

Atlantic Richfield Company

Shannon Couch
Operations Project Manager

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January 31, 2013

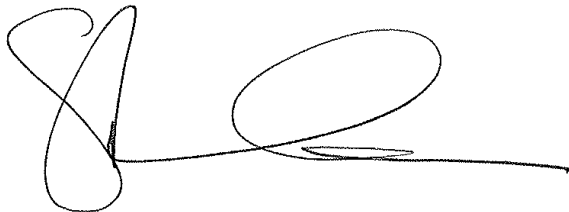
RECEIVED

By Alameda County Environmental Health at 1:29 pm, Jan 31, 2013

Re: Fourth Quarter 2012 Monitoring Report
Atlantic Richfield Company Station #2162
15135 Hesperian Boulevard, San Leandro, California
ACEH Case #RO0000190

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
Operations Project Manager

Attachment



1324 Mangrove Ave., Suite 212, Chico, CA 95926

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

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Creating Solutions. Building Trust.

January 31, 2013

Project No. 06-88-620

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

Attn.: Ms. Shannon Couch

Re: Fourth Quarter 2012 Monitoring Report, Atlantic Richfield Company Station #2162,
15135 Hesperian Boulevard, San Leandro, California; ACEH Case #RO0000190

Dear Ms. Couch:

Attached is the Fourth Quarter 2012 Monitoring Report for Atlantic Richfield Company Station #2162 located at 15135 Hesperian Boulevard in San Leandro, Alameda County, California. This report presents the observations and results of semi-annual groundwater monitoring and sampling conducted during the Fourth Quarter of 2012, and a summary of recent developments at the Site.

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

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, PE
Senior Engineer



Enclosures

cc: Ms. Dilan Roe, PE, Alameda County Environmental Health (submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

**FOURTH QUARTER 2012
MONITORING REPORT
ARCO STATION #2162, SAN LEANDRO, CALIFORNIA**

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *Fourth Quarter 2012 Monitoring Report* on behalf of Atlantic Richfield Company (a BP affiliated company) for ARCO Station #2162 located in San Leandro, Alameda County, California. Quarterly reporting is being submitted to the Alameda County Environmental Health Services Agency (ACEH) consistent with their requirements under the legal authority of the California Regional Water Quality Control Board, as codified by the California Code of Regulations Title 23, Section 2652(d). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	ARCO Station #2162 / 15135 Hesperian Boulevard, San Leandro
Client Project Manager / Title:	Ms. Shannon Couch / Remediation Management Project Manager
Broadbent Contact:	Mr. Tom Venus, PE / (530) 566-1400
Broadbent Project No.:	06-88-620
Primary Regulatory Agency / ID No.:	ACEH, Case #RO0000190
Current phase of project:	Monitoring, Offsite Assessment
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (Fourth Quarter 2012):

1. Submitted *Third Quarter 2012 Status Report* (Broadbent, 10/19/2012).
2. Conducted groundwater monitoring/sampling for Fourth Quarter 2012 on December 20, 2012.

WORK SCHEDULED FOR NEXT QUARTER (First Quarter 2013):

1. Submit *Fourth Quarter 2012 Monitoring Report* (contained herein).
2. Submit *Revised Work Plan for Off-Site Groundwater Investigation* (Broadbent, 1/3/2013)
3. Implement *Revised Work Plan for Off-Site Groundwater Investigation* (Broadbent, 1/3/2013) upon approval from ACEH.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	MW-1 through MW-6	(2Q & 4Q)
Groundwater sample collection:	MW-1, MW-2 MW-3, MW-4, MW-5, MW-6	(2Q) (2Q & 4Q)
Biodegradation indicator parameter monitoring:	MW-1, MW-2 MW-3, MW-4, MW-5, MW-6	(2Q) (2Q & 4Q)

QUARTERLY RESULTS SUMMARY:

LNAPL

LNAPL observed this quarter:	No	(yes\no)
LNAPL recovered this quarter:	None	(gal)
Cumulative LNAPL recovered:	N/A	(gal)

Groundwater Elevation and Gradient:

Depth to groundwater:	7.22 (MW-2) to 8.61 (MW-4)	(ft below TOC)
Gradient direction:	South-Southwest	(compass direction)
Gradient magnitude:	0.003	(ft/ft)
Average change in elevation:	+0.41	(ft since last measurement)

Laboratory Analytical Data

Summary:	GRO was detected in MW-5 and MW-6. Benzene was detected in MW-5 and MW-6. Toluene, Ethylbenzene, MTBE, TBA and TAME were detected in MW-6.
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ACTIVITIES CONDUCTED & RESULTS:

Fourth Quarter 2012 semi-annual groundwater monitoring was conducted at wells MW-1 through MW-6 on December 20, 2012 by Broadbent personnel. 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 7.22 ft at MW-2 to 8.61 ft at MW-4. Resulting groundwater surface elevations ranged from 25.35 ft at both MW-3 and MW-6, to 25.73 ft at well MW-2. Groundwater elevations are summarized in Table 1. Water level elevations yielded a potentiometric horizontal groundwater gradient to the South-Southwest at approximately 0.003 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. Historic groundwater elevation data is presented in Appendix C. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Consistent with the current program, groundwater samples were collected from wells MW-3 through MW-6 on December 20, 2012. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (Irvine, California) for analysis of Gasoline-Range Organics (GRO, C6-C12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Tert-Butyl Alcohol (TBA) and Ethanol by EPA Method 8260. No significant irregularities were encountered during analysis of the samples with the following exception: Matrix interference was present in sample MW-6 which was confirmed during re-analysis by EPA Method 8015B. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix D.

Hydrocarbons in the GRO range were detected above the laboratory reporting limit in wells MW-5 and MW-6 at concentrations of 84 micrograms per liter ($\mu\text{g/L}$) and 2,400 $\mu\text{g/L}$, respectively. Benzene was detected above the laboratory reporting limit in wells MW-5 and MW-6 at concentrations of 0.52 $\mu\text{g/L}$ and 4.1 $\mu\text{g/L}$, respectively. Toluene and Ethylbenzene were detected above the laboratory reporting limit in well MW-6 at concentrations of 0.91 $\mu\text{g/L}$ and 5.0 $\mu\text{g/L}$, respectively. MTBE, TBA, and TAME were detected above the laboratory reporting limit in well MW-6 at concentrations of 110 $\mu\text{g/L}$, 12 $\mu\text{g/L}$, and 9.2 $\mu\text{g/L}$, respectively. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled during this monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1, Table 2 and Appendix C. 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 E.

DISCUSSION:

Depth to groundwater level measurements observed in the Fourth Quarter 2012 were between historic minimum and maximum values for the monitoring wells associated with ARCO Station #2162. Initially encountered groundwater levels during Fourth Quarter 2012 monitoring were above the screen intervals in wells MW-2, MW-3, and MW-4. Broadbent does not believe the initially submerged screens in these wells hid the presence of LNAPL as LNAPL has not been detected at the Site, including during past events when the well screens were not submerged. Groundwater elevations yielded a horizontal potentiometric groundwater gradient to the South-Southwest at approximately 0.003 ft/ft, generally consistent with the historic groundwater gradient and magnitude data presented in Table 3 and Appendix C.

This event's detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well, with the following exception: MW-5 had a first time detection/new historic maximum concentration for Benzene of 0.52 µg/L. However, as this value is close to the laboratory reporting limit of 0.50 µg/L, Benzene concentrations in this well shall be watched in subsequent monitoring events. Recent and historic laboratory analytical results are summarized in Table 1, Table 2, and Appendix C.

RECOMMENDATIONS:

Groundwater monitoring and sampling is scheduled to be conducted at ARCO Station #2162 during Second Quarter 2013, consistent with the current sampling plan. In order to progress this case towards closure, a *Revised Work Plan for Off-Site Groundwater Investigation* (Broadbent, 1/3/2013) was prepared and submitted to ACEH. The objective of this work is to determine off-site concentrations of contaminants of concern in the adjacent parking lot for the neighboring Kentucky Fried Chicken restaurant at 15179 Hesperian Boulevard. Broadbent and BP look forward to receiving approval from the ACEH to the proposed work. An access agreement has already been secured from the owner of the adjacent property. Well permits have also been secured from the ACPWA for the borings proposed to be advanced by direct-push GeoProbe drilling techniques.

LIMITATIONS:

The findings presented in this report are based upon: observations of Broadbent field personnel (see Appendix A), 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 report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of Atlantic Richfield Company (a BP affiliated company). It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

- Drawing 1: Site Location Map
- Drawing 2: Groundwater Elevation Contours and Analytical Summary Map, December 20, 2012

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

- Appendix A: Field Methods
- Appendix B: Field Data Sheets and Non-Hazardous Waste Data Form
- Appendix C: Historic Groundwater Data Tables
- Appendix D: Laboratory Report and Chain-of-Custody Documentation
- Appendix E: GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

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

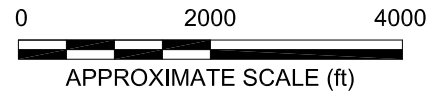
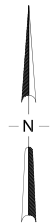
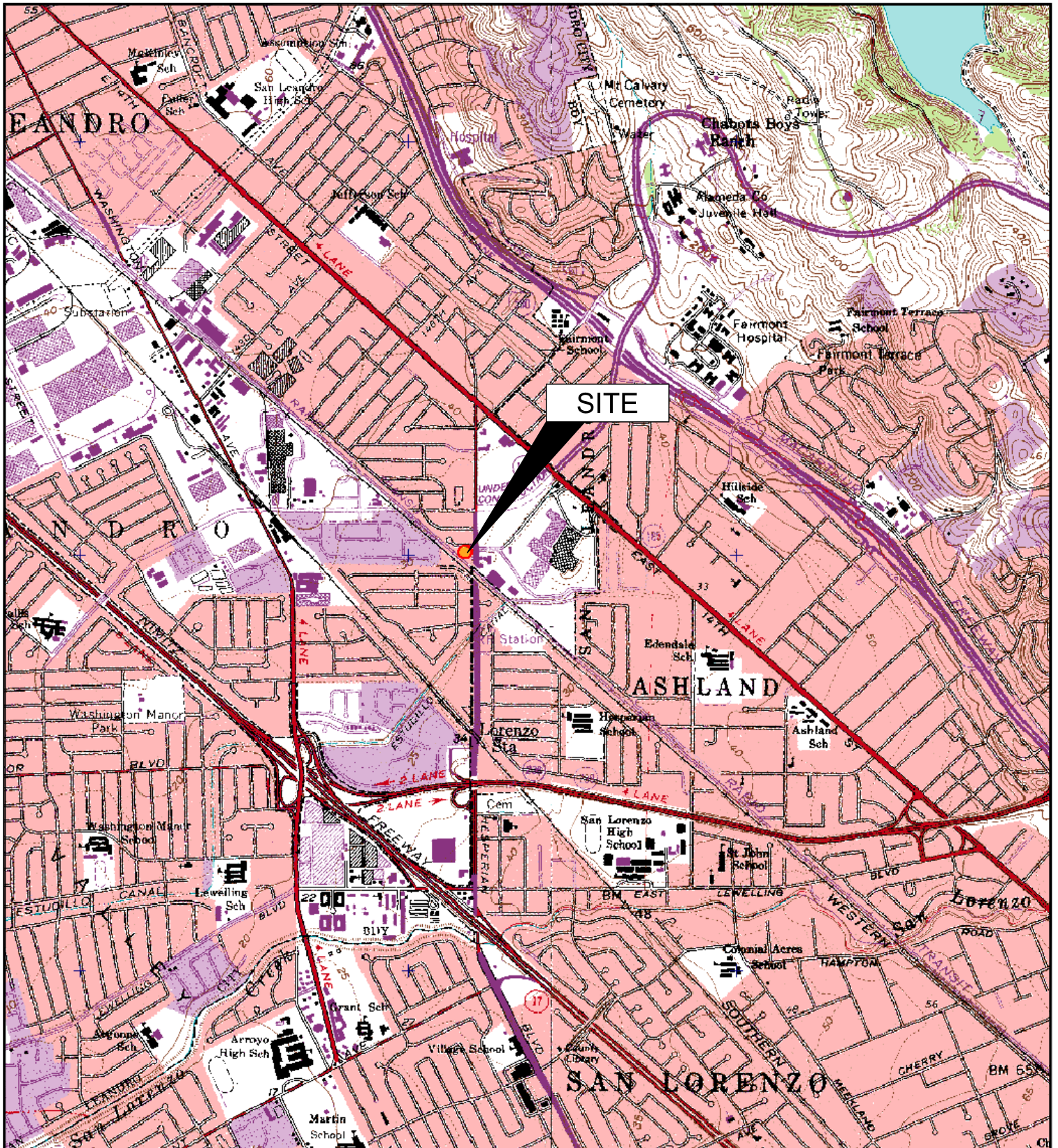


IMAGE SOURCE: USGS

BROADBENT
1324 Mangrove Ave., Suite 212
Chico, California 95926

Project No.: 06-88-620 Date: 07/27/2009

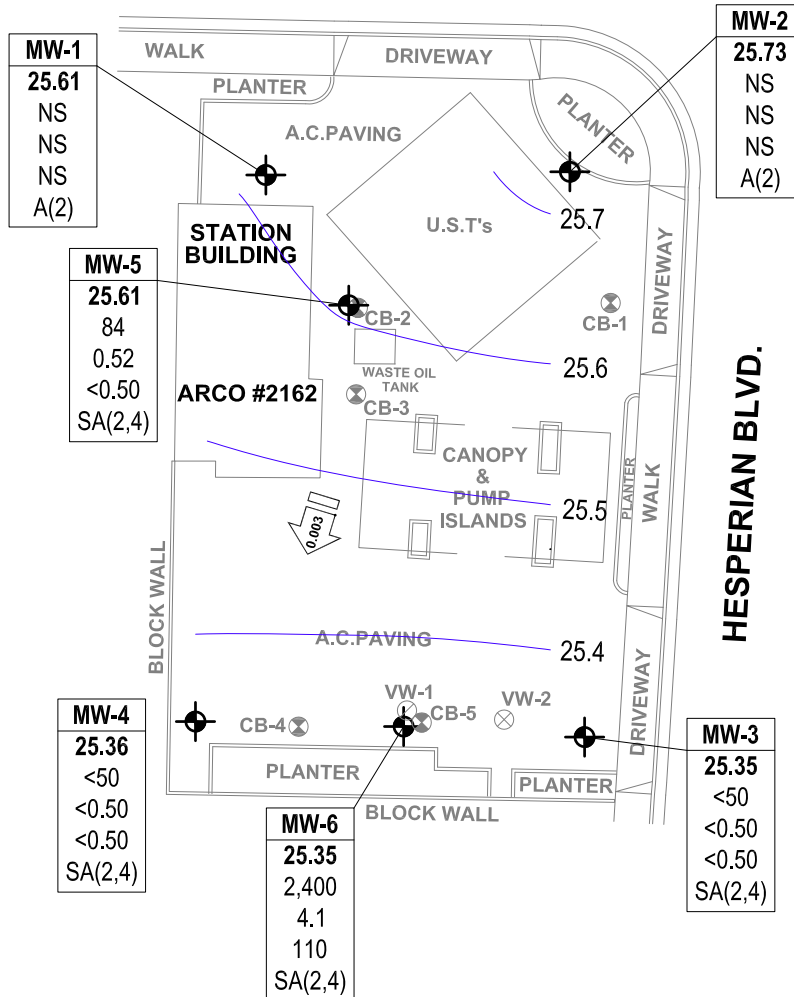
Station #2162
15135 Hesperian Boulevard
San Leandro, California

Site Location Map

Drawing

1

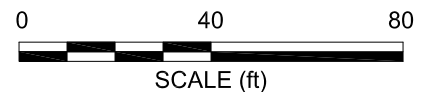
RUTH COURT



LEGEND

- GROUNDWATER MONITORING WELL
- VAPOR EXTRACTION WELL
- SOIL BORING
- 25.1 — GROUNDWATER ELEVATION CONTOUR (FEET ABOVE DATUM)
- APPROXIMATE GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT)

- | Well | WELL DESIGNATION |
|---------|---|
| ELEV | GROUNDWATER ELEVATION (FEET) |
| GRO | GRO, BENZENE & MTBE CONCENTRATIONS (µg/L) |
| Benzene | |
| MTBE | |
| A/Q/SA | SAMPLING FREQUENCY |
- < NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
 - * DATA NOT USED FOR CONTOURING
 - SA SAMPLED SEMI-ANNUALLY



NOTE: SITE MAP ADAPTED FROM WOOD RODGERS SURVYING.



Project No.: 06-88-620 Date: 1/11/2013

Station #2162
15135 Hesperian Boulevard
San Leandro, California

Groundwater Elevation Contours
and Analytical Summary Map
December 20, 2012

Drawing

2

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

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, 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						pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-1														
6/20/2000	--	31.19	8.00	16.00	8.33	22.86	<50	<0.5	0.8	<0.5	<1.0	<10	--	--
9/29/2000	--		8.00	16.00	9.07	22.12	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/17/2000	--		8.00	16.00	8.69	22.50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		8.00	16.00	8.19	23.00	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/20/2001	--		8.00	16.00	8.97	22.22	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/22/2001	--		8.00	16.00	9.56	21.63	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/28/2001	--		8.00	16.00	8.40	22.79	<50	<0.5	<0.5	<0.5	0.63	<2.5	--	--
3/14/2002	--		8.00	16.00	8.05	23.14	<50	<0.5	<0.5	<0.5	<0.5	170	--	--
4/18/2002	--		8.00	16.00	8.27	22.92	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
7/19/2002	NP		8.00	16.00	8.88	22.31	<50	<0.5	<0.5	<0.5	<0.5	11	1.0	8.2
10/09/02	NP		8.00	16.00	--	--	--	--	--	--	--	--	--	a
03/28/2003	NP		8.00	16.00	--	--	--	--	--	--	--	--	--	a, c
4/7/2003	NP		8.00	16.00	8.28	22.91	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.6	6.9
7/9/2003	NP		8.00	16.00	8.62	22.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	7.2
10/08/2003	--	31.13	8.00	16.00	9.19	21.94	--	--	--	--	--	--	--	d, e
01/13/2004	--		8.00	16.00	8.35	22.78	--	--	--	--	--	--	--	--
04/05/2004	--	33.70	8.00	16.00	7.29	26.41	--	--	--	--	--	--	--	--
07/12/2004	NP		8.00	16.00	9.00	24.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.8	7.0
10/19/2004	--		8.00	16.00	9.47	24.23	--	--	--	--	--	--	--	--
01/11/2005	--		8.00	16.00	7.64	26.06	--	--	--	--	--	--	--	--
04/14/2005	--		8.00	16.00	7.35	26.35	--	--	--	--	--	--	--	--
08/01/2005	--		8.00	16.00	8.21	25.49	--	--	--	--	--	--	--	--
7/31/2006	--		8.00	16.00	8.10	25.60	--	--	--	--	--	--	--	--
6/12/2009	P		8.00	16.00	8.93	24.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.59	7.40
11/6/2009	--		8.00	16.00	9.18	24.52	--	--	--	--	--	--	--	--
6/4/2010	P		8.00	16.00	8.13	25.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.31	7.2
11/19/2010	--		8.00	16.00	9.28	24.42	--	--	--	--	--	--	--	--
5/19/2011	P		8.00	16.00	7.76	25.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.36	6.8
12/1/2011	--		8.00	16.00	8.40	25.30	--	--	--	--	--	--	--	--
6/21/2012	P		8.00	16.00	8.49	25.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.73	7.39

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

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, 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						pH	Footnote	
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			DO (mg/L)
MW-1 Cont.															
12/20/2012	--	33.70	8.00	16.00	8.09	25.61	--	--	--	--	--	--	--	--	
MW-2															
6/20/2000	--	30.38	8.00	16.00	7.38	23.00	--	--	--	--	--	--	--	--	
9/29/2000	--		8.00	16.00	8.08	22.30	266	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/17/2000	--		8.00	16.00	7.80	22.58	175	<0.5	<0.5	0.659	<0.5	<2.5	--	--	
3/23/2001	--		8.00	16.00	7.23	23.15	351	<0.5	<0.5	0.912	<0.5	<2.5	--	--	
6/20/2001	--		8.00	16.00	7.98	22.40	360	<0.5	<0.5	0.74	<0.5	<2.5	--	--	
9/22/2001	--		8.00	16.00	8.55	21.83	190	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
12/28/2001	--		8.00	16.00	7.53	22.85	130	<0.5	0.93	<0.5	0.51	<2.5	--	--	
3/14/2002	--		8.00	16.00	7.17	23.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/18/2002	--		8.00	16.00	7.31	23.07	74	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	P		8.00	16.00	7.93	22.45	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	7.6	
10/9/2002	P		8.00	16.00	8.55	21.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	0.7	7.3	
03/28/2003	P		8.00	16.00	7.30	23.08	<50	<0.50	0.83	<0.50	<0.50	<0.50	1.48	7.7	c
4/7/2003	P		8.00	16.00	7.36	23.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	7.0	
7/9/2003	P		8.00	16.00	7.71	22.67	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	7.6	
10/08/2003	--		8.00	16.00	8.25	22.13	--	--	--	--	--	--	--	--	
01/13/2004	--		8.00	16.00	7.55	22.83	--	--	--	--	--	--	--	--	
04/05/2004	--	32.97	8.00	16.00	7.29	25.68	--	--	--	--	--	--	--	--	
07/12/2004	NP		8.00	16.00	8.09	24.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	7.2	
10/19/2004	--		8.00	16.00	8.29	24.68	--	--	--	--	--	--	--	--	
01/11/2005	--		8.00	16.00	6.81	26.16	--	--	--	--	--	--	--	--	
04/14/2005	--		8.00	16.00	6.69	26.28	--	--	--	--	--	--	--	--	
08/01/2005	--		8.00	16.00	7.40	25.57	--	--	--	--	--	--	--	--	
7/31/2006	--		8.00	16.00	7.22	25.75	--	--	--	--	--	--	--	--	
6/12/2009	P	32.95	8.00	16.00	8.18	24.77	51	<0.50	<0.50	<0.50	<0.50	<0.50	0.60	7.55	
11/6/2009	--		8.00	16.00	8.32	24.63	--	--	--	--	--	--	--	--	
6/4/2010	P		8.00	16.00	7.24	25.71	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	7.33	
11/19/2010	--		8.00	16.00	8.38	24.57	--	--	--	--	--	--	--	--	
5/19/2011	P		8.00	16.00	7.12	25.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.24	9.0	

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

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, 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						pH	Footnote	
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			DO (mg/L)
MW-2 Cont.															
12/1/2011	--	32.95	8.00	16.00	7.57	25.38	--	--	--	--	--	--	--	--	
6/21/2012	P		8.00	16.00	7.63	25.32	62	<0.50	<0.50	<0.50	<0.50	<0.50	1.47	7.42	lw
12/20/2012	--		8.00	16.00	7.22	25.73	--	--	--	--	--	--	--	--	
MW-3															
6/20/2000	--	30.30	8.00	15.00	7.75	22.55	--	--	--	--	--	--	--	--	
9/29/2000	--		8.00	15.00	8.46	21.84	<50	<0.5	<0.5	<0.5	<0.5	128	--	--	
12/17/2000	--		8.00	15.00	8.01	22.29	<50	<0.5	<0.5	<0.5	<0.5	46.7	--	--	
3/23/2001	--		8.00	15.00	7.70	22.60	<50	<0.5	<0.5	<0.5	<0.5	26.8	--	--	
6/20/2001	--		8.00	15.00	8.23	22.07	<50	<0.5	<0.5	<0.5	<0.5	30	--	--	
9/22/2001	--		8.00	15.00	8.89	21.41	<50	<0.5	<0.5	<0.5	<0.5	12	--	--	
12/28/2001	--		8.00	15.00	7.83	22.47	<50	<0.5	<0.5	<0.5	<0.5	6.2	--	--	
3/14/2002	--		8.00	15.00	7.48	22.82	<50	<0.5	<0.5	<0.5	<0.5	47	--	--	
4/18/2002	--		8.00	15.00	7.62	22.68	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	P		8.00	15.00	8.23	22.07	100	<1.0	<1.0	<1.0	<1.0	330	0.9	7.6	b (TPH-g)
10/9/2002	P		8.00	15.00	8.83	21.47	<50	<0.5	<0.5	<0.5	<0.5	61	0.5	7.4	
03/28/2003	P		8.00	15.00	7.85	22.45	52	<0.50	1.2	<0.50	<0.50	45	1.42	7.6	c
4/7/2003	P		8.00	15.00	7.71	22.59	56	<0.50	<0.50	<0.50	<0.50	56	1.1	6.8	
7/9/2003	P		8.00	15.00	8.00	22.30	<500	<5.0	<5.0	<5.0	<5.0	87	1.6	7.4	
10/08/2003	P		8.00	15.00	8.59	21.71	<50	<0.50	<0.50	<0.50	<0.50	25	0.9	--	
01/15/2004	P		8.00	15.00	7.90	22.40	<50	<0.50	<0.50	<0.50	<0.50	9.8	2.9	7.3	
04/05/2004	P	32.89	8.00	15.00	7.61	25.28	<50	<0.50	<0.50	<0.50	<0.50	15	1.5	7.0	
07/12/2004	P		8.00	15.00	8.45	24.44	<50	<0.50	<0.50	<0.50	<0.50	7.3	1.6	6.9	
10/19/2004	P		8.00	15.00	8.95	23.94	<50	<0.50	<0.50	<0.50	<0.50	5.0	0.96	7.1	
01/11/2005	P		8.00	15.00	7.27	25.62	<50	<0.50	<0.50	<0.50	<0.50	2.3	--	7.2	
04/14/2005	P		8.00	15.00	7.10	25.79	<50	<0.50	<0.50	<0.50	1.5	5.6	2.0	7.2	
08/01/2005	P		8.00	15.00	7.71	25.18	<50	<0.50	<0.50	<0.50	<0.50	5.2	1.18	7.0	
7/31/2006	P		8.00	15.00	7.64	25.25	<50	<0.50	<0.50	<0.50	<0.50	4.3	--	6.8	
6/12/2009	P	32.88	8.00	15.00	8.36	24.52	<50	0.75	<0.50	<0.50	<0.50	0.53	0.61	7.45	
11/6/2009	P		8.00	15.00	8.58	24.30	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.51	7.17	
6/4/2010	P		8.00	15.00	7.60	25.28	<50	<0.50	<0.50	<0.50	<0.50	1.9	0.69	7.4	

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

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, 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						pH	Footnote	
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			DO (mg/L)
MW-3 Cont.															
11/19/2010	NP	32.88	8.00	15.00	8.63	24.25	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.69	7.0	
5/19/2011	P		8.00	15.00	7.22	25.66	56	<0.50	<0.50	<0.50	<0.50	2.1	0.83	9.2	lw
12/1/2011	P		8.00	15.00	8.00	24.88	<50	<0.50	<0.50	<0.50	<0.50	0.50	3.15	7.8	
6/21/2012	P		8.00	15.00	7.90	24.98	<50	<0.50	<0.50	<0.50	<0.50	1.4	1.24	7.33	
12/20/2012	p		8.00	15.00	7.53	25.35	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.62	8.17	
MW-4															
6/20/2000	--	30.39	10.00	18.00	8.87	21.52	--	--	--	--	--	--	--	--	
9/29/2000	--		10.00	18.00	9.61	20.78	<50	1.02	<0.5	<0.5	<0.5	12.2	--	--	
12/17/2000	--		10.00	18.00	9.17	21.22	<50	<0.5	<0.5	<0.5	<0.5	5.81	--	--	
3/23/2001	--		10.00	18.00	8.70	21.69	<50	<0.5	<0.5	<0.5	<0.5	3.04	--	--	
6/20/2001	--		10.00	18.00	9.51	20.88	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/22/2001	--		10.00	18.00	10.06	20.33	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--	
12/28/2001	--		10.00	18.00	8.86	21.53	<50	<0.5	<0.5	<0.5	<0.5	4.3	--	--	
3/14/2002	--		10.00	18.00	8.52	21.87	<50	<0.5	<0.5	<0.5	<0.5	5.1	--	--	
4/18/2002	--		10.00	18.00	8.76	21.63	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/19/2002	NP		10.00	18.00	9.39	21.00	<50	<0.5	<0.5	<0.5	<0.5	30	1.8	7.8	
10/9/2002	NP		10.00	18.00	10.08	20.31	<50	<0.5	<0.5	<0.5	<0.5	28	1.0	8.0	
03/28/2003	NP		10.00	18.00	8.88	21.51	<50	<0.50	1.3	<0.50	<0.50	4.4	0.98	7.2	c
4/7/2003	NP		10.00	18.00	8.78	21.61	<50	<0.50	<0.50	<0.50	<0.50	14	1.1	7.0	
7/9/2003	NP		10.00	18.00	9.14	21.25	<50	<0.50	<0.50	<0.50	<0.50	1.8	1.6	7.4	
10/08/2003	NP		10.00	18.00	9.77	20.62	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.6	6.4	
01/15/2004	P		10.00	18.00	8.68	21.71	<50	1.4	0.84	<0.50	1.5	6.6	2.9	7.1	
04/05/2004	NP	33.97	10.00	18.00	8.77	25.20	<50	<0.50	<0.50	<0.50	<0.50	1.3	1.2	7.0	
07/12/2004	NP		10.00	18.00	9.46	24.51	<50	<0.50	<0.50	<0.50	<0.50	1.0	2.5	6.6	
10/19/2004	NP		10.00	18.00	9.91	24.06	<50	<0.50	<0.50	<0.50	<0.50	4.4	1.21	7.9	
01/11/2005	P		10.00	18.00	7.80	26.17	59	2.0	<0.50	<0.50	<0.50	11	0.9	7.1	
04/14/2005	NP		10.00	18.00	8.07	25.90	<50	<0.50	<0.50	<0.50	<0.50	0.64	2.8	7.4	
08/01/2005	NP		10.00	18.00	8.58	25.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.48	5.7	
7/31/2006	P		10.00	18.00	8.75	25.22	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.7	
6/12/2009	P		10.00	18.00	9.51	24.46	<50	0.68	<0.50	<0.50	<0.50	<0.50	0.70	7.51	

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

ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, 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						pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
MW-4 Cont.														
11/6/2009	P	33.97	10.00	18.00	9.74	24.23	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.15
6/4/2010	P		10.00	18.00	8.71	25.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.70	7.24
11/19/2010	P		10.00	18.00	9.83	24.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.09	7.1
5/19/2011	P		10.00	18.00	8.24	25.73	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.88	7.5
12/1/2011	P		10.00	18.00	9.11	24.86	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.09	7.6
6/21/2012	P		10.00	18.00	9.07	24.90	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.64	7.31
12/20/2012	P		10.00	18.00	8.61	25.36	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.90	7.99
MW-5														
6/12/2009	NP	33.96	8.00	16.00	9.25	24.71	85	<0.50	<0.50	<0.50	<0.50	<0.50	0.59	7.50
11/6/2009	P		8.00	16.00	9.49	24.47	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	7.1
6/4/2010	NP		8.00	16.00	8.42	25.54	67	<0.50	<0.50	<0.50	<0.50	<0.50	1.24	7.65
11/19/2010	NP		8.00	16.00	9.58	24.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.72	7.3
5/19/2011	NP		8.00	16.00	8.02	25.94	52	<0.50	<0.50	<0.50	<0.50	<0.50	2.17	9.1 lw
12/1/2011	P		8.00	16.00	8.87	25.09	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.76	7.5
6/21/2012	P		8.00	16.00	8.76	25.20	55	<0.50	<0.50	<0.50	<0.50	<0.50	1.58	7.24 lw
12/20/2012	P		8.00	16.00	8.35	25.61	84	0.52	<0.50	<0.50	<1.0	<0.50	3.74	7.97
MW-6														
6/12/2009	NP	33.48	8.00	16.00	9.02	24.46	1,800	4.9	<0.50	2.8	<0.50	59	0.68	7.39
11/6/2009	P		8.00	16.00	9.21	24.27	880	1.7	<0.50	0.77	<0.50	37	0.43	6.9
6/4/2010	NP		8.00	16.00	8.22	25.26	6,200	15	1.6	8.2	1.2	190	0.87	7.16
11/19/2010	NP		8.00	16.00	9.30	24.18	5,600	8.0	1.2	9.9	<1.0	130	0.78	6.8
5/19/2011	P		8.00	16.00	7.77	25.71	7,100	4.0	<2.0	7.9	<2.0	76	1.40	8.2
12/1/2011	P		8.00	16.00	8.56	24.92	4,100	9.3	1.3	8.5	<1.0	180	0.53	7.3 lw
6/21/2012	P		8.00	16.00	8.56	24.92	5,000	4.6	<2.5	3.6	<2.5	120	1.38	6.97 lw
12/20/2012	P		8.00	16.00	8.13	25.35	2,400	4.1	0.91	5.0	<1.0	110	2.96	7.84

Symbols & Abbreviations:

--- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in feet below ground surface
ft bgs = feet below ground surface
GRO = Gasoline Range Organics, range C4-C12
GWE = Groundwater elevation measured in feet
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 feet above mean sea level
TPH-g = Total petroleum hydrocarbons as gasoline
ug/L = Micrograms per liter

Footnotes:

a = Well not accessible - car parked over.
b = Hydrocarbon pattern is present in the requested fuel quantitation range but does not represent the pattern of the requested fuel
c =TPH-g, BTEX and MTBE analyzed by EPA method 8260 beginning on 1st Quarter 2003 sampling event (3/28/03)
d = Guaged with stinger in well
e = Well casing lowered 0.06 feet during well repairs on 9/17/2003
lw = Quantitate against gasoline

Notes:

Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPHg was changed to GRO. The resulting data may be impacted by the potential of non-TPHg 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 originally surveyed to NAVD'88 datum by URS Corporation on February 23, 2004

Wells were resurveyed to NAVD'88 datum by Wood Rodgers Surveying on May 11, 2009

Values for DO and pH were obtained through field measurements

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

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

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
6/20/2000	--	--	<10	--	--	--	--	--	
9/29/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/20/2001	--	--	<2.5	--	--	--	--	--	
9/22/2001	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
3/14/2002	--	--	170	--	--	--	--	--	
7/19/2002	--	--	11	--	--	--	--	--	
4/7/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/21/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-2									
9/29/2000	--	--	<2.5	--	--	--	--	--	
12/17/2000	--	--	<2.5	--	--	--	--	--	
3/23/2001	--	--	<2.5	--	--	--	--	--	
6/20/2001	--	--	<2.5	--	--	--	--	--	
9/22/2001	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
3/14/2002	--	--	<2.5	--	--	--	--	--	
7/19/2002	--	--	<2.5	--	--	--	--	--	
10/9/2002	--	--	<2.5	--	--	--	--	--	
03/28/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
4/7/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/12/2009	<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 #2162, 15135 Hesperian Blvd., San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/21/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
9/29/2000	--	--	128	--	--	--	--	--	
12/17/2000	--	--	46.7	--	--	--	--	--	
3/23/2001	--	--	26.8	--	--	--	--	--	
6/20/2001	--	--	30	--	--	--	--	--	
9/22/2001	--	--	12	--	--	--	--	--	
12/28/2001	--	--	6.2	--	--	--	--	--	
3/14/2002	--	--	47	--	--	--	--	--	
7/19/2002	--	--	330	--	--	--	--	--	
10/9/2002	--	--	61	--	--	--	--	--	
03/28/2003	<100	<20	45	<0.50	<0.50	0.73	<0.50	<0.50	
4/7/2003	<100	<20	56	<0.50	<0.50	0.72	<0.50	<0.50	
7/9/2003	<1,000	<200	87	<5.0	<5.0	<5.0	<5.0	<5.0	
10/08/2003	<100	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
01/15/2004	<100	<20	9.8	<0.50	<0.50	<0.50	<0.50	<0.50	a (TBA and EDB)
04/05/2004	<100	<20	15	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	7.3	<0.50	<0.50	<0.50	<0.50	<0.50	
10/19/2004	<100	<20	5.0	<0.50	<0.50	<0.50	<0.50	<0.50	
01/11/2005	<100	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/14/2005	<100	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
08/01/2005	<100	<20	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/31/2006	<300	<20	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	c
6/12/2009	<300	<10	0.53	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	<300	<10	2.1	<0.50	<0.50	<0.50	<0.50	<0.50	
12/1/2011	<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 #2162, 15135 Hesperian Blvd., San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
6/21/2012	<300	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	
12/20/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
9/29/2000	--	--	12.2	--	--	--	--	--	
12/17/2000	--	--	5.81	--	--	--	--	--	
3/23/2001	--	--	3.04	--	--	--	--	--	
6/20/2001	--	--	<2.5	--	--	--	--	--	
9/22/2001	--	--	5.2	--	--	--	--	--	
12/28/2001	--	--	4.3	--	--	--	--	--	
3/14/2002	--	--	5.1	--	--	--	--	--	
7/19/2002	--	--	30	--	--	--	--	--	
10/9/2002	--	--	28	--	--	--	--	--	
03/28/2003	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
4/7/2003	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
7/9/2003	<100	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
10/08/2003	<100	<20	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
01/15/2004	<100	<20	6.6	<0.50	<0.50	<0.50	<0.50	<0.50	a (TBA and EDB)
04/05/2004	<100	<20	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
07/12/2004	<100	<20	1.0	<0.50	<0.50	<0.50	<0.50	<0.50	
10/19/2004	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
01/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	b
04/14/2005	<100	<20	0.64	<0.50	<0.50	<0.50	<0.50	<0.50	
08/01/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/31/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	c
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
12/1/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/21/2012	<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 #2162, 15135 Hesperian Blvd., San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
12/20/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5									
6/12/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/6/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/19/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
12/1/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
6/21/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
12/20/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
6/12/2009	<300	<10	59	<0.50	<0.50	5.2	<0.50	<0.50	
11/6/2009	<300	24	37	<0.50	<0.50	<0.50	<0.50	<0.50	
6/4/2010	<300	17	190	<0.50	<0.50	17	<0.50	<0.50	
11/19/2010	<600	<20	130	<1.0	<1.0	<1.0	<1.0	<1.0	
5/19/2011	<1,200	<40	76	<2.0	<2.0	6.1	<2.0	<2.0	
12/1/2011	<600	31	180	<1.0	<1.0	18	<1.0	<1.0	
6/21/2012	<1,500	<50	120	<2.5	<2.5	9.1	<2.5	<2.5	
12/20/2012	<150	12	110	<0.50	<0.50	9.2	<0.50	<0.50	

Symbols & Abbreviations:

< = Not detected at or above specified laboratory reporting limit

--- = Not analyzed/applicable/measured/available

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

ug/L = Micrograms per liter

Footnotes:

a = The result was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria

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

c = LCS rec. above meth. control limits. Analyte ND. Data not impacted

d = Quantitated against gasoline

Notes:

All fuel oxygenate compounds analyzed using EPA Method 8260B

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

Table 3. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #2162, 15135 Hesperian Blvd., San Leandro, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
3/23/2001	Southwest	0.011
6/20/2001	Southwest	0.013
9/22/2001	Southwest	0.012
12/28/2001	Southwest	0.010
3/14/2002	Southwest	0.011
4/18/2002	Southwest	0.012
7/19/2002	Southwest	0.012
10/9/2002	Southwest	0.013
3/28/2003	Southwest	0.013
4/7/2003	Southwest	0.011
7/9/2003	Southwest	0.010
10/8/2003	Southwest	0.010
1/15/2004	Southwest	0.008
4/5/2004	South-Southwest	0.004
7/12/2004	South and Southwest	0.003 and 0.005
10/19/2004	Southwest	0.004
1/11/2005	Southwest (a) to Southeast (b)	0.005 to 0.004
4/14/2005	Southeast	0.004
8/1/2005	Southwest	0.002
7/31/2006	South-Southwest	0.003
6/12/2009	South	0.003
11/6/2009	South-Southwest	0.003
6/4/2010	South-Southwest	0.004
11/19/2010	South-Southwest	0.003
5/19/2011	South-Southeast	0.003
12/1/2011	South-Southwest	0.001
6/21/2012	South-Southwest	0.003
12/20/2012	South-Southwest	0.003

Footnotes:

a = Direction at underground storage tanks

b = Direction at dispensers

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



GROUNDWATER SAMPLING DATA SHEET

Page 2 of 5

Project: BP 2162

Project No.: 06-00-620

Date: 12-20-12

Field Representative: JR/AM

Well ID: MW-3

Start Time:

End Time:

Total Time (minutes):

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

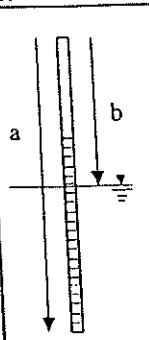
WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
 Good Improvement Needed (circle one)

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)	
4"	(0.66)	<input checked="" type="checkbox"/>
6"	(1.50)	
8"	(2.60)	
12"	(5.81)	
Other:	"()	

Total Well Depth (a): 13.05 (ft)
 Initial Depth to Water (b): 7.53 (ft)
 Water Column Height (WCH) = (a - b): 7.52 (ft)
 Water Column Volume (WCV) = WCH x Unit Volume: 4.96 (gal)
 Three Casing Volumes = WCV x 3: 14.88 (gal)
 Five Casing Volumes = WCV x 5: 24.80 (gal)
 Pump Depth (if pump used): _____ (ft)



LOW-FLOW

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

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (gal)	Temperature °C	pH	Conductivity μS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0930	0	21.06	8.36	0.633	3.62	-91	67.7	
0937	5	21.80	8.06	0.639	—	-76	—	
0944	10	21.84	8.10	0.639	—	-77	—	
0948	15	21.89	8.32	0.637	—	-88	—	
0949	16	21.93	8.17	0.630	—	-83	154	

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 7.63 (ft)
 Sample Collected Via: Disp. Bailer Dedicated Pump Tubing
 Disp. Pump Tubing Other:
 Sample ID: MW-3 Sample Collection Time: 0950 (24:00)
 Containers (#): 6 VOA (preserved or unpreserved) Liter Amber
 Other: _____
 Other: _____

GEOCHEMICAL PARAMETERS

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

Signature: [Handwritten Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 3 of 5

Project: BP 2162 Project No.: 06-88-620 Date: 12/20/12
 Field Representative: AM/JR End Time: _____ Total Time (minutes): _____
 Well ID: MW-4 Start Time: _____

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

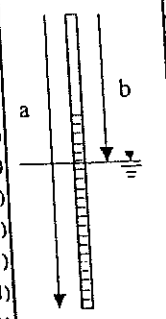
WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: _____
 Good Improvement Needed (circle one)

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: _____	
<u>4" (0.66)</u>	6" (1.50)	8" (2.60)
12" (5.81)		

Total Well Depth (a): 17.77 (ft)
 Initial Depth to Water (b): 8.61 (ft)
 Water Column Height (WCH) = (a - b): 9.16 (ft)
 Water Column Volume (WCV) = WCH x Unit Volume: 6.04 (gal)
 Three Casing Volumes = WCV x 3: 18.13 (gal)
 Five Casing Volumes = WCV x 5: 30.20 (gal)
 Pump Depth (if pump used): _____ (ft)



LOW-FLOW

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

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity μS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0850	0	20.04	8.03	0.816	3.90	91	92.8	
0856	5	20.78	8.01	0.826	-	88	-	
0901	10	21.35	7.96	0.823	-	81	-	
0906	15	20.95	8.04	0.818	-	46	-	
0909	18	21.58	7.99	0.822	-	35	-	
0911	19	21.69	7.99	0.821	-	27	-	

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: 8.65 (ft)
 Sample Collected Via: Disp. Bailer Dedicated Pump Tubing
 Disp. Pump Tubing Other: _____
 Sample ID: MW-4 Sample Collection Time: 0915 (24:00)
 Containers (#): 6 VOA (preserved or unpreserved) _____ Liter Amber
 Other: _____
 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 4 of 5

Project: BP 2162 Project No.: 06-00-620 Date: 12-20-12
 Field Representative: JR/AM
 Well ID: MW-5 Start Time: _____ End Time: _____ Total Time (minutes): _____

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

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: _____
<u>4" (0.66)</u>	6" (1.50)	8" (2.60)	12" (5.81)	" ()
Total Well Depth (a):		<u>16.13</u> (ft)		
Initial Depth to Water (b):		<u>8.35</u> (ft)		
Water Column Height (WCH) = (a - b):		<u>7.78</u> (ft)		
Water Column Volume (WCV) = WCH x Unit Volume:		<u>5.13</u> (gal)		
Three Casing Volumes = WCV x 3:		<u>15.39</u> (gal)		
Five Casing Volumes = WCV x 5:		<u>25.65</u> (gal)		
Pump Depth (if pump used):		_____ (ft)		

LOW-FLOW
 Previous Low-Flow Purge Rate: _____ (lpm)
 Total Well Depth (a): _____ (ft)
 Initial Depth to Water (b): _____ (ft)
 Pump In-take Depth = b + (a-b)/2: _____ (ft)
 Maximum Allowable Drawdown = (a-b)/8: _____ (ft)
 Low-Flow Purge Rate: _____ (Lpm)*
 Comments: _____
 *Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
<u>0814</u>	<u>0</u>	<u>18.53</u>	<u>8.20</u>	<u>0.817</u>	<u>3.74</u>	<u>-80</u>	<u>115</u>	
<u>0822</u>	<u>4</u>	<u>19.51</u>	<u>7.92</u>	<u>0.808</u>	<u>—</u>	<u>-67</u>	<u>—</u>	
<u>0827</u>	<u>8</u>	<u>20.10</u>	<u>7.91</u>	<u>0.809</u>	<u>—</u>	<u>-66</u>	<u>—</u>	
<u>0830</u>	<u>12</u>	<u>20.29</u>	<u>7.91</u>	<u>0.813</u>	<u>—</u>	<u>-67</u>	<u>—</u>	
<u>0834</u>	<u>16</u>	<u>20.15</u>	<u>7.98</u>	<u>0.810</u>	<u>—</u>	<u>-70</u>	<u>—</u>	
<u>0835</u>	<u>17</u>	<u>20.52</u>	<u>7.97</u>	<u>0.811</u>	<u>—</u>	<u>-69</u>	<u>360</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: 8.47 (ft)
 Sample Collected Via: Disp. Bailer Dedicated Pump Tubing
 Disp. Pump Tubing Other: _____
 Sample ID: MW-5 Sample Collection Time: 0835 (24:00)
 Containers (#): 6 VOA (preserved or unpreserved) _____ Liter Amber
 Other: _____
 Other: _____

GEOCHEMICAL PARAMETERS

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

Signature: [Signature]



GROUNDWATER SAMPLING DATA SHEET

Page 5 of 5

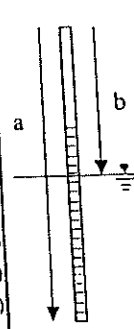
Project: AW-6 BP 2162 Project No.: 06-88-620 Date: 12/20/12
 Field Representative: AM/JR
 Well ID: MW-6 Start Time: _____ End Time: _____ Total Time (minutes): _____

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

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: _____ (lpm)	Total Well Depth (a): _____ (ft)	Initial Depth to Water (b): _____ (ft)
<u>4" (0.66)</u>	6" (1.50)	8" (2.60)	12" (5.81)	_____ (____)	Pump In-take Depth = b + (a-b)/2: _____ (ft)	Maximum Allowable Drawdown = (a-b)/8: _____ (ft)	Low-Flow Purge Rate: _____ (lpm)*
Total Well Depth (a): <u>16.17</u> (ft)				Comments: _____			
Initial Depth to Water (b): <u>8.13</u> (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.			
Water Column Height (WCH) = (a - b): <u>8.04</u> (ft)							
Water Column Volume (WCV) = WCH x Unit Volume: <u>5.30</u> (gal)							
Three Casing Volumes = WCV x 3: _____ (gal)							
Five Casing Volumes = WCV x 5: _____ (gal)							
Pump Depth (if pump used): _____ (ft)							



GROUNDWATER STABILIZATION PARAMETER RECORD								NOTES
Time (24:00)	Cumulative Volume (gal)	Temperature °C	pH	Conductivity μS or mS	DO mg/L	ORP mV	Turbidity NTU	Odor, color, sheen or other
0958	0	21.79	7.77	0.951	2.96	-60	86.3	Mild-med. odor (hydrocarbon)
1002	4	22.57	7.67	0.925	-	-126	-	
1007	8	22.78	7.69	0.891	-	-136	-	
1007	12	22.85	7.78	0.872	-	-143	-	
1010	16	22.81	7.75	0.873	-	-144	-	
1012	17	22.85	7.84	0.847	-	-150	-	

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>8.20</u> (ft)		DO (mg/L)	
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Bailer _____ Dedicated Pump Tubing _____		Ferrous Iron (mg/L)	
Disp. Pump Tubing _____ Other: _____		Redox Potential (mV)	
Sample ID: <u>MW-6</u> Sample Collection Time: <u>1020</u> (24:00)		Alkalinity (mg/L)	
Containers (#): <u>6</u> VOA (<input checked="" type="checkbox"/> preserved or _____ unpreserved) _____ Liter Amber		Other: _____	
Other: _____		Other: _____	
Other: _____		Other: _____	

Signature: [Handwritten Signature]



Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 2162
 BP/ARC Facility No: 2162

Req Due Date (mm/dd/yy): _____ Rush TAT: Yes ___ No ___
 Lab Work Order Number: _____

Lab Name: Test America	BP/ARC Facility Address: 15135 Hesperian Blvd	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 17461 Derian Suite #100	City, State, ZIP Code: San Leandro, California	Consultant/Contractor Project No: 06-88-620
Lab PM: Pat Abe	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave., Ste 212, Chico, Ca
Lab Phone: 949-261-1022 / 949 -260-3297 (fax)	California Global ID No.: T0600100084	Consultant/Contractor PM: Tom Venus
Lab Shipping Acctn: Fed ex#: 11103-6633-7	Enfos Proposal No/WR#: 00604-0002 / WR245682	Phone: 530-566-1400 / 530-566-1401 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU ___ OOC-RM ___	Email EDD To: tvenus@broadbentinc.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP <input checked="" type="checkbox"/> Contractor ___

BP/ARC EBM: Shannon Couch				Matrix		No. Containers / Preservative						Requested Analyses				Turnaround Tim		Report Type & QC Level	
EBM Phone: 925-275-3804				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	GRO (8015)	BTEX (8260)	5-Oxys (8260)	EDB, 1,2-DCA, Ethanol (8260)	24-hours	Standard	Standard <input checked="" type="checkbox"/>
EBM Email: shannon.couch@bp.com																			Full Data Package ___
Lab No.	Sample Description	Date	Time															Comments Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.	
	MW-3	12-20-12	0950	X			6					X	X	X	X				
	MW-4	I	0915	X			6					X	X	X	X				
	MW-5		0535	X			6					X	X	X	X				
	MW-6		1020	X			6					X	X	X	X				
	TB-2162-12202012		1100	X			2												
				X			2											On Hold	

Sampler's Name: <u>James R / Alex M</u>	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: Broadbent	<u>James R</u>		12-21-12	1700				
Shipment Method: <u>Fedex</u> Ship Date: <u>12-21-12</u>	<u>Alex M</u> / BAI		12/21/12	1700				
Shipment Tracking No: <u>8010 3695 0443</u>								

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

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

NO. 689912

NON-HAZARDOUS WASTE DATA FORM

BESI #

GENERATOR	Generator's Name and Mailing Address BP WEST COAST PRODUCTS, LLC P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688	Generator's Site Address (if different than mailing address) BP 2162 15135 Hesperian Blvd. San Leandro, CA
	Generator's Phone: 949-460-5200	

GENERATOR	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 <u>69 gallons</u>	Quantity _____ Volume _____

GENERATOR	WASTE DESCRIPTION <u>NON-HAZARDOUS WATER</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>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>	<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 <u>7-10</u> <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> SLUDGE <input type="checkbox"/> SLURRY <input type="checkbox"/> OTHER _____																			
HANDLING INSTRUCTIONS: <u>WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.</u>																			

Generator Printed/Typed Name <u>Alex Martinez</u>	Signature <u>Alex Martinez</u>	Month Day Year <u>12 20 12</u>
--	-----------------------------------	-----------------------------------

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

TRANSPORTER	Transporter 1 Company Name <u>BROADBENT & ASSOCIATES, INC</u>	Phone# <u>530-566-1400</u>	
	Transporter 1 Printed/Typed Name <u>Alex Martinez</u>	Signature <u>Alex Martinez</u>	Month Day Year <u>12 21 12</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		

RECEIVING FACILITY	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.		

APPENDIX C

HISTORIC GROUNDWATER DATA TABLES

Table 1
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MTBE)

ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-1	02/26/96	31.19	7.14	24.05	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
MW-1	05/23/96	31.19	7.70	23.49	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	
MW-1	08/21/96	31.19	8.75	22.44	210	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	
MW-1	11/20/96	31.19	8.62	22.57	91	<0.5	<0.5	<0.5	<0.5	2.6	NA	NA	
MW-1	04/01/97	31.19	8.70	22.49	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NP
MW-1	06/10/97	31.19	8.45	22.74	94	<0.5	<0.5	0.68	0.56	6.4	NA	NA	NP
MW-1	09/17/97	31.19	9.20	21.99	<50	<0.5	<0.5	<0.5	<0.5	10	NA	1.0	NP
MW-1	12/12/97	31.19	8.00	23.19	<200	<2	<2	<2	<2	180	NA	2.0	NP
MW-1	03/25/98	31.19	7.00	24.19	<200	<2	<2	3	<2	180	NA	2.0	
MW-1	05/14/98	31.19	7.46	23.73	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.17	P
MW-1	07/31/98	31.19	8.10	23.09	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.0	NP
MW-1	10/12/98	31.19	8.60	22.59	<50	<0.5	<0.5	<0.5	<0.5	9	NA	2.5	NP
MW-1	02/11/99	31.19	7.32	23.87	<50	<0.5	<0.5	<0.5	<0.5	25	NA	1.0	P
MW-1	06/23/99	31.19	8.40	22.79	55	<0.5	<0.5	<0.5	<0.5	<3	NA	1.36	NP
MW-1	08/23/99	31.19	8.85	22.34	<50	<0.5	0.6	<0.5	<0.5	5	NA	1.42	NP
MW-1	10/27/99	31.19	8.50	22.69	<50	<0.5	<0.5	<0.5	<1	90	NA	0.83	NP
MW-1	02/09/00	31.19	8.11	23.08	<50	<0.5	<0.5	<0.5	<1	9	NA	0.77	NP
MW-2	02/26/96	30.38	6.41	23.97	770	<0.5	<0.5	45	28	NA	NA	NA	
MW-2	05/23/96	30.38	6.80	23.58	590	0.50	<0.5	35	18	NA	NA	NA	
MW-2	08/21/96	30.38	7.80	22.58	170	<0.5	<0.5	21	6.3	<2.5	NA	NA	
MW-2	11/20/96	30.38	7.73	22.65	88	<0.5	<0.5	7.9	1.1	<2.5	NA	NA	
MW-2	04/01/97	30.38	7.83	22.55	66	<0.5	<0.5	3.6	0.56	33	NA	NA	
MW-2	06/10/97	30.38	7.52	22.86	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NP
MW-2	09/17/97	30.38	8.24	22.14	<50	<0.5	<0.5	<0.5	<0.5	<3.0	NA	0.6	NP
MW-2	12/12/97	30.38	7.10	23.28	<50	<0.5	<0.5	<0.5	<0.5	<3.0	NA	1.2	NP
MW-2	03/25/98	30.38	6.27	24.11	<50	<0.5	<0.5	0.7	0.5	55	NA	1.0	
MW-2	05/14/98	30.38	6.54	23.84	210	<0.5	<0.5	3.3	<0.5	42	NA	1.47	P
MW-2	07/31/98	30.38	7.14	23.24	230	<0.5	<0.5	3.9	<0.5	6	NA	1.0	P

Table 1
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MTBE)

ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-2	10/12/98	30.38	7.65	22.73	110	<0.5	<0.5	1.5	<0.5	<3	NA	1.0	P
MW-2	02/11/99	30.38	6.55	23.83	660	<0.5	<0.5	6.7	0.7	3	NA	1.0	P
MW-2	06/23/99	30.38	7.48	22.90	270	<0.5	<0.5	2.2	0.8	<3	NA	NM	P
MW-2	08/23/99	30.38	7.89	22.49	200	<0.5	0.9	1.8	<0.5	<3	NA	1.17	P
MW-2	10/27/99	30.38	8.30	22.08	2,100	1.0	2.5	14	3	3	NA	0.75	NP
MW-2	02/09/00	30.38	8.02	22.36	<50	<0.5	<0.5	<0.5	<1	5	NA	0.69	NP
MW-3	02/26/96	30.30	6.72	23.58	120	5.0	<0.5	<0.5	<0.5	NA	NA	NA	
MW-3	05/23/96	30.30	7.18	23.12	140	12	<0.5	<0.5	<0.5	NA	NA	NA	
MW-3	08/21/96	30.30	8.17	22.13	<50	1.1	<0.5	<0.5	<0.5	130	NA	NA	
MW-3	11/20/96	30.30	8.03	22.27	55	<0.5	<0.5	<0.5	<0.5	59	NA	NA	
MW-3	04/01/97	30.30	8.09	22.21	<50	<0.5	<0.5	<0.5	<0.5	180	NA	NA	NP
MW-3	06/10/97	30.30	7.97	22.33	<50	<0.5	<0.5	<0.5	<0.5	1,900	NA	NA	NP
MW-3	09/17/97	30.30	8.54	21.76	<5,000	<50	<50	<50	<50	1,100	860	2.2	NP
MW-3	12/12/97	30.30	7.50	22.80	560	<5.0	<5.0	<5.0	5.0	370	NA	1.4	NP
MW-3	03/25/98	30.30	6.60	23.70	<500	<5	<5	<5	<5	470	NA	1.0	
MW-3	05/14/98	30.30	7.13	23.17	750	<5	<5	<5	<5	630	NA	1.97	P
MW-3	07/31/98	30.30	7.58	22.72	<500	<5	<5	<5	<5	590	NA	1.0	P
MW-3	10/12/98	30.30	8.00	22.30	<500	<5	<5	<5	<5	600	NA	2.0	P
MW-3	02/11/99	30.30	6.90	23.40	<500	<5	<5	<5	<5	280	NA	1.0	P
MW-3	06/23/99	30.30	7.82	22.48	220	<0.5	3.2	<0.5	<0.5	740	NA	1.98	P
MW-3	08/23/99	30.30	8.28	22.02	<50	<0.5	1.1	<0.5	<0.5	230	NA	1.20	P
MW-3	10/27/99	30.30	9.27	21.03	<50	<0.5	<0.5	<0.5	<1	<3	NA	0.81	NP
MW-3	02/09/00	30.30	7.45	22.85	<50	<0.5	<0.5	<0.5	<1	80	NA	0.81	P
MW-4	02/26/96	30.39	7.59	22.80	110	9.9	<0.5	<0.5	<0.5	NA	NA	NA	
MW-4	05/23/96	30.39	8.22	22.17	69	8.0	<0.5	<0.5	<0.5	NA	NA	NA	
MW-4	08/21/96	30.39	9.28	21.11	<50	6.8	<0.5	<0.5	<0.5	<2.5	NA	NA	
MW-4	11/20/96	30.39	9.12	21.27	95	10	0.59	<0.5	0.52	3.8	NA	NA	

Table 1
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, and MTBE)

ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-4	04/01/97	30.39	8.45	21.94	73	5.7	<0.5	<0.5	<0.5	<2.5	NA	NA	
MW-4	06/10/97	30.39	9.00	21.39	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NP
MW-4	09/17/97	30.39	9.76	20.63	<50	3.2	<0.5	<0.5	<0.5	8.0	NA	0.2	NP
MW-4	12/12/97	30.39	8.45	21.94	<50	2.9	<0.5	<0.5	<0.5	14	NA	1.0	NP
MW-4	03/25/98	30.39	7.52	22.87	58	2.8	<0.5	<0.5	<0.5	<3	NA	3.0	
MW-4	05/14/98	30.39	8.03	22.36	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	3.24	NP
MW-4	07/31/98	30.39	8.67	21.72	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.0	NP
MW-4	10/12/98	30.39	9.15	21.24	<50	<0.5	<0.5	<0.5	<0.5	4	NA	1.5	NP
MW-4	02/11/99	30.39	7.80	22.59	61	2.5	<0.5	<0.5	<0.5	6	NA	1.0	P
MW-4	06/23/99	30.39	9.00	21.39	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.42	NP
MW-4	08/23/99	30.39	9.31	21.08	<50	<0.5	<0.5	<0.5	<0.5	6	NA	1.53	NP
MW-4	10/27/99	30.39	9.80	20.59	<50	<0.5	<0.5	<0.5	<1	6	NA	0.98	NP
MW-4	02/09/00	30.39	8.63	21.76	<50	<0.5	<0.5	<0.5	<1	7	NA	0.74	NP

TPPH = Total purgeable petroleum hydrocarbons by modified EPA method 8015
 BTEX = Benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 10/27/99).
 MTBE = Methyl tert -Butyl Ether
 * = EPA method 8020 prior to 10/27/99
 MSL = Mean sea level
 TOC = Top of casing
 ppb = Parts per billion
 ppm = Parts per million
 NA = Not analyzed
 NM = Not measured
 < = Denotes concentration not present above laboratory detection limited stated to the right

**Table 2
Groundwater Flow Direction and Gradient**

**ARCO Service Station 2162
15135 Hesperian Boulevard, San Leandro, California**

Date Measured	Average Flow Direction	Average Hydraulic Gradient
02/26/96	Southwest	0.009
05/23/96	South-Southwest	0.010
08/21/96	South-Southwest	0.01
11/20/96	South-Southwest	0.011
04/01/97	South-Southwest	0.004
06/10/97	South-Southwest	0.010
09/17/97	South-Southwest	0.01
12/12/97	Southwest	0.01
03/25/98	South-Southwest	0.008
05/14/98	Southwest	0.01
07/31/98	Southwest	0.01
10/12/98	Southwest	0.01
02/11/99	Southwest	0.008
06/23/99	Southwest	0.02
08/23/99	Southwest	0.013
10/27/99	South-Southwest	0.02
02/09/00	Southwest	0.01

APPENDIX D

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: 440-33533-1
Client Project/Site: ARCO 2162, San Leandro

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

Attn: Tom Venus



*Authorized for release by:
1/9/2013 8:57:57 AM*

Pat Abe
Project Manager I
pat.abe@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.

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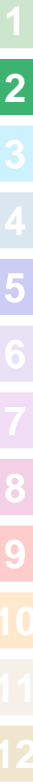


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Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-33533-1	MW-3	Water	12/21/12 09:50	12/22/12 12:15
440-33533-2	MW-4	Water	12/21/12 09:15	12/22/12 12:15
440-33533-3	MW-5	Water	12/21/12 08:35	12/22/12 12:15
440-33533-4	MW-6	Water	12/21/12 10:20	12/22/12 12:15

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Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Job ID: 440-33533-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-33533-1

Comments

No additional comments.

Receipt

The samples were received on 12/22/2012 12:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7° C.

GC/MS VOA

Method(s) 624, 8260B: Due to the high concentration of 2-Methyl-2-Propanol (TBA) in the source sample, the matrix spike / matrix spike duplicate (MS/MSD) calculation does not provide useful spike recovery and precision information for batch 76931. The batch was accepted based on acceptable recovery in the associated laboratory control sample (LCS).

No other analytical or quality issues were noted.

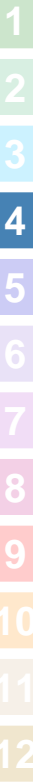
GC VOA

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: MW-6 (440-33533-4). Evidence of matrix interference is present; which was confirmed via reanalysis.

No other 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 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Client Sample ID: MW-3
Date Collected: 12/21/12 09:50
Date Received: 12/22/12 12:15

Lab Sample ID: 440-33533-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			01/03/13 23:20	1
1,2-Dichloroethane	ND		0.50	ug/L			01/03/13 23:20	1
Benzene	ND		0.50	ug/L			01/03/13 23:20	1
Ethanol	ND		150	ug/L			01/03/13 23:20	1
Ethylbenzene	ND		0.50	ug/L			01/03/13 23:20	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/03/13 23:20	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/03/13 23:20	1
m,p-Xylene	ND		1.0	ug/L			01/03/13 23:20	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/03/13 23:20	1
o-Xylene	ND		0.50	ug/L			01/03/13 23:20	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/03/13 23:20	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/03/13 23:20	1
Toluene	ND		0.50	ug/L			01/03/13 23:20	1
Xylenes, Total	ND		1.0	ug/L			01/03/13 23:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120		01/03/13 23:20	1
Dibromofluoromethane (Surr)	103		80 - 120		01/03/13 23:20	1
Toluene-d8 (Surr)	111		80 - 120		01/03/13 23:20	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50	ug/L			12/28/12 21:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		65 - 140		12/28/12 21:33	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Client Sample ID: MW-4
Date Collected: 12/21/12 09:15
Date Received: 12/22/12 12:15

Lab Sample ID: 440-33533-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			01/03/13 23:49	1
1,2-Dichloroethane	ND		0.50	ug/L			01/03/13 23:49	1
Benzene	ND		0.50	ug/L			01/03/13 23:49	1
Ethanol	ND		150	ug/L			01/03/13 23:49	1
Ethylbenzene	ND		0.50	ug/L			01/03/13 23:49	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/03/13 23:49	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/03/13 23:49	1
m,p-Xylene	ND		1.0	ug/L			01/03/13 23:49	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/03/13 23:49	1
o-Xylene	ND		0.50	ug/L			01/03/13 23:49	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/03/13 23:49	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/03/13 23:49	1
Toluene	ND		0.50	ug/L			01/03/13 23:49	1
Xylenes, Total	ND		1.0	ug/L			01/03/13 23:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120		01/03/13 23:49	1
Dibromofluoromethane (Surr)	102		80 - 120		01/03/13 23:49	1
Toluene-d8 (Surr)	109		80 - 120		01/03/13 23:49	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			12/29/12 11:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		65 - 140		12/29/12 11:28	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Client Sample ID: MW-5

Lab Sample ID: 440-33533-3

Date Collected: 12/21/12 08:35

Matrix: Water

Date Received: 12/22/12 12:15

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			01/04/13 00:18	1
1,2-Dichloroethane	ND		0.50	ug/L			01/04/13 00:18	1
Benzene	0.52		0.50	ug/L			01/04/13 00:18	1
Ethanol	ND		150	ug/L			01/04/13 00:18	1
Ethylbenzene	ND		0.50	ug/L			01/04/13 00:18	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/04/13 00:18	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/04/13 00:18	1
m,p-Xylene	ND		1.0	ug/L			01/04/13 00:18	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/04/13 00:18	1
o-Xylene	ND		0.50	ug/L			01/04/13 00:18	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/04/13 00:18	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/04/13 00:18	1
Toluene	ND		0.50	ug/L			01/04/13 00:18	1
Xylenes, Total	ND		1.0	ug/L			01/04/13 00:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120		01/04/13 00:18	1
Dibromofluoromethane (Surr)	103		80 - 120		01/04/13 00:18	1
Toluene-d8 (Surr)	109		80 - 120		01/04/13 00:18	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	84		50	ug/L			12/29/12 11:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	65		65 - 140		12/29/12 11:56	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Client Sample ID: MW-6

Lab Sample ID: 440-33533-4

Date Collected: 12/21/12 10:20

Matrix: Water

Date Received: 12/22/12 12:15

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			01/04/13 00:47	1
1,2-Dichloroethane	ND		0.50	ug/L			01/04/13 00:47	1
Benzene	4.1		0.50	ug/L			01/04/13 00:47	1
Ethanol	ND		150	ug/L			01/04/13 00:47	1
Ethylbenzene	5.0		0.50	ug/L			01/04/13 00:47	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/04/13 00:47	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/04/13 00:47	1
m,p-Xylene	ND		1.0	ug/L			01/04/13 00:47	1
Methyl-t-Butyl Ether (MTBE)	110		0.50	ug/L			01/04/13 00:47	1
o-Xylene	0.56		0.50	ug/L			01/04/13 00:47	1
Tert-amyl-methyl ether (TAME)	9.2		0.50	ug/L			01/04/13 00:47	1
tert-Butyl alcohol (TBA)	12		10	ug/L			01/04/13 00:47	1
Toluene	0.91		0.50	ug/L			01/04/13 00:47	1
Xylenes, Total	ND		1.0	ug/L			01/04/13 00:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		80 - 120		01/04/13 00:47	1
Dibromofluoromethane (Surr)	103		80 - 120		01/04/13 00:47	1
Toluene-d8 (Surr)	112		80 - 120		01/04/13 00:47	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	2400		500	ug/L			12/29/12 12:23	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	53	LG	65 - 140		12/29/12 12:23	10

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Client Sample ID: MW-3

Date Collected: 12/21/12 09:50

Date Received: 12/22/12 12:15

Lab Sample ID: 440-33533-1

Matrix: Water

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	76931	01/03/13 23:20	RM	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	76172	12/28/12 21:33	PH	TAL IRV

Client Sample ID: MW-4

Date Collected: 12/21/12 09:15

Date Received: 12/22/12 12:15

Lab Sample ID: 440-33533-2

Matrix: Water

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	76931	01/03/13 23:49	RM	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	76172	12/29/12 11:28	PH	TAL IRV

Client Sample ID: MW-5

Date Collected: 12/21/12 08:35

Date Received: 12/22/12 12:15

Lab Sample ID: 440-33533-3

Matrix: Water

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	76931	01/04/13 00:18	RM	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	76172	12/29/12 11:56	PH	TAL IRV

Client Sample ID: MW-6

Date Collected: 12/21/12 10:20

Date Received: 12/22/12 12:15

Lab Sample ID: 440-33533-4

Matrix: Water

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	76931	01/04/13 00:47	RM	TAL IRV
Total/NA	Analysis	8015B/5030B		10	10 mL	10 mL	76172	12/29/12 12:23	PH	TAL IRV

Laboratory References:

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 2162, San Leandro

TestAmerica Job ID: 440-33533-1

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

Lab Sample ID: MB 440-76931/4

Matrix: Water

Analysis Batch: 76931

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			01/03/13 20:25	1
1,2-Dichloroethane	ND		0.50	ug/L			01/03/13 20:25	1
Benzene	ND		0.50	ug/L			01/03/13 20:25	1
Ethanol	ND		150	ug/L			01/03/13 20:25	1
Ethylbenzene	ND		0.50	ug/L			01/03/13 20:25	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/03/13 20:25	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/03/13 20:25	1
m,p-Xylene	ND		1.0	ug/L			01/03/13 20:25	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/03/13 20:25	1
o-Xylene	ND		0.50	ug/L			01/03/13 20:25	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/03/13 20:25	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/03/13 20:25	1
Toluene	ND		0.50	ug/L			01/03/13 20:25	1
Xylenes, Total	ND		1.0	ug/L			01/03/13 20:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120		01/03/13 20:25	1
Dibromofluoromethane (Surr)	100		80 - 120		01/03/13 20:25	1
Toluene-d8 (Surr)	109		80 - 120		01/03/13 20:25	1

Lab Sample ID: LCS 440-76931/5

Matrix: Water

Analysis Batch: 76931

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	26.8		ug/L		107	75 - 125
1,2-Dichloroethane	25.0	24.7		ug/L		99	60 - 140
Benzene	25.0	24.8		ug/L		99	70 - 120
Ethanol	250	225		ug/L		90	40 - 155
Ethylbenzene	25.0	25.1		ug/L		101	75 - 125
Ethyl-t-butyl ether (ETBE)	25.0	26.7		ug/L		107	65 - 135
Isopropyl Ether (DIPE)	25.0	26.5		ug/L		106	60 - 135
m,p-Xylene	50.0	52.7		ug/L		105	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	28.4		ug/L		114	60 - 135
o-Xylene	25.0	26.6		ug/L		106	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	28.9		ug/L		116	60 - 135
tert-Butyl alcohol (TBA)	125	125		ug/L		100	70 - 135
Toluene	25.0	25.7		ug/L		103	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		80 - 120
Dibromofluoromethane (Surr)	105		80 - 120
Toluene-d8 (Surr)	112		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

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

Lab Sample ID: 440-33868-D-7 MS

Matrix: Water

Analysis Batch: 76931

Client Sample ID: Matrix Spike

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	27.7		ug/L		111	70 - 130
1,2-Dichloroethane	ND		25.0	23.5		ug/L		94	60 - 140
Benzene	ND		25.0	24.1		ug/L		96	65 - 125
Ethanol	ND		250	220		ug/L		88	40 - 155
Ethylbenzene	ND		25.0	25.5		ug/L		102	65 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.1		ug/L		100	60 - 135
Isopropyl Ether (DIPE)	ND		25.0	25.0		ug/L		100	60 - 140
m,p-Xylene	ND		50.0	52.5		ug/L		105	65 - 130
Methyl-t-Butyl Ether (MTBE)	1.9		25.0	28.7		ug/L		107	55 - 145
o-Xylene	ND		25.0	26.9		ug/L		108	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	26.6		ug/L		106	60 - 140
tert-Butyl alcohol (TBA)	900		125	992	BB	ug/L		70	65 - 140
Toluene	ND		25.0	24.7		ug/L		99	70 - 125

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	106		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120
Toluene-d8 (Surr)	109		80 - 120

Lab Sample ID: 440-33868-D-7 MSD

Matrix: Water

Analysis Batch: 76931

Client Sample ID: Matrix Spike Duplicate

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	28.2		ug/L		113	70 - 130	2	25
1,2-Dichloroethane	ND		25.0	25.0		ug/L		100	60 - 140	6	20
Benzene	ND		25.0	25.1		ug/L		100	65 - 125	4	20
Ethanol	ND		250	217		ug/L		87	40 - 155	1	30
Ethylbenzene	ND		25.0	26.6		ug/L		106	65 - 130	4	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.8		ug/L		103	60 - 135	3	25
Isopropyl Ether (DIPE)	ND		25.0	25.7		ug/L		103	60 - 140	3	25
m,p-Xylene	ND		50.0	55.1		ug/L		110	65 - 130	5	25
Methyl-t-Butyl Ether (MTBE)	1.9		25.0	29.7		ug/L		111	55 - 145	3	25
o-Xylene	ND		25.0	27.2		ug/L		109	65 - 125	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	28.2		ug/L		113	60 - 140	6	30
tert-Butyl alcohol (TBA)	900		125	1010	BB	ug/L		87	65 - 140	2	25
Toluene	ND		25.0	25.6		ug/L		102	70 - 125	4	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120
Toluene-d8 (Surr)	109		80 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

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

Lab Sample ID: MB 440-76172/3

Matrix: Water

Analysis Batch: 76172

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			12/28/12 20:37	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		65 - 140				12/28/12 20:37	1

Lab Sample ID: LCS 440-76172/2

Matrix: Water

Analysis Batch: 76172

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	646		ug/L		81	80 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	121		65 - 140				

Lab Sample ID: 440-33533-1 MS

Matrix: Water

Analysis Batch: 76172

Client Sample ID: MW-3

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	629		ug/L		79	65 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	124		65 - 140						

Lab Sample ID: 440-33533-1 MSD

Matrix: Water

Analysis Batch: 76172

Client Sample ID: MW-3

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	629		ug/L		79	65 - 140	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	125		65 - 140								

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

GC/MS VOA

Analysis Batch: 76931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-33533-1	MW-3	Total/NA	Water	8260B/5030B	
440-33533-2	MW-4	Total/NA	Water	8260B/5030B	
440-33533-3	MW-5	Total/NA	Water	8260B/5030B	
440-33533-4	MW-6	Total/NA	Water	8260B/5030B	
440-33868-D-7 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-33868-D-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-76931/5	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-76931/4	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 76172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-33533-1	MW-3	Total/NA	Water	8015B/5030B	
440-33533-1 MS	MW-3	Total/NA	Water	8015B/5030B	
440-33533-1 MSD	MW-3	Total/NA	Water	8015B/5030B	
440-33533-2	MW-4	Total/NA	Water	8015B/5030B	
440-33533-3	MW-5	Total/NA	Water	8015B/5030B	
440-33533-4	MW-6	Total/NA	Water	8015B/5030B	
LCS 440-76172/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-76172/3	Method Blank	Total/NA	Water	8015B/5030B	

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2162, San Leandro

TestAmerica Job ID: 440-33533-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration

GC VOA

Qualifier	Qualifier Description
LG	LG=Surrogate recovery below the acceptance limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
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 2162, San Leandro

TestAmerica Job ID: 440-33533-1

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	01-31-13
California	NELAP	9	1108CA	01-31-13
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-13
Hawaii	State Program	9	N/A	01-31-13
Nevada	State Program	9	CA015312007A	07-31-13
New Mexico	State Program	6	N/A	01-31-13
Northern Mariana Islands	State Program	9	MP0002	01-31-13
Oregon	NELAP	10	4005	09-12-13
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-13



Laboratory Management Program LaMP Chain of Custody Record

440-33533

BP/ARC Project Name: ARCO 2162

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

BP/ARC Facility No: 2162

Lab Work Order Number: _____

Lab Name: Test America	BP/ARC Facility Address: 15135 Hesperian Blvd	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 17461 Derian Suite #100	City, State, ZIP Code: San Leandro, California	Consultant/Contractor Project No: 06-88-620
Lab PM: Pat Abe	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave., Ste 212, Chico, Ca
Lab Phone: 949-261-1022 / 949-260-3297 (fax)	California Global ID No.: T0600100084	Consultant/Contractor PM: Tom Venus
Lab Shipping Acct: Fed ex#: 11103-6633-7	Enfos Proposal No/WR#: 00604-0002 / WR245682	Phone: 530-566-1400 / 530-566-1401 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU ___ OOC-RM ___	Email EDD To: tvenus@broadbentinc.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP <input checked="" type="checkbox"/> Contractor ___

BP/ARC EBM: Shannon Couch	Matrix	No. Containers / Preservative	Requested Analyses	Turnaround Tim	Report Type & QC Level
EBM Phone: 925-275-3804					Standard <input checked="" type="checkbox"/> Full Data Package ___
EBM Email: shannon.couch@bp.com					

Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	GRO (8016)	BTEX (8260)	5-Oxys (8260)	EDB, 1,2-DCA, Ethanol (8260)	24-hours	Standard	Comments	
																				Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.
	MW-3	12-20-12	0950		X		6						X	X	X	X				
	MW-4	I	0915		X		6						X	X	X	X				
	MW-5	I	0533		X		6						X	X	X	X				
	MW-6	I	1020		X		6						X	X	X	X				
	TB-2162-12202012	I	1100		X		2													ON HOLD
					X		2													On Hold

Sampler's Name: James R / Alex M	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: Broadbent	<i>James R</i>		12/21/12	1700				
Shipment Method: FedEx Ship Date: 12-21-12	<i>Alex M</i> / BAI		12/20/12	1700				
Shipment Tracking No: 8010 3695 0493							12/21/12	1225

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

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



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1/9/2013

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-33533-1

Login Number: 33533

List Number: 1

Creator: Robb, Kathleen

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.	N/A	
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	

APPENDIX E

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>	4Q12 GEO_WELL 2162
<u>Facility GlobalID:</u>	T0600100084
<u>Facility Name:</u>	ARCO #2162
<u>File Name:</u>	GEO_WELL.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	66.208.210.129
<u>Submittal Date/Time:</u>	1/23/2013 9:52:14 AM
<u>Confirmation Number:</u>	8679096281

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>Submission Type:</u>	EDF
<u>Report Title:</u>	4Q12 GW Monitoring
<u>Report Type:</u>	Monitoring Report - Semi-Annually
<u>Facility Global ID:</u>	T0600100084
<u>Facility Name:</u>	ARCO #2162
<u>File Name:</u>	440-33533-1_09 Jan 13 0955_EDF.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	66.208.210.129
<u>Submission Date/Time:</u>	1/23/2013 9:51:04 AM
<u>Confirmation Number:</u>	1857135832

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