

Atlantic Richfield Company

Shannon Couch
Project Manager

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7:55 am, Feb 02, 2012

Alameda County
Environmental Health

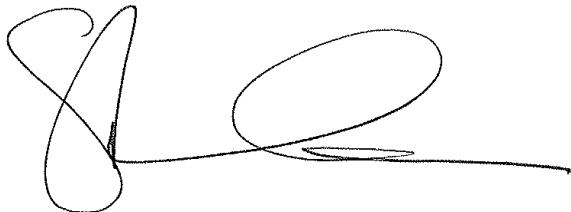
PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
Fax: (925) 275-3815
E-Mail: shannon.couch@bp.com

January 27, 2012

Re: Fourth Quarter 2011 Semi-Annual Groundwater Monitoring Report
Atlantic Richfield Company Service Station #498
286 South Livermore Avenue, Livermore, California
ACEH Case No. RO0002873

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

Submitted by,



Shannon Couch
Project Manager

Attachment

**FOURTH QUARTER 2011 SEMI-ANNUAL
GROUNDWATER MONITORING REPORT**
Atlantic Richfield Company Station #498
286 South Livermore Avenue, Livermore, California
ACEH Case #RO0002873

Prepared for

Ms. Shannon Couch
Project Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583



1324 Mangrove Avenue, Suite 212
Chico, California 95926
(530) 566-1400
www.broadbentinc.com

January 27, 2012

Project No. 08-82-603

January 27, 2012

Project No. 08-82-603

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

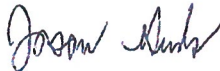
Attn.: Ms. Shannon Couch

Re: Fourth Quarter 2011 Semi-Annual Groundwater Monitoring Report, Atlantic Richfield Company Station #498, 286 South Livermore Avenue, Livermore, California; ACEH Case #RO0002873

Dear Ms. Couch:

Attached is the Fourth Quarter 2011 Semi-Annual Groundwater Monitoring Report for Atlantic Richfield Company Station #498 located at 286 South Livermore Avenue, Livermore, California. Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (530) 566-1400.

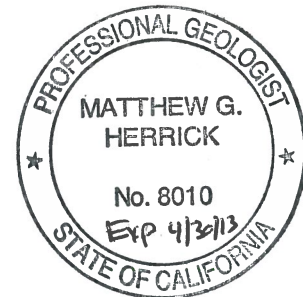
Sincerely,
BROADBENT & ASSOCIATES, INC.



Jason Duda
Project Scientist



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



Enclosure

cc: Mr. Paresh Khatri, Alameda County Environmental Health, 1131 Harbor Bay Parkway,
Suite 250, Alameda, CA 84502 (Submitted via ACEH ftp Site)
Electronic copy uploaded to GeoTracker

**FOURTH QUARTER 2011
SEMI-ANNUAL GROUNDWATER MONITORING REPORT
STATION #498, LIVERMORE, CALIFORNIA**

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *Fourth Quarter 2011 Semi-Annual Groundwater Monitoring Report* on behalf of Atlantic Richfield Company (a BP affiliated company) for Station #498 located in Livermore, Alameda County, California. Reporting is being submitted to Alameda County Environmental Health consistent with the requirements under the legal authority of the California Regional Water Quality Control Board, as codified by the California Code of Regulations Title 23, Section 2652(d). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	<u>ARCO Station #498 / 286 South Livermore Avenue</u>
Client Project Manager / Title:	<u>Ms. Shannon Couch / Project Manager</u>
Broadbent Contact:	<u>Jason Duda, (530) 566-1400</u>
Broadbent Project No.:	<u>08-82-603</u>
Primary Regulatory Agency / ID No.:	<u>ACEH, Case #RO0002873</u>
Current phase of project:	<u>Monitoring and Assessment</u>
List of Acronyms / Abbreviations:	<u>See end of report text for list of acronyms/abbreviations used in report.</u>

WORK PERFORMED THIS QUARTER (Fourth Quarter 2011):

1. Prepared and submitted *Third Quarter 2011 Status Report* (Broadbent, 10/17/2011).
2. Conducted groundwater monitoring/sampling for Fourth Quarter 2011 on October 25, 2011.

WORK SCHEDULED FOR NEXT QUARTER (First Quarter 2012):

1. Prepare and submit *Fourth Quarter 2011 Semi-Annual Groundwater Monitoring Report* (contained herein).
2. Conduct off-site soil and groundwater investigation activities upon acquisition of off-site property access agreement.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	<u>MW-1 through MW-4</u>	(2Q and 4Q)
Groundwater sample collection:	<u>MW-1 through MW-4</u>	(2Q and 4Q)
Biodegradation indicator parameter monitoring:	<u>NA</u>	

QUARTERLY RESULTS SUMMARY:

LNAPL

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

Groundwater Elevation and Gradient:

Depth to groundwater:	<u>30.11 (MW-1) to 33.33 (MW-2)</u>	(ft below TOC)
Gradient direction:	<u>West-Northwest</u>	(compass direction)
Gradient magnitude:	<u>0.02</u>	(ft/ft)
Average change in elevation:	<u>-4.76</u>	(ft since last measurement)

Laboratory Analytical Data

Summary:	<u>GRO were detected in three of the four wells sampled at a maximum concentration of 2,700 µg/L in well MW-3. Benzene was detected in two of the four wells sampled at a maximum concentration of 190 µg/L in well MW-3. MTBE was detected in each of the four wells sampled at a maximum concentration of 33 µg/L in well MW-3.</u>
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ACTIVITIES CONDUCTED & RESULTS:

Fourth Quarter 2011 groundwater monitoring was conducted on October 25, 2011 by Broadbent personnel in accordance with the monitoring plan summary detailed above. No irregularities were noted during water level gauging. Light, Non-Aqueous Phase Liquid (LNAPL, or free product) was not noted to be present in the wells monitored during this event. Depth to water measurements ranged from 30.11 ft at MW-1 to 33.33 ft at MW-2. Resulting groundwater surface elevations ranged from 462.02 ft at MW-2 to 466.61 ft at MW-1. Groundwater elevations are summarized in Table 1. Water level elevations yielded a horizontal groundwater gradient to the west-northwest at approximately 0.02 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on October 25, 2011 from wells MW-1 through MW-4, consistent with the current monitoring schedule. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove, California) for analysis of Gasoline-Range Organics (GRO, C6-C12) by EPA Method 8015M; for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Tert-Butyl Alcohol (TBA) and Ethanol by EPA Method 8260. The GRO concentrations observed in the samples collected from wells MW-1 and MW-4 were “quantitated against gasoline.” No other significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix C.

Hydrocarbons in the GRO range were detected above the laboratory reporting limit in three of the four wells sampled at concentrations up to 2,700 micrograms per liter ($\mu\text{g/L}$) in well MW-3. Benzene was detected above the laboratory reporting limit in two of the four wells sampled at concentrations up to 190 $\mu\text{g/L}$ in well MW-3. Toluene was detected above the laboratory reporting limit in well MW-1 at a concentration of 3.7 $\mu\text{g/L}$. Ethylbenzene was detected above the laboratory reporting limit in well MW-3 at a concentration of 82 $\mu\text{g/L}$. Total Xylenes were detected above the laboratory reporting limit in two of the four wells sampled at concentrations up to 51 $\mu\text{g/L}$ in well MW-3. MTBE was detected above the laboratory reporting limit in each of the four wells sampled at concentrations up to 33 $\mu\text{g/L}$ in well MW-3. TAME was detected above the laboratory reporting limit in well MW-1 at a concentration of 0.72 $\mu\text{g/L}$. TBA was detected above the laboratory reporting limit in two of the four wells sampled at concentrations up to 150 $\mu\text{g/L}$ in well MW-4. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. Groundwater monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix D.

DISCUSSION:

Groundwater levels were between historic minimum and maximum elevations for each well gauged this quarter. Groundwater elevations yielded a horizontal groundwater gradient to the west-northwest at approximately 0.020 ft/ft, generally consistent with the historic flow direction and gradient data presented in Table 3.

This event's detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well with the following exceptions: GRO reached a historic minimum concentration in well MW-3, MTBE reached historic minimum concentrations in wells MW-2, MW-3, and MW-4, Benzene and

Ethylbenzene reached historic minimum concentrations in well MW-3, and TBA reached a historic minimum concentration in well MW-4, but reached a historic maximum concentration in well MW-1. Recent and historic laboratory analytical results are summarized in Table 1 and Table 2. The next semi-annual groundwater monitoring and sampling event is scheduled to be conducted during the Second Quarter 2012.

RECOMMENDATIONS:

In their letter dated August 12, 2010, ACEH approved the *Soil and Ground-Water Investigation Work Plan Addendum* submitted by Broadbent on April 12, 2010. Off-site property access is required in order to complete the scope of work detailed in the Work Plan. Contact with the owner of the property located immediately northwest of the Site has been made. However, the property owner has been reluctant to allow property access in order to complete the off-site investigation. Further communication with the property owner will be conducted during the First Quarter 2012. In email correspondence dated November 4, 2010, ACEH approved a request to postpone the previous deadline of November 10, 2010 established for submittal of the Soil and Water Investigation Report until official property access is obtained.

LIMITATIONS:

The findings presented in this report are based upon observations of field personnel, points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, 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 the Atlantic Richfield Company. It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

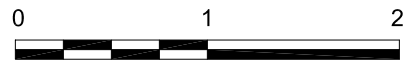
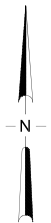
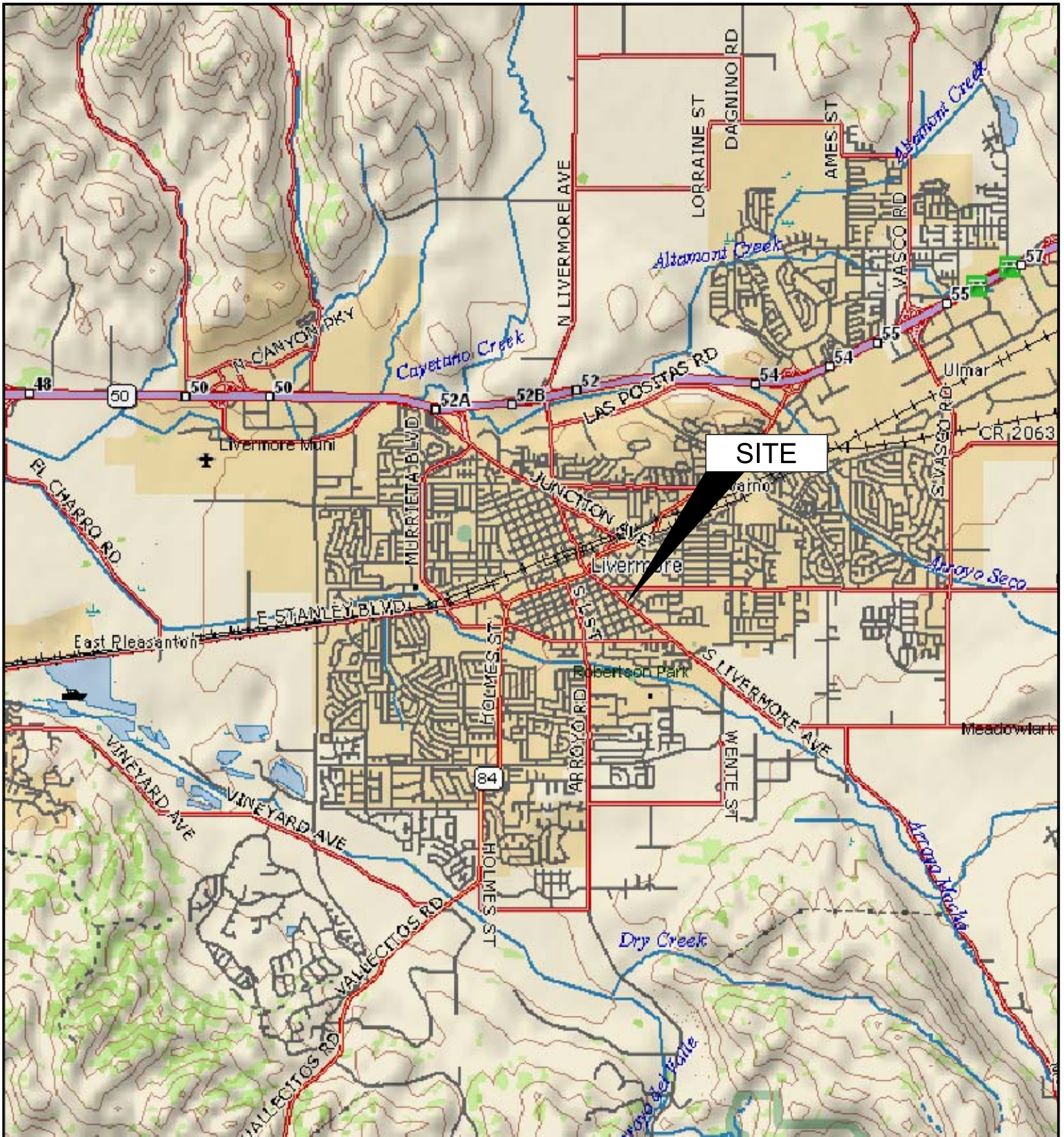
- Drawing 1: Site Location Map
- Drawing 2: Groundwater Elevation Contours and Analytical Summary Map, October 25, 2011

- 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: Laboratory Report and Chain-of-Custody Documentation
- Appendix D: GeoTracker Upload Confirmation Receipts

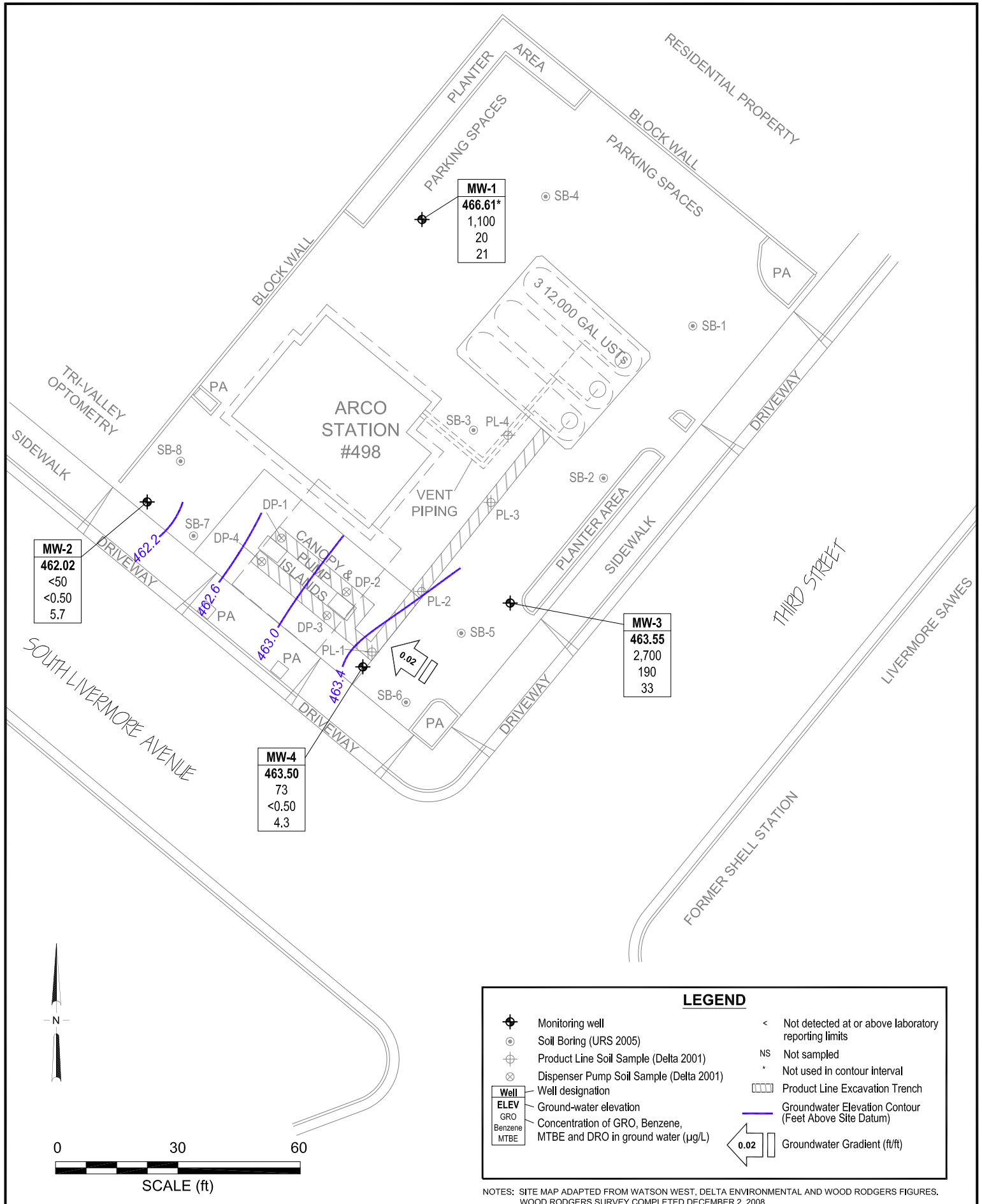
LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

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



APPROXIMATE SCALE (mi)

IMAGE SOURCE: DELORME



LEGEND

	Monitoring well	<	Not detected at or above laboratory reporting limits
	Soil Boring (URS 2005)	NS	Not sampled
	Product Line Soil Sample (Delta 2001)	*	Not used in contour interval
	Dispenser Pump Soil Sample (Delta 2001)		Product Line Excavation Trench
	Well designation		Groundwater Elevation Contour (Feet Above Site Datum)
	Ground-water elevation		Groundwater Gradient (ft/ft)
	Concentration of GRO, Benzene, MTBE and DRO in ground water (µg/L)		

NOTES: SITE MAP ADAPTED FROM WATSON WEST, DELTA ENVIRONMENTAL AND WOOD RODGERS FIGURES. WOOD RODGERS SURVEY COMPLETED DECEMBER 2, 2008.

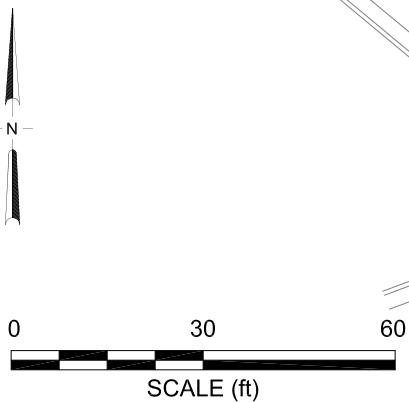


Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1																
12/29/2008	P	496.72	20.00	40.00	28.81	0.00	467.91	1,100	38	1.2	4.0	3.3	17	2.72	6.83	
3/20/2009	P		20.00	40.00	28.95	0.00	467.77	640	9.1	<0.50	4.1	<0.50	21	0.35	7.28	
6/2/2009	P		20.00	40.00	30.90	0.00	465.82	600	1.6	<0.50	<0.50	<0.50	32	0.59	7.17	
9/2/2009	P		20.00	40.00	32.00	0.00	464.72	570	<0.50	<0.50	<0.50	<0.50	5.3	1.02	7.38	
11/9/2009	P		20.00	40.00	31.82	0.00	464.90	1,000	130	12	35	39	140	1.39	7.02	
5/20/2010	P		20.00	40.00	28.94	0.00	467.78	1,000	4.4	<0.50	0.76	0.73	22	0.59	6.6	
11/2/2010	P		20.00	40.00	32.03	0.00	464.69	1,300	83	20	40	61	39	0.72	6.0	b (GRO), c
5/25/2011	P		20.00	40.00	26.69	0.00	470.03	2,900	32	3.1	20	2.9	<0.50	0.68	7.0	lw (GRO)
10/25/2011	P		20.00	40.00	30.11	0.00	466.61	1,100	20	3.7	<0.50	5.4	21	0.78	7.4	lw (GRO)
MW-2																
12/29/2008	P	495.35	37.00	57.00	48.76	0.00	446.59	110	7.1	<0.50	<0.50	0.76	16	1.04	7.67	
3/20/2009	P		37.00	57.00	38.78	0.00	456.57	200	3.9	<1.0	<1.0	<1.0	56	0.41	7.51	
6/2/2009	P		37.00	57.00	43.98	0.00	451.37	110	5.1	<1.0	<1.0	<1.0	44	1.87	7.42	
9/2/2009	P		37.00	57.00	50.25	0.00	445.10	88	0.79	<0.50	<0.50	<0.50	12	1.55	6.91	
11/9/2009	P		37.00	57.00	43.79	0.00	451.56	58	2.0	<0.50	<0.50	<0.50	13	0.86	7.14	
5/20/2010	P		37.00	57.00	32.07	0.00	463.28	<50	<0.50	<0.50	<0.50	<0.50	27	0.61	6.8	
11/2/2010	P		37.00	57.00	39.23	0.00	456.12	<50	<0.50	<0.50	<0.50	<0.50	57	1.34	6.8	
5/25/2011	P		37.00	57.00	28.19	0.00	467.16	<50	<0.50	<0.50	<0.50	<0.50	15	3.74	7.1	
10/25/2011	P		37.00	57.00	33.33	0.00	462.02	<50	<0.50	<0.50	<0.50	<0.50	5.7	1.28	7.8	
MW-3																
12/29/2008	P	496.32	37.00	57.00	48.21	0.00	448.11	28,000	310	200	840	6,200	71	1.95	7.39	
3/20/2009	P		37.00	57.00	38.48	0.00	457.84	11,000	360	84	600	1,500	71	0.56	7.25	
6/2/2009	P		37.00	57.00	43.33	0.00	452.99	5,100	310	14	180	310	66	2.06	7.18	a
9/2/2009	P		37.00	57.00	49.60	0.00	446.72	25,000	380	150	930	2,900	75	1.35	6.93	
11/9/2009	P		37.00	57.00	43.25	0.00	453.07	6,900	390	27	480	680	69	0.54	6.9	
5/20/2010	P		37.00	57.00	31.56	0.00	464.76	9,400	690	<10	300	83	77	0.36	6.8	
11/2/2010	P		37.00	57.00	38.68	0.00	457.64	4,400	420	<10	110	33	70	0.59	6.8	b (GRO)
5/25/2011	P		37.00	57.00	27.56	0.00	468.76	4,500	560	<10	210	22	74	0.70	9.8	lw (GRO)
10/25/2011	P		37.00	57.00	32.77	0.00	463.55	2,700	190	<4.0	82	51	33	0.69	7.6	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4																
12/29/2008	--	496.01	20.00	40.00	--	--	--	--	--	--	--	--	--	--	--	Dry
3/20/2009	P		20.00	40.00	37.82	0.00	458.19	410	0.78	<0.50	<0.50	0.64	16	0.52	7.16	
6/2/2009	--		20.00	40.00	--	--	--	--	--	--	--	--	--	--	--	Dry
9/2/2009	--		20.00	40.00	--	--	--	--	--	--	--	--	--	--	--	Dry
11/9/2009	--		20.00	40.00	--	--	--	--	--	--	--	--	--	--	--	Dry
5/20/2010	P		20.00	40.00	31.29	0.00	464.72	290	<2.0	<2.0	<2.0	<2.0	10	0.82	6.6	
11/2/2010	NP		20.00	40.00	38.42	0.00	457.59	51	<2.0	<2.0	<2.0	<2.0	5.1	1.12	6.4	b (GRO), c
5/25/2011	P		20.00	40.00	27.58	0.00	468.43	94	<1.0	<1.0	<1.0	<1.0	6.2	0.86	6.9	lw (GRO)
10/25/2011	P		20.00	40.00	32.51	0.00	463.50	73	<0.50	<0.50	<0.50	<0.50	4.3	0.49	7.4	lw (GRO)

Symbols & Abbreviations:

-- = Not sampled/analyzed/applicable/measured/ available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
ft bgs= feet below ground surface
ft MSL= feet above mean sea level
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft MSL
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Not purged before sampling
P = Purged before sampling
TOC = Top of casing measured in ft MSL
µg/L = Micrograms per liter

Footnotes:

a = Sample preserved improperly
b = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
c = Hydrocarbon odor
lw = Quantitated against gasoline

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
12/29/2008	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
3/20/2009	<300	25	21	<0.50	<0.50	<0.50	<0.50	<0.50	
6/2/2009	<300	28	32	<0.50	<0.50	<0.50	<0.50	<0.50	
9/2/2009	<300	17	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	
11/9/2009	<300	47	140	<0.50	<0.50	3.1	<0.50	<0.50	
5/20/2010	<300	75	22	<0.50	<0.50	<0.50	<0.50	<0.50	
11/2/2010	<300	50	39	<0.50	<0.50	<0.50	<0.50	<0.50	
5/25/2011	<300	32	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
10/25/2011	<300	78	21	<0.50	<0.50	0.72	<0.50	<0.50	
MW-2									
12/29/2008	<300	22	16	<0.50	<0.50	<0.50	<0.50	<0.50	
3/20/2009	<600	62	56	<1.0	<1.0	<1.0	<1.0	<1.0	
6/2/2009	<600	83	44	<1.0	<1.0	<1.0	<1.0	<1.0	
9/2/2009	<300	37	12	<0.50	<0.50	<0.50	<0.50	<0.50	
11/9/2009	<300	41	13	<0.50	<0.50	<0.50	<0.50	<0.50	
5/20/2010	<300	22	27	<0.50	<0.50	<0.50	<0.50	<0.50	
11/2/2010	<300	26	57	<0.50	<0.50	<0.50	<0.50	<0.50	
5/25/2011	<300	<10	15	<0.50	<0.50	<0.50	<0.50	<0.50	
10/25/2011	<300	<10	5.7	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
12/29/2008	<30,000	<1,000	71	<50	<50	<50	<50	<50	
3/20/2009	<7,500	<250	71	<12	<12	<12	<12	<12	
6/2/2009	<3,000	100	66	<5.0	<5.0	<5.0	<5.0	<5.0	
9/2/2009	<7,500	<250	75	<12	<12	<12	<12	<12	
11/9/2009	<3,000	<100	69	<5.0	<5.0	<5.0	<5.0	<5.0	
5/20/2010	<6,000	<200	77	<10	<10	<10	<10	<10	
11/2/2010	<6,000	<200	70	<10	<10	<10	<10	<10	
5/25/2011	<6000	<200	74	<10	<10	<10	<10	<10	
10/25/2011	<2,400	<80	33	<4.0	<4.0	<4.0	<4.0	<4.0	

Table 2. Summary of Fuel Additives Analytical Data
ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4									
3/20/2009	<300	2,000	16	<0.50	<0.50	<0.50	<0.50	<0.50	
5/20/2010	<1,200	1,000	10	<2.0	<2.0	<2.0	<2.0	<2.0	
11/2/2010	<1,200	500	5.1	<2.0	<2.0	<2.0	<2.0	<2.0	
5/25/2011	<600	230	6.2	<1.0	<1.0	<1.0	<1.0	<1.0	
10/25/2011	<300	150	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	

Symbols & Abbreviations:

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

< = Not detected at or above specified laboratory reporting limit

1,2-DCA = 1,2-Dichloroethane

DIPE = Diisopropyl ether

EDB = 1,2-Dibromoethane

ETBE = Ethyl tert-butyl ether

MTBE = Methyl tert-butyl ether

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

µg/L = Micrograms per liter

Table 3. Historical Groundwater Gradient - Direction and Magnitude
ARCO Service Station #498, 286 South Livermore Avenue, Livermore, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
12/29/2008	NA	NA
3/20/2009	North-Northwest	0.02
6/2/2009	NA	NA
9/2/2009	NA	NA
11/9/2009	NA	NA
5/20/2010	West-Northwest	0.02
11/2/2010	West-Northwest	0.02
5/25/2011	West-Northwest	0.02
10/25/2011	West-Northwest	0.02

Symbols & Abbreviations:
 NA = Not Available

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 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.

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.

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

Per 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 properly 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

Well I.D.: MW-2
 Project Name/Location: BP 498 Project #: 08-82-603
 Sampler's Name: SB & JR Date: 1/9/25/11
 Purging Equipment: baile
 Sampling Equipment: baile

Casing Type: PVC
 Casing Diameter: 2 inch
 Total Well Depth: 58.00 feet
 Depth to Water: - 33.33 feet
 Water Column Thickness: = 24.67 feet
 Unit Casing Volume*: x 0.16 gallon / foot
 Casing Water Volume: = 3.95 gallons
 Casing Volume: x 3 each
 Estimated Purge Volume: = 11.85 gallons

***UNIT CASING VOLUMES**

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

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1151	1.28	—	—	821	20.2	7.8	
2	1155	X	X	X	865	19.9	7.7	
4	1200	X	X	X	916	17.6	7.8	
6	1206	X	X	X	912	18.4	8.0	
8	1210	X	X	X	900	19.5	7.7	
10	1215	X	X	X	897	19.4	7.8	
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons
 Depth to Water at Sample Collection: — feet
 Sample Collection Time: 1220 Purged Dry? (Y/N)

Comments:

Groundwater Sampling Data Sheet

Well I.D.: MW-3

Project Name/Location: BP 498

Project #: 08-80-603

Sampler's Name: SB JTR

Date: 10/25/11

Purging Equipment: baile

Sampling Equipment: baile

Casing Type: PVC

Casing Diameter: 2 inch

***UNIT CASING VOLUMES**

Total Well Depth: 57.00 feet

2" = 0.16 gal/lin ft.

Depth to Water: - 32.77 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = 24.23 feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x 0.16 gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = 3.88 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 11.64 gallons

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1034	0.69	—	—	399	20.2	9.5	
2	1046	X	X	X	771	20.5	7.5	
4	1051	X	X	X	835	19.8	7.5	
6	1052	X	X	X	836	19.3	7.4	
8	1054	X	X	X	855	17.1	7.6	
10	1058	X	X	X	828	20.1	7.6	
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons

Depth to Water at Sample Collection: — feet

Sample Collection Time: 1105

Purged Dry? (Y/N) (N)

Comments:

Groundwater Sampling Data Sheet

Well I.D.: mw-4

Project Name/Location: BP 498 Project #: 08-82-603

Sampler's Name: SB & JR Date: 10/25/11

Purging Equipment: Miller

Sampling Equipment: baile

Casing Type: PVC

Casing Diameter: 2 inch

***UNIT CASING VOLUMES**

Total Well Depth: 40.00 feet

2" = 0.16 gal/lin ft.

Depth to Water: 32.51 feet

3" = 0.37 gal/lin ft.

Water Column Thickness: = 6.49 feet

4" = 0.65 gal/lin ft.

Unit Casing Volume*: x 0.16 gallon / foot

6" = 1.47 gal/lin ft.

Casing Water Volume: = 1.04 gallons

Casing Volume: x 3 each

Estimated Purge Volume: = 3.12 gallons

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1119	0.49	—	—	935	21.3	7.4	
1	1120	X	X	X	944	21.4	7.4	
2	1124	X	X	X	945	21.2	7.5	
3	1126	X	X	X	943	21.3	7.4	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 3.0 gallons

Depth to Water at Sample Collection: — feet

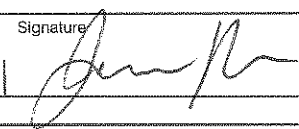
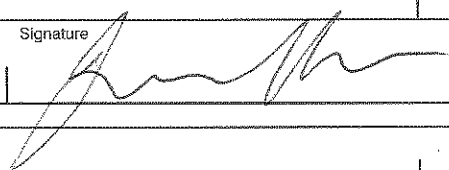
Sample Collection Time: 1130

Purged Dry? (Y/N) (N)

Comments:

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 92888		Generator's Site Address (if different than mailing address) BP 498 286. South Livermore Ave. Livermore, CA 94550																		
	Generator's Phone: 949-460-5200																				
	Container type removed from site: <input type="checkbox"/> Drums <input type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____		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>27</u>		Quantity _____ Volume _____																		
	WASTE DESCRIPTION <u>NON-HAZARDOUS WATER</u>		GENERATING PROCESS <u>WELL PURGING / DECON WATER</u>																		
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">COMPONENTS OF WASTE</th> <th style="width:10%;">PPM</th> <th style="width:10%;">%</th> <th style="width:50%;">COMPONENTS OF WASTE</th> <th style="width:10%;">PPM</th> <th style="width:10%;">%</th> </tr> </thead> <tbody> <tr> <td>1. WATER</td> <td></td> <td>99-100%</td> <td>3. _____</td> <td></td> <td></td> </tr> <tr> <td>2. TPH</td> <td></td> <td><1%</td> <td>4. _____</td> <td></td> <td></td> </tr> </tbody> </table>		COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%	1. WATER		99-100%	3. _____			2. TPH		<1%	4. _____				
COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE	PPM	%																
1. WATER		99-100%	3. _____																		
2. TPH		<1%	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>James Ramos</u>		Signature 		Month Day Year <u>11</u> <u>7</u> <u>11</u>																	
The Generator certifies that the waste as described is 100% non-hazardous																					
TRANSPORTER	Transporter 1 Company Name BROADBENT & ASSOCIATES, INC >		Phone# 530-566-1400																		
	Transporter 1 Printed/Typed Name <u>James Ramos</u>		Signature 		Month Day Year <u>11</u> <u>7</u> <u>11</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 INSTRAT, INC. 1105 AIRPORT RD. RIO VISTA, CA 94571		Phone# 530-753-1829																		
	Printed/Typed Name		Signature		Month Day Year																
	Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.																				

APPENDIX C

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



CALSCIENCE

WORK ORDER NUMBER: 11-11-0087

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Broadbent & Associates, Inc.

Client Project Name: BP 498

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

Approved for release on 11/16/2011 by:
Richard Villafania
Project Manager

ResultLink ▶

Email your PM ▶



Calscience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety. Note that the Chain-of-Custody Record and Sample Receipt Form are integral parts of this report.



Analytical Report



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

Date Received: 11/02/11
Work Order No: 11-11-0087
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: BP 498

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	11-11-0087-1-E	10/25/11 10:15	Aqueous	GC 57	11/04/11	11/04/11 19:37	111104B01

Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1100	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	123	38-134	

MW-2	11-11-0087-2-D	10/25/11 12:20	Aqueous	GC 57	11/04/11	11/04/11 20:08	111104B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	129	38-134	

MW-3	11-11-0087-3-D	10/25/11 11:05	Aqueous	GC 57	11/04/11	11/04/11 21:11	111104B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	2700	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	147	38-134	LH,AY

MW-4	11-11-0087-4-D	10/25/11 11:30	Aqueous	GC 57	11/04/11	11/04/11 20:40	111104B01
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Comment(s): -LW Quantitated against gasoline.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	73	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	123	38-134	

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

Analytical Report



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

Date Received: 11/02/11
Work Order No: 11-11-0087
Preparation: EPA 5030C
Method: EPA 8015B (M)

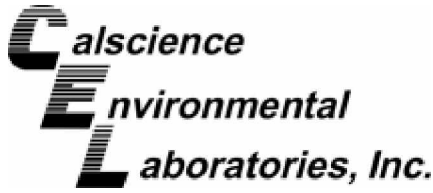
Project: BP 498

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-695-1,190	N/A	Aqueous	GC 57	11/04/11	11/04/11 11:16	111104B01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	115	38-134			

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



Analytical Report



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

Date Received: 11/02/11
Work Order No: 11-11-0087
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: BP 498

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	11-11-0087-1-A	10/25/11 10:15	Aqueous	GC/MS BB	11/02/11	11/02/11 22:04	111102L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	20	0.50	1		Methyl-t-Butyl Ether (MTBE)	21	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	78	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	3.7	0.50	1		Tert-Amyl-Methyl Ether (TAME)	0.72	0.50	1	
Xylenes (total)	5.4	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	98	68-120			Dibromofluoromethane	99	80-127		
1,2-Dichloroethane-d4	96	80-128			Toluene-d8	99	80-120		

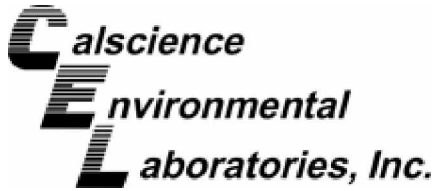
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	11-11-0087-2-A	10/25/11 12:20	Aqueous	GC/MS BB	11/02/11	11/02/11 22:35	111102L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	5.7	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	95	68-120			Dibromofluoromethane	95	80-127		
1,2-Dichloroethane-d4	92	80-128			Toluene-d8	100	80-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	11-11-0087-3-B	10/25/11 11:05	Aqueous	GC/MS BB	11/03/11	11/03/11 15:02	111103L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	190	4.0	8		Methyl-t-Butyl Ether (MTBE)	33	4.0	8	
1,2-Dibromoethane	ND	4.0	8		Tert-Butyl Alcohol (TBA)	ND	80	8	
1,2-Dichloroethane	ND	4.0	8		Diisopropyl Ether (DIPE)	ND	4.0	8	
Ethylbenzene	82	4.0	8		Ethyl-t-Butyl Ether (ETBE)	ND	4.0	8	
Toluene	ND	4.0	8		Tert-Amyl-Methyl Ether (TAME)	ND	4.0	8	
Xylenes (total)	51	4.0	8		Ethanol	ND	2400	8	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	99	68-120			Dibromofluoromethane	98	80-127		
1,2-Dichloroethane-d4	96	80-128			Toluene-d8	98	80-120		

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



Analytical Report



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

Date Received: 11/02/11
Work Order No: 11-11-0087
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: BP 498

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	11-11-0087-4-B	10/25/11 11:30	Aqueous	GC/MS BB	11/03/11	11/03/11 14:31	111103L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	4.3	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	150	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	97	68-120			Dibromofluoromethane	99	80-127		
1,2-Dichloroethane-d4	96	80-128			Toluene-d8	99	80-120		

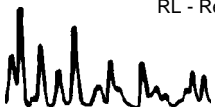
Method Blank	099-12-703-1,912	N/A	Aqueous	GC/MS BB	11/02/11	11/02/11 14:20	111102L01
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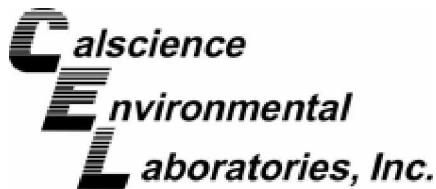
Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	96	68-120			Dibromofluoromethane	95	80-127		
1,2-Dichloroethane-d4	93	80-128			Toluene-d8	97	80-120		

Method Blank	099-12-703-1,913	N/A	Aqueous	GC/MS BB	11/03/11	11/03/11 14:00	111103L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,4-Bromofluorobenzene	95	68-120			Dibromofluoromethane	99	80-127		
1,2-Dichloroethane-d4	96	80-128			Toluene-d8	98	80-120		

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





Quality Control - Spike/Spike Duplicate



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

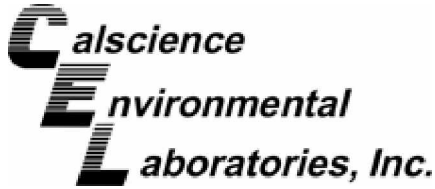
Date Received: 11/02/11
 Work Order No: 11-11-0087
 Preparation: EPA 5030C
 Method: EPA 8015B (M)

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-11-0203-1	Aqueous	GC 57	11/04/11	11/04/11	111104S01

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	2000	92	92	38-134	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - Spike/Spike Duplicate



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

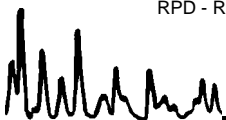
Date Received: 11/02/11
 Work Order No: 11-11-0087
 Preparation: EPA 5030C
 Method: EPA 8260B

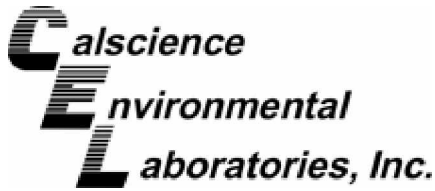
Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
11-11-0088-1	Aqueous	GC/MS BB	11/02/11	11/02/11	111102S01

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	10.00	107	96	76-124	9	0-20	
Carbon Tetrachloride	10.00	106	100	74-134	6	0-20	
Chlorobenzene	10.00	111	101	80-120	9	0-20	
1,2-Dibromoethane	10.00	111	102	80-120	9	0-20	
1,2-Dichlorobenzene	10.00	113	103	80-120	9	0-20	
1,2-Dichloroethane	10.00	102	96	80-120	6	0-20	
Ethylbenzene	10.00	115	105	78-126	9	0-20	
Toluene	10.00	109	99	80-120	9	0-20	
Trichloroethene	10.00	105	99	77-120	6	0-20	
Methyl-t-Butyl Ether (MTBE)	10.00	101	95	67-121	5	0-49	
Tert-Butyl Alcohol (TBA)	50.00	96	77	36-162	12	0-30	
Diisopropyl Ether (DIPE)	10.00	99	93	60-138	6	0-45	
Ethyl-t-Butyl Ether (ETBE)	10.00	96	91	69-123	5	0-30	
Tert-Amyl-Methyl Ether (TAME)	10.00	104	98	65-120	6	0-20	
Ethanol	100.0	95	91	30-180	4	0-72	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - Spike/Spike Duplicate



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

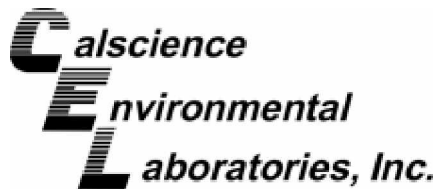
Date Received: 11/02/11
Work Order No: 11-11-0087
Preparation: EPA 5030C
Method: EPA 8260B

Project BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-4	Aqueous	GC/MS BB	11/03/11	11/03/11	111103S01

Parameter	SPIKE ADDED	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	10.00	99	102	76-124	3	0-20	
Carbon Tetrachloride	10.00	103	109	74-134	5	0-20	
Chlorobenzene	10.00	100	103	80-120	3	0-20	
1,2-Dibromoethane	10.00	103	104	80-120	2	0-20	
1,2-Dichlorobenzene	10.00	102	107	80-120	4	0-20	
1,2-Dichloroethane	10.00	100	100	80-120	0	0-20	
Ethylbenzene	10.00	101	105	78-126	4	0-20	
Toluene	10.00	100	101	80-120	1	0-20	
Trichloroethene	10.00	101	102	77-120	2	0-20	
Methyl-t-Butyl Ether (MTBE)	10.00	96	101	67-121	4	0-49	
Tert-Butyl Alcohol (TBA)	50.00	71	108	36-162	10	0-30	
Diisopropyl Ether (DIPE)	10.00	92	95	60-138	3	0-45	
Ethyl-t-Butyl Ether (ETBE)	10.00	90	94	69-123	4	0-30	
Tert-Amyl-Methyl Ether (TAME)	10.00	96	99	65-120	4	0-20	
Ethanol	100.0	101	112	30-180	10	0-72	

RPD - Relative Percent Difference , CL - Control Limit



Quality Control - LCS/LCS Duplicate



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

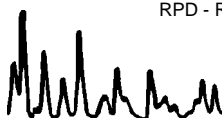
Date Received: N/A
 Work Order No: 11-11-0087
 Preparation: EPA 5030C
 Method: EPA 8015B (M)

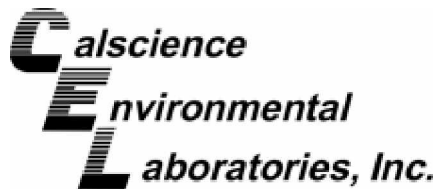
Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-1,190	Aqueous	GC 57	11/04/11	11/04/11	111104B01

Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	2000	90	91	78-120	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



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

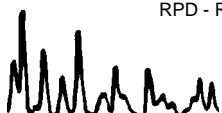
Date Received: N/A
 Work Order No: 11-11-0087
 Preparation: EPA 5030C
 Method: EPA 8260B

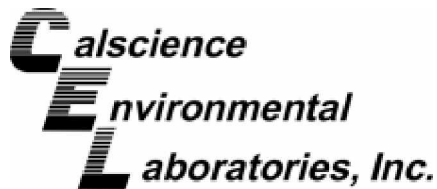
Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-703-1,912	Aqueous	GC/MS BB	11/02/11	11/02/11	111102L01			
Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	10.00	100	101	80-120	73-127	1	0-20	
Carbon Tetrachloride	10.00	104	104	74-134	64-144	1	0-20	
Chlorobenzene	10.00	105	104	80-120	73-127	1	0-20	
1,2-Dibromoethane	10.00	106	101	79-121	72-128	4	0-20	
1,2-Dichlorobenzene	10.00	105	109	80-120	73-127	4	0-20	
1,2-Dichloroethane	10.00	97	99	80-120	73-127	2	0-20	
Ethylbenzene	10.00	106	106	80-120	73-127	0	0-20	
Toluene	10.00	99	102	80-120	73-127	3	0-20	
Trichloroethene	10.00	101	102	79-127	71-135	0	0-20	
Methyl-t-Butyl Ether (MTBE)	10.00	95	95	69-123	60-132	0	0-20	
Tert-Butyl Alcohol (TBA)	50.00	93	95	63-123	53-133	2	0-20	
Diisopropyl Ether (DIPE)	10.00	93	93	59-137	46-150	0	0-37	
Ethyl-t-Butyl Ether (ETBE)	10.00	90	91	69-123	60-132	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	10.00	95	95	70-120	62-128	0	0-20	
Ethanol	100.0	98	104	28-160	6-182	6	0-57	

Total number of LCS compounds : 15
 Total number of ME compounds : 0
 Total number of ME compounds allowed : 1
 LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





Quality Control - LCS/LCS Duplicate



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

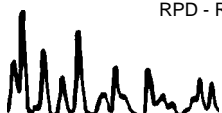
Date Received: N/A
 Work Order No: 11-11-0087
 Preparation: EPA 5030C
 Method: EPA 8260B

Project: BP 498

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-703-1,913	Aqueous	GC/MS BB	11/03/11	11/03/11	111103L01			
Parameter	SPIKE ADDED	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	10.00	103	109	80-120	73-127	6	0-20	
Carbon Tetrachloride	10.00	111	116	74-134	64-144	5	0-20	
Chlorobenzene	10.00	108	112	80-120	73-127	3	0-20	
1,2-Dibromoethane	10.00	106	112	79-121	72-128	5	0-20	
1,2-Dichlorobenzene	10.00	108	114	80-120	73-127	5	0-20	
1,2-Dichloroethane	10.00	105	108	80-120	73-127	3	0-20	
Ethylbenzene	10.00	110	113	80-120	73-127	2	0-20	
Toluene	10.00	104	109	80-120	73-127	5	0-20	
Trichloroethene	10.00	106	112	79-127	71-135	5	0-20	
Methyl-t-Butyl Ether (MTBE)	10.00	98	104	69-123	60-132	6	0-20	
Tert-Butyl Alcohol (TBA)	50.00	93	105	63-123	53-133	12	0-20	
Diisopropyl Ether (DIPE)	10.00	94	99	59-137	46-150	6	0-37	
Ethyl-t-Butyl Ether (ETBE)	10.00	94	97	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	10.00	99	104	70-120	62-128	5	0-20	
Ethanol	100.0	98	111	28-160	6-182	12	0-57	

Total number of LCS compounds : 15
 Total number of ME compounds : 0
 Total number of ME compounds allowed : 1
 LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 11-11-0087

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



Qualifier

Definition

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





Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: BP 498
 BP/ARC Facility No: 498

Req Due Date (mm/dd/yy): _____
 Rush TAT: Yes ___ No X
 Lab Work Order Number: **11-11-0087**

Lab Name: Calscience	BP/ARC Facility Address: 286 South Livermore Avenue	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Livermore, CA	Consultant/Contractor Project No: 08-82-603-401-880
Lab PM: Richard Villafania	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave. Ste. 212, Chico, CA 95926
Lab Phone: 714-895-5494	California Global ID No.: T0600124081	Consultant/Contractor PM: Jason Duda
Lab Shipping Acct: 9225	Enfos Proposal No: 005X6-0001	Phone: 530-566-1400
Lab Bottle Order No:	Accounting Mode: Provision <u>X</u> OOC-BU ___ OOC-RM ___	Email EDD To: jduda@broadbentinc.com
Other Info:	Stage: Execute (4) Activity: Project Spend (80)	Invoice To: BP/ARC <u>X</u> Contractor ___

BP/ARC EBM: Shannon Couch				Matrix			No. Containers / Preservative						Requested Analyses						Report Type & QC Level	
EBM Phone:				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 (8260)	1,2-DCA (8260)	Ethanol (8260)	Standard <u>X</u>	
EBM Email:																			Full Data Package ___	
Lab No.	Sample Description	Date	Time																Comments	
1	MW-1	10/25/11	1015	X			6				X	X	X	X	X	X				
2	MW-2	↓	1220	X			6			X		X	X	X	X	X				
3	MW-3	↓	1105	X			6			X		X	X	X	X	X				
4	MW-4	↓	1130	X			6			X		X	X	X	X	X				
↓																				
5	TB - 498 - 10252011	10/25/11	1225	X			17												Hold	

Sampler's Name: <u>James Ramos</u>	Relinquished By / Affiliation: <u>James Ramos</u>	Date: <u>11-1-11</u>	Time: <u>1700</u>	Accepted By / Affiliation: <u>Jason N. ...</u>	Date: <u>11/02/11</u>	Time: <u>10:00</u>
Sampler's Company: BAI						
Shipment Method: GSO	Ship Date: <u>11/1/11</u>					
Shipment Tracking No: <u>107158515</u>						

Special Instructions:

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

SHIPPING AIR BILL
Page 15 of 16
PACKAGE LABEL

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

Robert F. Associates Inc
351 Cottingham Lane
STE/ROOM *G*
ZIP CODE *95088*
PHONE NUMBER *707-433-7290*

2 COMPANY
CAL SCIENCE
NAME *Mishra* PHONE NUMBER *714-395-5494*
ADDRESS *740 LINCOLN WAY*
ADDRESS
CITY *GARDEN GROVE* STE/ROOM
ZIP CODE *92841*

3 YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS

5 DELIVERY SERVICE PRIORITY OVERNIGHT BY 10:30 AM EARLY PRIORITY BY 8:00 AM SATURDAY DELIVERY
*DELIVERY TIMES MAY BE LATER IN SOME AREAS *CONSULT YOUR SERVICE GUIDE OR CALL GOLDEN STATE OVERNIGHT

6 RELEASE SIGNATURE
SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

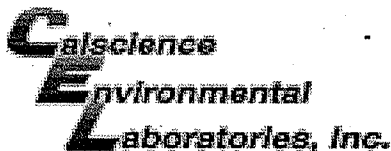
7

8 PICK UP INFORMATION TIME DRIVER # ROUTE #


107158515

9 GSO TRACKING NUMBER 107158515

0087



WORK ORDER #: 11-11-0087

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: BAI

DATE: 11/02/11

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0°C - 6.0°C, not frozen)
Temperature 1.4°C + 0.5°C (CF) = 1.9°C
Sample(s) outside temperature criteria (PM/APM contacted by:)
Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.
Received at ambient temperature, placed on ice for transport by Courier.
Ambient Temperature: Air Filter Initial: RS

CUSTODY SEALS INTACT:
Cooler No (Not Intact) Not Present N/A Initial: RS
Sample No (Not Intact) Not Present Initial: KM

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

CONTAINER TYPE:
Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve () EnCores TerraCores
Water: VOA VOAh VOAna2 125AGB 125AGBh 125AGBp 1AGB 1AGBna2 1AGBs
500AGB 500AGJ 500AGJs 250AGB 250CGB 250CGBs 1PB 1PBna 500PB
250PB 250PBn 125PB 125PBzanna 100PJ 100PJna2
Air: Tedlar Summa Other: Trip Blank Lot#: 111011A Labeled/Checked by: KM
Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: NSC
Preservative: h: HCL n: HNO3 na2:Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 u: Ultra-pure zanna: ZnAc2+NaOH f: Filtered Scanned by: NSC

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

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

<u>Submittal Type:</u>	GEO_WELL
<u>Submittal Title:</u>	4Q11 GEO_WELL 498
<u>Facility Global ID:</u>	T0600124081
<u>Facility Name:</u>	ARCO #0498
<u>File Name:</u>	GEO_WELL.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	1/4/2012 1:34:38 PM
<u>Confirmation Number:</u>	9049897193

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

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

<u>Submittal Type:</u>	EDF - Monitoring Report - Semi-Annually
<u>Submittal Title:</u>	4Q11 GW Monitoring
<u>Facility Global ID:</u>	T0600124081
<u>Facility Name:</u>	ARCO #0498
<u>File Name:</u>	11110087.zip
<u>Organization Name:</u>	Broadbent & Associates, Inc.
<u>Username:</u>	BROADBENT-C
<u>IP Address:</u>	67.118.40.90
<u>Submittal Date/Time:</u>	1/4/2012 1:31:26 PM
<u>Confirmation Number:</u>	3727513134

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)