

RECEIVED

By Alameda County Environmental Health at 4:04 pm, Jul 31, 2013

Atlantic Richfield Company

Shannon Couch
Project Manager

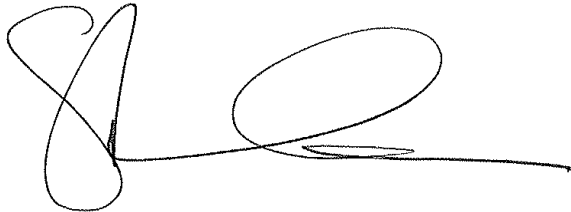
PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
Fax: (925) 275-3815
E-Mail: shannon.couch@bp.com

July 26, 2013

Re: Second Quarter 2013 Semi-Annual Groundwater Monitoring Report
Atlantic Richfield Company Station #6113
785 East Stanley Boulevard, Livermore, California
ACEH Case #RO0000393

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

Submitted by,



Shannon Couch
Project Manager

Attachment



**SECOND QUARTER 2013 SEMI-ANNUAL
GROUNDWATER MONITORING REPORT
Atlantic Richfield Company Station #6113
785 East Stanley Blvd.
Livermore, Alameda County, California**

Prepared for:

Ms. Shannon Couch
Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583

Prepared by:

Broadbent & Associates, Inc.
1370 Ridgewood Dr., Ste. 5
Chico, California 95973
(530) 566-1400

July 26, 2013

No. 06-82-637



1370 Ridgewood Drive, Suite 5, Chico, CA 95973

[T] 530-566-1400 [F] 530-566-1401

broadbentinc.com

Creating Solutions. Building Trust.

July 26, 2013

Project No. 06-82-637

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

Attn.: Ms. Shannon Couch

Re: Second Quarter 2013 Semi-Annual Groundwater Monitoring Report, Atlantic Richfield Company Station #6113, 785 East Stanley Blvd, Livermore, California; ACEH Case #RO0000393.

Dear Ms. Couch:

Attached is the *Second Quarter 2013 Semi-Annual Groundwater Monitoring Report* for Atlantic Richfield Company (a BP affiliated company) Station #6113 located at 785 East Stanley Blvd., Livermore, Alameda County, California (Site). This report presents a summary of current developments regarding the Site through the Second Quarter 2013. 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, ACEH (Submitted via ACEH ftp Site)
Mr. Paul M. Smith/Ms. Danielle Stefani, Livermore-Pleasanton Fire Department
(submitted via GeoTracker)
Electronic copy uploaded to GeoTracker

**SECOND QUARTER 2013 SEMI-ANNUAL
GROUNDWATER MONITORING REPORT
STATION #6113, LIVERMORE, CALIFORNIA**

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *Second Quarter 2013 Monitoring Report* on behalf of Atlantic Richfield Company (a BP affiliated company) for Station #6113 located in Livermore, Alameda County, California. Reporting is being submitted to the Alameda County Environmental Health Services Agency (ACEH) consistent with the requirements under the legal authority of the California Regional Water Quality Control Board as codified by California Code of Regulations Title 23, Section 2652(d). A summary description of current developments regarding the site is provided below.

Facility Name / Address:	Station #6113 / 785 East Stanley Blvd., Livermore, CA
Client Project Manager / Title:	Ms. Shannon Couch / Project Manager
Broadbent Contact:	Jason Duda, (530) 566-1400
Broadbent Project No.:	06-82-637
Primary Regulatory Agency / ID No.:	ACEH Case #RO0000393
Current phase of project:	Monitoring and Site Evaluation
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (Second Quarter 2013):

1. Prepared and submitted the *First Quarter 2013 Status Report* (Broadbent, 4/30/2013).
2. Conducted groundwater monitoring/sampling for Second Quarter 2013 on April 9 and 10, 2013.

WORK SCHEDULED FOR NEXT QUARTER (Third Quarter 2013):

1. Prepare and submit *Second Quarter 2013 Semi-Annual Groundwater Monitoring Report* (contained herein).
2. Prepare and submit Conceptual Site Model and Low-Threat Closure Evaluation Report.
3. No environmental field work is currently scheduled to be conducted at the Site during Third Quarter 2013.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	MW-2, MW-4, MW-7, MW-9, MW-11, MW-12, RMW-13, VW-1, VW-2, and VW-4	(2Q and 4Q)
Groundwater sample collection:	MW-4, MW-7, MW-11, MW-12, RMW-13, and VW-1	(2Q and 4Q)
	MW-9	(4Q)
	MW-2, VW-2, VW-4	(2Q 2013 – one-time basis)
Biodegradation indicator parameter monitoring:	MW-4, MW-7, MW-11, MW-12, RMW-13, VW-1, MW-9, MW-2, VW-2, VW-4	(2Q 2013 – one-time basis)

QUARTERLY RESULTS SUMMARY:

LNAPL

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

Groundwater Elevation and Gradient:

Depth to groundwater:	<u>17.54 (VW-1) to 19.92 (MW-12)</u>	(ft below TOC)
Gradient direction:	<u>North-Northeast</u>	(compass direction)
Gradient magnitude:	<u>0.01</u>	(ft/ft)
Average change in elevation:	<u>2.31</u>	(ft since last measurement)

Laboratory Analytical Data

Summary: GRO were detected in two of the ten wells sampled at a maximum concentration of 12,000 µg/L in RMW-13. Benzene was detected in two of the ten wells sampled at a maximum concentration of 5,100 µg/L in RMW-13. MTBE was detected in two of the ten wells sampled at a maximum concentration of 280 µg/L in RMW-13.

ACTIVITIES CONDUCTED & RESULTS:

Second Quarter 2013 semi-annual groundwater monitoring was conducted on April 9 and 10, 2013 by Broadbent personnel in accordance with the monitoring plan summary detailed above. No irregularities were noted during water level gauging. Light, Non-Aqueous Phase Liquid (LNAPL, or free product) was not noted to be present in the wells monitored during this event. Depth to water measurements ranged from 17.54 ft at VW-1 to 19.92 ft at MW-12. Resulting groundwater surface elevations ranged from 437.45 ft at MW-12 to 441.0 ft at MW-2. Groundwater elevations are summarized in Table 1. Water level elevations yielded a groundwater gradient to the north-northeast at approximately 0.01 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on April 9 and 10, 2013, from each monitor well associated with Station #6113 as part of a non-routine sampling event to collect geochemical analytical data for the Site. Each of the wells on the semi-annual sampling schedule, MW-4, MW-7, MW-11, MW-12, RMW-13, and VW-1, were sampled. A bladder pump and controller were utilized to collect depth-discrete groundwater samples from each well. Disposable tubing was placed within the top three feet of each well to collect a discrete sample from the upper portion of the well, then moved to the middle three feet of wetted casing to collect a discrete sample from the middle portion of the well, and finally moved to the bottom three feet of wetted casing in order to collect a discrete sample from the lower portion of the well. The middle sample was eliminated from select wells depending on the length of the water column. Samples were collected at the top, middle, and bottom of each well when a minimum of eight feet of water was present between each interval. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (Irvine, California) for analysis of GRO (C6-C12) by EPA Method 8015M; for BTEX, MTBE, ETBE, TAME, DIPE, EDB, 1,2-DCA, TBA and Ethanol by EPA Method 8260B for Dissolved Gases by EPA Method RSK 175, for Anions by EPA Method 300.0, and for Manganese, Total Nitrogen and Dissolved Oxygen by EPA Method 6010B. No significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix C.

Hydrocarbons in the GRO range were detected above the laboratory reporting limit in three of the ten wells sampled at a maximum concentration of 13,000 µg/L in well RMW-13. BTEX were detected above the laboratory reporting limits in wells RMW-13 and VW-4 at maximum concentrations of 5,100 µg/L, 53 µg/L, 1,300 µg/L, and 460 µg/L, respectively in RMW-13. MTBE was detected above the laboratory reporting limit in two of the ten wells sampled at concentrations up to 280 µg/L in well RMW-13. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this monitoring event. Groundwater monitoring laboratory analytical results, including geochemical data, are summarized in Table 1 through Table 3. 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 groundwater gradient to the north-northeast at approximately 0.01 ft/ft, generally consistent with the historic gradient measurements presented in Table 4.

This event's detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well. The next semi-annual groundwater monitoring and sampling event is scheduled to be conducted during the Fourth Quarter 2013. Geochemical data collected during the Second Quarter 2013 may be utilized in the future in order to evaluate Site conditions and/or determine appropriate remedial technologies, if warranted.

RECOMMENDATIONS:

In accordance with the letter received by ACEH dated June 20, 2013, Broadbent intends to submit a Conceptual Site Model (CSM) for evaluation of eligibility for site closure under the State Water Resources Control Board (SWRCB) Low-Threat Closure Polity (LTCP) by August 30, 2013.

LIMITATIONS:

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

ATTACHMENTS:

- Drawing 1: Site Location Map
Drawing 2: Groundwater Elevation Contour and Analytical Summary Map, April 9-10, 2013
- Table 1: Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 2: Summary of Fuel Additives Analytical Data
Table 3: Bio-Degradation Parameters
Table 4: Historic 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 ACRONYMS/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

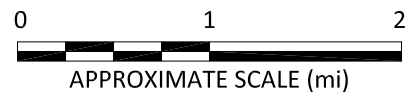
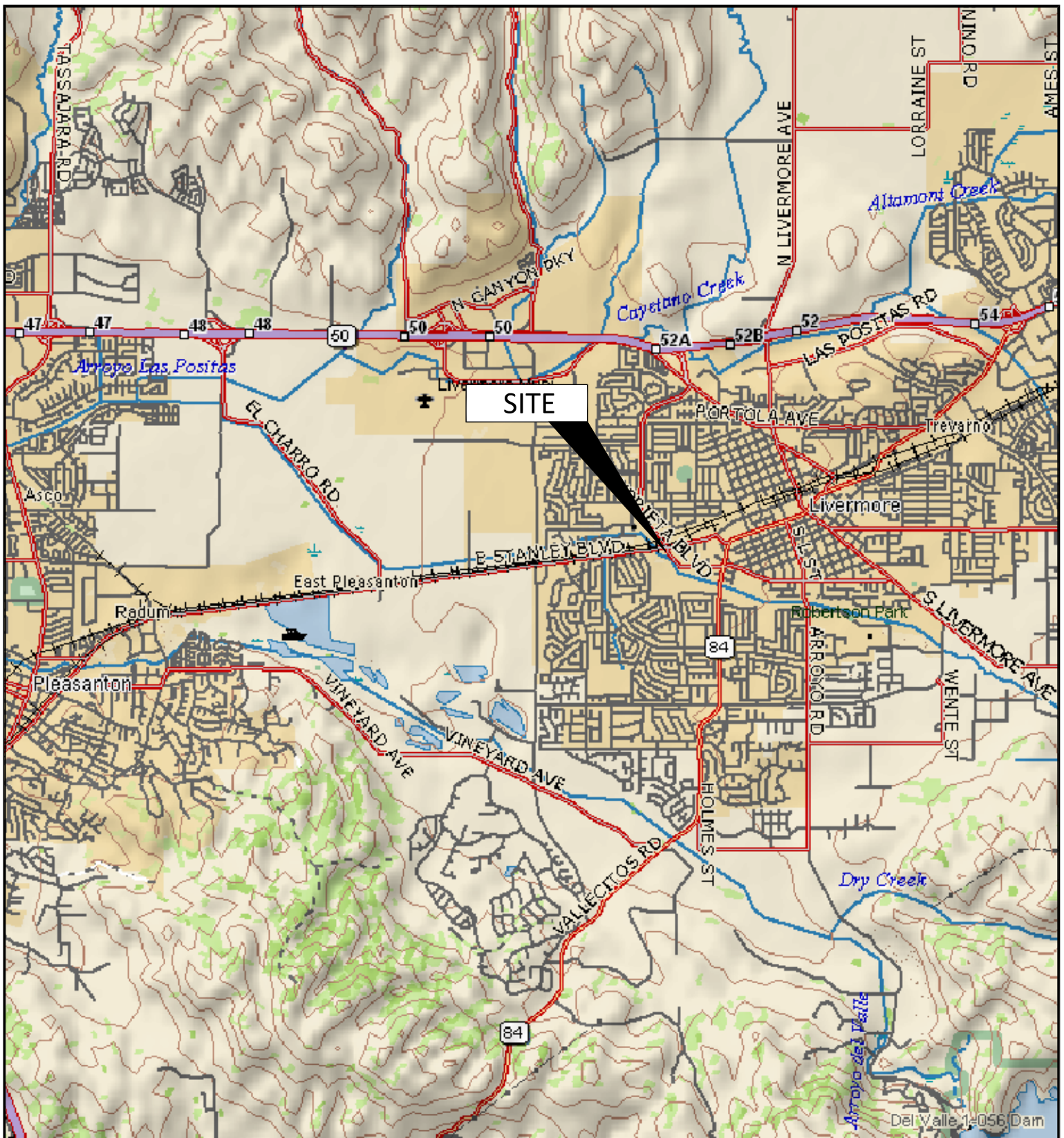


IMAGE SOURCE: DELORME



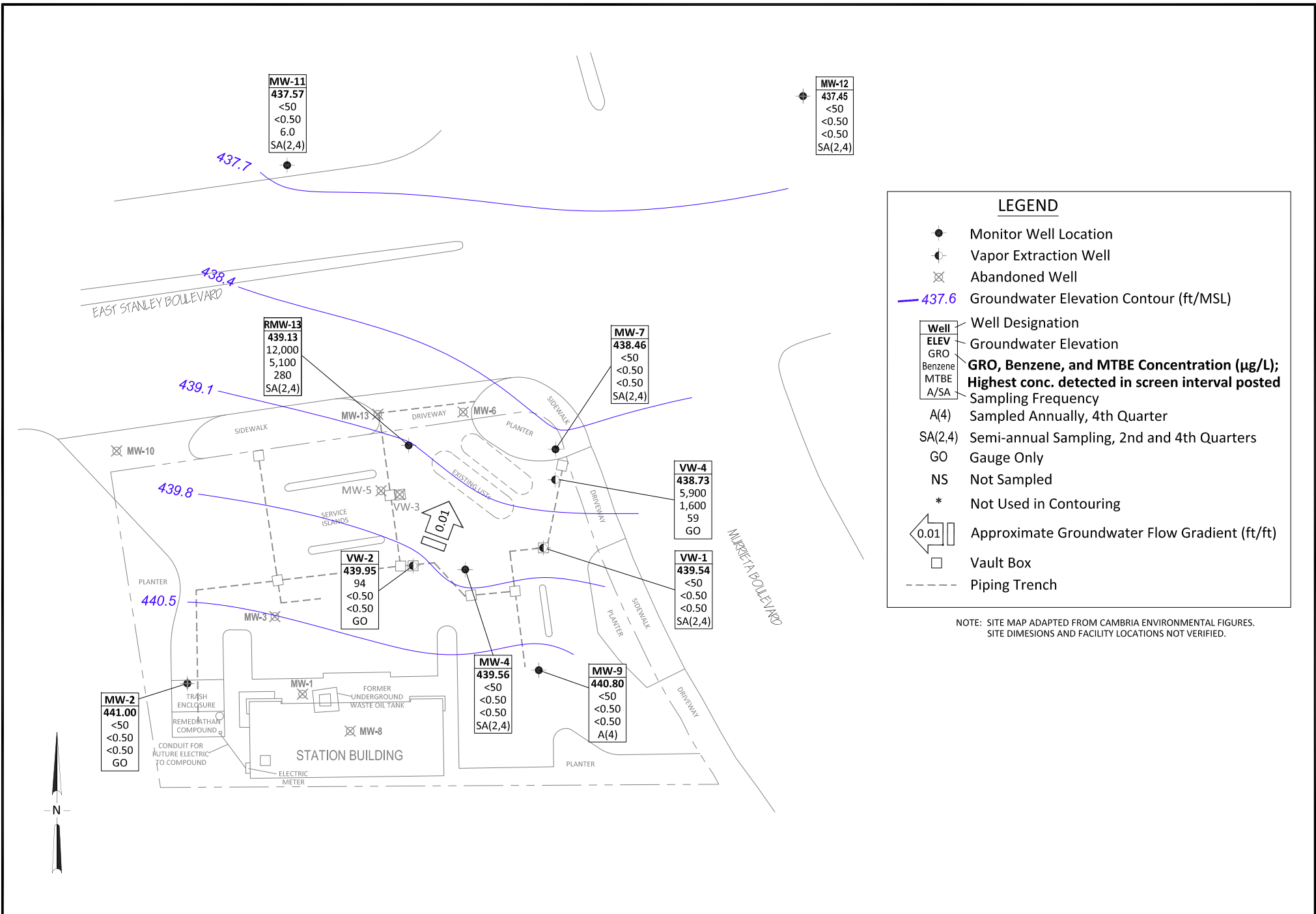
1370 Ridgewood Dr., Suite 5
Chico, California 95973
Project No.: 06-82-637 Date: 12/4/2012

Station #6113
785 East Stanley Boulevard
Livermore, California

Site Location Map

Drawing

1



TABLES

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #61113, 785 East Stanley Blvd., 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															
3/23/1995	--	457.04	29.00	44.00	14.12	442.92	--	--	--	--	--	--	--	--	e
5/31/1995	--		29.00	44.00	14.45	442.59	--	--	--	--	--	--	--	--	e
8/31/1995	--		29.00	44.00	17.12	439.92	--	--	--	--	--	--	--	--	e
11/28/1995	--		29.00	44.00	16.34	440.70	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		29.00	44.00	13.23	443.81	--	--	--	--	--	--	--	--	e
5/23/1996	--		29.00	44.00	14.02	443.02	--	--	--	--	--	--	--	--	e
8/8/1996	--		29.00	44.00	16.13	440.91	--	--	--	--	--	--	--	--	e
11/7/1996	--		29.00	44.00	17.28	439.76	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/27/1997	--		29.00	44.00	14.91	442.13	--	--	--	--	--	--	--	--	e
5/19/1997	--		29.00	44.00	16.47	440.57	--	--	--	--	--	--	--	--	e
5/18/1998	--		29.00	44.00	14.69	442.35	--	--	--	--	--	--	--	--	e
11/2/1998	--		29.00	44.00	25.94	431.10	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
6/4/1999	--		29.00	44.00	17.38	439.66	--	--	--	--	--	--	--	--	e
11/11/1999	P		29.00	44.00	18.63	438.41	<50	<0.5	<0.5	<0.5	<1	<3	1.03	--	
6/20/2000	--		29.00	44.00	17.09	439.95	--	--	--	--	--	--	3.1	--	e
8/29/2000	--		29.00	44.00	18.20	438.84	--	--	--	--	--	--	2.66	--	e
11/29/2000	P		29.00	44.00	20.30	436.74	<50.0	<0.500	<0.500	<0.500	1.36	<2.50	0.71	--	
5/2/2001	--		29.00	44.00	22.39	434.65	--	--	--	--	--	--	--	--	e
8/15/2001	--		29.00	44.00	24.97	432.07	--	--	--	--	--	--	--	--	e
10/5/2001	P		29.00	44.00	25.09	431.95	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.78	--	
1/21/2002	--		29.00	44.00	24.58	432.46	--	--	--	--	--	--	--	--	e
4/26/2002	--		29.00	44.00	24.19	432.85	--	--	--	--	--	--	--	--	e
10/7/2002	--		29.00	44.00	20.13	436.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	--	
05/01/2003	--		29.00	44.00	17.98	439.06	--	--	--	--	--	--	--	--	r
10/27/2005	--	459.41	29.00	44.00	18.45	440.96	--	--	--	--	--	--	--	--	
04/12/2006	--		29.00	44.00	15.18	444.23	--	--	--	--	--	--	--	--	
10/31/2006	--		29.00	44.00	19.18	440.23	--	--	--	--	--	--	--	--	
4/19/2007	--		29.00	44.00	23.20	436.21	--	--	--	--	--	--	--	--	
10/16/2007	--		29.00	44.00	38.28	421.13	--	--	--	--	--	--	--	--	
4/24/2008	--		29.00	44.00	25.97	433.44	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
6/18/2008	--	459.41	29.00	44.00	--	--	--	--	--	--	--	--	--	--	k
MW-2															
3/23/1995	--	457.74	28.00	38.00	14.15	443.59	--	--	--	--	--	--	--	--	
5/31/1995	--		28.00	38.00	14.67	443.07	--	--	--	--	--	--	--	--	e
8/31/1995	--		28.00	38.00	17.24	440.50	--	--	--	--	--	--	--	--	e
11/28/1995	--		28.00	38.00	16.40	441.34	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		28.00	38.00	13.55	444.19	--	--	--	--	--	--	--	--	e
5/23/1996	--		28.00	38.00	14.29	443.45	--	--	--	--	--	--	--	--	e
8/8/1996	--		28.00	38.00	16.19	441.55	--	--	--	--	--	--	--	--	e
11/7/1996	--		28.00	38.00	17.50	440.24	65	0.6	7.4	2.1	12	5	--	--	
3/27/1997	--		28.00	38.00	15.32	442.42	--	--	--	--	--	--	--	--	e
5/19/1997	--		28.00	38.00	16.62	441.12	--	--	--	--	--	--	--	--	e
5/18/1998	--		28.00	38.00	15.12	442.62	--	--	--	--	--	--	--	--	e
11/2/1998	--		28.00	38.00	26.66	431.08	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
6/4/1999	--		28.00	38.00	17.74	440.00	--	--	--	--	--	--	--	--	e
11/11/1999	P		28.00	38.00	18.75	438.99	<50	<0.5	<0.5	<0.5	<1	<3	0.82	--	
6/20/2000	--		28.00	38.00	17.21	440.53	--	--	--	--	--	--	2.6	--	e
8/29/2000	--		28.00	38.00	18.25	439.49	--	--	--	--	--	--	2.65	--	e
11/29/2000	P		28.00	38.00	20.69	437.05	<50.0	<0.500	0.581	0.827	4.38	<2.50	0.88	--	
5/2/2001	--		28.00	38.00	22.69	435.05	--	--	--	--	--	--	--	--	e
8/15/2001	--		28.00	38.00	25.15	432.59	--	--	--	--	--	--	--	--	e
10/5/2001	P		28.00	38.00	25.22	432.52	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.8	--	
1/21/2002	--		28.00	38.00	24.70	433.04	--	--	--	--	--	--	--	--	e
4/26/2002	--		28.00	38.00	24.53	433.21	--	--	--	--	--	--	--	--	e
10/7/2002	--		28.00	38.00	19.45	438.29	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.5	--	
05/01/2003	--		28.00	38.00	18.18	439.56	--	--	--	--	--	--	--	--	r
10/27/2005	--	460.07	28.00	38.00	--	--	--	--	--	--	--	--	--	--	t
04/12/2006	--		28.00	38.00	15.30	444.77	--	--	--	--	--	--	--	--	
10/31/2006	--		28.00	38.00	19.48	440.59	--	--	--	--	--	--	--	--	
4/19/2007	--		28.00	38.00	23.85	436.22	--	--	--	--	--	--	--	--	

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.																
10/16/2007	--	460.07	28.00	38.00	36.78	423.29	--	--	--	--	--	--	--	--		
4/24/2008	--		28.00	38.00	26.38	433.69	--	--	--	--	--	--	--	--		
10/15/2008	--		28.00	38.00	37.21	422.86	--	--	--	--	--	--	--	--		
4/28/2009	--		28.00	38.00	33.30	426.77	--	--	--	--	--	--	--	--		
11/9/2009	--		28.00	38.00	21.87	438.20	--	--	--	--	--	--	--	--		
4/12/2010	--		28.00	38.00	18.53	441.54	--	--	--	--	--	--	--	--		
11/4/2010	--		28.00	38.00	19.31	440.76	--	--	--	--	--	--	--	--		
5/18/2011	--		28.00	38.00	17.72	442.35	--	--	--	--	--	--	--	--		
10/20/2011	--		28.00	38.00	18.26	441.81	--	--	--	--	--	--	--	--		
4/11/2012	--		28.00	38.00	21.71	438.36	--	--	--	--	--	--	--	--		
10/10/2012	--		28.00	38.00	21.57	438.50	--	--	--	--	--	--	--	--		
4/9/2013	--		28.00	38.00	19.07	441.00	--	--	--	--	--	--	--	--		
4/9/2013	P		28.00	38.00	--	--	<50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	3.8	7.30	Top
4/9/2013	P		28.00	38.00	--	--	<50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	3.9	7.28	Middle
4/9/2013	P		28.00	38.00	--	--	<50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	4.1	7.31	Bottom
MW-3																
3/23/1995	--	456.97	28.50	38.50	14.13	442.84	--	--	--	--	--	--	--	--	e	
5/31/1995	--		28.50	38.50	14.46	442.51	--	--	--	--	--	--	--	--	e	
8/31/1995	--		28.50	38.50	17.06	439.91	--	--	--	--	--	--	--	--	e	
11/28/1995	--		28.50	38.50	16.27	440.70	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
2/22/1996	--		28.50	38.50	13.14	443.83	--	--	--	--	--	--	--	--	e	
5/23/1996	--		28.50	38.50	13.95	443.02	--	--	--	--	--	--	--	--	e	
8/8/1996	--		28.50	38.50	16.03	440.94	--	--	--	--	--	--	--	--	e	
11/7/1996	--		28.50	38.50	17.26	439.71	<50	<0.5	0.9	<0.5	1.5	<3	--	--		
3/27/1997	--		28.50	38.50	14.85	442.12	--	--	--	--	--	--	--	--	e	
5/19/1997	--		28.50	38.50	16.40	440.57	--	--	--	--	--	--	--	--	e	
5/18/1998	--		28.50	38.50	14.66	442.31	--	--	--	--	--	--	--	--	e	
11/2/1998	--		28.50	38.50	25.85	431.12	<1,000	<10	<10	<10	<10	1,700	--	--		
6/4/1999	--		28.50	38.50	17.35	439.62	--	--	--	--	--	--	--	--	e	
11/11/1999	P		28.50	38.50	18.58	438.39	<50	<0.5	<0.5	<0.5	<1	<3	0.79	--		

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
6/20/2000	--	456.97	28.50	38.50	17.03	439.94	--	--	--	--	--	--	2.8	--	e
8/29/2000	--		28.50	38.50	18.25	438.72	--	--	--	--	--	--	3.39	--	e
11/29/2000	--		28.50	38.50	20.27	436.70	<50.0	<0.500	<0.500	1.08	3.34	<2.50	0.67	--	
5/2/2001	--		28.50	38.50	22.33	434.64	--	--	--	--	--	--	--	--	e
8/15/2001	--		28.50	38.50	25.03	431.94	--	--	--	--	--	--	--	--	e
10/5/2001	P		28.50	38.50	25.17	431.80	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.79	--	
1/21/2002	--		28.50	38.50	24.79	432.18	--	--	--	--	--	--	--	--	e
4/26/2002	--		28.50	38.50	24.27	432.70	--	--	--	--	--	--	--	--	e
10/7/2002	--		28.50	38.50	20.20	436.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	--	
05/01/2003	--		28.50	38.50	18.27	438.70	--	--	--	--	--	--	--	--	c, e
10/03/2003	P		28.50	38.50	20.07	436.90	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.2	7.3	d
04/06/2004	--	459.32	28.50	38.50	17.24	442.08	--	--	--	--	--	--	--	--	e
10/28/2004	P		28.50	38.50	19.38	439.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	8.1	7.3	
04/13/2005	--		28.50	38.50	16.02	443.30	--	--	--	--	--	--	--	--	
10/27/2005	--		28.50	38.50	--	--	--	--	--	--	--	--	--	--	t
04/12/2006	--		28.50	38.50	15.12	444.20	--	--	--	--	--	--	--	--	
10/31/2006	P		28.50	38.50	19.14	440.18	400	5.5	<0.50	5.5	9.6	22	--	7.64	
4/19/2007	--		28.50	38.50	23.07	436.25	--	--	--	--	--	--	--	--	
10/16/2007	--		28.50	38.50	--	--	--	--	--	--	--	--	--	--	f
4/24/2008	--		28.50	38.50	25.65	433.67	--	--	--	--	--	--	--	--	
9/10/2008	--		28.50	38.50	--	--	--	--	--	--	--	--	--	--	k
MW-4															
3/23/1995	--	456.55	21.00	27.00	15.39	441.16	210	2.1	0.6	0.8	2.1	--	--	--	
5/31/1995	--		21.00	27.00	15.32	441.23	190	1.6	<0.5	0.7	0.9	--	--	--	
8/31/1995	--		21.00	27.00	17.86	438.69	160	1.2	0.7	<0.5	<2	<3	--	--	
11/28/1995	--		21.00	27.00	17.18	439.37	150	0.7	<0.5	0.7	1.4	<3	--	--	
2/22/1996	--		21.00	27.00	14.80	441.75	100	<0.5	<0.5	<0.6	0.8	<3	--	--	
5/23/1996	--		21.00	27.00	14.43	442.12	86	<0.5	<0.5	<0.5	<0.7	<3	--	--	
8/8/1996	--		21.00	27.00	16.80	439.75	98	<0.5	<0.5	<0.5	1.3	<3	--	--	
11/7/1996	--		21.00	27.00	17.90	438.65	140	<0.5	<0.5	<0.9	1.3	<3	--	--	

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
3/27/1997	--	456.55	21.00	27.00	15.22	441.33	<50	1.1	<0.5	<0.5	1.6	<3	--	--	
5/19/1997	--		21.00	27.00	16.98	439.57	62	<0.5	<0.5	<0.5	0.6	<3	--	--	
5/18/1998	--		21.00	27.00	14.99	441.56	<50	<0.5	<0.5	<0.5	<0.5	64	--	--	
11/2/1998	--		21.00	27.00	25.29	431.26	74	<0.5	<0.5	<0.5	<0.5	96	--	--	
6/4/1999	P		21.00	27.00	17.95	438.60	100	<0.5	<0.5	<0.5	<0.5	38	--	--	
11/11/1999	P		21.00	27.00	19.25	437.30	88	<0.5	<0.5	<0.5	<1	10	0.77	--	
6/20/2000	--		21.00	27.00	17.79	438.76	<50.0	<0.500	<0.500	<0.500	<0.500	62.3	--	--	q
6/20/2000	P		21.00	27.00	17.79	438.76	<50.0	<0.500	<0.500	<0.500	<0.500	82.4	1.3	--	
8/29/2000	P		21.00	27.00	18.90	437.65	56	<0.500	<0.500	<0.500	<0.500	47.9	0.97	--	
11/29/2000	P		21.00	27.00	20.50	436.05	<50.0	<0.500	<0.500	<0.500	<0.500	9.88/10.4	0.59	--	s
5/2/2001	--		21.00	27.00	22.65	433.90	<50.0	<0.500	<0.500	<0.500	<0.500	59.4/68.4	--	--	s
5/2/2001	P		21.00	27.00	22.65	433.90	<50.0	<0.500	<0.500	<0.500	<0.500	61.1/70.9	0.74	--	q, s
8/15/2001	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f
10/5/2001	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f
1/21/2002	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f
4/26/2002	P		21.00	27.00	20.15	436.40	110	<0.50	<0.50	<0.50	<0.50	150	0.21	--	
10/7/2002	P		21.00	27.00	20.76	435.79	96	<0.50	<0.50	0.54	<0.50	260	1.0	--	a
05/01/2003	P		21.00	27.00	19.67	436.88	120	1.3	<0.50	<0.50	<0.50	86	1.7	--	c
10/03/2003	P		21.00	27.00	20.23	436.32	<50	<0.50	<0.50	<0.50	<0.50	22	13.5	6.8	d
04/06/2004	P	458.88	21.00	27.00	18.13	440.75	96	<0.50	<0.50	<0.50	<0.50	17	1.6	6.8	
10/28/2004	P		21.00	27.00	20.02	438.86	<50	<0.50	<0.50	<0.50	<0.50	4.5	1.2	6.7	
04/13/2005	P		21.00	27.00	16.68	442.20	<50	<0.50	<0.50	<0.50	<0.50	2.8	0.8	6.7	
10/27/2005	P		21.00	27.00	19.05	439.83	400	14	<0.50	11	1.8	22	1.0	6.9	
04/12/2006	P		21.00	27.00	15.47	443.41	100	<0.50	<0.50	<0.50	<0.50	1.9	1.6	7.2	
10/31/2006	P		21.00	27.00	19.67	439.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.63	
4/19/2007	NP		21.00	27.00	22.72	436.16	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.92	7.36	
10/16/2007	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f
4/24/2008	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f
10/15/2008	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f
4/28/2009	--		21.00	27.00	--	--	--	--	--	--	--	--	--	--	f

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
11/9/2009	NP	458.88	21.00	27.00	22.73	436.15	270	4.6	<0.50	<0.50	<0.50	3.1	--	--	x (GRO)
4/12/2010	P		21.00	27.00	19.25	439.63	1,200	2.0	<0.50	<0.50	<0.50	2.7	0.81	6.87	
11/4/2010	P		21.00	27.00	20.40	438.48	330	<0.50	<0.50	<0.50	<0.50	1.7	0.44	6.5	x (GRO)
5/18/2011	P		21.00	27.00	17.84	441.04	290	<0.50	<0.50	<0.50	<0.50	1.2	1.04	7.1	x (GRO)
10/20/2011	P		21.00	27.00	19.33	439.55	120	<0.50	<0.50	<0.50	<0.50	0.59	0.95	7.23	x (GRO)
4/11/2012	P		21.00	27.00	21.33	437.55	<50	<0.50	<0.50	<0.50	<0.50	0.59	0.22	7.11	
10/10/2012	P		21.00	27.00	21.50	437.38	<50	<0.50	<0.50	<0.50	<1.0	0.51	1.39	7.29	
4/9/2013	P		21.00	27.00	19.32	439.56	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.8	7.13	
MW-5															
3/23/1995	--	455.84	43.00	63.00	13.97	441.87	68	4.2	3.4	2.3	12	--	--	--	
5/31/1995	--		43.00	63.00	--	--	--	--	--	--	--	--	--	--	g
8/31/1995	--		43.00	63.00	--	--	--	--	--	--	--	--	--	--	g
11/28/1995	--		43.00	63.00	16.46	439.38	960	41	24	38	210	<5	--	--	
2/22/1996	--		43.00	63.00	13.34	442.50	--	--	--	--	--	--	--	--	f
5/23/1996	--		43.00	63.00	14.36	441.48	7,100	440	180	270	1,700	<50	--	--	
8/8/1996	--		43.00	63.00	16.38	439.46	--	--	--	--	--	--	--	--	f
11/7/1996	--		43.00	63.00	17.26	438.58	5,600	230	86	210	1,100	<80	--	--	
3/27/1997	--		43.00	63.00	15.95	439.89	--	--	--	--	--	--	--	--	f
5/19/1997	--		43.00	63.00	16.64	439.20	7,600	480	140	400	1,200	<40	--	--	
5/18/1998	--		43.00	63.00	14.75	441.09	990	46	13	45	180	4	--	--	
11/2/1998	--		43.00	63.00	27.83	428.01	14,000	690	140	550	2,200	100	--	--	
6/4/1999	P		43.00	63.00	17.47	438.37	8,300	690	370	90	440	1,400	--	--	
11/11/1999	P		43.00	63.00	18.80	437.04	18,000	900	190	1,100	3,200	72	0.86	--	
6/20/2000	P		43.00	63.00	17.14	438.70	10,200	618	122	832	2,020	<50.0	1.6	--	
8/29/2000	P		43.00	63.00	18.60	437.24	12,300	436	166	711	2,120	517	0.79	--	
11/29/2000	P		43.00	63.00	20.57	435.27	26,000	491	149	1,090	3,810	671/<20.0	0.51	--	s
5/2/2001	--		43.00	63.00	--	--	--	--	--	--	--	--	--	--	k
MW-6															
3/23/1995	--	454.93	48.00	68.00	13.38	441.55	<50	1.5	<0.5	<0.5	0.9	--	--	--	

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-6 Cont.															
5/31/1995	--	454.93	48.00	68.00	13.96	440.97	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/31/1995	--		48.00	68.00	16.71	438.22	150	9	1.8	4	12	<3	--	--	
11/28/1995	--		48.00	68.00	15.65	439.28	<50	0.6	<0.5	<0.5	0.8	<3	--	--	
2/22/1996	--		48.00	68.00	12.53	442.40	<50	1.9	<0.5	0.8	2.1	<3	--	--	
5/23/1996	--		48.00	68.00	13.24	441.69	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
8/8/1996	--		48.00	68.00	16.65	438.28	<50	0.5	<0.5	<0.5	0.5	<3	--	--	
11/7/1996	--		48.00	68.00	16.65	438.28	110	5.3	1.3	3.1	6.6	<3	--	--	
3/27/1997	--		48.00	68.00	14.25	440.68	<50	2.3	<0.5	0.9	3.5	4	--	--	
5/19/1997	--		48.00	68.00	15.87	439.06	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/18/1998	--		48.00	68.00	14.00	440.93	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/2/1998	--		48.00	68.00	24.95	429.98	<50	1.2	<0.5	<0.5	<0.5	3	--	--	
6/4/1999	P		48.00	68.00	16.68	438.25	310	41	3.8	11	19	33	--	--	
11/11/1999	P		48.00	68.00	16.12	438.81	<50	0.5	<0.5	<0.5	<1	<3	0.92	--	
6/20/2000	P		48.00	68.00	16.63	438.30	<50.0	<0.500	<0.500	<0.500	<0.500	17.3	1.9	--	
8/29/2000	--		48.00	68.00	17.91	437.02	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--	q
8/29/2000	P		48.00	68.00	17.91	437.02	<50.0	<0.500	0.551	<0.500	<0.500	<2.50	1.67	--	
11/29/2000	P		48.00	68.00	20.30	434.63	<50.0	<0.500	<0.500	<0.500	1.03	<2.50	0.79	--	
5/2/2001	P		48.00	68.00	22.20	432.73	3,230	1,300	33.6	89.4	136	1,810/2,310	0.95	--	s
8/15/2001	P		48.00	68.00	27.95	426.98	<50	<0.50	<0.50	<0.50	<0.50	21/25	0.63	--	s
10/5/2001	P		48.00	68.00	28.05	426.88	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.85	--	
1/21/2002	P		48.00	68.00	26.81	428.12	<50	<0.50	<0.50	<0.50	<0.50	<5.0	0.91	--	
4/26/2002	P		48.00	68.00	26.27	428.66	<50	<0.50	<0.50	<0.50	<0.50	17	0.75	--	
10/7/2002	P		48.00	68.00	20.05	434.88	60	13	1.7	1.7	3.5	8	2.8	--	a
05/01/2003	P		48.00	68.00	17.62	437.31	<50	5.4	<0.50	0.63	1.3	12	1.6	--	c
10/03/2003	P		48.00	68.00	19.62	435.31	80	2.6	<2.5	<2.5	<2.5	120	5.1	6.9	d
04/06/2004	P	457.24	48.00	68.00	16.88	440.36	<2,500	<25	<25	<25	<25	1,700	4.1	7.0	
10/28/2004	P		48.00	68.00	19.20	438.04	3,200	<25	<25	<25	<25	3,100	6.8	6.9	
04/13/2005	P		48.00	68.00	15.15	442.09	<5,000	<50	<50	<50	<50	3,900	3.9	7.0	
10/27/2005	P		48.00	68.00	18.12	439.12	<5,000	<50	<50	<50	<50	2,900	3.15	7.0	
04/12/2006	P		48.00	68.00	15.32	441.92	<5,000	<50	<50	<50	<50	3,400	4.3	7.6	

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
10/31/2006	P	457.24	48.00	68.00	18.85	438.39	2,700	<25	<25	<25	<25	3,400	--	10.36	u, v
4/19/2007	P		48.00	68.00	22.25	434.99	970	<25	<25	<25	<25	2,200	5.54	10.52	v
10/16/2007	P		48.00	68.00	37.17	420.07	2,700	240	<25	50	55	2,600	4.56	10.26	v, w (MTBE)
4/24/2008	P		48.00	68.00	24.55	432.69	15,000	5,300	200	620	470	4,200	2.15	6.90	
9/10/2008	--		48.00	68.00	--	--	--	--	--	--	--	--	--	--	k
MW-7															
3/23/1995	--	454.92	48.00	68.00	13.29	441.63	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
5/31/1995	--		48.00	68.00	13.72	441.20	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/31/1995	--		48.00	68.00	16.53	438.39	<50	<0.5	<0.5	<0.5	1.2	<3	--	--	
11/28/1995	--		48.00	68.00	15.50	439.42	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		48.00	68.00	12.30	442.62	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/23/1996	--		48.00	68.00	13.02	441.90	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
8/8/1996	--		48.00	68.00	--	--	--	--	--	--	--	--	--	--	m
11/7/1996	--		48.00	68.00	16.50	438.42	<50	<0.5	<0.5	<0.5	0.8	<3	--	--	
3/27/1997	--		48.00	68.00	14.22	440.70	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/19/1997	--		48.00	68.00	15.74	439.18	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/18/1998	--		48.00	68.00	13.82	441.10	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/2/1998	--		48.00	68.00	24.80	430.12	<50	<0.5	<0.5	<0.5	<0.5	4	--	--	
6/4/1999	P		48.00	68.00	16.55	438.37	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/11/1999	P		48.00	68.00	18.02	436.90	<50	<0.5	<0.5	<0.5	<1	<3	1.03	--	
6/20/2000	P		48.00	68.00	16.50	438.42	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	1.3	--	
8/29/2000	P		48.00	68.00	17.80	437.12	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	1.67	--	
11/29/2000	P		48.00	68.00	19.61	435.31	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.51	--	
5/2/2001	P		48.00	68.00	22.05	432.87	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50/2.66	0.9	--	s
8/15/2001	P		48.00	68.00	27.55	427.37	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.84	--	
10/5/2001	P		48.00	68.00	27.59	427.33	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.62	--	
1/21/2002	P		48.00	68.00	26.50	428.42	<50	<0.50	<0.50	<0.50	<0.50	15/21	0.65	--	s
4/26/2002	P		48.00	68.00	26.22	428.70	<50	<0.50	<0.50	<0.50	<0.50	18	0.61	--	
10/7/2002	--		48.00	68.00	20.04	434.88	<50	1.2	<0.50	<0.50	0.77	41	4.8	--	
05/01/2003	P		48.00	68.00	17.47	437.45	<50	<0.50	<0.50	<0.50	0.5	43	2.7	--	c

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-7 Cont.															
10/03/2003	P	454.92	48.00	68.00	19.55	435.37	<50	<1.0	<1.0	<1.0	<1.0	49	5.7	7.1	d
04/06/2004	P	457.17	48.00	68.00	16.60	440.57	<50	<0.50	<0.50	<0.50	0.75	0.76	0.7	7.0	
10/28/2004	P		48.00	68.00	19.17	438.00	<50	<0.50	<0.50	<0.50	<0.50	14	6.7	6.9	
04/13/2005	P		48.00	68.00	14.84	442.33	<50	<0.50	<0.50	<0.50	<0.50	1.7	2.3	6.9	
10/27/2005	P		48.00	68.00	17.38	439.79	<50	<0.50	<0.50	<0.50	<0.50	2.3	2.16	7.0	
04/12/2006	P		48.00	68.00	14.84	442.33	<50	<0.50	<0.50	<0.50	<0.50	1.1	3.0	7.2	
10/31/2006	P		48.00	68.00	18.74	438.43	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.55	
4/19/2007	P		48.00	68.00	22.11	435.06	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.37	7.60	
10/16/2007	P		48.00	68.00	37.23	419.94	140	68	6.8	<0.50	5.0	24	4.87	8.02	
4/24/2008	P		48.00	68.00	24.47	432.70	<50	<0.50	0.99	<0.50	<0.50	22	1.96	7.24	
10/15/2008	P		48.00	68.00	43.40	413.77	<50	<0.50	<0.50	<0.50	<0.50	8.2	2.31	7.14	
4/28/2009	P		48.00	68.00	32.13	425.04	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.78	6.93	
11/9/2009	P		48.00	68.00	22.15	435.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	6.8	
4/12/2010	P		48.00	68.00	18.49	438.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.55	
11/4/2010	P		48.00	68.00	19.90	437.27	<50	<0.50	<0.50	<0.50	<0.50	0.59	4.15	8.4	
5/18/2011	P		48.00	68.00	16.96	440.21	<50	<0.50	<0.50	<0.50	<0.50	3.9	4.45	10.6	
10/20/2011	P		48.00	68.00	18.38	438.79	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.37	9.02	
4/11/2012	P		48.00	68.00	20.66	436.51	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.33	7.50	
10/10/2012	P		48.00	68.00	21.01	436.16	<50	<0.50	<0.50	<0.50	<1.0	<0.50	5.87	8.92	
4/10/2013	--		48.00	68.00	18.71	438.46	--	--	--	--	--	--	--	--	
4/10/2013	P		48.00	68.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	7.3	8.30	Top
4/10/2013	P		48.00	68.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.0	7.55	Middle
4/10/2013	P		48.00	68.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.2	7.51	Bottom
MW-8															
3/23/1995	--	456.97	47.00	67.00	11.55	445.42	--	--	--	--	--	--	--	--	e
5/31/1995	--		47.00	67.00	12.37	444.60	--	--	--	--	--	--	--	--	e
8/31/1995	--		47.00	67.00	15.68	441.29	--	--	--	--	--	--	--	--	e
11/28/1995	--		47.00	67.00	14.15	442.82	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		47.00	67.00	10.97	446.00	--	--	--	--	--	--	--	--	e
5/23/1996	--		47.00	67.00	11.90	445.07	--	--	--	--	--	--	--	--	e

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
8/8/1996	--	456.97	47.00	67.00	13.85	443.12	--	--	--	--	--	--	--	--	e
11/7/1996	--		47.00	67.00	15.08	441.89	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/27/1997	--		47.00	67.00	12.96	444.01	--	--	--	--	--	--	--	--	e
5/19/1997	--		47.00	67.00	14.35	442.62	--	--	--	--	--	--	--	--	e
5/18/1998	--		47.00	67.00	12.97	444.00	--	--	--	--	--	--	--	--	e
11/2/1998	--		47.00	67.00	26.01	430.96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
6/4/1999	--		47.00	67.00	15.53	441.44	--	--	--	--	--	--	--	--	e
11/11/1999	P		47.00	67.00	16.67	440.30	<50	<0.5	<0.5	<0.5	<1	<3	1.01	--	
6/20/2000	--		47.00	67.00	15.29	441.68	--	--	--	--	--	--	2.4	--	e
8/29/2000	--		47.00	67.00	16.59	440.38	--	--	--	--	--	--	3.37	--	e
11/29/2000	P		47.00	67.00	19.80	437.17	<50.0	<0.500	<0.500	<0.500	0.772	<2.50	1.35	--	
5/2/2001	--		47.00	67.00	22.12	434.85	--	--	--	--	--	--	--	--	e
8/15/2001	--		47.00	67.00	27.63	429.34	--	--	--	--	--	--	--	--	e
10/5/2001	P		47.00	67.00	27.65	429.32	<50	<0.50	<0.50	<0.50	<0.50	<2.5	1.07	--	
1/21/2002	--		47.00	67.00	26.73	430.24	--	--	--	--	--	--	--	--	e
4/26/2002	--		47.00	67.00	26.39	430.58	--	--	--	--	--	--	--	--	e
10/7/2002	--		47.00	67.00	18.43	438.54	<50	<0.50	<0.50	<0.50	0.86	<0.50	4.2	--	
05/01/2003	--		47.00	67.00	16.47	440.50	--	--	--	--	--	--	--	--	r
10/27/2005	--		47.00	67.00	17.14	439.83	--	--	--	--	--	--	--	--	
04/12/2006	--		47.00	67.00	14.08	442.89	--	--	--	--	--	--	--	--	
10/31/2006	--		47.00	67.00	18.12	438.85	--	--	--	--	--	--	--	--	
4/19/2007	--		47.00	67.00	22.39	434.58	--	--	--	--	--	--	--	--	
10/16/2007	--		47.00	67.00	38.18	418.79	--	--	--	--	--	--	--	--	
4/24/2008	--		47.00	67.00	25.43	431.54	--	--	--	--	--	--	--	--	
6/18/2008	--		47.00	67.00	--	--	--	--	--	--	--	--	--	--	k
MW-9															
3/23/1995	--	456.18	48.00	68.00	13.18	443.00	--	--	--	--	--	--	--	--	e
5/31/1995	--		48.00	68.00	12.66	443.52	--	--	--	--	--	--	--	--	e
8/31/1995	--		48.00	68.00	14.40	441.78	--	--	--	--	--	--	--	--	e
11/28/1995	--		48.00	68.00	14.26	441.92	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
2/22/1996	--	456.18	48.00	68.00	12.05	444.13	--	--	--	--	--	--	--	--	e
5/23/1996	--		48.00	68.00	12.07	444.11	--	--	--	--	--	--	--	--	e
8/8/1996	--		48.00	68.00	14.12	442.06	--	--	--	--	--	--	--	--	e
11/7/1996	--		48.00	68.00	15.42	440.76	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/27/1997	--		48.00	68.00	13.01	443.17	--	--	--	--	--	--	--	--	e
5/19/1997	--		48.00	68.00	14.60	441.58	--	--	--	--	--	--	--	--	e
5/18/1998	--		48.00	68.00	12.60	443.58	--	--	--	--	--	--	--	--	e
11/2/1998	--		48.00	68.00	25.08	431.10	--	--	--	--	--	--	--	--	e
6/4/1999	P		48.00	68.00	15.87	440.31	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/11/1999	P		48.00	68.00	17.02	439.16	<50	<0.5	<0.5	<0.5	<1	<3	0.96	--	
6/20/2000	--		48.00	68.00	15.54	440.64	--	--	--	--	--	--	2.1	--	e
8/29/2000	--		48.00	68.00	16.81	439.37	--	--	--	--	--	--	2.59	--	e
11/29/2000	P		48.00	68.00	18.81	437.37	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.81	--	
5/2/2001	--		48.00	68.00	22.09	434.09	--	--	--	--	--	--	--	--	e
8/15/2001	--		48.00	68.00	27.59	428.59	--	--	--	--	--	--	--	--	e
10/5/2001	--		48.00	68.00	27.63	428.55	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	q
10/5/2001	P		48.00	68.00	27.63	428.55	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.93	--	
1/21/2002	--		48.00	68.00	26.77	429.41	--	--	--	--	--	--	--	--	e
4/26/2002	--		48.00	68.00	26.41	429.77	--	--	--	--	--	--	--	--	e
10/7/2002	P		48.00	68.00	18.85	437.33	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.6	--	
05/01/2003	--		48.00	68.00	17.84	438.34	--	--	--	--	--	--	--	--	c, e
10/03/2003	P		48.00	68.00	18.69	437.49	<50	1.1	0.57	<0.50	<0.50	<0.50	4.9	6.8	d
04/06/2004	--	458.55	48.00	68.00	16.08	442.47	--	--	--	--	--	--	--	--	e
10/28/2004	P		48.00	68.00	18.35	440.20	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.8	6.9	
04/13/2005	--		48.00	68.00	14.09	444.46	--	--	--	--	--	--	--	--	e
10/27/2005	P		48.00	68.00	17.41	441.14	<50	0.51	<0.50	<0.50	<0.50	1.4	2.56	7.0	
04/12/2006	--		48.00	68.00	14.18	444.37	--	--	--	--	--	--	--	--	
10/31/2006	P		48.00	68.00	17.97	440.58	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.46	
4/19/2007	--		48.00	68.00	22.37	436.18	--	--	--	--	--	--	--	--	
10/16/2007	P		48.00	68.00	37.75	420.80	<50	0.83	<0.50	<0.50	<0.50	<0.50	1.27	7.59	

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
4/24/2008	--	458.55	48.00	68.00	24.89	433.66	--	--	--	--	--	--	--	--	
10/15/2008	P		48.00	68.00	44.16	414.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.14	7.08	
4/28/2009	--		48.00	68.00	32.61	425.94	--	--	--	--	--	--	--	--	
11/9/2009	P		48.00	68.00	20.69	437.86	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.33	6.82	
4/12/2010	--		48.00	68.00	17.29	441.26	--	--	--	--	--	--	--	--	
11/4/2010	P		48.00	68.00	18.62	439.93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.73	6.8	
5/18/2011	--		48.00	68.00	15.83	442.72	--	--	--	--	--	--	--	--	
10/20/2011	P		48.00	68.00	17.30	441.25	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.87	7.96	
4/11/2012	P		48.00	68.00	19.75	438.80	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.99	7.45	
10/10/2012	P		48.00	68.00	19.93	438.62	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.70	7.68	
4/10/2013	--		48.00	68.00	17.75	440.80	--	--	--	--	--	--	--	--	
4/10/2013	P		48.00	68.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	6.2	7.31	Top
4/10/2013	P		48.00	68.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	5.3	7.42	Middle
4/10/2013	P		48.00	68.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.9	7.70	Bottom
MW-10															
3/23/1995	--	456.85	32.00	52.00	14.86	441.99	--	--	--	--	--	--	--	--	e
5/31/1995	--		32.00	52.00	15.63	441.22	--	--	--	--	--	--	--	--	e
8/31/1995	--		32.00	52.00	14.40	442.45	--	--	--	--	--	--	--	--	e
11/28/1995	--		32.00	52.00	17.24	439.61	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		32.00	52.00	14.30	442.55	--	--	--	--	--	--	--	--	e
5/23/1996	--		32.00	52.00	14.93	441.92	--	--	--	--	--	--	--	--	e
8/8/1996	--		32.00	52.00	17.20	439.65	--	--	--	--	--	--	--	--	e
11/7/1996	--		32.00	52.00	18.25	438.60	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/27/1997	--		32.00	52.00	15.77	441.08	--	--	--	--	--	--	--	--	e
5/19/1997	--		32.00	52.00	17.38	439.47	--	--	--	--	--	--	--	--	e
5/18/1998	--		32.00	52.00	15.47	441.38	--	--	--	--	--	--	--	--	e
11/2/1998	--		32.00	52.00	26.94	429.91	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
6/4/1999	--		32.00	52.00	17.19	439.66	--	--	--	--	--	--	--	--	e
11/11/1999	P		32.00	52.00	19.35	437.50	<50	<0.5	<0.5	<0.5	<1	<3	0.68	--	
6/20/2000	--		32.00	52.00	17.92	438.93	--	--	--	--	--	--	2.9	--	e

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-10 Cont.															
8/29/2000	--	456.85	32.00	52.00	19.15	437.70	--	--	--	--	--	--	1.54	--	e
11/29/2000	P		32.00	52.00	21.30	435.55	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.95	--	
5/2/2001	--		32.00	52.00	29.95	426.90	--	--	--	--	--	--	--	--	e
8/15/2001	--		32.00	52.00	30.74	426.11	--	--	--	--	--	--	--	--	e
10/5/2001	P		32.00	52.00	30.95	425.90	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.89	--	
1/21/2002	--		32.00	52.00	28.97	427.88	--	--	--	--	--	--	--	--	e
4/26/2002	--		32.00	52.00	28.50	428.35	--	--	--	--	--	--	--	--	e
10/7/2002	--		32.00	52.00	21.15	435.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.0	--	
05/01/2003	--		32.00	52.00	18.90	437.95	--	--	--	--	--	--	--	--	c, e
10/03/2003	P		32.00	52.00	20.64	436.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.4	7.1	d
04/06/2004	--	459.20	32.00	52.00	17.99	441.21	--	--	--	--	--	--	--	--	e
10/28/2004	P		32.00	52.00	20.27	438.93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.9	7.1	
04/13/2005	--		32.00	52.00	16.25	442.95	--	--	--	--	--	--	--	--	e
10/27/2005	P		32.00	52.00	19.03	440.17	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.38	7.2	
04/12/2006	--		32.00	52.00	14.95	444.25	--	--	--	--	--	--	--	--	
10/31/2006	P		32.00	52.00	20.20	439.00	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.30	
4/19/2007	--		32.00	52.00	24.00	435.20	--	--	--	--	--	--	--	--	
10/16/2007	NP		32.00	52.00	38.99	420.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.20	7.36	
4/24/2008	--		32.00	52.00	26.62	432.58	--	--	--	--	--	--	--	--	
9/10/2008	--		32.00	52.00	--	--	--	--	--	--	--	--	--	--	k
MW-11															
3/23/1995	--	455.07	38.00	45.00	17.34	437.73	--	--	--	--	--	--	--	--	
5/31/1995	--		38.00	45.00	16.68	438.39	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/31/1995	--		38.00	45.00	20.20	434.87	--	--	--	--	--	--	--	--	h
11/28/1995	--		38.00	45.00	17.80	437.27	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		38.00	45.00	15.97	439.10	--	--	--	--	--	--	--	--	h
5/23/1996	--		38.00	45.00	15.50	439.57	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
8/8/1996	--		38.00	45.00	17.77	437.30	--	--	--	--	--	--	--	--	h
11/7/1996	--		38.00	45.00	17.45	437.62	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/27/1997	--		38.00	45.00	15.77	439.30	--	--	--	--	--	--	--	--	h

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-11 Cont.															
5/19/1997	--	455.07	38.00	45.00	16.80	438.27	<50	1.1	4.5	<0.5	2.2	<3	--	--	
5/18/1998	--		38.00	45.00	15.38	439.69	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/2/1998	--		38.00	45.00	24.15	430.92	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
6/4/1999	P		38.00	45.00	18.39	436.68	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/11/1999	P		38.00	45.00	18.62	436.45	<50	<0.5	<0.5	<0.5	<1	<3	1.01	--	
6/20/2000	P		38.00	45.00	17.82	437.25	<50.0	0.631	<0.500	<0.500	<0.500	<2.50	4.1	--	
8/29/2000	--		38.00	45.00	19.50	435.57	--	--	--	--	--	--	--	--	h
11/29/2000	P		38.00	45.00	20.60	434.47	<50.0	<0.500	<0.500	<0.500	1.63	<2.50	0.97	--	
5/2/2001	P		38.00	45.00	22.42	432.65	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	1.04	--	
8/15/2001	--		38.00	45.00	27.41	427.66	--	--	--	--	--	--	--	--	h
10/5/2001	P		38.00	45.00	27.59	427.48	<50	<0.50	<0.50	<0.50	<0.50	<2.5	1.05	--	
1/21/2002	--		38.00	45.00	26.75	428.32	--	--	--	--	--	--	--	--	h
4/26/2002	P		38.00	45.00	26.50	428.57	<50	<0.50	<0.50	<0.50	<0.50	<2.5	0.47	--	
10/7/2002	--		38.00	45.00	20.79	434.28	<50	<0.50	<0.50	<0.50	<0.50	1.0	1.4	--	
05/01/2003	P		38.00	45.00	20.55	434.52	<50	<0.50	<0.50	<0.50	<0.50	1.5	3.2	--	c
10/03/2003	P		38.00	45.00	20.58	434.49	<50	<0.50	<0.50	<0.50	<0.50	3.1	3.0	7.1	d
04/06/2004	P	457.40	38.00	45.00	17.52	439.88	<50	<0.50	<0.50	<0.50	<0.50	14	5.1	6.7	
10/28/2004	P		38.00	45.00	20.32	437.08	<50	<0.50	<0.50	<0.50	<0.50	29	1.3	7.2	
04/13/2005	P		38.00	45.00	16.20	441.20	<50	<0.50	<0.50	<0.50	<0.50	3.7	2.8	7.0	
10/27/2005	P		38.00	45.00	21.98	435.42	<50	<0.50	<0.50	<0.50	<0.50	21	1.04	7.2	
04/12/2006	--		38.00	45.00	--	--	--	--	--	--	--	--	--	--	Well inaccessible m
10/31/2006	--		38.00	45.00	--	--	--	--	--	--	--	--	--	--	
4/19/2007	P		38.00	45.00	22.38	435.02	<50	<0.50	<0.50	<0.50	<0.50	12	7.11	7.57	
10/16/2007	P		38.00	45.00	37.11	420.29	<50	<0.50	<0.50	<0.50	<0.50	6.6	0.60	7.57	
4/24/2008	P		38.00	45.00	26.10	431.30	<50	<0.50	<0.50	<0.50	<0.50	17	1.83	7.26	
10/15/2008	--		38.00	45.00	43.34	414.06	--	--	--	--	--	--	--	--	
4/28/2009	P		38.00	45.00	32.85	424.55	<50	<0.50	<0.50	<0.50	<0.50	5.3	5.89	7.23	
11/9/2009	P		38.00	45.00	22.99	434.41	<50	<0.50	<0.50	<0.50	<0.50	12	0.72	7.0	
4/12/2010	P		38.00	45.00	21.14	436.26	<50	<0.50	<0.50	<0.50	<0.50	10	2.03	7.25	
11/4/2010	P		38.00	45.00	20.62	436.78	<50	<0.50	<0.50	<0.50	<0.50	9.9	1.64	6.9	

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

ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-11 Cont.															
5/18/2011	P	457.40	38.00	45.00	19.17	438.23	<50	<0.50	<0.50	<0.50	<0.50	7.8	4.28	--	lw
10/20/2011	P		38.00	45.00	19.58	437.82	<50	<0.50	<0.50	<0.50	<0.50	6.9	0.95	7.84	
4/11/2012	P		38.00	45.00	21.58	435.82	<50	<0.50	<0.50	<0.50	<0.50	5.6	0.30	7.54	
10/10/2012	P		38.00	45.00	22.02	435.38	<50	<0.50	<0.50	<0.50	<1.0	4.2	1.58	7.75	
4/9/2013	--		38.00	45.00	19.83	437.57	--	--	--	--	--	--	--	--	
4/9/2013	P		38.00	45.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	7.4	7.86	Top
4/9/2013	P		38.00	45.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	5.0	4.0	7.45	Middle
4/9/2013	P		38.00	45.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	6.0	3.9	7.37	Bottom
MW-12															
3/23/1995	--	455.04	18.00	34.50	15.54	439.50	--	--	--	--	--	--	--	--	h
5/31/1995	--		18.00	34.50	15.66	439.38	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
8/31/1995	--		18.00	34.50	18.23	436.81	--	--	--	--	--	--	--	--	h
11/28/1995	--		18.00	34.50	17.53	437.51	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
2/22/1996	--		18.00	34.50	14.45	440.59	--	--	--	--	--	--	--	--	h
5/23/1996	--		18.00	34.50	14.88	440.16	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
8/8/1996	--		18.00	34.50	17.30	437.74	--	--	--	--	--	--	--	--	h
11/7/1996	--		18.00	34.50	18.30	436.74	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
3/27/1997	--		18.00	34.50	15.69	439.35	--	--	--	--	--	--	--	--	h
5/19/1997	--		18.00	34.50	17.41	437.63	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
5/18/1998	--		18.00	34.50	15.21	439.83	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	
11/2/1998	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
6/4/1999	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
11/11/1999	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
6/20/2000	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
8/29/2000	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
11/29/2000	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
5/2/2001	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
8/15/2001	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
10/5/2001	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m
1/21/2002	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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-12 Cont.																
4/26/2002	--	455.04	18.00	34.50	--	--	--	--	--	--	--	--	--	--	m	
10/7/2002	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m	
05/01/2003	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	c, m	
10/03/2003	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m	
04/06/2004	P	457.37	18.00	34.50	18.14	439.23	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.4	6.4		
10/28/2004	P		18.00	34.50	20.66	436.71	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.7	6.8		
04/13/2005	P		18.00	34.50	16.25	441.12	<50	<0.50	<0.50	<0.50	0.55	<0.50	1.9	7.5		
10/27/2005	P		18.00	34.50	19.77	437.60	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.81	7.0		
04/12/2006	P		18.00	34.50	16.08	441.29	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.6	7.2		
10/31/2006	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--		
4/19/2007	NP		18.00	34.50	22.34	435.03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.66	7.28		
10/16/2007	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	f	
4/24/2008	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	m	
10/15/2008	--		18.00	34.50	--	--	--	--	--	--	--	--	--	--	f	
4/28/2009	NP		18.00	34.50	32.21	425.16	<50	<0.50	<0.50	<0.50	<0.50	1.4	7.68	6.63		
11/9/2009	NP		18.00	34.50	23.74	433.63	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--		
4/12/2010	NP		18.00	34.50	19.93	437.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.18		
11/4/2010	NP		18.00	34.50	21.53	435.84	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.96	7.0		
5/18/2011	NP		18.00	34.50	18.40	438.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.93	--	z	
10/20/2011	NP		18.00	34.50	20.25	437.12	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.87	7.94		
4/11/2012	P		18.00	34.50	22.27	435.10	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.19	7.17		
10/10/2012	P		18.00	34.50	22.50	434.87	<50	<0.50	<0.50	<0.50	<1.0	<0.50	2.34	7.57		
4/9/2013	--		18.00	34.50	19.92	437.45	--	--	--	--	--	--	--	--		
4/9/2013	P		18.00	34.50	--	--	<50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	4.0	7.26	Top
4/9/2013	P		18.00	34.50	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	4.1	7.26	Bottom	
MW-13																
1/21/2002	P	NS	--	--	24.61	--	15,000	160	68	1,700	3,200	4,900/5,200	0.71	--		
4/26/2002	P		--	--	24.20	--	17,000	98	<100	1,700	3,400	1,600	0.6	--		
10/7/2002	--		--	--	20.12	--	14,000	510	<50	2,200	2,300	2,800	0.8	--	b	
05/01/2003	P		--	--	17.82	--	21,000	230	<50	1,900	2,300	1,600	1.9	--	c	

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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-13 Cont.															
10/03/2003	P	NS	--	--	19.91	--	19,000	570	55	1,900	2,300	2,400	0.8	6.9	d
04/06/2004	P	457.91	--	--	17.14	440.77	15,000	470	35	1,600	1,300	1,800	2.0	6.7	
10/28/2004	P		--	--	18.83	439.08	18,000	350	<25	1,900	1,800	1,800	0.8	6.7	
04/13/2005	P		--	--	15.23	442.68	9,700	110	<25	860	280	920	0.9	6.9	
10/27/2005	P		--	--	18.45	439.46	11,000	120	12	1,500	450	580	0.75	6.8	
04/12/2006	P		--	--	15.06	442.85	4,700	65	<10	450	69	470	1.2	6.8	
10/31/2006	P		--	--	19.06	438.85	15,000	150	<25	1,700	400	710	--	6.87	
4/19/2007	NP		--	--	22.21	435.70	14,000	60	<25	1,800	640	330	1.44	7.09	
10/16/2007	--		--	--	--	--	--	--	--	--	--	--	--	--	f
4/24/2008	NP		--	--	24.68	433.23	1,400	4.5	1.1	9.4	15	49	2.78	7.25	
9/10/2008	--		--	--	--	--	--	--	--	--	--	--	--	--	k
RMW-13															
4/12/2010	NP	458.03	15.00	35.00	18.50	439.53	63,000	7,800	200	1,600	6,400	1,500	2.47	7.21	y
11/4/2010	NP		15.00	35.00	18.83	439.20	31,000	4,000	<120	1,700	2,500	390	1.01	7.40	
5/18/2011	NP		15.00	35.00	17.43	440.60	26,000	4,700	<50	1,700	2,200	380	2.34	7.3	
10/20/2011	NP		15.00	35.00	18.25	439.78	560	1,100	<20	550	620	55	0.84	7.54	
4/11/2012	P		15.00	35.00	20.64	437.39	13,000	3,100	<0.50	820	790	280	0.18	7.10	x
10/10/2012	P		15.00	35.00	21.10	436.93	15,000	6,000	62	1,300	670	460	1.09	7.26	
4/10/2013	--		15.00	35.00	18.90	439.13	--	--	--	--	--	--	--	--	
4/10/2013	P		15.00	35.00	--	--	10,000	4,600	<50	1,300	400	270	2.5	7.34	Top
4/10/2013	P		15.00	35.00	--	--	12,000	5,100	53	1,300	460	280	2.7	7.86	Bottom
VW-1															
8/29/2000	P	NS	24.00	45.00	17.40	--	2,360	27.6	11.6	26.3	33.2	110	4.47	--	
11/29/2000	P		24.00	45.00	18.75	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	0.46	--	
5/2/2001	--		24.00	45.00	21.59	--	--	--	--	--	--	--	--	--	
8/15/2001	P		24.00	45.00	24.62	--	1,200	6.3	4.3	1.7	1.3	20/17	--	--	s
8/15/2001	--		24.00	45.00	24.62	--	1,200	6.2	4.1	1.8	1.1	20/17	--	--	q
10/5/2001	P		24.00	45.00	24.75	--	1,500	140	55	28	82	610/660	0.71	--	s
1/21/2002	P		24.00	45.00	24.59	--	6,700	810	350	270	1,100	2,600/3,400	0.69	--	s

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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.															
1/21/2002	--	NS	24.00	45.00	24.59	--	8,000	770	320	96	1,100	2,500/3,200	--	--	q, s
4/26/2002	P		24.00	45.00	24.27	--	370	26	2.1	6.6	1.7	48	0.5	--	
4/26/2002	--		24.00	45.00	24.27	--	350	24	1.6	5.9	1.6	45	--	--	q
10/7/2002	P		24.00	45.00	19.20	--	410	25	2.2	8	4.3	88	1.7	--	b
05/01/2003	P		24.00	45.00	16.60	--	240	6.4	<0.50	3.3	1.3	36	1.7	--	c
10/03/2003	P		24.00	45.00	18.82	--	180	1.5	<0.50	0.69	<0.50	12	1.1	7.3	d
04/06/2004	P	457.08	24.00	45.00	15.78	441.30	300	2.2	<0.50	3.0	1.3	13	2.4	7.2	
10/28/2004	P		24.00	45.00	18.33	438.75	210	<0.50	<0.50	0.67	<0.50	<0.50	1.2	7.1	
04/13/2005	P		24.00	45.00	14.02	443.06	740	1.8	<0.50	3.6	1.1	9.6	2.4	7.1	
10/27/2005	P		24.00	45.00	17.65	439.43	1,500	78	73	36	81	13	1.64	7.3	
04/12/2006	P		24.00	45.00	13.89	443.19	230	1.4	<0.50	2.2	0.76	1.6	1.4	7.3	
10/31/2006	P		24.00	45.00	17.87	439.21	80	<0.50	<0.50	2.3	0.82	<0.50	--	7.76	
4/19/2007	P		24.00	45.00	21.09	435.99	250	1.6	<0.50	4.7	1.3	3.0	1.15	7.66	
10/16/2007	NP		24.00	45.00	37.10	419.98	12,000	2,300	1,900	860	2,800	150	2.65	7.61	
4/24/2008	NP		24.00	45.00	24.40	432.68	<50	<0.50	<0.50	<0.50	<0.50	4.5	4.95	7.47	
10/15/2008	--		24.00	45.00	43.07	414.01	--	--	--	--	--	--	--	--	
4/28/2009	NP		24.00	45.00	31.06	426.02	3,500	140	2.8	25	4.0	19	6.38	7.02	
11/9/2009	P		24.00	45.00	21.12	435.96	230	1.8	<0.50	<0.50	<0.50	1.1	2.28	6.95	x (GRO)
4/12/2010	P		24.00	45.00	17.27	439.81	410	0.80	<0.50	<0.50	<0.50	<0.50	3.38	7.21	
11/4/2010	P		24.00	45.00	18.65	438.43	160	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	6.9	x (GRO)
5/18/2011	P		24.00	45.00	15.77	441.31	69	<0.50	<0.50	<0.50	<0.50	<0.50	0.71	7.5	x (GRO)
10/20/2011	P		24.00	45.00	17.44	439.64	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.77	7.89	
4/11/2012	P		24.00	45.00	19.74	437.34	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.02	7.50	
10/10/2012	P		24.00	45.00	19.90	437.18	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.39	7.82	
4/10/2013	--		24.00	45.00	17.54	439.54	--	--	--	--	--	--	--	--	
4/10/2013	P		24.00	45.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.1	7.60	Top
4/10/2013	P		24.00	45.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.2	7.59	Middle
4/10/2013	P		24.00	45.00	--	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.0	7.63	Bottom
VW-2															
8/29/2000	--	NS	28.00	49.50	--	--	--	--	--	--	--	--	--	--	g

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

ARCO Service Station #6113, 785 East Stanley Blvd., 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-2 Cont.																
11/29/2000	--	NS	28.00	49.50	--	--	--	--	--	--	--	--	--	--	g	
5/2/2001	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--		
10/5/2001	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--	g	
1/21/2002	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--	g	
4/26/2002	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--	m	
10/7/2002	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--	g	
05/01/2003	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--	C, g	
10/03/2003	--		28.00	49.50	--	--	--	--	--	--	--	--	--	--	Well inaccessible g	
04/06/2004	--	458.64	28.00	49.50	16.96	441.68	--	--	--	--	--	--	--	--		
10/28/2004	--		28.00	49.50	19.35	439.29	--	--	--	--	--	--	--	--		
04/13/2005	--		28.00	49.50	15.51	443.13	--	--	--	--	--	--	--	--		
10/27/2005	--		28.00	49.50	18.50	440.14	--	--	--	--	--	--	--	--		
04/12/2006	--		28.00	49.50	14.92	443.72	--	--	--	--	--	--	--	--		
10/31/2006	--		28.00	49.50	19.01	439.63	--	--	--	--	--	--	--	--		
4/19/2007	--		28.00	49.50	22.52	436.12	--	--	--	--	--	--	--	--		
10/16/2007	--		28.00	49.50	38.58	420.06	--	--	--	--	--	--	--	--		
4/24/2008	--		28.00	49.50	24.91	433.73	--	--	--	--	--	--	--	--		
10/15/2008	--		28.00	49.50	43.31	415.33	--	--	--	--	--	--	--	--		
4/28/2009	--		28.00	49.50	32.56	426.08	--	--	--	--	--	--	--	--		
11/9/2009	--		28.00	49.50	22.38	436.26	--	--	--	--	--	--	--	--		
4/12/2010	--		28.00	49.50	18.50	440.14	--	--	--	--	--	--	--	--		
11/4/2010	--		28.00	49.50	19.87	438.77	--	--	--	--	--	--	--	--		
5/18/2011	--		28.00	49.50	16.94	441.70	--	--	--	--	--	--	--	--		
10/20/2011	--		28.00	49.50	18.54	440.10	--	--	--	--	--	--	--	--		
4/11/2012	--		28.00	49.50	20.97	437.67	--	--	--	--	--	--	--	--		
10/10/2012	--		28.00	49.50	21.07	437.57	--	--	--	--	--	--	--	--		
4/10/2013	--		28.00	49.50	18.69	439.95	--	--	--	--	--	--	--	--		
4/10/2013	P		28.00	49.50	--	--	<50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	3.3	7.45	Top
4/10/2013	P		28.00	49.50	--	--	94	<0.50	<0.50	<0.50	<1.0	<0.50	3.0	7.56	Middle	
4/10/2013	P		28.00	49.50	--	--	87	<0.50	<0.50	<0.50	<1.0	<0.50	3.4	7.54	Bottom	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #6113, 785 East Stanley Blvd., 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-3															
8/29/2000	P	NS	15.50	24.00	17.93	--	25,400	3,540	10,600	1,280	43,000	44,700	--	--	
11/29/2000	P		15.50	24.00	19.75	--	54,200	9,450	1,870	2,350	9,400	12,300/15,100	0.47	--	s
5/2/2001	--		15.50	24.00	--	--	--	--	--	--	--	--	--	--	k
VW-4															
8/29/2000	--	NS	17.00	30.00	--	--	--	--	--	--	--	--	--	--	g
11/29/2000	--		17.00	30.00	19.45	--	36,100	3,700	206	1,850	7,890	6,430/8,460	--	--	q, s
11/29/2000	P		17.00	30.00	19.45	--	37,500	4,510	206	2,100	9,030	6,770/7,880	0.42	--	s
5/2/2001	--		17.00	30.00	21.66	--	--	--	--	--	--	--	--	--	
8/15/2001	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	
10/5/2001	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	f
1/21/2002	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	f
4/26/2002	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	f
10/7/2002	--		17.00	30.00	19.25	--	--	--	--	--	--	--	--	--	
05/01/2003	--		17.00	30.00	17.29	--	--	--	--	--	--	--	--	--	c
10/03/2003	P		17.00	30.00	19.10	--	48,000	3,300	1,700	3,600	21,000	1,600	10.5	6.7	d, n
04/06/2004	--	456.99	17.00	30.00	18.05	438.94	--	--	--	--	--	--	--	--	
10/28/2004	--		17.00	30.00	18.71	438.28	--	--	--	--	--	--	--	--	
04/13/2005	--		17.00	30.00	14.62	442.37	--	--	--	--	--	--	--	--	
10/27/2005	--		17.00	30.00	18.00	438.99	--	--	--	--	--	--	--	--	
04/12/2006	--		17.00	30.00	14.42	442.57	--	--	--	--	--	--	--	--	
10/31/2006	--		17.00	30.00	18.30	438.69	--	--	--	--	--	--	--	--	
4/19/2007	--		17.00	30.00	20.91	436.08	--	--	--	--	--	--	--	--	
10/16/2007	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	f
4/24/2008	--		17.00	30.00	23.40	433.59	--	--	--	--	--	--	--	--	
10/15/2008	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	f
4/28/2009	--		17.00	30.00	--	--	--	--	--	--	--	--	--	--	f
11/9/2009	--		17.00	30.00	21.65	435.34	--	--	--	--	--	--	--	--	
4/12/2010	--		17.00	30.00	17.80	439.19	--	--	--	--	--	--	--	--	
11/4/2010	--		17.00	30.00	19.13	437.86	--	--	--	--	--	--	--	--	
5/18/2011	--		17.00	30.00	16.67	440.32	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #6113, 785 East Stanley Blvd., 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-4 Cont.															
10/20/2011	--	456.99	17.00	30.00	18.25	438.74	--	--	--	--	--	--	--	--	
4/11/2012	--		17.00	30.00	20.08	436.91	--	--	--	--	--	--	--	--	
10/10/2012	--		17.00	30.00	20.52	436.47	--	--	--	--	--	--	--	--	
4/9/2013	P		17.00	30.00	18.26	438.73	5,900	1,600	44	510	60	59	2.5	7.17	

Symbols & Abbreviations:

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

Footnotes:

a = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel
b = Chromatogram Pattern: C6-C10
c = TPH-g, benzene, toluene, ethylbenzene, and total xylenes (BTEX), and MTBE analyzed using EPA Method 8260B beginning second quarter 2003 (05/01/03)
d = This sample was analyzed 3 days after the EPA recommended holding time. The results may still be useful for their intended purpose
e = Well sampled annually in the fourth quarter
f = Well dry
g = Well inaccessible
h = Well sampled semi-annually in second and fourth quarters
k = Well abandoned
m = Unable to locate well
n = Sheen in well
q = Duplicate sample
r = Well removed from sampling schedule
s = Original sample analyzed by 8021B and confirmation by 8260
t = Bolts securing well box cover stripped at head. Unable to sample well
u = Hydrocarbon result partly due to individ. peak(s) in quant. range
v = pH measurement is believed to be erroneous
w = Sample > 4x spike concentration
x = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
y = Replacement well for abandoned wells MW-6 and MW-13 installed on 3/11/2010, and surveyed on 4/23/2010
z = pH probe malfunctioned, pH measurement not collected

Notes:

Beginning in the second quarter 2003 (05/01/03) TPH-g and BTEX were analyzed using EPA Method 8260B, and MTBE was analyzed by EPA Method 8260B beginning in fourth quarter 2002. Prior to 05/01/03, TPH-g was analyzed by EPA Method 8015; BTEX by EPA Method 8021B (EPA method 8020 before 11/11/99); and MTBE by EPA Method 8021B. (EPA method 8020 before 11/11/99). Any MTBE detection by 8021B was confirmed by EPA Method 8260 beginning third quarter 2000 (08-29-00 results).

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

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

Wells were resurveyed to NAVD '88 datum by URS Corporation on March 8, 2004.

Values for DO and pH were obtained through field measurements. DO measured by lab in 2Q 2013.

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.

During the Second Quarter 2013 groundwater monitoring event wells were purged with a low-flow peristaltic pump and sampled from multiple screen intervals, consisting of the top, middle and/or bottom of the well screen, on a one-time basis for comparison purposes.

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
11/28/1995	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/7/2002	<40	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-2									
11/28/1995	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	5	--	--	--	--	--	
11/2/1998	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/7/2002	<40	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Middle
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
MW-3									
11/28/1995	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	1,700	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/7/2002	<40	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<100	<20	<0.50	<1.0	<1.0	<1.0	<0.50	<0.50	a
10/28/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/31/2006	<300	<20	22	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., 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.									
8/31/1995	--	--	<3	--	--	--	--	--	
11/28/1995	--	--	<3	--	--	--	--	--	
2/22/1996	--	--	<3	--	--	--	--	--	
5/23/1996	--	--	<3	--	--	--	--	--	
8/8/1996	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
3/27/1997	--	--	<3	--	--	--	--	--	
5/19/1997	--	--	<3	--	--	--	--	--	
5/18/1998	--	--	64	--	--	--	--	--	
11/2/1998	--	--	96	--	--	--	--	--	
6/4/1999	--	--	38	--	--	--	--	--	
11/11/1999	--	--	10	--	--	--	--	--	
6/20/2000	--	--	62.3	--	--	--	--	--	
6/20/2000	--	--	82.4	--	--	--	--	--	
8/29/2000	--	--	47.9	--	--	--	--	--	
11/29/2000	--	--	9.88/10.4	--	--	--	--	--	
5/2/2001	--	--	59.4/68.4	--	--	--	--	--	
5/2/2001	--	--	61.1/70.9	--	--	--	--	--	
4/26/2002	--	--	150	--	--	--	--	--	
10/7/2002	<400	<200	260	<5.0	<5.0	<5.0	<5.0	<5.0	
05/01/2003	<100	25	86	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<100	<20	22	<1.0	<1.0	<1.0	<0.50	<0.50	a
04/06/2004	<100	<20	17	<0.50	<0.50	<0.50	<0.50	<0.50	
10/28/2004	<100	<20	4.5	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	2.8	<0.50	<0.50	<0.50	<0.50	<0.50	
10/27/2005	<100	<20	22	<0.50	<0.50	<0.50	<0.50	<0.50	
04/12/2006	<300	<20	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	b
10/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/19/2007	<300	<20	<0.50	<0.50	<0.50	0.66	<0.50	<0.50	
11/9/2009	<300	12	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
4/12/2010	<300	<10	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
11/4/2010	<300	<10	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., 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.									
5/18/2011	<300	<10	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
10/20/2011	<300	<10	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
4/11/2012	<300	<10	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
10/10/2012	<150	<10	0.51	<0.50	<0.50	<0.50	<0.50	<0.50	
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5									
11/28/1995	--	--	<5	--	--	--	--	--	
5/23/1996	--	--	<50	--	--	--	--	--	
11/7/1996	--	--	<80	--	--	--	--	--	
5/19/1997	--	--	<40	--	--	--	--	--	
5/18/1998	--	--	4	--	--	--	--	--	
11/2/1998	--	--	100	--	--	--	--	--	
6/4/1999	--	--	1,400	--	--	--	--	--	
11/11/1999	--	--	72	--	--	--	--	--	
6/20/2000	--	--	<50.0	--	--	--	--	--	
8/29/2000	--	--	517	--	--	--	--	--	
11/29/2000	--	--	671/<20.0	--	--	--	--	--	
MW-6									
8/31/1995	--	--	<3	--	--	--	--	--	
11/28/1995	--	--	<3	--	--	--	--	--	
2/22/1996	--	--	<3	--	--	--	--	--	
5/23/1996	--	--	<3	--	--	--	--	--	
8/8/1996	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
3/27/1997	--	--	4	--	--	--	--	--	
5/19/1997	--	--	<3	--	--	--	--	--	
5/18/1998	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	3	--	--	--	--	--	
6/4/1999	--	--	33	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., 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.									
6/20/2000	--	--	17.3	--	--	--	--	--	
8/29/2000	--	--	<2.50	--	--	--	--	--	
8/29/2000	--	--	<2.50	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
5/2/2001	--	--	1,810/2,310	--	--	--	--	--	
8/15/2001	--	--	21/25	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
1/21/2002	--	--	<5.0	--	--	--	--	--	
4/26/2002	--	--	17	--	--	--	--	--	
10/7/2002	<40	<20	8	<0.50	<0.50	<0.50	<0.50	<0.50	
05/01/2003	<100	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<500	<100	120	<5.0	<5.0	<5.0	<2.5	<2.5	a
04/06/2004	<5,000	<1,000	1,700	<25	<25	<25	<25	<25	
10/28/2004	<5,000	<1,000	3,100	<25	<25	<25	<25	<25	
04/13/2005	<10,000	<2,000	3,900	<50	<50	<50	<50	<50	
10/27/2005	<10,000	<2,000	2,900	<50	<50	<50	<50	<50	b
04/12/2006	<30,000	<2,000	3,400	<50	<50	<50	<50	<50	b
10/31/2006	<15,000	<1,000	3,400	<25	<25	<25	<25	<25	b
4/19/2007	<15,000	<1,000	2,200	<25	<25	<25	<25	<25	
10/16/2007	<15,000	<1,000	2,600	<25	<25	<25	<25	<25	c (MTBE)
4/24/2008	<6,000	1,500	4,200	<10	<10	<10	<10	<10	
MW-7									
8/31/1995	--	--	<3	--	--	--	--	--	
11/28/1995	--	--	<3	--	--	--	--	--	
2/22/1996	--	--	<3	--	--	--	--	--	
5/23/1996	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
3/27/1997	--	--	<3	--	--	--	--	--	
5/19/1997	--	--	<3	--	--	--	--	--	
5/18/1998	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	4	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., 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.									
6/4/1999	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
8/29/2000	--	--	<2.50	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
5/2/2001	--	--	<2.50/2.66	--	--	--	--	--	
8/15/2001	--	--	<2.5	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
1/21/2002	--	--	15/21	--	--	--	--	--	
4/26/2002	--	--	18	--	--	--	--	--	
10/7/2002	<40	<20	41	<0.50	<0.50	<0.50	<0.50	<0.50	
05/01/2003	<100	<20	43	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<200	<40	49	<2.0	<2.0	<2.0	<1.0	<1.0	a
04/06/2004	<100	<20	0.76	<0.50	<0.50	<0.50	<0.50	<0.50	
10/28/2004	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
10/27/2005	<100	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/12/2006	<300	<20	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	b
10/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
4/19/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/16/2007	<300	<20	24	<0.50	<0.50	<0.50	<0.50	<0.50	
4/24/2008	<300	<10	22	<0.50	<0.50	<0.50	<0.50	<0.50	
10/15/2008	<300	<10	8.2	<0.50	<0.50	<0.50	<0.50	<0.50	
4/28/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	d
11/9/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/12/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/4/2010	<300	<10	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
5/18/2011	<300	<10	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	
10/20/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/11/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/10/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., 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.									
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Middle
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
MW-8									
11/28/1995	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/7/2002	<40	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-9									
11/28/1995	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
6/4/1999	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/7/2002	<40	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<100	<20	<0.50	<1.0	<1.0	<1.0	<0.50	<0.50	a
10/28/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/27/2005	<100	<20	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	b
10/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
10/16/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/15/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/9/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/20/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/11/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/10/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-9 Cont.									
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Middle
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
MW-10									
11/28/1995	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
10/7/2002	<40	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<100	<20	<0.50	<1.0	<1.0	<1.0	<0.50	<0.50	a
10/28/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/27/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
10/16/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-11									
11/28/1995	--	--	<3	--	--	--	--	--	
5/23/1996	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
5/19/1997	--	--	<3	--	--	--	--	--	
5/18/1998	--	--	<3	--	--	--	--	--	
11/2/1998	--	--	<3	--	--	--	--	--	
6/4/1999	--	--	<3	--	--	--	--	--	
11/11/1999	--	--	<3	--	--	--	--	--	
6/20/2000	--	--	<2.50	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
5/2/2001	--	--	<2.50	--	--	--	--	--	
10/5/2001	--	--	<2.5	--	--	--	--	--	
4/26/2002	--	--	<2.5	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-11 Cont.									
10/7/2002	<40	<20	1.0	<0.50	<0.50	<0.50	<0.50	<0.50	
05/01/2003	<100	<20	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<100	<20	3.1	<1.0	<1.0	<1.0	<0.50	<0.50	a
04/06/2004	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
10/28/2004	<100	<20	29	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	3.7	<0.50	<0.50	<0.50	<0.50	<0.50	
10/27/2005	<100	<20	21	<0.50	<0.50	<0.50	<0.50	<0.50	
04/12/2006	--	--	--	--	--	--	--	--	Well inaccessible
4/19/2007	<300	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
10/16/2007	<300	<20	6.6	<0.50	<0.50	<0.50	<0.50	<0.50	
4/24/2008	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
4/28/2009	<300	<10	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	d
11/9/2009	<300	<10	12	<0.50	<0.50	<0.50	<0.50	<0.50	
4/12/2010	<300	<10	10	<0.50	<0.50	<0.50	<0.50	<0.50	
11/4/2010	<300	<10	9.9	<0.50	<0.50	<0.50	<0.50	<0.50	
5/18/2011	<300	<10	7.8	<0.50	<0.50	<0.50	<0.50	<0.50	
10/20/2011	<300	<10	6.9	<0.50	<0.50	<0.50	<0.50	<0.50	
4/11/2012	<300	<10	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
10/10/2012	<150	<10	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top
4/9/2013	<150	<10	5.0	<0.50	<0.50	<0.50	<0.50	<0.50	Middle
4/9/2013	<150	<10	6.0	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
MW-12									
11/28/1995	--	--	<3	--	--	--	--	--	
5/23/1996	--	--	<3	--	--	--	--	--	
11/7/1996	--	--	<3	--	--	--	--	--	
5/19/1997	--	--	<3	--	--	--	--	--	
5/18/1998	--	--	<3	--	--	--	--	--	
04/06/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/28/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-12 Cont.									
10/27/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
04/12/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
4/19/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/28/2009	<300	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	d
11/9/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/12/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/18/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/20/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/11/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/10/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top
4/9/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
MW-13									
1/21/2002	--	--	4,900/5,200	--	--	--	--	--	
4/26/2002	--	--	1,600	--	--	--	--	--	
10/7/2002	<4,000	<2,000	2,800	<50	<50	<50	<50	<50	
05/01/2003	<10,000	<2,000	1,600	<50	<50	<50	<50	<50	
10/03/2003	<10,000	<2,000	2,400	<100	<100	<100	<50	<50	a
04/06/2004	<5,000	<1,000	1,800	<25	<25	<25	<25	<25	
10/28/2004	<5,000	<1,000	1,800	<25	<25	<25	<25	<25	
04/13/2005	<5,000	<1,000	920	<25	<25	<25	<25	<25	
10/27/2005	<2,000	<400	580	<10	<10	<10	<10	<10	
04/12/2006	<6,000	<400	470	<10	<10	<10	<10	<10	b
10/31/2006	<15,000	<1,000	710	<25	<25	<25	<25	<25	b
4/19/2007	<15,000	<1,000	330	<25	<25	<25	<25	<25	
4/24/2008	<300	14	49	<0.50	<0.50	<0.50	<0.50	<0.50	
RMW-13									
4/12/2010	<75,000	<2,500	1,500	<120	<120	<120	<120	<120	
11/4/2010	<75,000	<2,500	390	<120	<120	<120	130	<120	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
RMW-13 Cont.									
5/18/2011	<30,000	<1,000	380	<50	<50	<50	<50	<50	
10/20/2011	<12,000	<400	55	<20	<20	<20	<20	<20	
4/11/2012	<30,000	<1,000	280	<50	<50	<50	<50	<50	
10/10/2012	<15,000	<1,000	460	<50	<50	<50	<50	<50	
4/10/2013	<15,000	<1,000	270	<50	<50	<50	<50	<50	Top
4/10/2013	<15,000	<1,000	280	<50	<50	<50	<50	<50	Bottom
VW-1									
8/29/2000	--	--	110	--	--	--	--	--	
11/29/2000	--	--	<2.50	--	--	--	--	--	
8/15/2001	--	--	20/17	--	--	--	--	--	
8/15/2001	--	--	20/17	--	--	--	--	--	
10/5/2001	--	--	610/660	--	--	--	--	--	
1/21/2002	--	--	2,600/3,400	--	--	--	--	--	
1/21/2002	--	--	2,500/3,200	--	--	--	--	--	
4/26/2002	--	--	48	--	--	--	--	--	
4/26/2002	--	--	45	--	--	--	--	--	
10/7/2002	<80	<40	88	<1.0	<1.0	<1.0	<1.0	<1.0	
05/01/2003	<100	<20	36	<0.50	<0.50	<0.50	<0.50	<0.50	
10/03/2003	<100	<20	12	<1.0	<1.0	<1.0	<0.50	<0.50	a
04/06/2004	<100	<20	13	<0.50	<0.50	<0.50	<0.50	<0.50	
10/28/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	9.6	<0.50	<0.50	<0.50	<0.50	<0.50	
10/27/2005	<100	<20	13	<0.50	<0.50	<0.50	<0.50	<0.50	
04/12/2006	<300	<20	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	b
10/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
4/19/2007	<300	<20	3.0	<0.50	<0.50	<0.50	<0.50	<0.50	
10/16/2007	<15,000	<1,000	150	<25	<25	<25	<25	<25	b
4/24/2008	<300	<10	4.5	<0.50	<0.50	<0.50	<0.50	<0.50	
4/28/2009	<300	<10	19	<0.50	<0.50	<0.50	<0.50	<0.50	d
11/9/2009	<300	<10	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	
4/12/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #6113, 785 East Stanley Blvd., 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.									
11/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/18/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/20/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/11/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/10/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Middle
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
VW-2									
10/03/2003	--	--	--	--	--	--	--	--	Well inaccessible
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Top
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Middle
4/10/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	Bottom
VW-3									
8/29/2000	--	--	44,700	--	--	--	--	--	
11/29/2000	--	--	12,300/15,100	--	--	--	--	--	
VW-4									
11/29/2000	--	--	6,430/8,460	--	--	--	--	--	
11/29/2000	--	--	6,770/7,880	--	--	--	--	--	
10/03/2003	<100,000	<20,000	1,600	<1,000	<1,000	<1,000	<500	<500	a
4/9/2013	<6,000	<400	59	<20	<20	<20	<20	<20	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available

< = 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

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

µg/L = Micrograms per Liter

Footnotes:

a = This sample was analyzed 3 days after the EPA recommended holding time. The results may still be useful for their intended purpose

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

c = Sample >4x spike concentration

d = Calibrtn. verif. recov. Below method CL for TAME

Notes:

All volatile organic compounds analyzed using EPA Method 8260B.

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

During the Second Quarter 2013 groundwater monitoring event wells were purged with a low-flow peristaltic pump and sampled from multiple screen intervals, consisting of the top, middle and/or bottom of the well screen, on a one-time basis for comparison purposes.

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
MW-1																
11/11/1999	1.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	2.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2																
11/11/1999	0.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	2.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4/9/2013	3.8	<0.11	0.10	<0.10	56	41	<0.00099	<0.50	<0.15	<0.50	149	7.30	69.48	670	Top	
4/9/2013	3.9	<0.11	0.071	<0.10	56	39	<0.00099	<0.50	<0.15	<0.50	138	7.28	69.60	659	Middle	
4/9/2013	4.1	<0.11	0.038	<0.10	55	39	<0.00099	<0.50	<0.15	<0.50	125	7.31	72.46	638	Bottom	
MW-3																
11/11/1999	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	3.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	5.2	--	--	--	--	--	--	--	--	--	--	7.3	--	--	--	
10/28/2004	8.1	--	--	--	--	--	--	--	--	--	--	7.3	--	--	--	
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	7.64	--	--	--	
MW-4																
11/11/1999	0.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
MW-4 Cont.																
8/29/2000	0.97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
5/2/2001	0.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4/26/2002	0.21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
05/01/2003	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	13.5	--	--	--	--	--	--	--	--	--	--	--	6.8	--	--	
04/06/2004	1.6	--	--	--	--	--	--	--	--	--	--	--	6.8	--	--	
10/28/2004	1.2	--	--	--	--	--	--	--	--	--	--	--	6.7	--	--	
04/13/2005	0.8	--	--	--	--	--	--	--	--	--	--	--	6.7	--	--	
10/27/2005	1.0	--	--	--	--	--	--	--	--	--	--	--	6.9	--	--	
04/12/2006	1.6	--	--	--	--	--	--	--	--	--	--	--	7.2	--	--	
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	--	7.63	--	--	
4/19/2007	2.92	--	--	--	--	--	--	--	--	--	--	--	7.36	--	--	
4/12/2010	0.81	--	--	--	--	--	--	--	--	--	--	--	6.87	--	--	
11/4/2010	0.44	--	--	--	--	--	--	--	--	--	--	--	6.5	--	--	
5/18/2011	1.04	--	--	--	--	--	--	--	--	--	--	--	7.1	64.94	868	
10/20/2011	0.95	--	--	--	--	--	--	--	--	--	--	--	7.23	--	--	
4/11/2012	0.22	--	--	--	--	--	--	--	--	--	--	--	7.11	64.70	972	
10/10/2012	1.39	--	--	--	--	--	--	--	--	--	--	38	7.29	72.32	780	
4/9/2013	3.8	<0.11	5.1	<0.10	48	74	<0.00099	<0.50	<0.15	<0.50	171	7.13	68.77	730		
MW-5																
11/11/1999	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6																
11/11/1999	0.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
MW-6 Cont.																
8/29/2000	1.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
5/2/2001	0.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/15/2001	0.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1/21/2002	0.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4/26/2002	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
05/01/2003	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	5.1	--	--	--	--	--	--	--	--	--	--	--	6.9	--	--	
04/06/2004	4.1	--	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
10/28/2004	6.8	--	--	--	--	--	--	--	--	--	--	--	6.9	--	--	
04/13/2005	3.9	--	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
10/27/2005	3.15	--	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
04/12/2006	4.3	--	--	--	--	--	--	--	--	--	--	--	7.6	--	--	
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	--	10.36	--	--	
4/19/2007	5.54	--	--	--	--	--	--	--	--	--	--	--	10.52	--	--	
10/16/2007	4.56	--	--	--	--	--	--	--	--	--	--	--	10.26	--	--	
4/24/2008	2.15	--	--	--	--	--	--	--	--	--	--	--	6.90	--	--	
MW-7																
11/11/1999	1.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	1.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
5/2/2001	0.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/15/2001	0.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1/21/2002	0.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
4/26/2002	0.61	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
MW-7 Cont.																
05/01/2003	2.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	5.7	--	--	--	--	--	--	--	--	--	--	--	7.1	--	--	
04/06/2004	0.7	--	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
10/28/2004	6.7	--	--	--	--	--	--	--	--	--	--	--	6.9	--	--	
04/13/2005	2.3	--	--	--	--	--	--	--	--	--	--	--	6.9	--	--	
10/27/2005	2.16	--	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
04/12/2006	3.0	--	--	--	--	--	--	--	--	--	--	--	7.2	--	--	
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	--	7.55	--	--	
4/19/2007	4.37	--	--	--	--	--	--	--	--	--	--	--	7.60	--	--	
10/16/2007	4.87	--	--	--	--	--	--	--	--	--	--	--	8.02	--	--	
4/24/2008	1.96	--	--	--	--	--	--	--	--	--	--	--	7.24	--	--	
10/15/2008	2.31	--	--	--	--	--	--	--	--	--	--	--	7.14	--	--	
4/28/2009	3.78	--	--	--	--	--	--	--	--	--	--	--	6.93	--	--	
11/9/2009	1.3	--	--	--	--	--	--	--	--	--	--	--	6.8	--	--	
4/12/2010	--	--	--	--	--	--	--	--	--	--	--	--	7.55	--	--	
11/4/2010	4.15	--	--	--	--	--	--	--	--	--	--	--	8.4	--	--	
5/18/2011	4.45	--	--	--	--	--	--	--	--	--	--	--	10.6	64.76	420	
10/20/2011	4.37	--	--	--	--	--	--	--	--	--	--	--	9.02	--	--	
4/11/2012	0.33	--	--	--	--	--	--	--	--	--	--	-32.7	7.50	65.60	396	
10/10/2012	5.87	--	--	--	--	--	--	--	--	--	--	79	8.92	70.39	536	
4/10/2013	7.3	0.51	0.029	<0.10	34	1.6	<0.00099	<0.50	<0.15	<0.50	85	8.30	86.2	532	Top	
4/10/2013	3.0	0.47	0.29	<0.10	36	37	<0.00099	<0.50	<0.15	<0.50	80	7.55	84.51	516	Middle	
4/10/2013	3.2	0.46	1.2	<0.10	36	28	0.083	<0.50	<0.15	<0.50	74.5	7.51	78.98	574	Bottom	
MW-8																
11/11/1999	1.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	3.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	1.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	1.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	4.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
MW-9																
11/11/1999	0.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	2.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	4.9	--	--	--	--	--	--	--	--	--	--	6.8	--	--	--	
10/28/2004	6.8	--	--	--	--	--	--	--	--	--	--	6.9	--	--	--	
10/27/2005	2.56	--	--	--	--	--	--	--	--	--	--	7.0	--	--	--	
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	7.46	--	--	--	
10/16/2007	1.27	--	--	--	--	--	--	--	--	--	--	7.59	--	--	--	
10/15/2008	1.14	--	--	--	--	--	--	--	--	--	--	7.08	--	--	--	
11/9/2009	3.33	--	--	--	--	--	--	--	--	--	--	6.82	--	--	--	
11/4/2010	4.73	--	--	--	--	--	--	--	--	--	--	6.8	--	--	--	
10/20/2011	4.87	--	--	--	--	--	--	--	--	--	--	7.96	--	--	--	
4/11/2012	0.99	--	--	--	--	--	--	--	--	--	12	7.45	63.77	480		
10/10/2012	1.70	--	--	--	--	--	--	--	--	--	7	7.68	69.89	529		
4/10/2013	6.2	0.31	<0.020	<0.10	36	27	<0.00099	<0.50	<0.15	<0.50	161	7.31	78.01	501	Top	
4/10/2013	5.3	0.34	<0.020	<0.10	36	27	<0.00099	<0.50	<0.15	<0.50	155	7.42	73.42	530	Middle	
4/10/2013	3.9	0.43	<0.020	<0.10	36	26	<0.00099	<0.50	<0.15	<0.50	136	7.70	70.41	551	Bottom	
MW-10																
11/11/1999	0.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	2.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/29/2000	1.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	0.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	2.4	--	--	--	--	--	--	--	--	--	--	7.1	--	--	--	
10/28/2004	5.9	--	--	--	--	--	--	--	--	--	--	7.1	--	--	--	
10/27/2005	3.38	--	--	--	--	--	--	--	--	--	--	7.2	--	--	--	

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN					
MW-10 Cont.															
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	7.30	--	--	
10/16/2007	2.20	--	--	--	--	--	--	--	--	--	--	7.36	--	--	
MW-11															
11/11/1999	1.01	--	--	--	--	--	--	--	--	--	--	--	--	--	
6/20/2000	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	
11/29/2000	0.97	--	--	--	--	--	--	--	--	--	--	--	--	--	
5/2/2001	1.04	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/5/2001	1.05	--	--	--	--	--	--	--	--	--	--	--	--	--	
4/26/2002	0.47	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/7/2002	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	
05/01/2003	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	3.0	--	--	--	--	--	--	--	--	--	--	7.1	--	--	
04/06/2004	5.1	--	--	--	--	--	--	--	--	--	--	6.7	--	--	
10/28/2004	1.3	--	--	--	--	--	--	--	--	--	--	7.2	--	--	
04/13/2005	2.8	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
10/27/2005	1.04	--	--	--	--	--	--	--	--	--	--	7.2	--	--	
4/19/2007	7.11	--	--	--	--	--	--	--	--	--	--	7.57	--	--	
10/16/2007	0.60	--	--	--	--	--	--	--	--	--	--	7.57	--	--	
4/24/2008	1.83	--	--	--	--	--	--	--	--	--	--	7.26	--	--	
4/28/2009	5.89	--	--	--	--	--	--	--	--	--	--	7.23	--	--	
11/9/2009	0.72	--	--	--	--	--	--	--	--	--	--	7.0	--	--	
4/12/2010	2.03	--	--	--	--	--	--	--	--	--	--	7.25	--	--	
11/4/2010	1.64	--	--	--	--	--	--	--	--	--	--	6.9	--	--	
5/18/2011	4.28	--	--	--	--	--	--	--	--	--	--	--	66.92	746	
10/20/2011	0.95	--	--	--	--	--	--	--	--	--	--	7.84	--	--	
4/11/2012	0.30	--	--	--	--	--	--	--	--	--	-50.9	7.54	65.17	693	
10/10/2012	1.58	--	--	--	--	--	--	--	--	--	105	7.75	70.16	618	
4/9/2013	7.4	<0.11	<0.020	<0.10	27	12	<0.00099	<0.50	<0.15	<0.50	183	7.86	68.00	628	Top
4/9/2013	4.0	<0.11	<0.020	<0.10	26	33	<0.00099	<0.50	<0.15	<0.50	200	7.45	69.71	631	Middle
4/9/2013	3.9	<0.11	<0.020	<0.10	26	34	<0.00099	<0.50	<0.15	<0.50	194	7.37	70.29	633	Bottom

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
MW-12																
04/06/2004	2.4	--	--	--	--	--	--	--	--	--	--	6.4	--	--		
10/28/2004	1.7	--	--	--	--	--	--	--	--	--	--	6.8	--	--		
04/13/2005	1.9	--	--	--	--	--	--	--	--	--	--	7.5	--	--		
10/27/2005	1.81	--	--	--	--	--	--	--	--	--	--	7.0	--	--		
04/12/2006	2.6	--	--	--	--	--	--	--	--	--	--	7.2	--	--		
4/19/2007	4.66	--	--	--	--	--	--	--	--	--	--	7.28	--	--		
4/28/2009	7.68	--	--	--	--	--	--	--	--	--	--	6.63	--	--		
4/12/2010	--	--	--	--	--	--	--	--	--	--	--	7.18	--	--		
11/4/2010	0.96	--	--	--	--	--	--	--	--	--	--	7.0	--	--		
5/18/2011	2.93	--	--	--	--	--	--	--	--	--	--	--	63.32	643		
10/20/2011	0.87	--	--	--	--	--	--	--	--	--	--	7.94	--	--		
4/11/2012	1.19	--	--	--	--	--	--	--	--	--	46.1	7.17	63.95	547		
10/10/2012	2.34	--	--	--	--	--	--	--	--	--	104	7.57	67.31	557		
4/9/2013	4.0	<0.11	0.42	<0.10	39	37	<0.00099	<0.50	<0.15	<0.50	190	7.26	70.56	558	Top	
4/9/2013	4.1	0.25	0.78	<0.10	37	36	<0.00099	<0.50	<0.15	<0.50	189	7.26	76.23	512	Bottom	
MW-13																
1/21/2002	0.71	--	--	--	--	--	--	--	--	--	--	--	--	--		
4/26/2002	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--		
10/7/2002	0.8	--	--	--	--	--	--	--	--	--	--	--	--	--		
05/01/2003	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--		
10/03/2003	0.8	--	--	--	--	--	--	--	--	--	--	6.9	--	--		
04/06/2004	2.0	--	--	--	--	--	--	--	--	--	--	6.7	--	--		
10/28/2004	0.8	--	--	--	--	--	--	--	--	--	--	6.7	--	--		
04/13/2005	0.9	--	--	--	--	--	--	--	--	--	--	6.9	--	--		
10/27/2005	0.75	--	--	--	--	--	--	--	--	--	--	6.8	--	--		
04/12/2006	1.2	--	--	--	--	--	--	--	--	--	--	6.8	--	--		
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	6.87	--	--		
4/19/2007	1.44	--	--	--	--	--	--	--	--	--	--	7.09	--	--		
4/24/2008	2.78	--	--	--	--	--	--	--	--	--	--	7.25	--	--		

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
RMW-13																
4/12/2010	2.47	--	--	--	--	--	--	--	--	--	--	7.21	--	--		
11/4/2010	1.01	--	--	--	--	--	--	--	--	--	--	7.40	--	--		
5/18/2011	2.34	--	--	--	--	--	--	--	--	--	--	7.3	63.68	1,190		
10/20/2011	0.84	--	--	--	--	--	--	--	--	--	--	7.54	--	--		
4/11/2012	0.18	--	--	--	--	--	--	--	--	--	-90.8	7.10	65.33	1,294		
10/10/2012	1.09	--	--	--	--	--	--	--	--	--	-91	7.26	75.61	1,140		
4/10/2013	2.5	0.12	6.6	0.40	0.90	190	5.2	<0.50	<0.15	<0.50	-74	7.34	79.75	1,130	Top	
4/10/2013	2.7	0.17	6.7	1.0	0.59	190	5.4	<0.50	<0.15	<0.50	-80	7.86	81.09	1,160	Bottom	
VW-1																
8/29/2000	4.47	--	--	--	--	--	--	--	--	--	--	--	--	--		
11/29/2000	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--		
10/5/2001	0.71	--	--	--	--	--	--	--	--	--	--	--	--	--		
1/21/2002	0.69	--	--	--	--	--	--	--	--	--	--	--	--	--		
4/26/2002	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--		
10/7/2002	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--		
05/01/2003	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--		
10/03/2003	1.1	--	--	--	--	--	--	--	--	--	--	7.3	--	--		
04/06/2004	2.4	--	--	--	--	--	--	--	--	--	--	7.2	--	--		
10/28/2004	1.2	--	--	--	--	--	--	--	--	--	--	7.1	--	--		
04/13/2005	2.4	--	--	--	--	--	--	--	--	--	--	7.1	--	--		
10/27/2005	1.64	--	--	--	--	--	--	--	--	--	--	7.3	--	--		
04/12/2006	1.4	--	--	--	--	--	--	--	--	--	--	7.3	--	--		
10/31/2006	--	--	--	--	--	--	--	--	--	--	--	7.76	--	--		
4/19/2007	1.15	--	--	--	--	--	--	--	--	--	--	7.66	--	--		
10/16/2007	2.65	--	--	--	--	--	--	--	--	--	--	7.61	--	--		
4/24/2008	4.95	--	--	--	--	--	--	--	--	--	--	7.47	--	--		
4/28/2009	6.38	--	--	--	--	--	--	--	--	--	--	7.02	--	--		
11/9/2009	2.28	--	--	--	--	--	--	--	--	--	--	6.95	--	--		
4/12/2010	3.38	--	--	--	--	--	--	--	--	--	--	7.21	--	--		
11/4/2010	1.15	--	--	--	--	--	--	--	--	--	--	6.9	--	--		

Table 3. Bio-Degradation Parameters
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Well ID and Date Monitored	Concentrations in mg/L										ORP (mV)	pH	Temp (F)	Conductivity (µS/cm)	Footnote	
	Dissolved Oxygen	Nitrate as N	Manganese	Ferrous Iron	Sulfate (SO4)	Dissolved CO2	Methane	Ortho-Phosphate	Nitrite as N	TKN						
VW-1 Cont.																
5/18/2011	0.71	--	--	--	--	--	--	--	--	--	--	--	7.5	64.04	879	
10/20/2011	1.77	--	--	--	--	--	--	--	--	--	--	--	7.89	--	--	
4/11/2012	2.02	--	--	--	--	--	--	--	--	--	--	-82.7	7.50	64.27	819	
10/10/2012	1.39	--	--	--	--	--	--	--	--	--	--	-101	7.82	69.09	576	
4/10/2013	3.1	<0.11	4.7	<0.10	42	21	0.011	<0.50	<0.15	<0.50	-35	7.60	74.89	649	Top	
4/10/2013	3.2	<0.11	3.1	<0.10	42	21	0.025	<0.50	<0.15	<0.50	-64	7.59	73.65	638	Middle	
4/10/2013	3.0	<0.11	3.0	<0.10	40	21	0.043	<0.50	<0.15	<0.50	-56	7.63	73.81	625	Bottom	
VW-2																
4/10/2013	3.3	<0.11	1.8	<0.10	36	32	<0.00099	<0.50	<0.15	<0.50	-39	7.45	78.04	655	Top	
4/10/2013	3.0	<0.11	3.4	<0.10	40	22	0.051	<0.50	<0.15	<0.50	-80	7.56	76.93	679	Middle	
4/10/2013	3.4	<0.11	3.2	<0.10	41	22	0.13	<0.50	<0.15	<0.50	-39	7.54	73.47	681	Bottom	
VW-3																
11/29/2000	0.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
VW-4																
11/29/2000	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
10/03/2003	10.5	--	--	--	--	--	--	--	--	--	--	--	6.7	--	--	
4/9/2013	2.5	<0.11	6.9	0.10	0.67	170	3.8	<0.50	<0.15	<0.50	-60	7.17	72.19	971		

Symbols & Abbreviations:

CO₂ = Carbon Dioxide

N = Nitrogen

TKN = Total Kjeldahl Nitrogen

Notes:

DO measured by lab.

Table 4. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
3/23/1995	Northwest	0.035
5/31/1995	North-Northwest	0.028
8/31/1995	North-Northwest	0.03
11/28/1995	North-Northwest	0.025
2/22/1996	North-Northwest	0.031
5/23/1996	North-Northwest	0.025
8/8/1996	North	0.019
11/7/1996	North-Northeast	0.019
3/27/1997	North-Northwest	0.021
5/19/1997	North	0.019
5/18/1998	North	0.02
11/2/1998	North	0.02
6/4/1999	North	0.02
11/11/1999	North	0.03
6/20/2000	North-Northeast	0.014
8/29/2000	North-Northeast	0.013
11/29/2000	North-Northwest	0.026
5/2/2001	Northeast	0.026
8/15/2001	Northeast	0.047
10/5/2001	Northeast	0.031
1/21/2002	Northeast	0.033
4/26/2002	Northeast	0.031
10/7/2002	Northeast	0.017
5/1/2003	North-Northeast	0.011
10/3/2003	North-Northeast	0.016
4/6/2004	North-Northeast	0.013
10/28/2004	North-Northeast	0.014
4/13/2005	North-Northwest	0.02
10/27/2005	North-Northwest	0.01 to 0.03
4/12/2006	Northeast	0.01
10/31/2006	Northeast	0.014
4/19/2007	Northeast	0.013
10/16/2007	Northeast	0.031
4/24/2008	North-Northwest	0.013
10/15/2008	Northeast	0.070
4/28/2009	Northeast	0.008
11/9/2009	Northeast	0.02
4/12/2010	North-Northeast	0.03
11/4/2010	Northeast	0.01
5/18/2011	North	0.02
10/20/2011	North-Northeast	0.01
4/11/2012	North-Northeast	0.02

Table 4. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #6113, 785 East Stanley Blvd., Livermore, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
10/10/2012	North-Northeast	0.01
4/9-10/2013	North-Northeast	0.01

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 turbidity¹. 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	± 0.2°C (± 0.36°F)
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 turbidity¹. 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



DAILY REPORT

Page 1 of 1

Project: BP 6113 Project No.: 06-52-637

Field Representative(s): A. Martinez / J. Ramos Day: Tues / Wed Date: 4/9-10/2013

Time Onsite: From: 0815 To: 1630 ; From: 0730 To: 1630 ; From: To:

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

Weather: Sunny

Equipment In Use: Water level meter, peristaltic pump, water quality meter.

Visitors: None

TIME:

WORK DESCRIPTION:

4/9 0815 Arrived onsite and conducted tailgate.
0900 Set up @ offsite wells MW-11 & 12.
1310 Set up @ MW-2
1445 Set up @ MW-4
1550 Set up @ VW-4
1600 TestAmerica courier arrived onsite to collect groundwater samples.
1650 Completed fieldwork @ offsite.

4/10 0730 Arrived onsite & conducted tailgate.
0800 Set up for round of gauging on remaining wells prior to sampling.
0915 Set up @ MW-9
1100 Set up @ VW-2
1250 Set up @ VW-1
1355 Set up @ MW-7
1510 Set up @ RMW-13
1630 TestAmerica courier arrived onsite to pick up samples. Offsite.

Signature: Alex Martinez



GROUNDWATER MONITORING SITE SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4-9-13/4-10-13
 Field Representative: JR/AM 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					LAB ANALYSES				
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-2					1320	-	-	19.07	38.68					
MW-4					1455	-	-	19.32	26.70					
MW-7					0825	-	-	18.71	67.6					
MW-9					0812	-	-	17.75	67.75					
MW-11					0922	-	-	19.63	44.45					
MW-12					1125	-	-	19.92	33.95					
RMW-13					0819	-	-	18.90	34.5					
VW-1					0833	-	-	17.54	44.00					
VW-2					0830	-	-	18.69	49.24					
VW-4					1535	-	-	18.26	24.90					

4/10
4/10
4/10
4/10
4/10
4/10

* 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:



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4-9-13
Field Representative: JR/AM
Well ID: MW-2(1) Start Time: - End Time: - Total Time (minutes): -

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

WELL HEAD INTEGRITY (cap, lock, vault, etc.): [] Good, [] Improvement Needed, [] Comments:

PURGING/SAMPLING METHOD: Predetermined Well Volume, Low-Flow, Other. Includes a well diagram and calculation table for Purging/Sampling Parameters.

Table with 9 columns: Time (24:00), Cumulative Volume (L), Temperature (°C), pH, Conductivity (µS or µS), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES (Odor, color, sheen or other).

PURGE COMPLETION RECORD: [X] Low Flow & Parameters Stable, [] 3 Casing Volumes & Parameters Stable, [] 5 Casing Volumes, [] Other:

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS. Includes fields for depth to water, sample collection time, and various chemical parameters.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

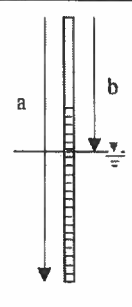
Page 3 of 25

Project: BP 6113 Project No.: 06-82-637 Date: 4/9/13
Field Representative: AM/JR
Well ID: MW 2 (M) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT: 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
PREDETERMINED WELL VOLUME: Casing Diameter | Unit Volume (gal/ft)
LOW-FLOW: Previous Low-Flow Purge Rate, Total Well Depth (a), Initial Depth to Water (b), Pump In-take Depth = b + (a-b)/2, Maximum Allowable Drawdown = (a-b)/8, Low-Flow Purge Rate: 0.25 (Lpm)*



GROUNDWATER STABILIZATION PARAMETER RECORD

Table with 9 columns: Time (24:00), Cumulative Volume (L), Temperature (°C), pH, Conductivity (µS or mS), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES (Odor, color, sheen or other)

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: 19.07 (ft)
GEOCHEMICAL PARAMETERS: Parameter, Time, Measurement
Sample Collected Via: Disp. Pump Tubing, Other
Sample ID: MW 2 (M) Sample Collection Time: 1400 (24:00)
Containers (#): 14 VOA (9 preserved or 5 unpreserved) Liter Amber
Other: HNO3 POLY, NP POLY, H2SO4 POLY

Signature: [Handwritten Signature]
Revision: 7/3/12



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4-9-13

Field Representative: JR/AM

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

PURGE EQUIPMENT: Disp. Bailer 120V Pump Flow Cell (checked), 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 (checked) Other: (circle one)

Table with columns for Casing Diameter, Unit Volume, and Purge Rate. Includes sections for 'PREDETERMINED WELL VOLUME' and 'LOW-FLOW' with handwritten values.

GROUNDWATER STABILIZATION PARAMETER RECORD

Table with columns for Time, Cumulative Volume, Temperature, pH, Conductivity, DO, ORP, Turbidity, and NOTES.

Previous Stabilized Parameters

PURGE COMPLETION RECORD: Low Flow & Parameters Stable (checked), 3 Casing Volumes & Parameters Stable, 5 Casing Volumes

SAMPLE COLLECTION RECORD

Table for Sample Collection Record and Geochemical Parameters including DO, Ferrous Iron, Redox Potential, and Alkalinity.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 5 of 25

06-82-637

Project: BRK BP 6113

Project No.: 08-287

Date: 4-9-13

Field Representative: JR/AM

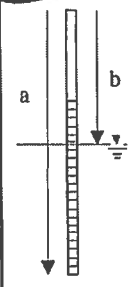
Well ID: MW-4 Start Time: _____ End Time: _____ Total Time (minutes): _____

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

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					LOW-FLOW	
Casing Diameter Unit Volume (gal/ft) (circle one)					Previous Low-Flow Purge Rate: _____ (lpm)	
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other: _____	Total Well Depth (a): <u>26.70</u> (ft)	
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	_____ (____)	Initial Depth to Water (b): <u>19.32</u> (ft)	
Total Well Depth (a): _____ (ft)					Pump In-take Depth = b + (a-b)/2: <u>22.00</u> (ft)	
Initial Depth to Water (b): _____ (ft)					Maximum Allowable Drawdown = (a-b)/8: _____ (ft)	
Water Column Height (WCH) = (a - b): _____ (ft)					Low-Flow Purge Rate: <u>0.25</u> (lpm)*	
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)					Comments: _____	
Three Casing Volumes = WCV x 3: _____ (gal)					*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.	
Five Casing Volumes = WCV x 5: _____ (gal)						
Pump Depth (if pump used): _____ (ft)						



GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity μS/cm	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
<u>14:58</u>	<u>0</u>	<u>22.40</u>	<u>8.12</u>	<u>0.706</u>	<u>2.93</u>	<u>143</u>	<u>75.6</u>	
<u>15:00</u>	<u>0.5</u>	<u>20.70</u>	<u>7.36</u>	<u>0.749</u>	<u>2.17</u>	<u>173</u>	<u>75.6</u>	
<u>15:02</u>	<u>1.0</u>	<u>20.31</u>	<u>7.21</u>	<u>0.750</u>	<u>1.80</u>	<u>173</u>	<u>78.1</u>	
<u>15:05</u>	<u>1.5</u>	<u>20.46</u>	<u>7.15</u>	<u>0.730</u>	<u>1.58</u>	<u>171</u>	<u>75.9</u>	
<u>15:07</u>	<u>2.0</u>	<u>19.93</u>	<u>7.13</u>	<u>0.730</u>	<u>1.97</u>			

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: 19.57 (ft)
 Sample Collected Via: Disp. Bailer Dedicated Pump Tubing
 Disp. Pump Tubing Other: _____
 Sample ID: MW-4 Sample Collection Time: 15:0 (24:00)
 Containers (#): 14 VOA (9 preserved or 5 unpreserved) _____ Liter Amber
1 Other: HNO3 Poly 1 Other: NP Poly
1 Other: H2SO4 Poly Other: _____

GEOCHEMICAL PARAMETERS

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

Signature: _____



GROUNDWATER SAMPLING DATA SHEET

Project: B# 0113 Project No.: 06-82-637 Date: 4-10-13
 Field Representative: JR/AM
 Well ID: MW-7(T) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT 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)

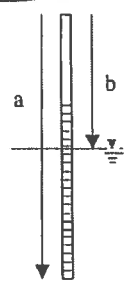
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: _____ (circle one)

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): _____ (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): 67.70 (ft)
 Initial Depth to Water (b): 18.76 (ft)
 Pump In-take Depth = b + (a-b)/2: 21.00 (ft)
 Maximum Allowable Drawdown = (a-b)/8: _____ (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 Volume (L)	Temperature °C	pH	Conductivity μS/cm@25°C	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1438	0.0	31.89	7.85	0.521	7.75	103	13.6	
1440	0.5	31.36	7.68	0.319	4.88	105	81.9	
1442	1.0	30.85	7.91	0.535	5.71	99	80.0	
1444	1.5	31.32	8.16	0.537	5.65	88	82.5	
1446	2.0	30.11	8.30	0.532	5.84	85	80.7	

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

SAMPLE COLLECTION RECORD	GEOCHEMICAL PARAMETERS		
Depth to Water at Sampling: <u>18.77</u> (ft)	Parameter	Time	Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing	DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other: _____	Ferrous Iron (mg/L)		
Sample ID: <u>MW-7(T)</u> Sample Collection Time: <u>1750</u> (24:00)	Redox Potential (mV)		
Containers (#): <u>14</u> VOA (<u>9</u> preserved or <u>5</u> unpreserved) _____ Liter Amber	Alkalinity (mg/L)		
<u>1</u> Other: <u>HNO3 Poly</u> <u>1</u> Other: <u>NR Poly</u>	Other:		
<u>1</u> Other: <u>H2SO4 Poly</u> _____ Other: _____	Other:		

Signature: [Signature]



GROUNDWATER SAMPLING DATA SHEET

Project: BP 0113 Project No.: 06-82-637 Date: 4-10-13
 Field Representative: JRAM
 Well ID: MW-7 (M) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT 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				LOW-FLOW			
Casing Diameter Unit Volume (gal/ft) (circle one)				Previous Low-Flow Purge Rate: _____ (lpm)			
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Total Well Depth (a): <u>67.70</u> (ft)			
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	Initial Depth to Water (b): <u>17.80</u> (ft)			
Total Well Depth (a): _____ (ft)				Pump In-take Depth = b + (a-b)/2: <u>44.00</u> (ft)			
Initial Depth to Water (b): _____ (ft)				Maximum Allowable Drawdown = (a-b)/8: _____ (ft)			
Water Column Height (WCH) = (a - b): _____ (ft)				Low-Flow Purge Rate: <u>0.25</u> (Lpm)*			
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)				Comments: _____			
Three Casing Volumes = WCV x 3: _____ (gal)				*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.			
Five Casing Volumes = WCV x 5: _____ (gal)							
Pump Depth (if pump used): _____ (ft)							

GROUNDWATER STABILIZATION PARAMETER RECORD								NOTES
Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	Odor, color, sheen or other
1412	0.0	29.50	7.99	0.482	1.72	76	98.4	
1414	0.5	29.01	7.65	0.516	1.74	92	103	
1416	1.0	29.24	7.58	0.514	1.40	83	106	
1418	1.5	29.17	7.55	0.514	1.26	80	106	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Depth to Water at Sampling: <u>16.70</u> (ft)		Parameter	Time	Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing		DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other:		Ferrous Iron (mg/L)		
Sample ID: <u>MW-7 (M)</u> Sample Collection Time: <u>1425</u> (24:00)		Redox Potential (mV)		
Containers (#): <u>14</u> VOA (<u>9</u> preserved or <u>5</u> unpreserved) <u>1</u> Liter Amber		Alkalinity (mg/L)		
<u>1</u> Other: <u>HNO3 Poly</u> <u>1</u> Other: <u>MP Poly</u>		Other:		
<u>1</u> Other: <u>H2SO4 Poly</u> Other:		Other:		

Signature: _____



GROUNDWATER SAMPLING DATA SHEET

Page 8 of 25

Project: BP 6113 Project No.: 06-82-637 Date: 4-10-13

Field Representative: JR/AM

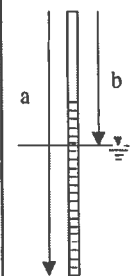
Well ID: MW-7(B) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT 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					LOW-FLOW	
Casing Diameter Unit Volume (gal/ft) (circle one)					Previous Low-Flow Purge Rate: (lpm)	
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other:	Total Well Depth (a): <u>67.70</u> (ft)	
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	" ()	Initial Depth to Water (b): <u>18.76</u> (ft)	
Total Well Depth (a): _____ (ft)					Pump In-take Depth = b + (a-b)/2: <u>66.00</u> (ft)	
Initial Depth to Water (b): _____ (ft)					Maximum Allowable Drawdown = (a-b)/8: _____ (ft)	
Water Column Height (WCH) = (a - b): _____ (ft)					Low-Flow Purge Rate: <u>0.25</u> (Lpm)*	
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)					Comments: _____	
Three Casing Volumes = WCV x 3: _____ (gal)					*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.	
Five Casing Volumes = WCV x 5: _____ (gal)						
Pump Depth (if pump used): _____ (ft)						



GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity μS/cm	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1348	0.0	27.31	7.76	0.520	3.05	89	28.3	
1350	0.5	27.12	7.67	0.526	1.66	108	28.8	
1352	1.0	26.19	7.57	0.512	1.24	96	25.1	
1354	1.5	26.46	7.52	0.511	1.04	87	21.7	
1356	2.0	26.10	7.51	0.514	0.96	77.885	29.4	

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS	
Depth to Water at Sampling: <u>18.53</u> (ft)		Parameter	Time
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing		DO (mg/L)	
<input checked="" type="checkbox"/> Disp. Pump Tubing Other:		Ferrous Iron (mg/L)	
Sample ID: <u>MW-7(B)</u> Sample Collection Time: <u>1400</u> (24:00)		Redox Potential (mV)	
Containers (#): <u>1</u> VOA (<u>9</u> preserved or <u>1</u> unpreserved) <u>1</u> Lier Amber		Alkalinity (mg/L)	
Other: <u>H2003 Poly</u> Other: <u>KIP Poly</u>		Other:	
Other: <u>H2004 Poly</u> Other:		Other:	

Signature: _____



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4/10/13
Field Representative: JR/AM
Well ID: MW-9(T) Start Time: End Time: Total Time (minutes):

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

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

PURGING/SAMPLING METHOD: Predetermined Well Volume, Low-Flow, Other:
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): Initial Depth to Water (b): Water Column Height (WCH) = (a - b): Water Column Volume (WCV) = WCH x Unit Volume: Three Casing Volumes = WCV x 3: Five Casing Volumes = WCV x 5: Pump Depth (if pump used):

GROUNDWATER STABILIZATION PARAMETER RECORD table with columns: Time (24:00), Cumulative Volume (L), Temperature °C, pH, Conductivity µS or (mS), DO mg/L, ORP mV, Turbidity NTU, NOTES (Odor, color, sheen or other)

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS sections. Includes depth to water at sampling (17.99 ft), sample collection time (10:35), and various chemical parameters like DO, Ferrous Iron, Redox Potential, Alkalinity.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4/10/13
Field Representative: JR/AM
Well ID: MW-9(M) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT: X Disp. Tubing, 120V Pump, X Flow Cell, Peristaltic Pump
WELL HEAD INTEGRITY: Good, Improvement Needed (circle one)

PURGING/SAMPLING METHOD: Low-Flow
PREDETERMINED WELL VOLUME table with columns for Casing Diameter and Unit Volume. Includes diagram of well casing and water column.

GROUNDWATER STABILIZATION PARAMETER RECORD table with columns: Time (24:00), Cumulative Volume (L), Temperature (C), pH, Conductivity (uS/cm), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES.

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

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS table. Includes fields for Depth to Water at Sampling, Sample ID, Containers, and a table for DO, Ferrous Iron, Redox Potential, Alkalinity.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 11 of 25

Project: BP 6113 Project No.: 66-82-637 Date: 4/10/13
Field Representative: JRIAM
Well ID: MW-9(B) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT: X Disp. Tubing, 120V Pump, Flow Cell, Peristaltic Pump, Other/ID#: BLADDER

WELL HEAD INTEGRITY: Good (circle one)

PURGING/SAMPLING METHOD: Low-Flow (circle one)

PREDETERMINED WELL VOLUME and LOW-FLOW sections with diagrams and calculations for well depth, water column height, and purge rate.

GROUNDWATER STABILIZATION PARAMETER RECORD table with columns for Time, Cumulative Volume, Temperature, pH, Conductivity, DO, ORP, Turbidity, and NOTES.

PURGE COMPLETION RECORD: X Low Flow & Parameters Stable

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS sections detailing sample collection time, containers, and parameters measured.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 12 of 25

Project: BP 6113 Project No.: 06-82-637 Date: 4-9-13
Field Representative: JR/AM
Well ID: MW-11 (T) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT: 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:
PREDETERMINED WELL VOLUME table with casing diameters and unit volumes.
LOW-FLOW section with calculations for Total Well Depth, Initial Depth to Water, Water Column Height, etc. Includes a diagram of a well casing with depth markers 'a' and 'b'.

GROUNDWATER STABILIZATION PARAMETER RECORD table with columns: Time (24:00), Cumulative Volume (L), Temperature (°C), pH, Conductivity (µS or µS), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES (Odor, color, sheen or other). Contains 6 rows of data.

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

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS table. Includes fields for Depth to Water at Sampling, Sample Collected Via, Sample ID, Containers (#), and various chemical parameters like DO, Ferrous Iron, Redox Potential, Alkalinity.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 13 of 25

Project: SP 613 Project No.: 06-82-657 Date: 7/9/13
Field Representative: AM/SE
Well ID: MW-11 (M) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT: 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). Includes diagram of well casing and depth measurements (a, b, r). Includes calculations for Total Well Depth, Initial Depth to Water, Water Column Height, etc.

GROUNDWATER STABILIZATION PARAMETER RECORD table with columns: Time (24:00), Cumulative Volume (L), Temperature (°C), pH, Conductivity (µS or mS), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES (Odor, color, sheen or other). Contains 4 rows of data.

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS table. Includes fields for Depth to Water at Sampling, Sample Collected Via, Sample ID, Containers (#), and a table for Parameter, Time, and Measurement (DO, Ferrous Iron, Redox Potential, Alkalinity).

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4/9/13

Field Representative: AM/3R

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

PURGE EQUIPMENT 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 (circle one)

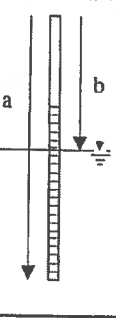
Casing Diameter | Unit Volume (gal/ft) | (circle one)
 1" |(0.04) 1.25" |(0.08) 2" |(0.17) 3" |(0.38) Other: _____
 4" |(0.66) 6" |(1.50) 8" |(2.60) 12" |(5.81) _____ |()

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): 44.45 (ft)
 Initial Depth to Water (b): 20.09 (ft)
 Pump In-take Depth = b + (a-b)/2: 44.00 (ft)
 Maximum Allowable Drawdown = (a-b)/8: _____ (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 Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1042	0.0	21.87	7.73	0.645	1.69	185	101	
1044	0.5	21.65	7.45	0.640	1.35	195	107	
1046	1.0	21.35	7.39	0.635	1.23	195	115	
1048	1.5	21.27	7.37	0.633	1.17	194	109	

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Parameter	Time	Measurement		
Depth to Water at Sampling: <u>20.21</u> (ft)		DO (mg/L)		
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing <input checked="" type="checkbox"/> Disp. Pump Tubing Other:		Ferrous Iron (mg/L)		
Sample ID: <u>MW-11 (B)</u> Sample Collection Time: <u>1055</u> (24:00)		Redox Potential (mV)		
Containers (#): <u>14</u> VOA (<u>9</u> preserved or <u>5</u> unpreserved) <input type="checkbox"/> Liter Amber		Alkalinity (mg/L)		
Other: <u>H2O3 Poly</u> Other: <u>NP Poly</u>		Other:		
Other: <u>H2504 Poly</u> Other: _____		Other:		

Signature: [Signature]



GROUNDWATER SAMPLING DATA SHEET

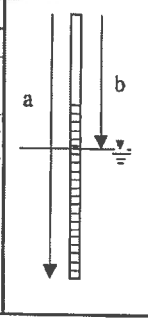
Project: BP 613 Project No.: 06-82-637 Date: 7/3/13
Field Representative: JRIAM
Well ID: MW-12(T) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT: Disp. Bailer, 120V Pump, Flow Cell, Disp. Tubing, 12V Pump, Peristaltic Pump

WELL HEAD INTEGRITY (cap, lock, vault, etc.): Good Improvement Needed

PURGING/SAMPLING METHOD: Predetermined Well Volume, Low-Flow

PREDETERMINED WELL VOLUME: Casing Diameter, Unit Volume, Total Well Depth (a), Initial Depth to Water (b), Water Column Height (WCH), Water Column Volume (WCV), Three Casing Volumes, Five Casing Volumes, Pump Depth



LOW-FLOW: Previous Low-Flow Purge Rate, Total Well Depth (a), Initial Depth to Water (b), Pump In-take Depth, Maximum Allowable Drawdown, Low-Flow Purge Rate

GROUNDWATER STABILIZATION PARAMETER RECORD

Table with 9 columns: Time (24:00), Cumulative Volume (L), Temperature (C), pH, Conductivity (uS/cm), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES (Odor, color, sheen or other)

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 17.55 (ft)
Sample Collected Via: Disp. Pump Tubing
Sample ID: MW-12(T) Sample Collection Time: 1145 (24:00)
Containers (#): 14 VOA (9 preserved or 5 unpreserved)
Other: HNO3 Poly, H2SO4 Poly, NIP Poly

Table with 3 columns: Parameter, Time, Measurement. Parameters include DO, Ferrous Iron, Redox Potential, Alkalinity.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Project: SP 613 Project No.: 06-32-63 Date: 7/9/13
 Field Representative: AM/JR
 Well ID: MW-12(B) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT 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				LOW-FLOW			
Casing Diameter Unit Volume (gal/ft) (circle one)				Previous Low-Flow Purge Rate: (lpm)			
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Total Well Depth (a): <u>33.95</u> (ft)			
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	Initial Depth to Water (b): <u>19.91</u> (ft)			
Total Well Depth (a): _____ (ft)				Pump In-take Depth = b + (a-b)/2: <u>33.00</u> (ft)			
Initial Depth to Water (b): _____ (ft)				Maximum Allowable Drawdown = (a-b)/8: _____ (ft)			
Water Column Height (WCH) = (a - b): _____ (ft)				Low-Flow Purge Rate: <u>0.25</u> (Lpm)*			
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)				Comments: _____			
Three Casing Volumes = WCV x 3: _____ (gal)				*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.			
Five Casing Volumes = WCV x 5: _____ (gal)							
Pump Depth (if pump used): _____ (ft)							

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1157	0.0	23.15	7.55	0.509	1.46	157	74.3	
1159	0.5	24.95	7.36	0.503	1.14	150	76.1	
1201	1.0	24.68	7.29	0.509	1.02	150	77.5	
1203	1.5	24.57	7.26	0.512	0.95	159	78.3	

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Depth to Water at Sampling: <u>19.95</u> (ft)		Parameter	Time	Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing		DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other:		Ferrous Iron (mg/L)		
Sample ID: <u>MW-12(B)</u>	Sample Collection Time: <u>12:10</u> (24:00)	Redox Potential (mV)		
Containers (#): <u>1</u> VOA (<u>1</u> preserved or <u>5</u> unpreserved) <input type="checkbox"/> Liter Amber		Alkalinity (mg/L)		
<u>1</u> Other: <u>HNO3 Poly</u>		Other:		
<u>1</u> Other: <u>H2SO4 Poly</u>		Other:		
<u> </u> Other: <u>RP Poly</u>		Other:		

Signature: _____ Revision: 7/3/12



GROUNDWATER SAMPLING DATA SHEET

Page 18 of 25

Project: BP 6115 Project No.: 06-82637 Date: 4-10-13

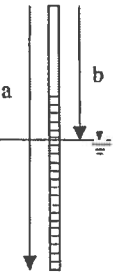
Field Representative: JA/AM

Well ID: RAW-13 (R) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT 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					LOW-FLOW	
Casing Diameter Unit Volume (gal/ft) (circle one)						Previous Low-Flow Purge Rate: _____ (lpm)
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other: _____		Total Well Depth (a): <u>24.50</u> (ft)
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	" ()	Initial Depth to Water (b): <u>18.96</u> (ft)	
Total Well Depth (a): _____ (ft)					Pump In-take Depth = b + (a-b)/2: <u>32.00</u> (ft)	
Initial Depth to Water (b): _____ (ft)					Maximum Allowable Drawdown = (a-b)/8: _____ (ft)	
Water Column Height (WCH) = (a - b): _____ (ft)					Low-Flow Purge Rate: <u>0.25</u> (lpm)*	
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)					Comments: _____	
Three Casing Volumes = WCV x 3: _____ (gal)						
Five Casing Volumes = WCV x 5: _____ (gal)						
Pump Depth (if pump used): _____ (ft)						

*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 Volume (L)	Temperature °C	pH	Conductivity µS or µS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
19:05	0.0	31.03	7.83	178	1.66	4	88	
19:10	0.5	30.15	7.87	1.11	1.29	47	70.3	
19:12	1.0	28.09	7.38	1.14	0.46	-75	79.0	
19:14	1.5	27.27	7.86	1.16	0.91	-80	106	

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS	
Depth to Water at Sampling: <u>19.67</u> (ft)		Parameter	Time Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing		DO (mg/L)	
<input checked="" type="checkbox"/> Disp. Pump Tubing Other: _____		Ferrous Iron (mg/L)	
Sample ID: <u>RAW-13 (R)</u>	Sample Collection Time: <u>19:20</u> (24:00)	Redox Potential (mV)	
Containers (#): <u>14</u> VOA (<u>9</u> preserved or <u>5</u> unpreserved) <input type="checkbox"/> Liter Amber		Alkalinity (mg/L)	
<u>1</u> Other: <u>H2SO4 Poly</u>	<u>1</u> Other: <u>NP Poly</u>	Other:	
<u>1</u> Other: <u>HNO3 Poly</u>		Other:	

Signature: _____
[Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 19 of 25

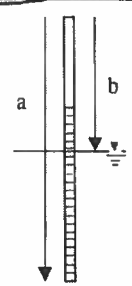
Project: BP 613 Project No.: 06-82-657 Date: 4-10-2013
 Field Representative: JRIAM
 Well ID: VW-1(T) Start Time: - End Time: - Total Time (minutes): -

PURGE EQUIPMENT 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					LOW-FLOW			
Casing Diameter Unit Volume (gal/ft) (circle one)					Previous Low-Flow Purge Rate: _____ (lpm)			
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other: _____	Total Well Depth (a): <u>44.00</u> (ft)			
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	_____ ()	Initial Depth to Water (b): <u>47.57</u> (ft)			
Total Well Depth (a): _____ (ft)					Pump In-take Depth = b + (a-b)/2: <u>23.00</u> (ft)			
Initial Depth to Water (b): _____ (ft)					Maximum Allowable Drawdown = (a-b)/8: _____ (ft)			
Water Column Height (WCH) = (a - b): _____ (ft)					Low-Flow Purge Rate: <u>0.25</u> (Lpm)*			
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)					Comments: _____			
Three Casing Volumes = WCV x 3: _____ (gal)					*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.			
Five Casing Volumes = WCV x 5: _____ (gal)								
Pump Depth (if pump used): _____ (ft)								



GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity μS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1311	0	25.66	7.76	0.627	3.65	26	119	
1312	0.5	24.11	7.61	0.645	5.27	-15	-	
1315	1.0	23.23	7.61	0.646	4.48	-29	-	
1317	1.5	23.62	7.60	0.648	5.07	-33	-	
1319	2.0	23.83	7.60	0.649	4.97	-35	119	

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: 17.58 (ft)
 Sample Collected Via: Disp. Bailer Dedicated Pump Tubing
 Disp. Pump Tubing Other:
 Sample ID: VW-1(T) Sample Collection Time: 1320 (24:00)
 Containers (#): 14 VOA (9 preserved or 5 unpreserved) Liter Amber
1 Other: HNO3 POLY 1 Other: NP POLY
1 Other: H2SO4 POLY Other:

GEOCHEMICAL PARAMETERS

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

Signature:



GROUNDWATER SAMPLING DATA SHEET

Page 20 of 25

Project: BP 6113 Project No.: 06-82-637 Date: 4-10-13

Field Representative: JR/AM

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

PURGE EQUIPMENT
 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					LOW-FLOW					
Casing Diameter Unit Volume (gal/ft) (circle one)										
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other:		Previous Low-Flow Purge Rate:				
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	" ()	Total Well Depth (a):	<u>94.00</u> (ft)				
Total Well Depth (a): _____ (ft)					Initial Depth to Water (b):	<u>17.56</u> (ft)				
Initial Depth to Water (b): _____ (ft)					Pump In-take Depth = b + (a-b)/2:	<u>33.00</u> (ft)				
Water Column Height (WCH) = (a - b): _____ (ft)					Maximum Allowable Drawdown = (a-b)/8:	_____ (ft)				
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)					Low-Flow Purge Rate:	<u>0.25</u> (Lpm)*				
Three Casing Volumes = WCV x 3: _____ (gal)					Comments:	_____				
Five Casing Volumes = WCV x 5: _____ (gal)					*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.					
Pump Depth (if pump used): _____ (ft)										

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity μS or μS/cm	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
<u>1249</u>	<u>0</u>	<u>27.25</u>	<u>7.97</u>	<u>0.544</u>	<u>2.14</u>	<u>4.3</u>	<u>87.3</u>	
<u>1251</u>	<u>0.5</u>	<u>23.71</u>	<u>7.63</u>	<u>0.635</u>	<u>5.21</u>	<u>-25</u>	<u>82.6</u>	
<u>1253</u>	<u>1.0</u>	<u>23.90</u>	<u>7.60</u>	<u>0.636</u>	<u>5.25</u>	<u>-52</u>	<u>95.0</u>	
<u>1255</u>	<u>1.5</u>	<u>23.14</u>	<u>7.91</u>	<u>0.639</u>	<u>5.14</u>	<u>-69</u>	<u>80.6</u>	

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Depth to Water at Sampling: <u>17.57</u> (ft)		Parameter	Time	Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing		DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other:		Ferrous Iron (mg/L)		
Sample ID: <u>VW-1 (M)</u> Sample Collection Time: <u>1300</u> (24:00)		Redox Potential (mV)		
Containers (#): <u>14</u> VOA (<u>9</u> preserved or <u>5</u> unpreserved) <input type="checkbox"/> Liter Amber		Alkalinity (mg/L)		
<u>1</u> Other: <u>NP POLY 500ml</u> <u>1</u> Other: <u>H2SO4 POLY 500ml</u>		Other:		
<u>1</u> Other: <u>HNO3 POLY 500ml</u> Other:		Other:		

Signature:



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 00-82-637 Date: 4-10-13
Field Representative: JR/AM
Well ID: VW-1(B) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT: 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:
PREDETERMINED WELL VOLUME table with casing diameters and unit volumes.
LOW-FLOW table with purge rate, total well depth, initial depth to water, pump in-take depth, maximum allowable drawdown, and low-flow purge rate.
Includes a diagram of a well casing with points 'a' and 'b' marked.

GROUNDWATER STABILIZATION PARAMETER RECORD table with columns: Time (24:00), Cumulative Volume (L), Temperature (°C), pH, Conductivity (µS or mS), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES (Odor, color, sheen or other). Contains 4 rows of data.

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

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS table. Includes fields for Depth to Water at Sampling, Sample Collected Via, Sample ID, Containers (#), and a table for Parameter, Time, and Measurement (DO, Ferrous Iron, Redox Potential, Alkalinity).

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Project: BP 6113 Project No.: 06-82-637 Date: 4/10/13
 Field Representative: JRIAM
 Well ID: W-2(1) Start Time: -- End Time: - Total Time (minutes): -

PURGE EQUIPMENT 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): _____ (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): 49.24 (ft)
 Initial Depth to Water (b): 18.70 (ft)
 Pump In-take Depth = b + (a-b)/2: 22.00 (ft)
 Maximum Allowable Drawdown = (a-b)/8: 8 (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 Volume (L)	Temperature °C	pH	Conductivity µS or µS/cm	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1150	0.0	26.94	7.76	0.660	2.07	19	87.0	
1152	0.5	26.94	7.59	0.644	1.97	-47	85.4	
1154	1.0	25.46	7.50	0.632	1.06	-74	84.3	
1156	1.5	25.58	7.75	0.635	0.96	-59	83.2	

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Parameter	Time	Measurement		
Depth to Water at Sampling: <u>18.75</u> (ft)				
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Pump Tubing <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing		DO (mg/L)		
Sample ID: <u>W-2(1)</u> Sample Collection Time: <u>1200</u> (24:00)		Ferrous Iron (mg/L)		
Containers (#): <u>14</u> VOA (<u>9</u> preserved or <u>5</u> unpreserved) <input type="checkbox"/> Litter Amber		Redox Potential (mV)		
<u>1</u> Other: <u>HW03 Poly</u> <u>1</u> Other: <u>NP Poly</u>		Alkalinity (mg/L)		
<u>1</u> Other: <u>HW04 Poly</u> _____		Other:		
		Other:		

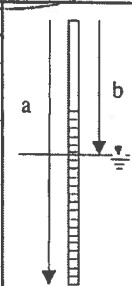
Signature: _____

Project: BP 6113 Project No.: 06-82-637 Date: 4/10/13
Field Representative: JR/AM
Well ID: JW-2(M) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT: 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

PURGING/SAMPLING METHOD: Predetermined Well Volume, Low-Flow, Other. Includes PREDETERMINED WELL VOLUME table and LOW-FLOW parameters table.



GROUNDWATER STABILIZATION PARAMETER RECORD table with columns: Time, Cumulative Volume, Temperature, pH, Conductivity, DO, ORP, Turbidity, NOTES.

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

SAMPLE COLLECTION RECORD and GEOCHEMICAL PARAMETERS table with columns: Parameter, Time, Measurement.

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 24 of 25

Project: BF 013 Project No.: 0682-637 Date: 4/10/13
Field Representative: JRIAM
Well ID: JW-2(B) Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT 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)
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): 49.24 (ft)
Initial Depth to Water (b): 18.76 (ft)
Pump In-take Depth = b + (a-b)/2: 48.00 (ft)
Maximum Allowable Drawdown = (a-b)/8: (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

GROUNDWATER STABILIZATION PARAMETER RECORD

Table with 9 columns: Time (24:00), Cumulative Volume (L), Temperature (C), pH, Conductivity (uS or mS), DO (mg/L), ORP (mV), Turbidity (NTU), NOTES. Includes data for times 1106, 1109, 1110, 1112, 1114.

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: 18.76 (ft)
Sample Collected Via: Disp. Bailer Dedicated Pump Tubing
Disp. Pump Tubing Other:
Sample ID: JW-2(B) Sample Collection Time: 1115 (24:00)
Containers (#): 14 VOA 9 preserved or 5 unpreserved) Liter Amber
Other: 1 HNO3 Poly Other: NP Poly
Other: H2SO4 Poly Other:

Signature: [Handwritten Signature] Revision: 7/3/12



GROUNDWATER SAMPLING DATA SHEET

Page 25 of 25

Project: BP 6113 Project No.: 06-82-637 Date: 4-9-13
 Field Representative: AM/JR
 Well ID: 1W-4 Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT 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					LOW-FLOW					
Casing Diameter Unit Volume (gal/ft) (circle one)						Previous Low-Flow Purge Rate: _____ (lpm)				
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other: _____		Total Well Depth (a): <u>24.96</u> (ft)				
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	____" (____)		Initial Depth to Water (b): <u>18.26</u> (ft)				
Total Well Depth (a): _____ (ft)						Pump In-take Depth = b + (a-b)/2: <u>22.00</u> (ft)				
Initial Depth to Water (b): _____ (ft)					Maximum Allowable Drawdown = (a-b)/8: _____ (ft)					
Water Column Height (WCH) = (a - b): _____ (ft)					Low-Flow Purge Rate: <u>0.25</u> (lpm)*					
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)					Comments: _____					
Three Casing Volumes = WCV x 3: _____ (gal)					*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.					
Five Casing Volumes = WCV x 5: _____ (gal)										
Pump Depth (if pump used): _____ (ft)										

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1538	0.0	23.57	7.51	0.261	2.05	103	82	
1540	0.5	23.55	7.19	0.957	1.28	25	80.9	
1542	1.0	22.79	7.17	0.963	1.10	52	82.0	
1544	1.5	22.33	7.17	0.971	1.03	60	84.7	

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

SAMPLE COLLECTION RECORD			GEOCHEMICAL PARAMETERS		
Depth to Water at Sampling: <u>18.50</u> (ft)			Parameter	Time	Measurement
Sample Collected Via: <u> </u> Disp. Bailer <u> </u> Dedicated Pump Tubing			DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other: _____			Ferrous Iron (mg/L)		
Sample ID: <u>1W-4</u> Sample Collection Time: <u>15:45</u> (24:00)			Redox Potential (mV)		
Containers (#): <u>1</u> VOA (<u> </u> preserved or <u> </u> unpreserved) <u> </u> Liter Amber			Alkalinity (mg/L)		
<u>1</u> Other: <u>HNO3 Poly</u> <u>1</u> Other: <u>NP Poly</u>			Other:		
<u>1</u> Other: <u>H2SO4 Poly</u> Other: _____			Other:		

Signature: [Signature]

Revision: 7/3/12

NO. 689934

NON-HAZARDOUS WASTE DATA FORM

BESI #

Generator's Name and Mailing Address BP WEST COAST PRODUCTS, LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688 Generator's Phone: 949-460-5200	Generator's Site Address (if different than mailing address) BP 6113 785 East Stanley Blvd. Livermore, CA
--	--

Container type removed from site: <input type="checkbox"/> Drums <input type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____	Container type transported to receiving facility: <input type="checkbox"/> Drums <input type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____
---	---

Quantity 10.5 gallons Quantity _____ Volume _____

WASTE DESCRIPTION <u>NON-HAZARDOUS WATER</u> <table border="1"> <thead> <tr> <th>COMPONENTS OF WASTE</th> <th>PPM</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>1. <u>WATER</u></td> <td></td> <td><u>99-100%</u></td> </tr> <tr> <td>2. <u>TPH</u></td> <td></td> <td><u><1%</u></td> </tr> </tbody> </table>	COMPONENTS OF WASTE	PPM	%	1. <u>WATER</u>		<u>99-100%</u>	2. <u>TPH</u>		<u><1%</u>	GENERATING PROCESS <u>WELL PURGING / DECON WATER</u> <table border="1"> <thead> <tr> <th>COMPONENTS OF WASTE</th> <th>PPM</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>3. _____</td> <td></td> <td></td> </tr> <tr> <td>4. _____</td> <td></td> <td></td> </tr> </tbody> </table>	COMPONENTS OF WASTE	PPM	%	3. _____			4. _____		
COMPONENTS OF WASTE	PPM	%																	
1. <u>WATER</u>		<u>99-100%</u>																	
2. <u>TPH</u>		<u><1%</u>																	
COMPONENTS OF WASTE	PPM	%																	
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 <u>Alex Martinez</u>	Signature <u>Alex Martinez</u>	Month Day Year <u>4 10 13</u>
--	-----------------------------------	--------------------------------------

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

Transporter 1 Company Name <u>BROADBENT & ASSOCIATES, INC></u>	Phone# <u>530-566-1400 / 707-455-7290</u>	
Transporter 1 Printed/Typed Name <u>Alex Martinez</u>	Signature <u>Alex Martinez</u>	Month Day Year <u>4 10 13</u>
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		

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

GENERATOR

TRANSPORTER

RECEIVING FACILITY

APPENDIX C

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

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: 440-43227-1
Client Project/Site: ARCO 6113, Livermore

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

Attn: Mr. Jason Duda



*Authorized for release by:
4/23/2013 3:12:59 PM*

Kathleen Robb
Project Manager II
kathleen.robbs@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

1

2

3

4

5

6

7

8

9

10

11

12

13



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Method Summary	15
Chronicle	16
QC Sample Results	21
QC Association	30
Definitions	35
Certification Summary	36
Chain of Custody	37
Receipt Checklists	39

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-43227-1	MW-11(T)	Water	04/09/13 09:55	04/10/13 07:20
440-43227-2	MW-11(M)	Water	04/09/13 10:25	04/10/13 07:20
440-43227-3	MW-11(B)	Water	04/09/13 10:55	04/10/13 07:20
440-43227-4	MW-12(T)	Water	04/09/13 11:45	04/10/13 07:20
440-43227-5	MW-12(B)	Water	04/09/13 12:10	04/10/13 07:20
440-43227-6	MW-2(T)	Water	04/09/13 14:35	04/10/13 07:20
440-43227-7	MW-2(M)	Water	04/09/13 14:10	04/10/13 07:20
440-43227-8	MW-2(B)	Water	04/09/13 13:45	04/10/13 07:20
440-43227-9	MW-4	Water	04/09/13 15:10	04/10/13 07:20
440-43227-10	VW-4	Water	04/09/13 15:45	04/10/13 07:20



Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Job ID: 440-43227-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-43227-1

Comments

No additional comments.

Receipt

The samples were received on 4/10/2013 7:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were -0.4° C and 0.7° C.

GC/MS VOA

No analytical or quality issues were noted.

HPLC

Method(s) 300.0: Due to the high concentration of sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for batch 97293 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for orthophosphate and nitrate in batch 97292 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) precision for nitrate in batch 97290 was outside control limits.

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for orthophosphate in batch 97290 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

GC VOA

No analytical or quality issues were noted.

Air - GC VOA

No analytical or quality issues were noted.

Metals

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.



Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-11(T)

Lab Sample ID: 440-43227-1

Date Collected: 04/09/13 09:55

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 20:49	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 20:49	1
Benzene	ND		0.50	ug/L			04/11/13 20:49	1
Ethanol	ND		150	ug/L			04/11/13 20:49	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 20:49	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 20:49	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 20:49	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 20:49	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 20:49	1
o-Xylene	ND		0.50	ug/L			04/11/13 20:49	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 20:49	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 20:49	1
Toluene	ND		0.50	ug/L			04/11/13 20:49	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 20:49	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/11/13 20:49	1
Dibromofluoromethane (Surr)	101		80 - 120				04/11/13 20:49	1
Toluene-d8 (Surr)	103		80 - 120				04/11/13 20:49	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			04/16/13 22:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		65 - 140				04/16/13 22:45	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 16:51	1
Carbon Dioxide (TCD)	12		0.17	mg/L			04/12/13 07:31	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 14:25	1
Sulfate	27		0.50	mg/L			04/10/13 14:25	1
Nitrite as N	ND		0.15	mg/L			04/10/13 14:25	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 14:25	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/17/13 16:04	04/18/13 15:38	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	7.4	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-11(M)

Lab Sample ID: 440-43227-2

Date Collected: 04/09/13 10:25

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 21:19	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 21:19	1
Benzene	ND		0.50	ug/L			04/11/13 21:19	1
Ethanol	ND		150	ug/L			04/11/13 21:19	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 21:19	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 21:19	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 21:19	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 21:19	1
Methyl-t-Butyl Ether (MTBE)	5.0		0.50	ug/L			04/11/13 21:19	1
o-Xylene	ND		0.50	ug/L			04/11/13 21:19	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 21:19	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 21:19	1
Toluene	ND		0.50	ug/L			04/11/13 21:19	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 21:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/11/13 21:19	1
Dibromofluoromethane (Surr)	100		80 - 120				04/11/13 21:19	1
Toluene-d8 (Surr)	105		80 - 120				04/11/13 21:19	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			04/17/13 00:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		65 - 140				04/17/13 00:10	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 17:20	1
Carbon Dioxide (TCD)	33		0.17	mg/L			04/12/13 08:01	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 15:18	1
Sulfate	26		0.50	mg/L			04/10/13 15:18	1
Nitrite as N	ND		0.15	mg/L			04/10/13 15:18	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 15:18	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/17/13 16:04	04/18/13 15:51	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	4.0	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-11(B)

Lab Sample ID: 440-43227-3

Date Collected: 04/09/13 10:55

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 19:21	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 19:21	1
Benzene	ND		0.50	ug/L			04/11/13 19:21	1
Ethanol	ND		150	ug/L			04/11/13 19:21	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 19:21	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 19:21	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 19:21	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 19:21	1
Methyl-t-Butyl Ether (MTBE)	6.0		0.50	ug/L			04/11/13 19:21	1
o-Xylene	ND		0.50	ug/L			04/11/13 19:21	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 19:21	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 19:21	1
Toluene	ND		0.50	ug/L			04/11/13 19:21	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 19:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/11/13 19:21	1
Dibromofluoromethane (Surr)	100		80 - 120				04/11/13 19:21	1
Toluene-d8 (Surr)	105		80 - 120				04/11/13 19:21	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			04/17/13 00:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121		65 - 140				04/17/13 00:38	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 18:05	1
Carbon Dioxide (TCD)	34		0.17	mg/L			04/12/13 08:14	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 15:44	1
Sulfate	26		0.50	mg/L			04/10/13 15:44	1
Nitrite as N	ND		0.15	mg/L			04/10/13 15:44	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 15:44	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/17/13 16:04	04/18/13 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.9	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-12(T)

Lab Sample ID: 440-43227-4

Date Collected: 04/09/13 11:45

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 21:48	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 21:48	1
Benzene	ND		0.50	ug/L			04/11/13 21:48	1
Ethanol	ND		150	ug/L			04/11/13 21:48	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 21:48	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 21:48	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 21:48	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 21:48	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 21:48	1
o-Xylene	ND		0.50	ug/L			04/11/13 21:48	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 21:48	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 21:48	1
Toluene	ND		0.50	ug/L			04/11/13 21:48	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 21:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120				04/11/13 21:48	1
Dibromofluoromethane (Surr)	100		80 - 120				04/11/13 21:48	1
Toluene-d8 (Surr)	105		80 - 120				04/11/13 21:48	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			04/17/13 01:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		65 - 140				04/17/13 01:06	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 18:19	1
Carbon Dioxide (TCD)	37		0.17	mg/L			04/12/13 08:55	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 16:11	1
Sulfate	39		5.0	mg/L			04/10/13 16:24	10
Nitrite as N	ND		0.15	mg/L			04/10/13 16:11	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 16:11	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.42		0.020	mg/L		04/17/13 16:04	04/18/13 15:56	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	4.0	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-12(B)

Lab Sample ID: 440-43227-5

Date Collected: 04/09/13 12:10

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 22:17	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 22:17	1
Benzene	ND		0.50	ug/L			04/11/13 22:17	1
Ethanol	ND		150	ug/L			04/11/13 22:17	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 22:17	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 22:17	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 22:17	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 22:17	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 22:17	1
o-Xylene	ND		0.50	ug/L			04/11/13 22:17	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 22:17	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 22:17	1
Toluene	ND		0.50	ug/L			04/11/13 22:17	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 22:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120				04/11/13 22:17	1
Dibromofluoromethane (Surr)	103		80 - 120				04/11/13 22:17	1
Toluene-d8 (Surr)	105		80 - 120				04/11/13 22:17	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			04/17/13 01:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		65 - 140				04/17/13 01:35	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 18:32	1
Carbon Dioxide (TCD)	36		0.17	mg/L			04/12/13 09:10	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.25		0.11	mg/L			04/10/13 19:52	1
Sulfate	37		0.50	mg/L			04/10/13 19:52	1
Nitrite as N	ND		0.15	mg/L			04/10/13 19:52	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 19:52	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.78		0.020	mg/L		04/17/13 16:04	04/18/13 15:58	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	4.1	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-2(T)

Lab Sample ID: 440-43227-6

Date Collected: 04/09/13 14:35

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 22:47	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 22:47	1
Benzene	ND		0.50	ug/L			04/11/13 22:47	1
Ethanol	ND		150	ug/L			04/11/13 22:47	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 22:47	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 22:47	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 22:47	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 22:47	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 22:47	1
o-Xylene	ND		0.50	ug/L			04/11/13 22:47	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 22:47	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 22:47	1
Toluene	ND		0.50	ug/L			04/11/13 22:47	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 22:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120				04/11/13 22:47	1
Dibromofluoromethane (Surr)	106		80 - 120				04/11/13 22:47	1
Toluene-d8 (Surr)	106		80 - 120				04/11/13 22:47	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			04/17/13 02:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		65 - 140				04/17/13 02:03	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 18:45	1
Carbon Dioxide (TCD)	41		0.17	mg/L			04/12/13 09:22	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 20:20	1
Sulfate	56		5.0	mg/L			04/10/13 20:33	10
Nitrite as N	ND		0.15	mg/L			04/10/13 20:20	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 20:20	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.10		0.020	mg/L		04/17/13 16:04	04/18/13 16:01	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.8	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-2(M)

Lab Sample ID: 440-43227-7

Date Collected: 04/09/13 14:10

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 23:16	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 23:16	1
Benzene	ND		0.50	ug/L			04/11/13 23:16	1
Ethanol	ND		150	ug/L			04/11/13 23:16	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 23:16	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 23:16	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 23:16	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 23:16	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 23:16	1
o-Xylene	ND		0.50	ug/L			04/11/13 23:16	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 23:16	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 23:16	1
Toluene	ND		0.50	ug/L			04/11/13 23:16	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 23:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		80 - 120				04/11/13 23:16	1
Dibromofluoromethane (Surr)	105		80 - 120				04/11/13 23:16	1
Toluene-d8 (Surr)	105		80 - 120				04/11/13 23:16	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			04/17/13 02:31	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		65 - 140				04/17/13 02:31	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 18:58	1
Carbon Dioxide (TCD)	39		0.17	mg/L			04/12/13 09:48	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 20:47	1
Sulfate	56		5.0	mg/L			04/10/13 21:01	10
Nitrite as N	ND		0.15	mg/L			04/10/13 20:47	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 20:47	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.071		0.020	mg/L		04/17/13 16:04	04/18/13 16:03	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.9	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-2(B)

Lab Sample ID: 440-43227-8

Date Collected: 04/09/13 13:45

Matrix: Water

Date Received: 04/10/13 07:20

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			04/11/13 23:46	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 23:46	1
Benzene	ND		0.50	ug/L			04/11/13 23:46	1
Ethanol	ND		150	ug/L			04/11/13 23:46	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 23:46	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 23:46	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 23:46	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 23:46	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 23:46	1
o-Xylene	ND		0.50	ug/L			04/11/13 23:46	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 23:46	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 23:46	1
Toluene	ND		0.50	ug/L			04/11/13 23:46	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 23:46	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120				04/11/13 23:46	1
Dibromofluoromethane (Surr)	103		80 - 120				04/11/13 23:46	1
Toluene-d8 (Surr)	105		80 - 120				04/11/13 23:46	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			04/17/13 03:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	116		65 - 140				04/17/13 03:00	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 19:21	1
Carbon Dioxide (TCD)	39		0.17	mg/L			04/12/13 10:04	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 21:44	1
Sulfate	55		5.0	mg/L			04/10/13 21:57	10
Nitrite as N	ND		0.15	mg/L			04/10/13 21:44	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 21:44	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.038		0.020	mg/L		04/17/13 16:04	04/18/13 16:06	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:39	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	4.1	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-4

Lab Sample ID: 440-43227-9

Date Collected: 04/09/13 15:10

Matrix: Water

Date Received: 04/10/13 07:20

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			04/12/13 00:15	1
1,2-Dichloroethane	ND		0.50	ug/L			04/12/13 00:15	1
Benzene	ND		0.50	ug/L			04/12/13 00:15	1
Ethanol	ND		150	ug/L			04/12/13 00:15	1
Ethylbenzene	ND		0.50	ug/L			04/12/13 00:15	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/12/13 00:15	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/12/13 00:15	1
m,p-Xylene	ND		1.0	ug/L			04/12/13 00:15	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/12/13 00:15	1
o-Xylene	ND		0.50	ug/L			04/12/13 00:15	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/12/13 00:15	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/12/13 00:15	1
Toluene	ND		0.50	ug/L			04/12/13 00:15	1
Xylenes, Total	ND		1.0	ug/L			04/12/13 00:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120				04/12/13 00:15	1
Dibromofluoromethane (Surr)	108		80 - 120				04/12/13 00:15	1
Toluene-d8 (Surr)	107		80 - 120				04/12/13 00:15	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			04/17/13 04:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		65 - 140				04/17/13 04:24	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 20:15	1
Carbon Dioxide (TCD)	74		0.17	mg/L			04/12/13 10:18	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 22:11	1
Sulfate	48		10	mg/L			04/10/13 22:25	20
Nitrite as N	ND		0.15	mg/L			04/10/13 22:11	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 22:11	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5.1		0.020	mg/L		04/17/13 16:04	04/18/13 16:08	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 14:01	1
Ferrous Iron	ND	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.8	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: VW-4

Lab Sample ID: 440-43227-10

Date Collected: 04/09/13 15:45

Matrix: Water

Date Received: 04/10/13 07:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		20	ug/L			04/12/13 00:45	40
1,2-Dichloroethane	ND		20	ug/L			04/12/13 00:45	40
Benzene	1600		20	ug/L			04/12/13 00:45	40
Ethanol	ND		6000	ug/L			04/12/13 00:45	40
Ethylbenzene	510		20	ug/L			04/12/13 00:45	40
Ethyl-t-butyl ether (ETBE)	ND		20	ug/L			04/12/13 00:45	40
Isopropyl Ether (DIPE)	ND		20	ug/L			04/12/13 00:45	40
m,p-Xylene	60		40	ug/L			04/12/13 00:45	40
Methyl-t-Butyl Ether (MTBE)	59		20	ug/L			04/12/13 00:45	40
o-Xylene	ND		20	ug/L			04/12/13 00:45	40
Tert-amyl-methyl ether (TAME)	ND		20	ug/L			04/12/13 00:45	40
tert-Butyl alcohol (TBA)	ND		400	ug/L			04/12/13 00:45	40
Toluene	44		20	ug/L			04/12/13 00:45	40
Xylenes, Total	60		40	ug/L			04/12/13 00:45	40
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120				04/12/13 00:45	40
Dibromofluoromethane (Surr)	102		80 - 120				04/12/13 00:45	40
Toluene-d8 (Surr)	105		80 - 120				04/12/13 00:45	40

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	5900		1000	ug/L			04/17/13 10:20	20
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		65 - 140				04/17/13 10:20	20

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	170		0.17	mg/L			04/12/13 10:32	1
Methane (TCD)	3.8		0.00099	mg/L			04/12/13 20:28	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 22:39	1
Sulfate	0.67		0.50	mg/L			04/10/13 22:39	1
Nitrite as N	ND		0.15	mg/L			04/10/13 22:39	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 22:39	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	6.9		0.020	mg/L		04/17/13 16:04	04/18/13 16:24	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 14:01	1
Ferrous Iron	0.10	QP	0.10	mg/L			04/11/13 09:10	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	2.5	QP	1.0	mg/L			04/11/13 13:58	1

TestAmerica Irvine

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Method	Method Description	Protocol	Laboratory
8260B/5030B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B/5030B	Gasoline Range Organics (GC)	SW846	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL CM
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL IRV
SM 3500 FE D	Iron, Ferrous	SM	TAL IRV
SM 4500 O G	Oxygen, Dissolved	SM	TAL IRV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

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

Laboratory References:

TAL CM = TestAmerica Costa Mesa, 3585 Cadillac Ave, Suite A, Costa Mesa, CA 92626, TEL (714)258-8610

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

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-11(T)

Lab Sample ID: 440-43227-1

Date Collected: 04/09/13 09:55

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 20:49	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 07:31	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 16:51	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/16/13 22:45	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97290	04/10/13 14:25	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97291	04/10/13 14:25	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 15:38	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-11(M)

Lab Sample ID: 440-43227-2

Date Collected: 04/09/13 10:25

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 21:19	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 08:01	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 17:20	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 00:10	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97290	04/10/13 15:18	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97291	04/10/13 15:18	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 15:51	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-11(B)

Lab Sample ID: 440-43227-3

Date Collected: 04/09/13 10:55

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 19:21	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 08:14	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 18:05	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 00:38	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97290	04/10/13 15:44	NN	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-11(B)

Lab Sample ID: 440-43227-3

Date Collected: 04/09/13 10:55

Matrix: Water

Date Received: 04/10/13 07:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		97291	04/10/13 15:44	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 15:53	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-12(T)

Lab Sample ID: 440-43227-4

Date Collected: 04/09/13 11:45

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 21:48	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 08:55	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 18:19	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 01:06	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97290	04/10/13 16:11	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97291	04/10/13 16:24	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 15:56	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-12(B)

Lab Sample ID: 440-43227-5

Date Collected: 04/09/13 12:10

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 22:17	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 09:10	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 18:32	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 01:35	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97292	04/10/13 19:52	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97293	04/10/13 19:52	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 15:58	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-12(B)

Lab Sample ID: 440-43227-5

Date Collected: 04/09/13 12:10

Matrix: Water

Date Received: 04/10/13 07:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-2(T)

Lab Sample ID: 440-43227-6

Date Collected: 04/09/13 14:35

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 22:47	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 09:22	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 18:45	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 02:03	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97292	04/10/13 20:20	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97293	04/10/13 20:33	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 16:01	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-2(M)

Lab Sample ID: 440-43227-7

Date Collected: 04/09/13 14:10

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 23:16	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 09:48	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 18:58	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 02:31	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97292	04/10/13 20:47	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97293	04/10/13 21:01	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 16:03	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: MW-2(B)

Lab Sample ID: 440-43227-8

Date Collected: 04/09/13 13:45

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/11/13 23:46	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 10:04	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 19:21	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 03:00	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97292	04/10/13 21:44	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97293	04/10/13 21:57	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 16:06	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 13:39	DC	TAL IRV

Client Sample ID: MW-4

Lab Sample ID: 440-43227-9

Date Collected: 04/09/13 15:10

Matrix: Water

Date Received: 04/10/13 07:20

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	97749	04/12/13 00:15	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 10:18	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 20:15	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	98670	04/17/13 04:24	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97292	04/10/13 22:11	NN	TAL IRV
Total/NA	Analysis	300.0		20	1 mL		97293	04/10/13 22:25	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 16:08	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 14:01	DC	TAL IRV

Client Sample ID: VW-4

Lab Sample ID: 440-43227-10

Date Collected: 04/09/13 15:45

Matrix: Water

Date Received: 04/10/13 07:20

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		40	10 mL	10 mL	97749	04/12/13 00:45	LB	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4543	04/12/13 10:32	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4549	04/12/13 20:28	TD	TAL CM
Total/NA	Analysis	8015B/5030B		20	10 mL	10 mL	98670	04/17/13 10:20	AK	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97292	04/10/13 22:39	NN	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Client Sample ID: VW-4

Lab Sample ID: 440-43227-10

Date Collected: 04/09/13 15:45

Matrix: Water

Date Received: 04/10/13 07:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		97293	04/10/13 22:39	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	98909	04/17/13 16:04	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99214	04/18/13 16:24	MP	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	97602	04/11/13 09:10	TM	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97698	04/11/13 13:58	TAI	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99093	04/18/13 10:15	DC	TAL IRV
Total/NA	Analysis	351.2		1			99159	04/18/13 14:01	DC	TAL IRV

Laboratory References:

TAL CM = TestAmerica Costa Mesa, 3585 Cadillac Ave, Suite A, Costa Mesa, CA 92626, TEL (714)258-8610

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



QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

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

Lab Sample ID: MB 440-97749/3

Matrix: Water

Analysis Batch: 97749

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			04/11/13 18:22	1
1,2-Dichloroethane	ND		0.50	ug/L			04/11/13 18:22	1
Benzene	ND		0.50	ug/L			04/11/13 18:22	1
Ethanol	ND		150	ug/L			04/11/13 18:22	1
Ethylbenzene	ND		0.50	ug/L			04/11/13 18:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/11/13 18:22	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/11/13 18:22	1
m,p-Xylene	ND		1.0	ug/L			04/11/13 18:22	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/11/13 18:22	1
o-Xylene	ND		0.50	ug/L			04/11/13 18:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/11/13 18:22	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/11/13 18:22	1
Toluene	ND		0.50	ug/L			04/11/13 18:22	1
Xylenes, Total	ND		1.0	ug/L			04/11/13 18:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120		04/11/13 18:22	1
Dibromofluoromethane (Surr)	98		80 - 120		04/11/13 18:22	1
Toluene-d8 (Surr)	107		80 - 120		04/11/13 18:22	1

Lab Sample ID: LCS 440-97749/4

Matrix: Water

Analysis Batch: 97749

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	26.5		ug/L		106	75 - 125
1,2-Dichloroethane	25.0	24.8		ug/L		99	60 - 140
Benzene	25.0	24.8		ug/L		99	70 - 120
Ethanol	250	228		ug/L		91	40 - 155
Ethylbenzene	25.0	25.6		ug/L		102	75 - 125
Ethyl-t-butyl ether (ETBE)	25.0	24.9		ug/L		99	65 - 135
Isopropyl Ether (DIPE)	25.0	25.0		ug/L		100	60 - 135
m,p-Xylene	50.0	52.9		ug/L		106	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	23.9		ug/L		96	60 - 135
o-Xylene	25.0	26.9		ug/L		108	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	24.2		ug/L		97	60 - 135
tert-Butyl alcohol (TBA)	125	123		ug/L		98	70 - 135
Toluene	25.0	25.0		ug/L		100	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	103		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

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

Lab Sample ID: 440-43227-3 MS

Matrix: Water

Analysis Batch: 97749

Client Sample ID: MW-11(B)

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	26.5		ug/L		106	70 - 130
1,2-Dichloroethane	ND		25.0	24.4		ug/L		98	60 - 140
Benzene	ND		25.0	24.7		ug/L		99	65 - 125
Ethanol	ND		250	241		ug/L		96	40 - 155
Ethylbenzene	ND		25.0	25.6		ug/L		102	65 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.8		ug/L		99	60 - 135
Isopropyl Ether (DIPE)	ND		25.0	24.7		ug/L		99	60 - 140
m,p-Xylene	ND		50.0	52.5		ug/L		105	65 - 130
Methyl-t-Butyl Ether (MTBE)	6.0		25.0	30.4		ug/L		98	55 - 145
o-Xylene	ND		25.0	26.7		ug/L		107	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	24.0		ug/L		96	60 - 140
tert-Butyl alcohol (TBA)	ND		125	120		ug/L		96	65 - 140
Toluene	ND		25.0	24.9		ug/L		100	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	102		80 - 120

Lab Sample ID: 440-43227-3 MSD

Matrix: Water

Analysis Batch: 97749

Client Sample ID: MW-11(B)

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	26.8		ug/L		107	70 - 130	1	25
1,2-Dichloroethane	ND		25.0	25.0		ug/L		100	60 - 140	2	20
Benzene	ND		25.0	25.8		ug/L		103	65 - 125	4	20
Ethanol	ND		250	241		ug/L		96	40 - 155	0	30
Ethylbenzene	ND		25.0	26.6		ug/L		106	65 - 130	4	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.0		ug/L		100	60 - 135	1	25
Isopropyl Ether (DIPE)	ND		25.0	24.9		ug/L		100	60 - 140	1	25
m,p-Xylene	ND		50.0	54.2		ug/L		108	65 - 130	3	25
Methyl-t-Butyl Ether (MTBE)	6.0		25.0	30.4		ug/L		97	55 - 145	0	25
o-Xylene	ND		25.0	27.9		ug/L		112	65 - 125	5	20
Tert-amyl-methyl ether (TAME)	ND		25.0	23.6		ug/L		94	60 - 140	2	30
tert-Butyl alcohol (TBA)	ND		125	125		ug/L		100	65 - 140	4	25
Toluene	ND		25.0	25.8		ug/L		103	70 - 125	4	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	103		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

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

Lab Sample ID: MB 440-98670/3
Matrix: Water
Analysis Batch: 98670

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			04/16/13 22:17	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		65 - 140				04/16/13 22:17	1

Lab Sample ID: LCS 440-98670/2
Matrix: Water
Analysis Batch: 98670

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	788		ug/L		99	80 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	110		65 - 140				

Lab Sample ID: 440-43227-1 MS
Matrix: Water
Analysis Batch: 98670

Client Sample ID: MW-11(T)
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	754		ug/L		91	65 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	112		65 - 140						

Lab Sample ID: 440-43227-1 MSD
Matrix: Water
Analysis Batch: 98670

Client Sample ID: MW-11(T)
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	752		ug/L		90	65 - 140	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	115		65 - 140								

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 340-4543/8
Matrix: Water
Analysis Batch: 4543

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (FID)	ND		0.17	mg/L			04/12/13 07:17	1

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 340-4543/4

Matrix: Water

Analysis Batch: 4543

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	169	188		mg/L		112	80 - 120

Lab Sample ID: LCS 340-4543/6

Matrix: Water

Analysis Batch: 4543

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (FID)	0.844	0.867		mg/L		103	80 - 120

Lab Sample ID: LCSD 340-4543/5

Matrix: Water

Analysis Batch: 4543

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	169	189		mg/L		112	80 - 120	0	20

Lab Sample ID: LCSD 340-4543/7

Matrix: Water

Analysis Batch: 4543

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (FID)	0.844	0.771		mg/L		91	80 - 120	12	20

Lab Sample ID: 440-43227-1 DU

Matrix: Water

Analysis Batch: 4543

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Carbon Dioxide (TCD)	12		11.5		mg/L		8	20

Lab Sample ID: MB 340-4549/8

Matrix: Water

Analysis Batch: 4549

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/12/13 16:18	1

Lab Sample ID: LCS 340-4549/4

Matrix: Water

Analysis Batch: 4549

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	9.42	9.35		mg/L		99	80 - 120

Lab Sample ID: LCS 340-4549/6

Matrix: Water

Analysis Batch: 4549

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (FID)	0.0471	0.0467		mg/L		99	80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Lab Sample ID: LCSD 340-4549/5
Matrix: Water
Analysis Batch: 4549

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	9.42	9.33		mg/L		99	80 - 120	0	20

Lab Sample ID: LCSD 340-4549/7
Matrix: Water
Analysis Batch: 4549

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (FID)	0.0471	0.0466		mg/L		99	80 - 120	0	20

Lab Sample ID: 440-43227-1 DU
Matrix: Water
Analysis Batch: 4549

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane (FID)	ND		ND		mg/L		NC	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-97290/4
Matrix: Water
Analysis Batch: 97290

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 10:44	1
Nitrite as N	ND		0.15	mg/L			04/10/13 10:44	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 10:44	1

Lab Sample ID: LCS 440-97290/7
Matrix: Water
Analysis Batch: 97290

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.11		mg/L		99	90 - 110
Nitrate Nitrite as N	2.65	2.56		mg/L		97	90 - 110
Nitrite as N	1.52	1.45		mg/L		95	90 - 110
Orthophosphorus as PO4	5.00	4.89		mg/L		98	90 - 110

Lab Sample ID: MB 440-97291/4
Matrix: Water
Analysis Batch: 97291

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			04/10/13 10:44	1

Lab Sample ID: LCS 440-97291/7
Matrix: Water
Analysis Batch: 97291

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	9.90		mg/L		99	90 - 110

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 440-97292/4

Matrix: Water

Analysis Batch: 97292

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/10/13 10:44	1
Nitrite as N	ND		0.15	mg/L			04/10/13 10:44	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/10/13 10:44	1

Lab Sample ID: LCS 440-97292/2

Matrix: Water

Analysis Batch: 97292

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.22		mg/L		108	90 - 110
Nitrate Nitrite as N	2.65	2.78		mg/L		105	90 - 110
Nitrite as N	1.52	1.56		mg/L		102	90 - 110
Orthophosphorus as PO4	5.00	5.24		mg/L		105	90 - 110

Lab Sample ID: 440-43255-A-1 MS

Matrix: Water

Analysis Batch: 97292

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
Nitrate as N	1.8		1.13	2.94		mg/L		97	80 - 120
Nitrate Nitrite as N	34		2.65	36.4	BB	mg/L		100	80 - 120
Nitrite as N	32		1.52	33.5	BB	mg/L		130	80 - 120
Orthophosphorus as PO4	15		5.00	22.1	LM	mg/L		135	80 - 120

Lab Sample ID: 440-43255-A-1 MSD

Matrix: Water

Analysis Batch: 97292

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
Nitrate as N	1.8		1.13	3.37	LM	mg/L		135	80 - 120	14	20
Nitrate Nitrite as N	34		2.65	37.5	BB	mg/L		138	80 - 120	3	20
Nitrite as N	32		1.52	34.1	BB	mg/L		167	80 - 120	2	20
Orthophosphorus as PO4	15		5.00	23.0	LM	mg/L		151	80 - 120	4	20

Lab Sample ID: MB 440-97293/4

Matrix: Water

Analysis Batch: 97293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			04/10/13 10:44	1

Lab Sample ID: LCS 440-97293/2

Matrix: Water

Analysis Batch: 97293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	9.70		mg/L		97	90 - 110

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-43227-1 MS

Matrix: Water

Analysis Batch: 97290

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Nitrate as N - DL	ND		11.3	10.4		mg/L		92		80 - 120
Nitrate Nitrite as N - DL	ND		26.5	24.8		mg/L		94		80 - 120
Nitrite as N - DL	ND		15.2	14.4		mg/L		95		80 - 120
Orthophosphorus as PO4 - DL	ND		50.0	59.7		mg/L		119		80 - 120

Lab Sample ID: 440-43227-1 MSD

Matrix: Water

Analysis Batch: 97290

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						RPD	Limit
Nitrate as N - DL	ND		11.3	13.5	BA	mg/L		119		80 - 120	26	20
Nitrate Nitrite as N - DL	ND		26.5	29.2		mg/L		110		80 - 120	16	20
Nitrite as N - DL	ND		15.2	15.7		mg/L		103		80 - 120	8	20
Orthophosphorus as PO4 - DL	ND		50.0	69.7	LM	mg/L		139		80 - 120	16	20

Lab Sample ID: 440-43227-1 MS

Matrix: Water

Analysis Batch: 97291

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Sulfate - DL	26		100	121		mg/L		95		80 - 120

Lab Sample ID: 440-43227-1 MSD

Matrix: Water

Analysis Batch: 97291

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						RPD	Limit
Sulfate - DL	26		100	116		mg/L		90		80 - 120	4	20

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-98909/1-A

Matrix: Water

Analysis Batch: 99214

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 98909

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Manganese	ND		0.020	mg/L		04/17/13 16:04	04/18/13 15:33	1

Lab Sample ID: LCS 440-98909/2-A

Matrix: Water

Analysis Batch: 99214

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 98909

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
Manganese	1.00	0.993		mg/L		99		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 440-43227-1 MS

Matrix: Water

Analysis Batch: 99214

Client Sample ID: MW-11(T)

Prep Type: Total Recoverable

Prep Batch: 98909

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	Limits
Manganese	ND		1.00	0.965		mg/L		97	75 - 125	

Lab Sample ID: 440-43227-1 MSD

Matrix: Water

Analysis Batch: 99214

Client Sample ID: MW-11(T)

Prep Type: Total Recoverable

Prep Batch: 98909

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	Limits	RPD	Limit	
Manganese	ND		1.00	0.980		mg/L		98	75 - 125	2		20	

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 440-99093/4-A

Matrix: Water

Analysis Batch: 99159

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 99093

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/18/13 10:15	04/18/13 13:11	1

Lab Sample ID: LCS 440-99093/3-A

Matrix: Water

Analysis Batch: 99159

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 99093

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	Limits
Total Kjeldahl Nitrogen	5.00	4.98		mg/L		100	90 - 110	

Lab Sample ID: 440-43227-1 MS

Matrix: Water

Analysis Batch: 99159

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Prep Batch: 99093

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier		Result	Qualifier				Limits	Limits
Total Kjeldahl Nitrogen	ND		5.00	4.84		mg/L		97	90 - 110	

Lab Sample ID: 440-43227-1 MSD

Matrix: Water

Analysis Batch: 99159

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Prep Batch: 99093

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	Limits	RPD	Limit	
Total Kjeldahl Nitrogen	ND		5.00	4.85		mg/L		97	90 - 110	0		20	

Method: SM 3500 FE D - Iron, Ferrous

Lab Sample ID: MB 440-97602/1

Matrix: Water

Analysis Batch: 97602

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Ferrous Iron	ND		0.10	mg/L			04/11/13 09:10	1

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Method: SM 3500 FE D - Iron, Ferrous (Continued)

Lab Sample ID: LCS 440-97602/2

Matrix: Water

Analysis Batch: 97602

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	5.00	4.00		mg/L		80	80 - 120

Lab Sample ID: 440-43227-7 DU

Matrix: Water

Analysis Batch: 97602

Client Sample ID: MW-2(M)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	QP	ND		mg/L		NC	20

Method: SM 4500 O G - Oxygen, Dissolved

Lab Sample ID: 440-43227-1 DU

Matrix: Water

Analysis Batch: 97698

Client Sample ID: MW-11(T)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Oxygen, Dissolved	7.4	QP	7.57	QP	mg/L		2	20

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

GC/MS VOA

Analysis Batch: 97749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	8260B/5030B	
440-43227-2	MW-11(M)	Total/NA	Water	8260B/5030B	
440-43227-3	MW-11(B)	Total/NA	Water	8260B/5030B	
440-43227-3 MS	MW-11(B)	Total/NA	Water	8260B/5030B	
440-43227-3 MSD	MW-11(B)	Total/NA	Water	8260B/5030B	
440-43227-4	MW-12(T)	Total/NA	Water	8260B/5030B	
440-43227-5	MW-12(B)	Total/NA	Water	8260B/5030B	
440-43227-6	MW-2(T)	Total/NA	Water	8260B/5030B	
440-43227-7	MW-2(M)	Total/NA	Water	8260B/5030B	
440-43227-8	MW-2(B)	Total/NA	Water	8260B/5030B	
440-43227-9	MW-4	Total/NA	Water	8260B/5030B	
440-43227-10	VW-4	Total/NA	Water	8260B/5030B	
LCS 440-97749/4	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-97749/3	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 4543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	RSK-175	
440-43227-1 DU	MW-11(T)	Total/NA	Water	RSK-175	
440-43227-2	MW-11(M)	Total/NA	Water	RSK-175	
440-43227-3	MW-11(B)	Total/NA	Water	RSK-175	
440-43227-4	MW-12(T)	Total/NA	Water	RSK-175	
440-43227-5	MW-12(B)	Total/NA	Water	RSK-175	
440-43227-6	MW-2(T)	Total/NA	Water	RSK-175	
440-43227-7	MW-2(M)	Total/NA	Water	RSK-175	
440-43227-8	MW-2(B)	Total/NA	Water	RSK-175	
440-43227-9	MW-4	Total/NA	Water	RSK-175	
440-43227-10	VW-4	Total/NA	Water	RSK-175	
LCS 340-4543/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 340-4543/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 340-4543/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 340-4543/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 340-4543/8	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 4549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	RSK-175	
440-43227-1 DU	MW-11(T)	Total/NA	Water	RSK-175	
440-43227-2	MW-11(M)	Total/NA	Water	RSK-175	
440-43227-3	MW-11(B)	Total/NA	Water	RSK-175	
440-43227-4	MW-12(T)	Total/NA	Water	RSK-175	
440-43227-5	MW-12(B)	Total/NA	Water	RSK-175	
440-43227-6	MW-2(T)	Total/NA	Water	RSK-175	
440-43227-7	MW-2(M)	Total/NA	Water	RSK-175	
440-43227-8	MW-2(B)	Total/NA	Water	RSK-175	
440-43227-9	MW-4	Total/NA	Water	RSK-175	
440-43227-10	VW-4	Total/NA	Water	RSK-175	
LCS 340-4549/4	Lab Control Sample	Total/NA	Water	RSK-175	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

GC VOA (Continued)

Analysis Batch: 4549 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 340-4549/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 340-4549/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 340-4549/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 340-4549/8	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 98670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	8015B/5030B	
440-43227-1 MS	MW-11(T)	Total/NA	Water	8015B/5030B	
440-43227-1 MSD	MW-11(T)	Total/NA	Water	8015B/5030B	
440-43227-2	MW-11(M)	Total/NA	Water	8015B/5030B	
440-43227-3	MW-11(B)	Total/NA	Water	8015B/5030B	
440-43227-4	MW-12(T)	Total/NA	Water	8015B/5030B	
440-43227-5	MW-12(B)	Total/NA	Water	8015B/5030B	
440-43227-6	MW-2(T)	Total/NA	Water	8015B/5030B	
440-43227-7	MW-2(M)	Total/NA	Water	8015B/5030B	
440-43227-8	MW-2(B)	Total/NA	Water	8015B/5030B	
440-43227-9	MW-4	Total/NA	Water	8015B/5030B	
440-43227-10	VW-4	Total/NA	Water	8015B/5030B	
LCS 440-98670/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-98670/3	Method Blank	Total/NA	Water	8015B/5030B	

HPLC/IC

Analysis Batch: 97290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	300.0	
440-43227-1 MS - DL	MW-11(T)	Total/NA	Water	300.0	
440-43227-1 MSD - DL	MW-11(T)	Total/NA	Water	300.0	
440-43227-2	MW-11(M)	Total/NA	Water	300.0	
440-43227-3	MW-11(B)	Total/NA	Water	300.0	
440-43227-4	MW-12(T)	Total/NA	Water	300.0	
LCS 440-97290/7	Lab Control Sample	Total/NA	Water	300.0	
MB 440-97290/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 97291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	300.0	
440-43227-1 MS - DL	MW-11(T)	Total/NA	Water	300.0	
440-43227-1 MSD - DL	MW-11(T)	Total/NA	Water	300.0	
440-43227-2	MW-11(M)	Total/NA	Water	300.0	
440-43227-3	MW-11(B)	Total/NA	Water	300.0	
440-43227-4	MW-12(T)	Total/NA	Water	300.0	
LCS 440-97291/7	Lab Control Sample	Total/NA	Water	300.0	
MB 440-97291/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 97292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-5	MW-12(B)	Total/NA	Water	300.0	
440-43227-6	MW-2(T)	Total/NA	Water	300.0	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

HPLC/IC (Continued)

Analysis Batch: 97292 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-7	MW-2(M)	Total/NA	Water	300.0	
440-43227-8	MW-2(B)	Total/NA	Water	300.0	
440-43227-9	MW-4	Total/NA	Water	300.0	
440-43227-10	VW-4	Total/NA	Water	300.0	
440-43255-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
440-43255-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 440-97292/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-97292/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 97293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-5	MW-12(B)	Total/NA	Water	300.0	
440-43227-6	MW-2(T)	Total/NA	Water	300.0	
440-43227-7	MW-2(M)	Total/NA	Water	300.0	
440-43227-8	MW-2(B)	Total/NA	Water	300.0	
440-43227-9	MW-4	Total/NA	Water	300.0	
440-43227-10	VW-4	Total/NA	Water	300.0	
LCS 440-97293/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-97293/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 98909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total Recoverable	Water	3005A	
440-43227-1 MS	MW-11(T)	Total Recoverable	Water	3005A	
440-43227-1 MSD	MW-11(T)	Total Recoverable	Water	3005A	
440-43227-2	MW-11(M)	Total Recoverable	Water	3005A	
440-43227-3	MW-11(B)	Total Recoverable	Water	3005A	
440-43227-4	MW-12(T)	Total Recoverable	Water	3005A	
440-43227-5	MW-12(B)	Total Recoverable	Water	3005A	
440-43227-6	MW-2(T)	Total Recoverable	Water	3005A	
440-43227-7	MW-2(M)	Total Recoverable	Water	3005A	
440-43227-8	MW-2(B)	Total Recoverable	Water	3005A	
440-43227-9	MW-4	Total Recoverable	Water	3005A	
440-43227-10	VW-4	Total Recoverable	Water	3005A	
LCS 440-98909/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 440-98909/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 99214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total Recoverable	Water	6010B	98909
440-43227-1 MS	MW-11(T)	Total Recoverable	Water	6010B	98909
440-43227-1 MSD	MW-11(T)	Total Recoverable	Water	6010B	98909
440-43227-2	MW-11(M)	Total Recoverable	Water	6010B	98909
440-43227-3	MW-11(B)	Total Recoverable	Water	6010B	98909
440-43227-4	MW-12(T)	Total Recoverable	Water	6010B	98909
440-43227-5	MW-12(B)	Total Recoverable	Water	6010B	98909
440-43227-6	MW-2(T)	Total Recoverable	Water	6010B	98909
440-43227-7	MW-2(M)	Total Recoverable	Water	6010B	98909

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Metals (Continued)

Analysis Batch: 99214 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-8	MW-2(B)	Total Recoverable	Water	6010B	98909
440-43227-9	MW-4	Total Recoverable	Water	6010B	98909
440-43227-10	VW-4	Total Recoverable	Water	6010B	98909
LCS 440-98909/2-A	Lab Control Sample	Total Recoverable	Water	6010B	98909
MB 440-98909/1-A	Method Blank	Total Recoverable	Water	6010B	98909

General Chemistry

Analysis Batch: 97602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	SM 3500 FE D	
440-43227-2	MW-11(M)	Total/NA	Water	SM 3500 FE D	
440-43227-3	MW-11(B)	Total/NA	Water	SM 3500 FE D	
440-43227-4	MW-12(T)	Total/NA	Water	SM 3500 FE D	
440-43227-5	MW-12(B)	Total/NA	Water	SM 3500 FE D	
440-43227-6	MW-2(T)	Total/NA	Water	SM 3500 FE D	
440-43227-7	MW-2(M)	Total/NA	Water	SM 3500 FE D	
440-43227-7 DU	MW-2(M)	Total/NA	Water	SM 3500 FE D	
440-43227-8	MW-2(B)	Total/NA	Water	SM 3500 FE D	
440-43227-9	MW-4	Total/NA	Water	SM 3500 FE D	
440-43227-10	VW-4	Total/NA	Water	SM 3500 FE D	
LCS 440-97602/2	Lab Control Sample	Total/NA	Water	SM 3500 FE D	
MB 440-97602/1	Method Blank	Total/NA	Water	SM 3500 FE D	

Analysis Batch: 97698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	SM 4500 O G	
440-43227-1 DU	MW-11(T)	Total/NA	Water	SM 4500 O G	
440-43227-2	MW-11(M)	Total/NA	Water	SM 4500 O G	
440-43227-3	MW-11(B)	Total/NA	Water	SM 4500 O G	
440-43227-4	MW-12(T)	Total/NA	Water	SM 4500 O G	
440-43227-5	MW-12(B)	Total/NA	Water	SM 4500 O G	
440-43227-6	MW-2(T)	Total/NA	Water	SM 4500 O G	
440-43227-7	MW-2(M)	Total/NA	Water	SM 4500 O G	
440-43227-8	MW-2(B)	Total/NA	Water	SM 4500 O G	
440-43227-9	MW-4	Total/NA	Water	SM 4500 O G	
440-43227-10	VW-4	Total/NA	Water	SM 4500 O G	

Prep Batch: 99093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	351.2	
440-43227-1 MS	MW-11(T)	Total/NA	Water	351.2	
440-43227-1 MSD	MW-11(T)	Total/NA	Water	351.2	
440-43227-2	MW-11(M)	Total/NA	Water	351.2	
440-43227-3	MW-11(B)	Total/NA	Water	351.2	
440-43227-4	MW-12(T)	Total/NA	Water	351.2	
440-43227-5	MW-12(B)	Total/NA	Water	351.2	
440-43227-6	MW-2(T)	Total/NA	Water	351.2	
440-43227-7	MW-2(M)	Total/NA	Water	351.2	
440-43227-8	MW-2(B)	Total/NA	Water	351.2	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

General Chemistry (Continued)

Prep Batch: 99093 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-9	MW-4	Total/NA	Water	351.2	
440-43227-10	VW-4	Total/NA	Water	351.2	
LCS 440-99093/3-A	Lab Control Sample	Total/NA	Water	351.2	
MB 440-99093/4-A	Method Blank	Total/NA	Water	351.2	

Analysis Batch: 99159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43227-1	MW-11(T)	Total/NA	Water	351.2	99093
440-43227-1 MS	MW-11(T)	Total/NA	Water	351.2	99093
440-43227-1 MSD	MW-11(T)	Total/NA	Water	351.2	99093
440-43227-2	MW-11(M)	Total/NA	Water	351.2	99093
440-43227-3	MW-11(B)	Total/NA	Water	351.2	99093
440-43227-4	MW-12(T)	Total/NA	Water	351.2	99093
440-43227-5	MW-12(B)	Total/NA	Water	351.2	99093
440-43227-6	MW-2(T)	Total/NA	Water	351.2	99093
440-43227-7	MW-2(M)	Total/NA	Water	351.2	99093
440-43227-8	MW-2(B)	Total/NA	Water	351.2	99093
440-43227-9	MW-4	Total/NA	Water	351.2	99093
440-43227-10	VW-4	Total/NA	Water	351.2	99093
LCS 440-99093/3-A	Lab Control Sample	Total/NA	Water	351.2	99093
MB 440-99093/4-A	Method Blank	Total/NA	Water	351.2	99093

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43227-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BA	Relative percent difference out of control
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
BB	Sample > 4X spike concentration

General Chemistry

Qualifier	Qualifier Description
QP	Holding time Immediate. Analyzed as close to receipt as possible

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)
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 6113, Livermore

TestAmerica Job ID: 440-43227-1

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	06-30-13
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	03-28-13 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
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

Laboratory: TestAmerica Costa Mesa

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Arizona	State Program	9	AZ0727	02-09-14
Florida	NELAP	4	E87652	06-30-13
L-A-B	DoD ELAP		L2273	11-09-13
Louisiana	NELAP	6	01948	06-30-13
Oregon	NELAP	10	CA200013	07-19-13
Utah	NELAP	8	CA000032012-1	06-30-13
Washington	State Program	10	C579	11-29-13

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



Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: BP 6113

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

BP Facility No: 6113

Lab Work Order Number: 440-43227

Table with header information including Lab Name (Test America), Facility Address (785 E. Stanley Boulevard), Consultant/Contractor (Broadbent & Associates Inc.), Lab Address (17461 Derian Avenue, Suite 100, Irvine, CA), City, State, ZIP Code (Livermore, California), Consultant/Contractor Project No (06-82-637), Lab PM (Kathleen Robb), Lead Regulatory Agency (ACEH), Address (1324 Mangrove Ave., Suite 212, Chico, California), Lab Phone (949-261-1022), California Global ID No. (T0600100111), Consultant/Contractor PM (Jason Duda), Lab Shipping Acct (Fed ex#: 11103-6633-7), Enfos Proposal No/ WR#: (005X5 - 0002 / WR245675), Phone (530-566-1400 / 530-566-1401 (f)), 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: Execute (4) Activity: GWM (401), Invoice To (BP x Contractor)

Table with header information including BP Project Manager (PM): Shannon Couch, Matrix, No. Containers / Preservative, Requested Analyses, Report Type & QC Level. Standard x Full Data Package

Main data table with columns: Lab No., Sample Description, Date, Time, Matrix, No. Containers / Preservative, Requested Analyses, Report Type & QC Level. Rows include MW-11 (T), MW-11 (M), MW-11 (B), MW-12 (T), MW-12 (B), MW-2 (T), MW-2 (M), MW-2 (B).

Table for Signatures and Dates. Columns: Sampler's Name, Relinquished By / Affiliation, Date, Time, Accepted By / Affiliation, Date, Time. Includes signature of James R/Alex M and Ronald Taylor.

Table for Special Instructions and Custody Status. Includes checkboxes for Custody Seals In Place, Temp Blank, Cooler Temp on Receipt, Trip Blank, MS/MSD Sample Submitted.



Page 37 of 40



Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: BP 6113

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

BP Facility No: 6113

Lab Work Order Number:

Header section containing lab name (Test America), facility address (785 E. Stanley Boulevard), consultant/contractor (Broadbent & Associates Inc.), lab address (17461 Derian Avenue, Suite 100, Irvine, CA), lab PM (Kathleen Robb), lead regulatory agency (ACEH), address (1324 Mangrove Ave., Suite 212, Chico, California), lab phone (949-261-1022), California Global ID No. (T0600100111), consultant/contractor PM (Jason Duda), lab shipping acct (Fed ex#: 11103-6633-7), enfos proposal no/wr#: (005X5 - 0002 / WR245675), phone (530-566-1400 / 530-566-1401 (f)), 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 (Execute (4)), activity (GWM (401)), invoice to (BP X Contractor).

Main data table with columns: Lab No., Sample Description, Date, Time, Matrix, No. Containers / Preservative, Requested Analyses, Report Type & QC Level. Includes handwritten entries for MW-4, VW-4, and TB-613-0407208.

Sampler information section including Sampler's Name (James R/ALOCM), Relinquished By / Affiliation (Keriah Taylor), Date (4-9-13), Time (16:00), Accepted By / Affiliation (Leticia Sorensen), Date (4-10-13), Time (7:30).

Special Instructions section.

Footer section with checkboxes for Custody Seals In Place, Temp Blank, Cooler Temp on Receipt, Trip Blank, and MS/MSD Sample Submitted.



Page 38 of 40

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-43227-1

Login Number: 43227

List Number: 1

Creator: Escalante, Maria

List Source: TestAmerica Irvine

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	JAMES R/ALEX M
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.	True	
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	



Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-43227-1

Login Number: 43227

List Number: 1

Creator: Morales, Sergio

List Source: TestAmerica Costa Mesa

List Creation: 04/11/13 10:29 AM

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.	N/A	
Sample custody seals, if present, are intact.	True	
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	
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.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



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: 440-43384-1
Client Project/Site: ARCO 6113, Livermore

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

Attn: Mr. Jason Duda



*Authorized for release by:
4/25/2013 9:29:23 AM*

Kathleen Robb
Project Manager II
kathleen.robbs@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

1

2

3

4

5

6

7

8

9

10

11

12

13



Table of Contents

Cover Page	1
Table of Contents	2
Sample Summary	3
Case Narrative	4
Client Sample Results	5
Method Summary	19
Chronicle	20
QC Sample Results	26
QC Association	39
Definitions	45
Certification Summary	46
Chain of Custody	47
Receipt Checklists	49

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-43384-1	MW-9(T)	Water	04/10/13 10:45	04/11/13 07:45
440-43384-2	MW-9(M)	Water	04/10/13 10:20	04/11/13 07:45
440-43384-3	MW-9(B)	Water	04/10/13 09:55	04/11/13 07:45
440-43384-4	VW-2(T)	Water	04/10/13 12:00	04/11/13 07:45
440-43384-5	VW-2(M)	Water	04/10/13 11:40	04/11/13 07:45
440-43384-6	VW-2(B)	Water	04/10/13 11:15	04/11/13 07:45
440-43384-7	VW-1(T)	Water	04/10/13 13:20	04/11/13 07:45
440-43384-8	VW-1(M)	Water	04/10/13 13:00	04/11/13 07:45
440-43384-9	VW-1(B)	Water	04/10/13 12:35	04/11/13 07:45
440-43384-10	MW-7(T)	Water	04/10/13 14:50	04/11/13 07:45
440-43384-11	MW-7(M)	Water	04/10/13 14:25	04/11/13 07:45
440-43384-12	MW-7(B)	Water	04/10/13 14:00	04/11/13 07:45
440-43384-13	RMW-13(T)	Water	04/10/13 15:45	04/11/13 07:45
440-43384-14	RMW-13(B)	Water	04/10/13 15:20	04/11/13 07:45

Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Job ID: 440-43384-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative 440-43384-1

Comments

No additional comments.

Receipt

The samples were received on 4/11/2013 7:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.4° C, 2.7° C and 2.8° C.

GC/MS VOA

No analytical or quality issues were noted.

HPLC

Method(s) 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for sulfate in batch 97646 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

GC VOA

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: RMW-13(T) (440-43384-13), RMW-13(B) (440-43384-14). 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: (CCV 440-99216/60), (CCV 440-99216/64). BFB surrogate coeluted with TPH standard. Data not impacted.

No other analytical or quality issues were noted.

Air - GC VOA

No analytical or quality issues were noted.

Metals

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-9(T)

Lab Sample ID: 440-43384-1

Date Collected: 04/10/13 10:45

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 17:58	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 17:58	1
Benzene	ND		0.50	ug/L			04/13/13 17:58	1
Ethanol	ND		150	ug/L			04/13/13 17:58	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 17:58	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 17:58	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 17:58	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 17:58	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 17:58	1
o-Xylene	ND		0.50	ug/L			04/13/13 17:58	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 17:58	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 17:58	1
Toluene	ND		0.50	ug/L			04/13/13 17:58	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 17:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120				04/13/13 17:58	1
Dibromofluoromethane (Surr)	91		80 - 120				04/13/13 17:58	1
Toluene-d8 (Surr)	105		80 - 120				04/13/13 17:58	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			04/19/13 02:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		65 - 140				04/19/13 02:21	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/16/13 13:31	1
Carbon Dioxide (TCD)	27		0.17	mg/L			04/15/13 08:15	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.31		0.11	mg/L			04/11/13 13:22	1
Sulfate	36		0.50	mg/L			04/11/13 13:22	1
Nitrite as N	ND		0.15	mg/L			04/11/13 13:22	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 13:22	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/18/13 14:01	04/19/13 14:47	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	6.2	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-9(M)

Lab Sample ID: 440-43384-2

Date Collected: 04/10/13 10:20

Matrix: Water

Date Received: 04/11/13 07:45

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			04/14/13 12:16	1
1,2-Dichloroethane	ND		0.50	ug/L			04/14/13 12:16	1
Benzene	ND		0.50	ug/L			04/14/13 12:16	1
Ethanol	ND		150	ug/L			04/14/13 12:16	1
Ethylbenzene	ND		0.50	ug/L			04/14/13 12:16	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/14/13 12:16	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/14/13 12:16	1
m,p-Xylene	ND		1.0	ug/L			04/14/13 12:16	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/14/13 12:16	1
o-Xylene	ND		0.50	ug/L			04/14/13 12:16	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/14/13 12:16	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/14/13 12:16	1
Toluene	ND		0.50	ug/L			04/14/13 12:16	1
Xylenes, Total	ND		1.0	ug/L			04/14/13 12:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120				04/14/13 12:16	1
Dibromofluoromethane (Surr)	104		80 - 120				04/14/13 12:16	1
Toluene-d8 (Surr)	100		80 - 120				04/14/13 12:16	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			04/19/13 02:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		65 - 140				04/19/13 02:48	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/16/13 14:02	1
Carbon Dioxide (TCD)	27		0.17	mg/L			04/15/13 08:45	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.34		0.11	mg/L			04/11/13 14:17	1
Sulfate	36		0.50	mg/L			04/11/13 14:17	1
Nitrite as N	ND		0.15	mg/L			04/11/13 14:17	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 14:17	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/18/13 14:01	04/19/13 15:19	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	5.3	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-9(B)

Lab Sample ID: 440-43384-3

Date Collected: 04/10/13 09:55

Matrix: Water

Date Received: 04/11/13 07:45

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			04/14/13 14:27	1
1,2-Dichloroethane	ND		0.50	ug/L			04/14/13 14:27	1
Benzene	ND		0.50	ug/L			04/14/13 14:27	1
Ethanol	ND		150	ug/L			04/14/13 14:27	1
Ethylbenzene	ND		0.50	ug/L			04/14/13 14:27	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/14/13 14:27	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/14/13 14:27	1
m,p-Xylene	ND		1.0	ug/L			04/14/13 14:27	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/14/13 14:27	1
o-Xylene	ND		0.50	ug/L			04/14/13 14:27	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/14/13 14:27	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/14/13 14:27	1
Toluene	ND		0.50	ug/L			04/14/13 14:27	1
Xylenes, Total	ND		1.0	ug/L			04/14/13 14:27	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120				04/14/13 14:27	1
Dibromofluoromethane (Surr)	109		80 - 120				04/14/13 14:27	1
Toluene-d8 (Surr)	100		80 - 120				04/14/13 14:27	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			04/19/13 03:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		65 - 140				04/19/13 03:14	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/16/13 09:25	1
Carbon Dioxide (TCD)	26		0.17	mg/L			04/15/13 09:34	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.43		0.11	mg/L			04/11/13 14:45	1
Sulfate	36		0.50	mg/L			04/11/13 14:45	1
Nitrite as N	ND		0.15	mg/L			04/11/13 14:45	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 14:45	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/18/13 14:01	04/19/13 15:21	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.9	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-2(T)

Lab Sample ID: 440-43384-4

Date Collected: 04/10/13 12:00

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 14:18	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 14:18	1
Benzene	ND		0.50	ug/L			04/13/13 14:18	1
Ethanol	ND		150	ug/L			04/13/13 14:18	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 14:18	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 14:18	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 14:18	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 14:18	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 14:18	1
o-Xylene	ND		0.50	ug/L			04/13/13 14:18	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 14:18	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 14:18	1
Toluene	ND		0.50	ug/L			04/13/13 14:18	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 14:18	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120				04/13/13 14:18	1
Dibromofluoromethane (Surr)	95		80 - 120				04/13/13 14:18	1
Toluene-d8 (Surr)	114		80 - 120				04/13/13 14:18	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			04/19/13 03:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		65 - 140				04/19/13 03:40	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/16/13 09:41	1
Carbon Dioxide (TCD)	32		0.17	mg/L			04/15/13 09:47	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 15:12	1
Sulfate	36		0.50	mg/L			04/11/13 15:12	1
Nitrite as N	ND		0.15	mg/L			04/11/13 15:12	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 15:12	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.8		0.020	mg/L		04/18/13 14:01	04/19/13 15:24	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.3	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-2(M)

Lab Sample ID: 440-43384-5

Date Collected: 04/10/13 11:40

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 15:43	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 15:43	1
Benzene	ND		0.50	ug/L			04/13/13 15:43	1
Ethanol	ND		150	ug/L			04/13/13 15:43	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 15:43	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 15:43	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 15:43	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 15:43	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 15:43	1
o-Xylene	ND		0.50	ug/L			04/13/13 15:43	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 15:43	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 15:43	1
Toluene	ND		0.50	ug/L			04/13/13 15:43	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 15:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120				04/13/13 15:43	1
Dibromofluoromethane (Surr)	98		80 - 120				04/13/13 15:43	1
Toluene-d8 (Surr)	113		80 - 120				04/13/13 15:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	94		50	ug/L			04/19/13 00:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		65 - 140				04/19/13 00:37	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	0.051		0.00099	mg/L			04/16/13 09:56	1
Carbon Dioxide (TCD)	22		0.17	mg/L			04/15/13 10:00	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 16:36	1
Sulfate	40		5.0	mg/L			04/11/13 16:50	10
Nitrite as N	ND		0.15	mg/L			04/11/13 16:36	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 16:36	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3.4		0.020	mg/L		04/18/13 14:01	04/19/13 15:26	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.0	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-2(B)

Lab Sample ID: 440-43384-6

Date Collected: 04/10/13 11:15

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 16:11	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 16:11	1
Benzene	ND		0.50	ug/L			04/13/13 16:11	1
Ethanol	ND		150	ug/L			04/13/13 16:11	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 16:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 16:11	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 16:11	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 16:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 16:11	1
o-Xylene	ND		0.50	ug/L			04/13/13 16:11	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 16:11	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 16:11	1
Toluene	ND		0.50	ug/L			04/13/13 16:11	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 16:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120				04/13/13 16:11	1
Dibromofluoromethane (Surr)	100		80 - 120				04/13/13 16:11	1
Toluene-d8 (Surr)	113		80 - 120				04/13/13 16:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	87		50	ug/L			04/19/13 04:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		65 - 140				04/19/13 04:05	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	0.13		0.00099	mg/L			04/16/13 10:19	1
Carbon Dioxide (TCD)	22		0.17	mg/L			04/15/13 10:15	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 17:03	1
Sulfate	41		5.0	mg/L			04/11/13 17:17	10
Nitrite as N	ND		0.15	mg/L			04/11/13 17:03	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 17:03	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3.2		0.020	mg/L		04/18/13 14:01	04/19/13 15:28	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.4	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-1(T)

Lab Sample ID: 440-43384-7

Date Collected: 04/10/13 13:20

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 16:40	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 16:40	1
Benzene	ND		0.50	ug/L			04/13/13 16:40	1
Ethanol	ND		150	ug/L			04/13/13 16:40	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 16:40	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 16:40	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 16:40	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 16:40	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 16:40	1
o-Xylene	ND		0.50	ug/L			04/13/13 16:40	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 16:40	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 16:40	1
Toluene	ND		0.50	ug/L			04/13/13 16:40	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 16:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/13/13 16:40	1
Dibromofluoromethane (Surr)	102		80 - 120				04/13/13 16:40	1
Toluene-d8 (Surr)	114		80 - 120				04/13/13 16:40	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			04/19/13 04:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		65 - 140				04/19/13 04:32	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	0.011		0.00099	mg/L			04/16/13 10:34	1
Carbon Dioxide (TCD)	21		0.17	mg/L			04/15/13 10:34	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 17:31	1
Sulfate	42		5.0	mg/L			04/11/13 17:44	10
Nitrite as N	ND		0.15	mg/L			04/11/13 17:31	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 17:31	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	4.7		0.020	mg/L		04/18/13 14:01	04/19/13 15:31	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.1	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-1(M)

Lab Sample ID: 440-43384-8

Date Collected: 04/10/13 13:00

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 17:09	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 17:09	1
Benzene	ND		0.50	ug/L			04/13/13 17:09	1
Ethanol	ND		150	ug/L			04/13/13 17:09	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 17:09	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 17:09	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 17:09	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 17:09	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 17:09	1
o-Xylene	ND		0.50	ug/L			04/13/13 17:09	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 17:09	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 17:09	1
Toluene	ND		0.50	ug/L			04/13/13 17:09	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 17:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/13/13 17:09	1
Dibromofluoromethane (Surr)	97		80 - 120				04/13/13 17:09	1
Toluene-d8 (Surr)	115		80 - 120				04/13/13 17:09	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			04/19/13 05:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		65 - 140				04/19/13 05:50	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	0.025		0.00099	mg/L			04/16/13 10:49	1
Carbon Dioxide (TCD)	21		0.17	mg/L			04/15/13 10:50	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 17:58	1
Sulfate	42		5.0	mg/L			04/11/13 18:12	10
Nitrite as N	ND		0.15	mg/L			04/11/13 17:58	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 17:58	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3.1		0.020	mg/L		04/18/13 14:01	04/19/13 15:33	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:33	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.2	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-1(B)

Lab Sample ID: 440-43384-9

Date Collected: 04/10/13 12:35

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 17:37	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 17:37	1
Benzene	ND		0.50	ug/L			04/13/13 17:37	1
Ethanol	ND		150	ug/L			04/13/13 17:37	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 17:37	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 17:37	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 17:37	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 17:37	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 17:37	1
o-Xylene	ND		0.50	ug/L			04/13/13 17:37	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 17:37	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 17:37	1
Toluene	ND		0.50	ug/L			04/13/13 17:37	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 17:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/13/13 17:37	1
Dibromofluoromethane (Surr)	98		80 - 120				04/13/13 17:37	1
Toluene-d8 (Surr)	112		80 - 120				04/13/13 17:37	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			04/19/13 06:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		65 - 140				04/19/13 06:16	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	0.043		0.00099	mg/L			04/16/13 11:07	1
Carbon Dioxide (TCD)	21		0.17	mg/L			04/15/13 11:03	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 18:26	1
Sulfate	40		5.0	mg/L			04/11/13 18:39	10
Nitrite as N	ND		0.15	mg/L			04/11/13 18:26	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 18:26	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3.0		0.020	mg/L		04/18/13 14:01	04/19/13 15:35	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:59	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.0	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-7(T)

Lab Sample ID: 440-43384-10

Date Collected: 04/10/13 14:50

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 18:05	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 18:05	1
Benzene	ND		0.50	ug/L			04/13/13 18:05	1
Ethanol	ND		150	ug/L			04/13/13 18:05	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 18:05	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 18:05	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 18:05	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 18:05	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 18:05	1
o-Xylene	ND		0.50	ug/L			04/13/13 18:05	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 18:05	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 18:05	1
Toluene	ND		0.50	ug/L			04/13/13 18:05	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 18:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120				04/13/13 18:05	1
Dibromofluoromethane (Surr)	102		80 - 120				04/13/13 18:05	1
Toluene-d8 (Surr)	114		80 - 120				04/13/13 18:05	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			04/19/13 06:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		65 - 140				04/19/13 06:43	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (FID)	1.6		0.17	mg/L			04/15/13 11:17	1
Methane (FID)	ND		0.00099	mg/L			04/16/13 11:21	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.51		0.11	mg/L			04/11/13 19:32	1
Sulfate	34		0.50	mg/L			04/11/13 19:32	1
Nitrite as N	ND		0.15	mg/L			04/11/13 19:32	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 19:32	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.029		0.020	mg/L		04/18/13 14:01	04/19/13 15:37	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:59	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	7.3	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-7(M)

Lab Sample ID: 440-43384-11

Date Collected: 04/10/13 14:25

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 18:34	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 18:34	1
Benzene	ND		0.50	ug/L			04/13/13 18:34	1
Ethanol	ND		150	ug/L			04/13/13 18:34	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 18:34	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 18:34	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 18:34	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 18:34	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 18:34	1
o-Xylene	ND		0.50	ug/L			04/13/13 18:34	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 18:34	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 18:34	1
Toluene	ND		0.50	ug/L			04/13/13 18:34	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 18:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120				04/13/13 18:34	1
Dibromofluoromethane (Surr)	106		80 - 120				04/13/13 18:34	1
Toluene-d8 (Surr)	114		80 - 120				04/13/13 18:34	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			04/19/13 07:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		65 - 140				04/19/13 07:09	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/16/13 12:08	1
Carbon Dioxide (TCD)	37		0.17	mg/L			04/15/13 11:59	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.47		0.11	mg/L			04/11/13 20:00	1
Sulfate	36		0.50	mg/L			04/11/13 20:00	1
Nitrite as N	ND		0.15	mg/L			04/11/13 20:00	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 20:00	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.29		0.020	mg/L		04/18/13 14:01	04/19/13 15:45	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:59	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.0	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-7(B)

Lab Sample ID: 440-43384-12

Date Collected: 04/10/13 14:00

Matrix: Water

Date Received: 04/11/13 07:45

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			04/13/13 19:02	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 19:02	1
Benzene	ND		0.50	ug/L			04/13/13 19:02	1
Ethanol	ND		150	ug/L			04/13/13 19:02	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 19:02	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 19:02	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 19:02	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 19:02	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 19:02	1
o-Xylene	ND		0.50	ug/L			04/13/13 19:02	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 19:02	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 19:02	1
Toluene	ND		0.50	ug/L			04/13/13 19:02	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 19:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120				04/13/13 19:02	1
Dibromofluoromethane (Surr)	102		80 - 120				04/13/13 19:02	1
Toluene-d8 (Surr)	114		80 - 120				04/13/13 19:02	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			04/19/13 07:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		65 - 140				04/19/13 07:35	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	0.083		0.00099	mg/L			04/16/13 12:23	1
Carbon Dioxide (TCD)	28		0.17	mg/L			04/15/13 12:13	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.46		0.11	mg/L			04/11/13 20:55	1
Sulfate	36		0.50	mg/L			04/11/13 20:55	1
Nitrite as N	ND		0.15	mg/L			04/11/13 20:55	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 20:55	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.2		0.020	mg/L		04/18/13 14:01	04/19/13 15:48	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:59	1
Ferrous Iron	ND	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	3.2	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: RMW-13(T)

Lab Sample ID: 440-43384-13

Date Collected: 04/10/13 15:45

Matrix: Water

Date Received: 04/11/13 07:45

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		50	ug/L			04/13/13 19:31	100
1,2-Dichloroethane	ND		50	ug/L			04/13/13 19:31	100
Benzene	4600		50	ug/L			04/13/13 19:31	100
Ethanol	ND		15000	ug/L			04/13/13 19:31	100
Ethylbenzene	1300		50	ug/L			04/13/13 19:31	100
Ethyl-t-butyl ether (ETBE)	ND		50	ug/L			04/13/13 19:31	100
Isopropyl Ether (DIPE)	ND		50	ug/L			04/13/13 19:31	100
m,p-Xylene	400		100	ug/L			04/13/13 19:31	100
Methyl-t-Butyl Ether (MTBE)	270		50	ug/L			04/13/13 19:31	100
o-Xylene	ND		50	ug/L			04/13/13 19:31	100
Tert-amyl-methyl ether (TAME)	ND		50	ug/L			04/13/13 19:31	100
tert-Butyl alcohol (TBA)	ND		1000	ug/L			04/13/13 19:31	100
Toluene	ND		50	ug/L			04/13/13 19:31	100
Xylenes, Total	400		100	ug/L			04/13/13 19:31	100
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120				04/13/13 19:31	100
Dibromofluoromethane (Surr)	100		80 - 120				04/13/13 19:31	100
Toluene-d8 (Surr)	110		80 - 120				04/13/13 19:31	100

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	10000		1000	ug/L			04/19/13 12:49	20
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	149	LH	65 - 140				04/19/13 12:49	20

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	190		0.17	mg/L			04/15/13 12:31	1
Methane (TCD)	5.2		0.00099	mg/L			04/16/13 12:41	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.12		0.11	mg/L			04/11/13 21:22	1
Sulfate	0.90		0.50	mg/L			04/11/13 21:22	1
Nitrite as N	ND		0.15	mg/L			04/11/13 21:22	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 21:22	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	6.6		0.020	mg/L		04/18/13 14:01	04/19/13 15:50	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:59	1
Ferrous Iron	0.40	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	2.5	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: RMW-13(B)

Lab Sample ID: 440-43384-14

Date Collected: 04/10/13 15:20

Matrix: Water

Date Received: 04/11/13 07:45

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		50	ug/L			04/13/13 19:59	100
1,2-Dichloroethane	ND		50	ug/L			04/13/13 19:59	100
Benzene	5100		50	ug/L			04/13/13 19:59	100
Ethanol	ND		15000	ug/L			04/13/13 19:59	100
Ethylbenzene	1300		50	ug/L			04/13/13 19:59	100
Ethyl-t-butyl ether (ETBE)	ND		50	ug/L			04/13/13 19:59	100
Isopropyl Ether (DIPE)	ND		50	ug/L			04/13/13 19:59	100
m,p-Xylene	460		100	ug/L			04/13/13 19:59	100
Methyl-t-Butyl Ether (MTBE)	280		50	ug/L			04/13/13 19:59	100
o-Xylene	ND		50	ug/L			04/13/13 19:59	100
Tert-amyl-methyl ether (TAME)	ND		50	ug/L			04/13/13 19:59	100
tert-Butyl alcohol (TBA)	ND		1000	ug/L			04/13/13 19:59	100
Toluene	53		50	ug/L			04/13/13 19:59	100
Xylenes, Total	460		100	ug/L			04/13/13 19:59	100
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120				04/13/13 19:59	100
Dibromofluoromethane (Surr)	100		80 - 120				04/13/13 19:59	100
Toluene-d8 (Surr)	112		80 - 120				04/13/13 19:59	100

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	12000		1000	ug/L			04/19/13 13:15	20
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	164	LH	65 - 140				04/19/13 13:15	20

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	190		0.17	mg/L			04/15/13 12:44	1
Methane (TCD)	5.4		0.00099	mg/L			04/16/13 12:58	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.17		0.11	mg/L			04/11/13 22:19	1
Sulfate	0.59		0.50	mg/L			04/11/13 22:19	1
Nitrite as N	ND		0.15	mg/L			04/11/13 22:19	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 22:19	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	6.7		0.020	mg/L		04/18/13 14:01	04/19/13 15:52	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 13:59	1
Ferrous Iron	1.0	QP	0.10	mg/L			04/12/13 15:28	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oxygen, Dissolved	2.7	QP	1.0	mg/L			04/11/13 15:28	1

TestAmerica Irvine

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Method	Method Description	Protocol	Laboratory
8260B/5030B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B/5030B	Gasoline Range Organics (GC)	SW846	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL CM
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL IRV
SM 3500 FE D	Iron, Ferrous	SM	TAL IRV
SM 4500 O G	Oxygen, Dissolved	SM	TAL IRV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique , RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

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

Laboratory References:

TAL CM = TestAmerica Costa Mesa, 3585 Cadillac Ave, Suite A, Costa Mesa, CA 92626, TEL (714)258-8610

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

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-9(T)

Lab Sample ID: 440-43384-1

Date Collected: 04/10/13 10:45

Matrix: Water

Date Received: 04/11/13 07:45

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	98118	04/13/13 17:58	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 08:15	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 13:31	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 02:21	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 13:22	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 13:22	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 14:47	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: MW-9(M)

Lab Sample ID: 440-43384-2

Date Collected: 04/10/13 10:20

Matrix: Water

Date Received: 04/11/13 07:45

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	98160	04/14/13 12:16	AT	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 08:45	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 14:02	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 02:48	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 14:17	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 14:17	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:19	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: MW-9(B)

Lab Sample ID: 440-43384-3

Date Collected: 04/10/13 09:55

Matrix: Water

Date Received: 04/11/13 07:45

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	98160	04/14/13 14:27	AT	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 09:34	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 09:25	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 03:14	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 14:45	NN	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-9(B)

Lab Sample ID: 440-43384-3

Date Collected: 04/10/13 09:55

Matrix: Water

Date Received: 04/11/13 07:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 14:45	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:21	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: VW-2(T)

Lab Sample ID: 440-43384-4

Date Collected: 04/10/13 12:00

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 14:18	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 09:47	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 09:41	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 03:40	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 15:12	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 15:12	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:24	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: VW-2(M)

Lab Sample ID: 440-43384-5

Date Collected: 04/10/13 11:40

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 15:43	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 10:00	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 09:56	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 00:37	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 16:36	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97646	04/11/13 16:50	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:26	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-2(M)

Lab Sample ID: 440-43384-5

Date Collected: 04/10/13 11:40

Matrix: Water

Date Received: 04/11/13 07:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: VW-2(B)

Lab Sample ID: 440-43384-6

Date Collected: 04/10/13 11:15

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 16:11	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 10:15	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 10:19	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 04:05	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 17:03	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97646	04/11/13 17:17	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:28	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: VW-1(T)

Lab Sample ID: 440-43384-7

Date Collected: 04/10/13 13:20

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 16:40	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 10:34	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 10:34	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 04:32	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 17:31	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97646	04/11/13 17:44	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:31	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: VW-1(M)

Lab Sample ID: 440-43384-8

Date Collected: 04/10/13 13:00

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 17:09	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 10:50	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 10:49	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 05:50	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 17:58	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97646	04/11/13 18:12	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:33	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:33	DC	TAL IRV

Client Sample ID: VW-1(B)

Lab Sample ID: 440-43384-9

Date Collected: 04/10/13 12:35

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 17:37	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 11:03	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 11:07	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 06:16	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 18:26	NN	TAL IRV
Total/NA	Analysis	300.0		10	1 mL		97646	04/11/13 18:39	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:35	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:59	DC	TAL IRV

Client Sample ID: MW-7(T)

Lab Sample ID: 440-43384-10

Date Collected: 04/10/13 14:50

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 18:05	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 11:17	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 11:21	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 06:43	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 19:32	NN	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-7(T)

Lab Sample ID: 440-43384-10

Date Collected: 04/10/13 14:50

Matrix: Water

Date Received: 04/11/13 07:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 19:32	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:37	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:59	DC	TAL IRV

Client Sample ID: MW-7(M)

Lab Sample ID: 440-43384-11

Date Collected: 04/10/13 14:25

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 18:34	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 11:59	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 12:08	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 07:09	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 20:00	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 20:00	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:45	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:59	DC	TAL IRV

Client Sample ID: MW-7(B)

Lab Sample ID: 440-43384-12

Date Collected: 04/10/13 14:00

Matrix: Water

Date Received: 04/11/13 07:45

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	98116	04/13/13 19:02	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 12:13	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 12:23	TD	TAL CM
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	99216	04/19/13 07:35	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 20:55	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 20:55	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:48	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Client Sample ID: MW-7(B)

Lab Sample ID: 440-43384-12

Date Collected: 04/10/13 14:00

Matrix: Water

Date Received: 04/11/13 07:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:59	DC	TAL IRV

Client Sample ID: RMW-13(T)

Lab Sample ID: 440-43384-13

Date Collected: 04/10/13 15:45

Matrix: Water

Date Received: 04/11/13 07:45

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		100	10 mL	10 mL	98116	04/13/13 19:31	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 12:31	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 12:41	TD	TAL CM
Total/NA	Analysis	8015B/5030B		20	10 mL	10 mL	99216	04/19/13 12:49	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 21:22	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 21:22	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:50	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:59	DC	TAL IRV

Client Sample ID: RMW-13(B)

Lab Sample ID: 440-43384-14

Date Collected: 04/10/13 15:20

Matrix: Water

Date Received: 04/11/13 07:45

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		100	10 mL	10 mL	98116	04/13/13 19:59	TN	TAL IRV
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4569	04/15/13 12:44	TD	TAL CM
Total/NA	Analysis	RSK-175		1	300 uL	300 uL	4574	04/16/13 12:58	TD	TAL CM
Total/NA	Analysis	8015B/5030B		20	10 mL	10 mL	99216	04/19/13 13:15	SC	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97645	04/11/13 22:19	NN	TAL IRV
Total/NA	Analysis	300.0		1	1 mL		97646	04/11/13 22:19	NN	TAL IRV
Total Recoverable	Prep	3005A			50 mL	50 mL	99157	04/18/13 14:01	ND	TAL IRV
Total Recoverable	Analysis	6010B		1			99472	04/19/13 15:52	EN	TAL IRV
Total/NA	Analysis	SM 4500 O G		1		40 mL	97734	04/11/13 15:28	TAI	TAL IRV
Total/NA	Analysis	SM 3500 FE D		1	25 mL	25 mL	98009	04/12/13 15:28	TM	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	99349	04/19/13 10:50	DC	TAL IRV
Total/NA	Analysis	351.2		1			99404	04/19/13 13:59	DC	TAL IRV

Laboratory References:

TAL CM = TestAmerica Costa Mesa, 3585 Cadillac Ave, Suite A, Costa Mesa, CA 92626, TEL (714)258-8610

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

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: MB 440-98116/5

Matrix: Water

Analysis Batch: 98116

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			04/13/13 12:49	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 12:49	1
Benzene	ND		0.50	ug/L			04/13/13 12:49	1
Ethanol	ND		150	ug/L			04/13/13 12:49	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 12:49	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 12:49	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 12:49	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 12:49	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 12:49	1
o-Xylene	ND		0.50	ug/L			04/13/13 12:49	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 12:49	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 12:49	1
Toluene	ND		0.50	ug/L			04/13/13 12:49	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 12:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		04/13/13 12:49	1
Dibromofluoromethane (Surr)	105		80 - 120		04/13/13 12:49	1
Toluene-d8 (Surr)	113		80 - 120		04/13/13 12:49	1

Lab Sample ID: LCS 440-98116/6

Matrix: Water

Analysis Batch: 98116

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	27.0		ug/L		108	75 - 125
1,2-Dichloroethane	25.0	25.6		ug/L		102	60 - 140
Benzene	25.0	25.8		ug/L		103	70 - 120
Ethanol	250	230		ug/L		92	40 - 155
Ethylbenzene	25.0	28.2		ug/L		113	75 - 125
Ethyl-t-butyl ether (ETBE)	25.0	29.5		ug/L		118	65 - 135
Isopropyl Ether (DIPE)	25.0	29.1		ug/L		117	60 - 135
m,p-Xylene	50.0	58.9		ug/L		118	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	28.3		ug/L		113	60 - 135
o-Xylene	25.0	27.8		ug/L		111	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	29.3		ug/L		117	60 - 135
tert-Butyl alcohol (TBA)	125	123		ug/L		98	70 - 135
Toluene	25.0	28.2		ug/L		113	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		80 - 120
Dibromofluoromethane (Surr)	106		80 - 120
Toluene-d8 (Surr)	114		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: 440-43384-4 MS

Matrix: Water

Analysis Batch: 98116

Client Sample ID: VW-2(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,2-Dibromoethane (EDB)	ND		25.0	28.3		ug/L		113	70 - 130
1,2-Dichloroethane	ND		25.0	26.4		ug/L		106	60 - 140
Benzene	ND		25.0	27.0		ug/L		108	65 - 125
Ethanol	ND		250	273		ug/L		109	40 - 155
Ethylbenzene	ND		25.0	29.4		ug/L		117	65 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	29.6		ug/L		118	60 - 135
Isopropyl Ether (DIPE)	ND		25.0	29.6		ug/L		119	60 - 140
m,p-Xylene	ND		50.0	59.9		ug/L		120	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	29.4		ug/L		118	55 - 145
o-Xylene	ND		25.0	29.0		ug/L		116	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	29.2		ug/L		117	60 - 140
tert-Butyl alcohol (TBA)	ND		125	132		ug/L		106	65 - 140
Toluene	ND		25.0	29.3		ug/L		117	70 - 125

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	105		80 - 120
Toluene-d8 (Surr)	114		80 - 120

Lab Sample ID: 440-43384-4 MSD

Matrix: Water

Analysis Batch: 98116

Client Sample ID: VW-2(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,2-Dibromoethane (EDB)	ND		25.0	28.3		ug/L		113	70 - 130	0	25
1,2-Dichloroethane	ND		25.0	27.2		ug/L		109	60 - 140	3	20
Benzene	ND		25.0	27.5		ug/L		110	65 - 125	2	20
Ethanol	ND		250	281		ug/L		113	40 - 155	3	30
Ethylbenzene	ND		25.0	30.5		ug/L		122	65 - 130	4	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	30.6		ug/L		122	60 - 135	3	25
Isopropyl Ether (DIPE)	ND		25.0	30.2		ug/L		121	60 - 140	2	25
m,p-Xylene	ND		50.0	62.1		ug/L		124	65 - 130	4	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	30.2		ug/L		121	55 - 145	3	25
o-Xylene	ND		25.0	29.8		ug/L		119	65 - 125	3	20
Tert-amyl-methyl ether (TAME)	ND		25.0	29.6		ug/L		118	60 - 140	1	30
tert-Butyl alcohol (TBA)	ND		125	124		ug/L		99	65 - 140	6	25
Toluene	ND		25.0	29.6		ug/L		118	70 - 125	1	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	109		80 - 120
Dibromofluoromethane (Surr)	106		80 - 120
Toluene-d8 (Surr)	114		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: MB 440-98118/4

Matrix: Water

Analysis Batch: 98118

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			04/13/13 12:38	1
1,2-Dichloroethane	ND		0.50	ug/L			04/13/13 12:38	1
Benzene	ND		0.50	ug/L			04/13/13 12:38	1
Ethanol	ND		150	ug/L			04/13/13 12:38	1
Ethylbenzene	ND		0.50	ug/L			04/13/13 12:38	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/13/13 12:38	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/13/13 12:38	1
m,p-Xylene	ND		1.0	ug/L			04/13/13 12:38	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/13/13 12:38	1
o-Xylene	ND		0.50	ug/L			04/13/13 12:38	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/13/13 12:38	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/13/13 12:38	1
Toluene	ND		0.50	ug/L			04/13/13 12:38	1
Xylenes, Total	ND		1.0	ug/L			04/13/13 12:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120		04/13/13 12:38	1
Dibromofluoromethane (Surr)	88		80 - 120		04/13/13 12:38	1
Toluene-d8 (Surr)	105		80 - 120		04/13/13 12:38	1

Lab Sample ID: LCS 440-98118/5

Matrix: Water

Analysis Batch: 98118

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	27.6		ug/L		110	75 - 125
1,2-Dichloroethane	25.0	26.8		ug/L		107	60 - 140
Benzene	25.0	24.5		ug/L		98	70 - 120
Ethanol	250	247		ug/L		99	40 - 155
Ethylbenzene	25.0	25.5		ug/L		102	75 - 125
Ethyl-t-butyl ether (ETBE)	25.0	23.7		ug/L		95	65 - 135
Isopropyl Ether (DIPE)	25.0	22.9		ug/L		92	60 - 135
m,p-Xylene	50.0	52.0		ug/L		104	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	24.7		ug/L		99	60 - 135
o-Xylene	25.0	26.2		ug/L		105	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	24.8		ug/L		99	60 - 135
tert-Butyl alcohol (TBA)	125	131		ug/L		105	70 - 135
Toluene	25.0	25.7		ug/L		103	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	93		80 - 120
Toluene-d8 (Surr)	105		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: 440-43384-1 MS

Matrix: Water

Analysis Batch: 98118

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,2-Dibromoethane (EDB)	ND		25.0	27.4		ug/L		110	70 - 130
1,2-Dichloroethane	ND		25.0	26.9		ug/L		108	60 - 140
Benzene	ND		25.0	25.5		ug/L		102	65 - 125
Ethanol	ND		250	255		ug/L		102	40 - 155
Ethylbenzene	ND		25.0	25.5		ug/L		102	65 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.9		ug/L		104	60 - 135
Isopropyl Ether (DIPE)	ND		25.0	25.0		ug/L		100	60 - 140
m,p-Xylene	ND		50.0	51.0		ug/L		102	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	25.7		ug/L		103	55 - 145
o-Xylene	ND		25.0	26.0		ug/L		104	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	26.7		ug/L		107	60 - 140
tert-Butyl alcohol (TBA)	ND		125	139		ug/L		111	65 - 140
Toluene	ND		25.0	26.6		ug/L		107	70 - 125

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	106		80 - 120

Lab Sample ID: 440-43384-1 MSD

Matrix: Water

Analysis Batch: 98118

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier		Result	Qualifier						
1,2-Dibromoethane (EDB)	ND		25.0	28.9		ug/L		116	70 - 130	5	25
1,2-Dichloroethane	ND		25.0	26.9		ug/L		108	60 - 140	0	20
Benzene	ND		25.0	26.1		ug/L		104	65 - 125	2	20
Ethanol	ND		250	262		ug/L		105	40 - 155	3	30
Ethylbenzene	ND		25.0	27.7		ug/L		111	65 - 130	9	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.9		ug/L		104	60 - 135	0	25
Isopropyl Ether (DIPE)	ND		25.0	25.2		ug/L		101	60 - 140	1	25
m,p-Xylene	ND		50.0	55.4		ug/L		111	65 - 130	8	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	25.6		ug/L		102	55 - 145	0	25
o-Xylene	ND		25.0	28.2		ug/L		113	65 - 125	8	20
Tert-amyl-methyl ether (TAME)	ND		25.0	26.5		ug/L		106	60 - 140	1	30
tert-Butyl alcohol (TBA)	ND		125	142		ug/L		113	65 - 140	2	25
Toluene	ND		25.0	27.3		ug/L		109	70 - 125	2	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	94		80 - 120
Toluene-d8 (Surr)	105		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: MB 440-98160/4

Matrix: Water

Analysis Batch: 98160

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			04/14/13 11:11	1
1,2-Dichloroethane	ND		0.50	ug/L			04/14/13 11:11	1
Benzene	ND		0.50	ug/L			04/14/13 11:11	1
Ethanol	ND		150	ug/L			04/14/13 11:11	1
Ethylbenzene	ND		0.50	ug/L			04/14/13 11:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			04/14/13 11:11	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			04/14/13 11:11	1
m,p-Xylene	ND		1.0	ug/L			04/14/13 11:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			04/14/13 11:11	1
o-Xylene	ND		0.50	ug/L			04/14/13 11:11	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			04/14/13 11:11	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			04/14/13 11:11	1
Toluene	ND		0.50	ug/L			04/14/13 11:11	1
Xylenes, Total	ND		1.0	ug/L			04/14/13 11:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120		04/14/13 11:11	1
Dibromofluoromethane (Surr)	105		80 - 120		04/14/13 11:11	1
Toluene-d8 (Surr)	100		80 - 120		04/14/13 11:11	1

Lab Sample ID: LCS 440-98160/5

Matrix: Water

Analysis Batch: 98160

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	27.2		ug/L		109	75 - 125
1,2-Dichloroethane	25.0	24.1		ug/L		96	60 - 140
Benzene	25.0	23.6		ug/L		94	70 - 120
Ethanol	250	325		ug/L		130	40 - 155
Ethylbenzene	25.0	27.9		ug/L		112	75 - 125
Ethyl-t-butyl ether (ETBE)	25.0	23.8		ug/L		95	65 - 135
Isopropyl Ether (DIPE)	25.0	26.0		ug/L		104	60 - 135
m,p-Xylene	50.0	57.8		ug/L		116	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	21.7		ug/L		87	60 - 135
o-Xylene	25.0	28.7		ug/L		115	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	22.4		ug/L		89	60 - 135
tert-Butyl alcohol (TBA)	125	147		ug/L		117	70 - 135
Toluene	25.0	24.8		ug/L		99	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	106		80 - 120
Toluene-d8 (Surr)	102		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: 440-43384-2 MS

Matrix: Water

Analysis Batch: 98160

Client Sample ID: MW-9(M)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,2-Dibromoethane (EDB)	ND		25.0	26.4		ug/L		106	70 - 130
1,2-Dichloroethane	ND		25.0	24.9		ug/L		100	60 - 140
Benzene	ND		25.0	22.7		ug/L		91	65 - 125
Ethanol	ND		250	308		ug/L		123	40 - 155
Ethylbenzene	ND		25.0	26.3		ug/L		105	65 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	26.0		ug/L		104	60 - 135
Isopropyl Ether (DIPE)	ND		25.0	28.1		ug/L		112	60 - 140
m,p-Xylene	ND		50.0	53.6		ug/L		107	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	23.4		ug/L		94	55 - 145
o-Xylene	ND		25.0	27.8		ug/L		111	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	23.6		ug/L		94	60 - 140
tert-Butyl alcohol (TBA)	ND		125	140		ug/L		112	65 - 140
Toluene	ND		25.0	24.3		ug/L		97	70 - 125

Surrogate	MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	110		80 - 120
Dibromofluoromethane (Surr)	110		80 - 120
Toluene-d8 (Surr)	101		80 - 120

Lab Sample ID: 440-43384-2 MSD

Matrix: Water

Analysis Batch: 98160

Client Sample ID: MW-9(M)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,2-Dibromoethane (EDB)	ND		25.0	24.2		ug/L		97	70 - 130	9	25
1,2-Dichloroethane	ND		25.0	22.7		ug/L		91	60 - 140	9	20
Benzene	ND		25.0	21.0		ug/L		84	65 - 125	8	20
Ethanol	ND		250	299		ug/L		119	40 - 155	3	30
Ethylbenzene	ND		25.0	23.6		ug/L		94	65 - 130	11	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	23.5		ug/L		94	60 - 135	10	25
Isopropyl Ether (DIPE)	ND		25.0	24.7		ug/L		99	60 - 140	13	25
m,p-Xylene	ND		50.0	48.4		ug/L		97	65 - 130	10	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	21.2		ug/L		85	55 - 145	10	25
o-Xylene	ND		25.0	25.2		ug/L		101	65 - 125	10	20
Tert-amyl-methyl ether (TAME)	ND		25.0	19.9		ug/L		80	60 - 140	17	30
tert-Butyl alcohol (TBA)	ND		125	136		ug/L		109	65 - 140	3	25
Toluene	ND		25.0	22.6		ug/L		91	70 - 125	7	20

Surrogate	MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	108		80 - 120
Toluene-d8 (Surr)	101		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

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

Lab Sample ID: MB 440-99216/37

Matrix: Water

Analysis Batch: 99216

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			04/19/13 00:11	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		65 - 140				04/19/13 00:11	1

Lab Sample ID: LCS 440-99216/36

Matrix: Water

Analysis Batch: 99216

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	752		ug/L		94	80 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	102		65 - 140				

Lab Sample ID: 440-43384-5 MS

Matrix: Water

Analysis Batch: 99216

Client Sample ID: VW-2(M)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	100		800	784		ug/L		85	65 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	105		65 - 140						

Lab Sample ID: 440-43384-5 MSD

Matrix: Water

Analysis Batch: 99216

Client Sample ID: VW-2(M)

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)	100		800	760		ug/L		82	65 - 140	3	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	107		65 - 140								

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 340-4569/8

Matrix: Water

Analysis Batch: 4569

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (FID)	ND		0.17	mg/L			04/15/13 07:36	1

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 340-4569/4

Matrix: Water

Analysis Batch: 4569

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	169	194		mg/L		115	80 - 120

Lab Sample ID: LCS 340-4569/6

Matrix: Water

Analysis Batch: 4569

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (FID)	0.844	0.815		mg/L		97	80 - 120

Lab Sample ID: LCSD 340-4569/5

Matrix: Water

Analysis Batch: 4569

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	169	194		mg/L		115	80 - 120	0	20

Lab Sample ID: LCSD 340-4569/7

Matrix: Water

Analysis Batch: 4569

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (FID)	0.844	0.759		mg/L		90	80 - 120	7	20

Lab Sample ID: 440-43384-1 DU

Matrix: Water

Analysis Batch: 4569

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Carbon Dioxide (TCD)	27		27.1		mg/L		2	20

Lab Sample ID: MB 340-4574/8

Matrix: Water

Analysis Batch: 4574

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00099	mg/L			04/16/13 06:54	1

Lab Sample ID: LCS 340-4574/4

Matrix: Water

Analysis Batch: 4574

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	9.42	8.92		mg/L		95	80 - 120

Lab Sample ID: LCS 340-4574/6

Matrix: Water

Analysis Batch: 4574

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (FID)	0.0471	0.0453		mg/L		96	80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Lab Sample ID: LCSD 340-4574/5
Matrix: Water
Analysis Batch: 4574

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	9.42	9.04		mg/L		96	80 - 120	1	20

Lab Sample ID: LCSD 340-4574/7
Matrix: Water
Analysis Batch: 4574

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (FID)	0.0471	0.0442		mg/L		94	80 - 120	2	20

Lab Sample ID: 440-43384-1 DU
Matrix: Water
Analysis Batch: 4574

Client Sample ID: MW-9(T)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Methane (FID)	ND		ND		mg/L		NC	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-97645/4
Matrix: Water
Analysis Batch: 97645

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	mg/L			04/11/13 12:13	1
Nitrite as N	ND		0.15	mg/L			04/11/13 12:13	1
Orthophosphorus as PO4	ND		0.50	mg/L			04/11/13 12:13	1

Lab Sample ID: LCS 440-97645/2
Matrix: Water
Analysis Batch: 97645

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.16		mg/L		103	90 - 110
Nitrate Nitrite as N	2.65	2.70		mg/L		102	90 - 110
Nitrite as N	1.52	1.54		mg/L		101	90 - 110
Orthophosphorus as PO4	5.00	4.91		mg/L		98	90 - 110

Lab Sample ID: MB 440-97646/4
Matrix: Water
Analysis Batch: 97646

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50	mg/L			04/11/13 12:13	1

Lab Sample ID: LCS 440-97646/2
Matrix: Water
Analysis Batch: 97646

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	9.55		mg/L		95	90 - 110

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Method: 300.0 - Anions, Ion Chromatography - DL

Lab Sample ID: 440-43384-1 MS

Matrix: Water

Analysis Batch: 97645

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Nitrate as N - DL	ND		11.3	10.6		mg/L		93	80 - 120	
Nitrate Nitrite as N - DL	ND		26.5	24.5		mg/L		92	80 - 120	
Nitrite as N - DL	ND		15.2	13.9		mg/L		91	80 - 120	
Orthophosphorus as PO4 - DL	ND		50.0	50.4		mg/L		101	80 - 120	

Lab Sample ID: 440-43384-1 MSD

Matrix: Water

Analysis Batch: 97645

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						RPD	Limit
Nitrate as N - DL	ND		11.3	10.1		mg/L		90	80 - 120	4	20	
Nitrate Nitrite as N - DL	ND		26.5	23.7		mg/L		89	80 - 120	3	20	
Nitrite as N - DL	ND		15.2	13.6		mg/L		89	80 - 120	2	20	
Orthophosphorus as PO4 - DL	ND		50.0	48.4		mg/L		97	80 - 120	4	20	

Lab Sample ID: 440-43384-11 MS

Matrix: Water

Analysis Batch: 97645

Client Sample ID: MW-7(M)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Nitrate as N - DL	ND		11.3	11.2		mg/L		99	80 - 120	
Nitrate Nitrite as N - DL	ND		26.5	25.8		mg/L		97	80 - 120	
Nitrite as N - DL	ND		15.2	14.6		mg/L		96	80 - 120	
Orthophosphorus as PO4 - DL	ND		50.0	52.8		mg/L		106	80 - 120	

Lab Sample ID: 440-43384-11 MSD

Matrix: Water

Analysis Batch: 97645

Client Sample ID: MW-7(M)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						RPD	Limit
Nitrate as N - DL	ND		11.3	11.1		mg/L		98	80 - 120	1	20	
Nitrate Nitrite as N - DL	ND		26.5	25.6		mg/L		97	80 - 120	1	20	
Nitrite as N - DL	ND		15.2	14.5		mg/L		95	80 - 120	0	20	
Orthophosphorus as PO4 - DL	ND		50.0	53.3		mg/L		107	80 - 120	1	20	

Lab Sample ID: 440-43384-1 MS

Matrix: Water

Analysis Batch: 97646

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Sulfate - DL	36		100	116		mg/L		80	80 - 120	

Lab Sample ID: 440-43384-1 MSD

Matrix: Water

Analysis Batch: 97646

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						RPD	Limit
Sulfate - DL	36		100	115	LN	mg/L		79	80 - 120	1	20	

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Method: 300.0 - Anions, Ion Chromatography - DL (Continued)

Lab Sample ID: 440-43384-11 MS
Matrix: Water
Analysis Batch: 97646

Client Sample ID: MW-7(M)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate - DL	35		100	120		mg/L		85	80 - 120

Lab Sample ID: 440-43384-11 MSD
Matrix: Water
Analysis Batch: 97646

Client Sample ID: MW-7(M)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate - DL	35		100	120		mg/L		85	80 - 120	1	20

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-99157/1-A
Matrix: Water
Analysis Batch: 99472

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 99157

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.020	mg/L		04/18/13 14:01	04/19/13 14:42	1

Lab Sample ID: LCS 440-99157/2-A
Matrix: Water
Analysis Batch: 99472

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 99157

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	1.00	0.940		mg/L		94	80 - 120

Lab Sample ID: 440-43384-1 MS
Matrix: Water
Analysis Batch: 99472

Client Sample ID: MW-9(T)
Prep Type: Total Recoverable
Prep Batch: 99157

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	ND		1.00	0.958		mg/L		96	75 - 125

Lab Sample ID: 440-43384-1 MSD
Matrix: Water
Analysis Batch: 99472

Client Sample ID: MW-9(T)
Prep Type: Total Recoverable
Prep Batch: 99157

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	ND		1.00	0.948		mg/L		95	75 - 125	1	20

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 440-99349/4-A
Matrix: Water
Analysis Batch: 99404

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 99349

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.50	mg/L		04/19/13 10:50	04/19/13 12:55	1

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: LCS 440-99349/3-A
Matrix: Water
Analysis Batch: 99404

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 99349

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	5.00	4.88		mg/L		98	90 - 110

Lab Sample ID: 440-43384-1 MS
Matrix: Water
Analysis Batch: 99404

Client Sample ID: MW-9(T)
Prep Type: Total/NA
Prep Batch: 99349

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	ND		5.00	4.97		mg/L		99	90 - 110

Lab Sample ID: 440-43384-1 MSD
Matrix: Water
Analysis Batch: 99404

Client Sample ID: MW-9(T)
Prep Type: Total/NA
Prep Batch: 99349

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	ND		5.00	5.01		mg/L		100	90 - 110	1	20

Method: SM 3500 FE D - Iron, Ferrous

Lab Sample ID: MB 440-98009/1
Matrix: Water
Analysis Batch: 98009

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	ND		0.10	mg/L			04/12/13 15:28	1

Lab Sample ID: LCS 440-98009/2
Matrix: Water
Analysis Batch: 98009

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	5.00	4.00		mg/L		80	80 - 120

Lab Sample ID: 440-43384-2 DU
Matrix: Water
Analysis Batch: 98009

Client Sample ID: MW-9(M)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	ND	QP	ND		mg/L		NC	20

Lab Sample ID: 440-43384-14 DU
Matrix: Water
Analysis Batch: 98009

Client Sample ID: RMW-13(B)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	1.0	QP	1.00		mg/L		0	20

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Method: SM 4500 O G - Oxygen, Dissolved

Lab Sample ID: 440-43384-1 DU

Matrix: Water

Analysis Batch: 97734

Client Sample ID: MW-9(T)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Oxygen, Dissolved	6.2	QP	6.20	QP	mg/L		0.6	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

GC/MS VOA

Analysis Batch: 98116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-4	VW-2(T)	Total/NA	Water	8260B/5030B	
440-43384-4 MS	VW-2(T)	Total/NA	Water	8260B/5030B	
440-43384-4 MSD	VW-2(T)	Total/NA	Water	8260B/5030B	
440-43384-5	VW-2(M)	Total/NA	Water	8260B/5030B	
440-43384-6	VW-2(B)	Total/NA	Water	8260B/5030B	
440-43384-7	VW-1(T)	Total/NA	Water	8260B/5030B	
440-43384-8	VW-1(M)	Total/NA	Water	8260B/5030B	
440-43384-9	VW-1(B)	Total/NA	Water	8260B/5030B	
440-43384-10	MW-7(T)	Total/NA	Water	8260B/5030B	
440-43384-11	MW-7(M)	Total/NA	Water	8260B/5030B	
440-43384-12	MW-7(B)	Total/NA	Water	8260B/5030B	
440-43384-13	RMW-13(T)	Total/NA	Water	8260B/5030B	
440-43384-14	RMW-13(B)	Total/NA	Water	8260B/5030B	
LCS 440-98116/6	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-98116/5	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 98118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	8260B/5030B	
440-43384-1 MS	MW-9(T)	Total/NA	Water	8260B/5030B	
440-43384-1 MSD	MW-9(T)	Total/NA	Water	8260B/5030B	
LCS 440-98118/5	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-98118/4	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 98160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-2	MW-9(M)	Total/NA	Water	8260B/5030B	
440-43384-2 MS	MW-9(M)	Total/NA	Water	8260B/5030B	
440-43384-2 MSD	MW-9(M)	Total/NA	Water	8260B/5030B	
440-43384-3	MW-9(B)	Total/NA	Water	8260B/5030B	
LCS 440-98160/5	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-98160/4	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 4569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	RSK-175	
440-43384-1 DU	MW-9(T)	Total/NA	Water	RSK-175	
440-43384-2	MW-9(M)	Total/NA	Water	RSK-175	
440-43384-3	MW-9(B)	Total/NA	Water	RSK-175	
440-43384-4	VW-2(T)	Total/NA	Water	RSK-175	
440-43384-5	VW-2(M)	Total/NA	Water	RSK-175	
440-43384-6	VW-2(B)	Total/NA	Water	RSK-175	
440-43384-7	VW-1(T)	Total/NA	Water	RSK-175	
440-43384-8	VW-1(M)	Total/NA	Water	RSK-175	
440-43384-9	VW-1(B)	Total/NA	Water	RSK-175	
440-43384-10	MW-7(T)	Total/NA	Water	RSK-175	
440-43384-11	MW-7(M)	Total/NA	Water	RSK-175	
440-43384-12	MW-7(B)	Total/NA	Water	RSK-175	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

GC VOA (Continued)

Analysis Batch: 4569 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-13	RMW-13(T)	Total/NA	Water	RSK-175	
440-43384-14	RMW-13(B)	Total/NA	Water	RSK-175	
LCS 340-4569/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 340-4569/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 340-4569/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 340-4569/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 340-4569/8	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 4574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	RSK-175	
440-43384-1 DU	MW-9(T)	Total/NA	Water	RSK-175	
440-43384-2	MW-9(M)	Total/NA	Water	RSK-175	
440-43384-3	MW-9(B)	Total/NA	Water	RSK-175	
440-43384-4	VW-2(T)	Total/NA	Water	RSK-175	
440-43384-5	VW-2(M)	Total/NA	Water	RSK-175	
440-43384-6	VW-2(B)	Total/NA	Water	RSK-175	
440-43384-7	VW-1(T)	Total/NA	Water	RSK-175	
440-43384-8	VW-1(M)	Total/NA	Water	RSK-175	
440-43384-9	VW-1(B)	Total/NA	Water	RSK-175	
440-43384-10	MW-7(T)	Total/NA	Water	RSK-175	
440-43384-11	MW-7(M)	Total/NA	Water	RSK-175	
440-43384-12	MW-7(B)	Total/NA	Water	RSK-175	
440-43384-13	RMW-13(T)	Total/NA	Water	RSK-175	
440-43384-14	RMW-13(B)	Total/NA	Water	RSK-175	
LCS 340-4574/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 340-4574/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 340-4574/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 340-4574/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 340-4574/8	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 99216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	8015B/5030B	
440-43384-2	MW-9(M)	Total/NA	Water	8015B/5030B	
440-43384-3	MW-9(B)	Total/NA	Water	8015B/5030B	
440-43384-4	VW-2(T)	Total/NA	Water	8015B/5030B	
440-43384-5	VW-2(M)	Total/NA	Water	8015B/5030B	
440-43384-5 MS	VW-2(M)	Total/NA	Water	8015B/5030B	
440-43384-5 MSD	VW-2(M)	Total/NA	Water	8015B/5030B	
440-43384-6	VW-2(B)	Total/NA	Water	8015B/5030B	
440-43384-7	VW-1(T)	Total/NA	Water	8015B/5030B	
440-43384-8	VW-1(M)	Total/NA	Water	8015B/5030B	
440-43384-9	VW-1(B)	Total/NA	Water	8015B/5030B	
440-43384-10	MW-7(T)	Total/NA	Water	8015B/5030B	
440-43384-11	MW-7(M)	Total/NA	Water	8015B/5030B	
440-43384-12	MW-7(B)	Total/NA	Water	8015B/5030B	
440-43384-13	RMW-13(T)	Total/NA	Water	8015B/5030B	
440-43384-14	RMW-13(B)	Total/NA	Water	8015B/5030B	
LCS 440-99216/36	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-99216/37	Method Blank	Total/NA	Water	8015B/5030B	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

HPLC/IC

Analysis Batch: 97645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	300.0	
440-43384-1 MS - DL	MW-9(T)	Total/NA	Water	300.0	
440-43384-1 MSD - DL	MW-9(T)	Total/NA	Water	300.0	
440-43384-2	MW-9(M)	Total/NA	Water	300.0	
440-43384-3	MW-9(B)	Total/NA	Water	300.0	
440-43384-4	VW-2(T)	Total/NA	Water	300.0	
440-43384-5	VW-2(M)	Total/NA	Water	300.0	
440-43384-6	VW-2(B)	Total/NA	Water	300.0	
440-43384-7	VW-1(T)	Total/NA	Water	300.0	
440-43384-8	VW-1(M)	Total/NA	Water	300.0	
440-43384-9	VW-1(B)	Total/NA	Water	300.0	
440-43384-10	MW-7(T)	Total/NA	Water	300.0	
440-43384-11	MW-7(M)	Total/NA	Water	300.0	
440-43384-11 MS - DL	MW-7(M)	Total/NA	Water	300.0	
440-43384-11 MSD - DL	MW-7(M)	Total/NA	Water	300.0	
440-43384-12	MW-7(B)	Total/NA	Water	300.0	
440-43384-13	RMW-13(T)	Total/NA	Water	300.0	
440-43384-14	RMW-13(B)	Total/NA	Water	300.0	
LCS 440-97645/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-97645/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 97646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	300.0	
440-43384-1 MS - DL	MW-9(T)	Total/NA	Water	300.0	
440-43384-1 MSD - DL	MW-9(T)	Total/NA	Water	300.0	
440-43384-2	MW-9(M)	Total/NA	Water	300.0	
440-43384-3	MW-9(B)	Total/NA	Water	300.0	
440-43384-4	VW-2(T)	Total/NA	Water	300.0	
440-43384-5	VW-2(M)	Total/NA	Water	300.0	
440-43384-6	VW-2(B)	Total/NA	Water	300.0	
440-43384-7	VW-1(T)	Total/NA	Water	300.0	
440-43384-8	VW-1(M)	Total/NA	Water	300.0	
440-43384-9	VW-1(B)	Total/NA	Water	300.0	
440-43384-10	MW-7(T)	Total/NA	Water	300.0	
440-43384-11	MW-7(M)	Total/NA	Water	300.0	
440-43384-11 MS - DL	MW-7(M)	Total/NA	Water	300.0	
440-43384-11 MSD - DL	MW-7(M)	Total/NA	Water	300.0	
440-43384-12	MW-7(B)	Total/NA	Water	300.0	
440-43384-13	RMW-13(T)	Total/NA	Water	300.0	
440-43384-14	RMW-13(B)	Total/NA	Water	300.0	
LCS 440-97646/2	Lab Control Sample	Total/NA	Water	300.0	
MB 440-97646/4	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 99157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total Recoverable	Water	3005A	
440-43384-1 MS	MW-9(T)	Total Recoverable	Water	3005A	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Metals (Continued)

Prep Batch: 99157 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1 MSD	MW-9(T)	Total Recoverable	Water	3005A	
440-43384-2	MW-9(M)	Total Recoverable	Water	3005A	
440-43384-3	MW-9(B)	Total Recoverable	Water	3005A	
440-43384-4	VW-2(T)	Total Recoverable	Water	3005A	
440-43384-5	VW-2(M)	Total Recoverable	Water	3005A	
440-43384-6	VW-2(B)	Total Recoverable	Water	3005A	
440-43384-7	VW-1(T)	Total Recoverable	Water	3005A	
440-43384-8	VW-1(M)	Total Recoverable	Water	3005A	
440-43384-9	VW-1(B)	Total Recoverable	Water	3005A	
440-43384-10	MW-7(T)	Total Recoverable	Water	3005A	
440-43384-11	MW-7(M)	Total Recoverable	Water	3005A	
440-43384-12	MW-7(B)	Total Recoverable	Water	3005A	
440-43384-13	RMW-13(T)	Total Recoverable	Water	3005A	
440-43384-14	RMW-13(B)	Total Recoverable	Water	3005A	
LCS 440-99157/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 440-99157/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 99472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total Recoverable	Water	6010B	99157
440-43384-1 MS	MW-9(T)	Total Recoverable	Water	6010B	99157
440-43384-1 MSD	MW-9(T)	Total Recoverable	Water	6010B	99157
440-43384-2	MW-9(M)	Total Recoverable	Water	6010B	99157
440-43384-3	MW-9(B)	Total Recoverable	Water	6010B	99157
440-43384-4	VW-2(T)	Total Recoverable	Water	6010B	99157
440-43384-5	VW-2(M)	Total Recoverable	Water	6010B	99157
440-43384-6	VW-2(B)	Total Recoverable	Water	6010B	99157
440-43384-7	VW-1(T)	Total Recoverable	Water	6010B	99157
440-43384-8	VW-1(M)	Total Recoverable	Water	6010B	99157
440-43384-9	VW-1(B)	Total Recoverable	Water	6010B	99157
440-43384-10	MW-7(T)	Total Recoverable	Water	6010B	99157
440-43384-11	MW-7(M)	Total Recoverable	Water	6010B	99157
440-43384-12	MW-7(B)	Total Recoverable	Water	6010B	99157
440-43384-13	RMW-13(T)	Total Recoverable	Water	6010B	99157
440-43384-14	RMW-13(B)	Total Recoverable	Water	6010B	99157
LCS 440-99157/2-A	Lab Control Sample	Total Recoverable	Water	6010B	99157
MB 440-99157/1-A	Method Blank	Total Recoverable	Water	6010B	99157

General Chemistry

Analysis Batch: 97734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	SM 4500 O G	
440-43384-1 DU	MW-9(T)	Total/NA	Water	SM 4500 O G	
440-43384-2	MW-9(M)	Total/NA	Water	SM 4500 O G	
440-43384-3	MW-9(B)	Total/NA	Water	SM 4500 O G	
440-43384-4	VW-2(T)	Total/NA	Water	SM 4500 O G	
440-43384-5	VW-2(M)	Total/NA	Water	SM 4500 O G	
440-43384-6	VW-2(B)	Total/NA	Water	SM 4500 O G	
440-43384-7	VW-1(T)	Total/NA	Water	SM 4500 O G	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

General Chemistry (Continued)

Analysis Batch: 97734 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-8	VW-1(M)	Total/NA	Water	SM 4500 O G	
440-43384-9	VW-1(B)	Total/NA	Water	SM 4500 O G	
440-43384-10	MW-7(T)	Total/NA	Water	SM 4500 O G	
440-43384-11	MW-7(M)	Total/NA	Water	SM 4500 O G	
440-43384-12	MW-7(B)	Total/NA	Water	SM 4500 O G	
440-43384-13	RMW-13(T)	Total/NA	Water	SM 4500 O G	
440-43384-14	RMW-13(B)	Total/NA	Water	SM 4500 O G	

Analysis Batch: 98009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	SM 3500 FE D	
440-43384-2	MW-9(M)	Total/NA	Water	SM 3500 FE D	
440-43384-2 DU	MW-9(M)	Total/NA	Water	SM 3500 FE D	
440-43384-3	MW-9(B)	Total/NA	Water	SM 3500 FE D	
440-43384-4	VW-2(T)	Total/NA	Water	SM 3500 FE D	
440-43384-5	VW-2(M)	Total/NA	Water	SM 3500 FE D	
440-43384-6	VW-2(B)	Total/NA	Water	SM 3500 FE D	
440-43384-7	VW-1(T)	Total/NA	Water	SM 3500 FE D	
440-43384-8	VW-1(M)	Total/NA	Water	SM 3500 FE D	
440-43384-9	VW-1(B)	Total/NA	Water	SM 3500 FE D	
440-43384-10	MW-7(T)	Total/NA	Water	SM 3500 FE D	
440-43384-11	MW-7(M)	Total/NA	Water	SM 3500 FE D	
440-43384-12	MW-7(B)	Total/NA	Water	SM 3500 FE D	
440-43384-13	RMW-13(T)	Total/NA	Water	SM 3500 FE D	
440-43384-14	RMW-13(B)	Total/NA	Water	SM 3500 FE D	
440-43384-14 DU	RMW-13(B)	Total/NA	Water	SM 3500 FE D	
LCS 440-98009/2	Lab Control Sample	Total/NA	Water	SM 3500 FE D	
MB 440-98009/1	Method Blank	Total/NA	Water	SM 3500 FE D	

Prep Batch: 99349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	351.2	
440-43384-1 MS	MW-9(T)	Total/NA	Water	351.2	
440-43384-1 MSD	MW-9(T)	Total/NA	Water	351.2	
440-43384-2	MW-9(M)	Total/NA	Water	351.2	
440-43384-3	MW-9(B)	Total/NA	Water	351.2	
440-43384-4	VW-2(T)	Total/NA	Water	351.2	
440-43384-5	VW-2(M)	Total/NA	Water	351.2	
440-43384-6	VW-2(B)	Total/NA	Water	351.2	
440-43384-7	VW-1(T)	Total/NA	Water	351.2	
440-43384-8	VW-1(M)	Total/NA	Water	351.2	
440-43384-9	VW-1(B)	Total/NA	Water	351.2	
440-43384-10	MW-7(T)	Total/NA	Water	351.2	
440-43384-11	MW-7(M)	Total/NA	Water	351.2	
440-43384-12	MW-7(B)	Total/NA	Water	351.2	
440-43384-13	RMW-13(T)	Total/NA	Water	351.2	
440-43384-14	RMW-13(B)	Total/NA	Water	351.2	
LCS 440-99349/3-A	Lab Control Sample	Total/NA	Water	351.2	
MB 440-99349/4-A	Method Blank	Total/NA	Water	351.2	

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

General Chemistry (Continued)

Analysis Batch: 99404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-43384-1	MW-9(T)	Total/NA	Water	351.2	99349
440-43384-1 MS	MW-9(T)	Total/NA	Water	351.2	99349
440-43384-1 MSD	MW-9(T)	Total/NA	Water	351.2	99349
440-43384-2	MW-9(M)	Total/NA	Water	351.2	99349
440-43384-3	MW-9(B)	Total/NA	Water	351.2	99349
440-43384-4	VW-2(T)	Total/NA	Water	351.2	99349
440-43384-5	VW-2(M)	Total/NA	Water	351.2	99349
440-43384-6	VW-2(B)	Total/NA	Water	351.2	99349
440-43384-7	VW-1(T)	Total/NA	Water	351.2	99349
440-43384-8	VW-1(M)	Total/NA	Water	351.2	99349
440-43384-9	VW-1(B)	Total/NA	Water	351.2	99349
440-43384-10	MW-7(T)	Total/NA	Water	351.2	99349
440-43384-11	MW-7(M)	Total/NA	Water	351.2	99349
440-43384-12	MW-7(B)	Total/NA	Water	351.2	99349
440-43384-13	RMW-13(T)	Total/NA	Water	351.2	99349
440-43384-14	RMW-13(B)	Total/NA	Water	351.2	99349
LCS 440-99349/3-A	Lab Control Sample	Total/NA	Water	351.2	99349
MB 440-99349/4-A	Method Blank	Total/NA	Water	351.2	99349

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 6113, Livermore

TestAmerica Job ID: 440-43384-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
LH	Surrogate Recoveries were higher than QC limits

HPLC/IC

Qualifier	Qualifier Description
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

General Chemistry

Qualifier	Qualifier Description
QP	Holding time Immediate. Analyzed as close to receipt as possible

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)
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 6113, Livermore

TestAmerica Job ID: 440-43384-1

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	06-30-13
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	03-28-13 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-13
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

Laboratory: TestAmerica Costa Mesa

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Arizona	State Program	9	AZ0727	02-09-14
Florida	NELAP	4	E87652	06-30-13
L-A-B	DoD ELAP		L2273	11-09-13
Louisiana	NELAP	6	01948	06-30-13
Oregon	NELAP	10	CA200013	07-19-13
Utah	NELAP	8	CA000032012-1	06-30-13
Washington	State Program	10	C579	11-29-13

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



Laboratory Management Program LaMP Chain of Custody Record

Page ____ of ____

BP Site Node Path: BP 6113
BP Facility No: 6113

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

Lab Work Order Number: 440-43384

Lab Name: Test America
Facility Address: 785 E. Stanley Boulevard
Consultant/Contractor: Broadbent & Associates Inc.
Lab Address: 17461 Derian Avenue, Suite 100, Irvine, CA
City, State, ZIP Code: Livermore, California
Consultant/Contractor Project No: 06-82-637
Lab PM: Kathleen Robb
Lead Regulatory Agency: ACEH
Address: 1324 Mangrove Ave., Suite 212, Chico, California
Lab Phone: 949-261-1022
California Global ID No.: T0600100111
Consultant/Contractor PM: Jason Duda
Lab Shipping Acct: Fed ex#: 11103-6633-7
Enfos Proposal No/ WR#: 005X5 - 0002 / WR245675
Phone: 530-566-1400 / 530-566-1401 (f) 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: Execute (4) Activity: GWM (401)
Invoice To: BP x Contractor

Table with columns: Sample Description, Date, Time, Matrix, No. Containers / Preservative, Requested Analyses, Report Type & QC Level. Includes rows for MW-9(A), MW-9(M), MW-9(B), VW-2(T), VW-2(M), VW-2(B), VW-1(T), VW-1(M), VW-1(B).

Sampler's Name: James R / Alex M
Relinquished By / Affiliation: [Signature]
Date: 4-10-13
Time: 1600
Accepted By / Affiliation: [Signature]
Date: 4-10-13
Time: 16:00
Shipment Method: Fed Ex
Ship Date: 4-10-13
Shipment Tracking No: [Signature]
Date: 4-10-13
Time: 18:00

Special Instructions:
THIS LINE - LAB USE ONLY: Custody Seals In Place (Yes/No)
Temp Blank: Yes/No
Cooler Temp on Receipt: 20.8 °F/C
Trip Blank: Yes/No
MS/MSD Sample Submitted: Yes/No





Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: BP 6113

Req Due Date (mm/dd/yy): _____ Rush TAT: Yes ___ No ___

BP Facility No: 6113

Lab Work Order Number: 440-43384

Lab Name: Test America	Facility Address: 785 E. Stanley Boulevard	Consultant/Contractor: Broadbent & Associates Inc.
Lab Address: 17461 Derian Avenue, Suite 100, Irvine, CA	City, State, ZIP Code: Livermore, California	Consultant/Contractor Project No: 06-82-637
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave., Suite 212, Chico, California
Lab Phone: 949-261-1022	California Global ID No.: T0600100111	Consultant/Contractor PM: Jason Duda
Lab Shipping Acct: Fed ex#: 11103-6633-7	Enfos Proposal No/ WR#: 005X5 - 0002 / WR245675	Phone: 530-566-1400 / 530-566-1401 (f) Email: jduda@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU ___ OOC-RM ___	Email EDD To: jduda@broadbentinc.com and to lab_enfosedge@bp.com
Other Info:	Stage: Execute (4) Activity: GWM (401)	Invoice To: BP <input checked="" type="checkbox"/> Contractor ___

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative								Requested Analyses							Report Type & QC Level					
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	GFO by 8015M	BTEX/5 FO/EDB by 8260	1,2-DCA and Ethanol by 8260	Carbon Dioxide by RSK 175	Methane by RSK 175	Nitrate and Nitrite by EPA Method 300.0	Phosphate and Sulfate by EPA Method 300.0	TKN by SM 4500 N Org B	Dissolved Oxygen by SM 400-O G	Manganese by EPA Method 6010B	Standard <input checked="" type="checkbox"/>	Full Data Package ___			
	MW-7 (+)	4-10-13	1450	X			Y	17																				
	MW-7 (M)		1425	X			Y	17																				
	MW-7 (B)		1460	X			Y	17																				
	RMW-13 (T)		1545	X			Y	17																				
	RMW-13 (B)		1520	X			Y	17																				
	TB-6113-041020B		1600	X			N	8																				ON HOLD

Sampler's Name: James Ramos/Alex M	Relinquished By / Affiliation: <i>[Signature]</i>	Date: 4-10-13	Time: 1600	Accepted By / Affiliation: <i>[Signature]</i>	Date: 4-10-13	Time: 16:00
Sampler's Company: Broadbent & Associates						
Shipment Method: Fed Ex	Ship Date: 4-10-13					
Shipment Tracking No:						
Special Instructions:						



Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-43384-1

Login Number: 43384

List Number: 1

Creator: Escalante, Maria

List Source: TestAmerica Irvine

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	JAMES R/ALEX M
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	

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-43384-1

Login Number: 43384

List Number: 1

Creator: Morales, Sergio

List Source: TestAmerica Costa Mesa

List Creation: 04/12/13 02:54 PM

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.	N/A	
Sample custody seals, if present, are intact.	True	
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	
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.	N/A	
Samples do not require splitting or compositing.	N/A	
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!

<u>Submittal Type:</u>	GEO_WELL
<u>Report Title:</u>	2Q13 Geo Well 6113
<u>Facility Global ID:</u>	T0600100111
<u>Facility Name:</u>	ARCO #06113
<u>File Name:</u>	GEO_WELL.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	69.170.45.210
<u>Submittal Date/Time:</u>	7/26/2013 3:38:06 PM
<u>Confirmation Number:</u>	9916294157

Copyright © 2013 State of California

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

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

<u>Submittal Type:</u>	EDF
<u>Report Title:</u>	2Q13 GW Monitoring #1
<u>Report Type:</u>	Monitoring Report - Semi-Annually
<u>Facility Global ID:</u>	T0600100111
<u>Facility Name:</u>	ARCO #06113
<u>File Name:</u>	EDF - 1024.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	69.170.45.210
<u>Submittal Date/Time:</u>	7/26/2013 3:47:55 PM
<u>Confirmation Number:</u>	4197671115

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)

Copyright © 2013 State of California

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

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

<u>Submittal Type:</u>	EDF
<u>Report Title:</u>	2Q13 GW Monitoring #2
<u>Report Type:</u>	Monitoring Report - Semi-Annually
<u>Facility Global ID:</u>	T0600100111
<u>Facility Name:</u>	ARCO #06113
<u>File Name:</u>	EDF - 1613.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	69.170.45.210
<u>Submittal Date/Time:</u>	7/26/2013 3:49:45 PM
<u>Confirmation Number:</u>	2683617770

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)

Copyright © 2013 State of California