	--	--	--	--	--	--	--	
07/15/2005	P		30.00	38.00	25.92	426.13	5,200	160	5.3	56	10	46	3.1	6.9	
01/10/2006	--		30.00	38.00	19.25	432.80	--	--	--	--	--	--	--	--	
7/21/2006	P		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	--		30.00	38.00	28.70	423.35	--	--	--	--	--	--	--	--	
7/18/2007	P		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	--		30.00	38.00	24.65	427.40	--	--	--	--	--	--	--	--	
7/7/2008	NP		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	--		30.00	38.00	31.67	420.38	--	--	--	--	--	--	--	--	
7/22/2009	--		30.00	38.00	33.48	418.57	--	--	--	--	--	--	--	--	
3/12/2010	--		30.00	38.00	23.84	428.21	--	--	--	--	--	--	--	--	
9/9/2010	P		30.00	38.00	27.84	424.21	6,200	53	3.8	18	9.5	13	--	6.8	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-2 Cont.															
2/17/2011	--	452.05	30.00	38.00	27.52	424.53	--	--	--	--	--	--	--	--	
7/7/2011	P		30.00	38.00	26.62	425.43	1,600	17	0.76	1.2	1.5	6.2	1.02	7.1	g (GRO)
MW-3															
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	--		32.00	40.00	23.28	427.00	72	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/23/1995	--		32.00	40.00	26.55	423.73	98	<0.5	<0.5	<0.6	0.5	<3	--	--	
12/4/1995	--		32.00	40.00	29.52	420.76	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
2/20/1996	--		32.00	40.00	19.83	430.45	130	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1996	--		32.00	40.00	21.03	429.25	120	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
8/13/1996	--		32.00	40.00	25.67	424.61	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/13/1996	--		32.00	40.00	21.57	428.71	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/26/1997	--		32.00	40.00	24.15	426.13	<50	1.1	<0.5	<0.5	<0.5	<3	--	--	
5/15/1997	--		32.00	40.00	26.85	423.43	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
8/26/1997	--		32.00	40.00	30.07	420.21	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/5/1997	--		32.00	40.00	32.46	417.82	<50	<0.5	0.7	<0.5	<0.5	<3	--	--	
2/18/1998	--		32.00	40.00	17.82	432.46	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/20/1998	--		32.00	40.00	21.41	428.87	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
7/30/1998	P		32.00	40.00	26.41	423.87	<50	<0.5	<0.5	<0.5	<0.5	<3	9.56	--	
10/29/1998	P		32.00	40.00	31.33	418.95	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--	
3/16/1999	P		32.00	40.00	24.61	425.67	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--	
5/5/1999	P		32.00	40.00	25.75	424.53	140	<0.5	<0.5	0.6	<0.5	<3	4.43	--	
8/26/1999	P		32.00	40.00	28.49	421.79	80	0.6	0.6	0.6	1	<3	1.69	--	
12/3/1999	P		32.00	40.00	31.45	418.83	<50	<0.5	<0.5	<0.5	<1	<3	2.26	--	
3/13/2000	P		32.00	40.00	22.18	428.10	<50	<0.5	<0.5	<0.5	<1	<3	4.41	--	
6/20/2000	P		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	--		32.00	40.00	28.75	421.53	--	--	--	--	--	--	--	--	
2/9/2001	--		32.00	40.00	31.04	419.24	--	--	--	--	--	--	--	--	
9/17/2001	--		32.00	40.00	29.04	421.24	--	--	--	--	--	--	--	--	
1/21/2002	--		32.00	40.00	28.81	421.47	--	--	--	--	--	--	--	--	
7/19/2002	--		32.00	40.00	28.92	421.36	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-3 Cont.															
1/15/2003	--	450.28	32.00	40.00	22.88	427.40	--	--	--	--	--	--	--	--	
7/9/2003	--		32.00	40.00	28.00	422.28	--	--	--	--	--	--	--	--	
02/19/2004	--		32.00	40.00	25.29	424.99	--	--	--	--	--	--	--	--	
08/04/2004	--	452.75	32.00	40.00	27.40	425.35	--	--	--	--	--	--	--	--	
01/18/2005	--		32.00	40.00	22.76	429.99	--	--	--	--	--	--	--	--	
07/15/2005	--		32.00	40.00	25.95	426.80	--	--	--	--	--	--	--	--	
01/10/2006	--		32.00	40.00	21.18	431.57	--	--	--	--	--	--	--	--	
7/21/2006	--		32.00	40.00	25.73	427.02	--	--	--	--	--	--	--	--	
1/17/2007	--		32.00	40.00	30.51	422.24	--	--	--	--	--	--	--	--	
7/18/2007	--		32.00	40.00	29.53	423.22	--	--	--	--	--	--	--	--	
1/15/2008	--		32.00	40.00	27.65	425.10	--	--	--	--	--	--	--	--	
7/7/2008	--		32.00	40.00	33.38	419.37	--	--	--	--	--	--	--	--	
1/7/2009	--		32.00	40.00	34.09	418.66	--	--	--	--	--	--	--	--	
7/22/2009	--		32.00	40.00	34.98	417.77	--	--	--	--	--	--	--	--	
3/12/2010	--		32.00	40.00	25.89	426.86	--	--	--	--	--	--	--	--	
9/9/2010	--		32.00	40.00	31.13	421.62	--	--	--	--	--	--	--	--	
2/17/2011	--		32.00	40.00	30.28	422.47	--	--	--	--	--	--	--	--	
7/7/2011	--		32.00	40.00	30.48	422.27	--	--	--	--	--	--	--	--	
MW-4															
3/20/1995	--	451.09	26.00	42.00	22.68	428.41	12,000	1,000	100	450	700	--	--	--	
6/2/1995	--		26.00	42.00	24.41	426.68	9,000	850	56	380	430	--	--	--	
8/23/1995	--		26.00	42.00	27.72	423.37	5,300	400	25	240	170	<100	--	--	
12/4/1995	--		26.00	42.00	29.85	421.24	6,700	100	<10	90	38	--	--	--	
2/20/1996	--		26.00	42.00	21.16	429.93	7,000	360	22	180	160	<70	--	--	
5/15/1996	--		26.00	42.00	22.18	428.91	--	--	--	--	--	--	--	--	
8/13/1996	--		26.00	42.00	26.20	424.89	--	--	--	--	--	--	--	--	
11/13/1996	--		26.00	42.00	29.72	421.37	--	--	--	--	--	--	--	--	
3/26/1997	--		26.00	42.00	21.86	429.23	8,900	390	33	200	250	<70	--	--	
5/15/1997	--		26.00	42.00	26.92	424.17	--	--	--	--	--	--	--	--	
8/26/1997	--		26.00	42.00	29.30	421.79	--	--	--	--	--	--	--	--	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
11/5/1997	--	451.09	26.00	42.00	32.14	418.95	--	--	--	--	--	--	--	--	
2/18/1998	--		26.00	42.00	19.30	431.79	5,300	220	19	160	130	120	--	--	
5/20/1998	--		26.00	42.00	22.40	428.69	--	--	--	--	--	--	--	--	
7/30/1998	--		26.00	42.00	25.74	425.35	--	--	--	--	--	--	--	--	
10/29/1998	--		26.00	42.00	31.26	419.83	--	--	--	--	--	--	--	--	
3/16/1999	P		26.00	42.00	25.05	426.04	1,900	49	<5	43	<5	82	1.5	--	
5/5/1999	--		26.00	42.00	26.15	424.94	--	--	--	--	--	--	--	--	
8/26/1999	--		26.00	42.00	28.60	422.49	--	--	--	--	--	--	1.43	--	
12/3/1999	--		26.00	42.00	31.53	419.56	--	--	--	--	--	--	--	--	
3/13/2000	P		26.00	42.00	23.61	427.48	<50	<0.5	<0.5	<0.5	<1	<3	3.82	--	
6/20/2000	--		26.00	42.00	26.38	424.71	--	--	--	--	--	--	0.4	--	
8/31/2000	NP		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		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		26.00	42.00	29.90	421.19	3,400	51	<5.0	16	23	360	0.92	--	
1/21/2002	NP		26.00	42.00	29.51	421.58	1,900	140	12	27	48	300	1.03	--	
7/19/2002	NP		26.00	42.00	30.77	420.32	2,700	150	9.9	<5.0	<5.0	130	1.0	7.3	a
1/15/2003	--		26.00	42.00	23.56	427.53	4,800	150	5.3	28	46	150	1.3	7.0	a
7/9/2003	--		26.00	42.00	29.50	421.59	3,000	210	9.4	6	20	150	2.0	6.9	
02/19/2004	P		26.00	42.00	26.35	424.74	4,800	270	11	25	19	180	1.8	6.2	c
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		26.00	42.00	23.15	430.65	4,500	250	9.5	62	22	160	1.2	6.9	
07/15/2005	NP		26.00	42.00	28.13	425.67	3,500	230	6.1	19	15	230	0.5	7.0	
01/10/2006	P		26.00	42.00	21.49	432.31	5,500	250	7.6	37	25	190	1.3	7.1	
7/21/2006	NP		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		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		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		26.00	42.00	27.30	426.50	220	1.2	<0.50	<0.50	0.50	61	3.29	6.94	f (MTBE)
7/7/2008	NP		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		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		26.00	42.00	36.77	417.03	3,000	320	7.8	5.3	16	63	10.82	7.45	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
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	
9/9/2010	NP		26.00	42.00	28.20	425.60	3,300	70	<2.5	3.6	3.6	51	--	6.8	
2/17/2011	NP		26.00	42.00	30.62	423.18	2,300	59	2.2	2.2	5.0	33	1.03	7.8	g (GRO)
7/7/2011	NP		26.00	42.00	27.98	425.82	2,000	79	2.7	<2.5	3.3	57	0.70	6.9	g (GRO)
MW-5															
3/20/1995	--	451.40	31.50	41.00	23.20	428.20	26,000	1,300	180	890	2,900	--	--	--	
6/2/1995	--		31.50	41.00	24.80	426.60	39,000	940	160	740	1,900	--	--	--	
8/23/1995	--		31.50	41.00	28.10	423.30	14,000	490	74	250	890	<300	--	--	
12/4/1995	--		31.50	41.00	29.83	421.57	7,600	230	13	61	80	--	--	--	
2/20/1996	--		31.50	41.00	21.63	429.77	4,300	220	12	45	130	<50	--	--	
5/15/1996	--		31.50	41.00	22.87	428.53	2,200	380	17	58	84	<40	--	--	
8/13/1996	--		31.50	41.00	26.48	424.92	1,700	150	16	24	35	47	--	--	
11/13/1996	--		31.50	41.00	29.68	421.72	850	150	11	19	37	66	--	--	
3/26/1997	--		31.50	41.00	25.14	426.26	2,400	440	21	79	210	68	--	--	
5/15/1997	--		31.50	41.00	27.38	424.02	3,900	510	19	140	240	48	--	--	
8/26/1997	--		31.50	41.00	29.89	421.51	76	4.9	<0.5	1.5	2	9	--	--	
11/5/1997	--		31.50	41.00	32.57	418.83	63	0.8	<0.5	<0.5	1.2	34	--	--	
2/18/1998	--		31.50	41.00	19.99	431.41	6,200	630	70	320	640	320	--	--	
5/20/1998	--		31.50	41.00	23.21	428.19	2,300	340	21	110	140	62	--	--	
7/30/1998	P		31.50	41.00	26.19	425.21	<50	0.8	<0.5	0.6	0.9	<3	8.83	--	
10/29/1998	NP		31.50	41.00	31.92	419.48	<50	<0.5	<0.5	<0.5	<0.5	<3	2.0	--	
3/16/1999	P		31.50	41.00	25.80	425.60	1,300	170	8	59	65	120	2.0	--	
5/5/1999	P		31.50	41.00	27.09	424.31	320	31	1.1	13	13	19	12.09	--	
8/26/1999	P		31.50	41.00	29.67	421.73	260	13	1.7	4.2	6.3	150	1.31	--	
12/3/1999	--		31.50	41.00	--	--	--	--	--	--	--	--	--	--	d
3/13/2000	P		31.50	41.00	24.51	426.89	<50	<0.5	<0.5	<0.5	<1	<3	4.41	--	
6/20/2000	P		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		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	--		31.50	41.00	30.19	421.21	--	--	--	--	--	--	--	--	
9/17/2001	P		31.50	41.00	30.71	420.69	2,700	120	10	90	77	330	0.81	--	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-5 Cont.															
1/21/2002	--	451.40	31.50	41.00	30.40	421.00	--	--	--	--	--	--	--	--	
7/19/2002	P		31.50	41.00	31.93	419.47	1,600	170	7	120	<5.0	180	1.7	7.2	a
1/15/2003	--		31.50	41.00	23.12	428.28	--	--	--	--	--	--	--	--	
7/9/2003	--		31.50	41.00	30.95	420.45	2,000	160	5.7	67	27	260	1.5	6.9	
02/19/2004	--		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	--		31.50	41.00	24.10	429.42	--	--	--	--	--	--	--	--	
07/15/2005	P		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	--		31.50	41.00	22.19	431.33	--	--	--	--	--	--	--	--	
7/21/2006	P		31.50	41.00	30.36	423.16	2,100	29	<5.0	7.5	11	14	2.98	7.1	
1/17/2007	--		31.50	41.00	31.77	421.75	--	--	--	--	--	--	--	--	
7/18/2007	NP		31.50	41.00	33.42	420.10	470	36	0.84	0.97	2.2	110	1.73	7.50	
1/15/2008	--		31.50	41.00	28.60	424.92	--	--	--	--	--	--	--	--	
7/7/2008	NP		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	--		31.50	41.00	33.14	420.38	--	--	--	--	--	--	--	--	
7/22/2009	NP		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	--		31.50	41.00	27.29	426.23	--	--	--	--	--	--	--	--	
9/9/2010	P		31.50	41.00	28.96	424.56	1,000	18	1.4	0.55	3.2	10	--	6.9	
2/17/2011	--		31.50	41.00	31.49	422.03	--	--	--	--	--	--	--	--	
7/7/2011	P		31.50	41.00	28.72	424.80	620	9.0	0.60	<0.50	0.61	4.6	1.60	7.0	g (GRO)
MW-6															
3/20/1995	--	451.37	32.00	42.00	25.19	426.18	2,600	210	87	82	140	--	--	--	
6/2/1995	--		32.00	42.00	25.75	425.62	1,600	55	7.9	40	26	--	--	--	
8/23/1995	--		32.00	42.00	29.53	421.84	1,400	42	2.5	36	13	<20	--	--	
12/4/1995	--		32.00	42.00	32.28	419.09	2,500	52	5.8	59	13	--	--	--	
2/20/1996	--		32.00	42.00	22.27	429.10	2,500	120	16	73	12	<30	--	--	
5/15/1996	--		32.00	42.00	23.86	427.51	2,000	71	6.4	47	25	<15	--	--	
8/13/1996	--		32.00	42.00	28.55	422.82	3,800	91	8.2	69	25	<20	--	--	
11/13/1996	--		32.00	42.00	32.04	419.33	1,900	55	3.3	55	8.5	16	--	--	
3/26/1997	--		32.00	42.00	26.84	424.53	1,800	51	5	32	15	<30	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-6 Cont.															
5/15/1997	--	451.37	32.00	42.00	29.58	421.79	2,400	46	3	29	9	<12	--	--	
8/26/1997	--		32.00	42.00	32.67	418.70	1,400	61	6	33	10	<12	--	--	
11/5/1997	--		32.00	42.00	34.62	416.75	690	29	2.7	18	3.4	9	--	--	
2/18/1998	--		32.00	42.00	20.09	431.28	1,800	74	5	24	12	19	--	--	
5/20/1998	--		32.00	42.00	24.05	427.32	1,900	280	4	31	16	9	--	--	
7/30/1998	P		32.00	42.00	28.72	422.65	2,300	110	7	36	20	<15	--	--	
10/29/1998	P		32.00	42.00	32.77	418.60	2,500	14	13	17	12	<12	1.0	--	
3/16/1999	P		32.00	42.00	26.45	424.92	1,200	65	4	27	13	18	0.5	--	
5/5/1999	P		32.00	42.00	27.86	423.51	2,200	53	4	26	6	25	5.59	--	
8/26/1999	P		32.00	42.00	30.49	420.88	1,100	11	6	10	4	13	2.35	--	
12/3/1999	P		32.00	42.00	32.35	419.02	370	<0.5	<0.5	0.8	<1	4	2.36	--	
3/13/2000	P		32.00	42.00	28.36	423.01	54	2.1	0.5	0.9	1.4	<3	4.22	--	
6/20/2000	P		32.00	42.00	28.35	423.02	195	1.83	<0.500	0.528	<0.500	<2.50	3.5	--	
8/31/2000	P		32.00	42.00	30.20	421.17	276	3.52	0.788	1.15	0.621	8.73	7.0	--	
2/9/2001	P		32.00	42.00	30.70	420.67	253	5.44	2.93	0.924	0.977	48.9	0.59	--	
2/9/2001	--		32.00	42.00	30.70	420.67	222	4.49	2.73	0.579	0.523	57.1	--	--	b
9/17/2001	--		32.00	42.00	30.94	420.43	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	b
9/17/2001	P		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		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		32.00	42.00	30.27	421.10	60	2	<0.50	<0.50	<0.50	<0.50	3.5	7.9	a
1/15/2003	--		32.00	42.00	22.86	428.51	83	9.1	<0.50	3.4	4.6	1	2.5	7.2	a
7/9/2003	P		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	--		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	--		32.00	42.00	24.56	429.27	--	--	--	--	--	--	--	--	
07/15/2005	P		32.00	42.00	27.61	426.22	4,600	210	44	150	670	32	3.5	7.1	
01/10/2006	--		32.00	42.00	23.75	430.08	--	--	--	--	--	--	--	--	
7/21/2006	P		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	--		32.00	42.00	30.57	423.26	--	--	--	--	--	--	--	--	
7/18/2007	P		32.00	42.00	30.96	422.87	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.95	7.57	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-6 Cont.															
1/15/2008	--	453.83	32.00	42.00	28.89	424.94	--	--	--	--	--	--	--	--	
7/7/2008	NP		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	--		32.00	42.00	34.75	419.08	--	--	--	--	--	--	--	--	
7/22/2009	NP		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	--		32.00	42.00	27.89	425.94	--	--	--	--	--	--	--	--	
9/9/2010	NP		32.00	42.00	33.06	420.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.2	
2/17/2011	--		32.00	42.00	32.60	421.23	--	--	--	--	--	--	--	--	
7/7/2011	NP		32.00	42.00	32.72	421.11	430	<0.50	<0.50	<0.50	<0.50	<0.50	8.0	7.1	g (GRO)
MW-7															
3/20/1995	--	450.33	30.00	40.00	22.07	428.26	31,000	2,300	400	620	2,900	--	--	--	
6/2/1995	--		30.00	40.00	23.42	426.91	40,000	1,400	280	610	2,400	--	--	--	
8/23/1995	--		30.00	40.00	27.13	423.20	25,000	1,400	200	600	1,600	350	--	--	
12/4/1995	--		30.00	40.00	29.45	420.88	23,000	1,100	74	490	720	--	--	--	
2/20/1996	--		30.00	40.00	20.25	430.08	39,000	1,200	140	640	1,800	<400	--	--	
5/15/1996	--		30.00	40.00	21.38	428.95	--	--	--	--	--	--	--	--	
8/13/1996	--		30.00	40.00	25.52	424.81	--	--	--	--	--	--	--	--	
11/13/1996	--		30.00	40.00	29.38	420.95	--	--	--	--	--	--	--	--	
3/26/1997	--		30.00	40.00	24.36	425.97	35,000	1,100	180	460	1,700	<300	--	--	
5/15/1997	--		30.00	40.00	26.90	423.43	--	--	--	--	--	--	--	--	
8/26/1997	--		30.00	40.00	30.21	420.12	--	--	--	--	--	--	--	--	
11/5/1997	--		30.00	40.00	32.49	417.84	--	--	--	--	--	--	--	--	
2/18/1998	--		30.00	40.00	18.10	432.23	19,000	1,100	120	460	1,700	240	--	--	
5/20/1998	--		30.00	40.00	21.68	428.65	--	--	--	--	--	--	--	--	
7/30/1998	--		30.00	40.00	26.07	424.26	--	--	--	--	--	--	--	--	
10/29/1998	--		30.00	40.00	31.13	419.20	--	--	--	--	--	--	--	--	
3/16/1999	P		30.00	40.00	24.45	425.88	8,600	430	51	200	680	<120	1.5	--	
5/5/1999	--		30.00	40.00	25.84	424.49	--	--	--	--	--	--	--	--	
8/26/1999	--		30.00	40.00	28.28	422.05	--	--	--	--	--	--	1.51	--	
12/3/1999	--		30.00	40.00	31.57	418.76	--	--	--	--	--	--	--	--	
3/13/2000	--		30.00	40.00	--	--	--	--	--	--	--	--	--	--	d

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-7 Cont.															
6/20/2000	--	450.33	30.00	40.00	25.91	424.42	--	--	--	--	--	--	5.4	--	
8/31/2000	--		30.00	40.00	28.40	421.93	8,410	344	58.9	276	581	202	0.09	--	
2/9/2001	--		30.00	40.00	30.04	420.29	2,030	203	12	17.9	49.4	128	1.55	--	
9/17/2001	P		30.00	40.00	29.03	421.30	4,800	200	14	9.9	27	160	0.29	--	
1/21/2002	--		30.00	40.00	28.98	421.35	2,600	280	17	41	50	97	--	--	b
1/21/2002	P		30.00	40.00	28.98	421.35	4,200	350	20	52	63	99	0.81	--	
7/19/2002	P		30.00	40.00	28.70	421.63	5,700	630	31	330	160	64	0.7	7.3	a
1/15/2003	--		30.00	40.00	21.91	428.42	12,000	470	19	340	310	91	1.5	7.0	a
7/9/2003	P		30.00	40.00	27.88	422.45	6,700	590	23	280	92	110	1.0	6.9	
02/19/2004	P		30.00	40.00	25.12	425.21	8,900	670	24	470	120	100	0.8	6.6	c
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		30.00	40.00	22.31	430.39	16,000	770	33	590	220	87	1.0	6.9	
07/15/2005	P		30.00	40.00	27.20	425.50	12,000	1,000	38	490	220	150	1.5	6.9	
01/10/2006	P		30.00	40.00	20.61	432.09	13,000	1,200	50	760	330	120	0.8	7.1	
7/21/2006	P		30.00	40.00	28.10	424.60	8,000	110	<50	380	180	54	3.20	7.8	
1/17/2007	P		30.00	40.00	29.70	423.00	5,600	16	<2.5	26	12	3.1	1.08	7.83	
7/18/2007	P		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		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		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		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		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		30.00	40.00	25.46	427.24	2,600	36	1.0	14	9.1	11	0.42	8.07	
9/9/2010	NP		30.00	40.00	30.10	422.60	2,800	430	11	32	46	110	--	--	
2/17/2011	--		30.00	40.00	29.71	422.99	--	--	--	--	--	--	--	--	
7/7/2011	NP		30.00	40.00	29.68	423.02	2,600	310	8.3	7.5	46	150	0.77	6.9	g (GRO)
MW-8															
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	--		27.50	42.50	24.95	424.48	--	--	--	--	--	--	--	--	
8/23/1995	--		27.50	42.50	30.94	418.49	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
12/4/1995	--		27.50	42.50	31.99	417.44	--	--	--	--	--	--	--	--	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-8 Cont.															
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	--		27.50	42.50	21.96	427.47	--	--	--	--	--	--	--	--	
8/13/1996	--		27.50	42.50	30.20	419.23	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/13/1996	--		27.50	42.50	33.24	416.19	--	--	--	--	--	--	--	--	
3/26/1997	--		27.50	42.50	26.85	422.58	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1997	--		27.50	42.50	29.69	419.74	--	--	--	--	--	--	--	--	
8/26/1997	--		27.50	42.50	34.00	415.43	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/5/1997	--		27.50	42.50	35.94	413.49	--	--	--	--	--	--	--	--	
2/18/1998	--		27.50	42.50	18.18	431.25	<50	0.6	0.6	<0.5	1.1	<3	--	--	
5/20/1998	--		27.50	42.50	22.85	426.58	--	--	--	--	--	--	--	--	
7/30/1998	NP		27.50	42.50	30.31	419.12	<50	<0.5	<0.5	<0.5	<0.5	<3	8.21	--	
10/29/1998	--		27.50	42.50	35.88	413.55	--	--	--	--	--	--	--	--	
3/16/1999	NP		27.50	42.50	28.50	420.93	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--	
5/5/1999	--		27.50	42.50	29.76	419.67	--	--	--	--	--	--	--	--	
8/26/1999	P		27.50	42.50	33.51	415.92	<50	<0.5	<0.5	<0.5	<0.5	<3	4.93	--	
12/3/1999	--		27.50	42.50	35.83	413.60	--	--	--	--	--	--	--	--	
3/13/2000	P		27.50	42.50	26.12	423.31	<50	<0.5	<0.5	<0.5	<1	<3	2.81	--	
6/20/2000	--		27.50	42.50	30.91	418.52	--	--	--	--	--	--	5.8	--	
8/31/2000	--		27.50	42.50	33.70	415.73	--	--	--	--	--	--	--	--	
2/9/2001	--		27.50	42.50	30.90	418.53	--	--	--	--	--	--	--	--	
9/17/2001	--		27.50	42.50	33.95	415.48	--	--	--	--	--	--	--	--	
1/21/2002	--		27.50	42.50	33.71	415.72	--	--	--	--	--	--	--	--	
7/19/2002	--		27.50	42.50	35.30	414.13	--	--	--	--	--	--	--	--	
1/15/2003	--		27.50	42.50	27.10	422.33	--	--	--	--	--	--	--	--	
7/9/2003	--		27.50	42.50	33.10	416.33	--	--	--	--	--	--	--	--	
02/19/2004	--		27.50	42.50	28.92	420.51	--	--	--	--	--	--	--	--	
08/04/2004	--	451.80	27.50	42.50	34.28	417.52	--	--	--	--	--	--	--	--	
01/18/2005	--		27.50	42.50	26.76	425.04	--	--	--	--	--	--	--	--	
07/15/2005	--		27.50	42.50	31.14	420.66	--	--	--	--	--	--	--	--	
01/10/2006	--		27.50	42.50	22.88	428.92	--	--	--	--	--	--	--	--	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-8 Cont.															
7/21/2006	--	451.80	27.50	42.50	30.84	420.96	--	--	--	--	--	--	--	--	
1/17/2007	--		27.50	42.50	33.20	418.60	--	--	--	--	--	--	--	--	
7/18/2007	--		27.50	42.50	31.92	419.88	--	--	--	--	--	--	--	--	
1/15/2008	--		27.50	42.50	31.52	420.28	--	--	--	--	--	--	--	--	
7/7/2008	--		27.50	42.50	36.32	415.48	--	--	--	--	--	--	--	--	
1/7/2009	--		27.50	42.50	40.52	411.28	--	--	--	--	--	--	--	--	
7/22/2009	--		27.50	42.50	40.38	411.42	--	--	--	--	--	--	--	--	
3/12/2010	--		27.50	42.50	31.48	420.32	--	--	--	--	--	--	--	--	
9/9/2010	--		27.50	42.50	35.28	416.52	--	--	--	--	--	--	--	--	
2/17/2011	--		27.50	42.50	33.49	418.31	--	--	--	--	--	--	--	--	
7/7/2011	--		27.50	42.50	32.74	419.06	--	--	--	--	--	--	--	--	
MW-9															
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	--		29.50	39.50	21.23	427.98	--	--	--	--	--	--	--	--	
8/23/1995	--		29.50	39.50	24.33	424.88	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
12/4/1995	--		29.50	39.50	27.90	421.31	--	--	--	--	--	--	--	--	
2/20/1996	--		29.50	39.50	17.86	431.35	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1996	--		29.50	39.50	18.69	430.52	--	--	--	--	--	--	--	--	
8/13/1996	--		29.50	39.50	24.17	425.04	--	--	--	--	--	--	--	--	
11/13/1996	--		29.50	39.50	28.01	421.20	--	--	--	--	--	--	--	--	
3/26/1997	--		29.50	39.50	22.58	426.63	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1997	--		29.50	39.50	25.12	424.09	--	--	--	--	--	--	--	--	
8/26/1997	--		29.50	39.50	28.28	420.93	--	--	--	--	--	--	--	--	
11/5/1997	--		29.50	39.50	31.18	418.03	--	--	--	--	--	--	--	--	
2/18/1998	--		29.50	39.50	16.03	433.18	<50	0.6	0.5	<0.5	1	<3	--	--	
5/20/1998	--		29.50	39.50	19.31	429.90	--	--	--	--	--	--	--	--	
7/30/1998	--		29.50	39.50	24.90	424.31	--	--	--	--	--	--	--	--	
10/29/1998	--		29.50	39.50	30.08	419.13	--	--	--	--	--	--	--	--	
3/16/1999	P		29.50	39.50	22.68	426.53	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--	
5/5/1999	--		29.50	39.50	23.82	425.39	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-9 Cont.															
8/26/1999	--	449.21	29.50	39.50	26.57	422.64	--	--	--	--	--	--	5.08	--	
12/3/1999	--		29.50	39.50	--	--	--	--	--	--	--	--	--	--	d
3/13/2000	P		29.50	39.50	25.62	423.59	<50	<0.5	<0.5	<0.5	<1	<3	5.43	--	
6/20/2000	--		29.50	39.50	23.55	425.66	--	--	--	--	--	--	6.2	--	
8/31/2000	--		29.50	39.50	27.39	421.82	--	--	--	--	--	--	--	--	
2/9/2001	--		29.50	39.50	28.65	420.56	--	--	--	--	--	--	--	--	
9/17/2001	--		29.50	39.50	27.51	421.70	--	--	--	--	--	--	--	--	
1/21/2002	--		29.50	39.50	27.09	422.12	--	--	--	--	--	--	--	--	
7/19/2002	--		29.50	39.50	27.06	422.15	--	--	--	--	--	--	--	--	
1/15/2003	--		29.50	39.50	21.78	427.43	--	--	--	--	--	--	--	--	
7/9/2003	--		29.50	39.50	26.18	423.03	--	--	--	--	--	--	--	--	
02/19/2004	--		29.50	39.50	23.45	425.76	--	--	--	--	--	--	--	--	
08/04/2004	--	451.63	29.50	39.50	29.24	422.39	--	--	--	--	--	--	--	--	
01/18/2005	--		29.50	39.50	20.64	430.99	--	--	--	--	--	--	--	--	
07/15/2005	--		29.50	39.50	25.72	425.91	--	--	--	--	--	--	--	--	
01/10/2006	--		29.50	39.50	18.86	432.77	--	--	--	--	--	--	--	--	
7/21/2006	--		29.50	39.50	25.58	426.05	--	--	--	--	--	--	--	--	
1/17/2007	--		29.50	39.50	29.11	422.52	--	--	--	--	--	--	--	--	
7/18/2007	--		29.50	39.50	--	--	--	--	--	--	--	--	--	--	d
1/15/2008	--		29.50	39.50	24.89	426.74	--	--	--	--	--	--	--	--	
7/7/2008	--		29.50	39.50	32.06	419.57	--	--	--	--	--	--	--	--	
1/7/2009	--		29.50	39.50	32.65	418.98	--	--	--	--	--	--	--	--	
7/22/2009	--		29.50	39.50	33.74	417.89	--	--	--	--	--	--	--	--	
3/12/2010	--		29.50	39.50	23.44	428.19	--	--	--	--	--	--	--	--	
9/9/2010	--		29.50	39.50	29.56	422.07	--	--	--	--	--	--	--	--	
2/17/2011	--		29.50	39.50	27.18	424.45	--	--	--	--	--	--	--	--	
7/7/2011	--		29.50	39.50	27.71	423.92	--	--	--	--	--	--	--	--	
MW-10															
3/20/1995	--	449.22	29.00	37.00	20.96	428.26	--	--	--	--	--	--	--	--	
6/2/1995	--		29.00	37.00	22.15	427.07	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-10 Cont.															
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	--		29.00	37.00	26.97	422.25	--	--	--	--	--	--	--	--	
2/20/1996	--		29.00	37.00	18.40	430.82	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1996	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	d
8/13/1996	--		29.00	37.00	23.70	425.52	--	--	--	--	--	--	--	--	
11/13/1996	--		29.00	37.00	27.15	422.07	--	--	--	--	--	--	--	--	
3/26/1997	--		29.00	37.00	22.23	426.99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1997	--		29.00	37.00	24.57	424.65	--	--	--	--	--	--	--	--	
8/26/1997	--		29.00	37.00	27.62	421.60	--	--	--	--	--	--	--	--	
11/5/1997	--		29.00	37.00	30.79	418.43	--	--	--	--	--	--	--	--	
2/18/1998	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	d
5/20/1998	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	
7/30/1998	--		29.00	37.00	23.90	425.32	--	--	--	--	--	--	--	--	
10/29/1998	--		29.00	37.00	30.55	418.67	--	--	--	--	--	--	--	--	
3/16/1999	P		29.00	37.00	23.05	426.17	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--	
5/5/1999	--		29.00	37.00	24.00	425.22	--	--	--	--	--	--	--	--	
8/26/1999	--		29.00	37.00	26.50	422.72	--	--	--	--	--	--	5.15	--	
12/3/1999	--		29.00	37.00	30.80	418.42	--	--	--	--	--	--	--	--	
3/13/2000	--		29.00	37.00	26.21	423.01	--	--	--	--	--	--	--	--	d
6/20/2000	--		29.00	37.00	23.52	425.70	--	--	--	--	--	--	5.5	--	
8/31/2000	--		29.00	37.00	27.52	421.70	--	--	--	--	--	--	--	--	
2/9/2001	--		29.00	37.00	28.71	420.51	--	--	--	--	--	--	--	--	
9/17/2001	--		29.00	37.00	27.94	421.28	--	--	--	--	--	--	--	--	
1/21/2002	--		29.00	37.00	27.44	421.78	--	--	--	--	--	--	--	--	
7/19/2002	--		29.00	37.00	27.80	421.42	--	--	--	--	--	--	--	--	
1/15/2003	--		29.00	37.00	23.09	426.13	--	--	--	--	--	--	--	--	
7/9/2003	--		29.00	37.00	26.87	422.35	--	--	--	--	--	--	--	--	
02/19/2004	--		29.00	37.00	23.39	425.83	--	--	--	--	--	--	--	--	
01/18/2005	--	451.65	29.00	37.00	21.40	430.25	--	--	--	--	--	--	--	--	
07/15/2005	--		29.00	37.00	25.37	426.28	--	--	--	--	--	--	--	--	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-10 Cont.															
01/10/2006	--	451.65	29.00	37.00	19.81	431.84	--	--	--	--	--	--	--	--	
7/21/2006	--		29.00	37.00	25.16	426.49	--	--	--	--	--	--	--	--	
1/17/2007	--		29.00	37.00	28.95	422.70	--	--	--	--	--	--	--	--	
7/18/2007	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	d
1/15/2008	--		29.00	37.00	24.62	427.03	--	--	--	--	--	--	--	--	
7/7/2008	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	d
1/7/2009	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	d
7/22/2009	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	Dry
3/12/2010	--		29.00	37.00	24.13	427.52	--	--	--	--	--	--	--	--	
9/9/2010	--		29.00	37.00	27.91	423.74	--	--	--	--	--	--	--	--	
2/17/2011	--		29.00	37.00	27.16	424.49	--	--	--	--	--	--	--	--	
7/7/2011	--		29.00	37.00	26.38	425.27	--	--	--	--	--	--	--	--	
MW-11															
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	--		29.00	39.00	23.82	424.20	--	--	--	--	--	--	--	--	
8/23/1995	--		29.00	39.00	30.15	417.87	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
12/4/1995	--		29.00	39.00	31.63	416.39	--	--	--	--	--	--	--	--	
2/20/1996	--		29.00	39.00	20.94	427.08	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1996	--		29.00	39.00	23.03	424.99	--	--	--	--	--	--	--	--	
8/13/1996	--		29.00	39.00	29.19	418.83	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/13/1996	--		29.00	39.00	31.96	416.06	--	--	--	--	--	--	--	--	
3/26/1997	--		29.00	39.00	26.61	421.41	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1997	--		29.00	39.00	29.39	418.63	--	--	--	--	--	--	--	--	
8/26/1997	--		29.00	39.00	33.47	414.55	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/5/1997	--		29.00	39.00	35.12	412.90	--	--	--	--	--	--	--	--	
2/18/1998	--		29.00	39.00	18.03	429.99	<50	<0.5	<0.5	<0.5	1	<3	--	--	
5/20/1998	--		29.00	39.00	23.00	425.02	--	--	--	--	--	--	--	--	
7/30/1998	P		29.00	39.00	29.30	418.72	<50	<0.5	<0.5	<0.5	<0.5	<3	5.59	--	
10/29/1998	--		29.00	39.00	34.47	413.55	--	--	--	--	--	--	--	--	
3/16/1999	P		29.00	39.00	27.88	420.14	<50	<0.5	<0.5	<0.5	<0.5	<3	1.0	--	

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-11 Cont.															
5/5/1999	--	448.02	29.00	39.00	26.85	421.17	--	--	--	--	--	--	--	--	
8/26/1999	P		29.00	39.00	32.74	415.28	<50	<0.5	<0.5	<0.5	<0.5	<3	4.59	--	
12/3/1999	--		29.00	39.00	34.70	413.32	--	--	--	--	--	--	--	--	
3/13/2000	P		29.00	39.00	25.94	422.08	<50	<0.5	<0.5	<0.5	<1	<3	3.21	--	
6/20/2000	--		29.00	39.00	30.40	417.62	--	--	--	--	--	--	3.3	--	
8/31/2000	--		29.00	39.00	32.68	415.34	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--	b
8/31/2000	NP		29.00	39.00	32.68	415.34	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.4	--	
2/9/2001	--		29.00	39.00	31.17	416.85	--	--	--	--	--	--	--	--	
9/17/2001	NP		29.00	39.00	32.98	415.04	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.62	--	
1/21/2002	--		29.00	39.00	31.05	416.97	--	--	--	--	--	--	--	--	
7/19/2002	P		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	--		29.00	39.00	23.75	424.27	--	--	--	--	--	--	--	--	
7/9/2003	P		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	--		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	--		29.00	39.00	24.80	425.61	--	--	--	--	--	--	--	--	
07/15/2005	P		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	--		29.00	39.00	20.87	429.54	--	--	--	--	--	--	--	--	
7/21/2006	P		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	--		29.00	39.00	31.59	418.82	--	--	--	--	--	--	--	--	
7/18/2007	NP		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	--		29.00	39.00	29.12	421.29	--	--	--	--	--	--	--	--	
7/7/2008	NP		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	--		29.00	39.00	37.45	412.96	--	--	--	--	--	--	--	--	
7/22/2009	NP		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	--		29.00	39.00	28.47	421.94	--	--	--	--	--	--	--	--	
9/9/2010	NP		29.00	39.00	33.03	417.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.2	
2/17/2011	--		29.00	39.00	31.70	418.71	--	--	--	--	--	--	--	--	
7/7/2011	NP		29.00	39.00	31.44	418.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.65	7.1	
RW-1															

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ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
RW-1 Cont.															
3/20/1995	--	451.67	25.50	40.50	23.76	427.91	15,000	1,000	140	310	950	--	--	--	
6/2/1995	--		25.50	40.50	25.12	426.55	12,000	1,300	280	420	1,100	--	--	--	
8/23/1995	--		25.50	40.50	28.80	422.87	8,200	520	190	240	610	<50	--	--	
12/4/1995	--		25.50	40.50	31.15	420.52	2,600	140	59	83	210	--	--	--	
2/20/1996	--		25.50	40.50	21.45	430.22	6,300	410	160	180	650	<40	--	--	
5/15/1996	--		25.50	40.50	22.97	428.70	--	--	--	--	--	--	--	--	
8/13/1996	--		25.50	40.50	24.74	426.93	--	--	--	--	--	--	--	--	
11/13/1996	--		25.50	40.50	30.69	420.98	--	--	--	--	--	--	--	--	
3/26/1997	--		25.50	40.50	25.69	425.98	500	57	3	6.4	18	54	--	--	
5/15/1997	--		25.50	40.50	28.19	423.48	--	--	--	--	--	--	--	--	
8/26/1997	--		25.50	40.50	31.21	420.46	--	--	--	--	--	--	--	--	
11/5/1997	--		25.50	40.50	33.67	418.00	--	--	--	--	--	--	--	--	
2/18/1998	--		25.50	40.50	20.14	431.53	9,400	200	70	190	710	<60	--	--	
5/20/1998	--		25.50	40.50	23.43	428.24	--	--	--	--	--	--	--	--	
7/30/1998	--		25.50	40.50	27.42	424.25	--	--	--	--	--	--	--	--	
10/29/1998	--		25.50	40.50	32.47	419.20	--	--	--	--	--	--	--	--	
3/16/1999	NP		25.50	40.50	25.45	426.22	1,100	140	19	45	83	530	1.0	--	
5/5/1999	--		25.50	40.50	27.23	424.44	--	--	--	--	--	--	--	--	
8/26/1999	--		25.50	40.50	29.98	421.69	--	--	--	--	--	--	1.39	--	
12/3/1999	--		25.50	40.50	32.38	419.29	--	--	--	--	--	--	--	--	
3/13/2000	NP		25.50	40.50	25.53	426.14	1,100	130	3.5	0.7	95	230	4.43	--	
6/20/2000	--		25.50	40.50	28.31	423.36	--	--	--	--	--	--	1.9	--	
8/31/2000	NP		25.50	40.50	30.61	421.06	<0.50	<0.500	<0.500	<0.500	<0.500	82.5	3.21	--	
2/9/2001	NP		25.50	40.50	31.14	420.53	<0.50	<0.500	<0.500	<0.500	<0.500	<2.50	0.84	--	
9/17/2001	NP		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		25.50	40.50	30.15	421.52	<50	7.7	<0.50	<0.50	1.5	18	0.63	--	
7/19/2002	NP		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	--		25.50	40.50	22.20	429.47	860	9	1.6	17	42	1.5	2.8	7.2	a
7/9/2003	--		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		25.50	40.50	23.53	428.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.4	6.7	c

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
RW-1 Cont.															
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		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		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		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	--		25.50	40.50	--	--	--	--	--	--	--	--	--	--	d
1/17/2007	P		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		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		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		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		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		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		25.50	40.50	25.01	429.10	240	15	<0.50	<0.50	<0.50	2.7	0.78	7.06	
9/9/2010	NP		25.50	40.50	31.01	423.10	440	<0.50	<0.50	<0.50	0.53	1.9	--	7.3	
2/17/2011	NP		25.50	40.50	26.45	427.66	500	1.5	<0.50	<0.50	0.55	<0.50	0.98	8.0	g (GRO)
7/7/2011	NP		25.50	40.50	30.42	423.69	750	2.4	<0.50	0.64	2.2	2.2	0.82	6.7	g (GRO)
VW-1															
8/31/2000	P	NS	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	--		18.50	28.50	21.72	431.57	--	--	--	--	--	--	--	--	
07/15/2005	P		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	--		18.50	28.50	20.17	433.12	--	--	--	--	--	--	--	--	
7/21/2006	P		18.50	28.50	22.50	430.79	220	<0.50	<0.50	<0.50	<0.50	<0.50	5.91	7.3	e
1/17/2007	--		18.50	28.50	21.67	431.62	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
VW-1 Cont.															
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	--		18.50	28.50	21.87	431.42	--	--	--	--	--	--	--	--	
7/7/2008	NP		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	--		18.50	28.50	22.00	431.29	--	--	--	--	--	--	--	--	
7/22/2009	NP		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	--		18.50	28.50	21.85	431.44	--	--	--	--	--	--	--	--	
9/9/2010	NP		18.50	28.50	23.65	429.64	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.93	
2/17/2011	NP		18.50	28.50	23.83	429.46	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.57	7.9	
7/7/2011	NP		18.50	28.50	25.17	428.12	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.85	7.2	

Symbols & 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
g = Quantitated against gasoline

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

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 ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
8/23/1995	--	--	<300	--	--	--	--	--	
2/20/1996	--	--	<300	--	--	--	--	--	
5/15/1996	--	--	<250	--	--	--	--	--	
8/13/1996	--	--	<200	--	--	--	--	--	
11/13/1996	--	--	<30	--	--	--	--	--	
3/26/1997	--	--	<30	--	--	--	--	--	
5/15/1997	--	--	<120	--	--	--	--	--	
8/26/1997	--	--	<3	--	--	--	--	--	
11/5/1997	--	--	29	--	--	--	--	--	
2/18/1998	--	--	<120	--	--	--	--	--	
5/20/1998	--	--	<300	--	--	--	--	--	
7/30/1998	--	--	<3	--	--	--	--	--	
10/29/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	270	--	--	--	--	--	
5/5/1999	--	--	170	--	--	--	--	--	
8/26/1999	--	--	120	--	--	--	--	--	
12/3/1999	--	--	<3	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
MW-2									
8/23/1995	--	--	<500	--	--	--	--	--	
2/20/1996	--	--	<300	--	--	--	--	--	
5/15/1996	--	--	<300	--	--	--	--	--	
8/13/1996	--	--	<300	--	--	--	--	--	
11/13/1996	--	--	<200	--	--	--	--	--	
3/26/1997	--	--	<120	--	--	--	--	--	
5/15/1997	--	--	<120	--	--	--	--	--	
8/26/1997	--	--	<120	--	--	--	--	--	
11/5/1997	--	--	<40	--	--	--	--	--	
2/18/1998	--	--	130	--	--	--	--	--	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
5/20/1998	--	--	<120	--	--	--	--	--	
7/30/1998	--	--	<120	--	--	--	--	--	
10/29/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	60	--	--	--	--	--	
5/5/1999	--	--	17	--	--	--	--	--	
8/26/1999	--	--	26	--	--	--	--	--	
12/3/1999	--	--	<3	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
8/31/2000	--	--	<2.50	--	--	--	--	--	
9/17/2001	--	--	120	--	--	--	--	--	
7/19/2002	--	--	16	--	--	--	--	--	
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	--	
9/9/2010	<600	41	13	<1.0	<1.0	<1.0	<1.0	<1.0	
7/7/2011	<300	<10	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
8/23/1995	--	--	<3	--	--	--	--	--	
2/20/1996	--	--	<3	--	--	--	--	--	
5/15/1996	--	--	<0.5	--	--	--	--	--	
8/13/1996	--	--	<3	--	--	--	--	--	
11/13/1996	--	--	<3	--	--	--	--	--	
3/26/1997	--	--	<3	--	--	--	--	--	
5/15/1997	--	--	<3	--	--	--	--	--	
8/26/1997	--	--	<3	--	--	--	--	--	
11/5/1997	--	--	<3	--	--	--	--	--	
2/18/1998	--	--	<3	--	--	--	--	--	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
5/20/1998	--	--	<3	--	--	--	--	--	
7/30/1998	--	--	<3	--	--	--	--	--	
10/29/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	<3	--	--	--	--	--	
5/5/1999	--	--	<3	--	--	--	--	--	
8/26/1999	--	--	<3	--	--	--	--	--	
12/3/1999	--	--	<3	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
MW-4									
8/23/1995	--	--	<100	--	--	--	--	--	
2/20/1996	--	--	<70	--	--	--	--	--	
3/26/1997	--	--	<70	--	--	--	--	--	
2/18/1998	--	--	120	--	--	--	--	--	
3/16/1999	--	--	82	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
8/31/2000	--	--	<2.50	--	--	--	--	--	
2/9/2001	--	--	<2.50	--	--	--	--	--	
9/17/2001	--	--	360	--	--	--	--	--	
1/21/2002	--	--	300	--	--	--	--	--	
7/19/2002	--	--	130	--	--	--	--	--	
1/15/2003	--	--	150	--	--	--	--	--	
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	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
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	
9/9/2010	<1,500	880	51	<2.5	<2.5	<2.5	<2.5	<2.5	
2/17/2011	<1200	430	33	<2.0	<2.0	<2.0	<2.0	<2.0	
7/7/2011	<1,500	580	57	<2.5	<2.5	<2.5	<2.5	<2.5	
MW-5									
8/23/1995	--	--	<300	--	--	--	--	--	
2/20/1996	--	--	<50	--	--	--	--	--	
5/15/1996	--	--	<40	--	--	--	--	--	
8/13/1996	--	--	47	--	--	--	--	--	
11/13/1996	--	--	66	--	--	--	--	--	
3/26/1997	--	--	68	--	--	--	--	--	
5/15/1997	--	--	48	--	--	--	--	--	
8/26/1997	--	--	9	--	--	--	--	--	
11/5/1997	--	--	34	--	--	--	--	--	
2/18/1998	--	--	320	--	--	--	--	--	
5/20/1998	--	--	62	--	--	--	--	--	
7/30/1998	--	--	<3	--	--	--	--	--	
10/29/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	120	--	--	--	--	--	
5/5/1999	--	--	19	--	--	--	--	--	
8/26/1999	--	--	150	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
8/31/2000	--	--	3.83	--	--	--	--	--	
9/17/2001	--	--	330	--	--	--	--	--	
7/19/2002	--	--	180	--	--	--	--	--	
7/9/2003	<1,000	1,100	260	<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 ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-5 Cont.									
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	
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	
9/9/2010	<300	420	10	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2011	<300	350	4.6	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
8/23/1995	--	--	<20	--	--	--	--	--	
2/20/1996	--	--	<30	--	--	--	--	--	
5/15/1996	--	--	<15	--	--	--	--	--	
8/13/1996	--	--	<20	--	--	--	--	--	
11/13/1996	--	--	16	--	--	--	--	--	
3/26/1997	--	--	<30	--	--	--	--	--	
5/15/1997	--	--	<12	--	--	--	--	--	
8/26/1997	--	--	<12	--	--	--	--	--	
11/5/1997	--	--	9	--	--	--	--	--	
2/18/1998	--	--	19	--	--	--	--	--	
5/20/1998	--	--	9	--	--	--	--	--	
7/30/1998	--	--	<15	--	--	--	--	--	
10/29/1998	--	--	<12	--	--	--	--	--	
3/16/1999	--	--	18	--	--	--	--	--	
5/5/1999	--	--	25	--	--	--	--	--	
8/26/1999	--	--	13	--	--	--	--	--	
12/3/1999	--	--	4	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
8/31/2000	--	--	8.73	--	--	--	--	--	
2/9/2001	--	--	48.9	--	--	--	--	--	
2/9/2001	--	--	57.1	--	--	--	--	--	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-6 Cont.									
9/17/2001	--	--	<2.5	--	--	--	--	--	
9/17/2001	--	--	<2.5	--	--	--	--	--	
1/21/2002	--	--	<5.0	--	--	--	--	--	
7/19/2002	--	--	<0.50	--	--	--	--	--	
1/15/2003	--	--	1	--	--	--	--	--	
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	
9/9/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2011	<300	19	8.0	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-7									
8/23/1995	--	--	350	--	--	--	--	--	
2/20/1996	--	--	<400	--	--	--	--	--	
3/26/1997	--	--	<300	--	--	--	--	--	
2/18/1998	--	--	240	--	--	--	--	--	
3/16/1999	--	--	<120	--	--	--	--	--	
8/31/2000	--	--	202	--	--	--	--	--	
2/9/2001	--	--	128	--	--	--	--	--	
9/17/2001	--	--	160	--	--	--	--	--	
1/21/2002	--	--	97	--	--	--	--	--	
1/21/2002	--	--	99	--	--	--	--	--	
7/19/2002	--	--	64	--	--	--	--	--	
1/15/2003	--	--	91	--	--	--	--	--	
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

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-7 Cont.									
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	
9/9/2010	<300	180	110	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2011	<3,000	390	150	<5.0	<5.0	<5.0	<5.0	<5.0	
MW-8									
8/23/1995	--	--	<3	--	--	--	--	--	
2/20/1996	--	--	<3	--	--	--	--	--	
8/13/1996	--	--	<3	--	--	--	--	--	
3/26/1997	--	--	<3	--	--	--	--	--	
8/26/1997	--	--	<3	--	--	--	--	--	
2/18/1998	--	--	<3	--	--	--	--	--	
7/30/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	<3	--	--	--	--	--	
8/26/1999	--	--	<3	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
MW-9									
8/23/1995	--	--	<3	--	--	--	--	--	
2/20/1996	--	--	<3	--	--	--	--	--	
3/26/1997	--	--	<3	--	--	--	--	--	
2/18/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	<3	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-10									
8/23/1995	--	--	<3	--	--	--	--	--	
2/20/1996	--	--	<3	--	--	--	--	--	
3/26/1997	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	<3	--	--	--	--	--	
MW-11									
8/23/1995	--	--	<3	--	--	--	--	--	
2/20/1996	--	--	<3	--	--	--	--	--	
8/13/1996	--	--	<3	--	--	--	--	--	
3/26/1997	--	--	<3	--	--	--	--	--	
8/26/1997	--	--	<3	--	--	--	--	--	
2/18/1998	--	--	<3	--	--	--	--	--	
7/30/1998	--	--	<3	--	--	--	--	--	
3/16/1999	--	--	<3	--	--	--	--	--	
8/26/1999	--	--	<3	--	--	--	--	--	
3/13/2000	--	--	<3	--	--	--	--	--	
8/31/2000	--	--	<2.50	--	--	--	--	--	
8/31/2000	--	--	<2.50	--	--	--	--	--	
9/17/2001	--	--	<2.5	--	--	--	--	--	
7/19/2002	--	--	<0.50	--	--	--	--	--	
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	
9/9/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
RW-1									
8/23/1995	--	--	<50	--	--	--	--	--	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
RW-1 Cont.									
2/20/1996	--	--	<40	--	--	--	--	--	
3/26/1997	--	--	54	--	--	--	--	--	
2/18/1998	--	--	<60	--	--	--	--	--	
3/16/1999	--	--	530	--	--	--	--	--	
3/13/2000	--	--	230	--	--	--	--	--	
8/31/2000	--	--	82.5	--	--	--	--	--	
2/9/2001	--	--	<2.50	--	--	--	--	--	
9/17/2001	--	--	<2.5	--	--	--	--	--	
1/21/2002	--	--	18	--	--	--	--	--	
7/19/2002	--	--	13	--	--	--	--	--	
1/15/2003	--	--	1.5	--	--	--	--	--	
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	
9/9/2010	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2011	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
VW-1									
8/31/2000	--	--	<2.50	--	--	--	--	--	
2/9/2001	--	--	<2.50	--	--	--	--	--	
9/17/2001	--	--	<2.5	--	--	--	--	--	

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

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
VW-1 Cont.									
1/21/2002	--	--	<5.0	--	--	--	--	--	
7/19/2002	--	--	<0.50	--	--	--	--	--	
1/15/2003	--	--	<0.50	--	--	--	--	--	
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	
9/9/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/7/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Symbols & 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

Notes:

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

Table 3. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
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 Groundwater Gradient - Direction and Magnitude
ARCO Service Station #0771, 899 Rincon Ave., Livermore, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
9/9/2010	North	0.04
2/17/2011	North	0.03
7/7/2011	North	0.04

Notes:

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

APPENDIX A
FIELD METHODS

BROADBENT & ASSOCIATES INC. FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

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

A.1.1 Water Level & Free-Product Measurement

Prior to groundwater sample collection from each monitoring well, the presence of separate-phase hydrocarbons (SPH or free product, FP) and depth to groundwater shall be measured. Depth to groundwater 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 groundwater and prior to the collection of groundwater 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 Groundwater 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 groundwater sampling equipment (e.g., water level indicator, oil-interface probe, purge pump, etc.) will be decontaminated. Decontamination protocol will include thoroughly cleaning with a solution of Liquinox, rinsing with clean water, and final rinsing with control water (potable water of known quality, distilled, or de-ionized water). Pre-cleaned new disposable bailers and disposable plastic tubing will be dedicated to each individual well.

A.1.6 Chain of Custody Procedures

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

Field Custody Procedures

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

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

Transfer of Custody and Shipment

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

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

A.1.7 Field Records

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

APPENDIX B

FIELD DATA SHEETS

Project: BP/AR10 771 Project No.: 06-82-608
Field Representative(s): SB & JR Day: Thursday Date: 7/7/11
Time Onsite: From: 0830 To: 1305; From: To: ; From: To:

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

Weather: Sunny

Equipment In Use:

Visitors:

TIME:

WORK DESCRIPTION:

<u>0830</u>	<u>on site filling out paperwork & conducting safety meeting.</u>
<u>0920</u>	<u>Set up on mw-11 Sample @ 0935</u>
<u>0939</u>	<u>set up on mw-6 Sample @ 0950</u>
<u>0955</u>	<u>Set up on mw RW-1 Sample @ 1010</u>
<u>1011</u>	<u>Set up on mw-5 Sample @ 1040</u>
<u>1052</u>	<u>Set up on mw-4 Sample @ 1105</u>
<u>1107</u>	<u>set up on mw-2 Sample @ 1135</u>
<u>1213</u>	<u>Set up on mw-7 Sample @ 1225</u>
<u>1230</u>	<u>set up on VW-1 Sample @ 1240</u>
<u>1305</u>	<u>Off site</u>

Signature:

DATE: 7/7/11
PERSONNEL: SB & JR
WEATHER: Sunny

PROJECT NO.: 06-82-608
COMMENTS: RY/ARCO 271

Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	Equip:	Geosquirt	Tubing	Bailers	DO	wli	Ec/pH	WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC
					pH	Cond. (X100)	Temp. (C/F)	DO (mg/l)	Redox (mV)	Iron (mg/l)	Alk. (mg/l)	
MW-1	0902	TOC	31.12									
MW-2	1110		26.62									
MW-3	1252		28.47 30.48									
MW-4	1053		27.98									
MW-5	1012		28.72									
MW-6	0941		32.72									
MW-7	1214		29.68									
MW-8	0914		32.74									
MW-9	0912		27.71									
MW-10	0909		26.38									
MW-11	0923		31.44									
RW-1	0957		30.42									
VW-1	1232		25.17									

Groundwater Sampling Data Sheet

Well I.D.: MW-2
 Project Name/Location: BP ARCO 771 Project #: 06-82-608
 Sampler's Name: SB & JR Date: 7/7/11
 Purging Equipment: bruler
 Sampling Equipment: bruler

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: 33.82 feet
 Depth to Water: - 26.62 feet
 Water Column Thickness: = 7.20 feet
 Unit Casing Volume*: x 0.65 gallon / foot
 Casing Water Volume: = ~~6.50~~ 4.68 gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = ~~19.50~~ 14.04 gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1115	1.02	-184	—	1101	23.7	7.1	
2	1118	X	X	X	1062	22.5	7.2	
4	1124	X	X	X	986.5	22.8	7.2	
6	1130	X	X	X	946.0	22.7	7.1	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 6.0 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: BP/AR(0 77) Project #: 06-82-608
 Sampler's Name: SB + JN Date: 7/7/11
 Purging Equipment: _____
 Sampling Equipment: boiler

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: _____ feet
 Depth to Water: 27.98 feet
 Water Column Thickness: = _____ feet
 Unit Casing Volume*: x _____ gallon / foot
 Casing Water Volume: = _____ gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = _____ gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1057	0.70	-89	—	1125	22.8	6.9	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 0 gallons
 Depth to Water at Sample Collection: _____ feet
 Sample Collection Time: 1105

Purged Dry? (Y/N) (N)

Comments: NP

Groundwater Sampling Data Sheet

Well I.D.: mw-5

Project Name/Location: BP/ARCO 771

Project #: 06-82-608

Sampler's Name: SJS & JR

Date: 7/7/11

Purging Equipment: booster

Sampling Equipment: Dr. Well

Casing Type: PVC

Casing Diameter: 4 inch

***UNIT CASING VOLUMES**

Total Well Depth: 40.13 feet

2" = 0.16 gal/lin ft.

Depth to Water: - 28.72 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = 11.51 feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x 0.65 gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = 7.48 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 22.4 gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1018	1.60	-85	—	1082	21.2	7.1	
2	1024	X	X	X	1096	21.4	7.1	
4	1028	X	X	X	1063	21.2	7.0	
6	1036	X	X	X	1075	22.1	7.0	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 6.0 gallons

Depth to Water at Sample Collection: _____ feet

Sample Collection Time: 1040

Purged Dry? (Y/N) (N)

Comments:

Groundwater Sampling Data Sheet

Well I.D.: MW-7
 Project Name/Location: BP/ARCO 771 Project #: 06-82-608
 Sampler's Name: SR + JR Date: 7/7/11
 Purging Equipment: _____
 Sampling Equipment: bauler

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: _____ feet
 Depth to Water: 29.68 feet
 Water Column Thickness: = _____ feet
 Unit Casing Volume*: x _____ gallon / foot
 Casing Water Volume: = _____ gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = _____ gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1223	0.77	-131	—	1220	24.8	6.9	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 0 gallons
 Depth to Water at Sample Collection: _____ feet
 Sample Collection Time: 1225

Purged Dry? (Y/N) (Y)

Comments: NP

Groundwater Sampling Data Sheet

Well I.D.: mw-11
 Project Name/Location: BP/AR10 771 Project #: 06-82-608
 Sampler's Name: SB & JP Date: 7/7/11
 Purging Equipment: _____
 Sampling Equipment: bauler

Casing Type: PVC

Casing Diameter: 2 inch

***UNIT CASING VOLUMES**

Total Well Depth: _____ feet

2" = 0.16 gal/lin ft.

Depth to Water: 31.44 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = _____ feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x _____ gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = _____ gallons

Casing Volume: x 3 each

Estimated Purge Volume: = _____ gallons

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	0930	3.65	318	—	1074	21.9	7.1	
		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: 0935

Purged Dry? (Y/N) (N)

Comments: NP

Groundwater Sampling Data Sheet

Well I.D.: RW-1
 Project Name/Location: ARP/ALCO 771 Project #: 06-82-608
 Sampler's Name: SB + JR Date: 7/7/11
 Purging Equipment: _____
 Sampling Equipment: Dacler

Casing Type: PVC
 Casing Diameter: 6 inch
 Total Well Depth: _____ feet
 Depth to Water: 30.42 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>1004</u>	<u>0.82</u>	<u>-106</u>	<u>-</u>	<u>712.3</u>	<u>21.2</u>	<u>6.7</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: 1010

Purged Dry? (Y/N) (N)

Comments: _____

Groundwater Sampling Data Sheet

Well I.D.: VW-1
 Project Name/Location: BP/AR10771 Project #: 06-87-608
 Sampler's Name: SB & JR Date: 7/7/11
 Purging Equipment: _____
 Sampling Equipment: bauler

Casing Type: PVC
 Casing Diameter: 4 inch
 Total Well Depth: _____ feet
 Depth to Water: 25.17 feet
 Water Column Thickness: = _____ feet
 Unit Casing Volume*: x _____ gallon / foot
 Casing Water Volume: = _____ gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = _____ gallons

***UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.
 3" = 0.37 gal/lin ft.
 4" = 0.65 gal/lin ft.
 6" = 1.47 gal/lin ft.

Free product measurement (if present): _____

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1238	385	110	—	879.9	26.1	7.2	
		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: 25.17 feet
 Sample Collection Time: 1240

Purged Dry? (Y/N) (N)

Comments: ND

NON-HAZARDOUS WASTE DATA FORM

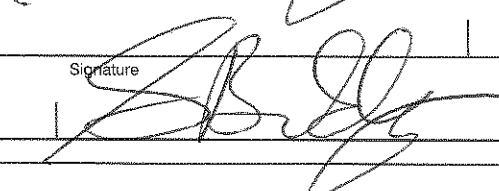
BESI #

Generator's Name and Mailing Address BP WEST COAST PRODUCTS, LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688	Generator's Site Address (if different than mailing address) 899 Rincon Ave Livermore, CA BP 771
Generator's Phone: 949-460-5200	

Container type removed from site: <input type="checkbox"/> Drums <input type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____ Quantity <u>126</u>	Container type transported to receiving facility: <input type="checkbox"/> Drums <input type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____ Quantity _____ Volume _____																		
WASTE DESCRIPTION <u>NON-HAZARDOUS WATER</u>	GENERATING PROCESS <u>WELL FURGING / DECON WATER</u>																		
<table border="1" style="width:100%"> <thead> <tr> <th>COMPONENTS OF WASTE</th> <th>PPM</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>1. <u>WATER</u></td> <td></td> <td><u>99-100%</u></td> </tr> <tr> <td>2. <u>TFH</u></td> <td></td> <td><u><1%</u></td> </tr> </tbody> </table>	COMPONENTS OF WASTE	PPM	%	1. <u>WATER</u>		<u>99-100%</u>	2. <u>TFH</u>		<u><1%</u>	<table border="1" style="width:100%"> <thead> <tr> <th>COMPONENTS OF WASTE</th> <th>PPM</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>3. _____</td> <td></td> <td></td> </tr> <tr> <td>4. _____</td> <td></td> <td></td> </tr> </tbody> </table>	COMPONENTS OF WASTE	PPM	%	3. _____			4. _____		
COMPONENTS OF WASTE	PPM	%																	
1. <u>WATER</u>		<u>99-100%</u>																	
2. <u>TFH</u>		<u><1%</u>																	
COMPONENTS OF WASTE	PPM	%																	
3. _____																			
4. _____																			
Waste Profile _____ PROPERTIES: pH <u>7-10</u> <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> SLUDGE <input type="checkbox"/> SLURRY <input type="checkbox"/> OTHER _____																			
HANDLING INSTRUCTIONS: <u>WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.</u>																			

Generator Printed/Typed Name <u>Sam Barkley</u>	Signature 	Month Day Year 17 18 11
--	---	--------------------------------

The Generator certifies that the waste as described is 100% non-hazardous

Transporter 1 Company Name BROADBENT & ASSOCIATES, INC>	Phone# 530-566-1400
Transporter 1 Printed/Typed Name <u>Sam Barkley</u>	Signature 
Transporter 2 Company Name _____	Phone# _____
Transporter 2 Printed/Typed Name _____	Signature _____
Transporter Acknowledgment of Receipt of Materials _____	

Designated Facility Name and Site Address INSTRAT, INC. 1105 AIRPORT RD. RIO VISTA, CA 94571	Phone# 530-753-1829
Printed/Typed Name _____	Signature _____
Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.	

GENERATOR

TRANSPORTER

RECEIVING FACILITY

APPENDIX C

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



Environmental & Marine Chemistry Laboratories



CALSCIENCE

WORK ORDER NUMBER: 11-07-0454

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Broadbent & Associates, Inc.

Client Project Name: ARCO 771

Attention: Jason Duda
1324 Mangrove Ave, Ste 212
Chico, CA 95926-2642

Approved for release on 07/21/2011 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



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 analyses, 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. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.





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

Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 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
MW-2	11-07-0454-1-E	07/07/11 11:35	Aqueous	GC 57	07/08/11	07/08/11 21:35	110708B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1600	250	5		ug/L

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

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	11-07-0454-2-D	07/07/11 11:05	Aqueous	GC 57	07/08/11	07/08/11 20:33	110708B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	2000	100	2		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	67	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-5	11-07-0454-3-D	07/07/11 10:40	Aqueous	GC 57	07/08/11	07/08/11 17:56	110708B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	620	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	85	38-134	

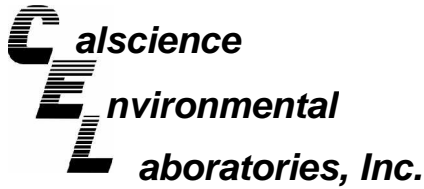
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	11-07-0454-4-D	07/07/11 09:50	Aqueous	GC 57	07/08/11	07/08/11 18:27	110708B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	430	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	64	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: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 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	11-07-0454-5-D	07/07/11 12:25	Aqueous	GC 57	07/08/11	07/08/11 21:04	110708B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	2600	100	2		ug/L

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

MW-11	11-07-0454-6-D	07/07/11 09:35	Aqueous	GC 57	07/08/11	07/08/11 18:59	110708B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	80	38-134	

RW-1	11-07-0454-7-D	07/07/11 10:10	Aqueous	GC 57	07/08/11	07/08/11 19:30	110708B01
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Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	750	50	1		ug/L

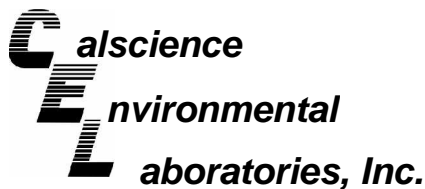
Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	69	38-134	

VW-1	11-07-0454-8-D	07/07/11 12:40	Aqueous	GC 57	07/08/11	07/08/11 20:01	110708B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	60	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: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 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	099-12-695-1,110	N/A	Aqueous	GC 57	07/08/11	07/08/11 11:52	110708B01

<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	65	38-134			

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



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

Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B
 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	11-07-0454-1-B	07/07/11 11:35	Aqueous	GC/MS L	07/11/11	07/11/11 12:44	110711L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	17	0.50	1		Methyl-t-Butyl Ether (MTBE)	6.2	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	1.2	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	0.76	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	1.5	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>	
1,4-Bromofluorobenzene	99	68-120			Dibromofluoromethane	88	80-127		
1,2-Dichloroethane-d4	92	80-128			Toluene-d8	99	80-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	11-07-0454-2-A	07/07/11 11:05	Aqueous	GC/MS L	07/08/11	07/08/11 17:24	110708L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	79	2.5	5		Methyl-t-Butyl Ether (MTBE)	57	2.5	5	
1,2-Dibromoethane	ND	2.5	5		Tert-Butyl Alcohol (TBA)	580	50	5	
1,2-Dichloroethane	ND	2.5	5		Diisopropyl Ether (DIPE)	ND	2.5	5	
Ethylbenzene	ND	2.5	5		Ethyl-t-Butyl Ether (ETBE)	ND	2.5	5	
Toluene	2.7	2.5	5		Tert-Amyl-Methyl Ether (TAME)	ND	2.5	5	
Xylenes (total)	3.3	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>	
1,4-Bromofluorobenzene	102	68-120			Dibromofluoromethane	91	80-127		
1,2-Dichloroethane-d4	92	80-128			Toluene-d8	97	80-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-5	11-07-0454-3-A	07/07/11 10:40	Aqueous	GC/MS L	07/08/11	07/08/11 20:38	110708L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	9.0	0.50	1		Methyl-t-Butyl Ether (MTBE)	4.6	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	350	50	5	
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	0.60	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	0.61	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>	
1,4-Bromofluorobenzene	99	68-120			Dibromofluoromethane	93	80-127		
1,2-Dichloroethane-d4	98	80-128			Toluene-d8	97	80-120		

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



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

Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

Project: ARCO 771

Page 2 of 4

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-6	11-07-0454-4-A	07/07/11 09:50	Aqueous	GC/MS L	07/08/11	07/08/11 18:20	110708L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	8.0	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	19	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>	
1,4-Bromofluorobenzene	105	68-120			Dibromofluoromethane	91	80-127		
1,2-Dichloroethane-d4	90	80-128			Toluene-d8	100	80-120		

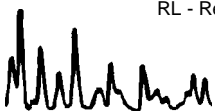
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	11-07-0454-5-A	07/07/11 12:25	Aqueous	GC/MS L	07/08/11	07/08/11 21:05	110708L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	310	5.0	10		Methyl-t-Butyl Ether (MTBE)	150	5.0	10	
1,2-Dibromoethane	ND	5.0	10		Tert-Butyl Alcohol (TBA)	390	100	10	
1,2-Dichloroethane	ND	5.0	10		Diisopropyl Ether (DIPE)	ND	5.0	10	
Ethylbenzene	7.5	5.0	10		Ethyl-t-Butyl Ether (ETBE)	ND	5.0	10	
Toluene	8.3	5.0	10		Tert-Amyl-Methyl Ether (TAME)	ND	5.0	10	
Xylenes (total)	46	5.0	10		Ethanol	ND	3000	10	
<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>	
1,4-Bromofluorobenzene	98	68-120			Dibromofluoromethane	89	80-127		
1,2-Dichloroethane-d4	93	80-128			Toluene-d8	97	80-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11	11-07-0454-6-A	07/07/11 09:35	Aqueous	GC/MS L	07/08/11	07/08/11 19:15	110708L02

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>	
1,4-Bromofluorobenzene	98	68-120			Dibromofluoromethane	94	80-127		
1,2-Dichloroethane-d4	100	80-128			Toluene-d8	100	80-120		

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





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

Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B
 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	11-07-0454-7-A	07/07/11 10:10	Aqueous	GC/MS L	07/08/11	07/08/11 19:43	110708L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.4	0.50	1		Methyl-t-Butyl Ether (MTBE)	2.2	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	0.64	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)	2.2	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>	
1,4-Bromofluorobenzene	101	68-120			Dibromofluoromethane	93	80-127		
1,2-Dichloroethane-d4	96	80-128			Toluene-d8	94	80-120		

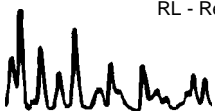
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
VW-1	11-07-0454-8-A	07/07/11 12:40	Aqueous	GC/MS L	07/08/11	07/08/11 20:10	110708L02

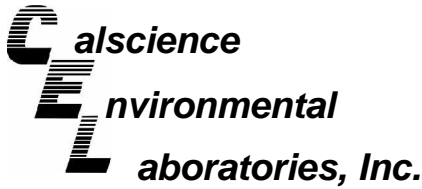
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	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>	
1,4-Bromofluorobenzene	99	68-120			Dibromofluoromethane	92	80-127		
1,2-Dichloroethane-d4	94	80-128			Toluene-d8	100	80-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-703-1,782	N/A	Aqueous	GC/MS L	07/08/11	07/08/11 11:52	110708L02

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>	
1,4-Bromofluorobenzene	93	68-120			Dibromofluoromethane	100	80-127		
1,2-Dichloroethane-d4	103	80-128			Toluene-d8	100	80-120		

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





Analytical Report



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

Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/L

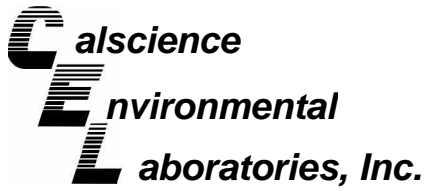
Project: ARCO 771

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	099-12-703-1,784	N/A	Aqueous	GC/MS L	07/11/11	07/11/11 12:16	110711L01

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>	
1,4-Bromofluorobenzene	98	68-120			Dibromofluoromethane	87	80-127		
1,2-Dichloroethane-d4	87	80-128			Toluene-d8	98	80-120		

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



Quality Control - Spike/Spike Duplicate



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

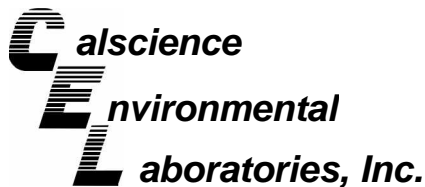
Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8015B (M)

Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-07-0217-1	Aqueous	GC 57	07/08/11	07/08/11	110708S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	82	81	38-134	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



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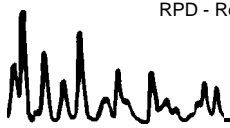
Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B

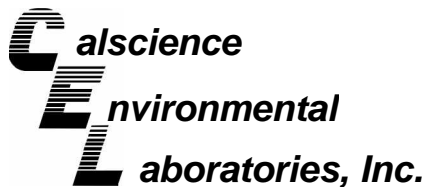
Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-07-0330-2	Aqueous	GC/MS L	07/08/11	07/08/11	110708S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	89	94	76-124	4	0-20	
Carbon Tetrachloride	99	99	74-134	1	0-20	
Chlorobenzene	93	97	80-120	4	0-20	
1,2-Dibromoethane	101	102	80-120	0	0-20	
1,2-Dichlorobenzene	90	99	80-120	9	0-20	
1,2-Dichloroethane	93	98	80-120	5	0-20	
Ethylbenzene	91	92	78-126	1	0-20	
Toluene	88	92	80-120	5	0-20	
Trichloroethene	93	94	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	98	102	67-121	4	0-49	
Tert-Butyl Alcohol (TBA)	109	103	36-162	5	0-30	
Diisopropyl Ether (DIPE)	104	108	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	98	104	69-123	6	0-30	
Tert-Amyl-Methyl Ether (TAME)	96	101	65-120	6	0-20	
Ethanol	113	99	30-180	13	0-72	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - Spike/Spike Duplicate



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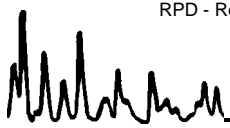
Date Received: 07/08/11
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B

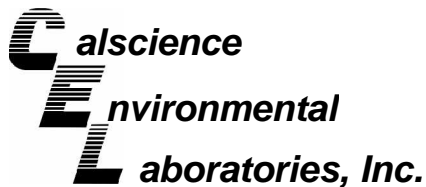
Project ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-2	Aqueous	GC/MS L	07/11/11	07/11/11	110711S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	85	88	76-124	1	0-20	
Carbon Tetrachloride	85	84	74-134	2	0-20	
Chlorobenzene	95	96	80-120	1	0-20	
1,2-Dibromoethane	99	105	80-120	6	0-20	
1,2-Dichlorobenzene	95	96	80-120	1	0-20	
1,2-Dichloroethane	102	99	80-120	3	0-20	
Ethylbenzene	94	94	78-126	1	0-20	
Toluene	92	92	80-120	0	0-20	
Trichloroethene	109	104	77-120	5	0-20	
Methyl-t-Butyl Ether (MTBE)	97	89	67-121	5	0-49	
Tert-Butyl Alcohol (TBA)	75	77	36-162	3	0-30	
Diisopropyl Ether (DIPE)	99	98	60-138	1	0-45	
Ethyl-t-Butyl Ether (ETBE)	96	97	69-123	1	0-30	
Tert-Amyl-Methyl Ether (TAME)	101	106	65-120	5	0-20	
Ethanol	59	59	30-180	0	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

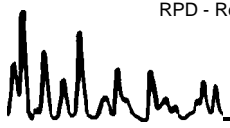
Date Received: N/A
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8015B (M)

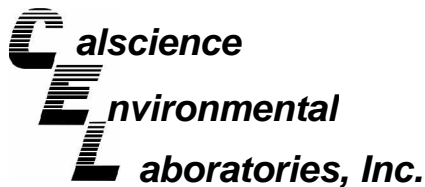
Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-1,110	Aqueous	GC 57	07/08/11	07/08/11	110708B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	80	90	78-120	13	0-20	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



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

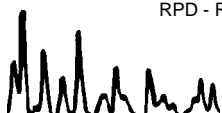
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 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B

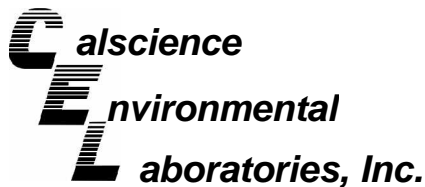
Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,782	Aqueous	GC/MS L	07/08/11	07/08/11	110708L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	94	97	80-120	73-127	2	0-20	
Carbon Tetrachloride	100	105	74-134	64-144	5	0-20	
Chlorobenzene	96	98	80-120	73-127	2	0-20	
1,2-Dibromoethane	94	93	79-121	72-128	1	0-20	
1,2-Dichlorobenzene	94	98	80-120	73-127	4	0-20	
1,2-Dichloroethane	98	100	80-120	73-127	2	0-20	
Ethylbenzene	97	99	80-120	73-127	3	0-20	
Toluene	96	99	80-120	73-127	3	0-20	
Trichloroethene	95	99	79-127	71-135	4	0-20	
Methyl-t-Butyl Ether (MTBE)	90	93	69-123	60-132	3	0-20	
Tert-Butyl Alcohol (TBA)	103	97	63-123	53-133	6	0-20	
Diisopropyl Ether (DIPE)	93	100	59-137	46-150	7	0-37	
Ethyl-t-Butyl Ether (ETBE)	93	97	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	96	96	70-120	62-128	0	0-20	
Ethanol	120	106	28-160	6-182	12	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

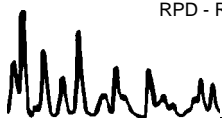
Date Received: N/A
 Work Order No: 11-07-0454
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: ARCO 771

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,784	Aqueous	GC/MS L	07/11/11	07/11/11	110711L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	94	88	80-120	73-127	7	0-20	
Carbon Tetrachloride	99	97	74-134	64-144	2	0-20	
Chlorobenzene	99	94	80-120	73-127	5	0-20	
1,2-Dibromoethane	92	91	79-121	72-128	1	0-20	
1,2-Dichlorobenzene	96	93	80-120	73-127	3	0-20	
1,2-Dichloroethane	95	91	80-120	73-127	4	0-20	
Ethylbenzene	101	95	80-120	73-127	5	0-20	
Toluene	95	90	80-120	73-127	4	0-20	
Trichloroethene	98	91	79-127	71-135	7	0-20	
Methyl-t-Butyl Ether (MTBE)	79	80	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	101	106	63-123	53-133	5	0-20	
Diisopropyl Ether (DIPE)	79	84	59-137	46-150	7	0-37	
Ethyl-t-Butyl Ether (ETBE)	83	85	69-123	60-132	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	95	91	70-120	62-128	4	0-20	
Ethanol	106	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

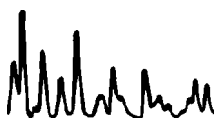
RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 11-07-0454

<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
ET	Sample was extracted past end of recommended maximum holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery abovelimit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
LW	Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
LX	Quantitation of unknown hydrocarbon(s) in sample based on diesel.
MB	Analyte present in the method blank.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
PC	Sample taken from VOA vial with air bubble > 6mm diameter.
PI	Primary and confirm results varied by > than 40% RPD.
RB	RPD exceeded method control limit; % recoveries within limits.
SG	A silica gel cleanup procedure was performed.

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





Laboratory Management Program LAMP Chain of Custody Record

Page 8 of 8
 044
 0454

BP/ARC Project Name: ARCO 771
 BP/ARC Facility No: 771

Req Due Date (mm/dd/yy): STD-TAT Rush TAT: Yes ___ No X
 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: 06-82-608-616-881
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: 005ZT-0001	Phone: 530-566-1400 / 530-566-1401 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <u>X</u> OOC-BU ___ OOC-RM ___	Email EDD To: jduda@broadbentinc.com
Other Info:	Stage: Execute (4) Activity: Project Spend (80)	Invoice To: BP/ARC <u>X</u> Contractor ___

BP/ARC EBM: Shannon Couch				Matrix		No. Containers / Preservative						Requested Analyses				Report Type & QC Level	
EBM Phone: 925-275-3804																Standard <u>X</u>	
EBM Email: shannon.couch@bp.com																Full Data Package ___	
Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	GRO (8015M)	BTEX / 5 Olys (8260)	EDB / 1,2-DCA (8260)	EtOH (8260)	Comments
MW-2		7-7-11	1135	X			6				X		X	X	X	X	
MW-4			1105	X			6				X		X	X	X	X	
MW-5			1040	X			6				X		X	X	X	X	
MW-6			0950	X			6				X		X	X	X	X	
MW-7			1225	X			6				X		X	X	X	X	
MW-11			0935	X			6				X		X	X	X	X	
RW-1			100	X			6				X		X	X	X	X	
VW-1			1240	X			6				X		X	X	X	X	
TB - 771 -		7-7-11	1245	X			2				X						ON HOLD

Sampler's Name: <u>James Ramas</u>	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: <u>BAI</u>	<u>James Ramas</u>		<u>7-7-11</u>	<u>1700</u>	<u>[Signature]</u>		<u>7/8/11</u>	<u>1040</u>
Shipment Method: <u>G50</u> Ship Date: <u>7-7-11</u>								
Shipment Tracking No: <u>107158312</u>								

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

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

0454

ORC



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

D

GARDEN GROVE

92841

34 lb

1/AB4



D92843A

92492265

1107072050

CS-06

1	DATE	7-7-11
	COMPANY	Broadbent & Associates Inc
FROM	ADDRESS	875 Cotting Lane, Suite G
	ADDRESS	
	CITY	Vacaville
	SENDERS NAME	James R / Suite B
	PHONE NUMBER	
2	COMPANY	CAL SCIENCE
	NAME	Kristina
TO	ADDRESS	7440 LINCOLN WAY
	ADDRESS	
	CITY	GARDEN GROVE
3	YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE	
SPECIAL INSTRUCTIONS		

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

SHIPPING AIR BILL

4	PACKAGE INFORMATION
<input type="checkbox"/>	LETTER (MAX 8 OZ)
<input type="checkbox"/>	PACKAGE (WT) _____
<input type="checkbox"/>	DECLARED VALUE \$ _____
<input type="checkbox"/>	COD AMOUNT \$ _____ (CASH NOT ACCEPTED)

5	DELIVERY SERVICE	<input checked="" type="checkbox"/> PRIORITY OVERNIGHT BY 10:30 AM	<input type="checkbox"/> EARLY PRIORITY BY 8:00 AM	<input type="checkbox"/> 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 #
---	---------------------	------	----------	---------

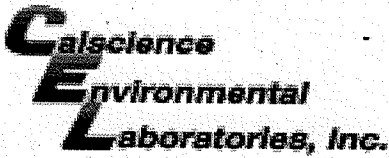
107158312

PEEL OFF HERE



107158312

9 GSO TRACKING NUMBER



WORK ORDER #: 11-07-0484

54
787811

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent Associates

DATE: 07/08/11

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

Temperature 3.4 °C + 0.5°C (CF) = 3.9 °C Blank Sample

Sample(s) outside temperature criteria (PM/APM contacted by: _____).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: Air Filter

Initial: PT

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A

Initial: PT

Sample _____ No (Not Intact) Not Present

Initial: PT

SAMPLE CONDITION:

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

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® TerraCores® _____

Water: VOA VOA⁶h VOAna₂ 125AGB 125AGBh 125AGBp 1AGB 1AGBna₂ 1AGBs

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

250PB 250PBn 125PB 125PBz₂na 100PJ 100PJna₂ _____ _____ _____

Air: Tedlar® Summa® Other: _____ Trip Blank Lot#: N/A Labeled/Checked by: PT

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

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ z₂na: ZnAc₂+NaOH f: Field-filtered Scanned by: PT

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

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

<u>Submittal Type:</u>	GEO_WELL
<u>Submittal Title:</u>	3Q11 GEO_WELL 771
<u>Facility Global ID:</u>	T0600100113
<u>Facility Name:</u>	ARCO #00771
<u>File Name:</u>	GEO_WELL.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	8/16/2011 2:23:11 PM
<u>Confirmation Number:</u>	1300933122

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

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

<u>Submittal Type:</u>	EDF - Monitoring Report - Quarterly
<u>Submittal Title:</u>	3Q11 GW Monitoring
<u>Facility Global ID:</u>	T0600100113
<u>Facility Name:</u>	ARCO #00771
<u>File Name:</u>	11070454.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	8/16/2011 2:19:17 PM
<u>Confirmation Number:</u>	7972001075

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)