Atlantic Richfield Company

Chuck Carmel
Project Manager

PO Box 1257
San Ramon, CA 94583
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October 24, 2013

Re: Third Quarter 2013 Monitoring Report
Atlantic Richfield Company Station #771
899 Rincon Avenue
Livermore, California
ACEH Case RO0000200

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

Submitted by,

Chuck Carmel
Project Manager

Attachment

Third Quarter 2013 Monitoring Report
Atlantic Richfield Company Station #771
899 Rincon Avenue
Livermore, California

Prepared for

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

Prepared by

1370 Ridgewood Drive, Suite 5
Chico, California 95973
(530) 566-1400
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October 24, 2013

Project No. 06-82-608

BROADBENT
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October 24, 2013 Project No. 06-82-608

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

Attn.: Mr. Chuck Carmel

Re: Third Quarter 2013 Monitoring Report, Atlantic Richfield Company Station #771, 899 Rincon Avenue, Livermore, California; ACEH Case No. RO0000200

Dear Mr. Carmel:

Attached is the Third Quarter 2013 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

Robert H. Miller, P.G., C.HG
Principal Hydrogeologist

Enclosure

cc: Mr. Jerry Wickham, 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 2013 MONITORING REPORT
ARCO STATION #771, LIVERMORE, CALIFORNIA

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *Third Quarter 2013 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:	ARCO Station #771 / 899 Rincon Avenue
Client Project Manager / Title:	Mr. Chuck Carmel / Project Manager
Broadbent Contact:	Jason Duda, (530) 566-1400
Broadbent Project No.:	06-82-608
Primary Regulatory Agency / ID No.:	ACEH / Case #RO0000200
Current phase of project:	Monitoring and Additional Assessment
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (Third Quarter 2013):

1. Submitted *Second Quarter 2013 Status Report* (Broadbent, 7/26/13).
2. Conducted groundwater monitoring/sampling for Third Quarter 2013 on July 25, 2013.

WORK SCHEDULED FOR NEXT QUARTER (Fourth Quarter 2013):

1. Prepare and submit *Third Quarter 2013 Monitoring Report* (contained herein).
2. Conduct additional onsite assessment activities.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	Semi-Annual (1Q & 3Q): MW-1 through MW-11, RW-1, VW-1	(1Q and 3Q)
Groundwater sample collection:	Semi-Annual (1Q & 3Q): MW-4, MW-7, RW-1 Annual (3Q): MW-2, MW-5, MW-6, MW-11, VW-1 One Time Event (3Q13): MW-1, MW-3, MW-8 through MW-10	(1Q and 3Q)
Biodegradation indicator parameter monitoring:	NA	

QUARTERLY RESULTS SUMMARY:

LNAPL

LNAPL observed this quarter:	None	(yes\no)
LNAPL recovered this quarter:	None	(gal)
Cumulative LNAPL recovered:	Unknown (1.5 gal. LNAPL/water mixture – 3Q12)	(gal)

Groundwater Elevation and Gradient:

Depth to groundwater:	27.41 (VW-1) to 36.50 (MW-6)	(ft below TOC)
Gradient direction:	North-Northeast	(compass direction)
Gradient magnitude:	0.02	(ft/ft)
Average change in elevation:	-5.08	(ft since last measurement)

Laboratory Analytical Data

Summary: GRO were detected in seven of the 12 wells sampled at a maximum concentration of 5,300 µg/L in MW-7. Benzene was detected in seven of the 12 wells sampled at a maximum concentration of 770 µg/L in MW-7. MTBE was detected in six of the 12 wells sampled at a maximum concentration of 170 µg/L in MW-7.

ACTIVITIES CONDUCTED & RESULTS:

Third Quarter 2013 groundwater monitoring was conducted on July 25, 2013 by Broadbent personnel in accordance with the monitoring plan summary detailed above. Additional wells were sampled during the Third Quarter 2013 event as requested by the ACEH in their March 18, 2013 letter. LNAPL, or free product, was not observed in the wells gauged during this monitoring event. No irregularities were noted during water level gauging activities with the exception that well MW-10 was inaccessible due to a parked car. Depth to water measurements ranged from 27.41 ft at VW-1 to 36.50 ft at MW-6, within the screened interval of each well. Resulting groundwater surface elevations ranged from 415.83 ft at MW-8 to 425.88 ft at VW-1. Groundwater elevations are summarized in Table 1. The water level elevation calculated for well VW-1 was not used for contouring purposes due to its construction as a vapor extraction well. Water level elevations yielded a potentiometric groundwater gradient to the north-northeast at approximately 0.02 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 from wells MW-1 through MW-9, MW-11, RW-1, and VW-1 on July 25, 2013, generally consistent with the current modified monitoring schedule. No irregularities were noted during sample collection activities with the following exceptions: well MW-10 was inaccessible due to a parked car and insufficient water was available for purging in wells MW-1, MW-2, MW-7, and VW-1, resulting in the collection of grab samples. Samples were submitted under chain-of-custody protocol to TestAmerica (Irvine, California) for analysis of GRO (C6-C12) by EPA Method 8015B; for BTEX, MTBE, ETBE, TAME, DIPE, EDB, 1,2-DCA, TBA and Ethanol by EPA Method 8260B. No significant irregularities were encountered during laboratory 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 seven of the 12 wells sampled at concentrations up to 5,300 µg/L in well MW-7. Benzene was detected above the laboratory reporting limit in seven of the 12 wells sampled at a maximum concentration of 770 µg/L in well MW-7. Toluene was detected above the laboratory reporting limit in six of the 12 wells sampled at concentrations up to 17 µg/L in well MW-7. Ethylbenzene was detected above the laboratory reporting limit in five of the 12 wells samples at concentrations up to 90 µg/L in well MW-5. Total Xylenes were detected above the laboratory reporting limit in five of the 12 wells sampled at concentrations up to 40 µg/L in well MW-7. MTBE was detected above the laboratory reporting limit in six of the 12 wells sampled at a maximum concentration of 170 µg/L in well MW-7. TBA was detected above the laboratory reporting limit in seven of the 12 wells sampled at concentrations up to 940 µg/L in well MW-4. DIPE was detected above the laboratory reporting limit in two of the 12 wells sampled at concentrations of 0.75 µg/L in well MW-7 and 0.51 µg/L in well MW-4. 1,2-DCA was detected above the laboratory reporting limit in MW-7 at a concentration of 0.62 µg/L. It should be noted that MW-7 contained insufficient water to allow purging and the sample collected was a grab sample. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this quarter. 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. Groundwater elevations yielded a potentiometric groundwater gradient to the north-northeast at approximately 0.02 ft/ft, generally consistent with the historic 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 First Quarter of 2014.

LNAPL was not observed within well MW-7 during this monitoring event. The concentration of GRO detected in MW-7 (5,300 µg/L) remains comparable to the concentration detected in First Quarter 2013 (3,100 µg/L), a decrease of an order of magnitude from the detected concentration of 15,000 µg/L in Third Quarter 2012 following LNAPL bailing. Concentrations of MTBE and TBA in this well continue to be comparable to historical analytical data.

RECOMMENDATIONS:

ACEH approval of the *Conceptual Site Model and Work Plan for Soil and Groundwater Investigation* (Broadbent, 5/29/2013) was received on June 24, 2013. Due to subcontractor scheduling delays, a deadline extension until January 10, 2014 for submittal of the summary report was requested and approved via email correspondence with ACEH on September 18, 2013. Onsite soil and groundwater investigation activities were completed on October 22 and 23, 2013. A summary report will be submitted by the January 10, 2014 deadline. Additionally, groundwater samples collected from off-Site well MW-8 and on-Site well MW-3 as requested by ACEH were non-detect for each analyzed constituent, and as such, it is recommended to return to the regular monitoring schedule beginning with the First Quarter 2014 event.

LIMITATIONS:

The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by TestAmerica (Irvine, California), and our understanding of ACEH 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.

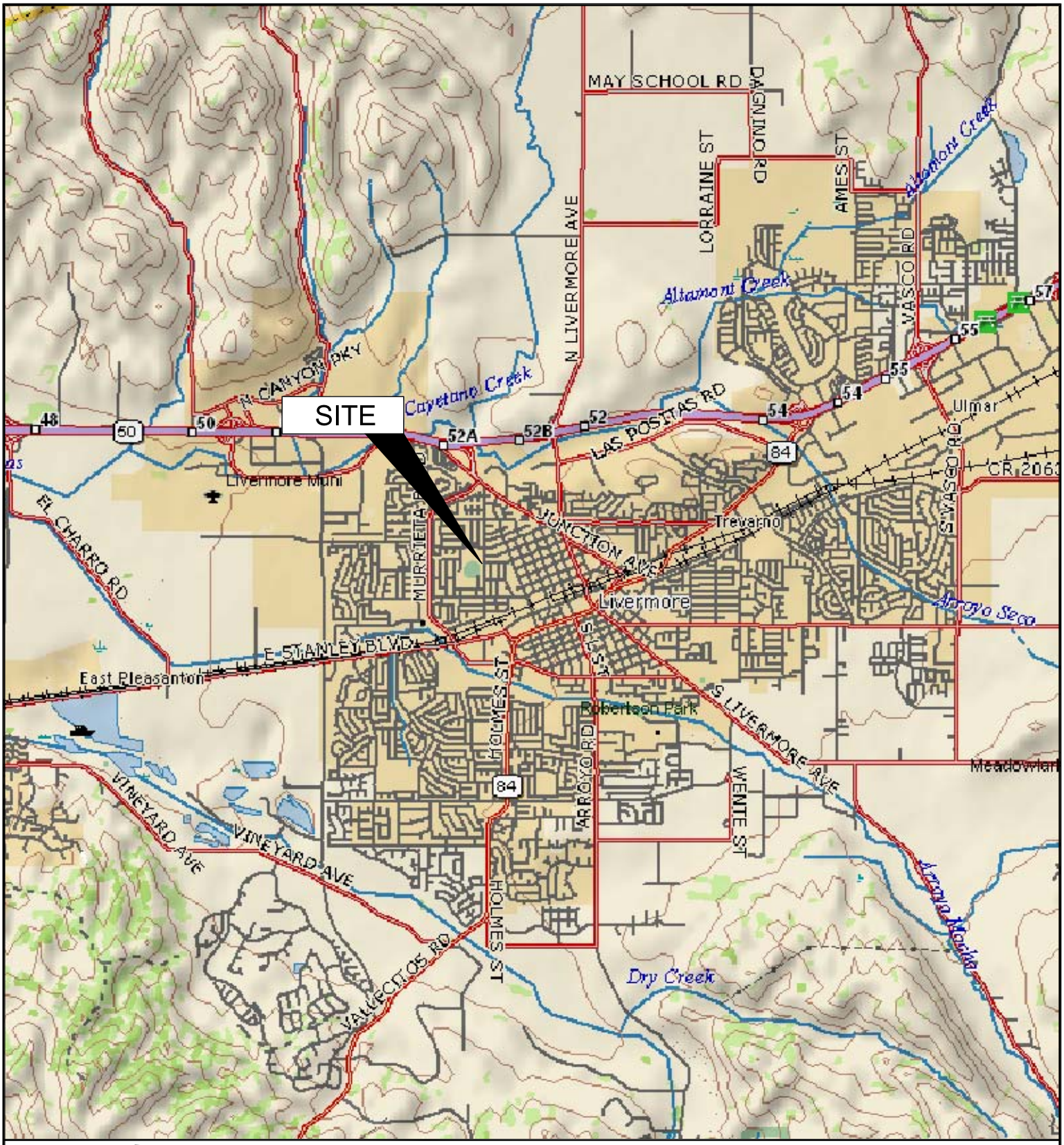
ATTACHMENTS:

Drawing 1:	Site Location Map
Drawing 2:	Groundwater Elevation Contour and Analytical Summary Map, July 25, 2013
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 and Non-Hazardous Waste Data Form
Appendix C:	Laboratory Report and Chain-of-Custody Documentation
Appendix D:	GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH:	Alameda County Environmental Health	gal:	Gallons
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
ft/ft:	feet per foot		

DRAWINGS



N

0 1 2

APPROXIMATE SCALE (mi)

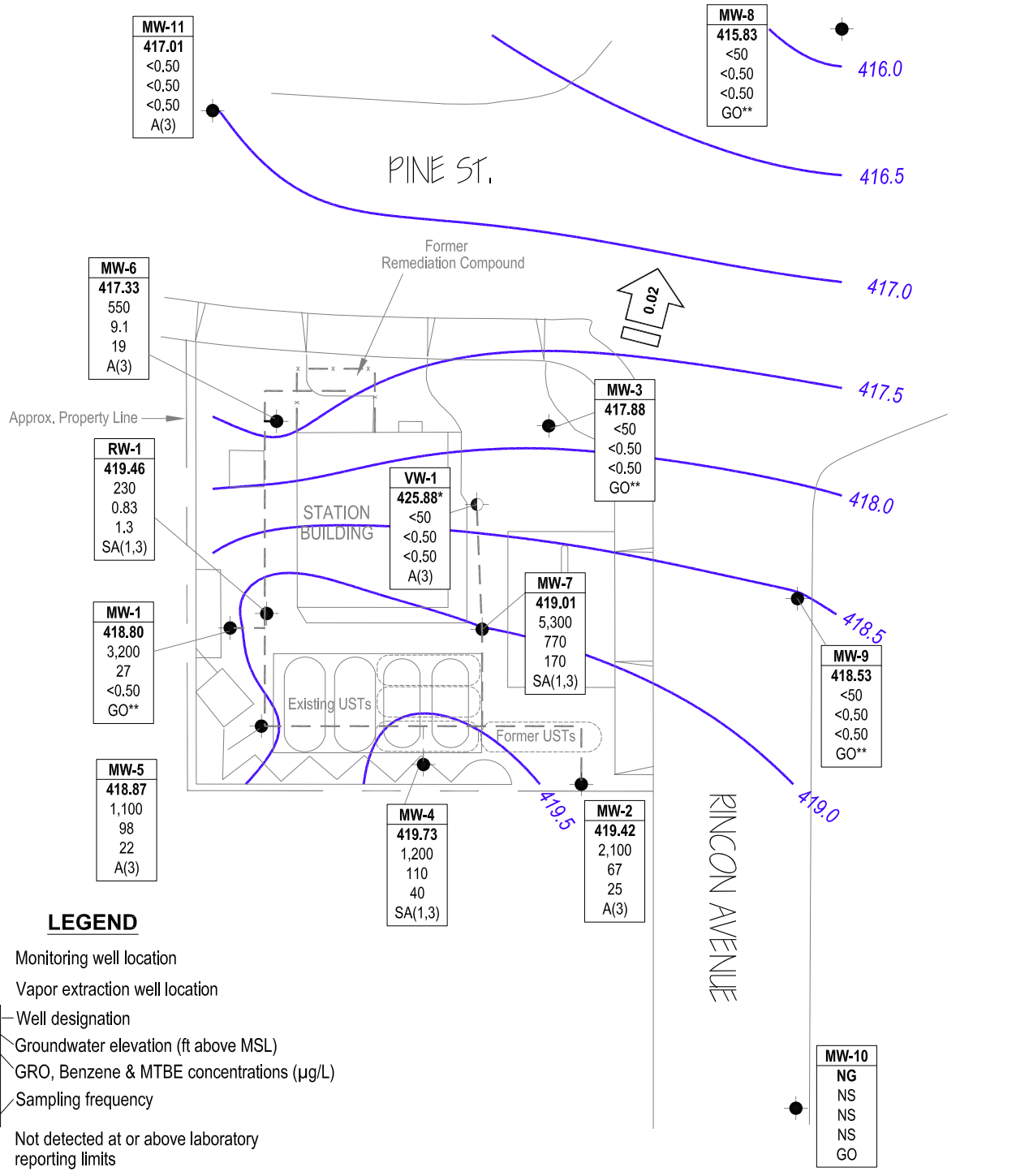
IMAGE SOURCE: DELORME

BROADBENT
1370 Ridgewood Drive, Suite 5
Chico, California 95973
Project No.: 06-82-608 Date: 9/6/2012

Station #771
899 Rincon Avenue
Livermore, California

Site Location Map

Drawing
1



LEGEND

- Monitoring well location
- Vapor extraction well location
- Well ID — Well designation
- ELEV — Groundwater elevation (ft above MSL)
- GRO, Benzene, MTBE — GRO, Benzene & MTBE concentrations (µg/L)
- SA or A — Sampling frequency
- < — Not detected at or above laboratory reporting limits
- * — Not used in contouring
- ** — Sampled during current event
- 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)
- 0.02 — Approximate groundwater flow direction and gradient (ft/ft)
- Remediation piping

N

0 40 80

SCALE (ft)

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

BROADBENT
1370 Ridgewood Drive, Suite 5
Chico, California 95973

Project No.: 06-82-608 Date: 10/2/2012

Station #771
899 Rincon Avenue
Livermore, California

Groundwater Elevation Contour
and Analytical Summary Map
July 25, 2013

Drawing
2

TABLES

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	--	--	--	--	--	--	--	--	
1/23/2012	--		32.00	41.00	34.34	419.89	--	--	--	--	--	--	--	--	
7/25/2012	--		32.00	41.00	--	--	--	--	--	--	--	--	--	--	Dry
1/17/2013	--		32.00	41.00	30.14	424.09	--	--	--	--	--	--	--	--	
7/25/2013	**--**		**32.00**	**41.00**	**35.43**	**418.80**	**3,200**	**27**	**1.9**	**35**	**17**	**<0.50**	**--**	**--**	**j**
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	--	--	

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.															
5/15/1997	--	449.49	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	--	--	
5/20/1998	--		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	

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.															
1/7/2009	--	452.05	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	
2/17/2011	--		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)
1/23/2012	--		30.00	38.00	32.32	419.73	--	--	--	--	--	--	--	--	
7/25/2012	--		30.00	38.00	34.10	417.95	--	--	--	--	--	--	--	--	h
8/31/2012	--		30.00	38.00	--	--	--	--	--	--	--	--	--	--	Dry
1/17/2013	--		30.00	38.00	26.14	425.91	--	--	--	--	--	--	--	--	
7/25/2013	**NP**		**30.00**	**38.00**	**32.63**	**419.42**	**2,100**	**67**	**3.9**	**1.2**	**4.9**	**25**	**4.03**	**7.20**	**j**
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	--	

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.															
8/26/1999	P	450.28	32.00	40.00	28.49	421.79	80	0.6	0.6	0.6	1	<3	1.69	--	
12/3/1999	P		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	--	--	--	--	--	--	--	--	
1/15/2003	--		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	--	--	--	--	--	--	--	--	
1/23/2012	--		32.00	40.00	34.29	418.46	--	--	--	--	--	--	--	--	
7/25/2012	--		32.00	40.00	37.39	415.36	--	--	--	--	--	--	--	--	
1/17/2013	--		32.00	40.00	29.24	423.51	--	--	--	--	--	--	--	--	

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.															
7/25/2013	**P**	**452.75**	**32.00**	**40.00**	**34.87**	**417.88**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**3.95**	**7.38**	
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	--	--	--	--	--	--	--	--	
11/5/1997	--		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

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

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
7/9/2003	--	451.09	26.00	42.00	29.50	421.59	3,000	210	9.4	6	20	150	2.0	6.9	
02/19/2004	P		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	
3/12/2010	NP		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)
1/23/2012	P		26.00	42.00	33.57	420.23	980	51	2.4	<2.0	<2.0	44	1.14	6.89	g (GRO)
7/25/2012	P		26.00	42.00	35.81	417.99	1,700	86	4.1	1.1	4.6	49	3.45	7.23	
8/31/2012	--		26.00	42.00	36.53	417.27	--	--	--	--	--	--	--	--	
1/17/2013	P		26.00	42.00	28.31	425.49	1,500	460	12	8.0	<5.0	110	1.16	7.62	
7/25/2013	**P**		**26.00**	**42.00**	**34.07**	**419.73**	**1,200**	**110**	**3.8**	**0.83**	**1.9**	**40**	**4.35**	**7.07**	
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	--	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-5 Cont.															
11/13/1996	--	451.40	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	--	
1/21/2002	--		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	

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-5 Cont.															
1/15/2008	--	453.52	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)
1/23/2012	--		31.50	41.00	33.27	420.25	--	--	--	--	--	--	--	--	
7/25/2012	P		31.50	41.00	36.29	417.23	500	11	1.1	<0.50	2.6	11	3.07	7.23	
1/17/2013	--		31.50	41.00	29.11	424.41	--	--	--	--	--	--	--	--	
7/25/2013	**P**		**31.50**	**41.00**	**34.65**	**418.87**	**1,100**	**98**	**2.9**	**90**	**28**	**22**	**5.11**	**7.07**	
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	--	--	
5/15/1997	--		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	--	

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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.															
5/5/1999	P	451.37	32.00	42.00	27.86	423.51	2,200	53	4	26	6	25	5.59	--	
8/26/1999	P		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	
1/15/2008	--		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	8.0	2.04	7.1	g (GRO)

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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.															
1/23/2012	--	453.83	32.00	42.00	35.61	418.22	--	--	--	--	--	--	--	--	
7/25/2012	P		32.00	42.00	38.78	415.05	500	3.3	<0.50	<0.50	1.7	10	3.07	7.45	
1/17/2013	--		32.00	42.00	31.11	422.72	--	--	--	--	--	--	--	--	
7/25/2013	**P**		**32.00**	**42.00**	**36.50**	**417.33**	**550**	**9.1**	**0.84**	**<0.50**	**<1.0**	**19**	**5.27**	**7.35**	
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
6/20/2000	--		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	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-7 Cont.															
1/21/2002	--	450.33	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)
1/23/2012	P		30.00	40.00	34.59	418.11	2,100	330	9.4	10	24	150	0.86	6.76	
7/25/2012	--		30.00	40.00	36.16	416.54	--	--	--	--	--	--	3.67	7.09	i
8/31/2012	P		30.00	40.00	37.08	415.62	15,000	650	16	31	51	120	2.52	7.42	k
1/17/2013	P		30.00	40.00	27.53	425.17	3,100	430	10	10	42	120	1.21	7.58	
7/25/2013	**--**		**30.00**	**40.00**	**33.69**	**419.01**	**5,300**	**770**	**17**	**14**	**40**	**170**	**--**	**--**	**j**
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	--	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-8 Cont.															
12/4/1995	--	449.43	27.50	42.50	31.99	417.44	--	--	--	--	--	--	--	--	
2/20/1996	--		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	--	--	--	--	--	--	--	--	

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-8 Cont.															
01/10/2006	--	451.80	27.50	42.50	22.88	428.92	--	--	--	--	--	--	--	--	
7/21/2006	--		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	--	--	--	--	--	--	--	--	
1/23/2012	--		27.50	42.50	32.11	419.69	--	--	--	--	--	--	--	--	
7/25/2012	--		27.50	42.50	40.00	411.80	--	--	--	--	--	--	--	--	
1/17/2013	--		27.50	42.50	32.23	419.57	--	--	--	--	--	--	--	--	
7/25/2013	**P**		**27.50**	**42.50**	**35.97**	**415.83**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**7.55**	**7.44**	
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	--	--	

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.															
5/20/1998	--	449.21	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	--	--	--	--	--	--	--	--	
8/26/1999	--		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	--	--	--	--	--	--	--	--	

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.															
2/17/2011	--	451.63	29.50	39.50	27.18	424.45	--	--	--	--	--	--	--	--	
7/7/2011	--		29.50	39.50	27.71	423.92	--	--	--	--	--	--	--	--	
1/23/2012	--		29.50	39.50	32.04	419.59	--	--	--	--	--	--	--	--	
7/25/2012	--		29.50	39.50	35.37	416.26	--	--	--	--	--	--	--	--	
1/17/2013	--		29.50	39.50	26.89	424.74	--	--	--	--	--	--	--	--	
7/25/2013	**P**		**29.50**	**39.50**	**33.10**	**418.53**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**5.76**	**7.32**	
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	--	--	--	--	--	--	--	--	
8/23/1995	--		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	--	--	--	--	--	--	--	--	

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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.															
2/9/2001	--	449.22	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	--	--	--	--	--	--	--	--	
01/10/2006	--		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	--	--	--	--	--	--	--	--	
1/23/2012	--		29.00	37.00	31.25	420.40	--	--	--	--	--	--	--	--	
7/25/2012	--		29.00	37.00	--	--	--	--	--	--	--	--	--	--	Dry
1/17/2013	--		29.00	37.00	26.00	425.65	--	--	--	--	--	--	--	--	
7/25/2013	**--**		**29.00**	**37.00**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**d**
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	--	--	--	--	--	--	--	--	

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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.															
2/20/1996	--	448.02	29.00	39.00	20.94	427.08	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/15/1996	--		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	--	
5/5/1999	--		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	

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-11 Cont.															
01/10/2006	--	450.41	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	
1/23/2012	--		29.00	39.00	34.55	415.86	--	--	--	--	--	--	--	--	
7/25/2012	--		29.00	39.00	38.00	412.41	--	--	--	--	--	--	--	--	h
1/17/2013	--		29.00	39.00	31.32	419.09	--	--	--	--	--	--	--	--	
7/25/2013	**P**		**29.00**	**39.00**	**33.40**	**417.01**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**9.04**	**7.39**	
RW-1															
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	--	--	

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.															
5/20/1998	--	451.67	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	<50.0	<0.500	<0.500	<0.500	<0.500	82.5	3.21	--	
2/9/2001	NP		25.50	40.50	31.14	420.53	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.84	--	
9/17/2001	NP		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
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	

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.															
2/17/2011	NP	454.11	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)
1/23/2012	P		25.50	40.50	29.13	424.98	430	13	<0.50	<0.50	2.4	1.8	0.43	6.61	g (GRO)
7/25/2012	P		25.50	40.50	36.50	417.61	<50	<0.50	<0.50	<0.50	<1.0	<0.50	2.21	6.93	
1/17/2013	P		25.50	40.50	28.80	425.31	<50	1.4	<0.50	<0.50	<1.0	0.85	1.49	7.65	
7/25/2013	**P**		**25.50**	**40.50**	**34.65**	**419.46**	**230**	**0.83**	**<0.50**	**<0.50**	**<1.0**	**1.3**	**4.72**	**6.94**	
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	--	--	--	--	--	--	--	--	
7/18/2007	NP		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	

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.															
1/23/2012	--	453.29	18.50	28.50	27.40	425.89	--	--	--	--	--	--	--	--	
7/25/2012	NP		18.50	28.50	27.40	425.89	80	<0.50	<0.50	<0.50	<1.0	<0.50	5.12	7.39	j
8/31/2012	--		18.50	28.50	28.03	425.26	--	--	--	--	--	--	--	--	
1/17/2013	--		18.50	28.50	24.60	428.69	--	--	--	--	--	--	--	--	
7/25/2013	**--**		**18.50**	**28.50**	**27.41**	**425.88**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**--**	**--**	**j**

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
h = Insufficient water within well to collect sample
i = Well not sampled due to the presence of Light Non-Aqueous Phase Liquid (LNAPL)
j = Insufficient water within well to purge prior to sample collection
k = Sample collected following removal of approximately 1.5 gallson of LNAPL/water mixture from well

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	--	--	--	--	--	
7/25/2013	**<150**	**40**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
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	--	--	--	--	--	

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.									
2/18/1998	--	--	130	--	--	--	--	--	
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	
7/25/2013	**<150**	**93**	**25**	**<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	--	--	--	--	--	

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.									
11/5/1997	--	--	<3	--	--	--	--	--	
2/18/1998	--	--	<3	--	--	--	--	--	
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	--	--	--	--	--	
7/25/2013	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
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	

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.									
7/21/2006	<300	35	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
1/17/2007	<300	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	
7/18/2007	<300	830	74	<0.50	<0.50	<0.50	0.76	<0.50	
1/15/2008	<300	280	61	<0.50	<0.50	<0.50	<0.50	<0.50	b (MTBE)
7/7/2008	--	19	17	<0.50	<0.50	<0.50	<0.50	--	
1/7/2009	--	74	37	<0.50	<0.50	<0.50	<0.50	<0.50	
7/22/2009	<300	580	63	0.85	<0.50	<0.50	<0.50	<0.50	
3/12/2010	<300	460	43	<0.50	<0.50	<0.50	<0.50	<0.50	
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	
1/23/2012	<1,200	620	44	<2.0	<2.0	<2.0	<2.0	<2.0	
7/25/2012	<150	990	49	<0.50	<0.50	<0.50	<0.50	<0.50	
1/17/2013	<750	590	110	<2.5	<2.5	<2.5	<2.5	<2.5	
7/25/2013	**<150**	**940**	**40**	**0.51**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
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	--	--	--	--	--	

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.									
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	
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	
7/25/2012	<150	480	11	<0.50	<0.50	<0.50	<0.50	<0.50	
7/25/2013	**<150**	**220**	**22**	**<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	--	--	--	--	--	

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.									
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	--	--	--	--	--	
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	
7/25/2012	<150	22	10	<0.50	<0.50	<0.50	<0.50	<0.50	
7/25/2013	**<150**	**40**	**19**	**<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	--	--	--	--	--	

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.									
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
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	
1/23/2012	<3,000	510	150	<5.0	<5.0	<5.0	<5.0	<5.0	
8/31/2012	<3,000	510	120	<10	<10	<10	<10	<10	
1/17/2013	<750	340	120	<2.5	<2.5	<2.5	<2.5	<2.5	
7/25/2013	**<150**	**490**	**170**	**0.75**	**<0.50**	**<0.50**	**0.62**	**<0.50**	
MW-8									
8/23/1995	--	--	<3	--	--	--	--	--	
2/20/1996	--	--	<3	--	--	--	--	--	
8/13/1996	--	--	<3	--	--	--	--	--	

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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-8 Cont.									
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	--	--	--	--	--	
7/25/2013	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
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	--	--	--	--	--	
7/25/2013	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
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	--	--	--	--	--	

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Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-11 Cont.									
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	
7/25/2013	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
RW-1									
8/23/1995	--	--	<50	--	--	--	--	--	
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	

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Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
RW-1 Cont.									
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	
1/23/2012	<300	<10	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
7/25/2012	<150	19	<0.50	<0.50	<0.50	0.50	<0.50	<0.50	
1/17/2013	<150	<10	0.85	<0.50	<0.50	<0.50	<0.50	<0.50	
7/25/2013	**<150**	**23**	**1.3**	**<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	--	--	--	--	--	
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	--	

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.									
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	
7/25/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/25/2013	**<150**	**<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 = Diisopropyl 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
9/9/2010	North	0.04
2/17/2011	North	0.03
7/7/2011	North	0.04

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)
1/23/2012	Northwest	0.02
7/25/2012	North	0.03
1/17/2013	North	0.03
7/25/2013	**North-Northeast**	**0.02**

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

QUALITY ASSURANCE/QUALITY CONTROL
FIELD METHODS

Field methods discussed herein were implemented to provide for accuracy and reliability of field activities, data collection, sample collection, and handling. Discussion of these methods is provided below.

1.0 EQUIPMENT CALIBRATION

Equipment calibration was performed per equipment manufacturer specifications before use.

2.0 DEPTH TO GROUNDWATER AND LIGHT NON-AQUEOUS PHASE LIQUID MEASUREMENT

Depth to groundwater was measured in wells identified for gauging in the scope of work using a decontaminated water level indicator. The depth to water measurement was taken from a cut notch or permanent mark at the top of the well casing to which the well head elevation was originally surveyed.

Once depth to water was measured, an oil/water interface meter or a new disposable bailer was utilized to evaluate the presence and, if present, to measure the "apparent" thickness of light non-aqueous phase liquid (LNAPL) in the well. If LNAPL was present in the well, groundwater purging and sampling were not performed, unless sampling procedures in the scope of work specified collection of samples in the presence of LNAPL. Otherwise, time allowing, LNAPL was bailed from the well using either a new disposable bailer, or the disposal bailer previously used for initial LNAPL assessment. Bailing of LNAPL continued until the thickness of LNAPL (or volume) stabilized in each bailer pulled from the well, or LNAPL was no longer present. After LNAPL thickness either stabilized or was eliminated, periodic depth to water and depth to LNAPL measurements were collected as product came back into the well to evaluate product recovery rate and to aid in further assessment of LNAPL in the subsurface. LNAPL thickness measurements were recorded as "apparent." If a bailer was used for LNAPL thickness measurement, the field sampler noted the bailer entry diameter and chamber diameter to enable correction of thickness measurements. Recovered LNAPL was stored on-site in a labeled steel drum(s) or other appropriate container(s) prior to disposal.

3.0 WELL PURGING AND GROUNDWATER SAMPLE COLLECTION

Well purging and groundwater sampling were performed in wells specified in the scope of work after measuring depth to groundwater and evaluating the presence of LNAPL. Purging and sampling were performed using one of the methods detailed below. The method used was noted in the field records. Purge water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal or on-site treatment (in cases where treatment using an on-site system is authorized).

3.1 Purging a Predetermined Well Volume

Purging a predetermined well volume is performed per ASTM International (ASTM) D4448-01. This purging method has the objective of removing a predetermined volume of stagnant water from the well prior to sampling. The volume of stagnant water is defined as either the volume of water contained within the well casing, or the volume within the well casing and sand/gravel in the annulus if natural flow through these is deemed insufficient to keep them flushed out.

This purging method involves removal of a minimum of three stagnant water volumes from the well using a decontaminated pump with new disposable plastic discharge or suction tubing, dedicated well tubing, or using a new disposable or decontaminated reusable bailer. If a new disposable bailer was used for assessment of LNAPL, that bailer may be used for purging. The withdrawal rate used is one that minimizes drawdown while satisfying time constraints.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. Parameters are considered stable when two (2) consecutive readings recorded three (3) minutes apart fall within ranges provided below in Table 1. In the event that the parameters have not stabilized and five (5) well casing volumes have been removed, purging activities will cease and be considered complete. Once the well is purged, a groundwater sample(s) is collected from the well using a new disposable bailer. If a new disposable bailer was used for purging, that bailer may be used to collect the sample(s). A sample is not collected if the well is inadvertently purged dry.

Table 1. Criteria for Defining Stabilization of Water-Quality Indicator Parameters

Parameter	Stabilization Criterion
Temperature	± 0.2ºC (± 0.36ºF)
pH	± 0.1 standard units
Conductivity	± 3%
Dissolved oxygen	± 10%
Oxidation reduction potential	± 10 mV
Turbidity[1]	± 10% or 1.0 NTU (whichever is greater)

3.2 Low-Flow Purging and Sampling

“Low-Flow”, “Minimal Drawdown”, or "Low-Stress” purging is performed per ASTM D6771-02. It is a method of groundwater removal from within a well’s screened interval that is intended to minimize drawdown and mixing of the water column in the well

[1] As stated in ASTM D6771-02, turbidity is not a chemical parameter and not indicative of when formation-quality water is being purged; however, turbidity may be helpful in evaluating stress on the formation during purging. Turbidity measurements are taken at the same time that stabilization parameter measurements are made, or, at a minimum, once when purging is initiated and again just prior to sample collection, after stabilization parameters have stabilized. To avoid artifacts in sample analysis, turbidity should be as low as possible when samples are collected. If turbidity values are persistently high, the withdrawal rate is lowered until turbidity decreases. If high turbidity persists even after lowering the withdrawal rate, the purging is stopped for a period of time until turbidity settles, and the purging process is then restarted. If this fails to solve the problem, the purging/sampling process for the well is ceased, and well maintenance or redevelopment is considered.

casing. This is accomplished by pumping the well using a decontaminated pump with new disposable plastic discharge or suction tubing or dedicated well tubing at a low flow rate while evaluating the groundwater elevation during pumping.

The low flow pumping rate is well specific and is generally established at a volume that is less than or equal to the natural recovery rate of the well. A pump with adjustable flow rate control is positioned with the intake at or near the mid-point of the submerged well screen. The pumping rate used during low-flow purging is low enough to minimize mobilization of particulate matter and drawdown (stress) of the water column. Low-flow purging rates will vary based on the individual well characteristics; however, the purge rate should not exceed 1.0 Liter per minute (L/min) or 0.25 gallon per minute (gal/min). Low-flow purging should begin at a rate of approximately 0.1 L/min (0.03 gal/min)[2], or the lowest rate possible, and be adjusted based on an evaluation of drawdown. Water level measurements should be recorded at approximate one (1) to two (2) minute intervals until the low-flow rate has been established, and drawdown is minimized. As a general rule, drawdown should not exceed 25% of the distance between the top of the water column and the pump in-take.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. The frequency between measurements will be at an interval of one (1) to three (3) minutes; however, if a flow cell is used, the frequency will be determined based on the time required to evacuate one cell volume. Stabilization is defined as three (3) consecutive readings recorded several minutes apart falling within ranges provided in Table 1. Samples will be collected by filling appropriate containers from the pump discharge tubing at a rate not to exceed the established pumping rate.

3.3 Minimal Purge, Discrete Depth, and Passive Sampling

In accordance with ASTM D4448-01, sampling techniques that do not rely on purging, or require only minimal purging, may be used if a particular zone within a screened interval is to be sampled or if a well is not capable of yielding sufficient groundwater for purging. To properly use these sampling techniques, a water sample is collected within the screened interval with little or no mixing of the water column within the casing. These techniques include minimal purge sampling which uses a dedicated sampling pump capable of pumping rates of less than 0.1 L/min (0.03 gal/min)[2], discrete depth sampling using a bailer that allows groundwater entry at a controlled depth (e.g. differential pressure bailer), or passive (diffusion) sampling. These techniques are based on certain studies referenced in ASTM D4448-01 that indicate that under certain conditions, natural groundwater flow is laminar and horizontal with little or no mixing within the well screen.

[2] According to ASTM D4448-01, studies have indicated that at flow rates of 0.1 L/min, low-density polyethylene (LDPE) and plasticized polypropylene tubing materials are prone to sorption. Therefore, TFE-fluorocarbon or other appropriate tubing material is used, particularly when tubing lengths of 50 feet or longer are used.

4.0 DECONTAMINATION

Reusable groundwater sampling equipment were cleaned using a solution of Alconox or other acceptable detergent, rinsed with tap water, and finally rinsed with distilled water prior to use in each well. Decontamination water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal.

5.0 SAMPLE CONTAINERS, LABELING, AND STORAGE

Samples were collected in laboratory prepared containers with appropriate preservative (if preservative was required). Samples were labeled (site name, sample I.D., sampler initials, date, and time of collection) and stored chilled (refrigerator or ice chest with ice) until delivery to a certified laboratory, under chain of custody procedures.

6.0 CHAIN OF CUSTODY RECORD AND PROCEDURE

The field sampler was personally responsible for care and custody of the samples collected until they were properly transferred to another party. To document custody and transfer of samples, a Chain of Custody Record was prepared. The Chain of Custody Record provided identification of the samples corresponding to sample labels and specified analyses to be performed by the laboratory. The original Chain of Custody Record accompanied the shipment, and a copy of the record was stored in the project file. When the samples were transferred, the individuals relinquishing and receiving them signed, dated, and noted the time of transfer on the record.

7.0 FIELD RECORDS

Daily Report and data forms were completed by staff personnel to provide daily record of significant events, observations, and measurements. Field records were signed, dated, and stored in the project file.

APPENDIX B

FIELD DATA SHEETS AND NON-HAZARDOUS WASTE DATA FORM

BROADBENT

DAILY REPORT

Page ____ of ____

Project: BP 771 Project No.: 06-32-608

Field Representative(s): A. Martinez / J. Ramos Day: Thursday Date: 7/25/13

Time Onsite: From: 0630 To: ____; From: ____ To: ____; From: ____ To: ____

x Signed HASP x Safety Glasses x Hard Hat x Steel Toe Boots x Safety Vest

x UST Emergency System Shut-off Switches Located x Proper Gloves

x Proper Level of Barricading ___ Other PPE (describe) ____

Weather: Sunny

Equipment In Use: Bladder pump, U52 meter, water level meter, interface probe

Visitors: ____

TIME:	WORK DESCRIPTION:
0630	Arrived onsite / conducted tailgate
0706	Set up @ MW-11
0740	Set up @ MW-6
0810	Set up @ VW-1
0910	Set up @ MW-5
0955	Set up @ RW-1 & MW-1
1020	Set up for MW-2, 4 & 7
1150	Set up @ MW-8
1220	Set up @ MW-9
1240	Set up @ MW-3
	Well MW-10 was not gauged or sampled. Car parked
	over well all day long
1315	Completed Fieldwork & offsite.

Signature: ____

BROADBENT

GROUNDWATER MONITORING SITE SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-82-608 Date: 7/25/13

Field Representative: JR LAM Elevation: ____

Formation recharge rate is historically: High Low *(circle one)*

W. L. Indicator ID #: ____ Oil/Water Interface ID #: ____ *(List #s of all equip used.)*

WELL ID RECORD					WELL GAUGING RECORD					NOTES
Well ID	Well Sampling Order	As-Built Well Diameter (inches)	As-Built Well Screen Interval (ft)	Previous Depth to Water (ft)	Time (24:00)	Depth to LNAPL (ft)	Apparent LNAPL Thickness (ft)*	Depth to Water (ft)	Well Total Depth (ft)	
MW-1					0922	-	-	35.43	36.83	
MW-2					0925	-	-	32.63	34.15	
MW-3					1039	-	-	34.87	39.67	
MW-4					1029	-	-	39.07	41.30	
MW-5					0915	-	-	34.65	40.23	
MW-6					0744	-	-	36.50	43.19	
MW-7					0933	-	-	33.81	36.69	
MW-8					1143	-	-	35.97	41.83	
MW-9					1141	-	-	33.10	39.06	
MW-10					———	———	———	———	34.14	Car parked over
MW-11					0704	-	-	35.40	38.63	
RW-1					0957			34.65	39.66	
VW-1					0816	-	-	27.41	28.20	

* Device used to measure LNAPL thickness: Bailer (Oil/Water Interface Meter) *(circle one)*

If bailer used, note bailer dimensions (inches): Entry Diameter ____ Chamber Diameter ____

Signature: James R

Revision: 8/19/11

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-82-608 Date: 7/25/13

Field Representative: JR/AM

Well ID: MW-1 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT
X Disp. Bailer ___ 120V Pump ___ Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
Good Improvement Needed *(circle one)*

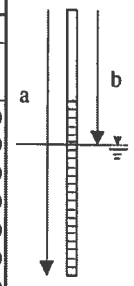
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow (Other) *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): 36.83 (ft)
Initial Depth to Water (b): 35.43 (ft)
Water Column Height (WCH) = (a - b): 1.40 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)
Three Casing Volumes = WCV x 3: ____ (gal)
Five Casing Volumes = WCV x 5: ____ (gal)
Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)
Total Well Depth (a): ____ (ft)
Initial Depth to Water (b): ____ (ft)
Pump In-take Depth = b + (a-b)/2: ____ (ft)
Maximum Allowable Drawdown = (a-b)/8: ____ (ft)
Low-Flow Purge Rate: ____ (Lpm)*
Comments: ____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
		Grab Sample						
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: GRAB SAMPLE

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 35.43 (ft)
Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other:
Sample ID: MW-1 Sample Collection Time: 1010 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ ___ Other: ___
___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: Jeanne Kim

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-82-008 Date: 7/25/13

Field Representative: JR/AM

Well ID: MW-2 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT X Disp. Bailer ___ 120V Pump ___ Flow Cell
___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

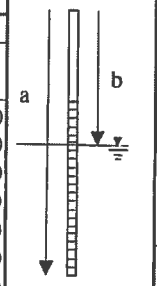
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow (Other:) *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1"|(0.04) 1.25"|(0.08) 2"|(0.17) 3"|(0.38) Other:
4"|(0.66) 6"|(1.50) 8"|(2.60) 12"|(5.81) ___"|(___)

Total Well Depth (a): 34.15 (ft)
Initial Depth to Water (b): 32.63 (ft)
Water Column Height (WCH) = (a - b): 1.52 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)
Three Casing Volumes = WCV x 3: ____ (gal)
Five Casing Volumes = WCV x 5: ____ (gal)
Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)
Total Well Depth (a): ____ (ft)
Initial Depth to Water (b): ____ (ft)
Pump In-take Depth = b + (a-b)/2: ____ (ft)
Maximum Allowable Drawdown = (a-b)/8: ____ (ft)
Low-Flow Purge Rate: ____ (Lpm)*
Comments: moderate HC odor

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1110	—	28.01	7.20	0.677	4.03	-63	213	
		GRAB		SAMPLE				
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: Grab Sample

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 32.63 (ft)
Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other:
Sample ID: MW-2 Sample Collection Time: 1110 (24:00)
Containers (#): 6 VOA (___ preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

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Project: BP 771 Project No.: 06-82-608 Date: 7/25/13

Field Representative: JR/AM

Well ID: MW-3 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT

(Disp. Bailer) ___ 120V Pump ___ Flow Cell

___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump (Other/ID#: BLADDER)

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: ____

(Good) Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:

4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ____ (ft)

Initial Depth to Water (b): ____ (ft)

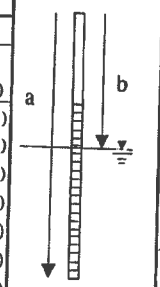
Water Column Height (WCH) = (a - b): ____ (ft)

Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)

Three Casing Volumes = WCV x 3: ____ (gal)

Five Casing Volumes = WCV x 5: ____ (gal)

Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)

Total Well Depth (a): 39.67 (ft)

Initial Depth to Water (b): 34.87 (ft)

Pump In-take Depth = b + (a-b)/2: 37.27 (ft)

Maximum Allowable Drawdown = (a-b)/8: 0.60 (ft)

Low-Flow Purge Rate: 0.23 (Lpm)*

Comments: ____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1252	0.0	25.14	7.50	0.553	4.56	101	735	
1254	0.5	23.75	7.42	0.552	4.04	103	527	
1256	1.0	23.52	7.39	0.542	4.07	102	380	
1258	1.5	23.36	7.38	0.542	3.95	102	343	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD (X) Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 34.91 (ft)

Sample Collected Via: (X) Disp. Bailer ___ Dedicated Pump Tubing

(X) Disp. Pump Tubing Other:

Sample ID: MW-3 Sample Collection Time: 1303 (24:00)

Containers (#): 6 VOA (6 preserved or ___ unpreserved) ___ Liter Amber

___ Other: ____ ___ Other: ____

___ Other: ____ ___ Other: ____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: ____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-82-608 Date: 7-25-13

Field Representative: JR/AM

Well ID: MW-4 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ___ Flow Cell ___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump (Other/ID#: BLADDER)

WELL HEAD INTEGRITY (cap, lock, vault, etc.) (Good) Improvement Needed (circle one) Comments: _____

PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: (circle one)

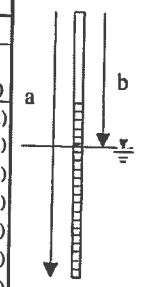
PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) (circle one)

1"|(0.04) 1.25"|(0.08) 2"|(0.17) 3"|(0.38) Other: ___"|(___)

4"|(0.66) 6"|(1.50) 8"|(2.60) 12"|(5.81)

Total Well Depth (a):	_____ (ft)
Initial Depth to Water (b):	_____ (ft)
Water Column Height (WCH) = (a - b):	_____ (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	_____ (gal)
Three Casing Volumes = WCV x 3:	_____ (gal)
Five Casing Volumes = WCV x 5:	_____ (gal)
Pump Depth (if pump used):	_____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate:	_____ (lpm)
Total Well Depth (a):	41.30 (ft)
Initial Depth to Water (b):	34.07 (ft)
Pump In-take Depth = b + (a-b)/2:	37.61 (ft)
Maximum Allowable Drawdown = (a-b)/8:	0.90 (ft)
Low-Flow Purge Rate:	0.15 (Lpm)*
Comments:	

*Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1040	0.5	24.51	7.14	0.707	4.98	18	274	
1042	0.5	23.86	7.10	0.704	4.62	2	279	
1044	1.0	23.44	7.08	0.709	4.40	-24	275	
1046	1.5	23.30	7.07	0.713	4.35	-44	225	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes ___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 34.16 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing X Disp. Pump Tubing Other:

Sample ID: MW-4 Sample Collection Time: 1050 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ ___ Other: ___

___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

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Project: BP 771 Project No.: 06-82-608 Date: 7/25/13

Field Representative: JR/AM

Well ID: MW-5 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT

___ Disp. Bailer ___ 120V Pump ___ Flow Cell

___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#: BLADDER

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: _____

Good / Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume / Low-Flow / Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1"|(0.04) 1.25"|(0.08) 2"|(0.17) 3"|(0.38) Other: ___"|(___)

4"|(0.66) 6"|(1.50) 8"|(2.60) 12"|(5.81)

Total Well Depth (a): _____(ft)

Initial Depth to Water (b): _____(ft)

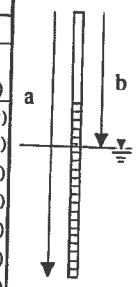
Water Column Height (WCH) = (a - b): _____(ft)

Water Column Volume (WCV) = WCH x Unit Volume: _____(gal)

Three Casing Volumes = WCV x 3: _____(gal)

Five Casing Volumes = WCV x 5: _____(gal)

Pump Depth (if pump used): _____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____(lpm)

Total Well Depth (a): 40.23 (ft)

Initial Depth to Water (b): 34.65 (ft)

Pump In-take Depth = b + (a-b)/2: 37.44 (ft)

Maximum Allowable Drawdown = (a-b)/8: 0.70 (ft)

Low-Flow Purge Rate: 0.25 (Lpm)*

Comments: _____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0923	0.0	22.87	7.27	0.775	6.03	118	240	Moderate H2S odor
0925	0.5	22.45	7.15	0.775	5.77	99	286	
0927	1.0	22.31	7.09	0.774	5.21	73	787	
0929	1.5	22.29	7.07	0.772	5.11	54	232	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 34.71 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing

X Disp. Pump Tubing Other:

Sample ID: MW-5 Sample Collection Time: 0935 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ Other:

___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

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BROADBENT

GROUNDWATER SAMPLING DATA SHEET

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Project: BP - 771 Project No.: 06-82-608 Date: 7/25/13

Field Representative: JP/AM

Well ID: MW-6 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ✓ Flow Cell
✓ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump ✓ Other/ID#: Bladder pump

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

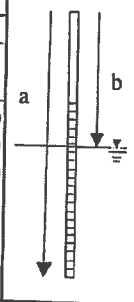
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ____ (ft)
Initial Depth to Water (b): ____ (ft)
Water Column Height (WCH) = (a - b): ____ (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)
Three Casing Volumes = WCV x 3: ____ (gal)
Five Casing Volumes = WCV x 5: ____ (gal)
Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)
Total Well Depth (a): 43.19 (ft)
Initial Depth to Water (b): 36.50 (ft)
Pump In-take Depth = b + (a-b)/2: 39.84 (ft)
Maximum Allowable Drawdown = (a-b)/8: 0.85 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0751	0.0	21.92	7.59	0.595	6.32	125	307	Light HC odor
0753	0.5	21.72	7.48	0.597	5.62	125	296	
0755	1.0	21.66	7.39	0.597	5.37	122	313	
0757	1.5	21.64	7.35	0.597	5.27	117	313	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ✓ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 36.57 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
✓ Disp. Pump Tubing Other:
Sample ID: MW-6 Sample Collection Time: 0800 (24:00)
Containers (#): 6 VOA (✓ preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

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Project: BP 771 Project No.: 06-82-603 Date: 7/25/13

Field Representative: AM / JR

Well ID: MW-7 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT X Disp. Bailer ___ 120V Pump ___ Flow Cell ___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#:

WELL-HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
Good / Improvement Needed *(circle one)*

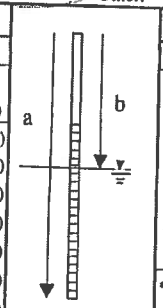
PURGING/SAMPLING METHOD Predetermined Well Volume / Low-Flow / Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other: ___" | (___)
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81)

Total Well Depth (a): 38.69 (ft)
Initial Depth to Water (b): 33.69 (ft)
Water Column Height (WCH) = (a - b): 5.00 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)
Three Casing Volumes = WCV x 3: ____ (gal)
Five Casing Volumes = WCV x 5: ____ (gal)
Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)
Total Well Depth (a): 38.69 (ft)
Initial Depth to Water (b): 33.69 (ft)
Pump In-take Depth = b + (a-b)/2: ____ (ft)
Maximum Allowable Drawdown = (a-b)/8: ____ (ft)
Low-Flow Purge Rate: ____ (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
		GRAB		SAMPLE				
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: GRAB SAMPLE

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 33.69 (ft)
Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing ___ Disp. Pump Tubing Other:
Sample ID: MW-7 Sample Collection Time: 1135 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-02-608 Date: 7-25-13

Field Representative: JR | AM

Well ID: MW-8 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT

X Disp. Tubing ___ Disp. Bailer ___ 12V Pump ___ 120V Pump ___ Peristaltic Pump Y Flow Cell X Other/ID#: Bladder

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:

Good / Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:

4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): _____ (ft)

Initial Depth to Water (b): _____ (ft)

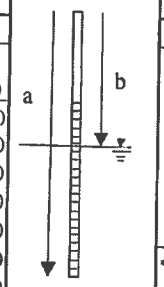
Water Column Height (WCH) = (a - b): _____ (ft)

Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)

Three Casing Volumes = WCV x 3: _____ (gal)

Five Casing Volumes = WCV x 5: _____ (gal)

Pump Depth (if pump used): _____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)

Total Well Depth (a): 41.60 (ft)

Initial Depth to Water (b): 35.97 (ft)

Pump In-take Depth = b + (a-b)/2: 38.9 (ft)

Maximum Allowable Drawdown = (a-b)/8: 0.73 (ft)

Low-Flow Purge Rate: 0.75 (Lpm)*

Comments: _____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1202	0.0	23.91	7.70	0.459	7.22	45	903	
1204	0.5	24.85	7.57	0.457	7.51	56	610	
1206	1.0	24.26	7.51	0.457	7.66	64	678	
1208	1.5	24.90	7.46	0.457	7.46	70	776	
1210	2.0	23.94	7.44	0.458	7.55	74	>1000	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 36.03 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing

X Disp. Pump Tubing Other:

Sample ID: MW-8 Sample Collection Time: 1215 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ ___ Other: ___

___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-62-008 Date: 7-25-13

Field Representative: JR/AM

Well ID: MW-9 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT

X Disp. Tubing ___ Disp. Bailer ___ 12V Pump ___ 120V Pump ___ Peristaltic Pump ___ Flow Cell (Other/ID#: BLADDER PUMP)

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:

(Good) Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1"|(0.04) 1.25"|(0.08) 2"|(0.17) 3"|(0.38) Other: ___"|(___)

4"|(0.66) 6"|(1.50) 8"|(2.60) 12"|(5.81)

Total Well Depth (a): ____(ft)

Initial Depth to Water (b): ____(ft)

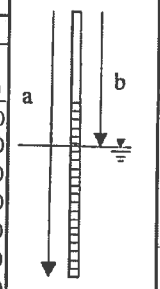
Water Column Height (WCH) = (a - b): ____(ft)

Water Column Volume (WCV) = WCH x Unit Volume: ____(gal)

Three Casing Volumes = WCV x 3: ____(gal)

Five Casing Volumes = WCV x 5: ____(gal)

Pump Depth (if pump used): ____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____(lpm)

Total Well Depth (a): 39.08 (ft)

Initial Depth to Water (b): 33.10 (ft)

Pump In-take Depth = b + (a-b)/2: 36.09 (ft)

Maximum Allowable Drawdown = (a-b)/8: 0.75 (ft)

Low-Flow Purge Rate: 0.75 (Lpm)*

Comments: ____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1227	0.0	28.17	7.44	0.657	5.61	84	>1000	
1229	0.5	27.24	7.41	0.617	5.56	91	"	
1231	1.0	26.96	7.36	0.618	5.63	94	726	
1233	1.5	26.55	7.32	0.619	5.76	98	557	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 33.17 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing

X Disp. Pump Tubing Other:

Sample ID: MW-9 Sample Collection Time: 1239 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ____ ___ Other: ____

___ Other: ____ ___ Other: ____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: ____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-82-608 Date: 7/25/13

Field Representative: AM/JR

Well ID: MW-11 Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT

___ Disp. Bailer ___ 120V Pump X Flow Cell

X Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#: Bladder pump

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:

Good Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:

4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ____(ft)

Initial Depth to Water (b): ____(ft)

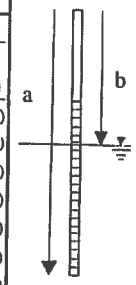
Water Column Height (WCH) = (a - b): ____(ft)

Water Column Volume (WCV) = WCH x Unit Volume: ____(gal)

Three Casing Volumes = WCV x 3: ____(gal)

Five Casing Volumes = WCV x 5: ____(gal)

Pump Depth (if pump used): ____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____(lpm)

Total Well Depth (a): 38.63 (ft)

Initial Depth to Water (b): 33.90 (ft)

Pump In-take Depth = b + (a-b)/2: 36.08 (ft)

Maximum Allowable Drawdown = (a-b)/8: 0.65 (ft)

Low-Flow Purge Rate: ____(Lpm)*

Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0716	0.0	22.15	8.92	0.769	10.99	17	>1000	
0718	0.5	22.25	8.20	0.757	10.13	47	988	
0720	1.0	22.34	7.73	0.751	9.52	73	596	
0722	1.5	22.14	7.59	0.750	9.41	86	486	
0724	2.0	22.07	7.46	0.751	9.28	97	428	
0726	2.5	22.06	7.39	0.750	9.04	106	463	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 35.43 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing

X Disp. Pump Tubing Other:

Sample ID: MW-11 Sample Collection Time: 0730 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ Other:

___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-62-608 Date: 7-25-13

Field Representative: JR/AM

Well ID: Rw-1 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT

X Disp. Tubing ___ Disp. Bailer ___ 12V Pump ___ 120V Pump ___ Peristaltic Pump X Flow Cell X Other/ID#: Bladder

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: ____

(Good) Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1"|(0.04) 1.25"|(0.08) 2"|(0.17) 3"|(0.38) Other:

4"|(0.66) 6"|(1.50) 8"|(2.60) 12"|(5.81) ___"|(___)

Total Well Depth (a): ____(ft)

Initial Depth to Water (b): ____(ft)

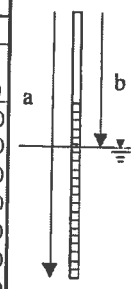
Water Column Height (WCH) = (a - b): ____(ft)

Water Column Volume (WCV) = WCH x Unit Volume: ____(gal)

Three Casing Volumes = WCV x 3: ____(gal)

Five Casing Volumes = WCV x 5: ____(gal)

Pump Depth (if pump used): ____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____(lpm)

Total Well Depth (a): 39.66 (ft)

Initial Depth to Water (b): 37.65 (ft)

Pump In-take Depth = b + (a-b)/2: 37.16 (ft)

Maximum Allowable Drawdown = (a-b)/8: 0.63 (ft)

Low-Flow Purge Rate: 0.25 (Lpm)*

Comments: ____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1004	0.0	23.71	7.17	0.477	5.33	61	312	
1006	0.5	23.38	7.01	0.477	4.91	17	295	
1008	1.0	23.34	6.97	0.476	5.32	-15	290	
1010	1.5	23.44	6.96	0.470	4.79	-31	286	
1012	2.0	23.44	6.94	0.470	4.72	-44	286	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 34.70 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing

X Disp. Pump Tubing Other:

Sample ID: Rw-1 Sample Collection Time: 1015 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ____ ___ Other: ____

___ Other: ____ ___ Other: ____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: ____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 771 Project No.: 06-82-008 Date: 7/25/13

Field Representative: SR/AM

Well ID: VW-1 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT X Disp. Bailer ___ 120V Pump ___ Flow Cell ___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:

(Good) Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: ~ *(circle one)*

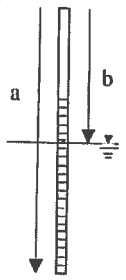
PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:

4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a):	28.20 (ft)
Initial Depth to Water (b):	27.41 (ft)
Water Column Height (WCH) = (a - b):	0.79 (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	___ (gal)
Three Casing Volumes = WCV x 3:	___ (gal)
Five Casing Volumes = WCV x 5:	___ (gal)
Pump Depth (if pump used):	___ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate:	___ (lpm)
Total Well Depth (a):	28.26 (ft)
Initial Depth to Water (b):	27.41 (ft)
Pump In-take Depth = b + (a-b)/2:	___ (ft)
Maximum Allowable Drawdown = (a-b)/8:	___ (ft)
Low-Flow Purge Rate:	___ (Lpm)*
Comments:	

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
	GRAB			SAMPLE				
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes

X Other: GRAB SAMPLE

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 27.41 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing ___ Disp. Pump Tubing Other:

Sample ID: VW-1 Sample Collection Time: 0950 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ ___ Other: ___

___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

Revision: 3/15/2013

NO. 702261

NON-HAZARDOUS WASTE DATA FORM

BESI #

GENERATOR

Generator's Name and Mailing Address

BP WEST COAST PRODUCTS, LLC
P.O. BOX 80249
RANCHO SANTA MARGARITA, CA 92688

Generator's Site Address (if different than mailing address)

BP 771
899 Rincon Ave.
Livermore, CA

Generator's Phone: 949-460-5200

Container type removed from site:

☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck

☐ Other _____

Quantity 4 gallons

Container type transported to receiving facility:

☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck

☐ Other _____

Quantity _____ Volume _____

WASTE DESCRIPTION NON-HAZARDOUS WATER

GENERATING PROCESS WELL PURGING / DECON WATER

COMPONENTS OF WASTE	PPM	%
1. WATER		99-100%
2. TPH		<1%
3.		
4.		

Waste Profile _____ PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

Generator Printed/Typed Name: Alex Martinez
On behalf of BP West Coast Products, LLC

Signature: Alex Martinez

Month: 7 Day: 25 Year: 13

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

TRANSPORTER

Transporter 1 Company Name: Broadbent & Associates

Phone#: 707-455-7290

Transporter 1 Printed/Typed Name: Alex Martinez

Signature: Alex Martinez

Month: 7 Day: 25 Year: 13

Transporter Acknowledgment of Receipt of Materials

Transporter 2 Company Name

Phone#

Transporter 2 Printed/Typed Name

Signature

Month Day Year

Transporter Acknowledgment of Receipt of Materials

RECEIVING FACILITY

Designated Facility Name and Site Address

INSTRAT, INC.
1105 AIRPORT RD.
RIO VISTA, CA 94571

Phone#: 530-753-1829

Printed/Typed Name

Signature

Month Day Year

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

APPENDIX C

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

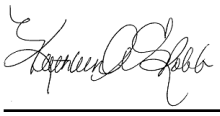
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-52786-1
Client Project/Site: ARCO 0771, Livermore

For:
Broadbent & Associates, Inc.
1324 Mangrove Ave
Suite 212
Chico, California 95926

Attn: Mr. Jason Duda



Authorized for release by:
8/9/2013 4:38:40 PM

Kathleen Robb, Project Manager II
kathleen.robb@testamericainc.com

Table of Contents

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-52786-1	MW-1	Water	07/25/13 10:10	07/25/13 09:40
440-52786-2	MW-2	Water	07/25/13 11:10	07/25/13 09:40
440-52786-3	MW-3	Water	07/25/13 13:03	07/25/13 09:40
440-52786-4	MW-4	Water	07/25/13 10:50	07/25/13 09:40
440-52786-5	MW-5	Water	07/25/13 09:35	07/25/13 09:40
440-52786-6	MW-6	Water	07/25/13 08:00	07/25/13 09:40
440-52786-7	MW-7	Water	07/25/13 11:35	07/25/13 09:40
440-52786-8	MW-8	Water	07/25/13 12:15	07/25/13 09:40
440-52786-9	MW-9	Water	07/25/13 12:39	07/25/13 09:40
440-52786-10	MW-11	Water	07/25/13 07:30	07/25/13 09:40
440-52786-11	RW-1	Water	07/25/13 10:15	07/25/13 09:40
440-52786-12	VW-1	Water	07/25/13 09:00	07/25/13 09:40

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Job ID: 440-52786-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-52786-1

Comments
No additional comments.

Receipt
The samples were received on 7/26/2013 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

Except:

The Chain of Custody was received without listing a date of sample collection. The collection date was taken from the containers. Sample #10 (MW-11) had no collection date on the container, used common collection date.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: MW-5 (440-52786-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Peak at surrogate retention time was unassigned because the contribution of the surrogate was insignificant compared to the sample at that retention time.

Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCV 440-121496/11), (CCV 440-121496/23), (LCS 440-121496/2). BFB surrogate coeluted with TPH standard. Data not impacted.

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: (440-52786-6 MS), (440-52786-6 MSD), MW-6 (440-52786-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: MW-1 (440-52786-1), MW-5 (440-52786-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8015B: Surrogate recovery was outside control limits for the following sample: (CCVRT 440-121496/1). BFB surrogate coeluted with TPH standard. Data not impacted.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Client Sample ID: MW-1
Date Collected: 07/25/13 10:10
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-1
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 14:30	1
1,2-Dichloroethane	ND		0.50		ug/L			08/01/13 14:30	1
Benzene	**27**		0.50		ug/L			08/01/13 14:30	1
Ethanol	ND		150		ug/L			08/01/13 14:30	1
Ethylbenzene	**35**		0.50		ug/L			08/01/13 14:30	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 14:30	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/01/13 14:30	1
m,p-Xylene	**16**		1.0		ug/L			08/01/13 14:30	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/01/13 14:30	1
o-Xylene	**0.85**		0.50		ug/L			08/01/13 14:30	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 14:30	1
tert-Butyl alcohol (TBA)	**40**		10		ug/L			08/01/13 14:30	1
Toluene	**1.9**		0.50		ug/L			08/01/13 14:30	1
Xylenes, Total	**17**		1.0		ug/L			08/01/13 14:30	1
Naphthalene	**34**		0.50		ug/L			08/01/13 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*08/01/13 14:30*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 120*		*08/01/13 14:30*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*08/01/13 14:30*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**3200**		1000		ug/L			08/01/13 17:58	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*201*	*LH*	*65 - 140*		*08/01/13 17:58*	*20*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Client Sample ID: MW-2
Date Collected: 07/25/13 11:10
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-2
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			08/01/13 14:59	1
1,2-Dichloroethane	ND		0.50	ug/L			08/01/13 14:59	1
Benzene	**67**		0.50	ug/L			08/01/13 14:59	1
Ethanol	ND		150	ug/L			08/01/13 14:59	1
Ethylbenzene	**1.2**		0.50	ug/L			08/01/13 14:59	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			08/01/13 14:59	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			08/01/13 14:59	1
m,p-Xylene	**4.4**		1.0	ug/L			08/01/13 14:59	1
Methyl-t-Butyl Ether (MTBE)	**25**		0.50	ug/L			08/01/13 14:59	1
o-Xylene	**0.54**		0.50	ug/L			08/01/13 14:59	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			08/01/13 14:59	1
tert-Butyl alcohol (TBA)	**93**		10	ug/L			08/01/13 14:59	1
Toluene	**3.9**		0.50	ug/L			08/01/13 14:59	1
Xylenes, Total	**4.9**		1.0	ug/L			08/01/13 14:59	1
Naphthalene	**7.4**		0.50	ug/L			08/01/13 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/01/13 14:59*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*08/01/13 14:59*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*08/01/13 14:59*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**2100**		1000	ug/L			08/01/13 13:35	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*130*		*65 - 140*		*08/01/13 13:35*	*20*

Client Sample ID: MW-3
Date Collected: 07/25/13 13:03
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-3
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 15:26	1
1,2-Dichloroethane	ND		0.50		ug/L			08/01/13 15:26	1
Benzene	ND		0.50		ug/L			08/01/13 15:26	1
Ethanol	ND		150		ug/L			08/01/13 15:26	1
Ethylbenzene	ND		0.50		ug/L			08/01/13 15:26	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 15:26	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/01/13 15:26	1
m,p-Xylene	ND		1.0		ug/L			08/01/13 15:26	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/01/13 15:26	1
o-Xylene	ND		0.50		ug/L			08/01/13 15:26	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 15:26	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/01/13 15:26	1
Toluene	ND		0.50		ug/L			08/01/13 15:26	1
Xylenes, Total	ND		1.0		ug/L			08/01/13 15:26	1
Naphthalene	ND		0.50		ug/L			08/01/13 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*08/01/13 15:26*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*08/01/13 15:26*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*08/01/13 15:26*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*126*		*65 - 140*		*08/01/13 14:03*	*1*

Client Sample ID: MW-4
Date Collected: 07/25/13 10:50
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-4
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 12:01	1
1,2-Dichloroethane	ND		0.50		ug/L			08/01/13 12:01	1
Ethanol	ND		150		ug/L			08/01/13 12:01	1
Ethylbenzene	**0.83**		0.50		ug/L			08/01/13 12:01	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 12:01	1
Isopropyl Ether (DIPE)	**0.51**		0.50		ug/L			08/01/13 12:01	1
m,p-Xylene	**1.9**		1.0		ug/L			08/01/13 12:01	1
Methyl-t-Butyl Ether (MTBE)	**40**		0.50		ug/L			08/01/13 12:01	1
o-Xylene	ND		0.50		ug/L			08/01/13 12:01	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 12:01	1
tert-Butyl alcohol (TBA)	**940**		10		ug/L			08/01/13 12:01	1
Toluene	**3.8**		0.50		ug/L			08/01/13 12:01	1
Xylenes, Total	**1.9**		1.0		ug/L			08/01/13 12:01	1
Naphthalene	**0.68**		0.50		ug/L			08/01/13 12:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/01/13 12:01*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*08/01/13 12:01*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*08/01/13 12:01*	*1*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**110**		2.5		ug/L			08/01/13 14:02	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/01/13 14:02*	*5*
Dibromofluoromethane (Surr)	*91*		*80 - 120*		*08/01/13 14:02*	*5*
Toluene-d8 (Surr)	*104*		*80 - 120*		*08/01/13 14:02*	*5*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**1200**		50		ug/L			08/01/13 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*65 - 140*		*08/01/13 14:31*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Client Sample ID: MW-5
Date Collected: 07/25/13 09:35
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-5
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			08/01/13 15:54	1
1,2-Dichloroethane	ND		0.50	ug/L			08/01/13 15:54	1
Benzene	**98**		0.50	ug/L			08/01/13 15:54	1
Ethanol	ND		150	ug/L			08/01/13 15:54	1
Ethylbenzene	**90**		0.50	ug/L			08/01/13 15:54	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			08/01/13 15:54	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			08/01/13 15:54	1
m,p-Xylene	**27**		1.0	ug/L			08/01/13 15:54	1
Methyl-t-Butyl Ether (MTBE)	**22**		0.50	ug/L			08/01/13 15:54	1
o-Xylene	**1.2**		0.50	ug/L			08/01/13 15:54	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			08/01/13 15:54	1
tert-Butyl alcohol (TBA)	**220**		10	ug/L			08/01/13 15:54	1
Toluene	**2.9**		0.50	ug/L			08/01/13 15:54	1
Xylenes, Total	**28**		1.0	ug/L			08/01/13 15:54	1
Naphthalene	**65**		0.50	ug/L			08/01/13 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*08/01/13 15:54*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*08/01/13 15:54*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*08/01/13 15:54*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**1100**		500	ug/L			08/01/13 18:26	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*176*	*LH*	*65 - 140*		*08/01/13 18:26*	*10*

Client Sample ID: MW-6
Date Collected: 07/25/13 08:00
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-6
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 16:22	1
1,2-Dichloroethane	ND		0.50		ug/L			08/01/13 16:22	1
Benzene	**9.1**		0.50		ug/L			08/01/13 16:22	1
Ethanol	ND		150		ug/L			08/01/13 16:22	1
Ethylbenzene	ND		0.50		ug/L			08/01/13 16:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 16:22	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/01/13 16:22	1
m,p-Xylene	ND		1.0		ug/L			08/01/13 16:22	1
Methyl-t-Butyl Ether (MTBE)	**19**		0.50		ug/L			08/01/13 16:22	1
o-Xylene	ND		0.50		ug/L			08/01/13 16:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 16:22	1
tert-Butyl alcohol (TBA)	**40**		10		ug/L			08/01/13 16:22	1
Toluene	**0.84**		0.50		ug/L			08/01/13 16:22	1
Xylenes, Total	ND		1.0		ug/L			08/01/13 16:22	1
Naphthalene	**1.0**		0.50		ug/L			08/01/13 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/01/13 16:22*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*08/01/13 16:22*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*08/01/13 16:22*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**550**		50		ug/L			08/01/13 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*384*	*LH*	*65 - 140*		*08/01/13 15:26*	*1*

Client Sample ID: MW-7
Date Collected: 07/25/13 11:35
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-7
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 16:52	1
1,2-Dichloroethane	**0.62**		0.50		ug/L			08/01/13 16:52	1
Ethanol	ND		150		ug/L			08/01/13 16:52	1
Ethylbenzene	**14**		0.50		ug/L			08/01/13 16:52	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 16:52	1
Isopropyl Ether (DIPE)	**0.75**		0.50		ug/L			08/01/13 16:52	1
m,p-Xylene	**35**		1.0		ug/L			08/01/13 16:52	1
Methyl-t-Butyl Ether (MTBE)	**170**		0.50		ug/L			08/01/13 16:52	1
o-Xylene	**5.1**		0.50		ug/L			08/01/13 16:52	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 16:52	1
tert-Butyl alcohol (TBA)	**490**		10		ug/L			08/01/13 16:52	1
Toluene	**17**		0.50		ug/L			08/01/13 16:52	1
Xylenes, Total	**40**		1.0		ug/L			08/01/13 16:52	1
Naphthalene	**41**		0.50		ug/L			08/01/13 16:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*08/01/13 16:52*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*08/01/13 16:52*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*08/01/13 16:52*	*1*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**770**		5.0		ug/L			08/02/13 14:50	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*08/02/13 14:50*	*10*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*08/02/13 14:50*	*10*
Toluene-d8 (Surr)	*107*		*80 - 120*		*08/02/13 14:50*	*10*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**5300**		1000		ug/L			08/01/13 18:47	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*131*		*65 - 140*		*08/01/13 18:47*	*20*

Client Sample ID: MW-8
Date Collected: 07/25/13 12:15
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-8
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 17:22	1
1,2-Dichloroethane	ND		0.50		ug/L			08/01/13 17:22	1
Benzene	ND		0.50		ug/L			08/01/13 17:22	1
Ethanol	ND		150		ug/L			08/01/13 17:22	1
Ethylbenzene	ND		0.50		ug/L			08/01/13 17:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 17:22	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/01/13 17:22	1
m,p-Xylene	ND		1.0		ug/L			08/01/13 17:22	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/01/13 17:22	1
o-Xylene	ND		0.50		ug/L			08/01/13 17:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 17:22	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/01/13 17:22	1
Toluene	ND		0.50		ug/L			08/01/13 17:22	1
Xylenes, Total	ND		1.0		ug/L			08/01/13 17:22	1
Naphthalene	ND		0.50		ug/L			08/01/13 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/01/13 17:22*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*08/01/13 17:22*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*08/01/13 17:22*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*65 - 140*		*08/01/13 19:15*	*1*

Client Sample ID: MW-9
Date Collected: 07/25/13 12:39
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-9
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/02/13 05:24	1
1,2-Dichloroethane	ND		0.50		ug/L			08/02/13 05:24	1
Benzene	ND		0.50		ug/L			08/02/13 05:24	1
Ethanol	ND		150		ug/L			08/02/13 05:24	1
Ethylbenzene	ND		0.50		ug/L			08/02/13 05:24	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/02/13 05:24	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/02/13 05:24	1
m,p-Xylene	ND		1.0		ug/L			08/02/13 05:24	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/02/13 05:24	1
o-Xylene	ND		0.50		ug/L			08/02/13 05:24	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/02/13 05:24	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/02/13 05:24	1
Toluene	ND		0.50		ug/L			08/02/13 05:24	1
Xylenes, Total	ND		1.0		ug/L			08/02/13 05:24	1
Naphthalene	ND		0.50		ug/L			08/02/13 05:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*08/02/13 05:24*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*08/02/13 05:24*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/02/13 05:24*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*65 - 140*		*08/01/13 19:43*	*1*

Client Sample ID: MW-11
Date Collected: 07/25/13 07:30
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-10
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/02/13 02:20	1
1,2-Dichloroethane	ND		0.50		ug/L			08/02/13 02:20	1
Benzene	ND		0.50		ug/L			08/02/13 02:20	1
Ethanol	ND		150		ug/L			08/02/13 02:20	1
Ethylbenzene	ND		0.50		ug/L			08/02/13 02:20	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/02/13 02:20	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/02/13 02:20	1
m,p-Xylene	ND		1.0		ug/L			08/02/13 02:20	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/02/13 02:20	1
o-Xylene	ND		0.50		ug/L			08/02/13 02:20	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/02/13 02:20	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/02/13 02:20	1
Toluene	ND		0.50		ug/L			08/02/13 02:20	1
Xylenes, Total	ND		1.0		ug/L			08/02/13 02:20	1
Naphthalene	ND		0.50		ug/L			08/02/13 02:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*08/02/13 02:20*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*08/02/13 02:20*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/02/13 02:20*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*65 - 140*		*08/01/13 15:58*	*1*

Client Sample ID: RW-1
Date Collected: 07/25/13 10:15
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-11
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/02/13 02:48	1
1,2-Dichloroethane	ND		0.50		ug/L			08/02/13 02:48	1
Benzene	**0.83**		0.50		ug/L			08/02/13 02:48	1
Ethanol	ND		150		ug/L			08/02/13 02:48	1
Ethylbenzene	ND		0.50		ug/L			08/02/13 02:48	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/02/13 02:48	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/02/13 02:48	1
m,p-Xylene	ND		1.0		ug/L			08/02/13 02:48	1
Methyl-t-Butyl Ether (MTBE)	**1.3**		0.50		ug/L			08/02/13 02:48	1
o-Xylene	ND		0.50		ug/L			08/02/13 02:48	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/02/13 02:48	1
tert-Butyl alcohol (TBA)	**23**		10		ug/L			08/02/13 02:48	1
Toluene	ND		0.50		ug/L			08/02/13 02:48	1
Xylenes, Total	ND		1.0		ug/L			08/02/13 02:48	1
Naphthalene	ND		0.50		ug/L			08/02/13 02:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/02/13 02:48*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*08/02/13 02:48*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*08/02/13 02:48*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**230**		50		ug/L			08/01/13 20:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*65 - 140*		*08/01/13 20:11*	*1*

Client Sample ID: VW-1
Date Collected: 07/25/13 09:00
Date Received: 07/25/13 09:40

Lab Sample ID: 440-52786-12
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/02/13 03:17	1
1,2-Dichloroethane	ND		0.50		ug/L			08/02/13 03:17	1
Benzene	ND		0.50		ug/L			08/02/13 03:17	1
Ethanol	ND		150		ug/L			08/02/13 03:17	1
Ethylbenzene	ND		0.50		ug/L			08/02/13 03:17	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/02/13 03:17	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/02/13 03:17	1
m,p-Xylene	ND		1.0		ug/L			08/02/13 03:17	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/02/13 03:17	1
o-Xylene	ND		0.50		ug/L			08/02/13 03:17	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/02/13 03:17	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/02/13 03:17	1
Toluene	ND		0.50		ug/L			08/02/13 03:17	1
Xylenes, Total	ND		1.0		ug/L			08/02/13 03:17	1
Naphthalene	ND		0.50		ug/L			08/02/13 03:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*08/02/13 03:17*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*08/02/13 03:17*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/02/13 03:17*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 21:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*65 - 140*		*08/01/13 21:36*	*1*

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Method	Method Description	Protocol	Laboratory
8260B/5030B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B/5030B	Gasoline Range Organics (GC)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client Sample ID: MW-1 — **Lab Sample ID: 440-52786-1**
Date Collected: 07/25/13 10:10 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 14:30	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		20	10 mL	10 mL	121496	08/01/13 17:58	IM	TAL IRV

Client Sample ID: MW-2 — **Lab Sample ID: 440-52786-2**
Date Collected: 07/25/13 11:10 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 14:59	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		20	10 mL	10 mL	121496	08/01/13 13:35	IM	TAL IRV

Client Sample ID: MW-3 — **Lab Sample ID: 440-52786-3**
Date Collected: 07/25/13 13:03 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 15:26	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121496	08/01/13 14:03	IM	TAL IRV

Client Sample ID: MW-4 — **Lab Sample ID: 440-52786-4**
Date Collected: 07/25/13 10:50 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B	DL	5	10 mL	10 mL	121440	08/01/13 14:02	MR	TAL IRV
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 12:01	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121496	08/01/13 14:31	IM	TAL IRV

Client Sample ID: MW-5 — **Lab Sample ID: 440-52786-5**
Date Collected: 07/25/13 09:35 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 15:54	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		10	10 mL	10 mL	121496	08/01/13 18:26	IM	TAL IRV

Client Sample ID: MW-6 — **Lab Sample ID: 440-52786-6**
Date Collected: 07/25/13 08:00 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 16:22	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121496	08/01/13 15:26	IM	TAL IRV

Client Sample ID: MW-7 — **Lab Sample ID: 440-52786-7**
Date Collected: 07/25/13 11:35 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 16:52	MR	TAL IRV
Total/NA	Analysis	8260B/5030B	DL	10	10 mL	10 mL	121715	08/02/13 14:50	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		20	10 mL	10 mL	121568	08/01/13 18:47	AK	TAL IRV

Client Sample ID: MW-8 — **Lab Sample ID: 440-52786-8**
Date Collected: 07/25/13 12:15 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121440	08/01/13 17:22	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121568	08/01/13 19:15	AK	TAL IRV

Client Sample ID: MW-9 — **Lab Sample ID: 440-52786-9**
Date Collected: 07/25/13 12:39 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121643	08/02/13 05:24	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121568	08/01/13 19:43	AK	TAL IRV

Client Sample ID: MW-11 — **Lab Sample ID: 440-52786-10**
Date Collected: 07/25/13 07:30 — **Matrix: Water**
Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121641	08/02/13 02:20	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121568	08/01/13 15:58	AK	TAL IRV

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Client Sample ID: RW-1

Lab Sample ID: 440-52786-11

Date Collected: 07/25/13 10:15

Matrix: Water

Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121641	08/02/13 02:48	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121568	08/01/13 20:11	AK	TAL IRV

Client Sample ID: VW-1

Lab Sample ID: 440-52786-12

Date Collected: 07/25/13 09:00

Matrix: Water

Date Received: 07/25/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	121641	08/02/13 03:17	MR	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	121568	08/01/13 21:36	AK	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-121440/5
Matrix: Water
Analysis Batch: 121440

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/01/13 10:34	1
1,2-Dichloroethane	ND		0.50		ug/L			08/01/13 10:34	1
Benzene	ND		0.50		ug/L			08/01/13 10:34	1
Ethanol	ND		150		ug/L			08/01/13 10:34	1
Ethylbenzene	ND		0.50		ug/L			08/01/13 10:34	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/01/13 10:34	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/01/13 10:34	1
m,p-Xylene	ND		1.0		ug/L			08/01/13 10:34	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/01/13 10:34	1
o-Xylene	ND		0.50		ug/L			08/01/13 10:34	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/01/13 10:34	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/01/13 10:34	1
Toluene	ND		0.50		ug/L			08/01/13 10:34	1
Xylenes, Total	ND		1.0		ug/L			08/01/13 10:34	1
Naphthalene	ND		0.50		ug/L			08/01/13 10:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/01/13 10:34*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*08/01/13 10:34*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*		*08/01/13 10:34*	*1*

Lab Sample ID: LCS 440-121440/6
Matrix: Water
Analysis Batch: 121440

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane (EDB)			25.0	26.4		ug/L		106	70 - 130		
1,2-Dichloroethane			25.0	24.1		ug/L		96	57 - 138		
Benzene			25.0	22.7		ug/L		91	68 - 130		
Ethanol			250	243		ug/L		97	50 - 149		
Ethylbenzene			25.0	25.6		ug/L		103	70 - 130		
Ethyl-t-butyl ether (ETBE)			25.0	26.1		ug/L		104	60 - 136		
Isopropyl Ether (DIPE)			25.0	26.5		ug/L		106	58 - 139		
m,p-Xylene			50.0	51.5		ug/L		103	70 - 130		
Methyl-t-Butyl Ether (MTBE)			25.0	27.0		ug/L		108	63 - 131		
o-Xylene			25.0	26.1		ug/L		105	70 - 130		
Tert-amyl-methyl ether (TAME)			25.0	26.4		ug/L		106	57 - 139		
tert-Butyl alcohol (TBA)			125	121		ug/L		97	70 - 130		
Toluene			25.0	24.5		ug/L		98	70 - 130		
Naphthalene			25.0	24.7		ug/L		99	60 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-52786-4 MS
Matrix: Water
Analysis Batch: 121440

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	ND		25.0	24.4		ug/L		98	70 - 131
1,2-Dichloroethane	ND		25.0	22.4		ug/L		89	56 - 146
Benzene	110		25.0	116	EY BB	ug/L		34	66 - 130
Ethanol	ND		250	235		ug/L		94	54 - 150
Ethylbenzene	0.83		25.0	24.2		ug/L		93	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.6		ug/L		103	70 - 130
Isopropyl Ether (DIPE)	0.51		25.0	26.5		ug/L		104	64 - 138
m,p-Xylene	1.9		50.0	50.0		ug/L		96	70 - 133
Methyl-t-Butyl Ether (MTBE)	40		25.0	62.1		ug/L		90	70 - 130
o-Xylene	ND		25.0	25.1		ug/L		100	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	26.2		ug/L		105	68 - 133
tert-Butyl alcohol (TBA)	940		125	1010	BB	ug/L		54	70 - 130
Toluene	3.8		25.0	27.6		ug/L		95	70 - 130
Naphthalene	0.68		25.0	23.7		ug/L		92	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*80 - 120*
Toluene-d8 (Surr)	*106*		*80 - 120*

Lab Sample ID: 440-52786-4 MSD
Matrix: Water
Analysis Batch: 121440

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	24.4		ug/L		98	70 - 131	0	25
1,2-Dichloroethane	ND		25.0	22.1		ug/L		89	56 - 146	1	20
Benzene	110		25.0	113	EY BB	ug/L		22	66 - 130	3	20
Ethanol	ND		250	221		ug/L		88	54 - 150	6	30
Ethylbenzene	0.83		25.0	23.9		ug/L		92	70 - 130	1	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	26.0		ug/L		104	70 - 130	1	25
Isopropyl Ether (DIPE)	0.51		25.0	26.0		ug/L		102	64 - 138	2	25
m,p-Xylene	1.9		50.0	48.8		ug/L		94	70 - 133	2	25
Methyl-t-Butyl Ether (MTBE)	40		25.0	61.6		ug/L		88	70 - 130	1	25
o-Xylene	ND		25.0	24.7		ug/L		99	70 - 133	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	26.4		ug/L		106	68 - 133	1	30
tert-Butyl alcohol (TBA)	940		125	990	BB	ug/L		39	70 - 130	2	25
Toluene	3.8		25.0	26.8		ug/L		92	70 - 130	3	20
Naphthalene	0.68		25.0	23.9		ug/L		93	60 - 140	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-121641/5
Matrix: Water
Analysis Batch: 121641

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			08/01/13 22:30	1
1,2-Dichloroethane	ND		0.50	ug/L			08/01/13 22:30	1
Benzene	ND		0.50	ug/L			08/01/13 22:30	1
Ethanol	ND		150	ug/L			08/01/13 22:30	1
Ethylbenzene	ND		0.50	ug/L			08/01/13 22:30	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			08/01/13 22:30	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			08/01/13 22:30	1
m,p-Xylene	ND		1.0	ug/L			08/01/13 22:30	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			08/01/13 22:30	1
o-Xylene	ND		0.50	ug/L			08/01/13 22:30	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			08/01/13 22:30	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			08/01/13 22:30	1
Toluene	ND		0.50	ug/L			08/01/13 22:30	1
Xylenes, Total	ND		1.0	ug/L			08/01/13 22:30	1
Naphthalene	ND		0.50	ug/L			08/01/13 22:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*08/01/13 22:30*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*08/01/13 22:30*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/01/13 22:30*	*1*

Lab Sample ID: LCS 440-121641/6
Matrix: Water
Analysis Batch: 121641

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	25.0	25.3		ug/L		101	70 - 130
1,2-Dichloroethane	25.0	21.9		ug/L		88	57 - 138
Benzene	25.0	22.8		ug/L		91	68 - 130
Ethanol	250	262		ug/L		105	50 - 149
Ethylbenzene	25.0	23.6		ug/L		94	70 - 130
Ethyl-t-butyl ether (ETBE)	25.0	25.9		ug/L		104	60 - 136
Isopropyl Ether (DIPE)	25.0	26.0		ug/L		104	58 - 139
m,p-Xylene	50.0	48.7		ug/L		97	70 - 130
Methyl-t-Butyl Ether (MTBE)	25.0	26.2		ug/L		105	63 - 131
o-Xylene	25.0	25.1		ug/L		101	70 - 130
Tert-amyl-methyl ether (TAME)	25.0	26.3		ug/L		105	57 - 139
tert-Butyl alcohol (TBA)	125	123		ug/L		98	70 - 130
Toluene	25.0	24.1		ug/L		96	70 - 130
Naphthalene	25.0	24.1		ug/L		96	60 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-53215-A-3 MS
Matrix: Water
Analysis Batch: 121641

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	ND		25.0	25.7		ug/L		103	70 - 131
1,2-Dichloroethane	ND		25.0	22.2		ug/L		89	56 - 146
Benzene	ND		25.0	22.7		ug/L		91	66 - 130
Ethanol	ND		250	259		ug/L		104	54 - 150
Ethylbenzene	ND		25.0	24.1		ug/L		96	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.3		ug/L		101	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	25.7		ug/L		103	64 - 138
m,p-Xylene	ND		50.0	49.5		ug/L		99	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		25.0	26.1		ug/L		104	70 - 130
o-Xylene	ND		25.0	25.3		ug/L		101	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	25.7		ug/L		103	68 - 133
tert-Butyl alcohol (TBA)	ND		125	123		ug/L		98	70 - 130
Toluene	ND		25.0	24.1		ug/L		96	70 - 130
Naphthalene	ND		25.0	24.7		ug/L		99	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Lab Sample ID: 440-53215-A-3 MSD
Matrix: Water
Analysis Batch: 121641

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	25.0		ug/L		100	70 - 131	3	25
1,2-Dichloroethane	ND		25.0	22.7		ug/L		91	56 - 146	2	20
Benzene	ND		25.0	22.6		ug/L		90	66 - 130	0	20
Ethanol	ND		250	245		ug/L		98	54 - 150	6	30
Ethylbenzene	ND		25.0	23.9		ug/L		96	70 - 130	1	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.5		ug/L		102	70 - 130	0	25
Isopropyl Ether (DIPE)	ND		25.0	25.8		ug/L		103	64 - 138	0	25
m,p-Xylene	ND		50.0	49.4		ug/L		99	70 - 133	0	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	26.3		ug/L		105	70 - 130	1	25
o-Xylene	ND		25.0	25.5		ug/L		102	70 - 133	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	25.5		ug/L		102	68 - 133	0	30
tert-Butyl alcohol (TBA)	ND		125	124		ug/L		99	70 - 130	1	25
Toluene	ND		25.0	24.4		ug/L		97	70 - 130	1	20
Naphthalene	ND		25.0	24.4		ug/L		97	60 - 140	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*80 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-121643/4
Matrix: Water
Analysis Batch: 121643

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			08/01/13 21:40	1
1,2-Dichloroethane	ND		0.50	ug/L			08/01/13 21:40	1
Benzene	ND		0.50	ug/L			08/01/13 21:40	1
Ethanol	ND		150	ug/L			08/01/13 21:40	1
Ethylbenzene	ND		0.50	ug/L			08/01/13 21:40	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			08/01/13 21:40	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			08/01/13 21:40	1
m,p-Xylene	ND		1.0	ug/L			08/01/13 21:40	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			08/01/13 21:40	1
o-Xylene	ND		0.50	ug/L			08/01/13 21:40	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			08/01/13 21:40	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			08/01/13 21:40	1
Toluene	ND		0.50	ug/L			08/01/13 21:40	1
Xylenes, Total	ND		1.0	ug/L			08/01/13 21:40	1
Naphthalene	ND		0.50	ug/L			08/01/13 21:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/01/13 21:40*	*1*
Dibromofluoromethane (Surr)	*90*		*80 - 120*		*08/01/13 21:40*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*08/01/13 21:40*	*1*

Lab Sample ID: LCS 440-121643/5
Matrix: Water
Analysis Batch: 121643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	25.0	26.7		ug/L		107	70 - 130
1,2-Dichloroethane	25.0	20.3		ug/L		81	57 - 138
Benzene	25.0	18.7		ug/L		75	68 - 130
Ethanol	250	216		ug/L		86	50 - 149
Ethylbenzene	25.0	20.1		ug/L		80	70 - 130
Ethyl-t-butyl ether (ETBE)	25.0	19.8		ug/L		79	60 - 136
Isopropyl Ether (DIPE)	25.0	18.4		ug/L		74	58 - 139
m,p-Xylene	50.0	42.3		ug/L		85	70 - 130
Methyl-t-Butyl Ether (MTBE)	25.0	19.6		ug/L		78	63 - 131
o-Xylene	25.0	21.9		ug/L		88	70 - 130
Tert-amyl-methyl ether (TAME)	25.0	20.2		ug/L		81	57 - 139
tert-Butyl alcohol (TBA)	125	125		ug/L		100	70 - 130
Toluene	25.0	21.1		ug/L		84	70 - 130
Naphthalene	25.0	21.9		ug/L		88	60 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-53090-A-38 MS
Matrix: Water
Analysis Batch: 121643

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	ND		25.0	25.7		ug/L		103	70 - 131
1,2-Dichloroethane	ND		25.0	20.1		ug/L		80	56 - 146
Benzene	ND		25.0	18.6		ug/L		74	66 - 130
Ethanol	ND		250	191		ug/L		76	54 - 150
Ethylbenzene	ND		25.0	20.5		ug/L		82	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	18.5		ug/L		74	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	18.1		ug/L		73	64 - 138
m,p-Xylene	ND		50.0	42.4		ug/L		85	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		25.0	19.8		ug/L		79	70 - 130
o-Xylene	ND		25.0	22.2		ug/L		89	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	19.5		ug/L		78	68 - 133
tert-Butyl alcohol (TBA)	ND		125	127		ug/L		102	70 - 130
Toluene	ND		25.0	20.5		ug/L		82	70 - 130
Naphthalene	ND		25.0	22.0		ug/L		88	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*92*		*80 - 120*
Toluene-d8 (Surr)	*103*		*80 - 120*

Lab Sample ID: 440-53090-A-38 MSD
Matrix: Water
Analysis Batch: 121643

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	29.1		ug/L		117	70 - 131	12	25
1,2-Dichloroethane	ND		25.0	20.5		ug/L		82	56 - 146	2	20
Benzene	ND		25.0	18.4		ug/L		74	66 - 130	1	20
Ethanol	ND		250	188		ug/L		75	54 - 150	2	30
Ethylbenzene	ND		25.0	21.5		ug/L		86	70 - 130	5	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	18.8		ug/L		75	70 - 130	1	25
Isopropyl Ether (DIPE)	ND		25.0	18.1		ug/L		72	64 - 138	1	25
m,p-Xylene	ND		50.0	46.4		ug/L		93	70 - 133	9	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	19.3		ug/L		77	70 - 130	2	25
o-Xylene	ND		25.0	23.4		ug/L		93	70 - 133	5	20
Tert-amyl-methyl ether (TAME)	ND		25.0	19.4		ug/L		78	68 - 133	1	30
tert-Butyl alcohol (TBA)	ND		125	125		ug/L		100	70 - 130	2	25
Toluene	ND		25.0	20.8		ug/L		83	70 - 130	1	20
Naphthalene	ND		25.0	23.3		ug/L		93	60 - 140	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*91*		*80 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-121715/5
Matrix: Water
Analysis Batch: 121715

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/02/13 09:58	1
1,2-Dichloroethane	ND		0.50		ug/L			08/02/13 09:58	1
Benzene	ND		0.50		ug/L			08/02/13 09:58	1
Ethanol	ND		150		ug/L			08/02/13 09:58	1
Ethylbenzene	ND		0.50		ug/L			08/02/13 09:58	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/02/13 09:58	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/02/13 09:58	1
m,p-Xylene	ND		1.0		ug/L			08/02/13 09:58	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/02/13 09:58	1
o-Xylene	ND		0.50		ug/L			08/02/13 09:58	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/02/13 09:58	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/02/13 09:58	1
Toluene	ND		0.50		ug/L			08/02/13 09:58	1
Xylenes, Total	ND		1.0		ug/L			08/02/13 09:58	1
Naphthalene	ND		0.50		ug/L			08/02/13 09:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*08/02/13 09:58*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*08/02/13 09:58*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*08/02/13 09:58*	*1*

Lab Sample ID: LCS 440-121715/6
Matrix: Water
Analysis Batch: 121715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane (EDB)			25.0	25.6		ug/L		102	70 - 130		
1,2-Dichloroethane			25.0	24.4		ug/L		97	57 - 138		
Benzene			25.0	22.8		ug/L		91	68 - 130		
Ethanol			250	226		ug/L		90	50 - 149		
Ethylbenzene			25.0	24.3		ug/L		97	70 - 130		
Ethyl-t-butyl ether (ETBE)			25.0	26.8		ug/L		107	60 - 136		
Isopropyl Ether (DIPE)			25.0	26.7		ug/L		107	58 - 139		
m,p-Xylene			50.0	49.3		ug/L		99	70 - 130		
Methyl-t-Butyl Ether (MTBE)			25.0	28.4		ug/L		113	63 - 131		
o-Xylene			25.0	25.6		ug/L		103	70 - 130		
Tert-amyl-methyl ether (TAME)			25.0	26.9		ug/L		108	57 - 139		
tert-Butyl alcohol (TBA)			125	120		ug/L		96	70 - 130		
Toluene			25.0	24.5		ug/L		98	70 - 130		
Naphthalene			25.0	22.6		ug/L		90	60 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
Toluene-d8 (Surr)	*107*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-52719-B-5 MS
Matrix: Water
Analysis Batch: 121715

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	ND		25.0	26.7		ug/L		107	70 - 131
1,2-Dichloroethane	ND		25.0	25.9		ug/L		104	56 - 146
Benzene	ND		25.0	23.9		ug/L		96	66 - 130
Ethanol	ND		250	251		ug/L		101	54 - 150
Ethylbenzene	ND		25.0	25.8		ug/L		103	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.1		ug/L		108	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	27.3		ug/L		109	64 - 138
m,p-Xylene	ND		50.0	51.4		ug/L		103	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		25.0	28.1		ug/L		113	70 - 130
o-Xylene	ND		25.0	26.9		ug/L		108	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	27.6		ug/L		111	68 - 133
tert-Butyl alcohol (TBA)	ND		125	126		ug/L		101	70 - 130
Toluene	ND		25.0	25.4		ug/L		101	70 - 130
Naphthalene	ND		25.0	22.7		ug/L		91	60 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*80 - 120*
Toluene-d8 (Surr)	*103*		*80 - 120*

Lab Sample ID: 440-52719-B-5 MSD
Matrix: Water
Analysis Batch: 121715

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	27.2		ug/L		109	70 - 131	2	25
1,2-Dichloroethane	ND		25.0	25.9		ug/L		104	56 - 146	0	20
Benzene	ND		25.0	24.4		ug/L		98	66 - 130	2	20
Ethanol	ND		250	254		ug/L		102	54 - 150	1	30
Ethylbenzene	ND		25.0	25.9		ug/L		104	70 - 130	0	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.6		ug/L		110	70 - 130	2	25
Isopropyl Ether (DIPE)	ND		25.0	27.9		ug/L		111	64 - 138	2	25
m,p-Xylene	ND		50.0	52.1		ug/L		104	70 - 133	1	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	28.5		ug/L		114	70 - 130	1	25
o-Xylene	ND		25.0	27.2		ug/L		109	70 - 133	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	28.2		ug/L		113	68 - 133	2	30
tert-Butyl alcohol (TBA)	ND		125	129		ug/L		103	70 - 130	2	25
Toluene	ND		25.0	25.5		ug/L		102	70 - 130	0	20
Naphthalene	ND		25.0	22.6		ug/L		90	60 - 140	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Lab Sample ID: MB 440-121496/3
Matrix: Water
Analysis Batch: 121496

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 12:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*65 - 140*		*08/01/13 12:20*	*1*

Lab Sample ID: LCS 440-121496/2
Matrix: Water
Analysis Batch: 121496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	733		ug/L		92	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*123*		*65 - 140*

Lab Sample ID: 440-52786-6 MS
Matrix: Water
Analysis Batch: 121496

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	670		800	1280		ug/L		77	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*379*	*LH*	*65 - 140*

Lab Sample ID: 440-52786-6 MSD
Matrix: Water
Analysis Batch: 121496

Client Sample ID: MW-6
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	670		800	1230		ug/L		70	65 - 140	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*356*	*LH*	*65 - 140*

Lab Sample ID: MB 440-121568/3
Matrix: Water
Analysis Batch: 121568

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/01/13 15:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*65 - 140*		*08/01/13 15:21*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: LCS 440-121568/2
Matrix: Water
Analysis Batch: 121568

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	751		ug/L		94	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*65 - 140*

Lab Sample ID: 440-52786-10 MS
Matrix: Water
Analysis Batch: 121568

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		800	735		ug/L		92	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*

Lab Sample ID: 440-52786-10 MSD
Matrix: Water
Analysis Batch: 121568

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	776		ug/L		97	65 - 140	5	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*65 - 140*

GC/MS VOA

Analysis Batch: 121440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52786-1	MW-1	Total/NA	Water	8260B/5030B	
440-52786-2	MW-2	Total/NA	Water	8260B/5030B	
440-52786-3	MW-3	Total/NA	Water	8260B/5030B	
440-52786-4	MW-4	Total/NA	Water	8260B/5030B	
440-52786-4 - DL	MW-4	Total/NA	Water	8260B/5030B	
440-52786-4 MS	MW-4	Total/NA	Water	8260B/5030B	
440-52786-4 MSD	MW-4	Total/NA	Water	8260B/5030B	
440-52786-5	MW-5	Total/NA	Water	8260B/5030B	
440-52786-6	MW-6	Total/NA	Water	8260B/5030B	
440-52786-7	MW-7	Total/NA	Water	8260B/5030B	
440-52786-8	MW-8	Total/NA	Water	8260B/5030B	
LCS 440-121440/6	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-121440/5	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 121641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52786-10	MW-11	Total/NA	Water	8260B/5030B	
440-52786-11	RW-1	Total/NA	Water	8260B/5030B	
440-52786-12	VW-1	Total/NA	Water	8260B/5030B	
440-53215-A-3 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-53215-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-121641/6	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-121641/5	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 121643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52786-9	MW-9	Total/NA	Water	8260B/5030B	
440-53090-A-38 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-53090-A-38 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-121643/5	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-121643/4	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 121715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52719-B-5 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-52719-B-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
440-52786-7 - DL	MW-7	Total/NA	Water	8260B/5030B	
LCS 440-121715/6	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-121715/5	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 121496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52786-1	MW-1	Total/NA	Water	8015B/5030B	
440-52786-2	MW-2	Total/NA	Water	8015B/5030B	
440-52786-3	MW-3	Total/NA	Water	8015B/5030B	
440-52786-4	MW-4	Total/NA	Water	8015B/5030B	
440-52786-5	MW-5	Total/NA	Water	8015B/5030B	
440-52786-6	MW-6	Total/NA	Water	8015B/5030B	

GC VOA (Continued)

Analysis Batch: 121496 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52786-6 MS	MW-6	Total/NA	Water	8015B/5030B	
440-52786-6 MSD	MW-6	Total/NA	Water	8015B/5030B	
LCS 440-121496/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-121496/3	Method Blank	Total/NA	Water	8015B/5030B	

Analysis Batch: 121568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-52786-7	MW-7	Total/NA	Water	8015B/5030B	
440-52786-8	MW-8	Total/NA	Water	8015B/5030B	
440-52786-9	MW-9	Total/NA	Water	8015B/5030B	
440-52786-10	MW-11	Total/NA	Water	8015B/5030B	
440-52786-10 MS	MW-11	Total/NA	Water	8015B/5030B	
440-52786-10 MSD	MW-11	Total/NA	Water	8015B/5030B	
440-52786-11	RW-1	Total/NA	Water	8015B/5030B	
440-52786-12	VW-1	Total/NA	Water	8015B/5030B	
LCS 440-121568/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-121568/3	Method Blank	Total/NA	Water	8015B/5030B	

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.

GC VOA

Qualifier	Qualifier Description
LH	Surrogate Recoveries were higher than QC limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0771, Livermore

TestAmerica Job ID: 440-52786-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-13
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-28-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

440-52786 Chain of Custody

aboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: BP 771 **Req Due Date (mm/dd/yy):** **Rush TAT:** Yes ___ No X

BP Facility No: 771 **Lab Work Order Number:**

Lab Name: TestAmerica	Facility Address: 899 Rincon Avenue	Consultant/Contractor: Broadbent and Associates
Lab Address: 17461 Derian Ave, Suite #100	City, State, ZIP Code: Livermore, California	Consultant/Contractor Project No: 06-82-608
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 1370 Ridgewood Drive, Suite 5, Chico, California 95973
Lab Phone: 949-261-1022	California Global ID No.: T0600100113	Consultant/Contractor PM: Jason Duda
Lab Shipping Accnt: Fed Ex#: 1103-6633-7	Enfos Proposal No: 005ZT-0003	Phone: 530-566-1400 Email: jduda@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email EDD To: jduda@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: OM&M/Other (E Activity: OM&M Spend (81)	Invoice To: BP _x_ Contractor ___

BP Project Manager (PM): Shannon Couch

BP PM Phone: 1-925-275-3804

BP PM Email: shannon.couch@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Container	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: GRO by 8015M	BTEX/5 FO + EDB by 8260l	1,2-DCA and Ethanol by 8260B	Naphthalene by 8260
	MW-1		1040		x		x	6				x		x	x	x	x
	MW-2		1110		x		x	6				x		x	x	x	x
	MW-3		1303		x		x	6				x		x	x	x	x
	MW-4		1050		x		x	6				x		x	x	x	x
	MW-5		0935		x		x	6				x		x	x	x	x
	MW-6		0810		x		x	6				x		x	x	x	x
	MW-7		1135		x		x	6				x		x	x	x	x
	MW-8		1215		x		x	6				x		x	x	x	x
	MW-9		1239		x		x	6				x		x	x	x	x
(4)	~~MW-10~~				x		x	6				x		x	x	x	x
	MW-11		0730		x		x	6				x		x	x	x	x
	RW-1		1015		x		x	6				x		x	x	x	x
	VW-1		0900		x		x	6				x		x	x	x	x
	TB-771-07252013				x		x	2				x		x	x	x	x

Report Type & QC Level: Standard X; Full Data Package ___

Comments: Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

On hold

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Alex Martinez & James Ramos						
Sampler's Company: Broadbent & Associates, Inc.	(1)	7/29/13	1330	TA (4)	7-29-13	1330
Shipment Method: ~~FedEx~~ ~~Ship Date:~~	(3)	7/25/13	1350			
Shipment Tracking No:	In bulk TA (5)	7/25/13	1600		7/26/13	9:40

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No (5) | Temp Blank: Yes / No (6) | Cooler Temp on Receipt: 3.9/2.9 °F/C (7) | Trip Blank: Yes / No (8) | MS/MSD Sample Submitted: Yes / No (2)

(4) 35 c

MS 7/27/13 10:55

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-52786-1

Login Number: 52786

List Source: TestAmerica Irvine

List Number: 1

Creator: King, Ronald

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	Alex Martinez & James Ramos
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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!

Submittal Type:	**GEO_WELL**
Report Title:	**3Q13 GEO_WELL 771**
Facility Global ID:	**T0600100113**
Facility Name:	**ARCO #00771**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**69.170.45.210**
Submittal Date/Time:	**10/23/2013 12:00:35 PM**
Confirmation Number:	**7843324780**

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!

Submittal Type:	**EDF**
Report Title:	**3Q13 GW MONITORING**
Report Type:	**Monitoring Report - Semi-Annually**
Facility Global ID:	**T0600100113**
Facility Name:	**ARCO #00771**
File Name:	**440-52786-1_09 Aug 13 1700_EDF.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**69.170.45.210**
Submittal Date/Time:	**10/23/2013 11:59:15 AM**
Confirmation Number:	**2007630825**

VIEW QC REPORT

VIEW DETECTIONS REPORT