Atlantic Richfield Company

Chuck Carmel
Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3803
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RECEIVED

9:46 am, May 04, 2011

Alameda County
Environmental Health

April 29, 2011

Re: First Quarter 2011 Monitoring Report
Former BP Service Station #11104
1716 Webster Street
Alameda, California
ACEH Case #RO0000281

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

Submitted by,

Chuck Carmel
Project Manager

Attachment

Broadbent & Associates, Inc.
875 Cotting Ln., Suite G
Vacaville, CA 95688
(707) 455-7290 Tel
(707) 455-7295 Fax

BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

April 29, 2011

Project No. 06-88-644

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

Attn.: Mr. Chuck Carmel

Re: First Quarter 2011 Monitoring Report, Former BP Service Station #11104, 1716 Webster Street, Alameda, Alameda County, California
ACEH Case #RO0000281

Dear Mr. Carmel:

Provided herein is the *First Quarter 2011 Monitoring Report* for Former BP Service Station #11104 located at 1716 Webster Street, Alameda, California (Site). Should you have questions regarding the work performed or results obtained, please do not hesitate to contact me at (707) 455-7290.

Sincerely,

BROADBENT & ASSOCIATES, INC.

Thomas A. Sparrowe, P.G. #5065 (exp. 12/31/12)
Senior Geologist

enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)
Ms. Shelby Lathrop, ConocoPhillips, 76 Broadway, Sacramento, California 95818
Electronic copy uploaded to GeoTracker

FIRST QUARTER 2011
MONITORING REPORT
ARCO STATION #11104, ALAMEDA, CALIFORNIA

Broadbent & Associates, Inc. (BAI) is pleased to present this *First Quarter 2011 Monitoring Report* on behalf of Atlantic Richfield Company (a BP affiliated company) for ARCO Station # 11104 located at 1716 Webster Street in Alameda, Alameda County, California. Monitoring activities at the site were performed in accordance with an agency directive issued by the Alameda County Environmental Health (ACEH). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	ARCO Station #11104 / 1716 Webster Street, Alameda, California
Client Project Manager / Title:	Mr. Chuck Carmel / Project Manager
BAI Contact:	Mr. Tom Sparrowe, (707) 455-7290
BAI Project No.:	06-88-644
Primary Regulatory Agency / ID No.:	ACEH / Case #RO0000281
Current phase of project:	Monitoring
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (First Quarter 2011):

1. BAI submitted a *Fourth Quarter 2010 Monitoring Report.*
2. BAI conducted groundwater monitoring/sampling on February 17, 2011 for First Quarter 2011.
3. Closure Solutions, Inc. submitted a January 21, 2011 *Case Evaluation & Justification for No Further Action* report to ACEH.

WORK SCHEDULED FOR NEXT QUARTER (Second Quarter 2011):

1. Submit *First Quarter 2011 Monitoring Report* (contained herein).
2. No environmental work activities are scheduled to be conducted at the Site during the Second Quarter 2011.

QUARTERLY MONITORING PLAN SUMMARY:

Groundwater level gauging:	MW-1 through MW-5 and RW-1	(Semi-Annually: 1Q & 3Q)
Groundwater sample collection:	MW-1 through MW-5 and RW-1	(Semi-Annually: 1Q & 3Q)
Biodegradation indicator parameter monitoring:	None	(quarterly)

QUARTERLY RESULTS SUMMARY:

LNAPL

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

Groundwater Elevation and Gradient:

Depth to groundwater:	4.75 ft (RW-1) to 5.66 ft (MW-3)	(ft below TOC)
Gradient direction:	Northwest	(compass direction)
Gradient magnitude:	0.005 ft/ft	(ft/ft)
Average change in elevation:	0.62	(ft since last measurement)

Laboratory Analytical Data

Summary: GRO, benzene and MTBE were detected above the California Regional Water Quality Control Board-San Francisco Bay Region (RWQCB) Environmental Screening Levels (ESLs) only in MW-1. Petroleum hydrocarbon constituents in all other wells were below laboratory detection limits. GRO, benzene and MTBE concentrations decreased in MW-1 relative to Fourth Quarter 2010.

ACTIVITIES CONDUCTED & RESULTS:

First Quarter 2011 groundwater monitoring was conducted on February 17, 2011 in accordance with the quarterly monitoring plan summary detailed above with the following exceptions: monitor well MW-5 was not monitored during this event due to a parked car over the well preventing access for monitoring and sampling. Drawing 1 is a site location map for Station #11104. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B.

Collected groundwater samples for MW-1, MW-2, MW-3, MW-4, and RW-1 were submitted to Calscience Environmental Laboratories, Inc. (Calscience) of Garden Grove, California for analysis of gasoline range organics (GRO, C6-12) by EPA Method 8015B; for benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tert-butyl ether (MTBE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), di-isopropyl ether (DIPG), tert-butyl alcohol (TBA), 1,2-dibromomethane (EDB), 1,2-dichloroethane (1,2-DCA) and ethanol by EPA Method 8260B. No significant irregularities were reported during analysis of the samples. DO, temperature and pH were measured in the field to determine if the groundwater temperature and pH are conducive for biodegradation to occur.

LNAPL was not observed to be present in the wells monitored during First Quarter 2011. Current and historic groundwater elevations and groundwater sample analytical data are provided in Tables 1 and 2. Drawing 2 is provided as a groundwater elevation contour and analytical summary map for February 17, 2011. Laboratory analytical report and chain of custody record are provided in Appendix C. 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.

Review of Tables 1 and 2 and Drawing 2 indicates that GRO, benzene, ethyl-benzene, total xylenes, MTBE and TBA were detected in well MW-1 at concentrations of 2,400 µg/L, 44 µg/L, 160 µg/L, 230 µg/L, 40 µg/L and 120 µg/L, respectively, above the RWQCB residential ESLs where groundwater is a current or potential drinking water resource. MTBE was also detected in well RW-1 (3.2 µg/L) but was below the RWQCB residential ESL of 5 µg/L where groundwater is a current or potential drinking water resource. Other petroleum hydrocarbon constituents and fuel oxygenates were below laboratory detection limits.

As shown on Drawing 2, groundwater gradient on February 17, 2011 was 0.005 ft/ft in a northwest direction. Historical groundwater gradient information is provided in Table 3.

DISCUSSION:

The only petroleum hydrocarbon constituents of concern exceeding the RWQCB ESLs in groundwater during First Quarter 2011 monitoring were GRO, benzene and MTBE detected in well MW-1. Comparison of analytical results in MW-1 indicates that concentrations decreased over the last two quarters, as follows: GRO, 3,200 µg/L to 2,400 µg/L; benzene, 50 µg/L to 44 µg/L; MTBE, 76 µg/L to 40 µg/L. These fluctuations are likely related to seasonal changes in groundwater elevation.

Review of historical groundwater gradient data indicates that the gradient measured during First Quarter 2011 monitoring is consistent with predominant measurements observed historically at the site. During First Quarter 2011, groundwater elevations increased an average of 0.62 feet across the site relative to measurements collected during Fourth Quarter 2010.

Review of biodegradation indicator parameter results indicates that DO, temperature and pH measured during First Quarter 2011 monitoring were in the range conducive for biodegradation to take place. Additionally, similar to previous quarters, indicator parameter trends were observed across the site during

First Quarter 2011. These data indicate that intrinsic bioremediation of petroleum hydrocarbon constituents in the groundwater is on-going at the site.

RECOMMENDATIONS:

No environmental work activities are scheduled to be conducted at the Site during the Second Quarter 2011. The next quarterly monitoring event is scheduled for the Third Quarter 2011. BAI recommends that ARCO Station #11104 be considered a low risk exposure closure candidate as presented in Closure Solutions' January 21, 2011 *Case Evaluation & Justification for No Further Action* report. Unless directed by ACEH, no change to the monitoring program at Station #11104 is presently deemed warranted or recommended.

LIMITATIONS:

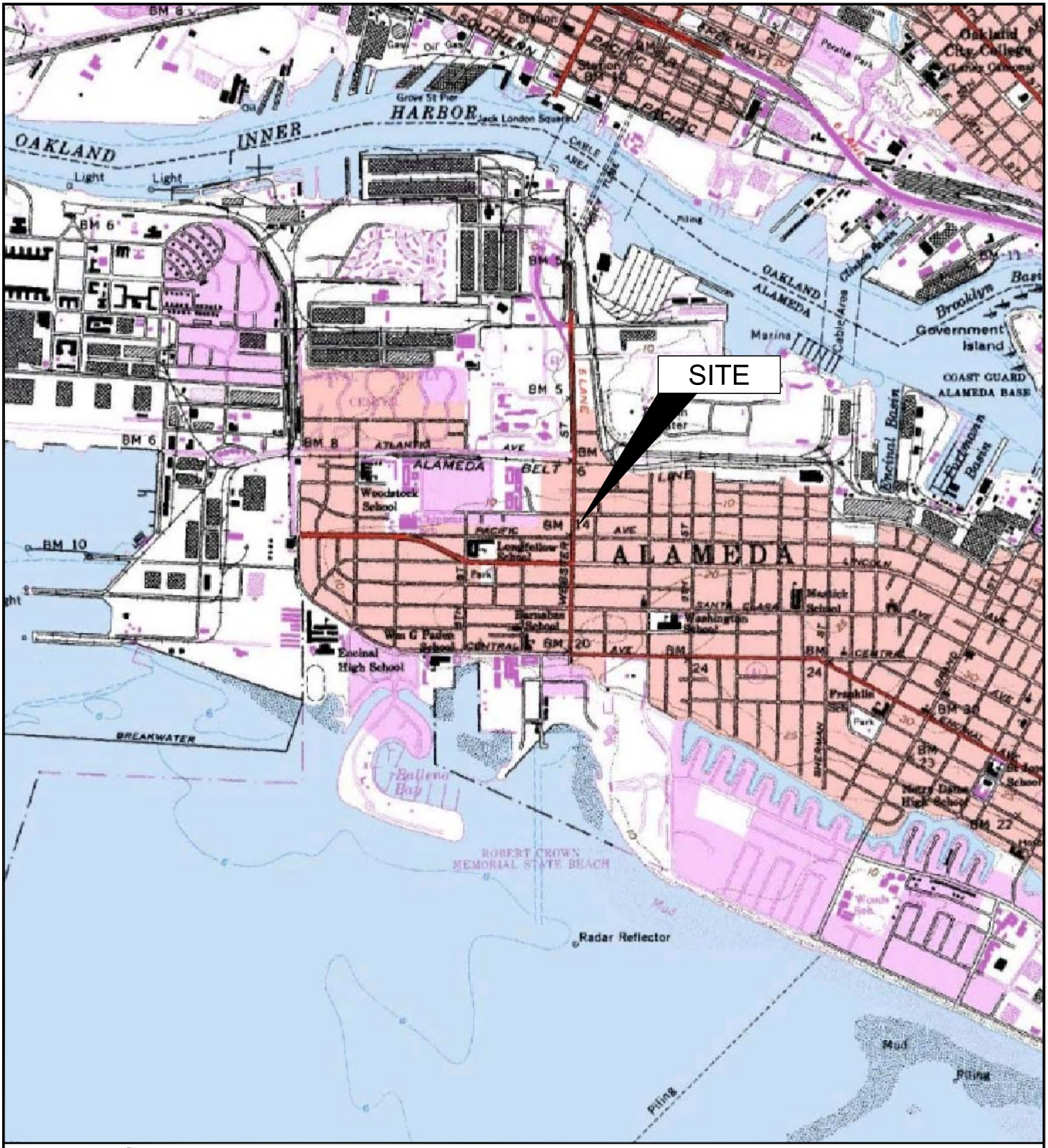
The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by Calscience and our understanding of ACEH guidelines. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of ARC. 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:	First Quarter 2011 Groundwater Elevation Contour and Analytical Summary Map
Table 1:	Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 2:	Summary of Fuel Additive Analytical Data
Table 3:	Historic Groundwater Gradient Information
Appendix A:	Field Methods
Appendix B:	Field Data Sheets
Appendix C:	Laboratory Report and Chain-of-Custody Documentation
Appendix D:	GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH	Alameda County Environmental Health
ARC:	Atlantic Richfield Company
BAI:	Broadbent & Associates, Inc.
BTEX:	benzene, toluene, ethylbenzene, total xylenes
1,2-DCA:	1,2-dichloroethane
DIPE:	di-isopropyl ether
DO:	dissolved oxygen
ESLs:	RWQCB Environmental Screening Levels (revised May 2008)
EDB:	1,2-dibromomethane
ft/ft:	feet per foot
gal:	gallons
GRO:	gasoline range organics (C6-12)
LNAPL:	light non-aqueous phase liquid
MTBE:	methyl tertiary butyl ether
RWQCB:	California Regional Water Quality Control Board-San Francisco Bay Region
TAME:	tert-amyl methyl ether
TBA:	tert-butyl alcohol
TOC:	top of casing
µg/L:	micrograms per liter



N

0 2000 4000

APPROXIMATE SCALE (ft)

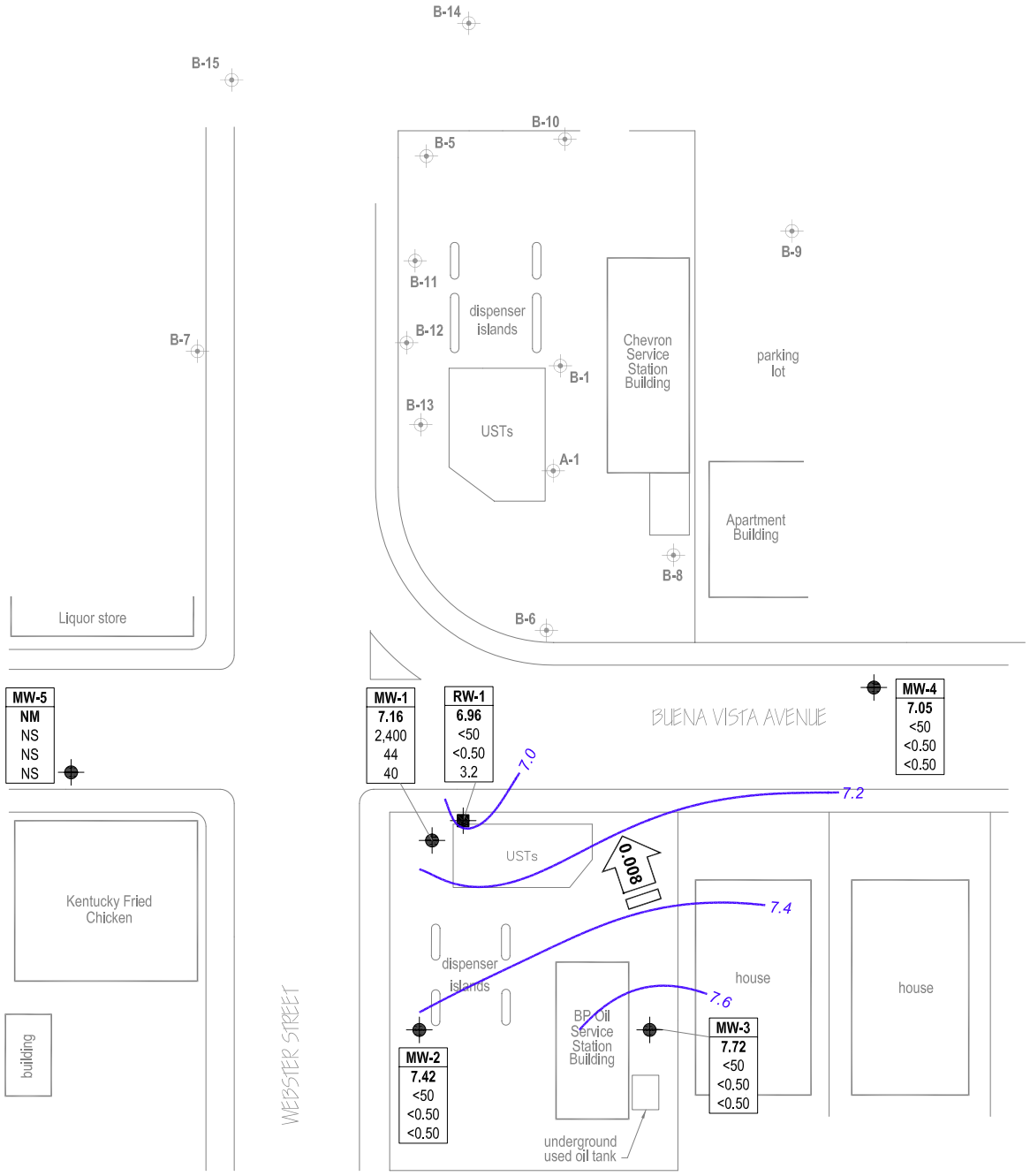
IMAGE SOURCE: USGS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-644 Date: 9/1/09

Station #11104
1716 Webster Street
Alameda, California

Site Location Map

Drawing
1



LEGEND

- Monitoring well
- Groundwater recovery well
- Chevron monitoring well
- 0.008 — Groundwater flow direction and gradient (ft/MSL)
- 7.6 — Groundwater elevation contour (Feet above site datum)
- Well — Well designation
- ELEV — Groundwater elevation (ft/MSL)
- GRO, Benzene, MTBE — GRO, Benzene and MTBE concentrations in ground water (µg/L)
- < — Not detected at or above laboratory reporting limits
- NM/NS — Not Measured/Not sampled
- NA — Not Analyzed
- * — Elevation not used for contouring

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

N

0 60 120
SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 06-88-644 Date: 4/28/2011

Station #11104
1716 Webster Street
Alameda, California

Ground-Water Elevation Contour and Analytical Summary Map
February 17, 2011

Drawing
2

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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														
7/21/1992	--	11.98	5.91	0.00	6.07	34,000	7,000	1,700	2,500	6,900	--	--	--	
10/20/1992	--		6.66	0.00	5.32	--	--	--	--	--	--	--	--	
3/5/1993	--		4.56	0.00	7.42	--	--	--	--	--	--	--	--	
4/1/1993	--		4.57	0.00	7.41	--	--	--	--	--	--	--	--	
7/9/1993	--		5.25	0.00	6.73	79,000	16,000	1,500	2,200	7,700	12,952	--	--	c, d, k
7/9/1993	--		5.25	0.00	6.73	77,000	15,000	1,400	2,100	7,400	11,919	--	--	c, k
10/8/1993	--		6.01	0.00	5.97	42,000	7,100	270	2,700	4,700	--	--	--	k
1/6/1994	--		6.24	0.00	5.74	45,000	12,000	4,300	3,000	6,700	--	--	--	k
4/26/1994	--		5.26	0.00	6.72	39,000	6,500	500	1,800	1,200	16,663	6.3	--	c, k
7/25/1994	--		5.60	0.00	6.38	38,000	6,300	240	1,500	1,100	26,428	1.7	--	c, k
10/13/1994	--		6.15	0.00	5.83	25,000	6,300	130	1,300	830	--	2.3	--	k
10/13/1994	--		6.15	0.00	5.83	25,000	7,300	120	1,200	740	--	--	--	d, k
1/17/1995	--		4.19	0.00	7.79	8,400	3,100	1,200	470	1,000	--	--	--	d
1/17/1995	--		4.19	0.00	7.79	7,800	3,100	1,100	460	850	--	7.9	--	
3/31/1995	--		4.48	0.00	7.50	40,000	6,900	7,300	1,300	5,000	--	--	--	d
3/31/1995	--		4.48	0.00	7.50	37,000	6,700	6,900	1,200	4,500	--	6.4	--	
5/1/1995	--		4.39	0.00	7.59	--	--	--	--	--	--	--	--	
7/12/1995	--		5.02	0.00	6.96	29,000	7,000	300	1,500	3,900	--	7.2	--	
7/12/1995	--		5.02	0.00	6.96	29,000	6,600	380	1,500	3,900	--	--	--	d
10/12/1995	--		5.68	0.00	6.30	20,000	3,400	310	1,100	3,000	15,000	6.3	--	
10/12/1995	--		5.68	0.00	6.30	20,000	3,500	310	1,100	3,000	14,000	--	--	d
2/27/1996	--		4.18	0.00	7.80	18,000	4,400	2,900	860	2,380	5,500	7.9	--	
5/8/1996	--		4.89	0.00	7.09	--	--	--	--	--	--	--	--	
5/9/1996	--		--	--	--	14,000	2,300	1,900	540	3,340	2,700	6.1	--	
8/9/1996	--		5.13	0.00	6.85	--	--	--	--	--	--	--	--	
8/12/1996	--		--	--	--	13,000	2,800	190	1,300	3,040	1,800	7.1	--	
11/7/1996	--		5.65	0.00	6.33	12,000	2,100	35	<25	<25	2,100	7.2	--	
2/10/1997	--		4.80	0.00	7.18	180,000	2,100	<500	<500	<500	160,000	--	--	d
2/10/1997	--		4.80	0.00	7.18	180,000	1,900	<500	<500	<500	160,000	6.8	--	
8/4/1997	--		5.69	0.00	6.29	14,000	2,700	<50	1,200	1,220	250,000	7.2	--	

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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 Cont.														
8/4/1997	--	11.98	5.69	0.00	6.29	<25000	2,600	<50	1,200	1,100	260,000	--	--	d
1/27/1998	--		3.96	0.00	8.02	390,000	4,400	4,300	1,600	2,890	490,000	6.4	--	
9/2/1998	--		5.03	0.00	6.95	230,000	3,900	<50	1,900	1,000	230,000	6.3	--	
2/24/1999	--		4.94	0.00	7.04	82,000	3,000	520	2,600	3,200	190000/200000	--	--	h
8/30/1999	--		6.31	0.00	5.67	11,000	2,100	<25	1,800	580	48,000	--	--	
2/21/2000	--		4.47	0.00	7.51	12,000 i	1,200	250	930	1,800	31,000	--	--	i
8/8/2000	--		5.59	0.00	6.39	4,500	160	2.8	76	88	60,000	--	--	
2/12/2001	--		6.04	0.00	5.94	14,000	363	<12.5	108	293	18,000	--	--	
8/13/2001	--		6.44	0.00	5.54	14,000	161	17.1	255	545	5,590	--	--	
2/4/2002	--		4.49	0.00	7.49	17,000	176	57.9	538	1,670	2,470	--	--	
8/29/2002	--		5.22	0.00	6.76	4,800 l	180	43	130	540	3,100	--	--	l
2/5/2003	--		5.43	0.00	6.55	770	29	9.8	4.2	47	590 m,n	--	--	m,n
8/14/2003	--		6.34	0.00	5.64	5,400	210	<50	90	200	4,500	--	--	p
02/12/2004	P		4.55	0.00	7.43	2,600	140	20	87	170	1,200	--	6.8	
08/12/2004	P		5.22	0.00	6.76	5,700	500	12	41	1,400	260	--	6.3	
02/10/2005	P		4.48	0.00	7.50	2,400	120	10	72	110	730	--	6.1	
08/11/2005	P		4.60	0.00	7.38	4,600	500	13	44	870	190	--	6.8	
02/09/2006	P		4.47	0.00	7.51	2,600	180	12	96	230	380	--	7.0	
8/10/2006	--		4.77	0.00	7.21	7,000	720	17	62	870	47	--	6.7	
2/8/2007	P		5.13	0.00	6.85	2,200	100	6.3	53	120	130	5.52	6.82	
8/8/2007	P		5.47	0.00	6.51	1,500	78	4.9	43	120	140	4.32	7.04	t (BZ, EBZ, XYLENES, MTBE)
2/22/2008	P		4.40	0.00	7.58	4,400	130	71	390	1,200	59	5.01	7.06	
8/13/2008	P		5.55	0.00	6.43	7,500	220	16	130	1,600	370	0.48	8.13	
2/11/2009	P		5.51	0.00	6.47	1,900	26	<2.0	15	35	68	0.57	6.62	
8/27/2009	P		5.45	0.00	6.53	3,300	37	2.4	9.5	650	20	0.61	7.51	
2/18/2010	P		4.71	0.00	7.27	2,700	32	7.6	42	95	48	0.81	6.80	
8/12/2010	NP		5.48	0.00	6.50	3,200	50	2.4	52	220	76	1.72	6.9	
2/17/2011	**P**		**4.82**	**0.00**	**7.16**	**2,400**	**44**	**<2.0**	**160**	**230**	**40**	**0.75**	**7.2**	
MW-2 Cont.														
7/21/1992	--	12.98	6.44	0.00	6.54	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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-2 Cont.														
10/20/1992	--	12.98	7.39	0.00	5.59	--	--	--	--	--	--	--	--	
3/5/1993	--		4.91	0.00	8.07	--	--	--	--	--	--	--	--	
4/1/1993	--		4.92	0.00	8.06	--	--	--	--	--	--	--	--	
7/9/1993	--		5.60	0.00	7.38	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
10/8/1993	--		6.50	0.00	6.48	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	d, k
10/8/1993	--		6.50	0.00	6.48	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
1/6/1994	--		6.25	0.00	6.73	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
4/26/1994	--		5.73	0.00	7.25	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.5	--	k
7/25/1994	--		6.07	0.00	6.91	<50	<0.5	<0.5	<0.5	<0.5	11.59	2.4	--	k
10/13/1994	--		6.80	0.00	6.18	<50	<0.5	<0.5	<0.5	<0.5	--	2.4	--	k
1/17/1995	--		5.10	0.00	7.88	--	--	--	--	--	--	--	--	
3/31/1995	--		4.69	0.00	8.29	<50	<0.50	<0.50	<0.50	<1.0	--	7.3	--	
5/1/1995	--		5.23	0.00	7.75	--	--	--	--	--	--	--	--	
7/12/1995	--		5.40	0.00	7.58	--	--	--	--	--	--	--	--	
10/12/1995	--		6.06	0.00	6.92	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.9	--	
2/27/1996	--		4.66	0.00	8.32	<50	<0.5	<1	<1	<1	<10	8.7	--	
5/8/1996	--		5.28	0.00	7.70	--	--	--	--	--	--	--	--	
8/9/1996	--		5.59	0.00	7.39	<50	<0.5	<1.0	<1.0	<1.0	<10	7.8	--	
11/7/1996	--		6.11	0.00	6.87	--	--	--	--	--	--	--	--	
2/10/1997	--		5.26	0.00	7.72	--	--	--	--	--	--	--	--	
8/4/1997	--		6.14	0.00	6.84	<50	<0.5	<1.0	<1.0	<1.0	<10	6.5	--	
1/27/1998	--		4.42	0.00	8.56	--	--	--	--	--	--	--	--	
9/2/1998	--		5.47	0.00	7.51	100	0.56	3.6	<1.0	3	110	6.9	--	
2/24/1999	--		5.12	0.00	7.86	<50	<1.0	<1.0	<1.0	<1.0	8.2	--	--	
8/30/1999	--		6.60	0.00	6.38	--	--	--	--	--	--	--	--	
2/21/2000	--		4.64	0.00	8.34	<50	<0.5	<0.5	<0.5	<0.5	0.72	--	--	
2/12/2001	--		5.13	0.00	7.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
2/4/2002	--		5.63	0.00	7.35	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	--	
8/29/2002	--		5.79	0.00	7.19	--	--	--	--	--	--	--	--	
2/5/2003	--		5.61	0.00	7.37	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	n

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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-2 Cont.														
8/14/2003	--	12.98	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P		5.19	0.00	7.79	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.4	p
08/12/2004	--		6.17	0.00	6.81	--	--	--	--	--	--	--	--	
02/10/2005	P		5.01	0.00	7.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	5.9	
08/11/2005	--		6.39	0.00	6.59	--	--	--	--	--	--	--	--	
02/09/2006	P		4.80	0.00	8.18	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.8	
8/10/2006	--		6.18	0.00	6.80	--	--	--	--	--	--	--	--	
2/8/2007	P		5.67	0.00	7.31	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.94	7.04	
8/8/2007	--		6.00	0.00	6.98	--	--	--	--	--	--	--	--	
2/22/2008	P		5.15	0.00	7.83	52	<0.50	<0.50	<0.50	<0.50	<0.50	5.81	7.12	
8/13/2008	--		6.20	0.00	6.78	--	--	--	--	--	--	--	--	
2/11/2009	P		6.02	0.00	6.96	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.90	6.73	
8/27/2009	--		6.12	0.00	6.86	--	--	--	--	--	--	--	--	
2/18/2010	P		5.45	0.00	7.53	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.31	6.56	
8/12/2010	--		5.92	0.00	7.06	--	--	--	--	--	--	--	--	
2/17/2011	**NP**		**5.56**	**0.00**	**7.42**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**2.83**	**7.6**	
MW-3 Cont.														
7/21/1992	--	13.38	7.07	0.00	6.31	<50	0.95	<0.5	<0.5	<0.5	--	--	--	e
10/20/1992	--		8.06	0.00	5.32	--	--	--	--	--	--	--	--	
3/5/1993	--		5.16	0.00	8.22	--	--	--	--	--	--	--	--	
4/1/1993	--		5.25	0.00	8.13	--	--	--	--	--	--	--	--	
7/9/1993	--		5.80	0.00	7.58	<50	0.6	<0.5	<0.5	<0.5	--	--	--	k
10/8/1993	--		7.17	0.00	6.21	<50	0.6	<0.5	<0.5	<0.5	--	--	--	k
1/6/1994	--		6.94	0.00	6.44	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
4/26/1994	--		6.18	0.00	7.20	<50	<0.5	<0.5	<0.5	<0.5	<5.0	3.1	--	k
7/25/1994	--		6.67	0.00	6.71	<50	<0.5	<0.5	<0.5	<0.5	<5.0	2.2	--	k
10/13/1994	--		7.43	0.00	5.95	<50	<0.5	<0.5	<0.5	<0.5	--	2.1	--	k
1/17/1995	--		5.07	0.00	8.31	--	--	--	--	--	--	--	--	
3/31/1995	--		4.03	0.00	9.35	<50	<0.50	<0.50	<0.50	<1.0	--	6.6	--	
5/1/1995	--		4.94	0.00	8.44	--	--	--	--	--	--	--	--	

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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-3 Cont.														
7/12/1995	--	13.38	5.80	0.00	7.58	--	--	--	--	--	--	--	--	
10/12/1995	--		6.64	0.00	6.74	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.4	--	
2/27/1996	--		4.75	0.00	8.63	<50	<0.5	<1	<1	<1	<10	8.5	--	
5/8/1996	--		5.86	0.00	7.52	--	--	--	--	--	--	--	--	
8/9/1996	--		5.70	0.00	7.68	<50	<0.5	<1.0	<1.0	<1.0	<10	7.9	--	
11/7/1996	--		6.21	0.00	7.17	--	--	--	--	--	--	--	--	
2/10/1997	--		5.14	0.00	8.24	--	--	--	--	--	--	--	--	
8/4/1997	--		6.01	0.00	7.37	<50	<0.5	<1.0	<1.0	<1.0	<10	6.6	--	
1/27/1998	--		4.30	0.00	9.08	--	--	--	--	--	--	--	--	
9/2/1998	--		5.80	0.00	7.58	<50	<0.5	2.2	<1.0	<1.0	<10	6.6	--	
2/24/1999	--		4.34	0.00	9.04	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
8/30/1999	--		6.59	0.00	6.79	--	--	--	--	--	--	--	--	
2/21/2000	--		4.56	0.00	8.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	
2/12/2001	--		4.98	0.00	8.40	--	--	--	--	--	--	--	--	j
2/4/2002	--		6.11	0.00	7.27	--	--	--	--	--	--	--	--	j
8/29/2002	--		6.22	0.00	7.16	--	--	--	--	--	--	--	--	j
2/5/2003	--		--	--	--	--	--	--	--	--	--	--	--	f
8/14/2003	--		--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P		4.94	0.00	8.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.0	p
08/12/2004	--		6.22	0.00	7.16	--	--	--	--	--	--	--	--	
02/10/2005	P		5.45	0.00	7.93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	5.1	
08/11/2005	--		5.77	0.00	7.61	--	--	--	--	--	--	--	--	r
02/09/2006	P		5.17	0.00	8.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.7	
8/10/2006	--		5.86	0.00	7.52	--	--	--	--	--	--	--	--	
2/8/2007	P		6.00	0.00	7.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.34	7.04	
8/8/2007	--		6.68	0.00	6.70	--	--	--	--	--	--	--	--	
2/22/2008	P		5.38	0.00	8.00	54	<0.50	<0.50	<0.50	<0.50	<0.50	3.81	6.87	
8/13/2008	--		6.37	0.00	7.01	--	--	--	--	--	--	--	--	
2/11/2009	P		6.70	0.00	6.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.79	7.18	
8/27/2009	--		6.78	0.00	6.60	--	--	--	--	--	--	--	--	

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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-3 Cont.														
2/18/2010	P	13.38	5.80	0.00	7.58	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.39	6.12	
8/12/2010	--		6.60	0.00	6.78	--	--	--	--	--	--	--	--	
2/17/2011	**NP**		**5.66**	**0.00**	**7.72**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.92**	**6.5**	
MW-4 Cont.														
3/5/1993	--	11.80	4.81	0.00	6.99	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
4/1/1993	--		4.80	0.00	7.00	--	--	--	--	--	--	--	--	
7/9/1993	--		5.54	0.00	6.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
10/8/1993	--		6.28	0.00	5.52	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
1/6/1994	--		5.82	0.00	5.98	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	k
4/26/1994	--		5.50	0.00	6.30	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.4	--	k
7/25/1994	--		5.83	0.00	5.97	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.2	--	k
10/13/1994	--		6.26	0.00	5.54	<50	<0.5	<0.5	<0.5	<0.5	--	6.7	--	k
1/17/1995	--		4.19	0.00	7.61	--	--	--	--	--	--	--	--	
3/31/1995	--		3.96	0.00	7.84	<50	<0.50	<0.50	<0.50	<1.0	--	7.1	--	
5/1/1995	--		4.49	0.00	7.31	--	--	--	--	--	--	--	--	
7/12/1995	--		5.16	0.00	6.64	--	--	--	--	--	--	--	--	
10/12/1995	--		5.80	0.00	6.00	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.9	--	
2/27/1996	--		4.22	0.00	7.58	<50	<0.5	<1	<1	<1	<10	8.9	--	
5/8/1996	--		5.00	0.00	6.80	--	--	--	--	--	--	--	--	
8/9/1996	--		5.13	0.00	6.67	<50	<0.5	<1.0	<1.0	<1.0	<10	8.5	--	
11/7/1996	--		5.65	0.00	6.15	--	--	--	--	--	--	--	--	
2/10/1997	--		4.81	0.00	6.99	--	--	--	--	--	--	--	--	
8/4/1997	--		5.72	0.00	6.08	<50	<0.5	<1.0	<1.0	<1.0	<10	6.4	--	
1/27/1998	--		4.06	0.00	7.74	--	--	--	--	--	--	--	--	
9/2/1998	--		4.89	0.00	6.91	<50	<0.5	<1.0	<1.0	<1.0	<10	5.8	--	
2/24/1999	--		3.89	0.00	7.91	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
8/30/1999	--		5.62	0.00	6.18	--	--	--	--	--	--	--	--	
2/21/2000	--		4.00	0.00	7.80	<50	<0.5	<0.5	<0.5	<0.5	0.66	--	--	
2/12/2001	--		4.93	0.00	6.87	<50	<0.5	<0.5	<0.5	<0.5	0.982	--	--	
2/4/2002	--		4.49	0.00	7.31	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	--	

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						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.														
8/29/2002	--	11.80	5.38	0.00	6.42	--	--	--	--	--	--	--	--	
2/5/2003	--		4.50	0.00	7.30	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	n
8/14/2003	--		--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P		4.41	0.00	7.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.3	p
08/12/2004	--		5.20	0.00	6.60	--	--	--	--	--	--	--	--	
02/10/2005	P		4.43	0.00	7.37	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	5.5	
08/11/2005	--		5.09	0.00	6.71	--	--	--	--	--	--	--	--	
02/09/2006	P		4.32	0.00	7.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	6.8	
7/26/2006	--		--	--	--	--	--	--	--	--	--	--	--	
8/10/2006	--		5.07	0.00	6.73	--	--	--	--	--	--	--	--	
2/8/2007	P		5.10	0.00	6.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.63	7.07	
8/8/2007	--		5.55	0.00	6.25	--	--	--	--	--	--	--	--	
2/22/2008	P		4.35	0.00	7.45	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.61	6.88	
8/13/2008	--		5.70	0.00	6.10	--	--	--	--	--	--	--	--	
2/11/2009	P		6.58	0.00	5.22	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.66	6.36	
8/27/2009	--		5.64	0.00	6.16	--	--	--	--	--	--	--	--	
2/18/2010	P		4.69	0.00	7.11	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.92	6.37	
8/12/2010	--		5.39	0.00	6.41	--	--	--	--	--	--	--	--	
2/17/2011	**P**		**4.75**	**0.00**	**7.05**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**0.84**	**6.7**	
MW-5 Cont.														
4/1/1993	--	11.62	4.77	0.00	6.85	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	
7/9/1993	--		5.40	0.00	6.22	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
10/8/1993	--		5.87	0.00	5.75	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	k
1/6/1994	--		5.75	0.00	5.87	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	k
4/26/1994	--		5.49	0.00	6.13	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.1	--	k
7/25/1994	--		5.69	0.00	5.93	<50	<0.5	<0.5	<0.5	<0.5	<5.0	6.6	--	k
10/13/1994	--		6.03	0.00	5.59	<50	<0.5	<0.5	<0.5	<0.5	--	3.0	--	k
1/17/1995	--		4.74	0.00	6.88	--	--	--	--	--	--	--	--	
3/31/1995	--		4.58	0.00	7.04	<50	<0.50	<0.50	<0.50	<1.0	--	7.1	--	
5/1/1995	--		4.79	0.00	6.83	--	--	--	--	--	--	--	--	

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						GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-5 Cont.														
7/12/1995	--	11.62	5.32	0.00	6.30	--	--	--	--	--	--	--	--	
10/12/1995	--		5.70	0.00	5.92	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.7	--	
2/27/1996	--		--	--	--	--	--	--	--	--	--	--	--	f
5/8/1996	--		4.91	0.00	6.71	--	--	--	--	--	--	--	--	
8/9/1996	--		5.01	0.00	6.61	<50	<0.5	<1.0	<1.0	<1.0	<10	7.7	--	
11/7/1996	--		5.54	0.00	6.08	--	--	--	--	--	--	--	--	
2/10/1997	--		4.66	0.00	6.96	--	--	--	--	--	--	--	--	
8/4/1997	--		5.51	0.00	6.11	<50	<0.5	<1.0	<1.0	<1.0	<10	6.9	--	
1/27/1998	--		4.01	0.00	7.61	--	--	--	--	--	--	--	--	
9/2/1998	--		5.17	0.00	6.45	<50	<0.5	<1.0	<1.0	<1.0	<10	6.4	--	
2/24/1999	--		4.52	0.00	7.10	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	
8/30/1999	--		6.02	0.00	5.60	--	--	--	--	--	--	--	--	
2/21/2000	--		4.62	0.00	7.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
2/12/2001	--		4.80	0.00	6.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	
2/4/2002	--		4.63	0.00	6.99	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	--	
8/29/2002	--		5.15	0.00	6.47	--	--	--	--	--	--	--	--	
2/5/2003	--		4.36	0.00	7.26	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	--	
8/14/2003	--		--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	--		--	--	--	--	--	--	--	--	--	--	--	f
08/12/2004	--		4.91	0.00	6.71	--	--	--	--	--	--	--	--	
02/10/2005	P		4.54	0.00	7.08	<50	<0.50	<0.50	<0.50	<0.50	0.90	--	6.1	
08/11/2005	--		4.92	0.00	6.70	--	--	--	--	--	--	--	--	
02/09/2006	--		--	--	--	--	--	--	--	--	--	--	--	s
8/10/2006	--		5.07	0.00	6.55	--	--	--	--	--	--	--	--	
2/8/2007	P		5.10	0.00	6.52	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.01	7.20	
8/8/2007	--		5.42	0.00	6.20	--	--	--	--	--	--	--	--	
2/22/2008	P		4.20	0.00	7.42	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.52	7.25	
8/13/2008	--		5.27	0.00	6.35	--	--	--	--	--	--	--	--	
2/11/2009	P		4.81	0.00	6.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.87	6.71	
8/27/2009	--		4.99	0.00	6.63	--	--	--	--	--	--	--	--	

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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-5 Cont.														
2/18/2010	P	11.62	5.60	0.00	6.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.35	6.87	
8/12/2010	--		--	--	--	--	--	--	--	--	--	--	--	f
2/17/2011	--		--	--	--	--	--	--	--	--	--	--	--	**f**
QC-2 Cont.														
7/9/1993	--	NS	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	g,k
10/8/1993	--		--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	g,k
1/6/1994	--		--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	g,k
4/26/1994	--		--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	g,k
7/25/1994	--		--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	g,k
10/13/1994	--		--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	g,k
1/17/1995	--		--	--	--	<50	<0.5	<0.5	<0.5	<1	--	--	--	g
3/31/1995	--		--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	g
7/12/1995	--		--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	g
10/12/1995	--		--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	g
2/27/1996	--		--	--	--	<50	<0.5	<1	<1	<1	<10	--	--	g
5/9/1996	--		--	--	--	<50	<0.5	<1	<1	<1	<10	--	--	g
RW-1 Cont.														
1/6/1994	--	11.84	5.59	0.00	6.25	24,000	3,700	210	830	2,000	4,562	--	--	c,d,k
1/6/1994	--		5.59	0.00	6.25	23,000	3,800	210	840	2,100	4,663	--	--	c,k
4/26/1994	--		5.21	0.00	6.63	22,000	3,300	110	700	1,700	6,909	--	--	c,d,k
4/26/1994	--		5.21	0.00	6.63	24,000	3,500	120	800	1,700	8,145	6.4	--	c,k
7/25/1994	--		5.52	0.00	6.32	28,000	4,400	240	960	1,400	20,608	--	--	c,d,k
7/25/1994	--		5.52	0.00	6.32	31,000	4,800	290	1,100	1,700	<5.0	5.5	--	c,k
10/13/1994	--		6.05	0.00	5.79	20,000	4,200	46	990	440	--	6.8	--	k
1/17/1995	--		4.02	0.00	7.82	9,600	1,500	65	300	2,700	--	7.7	--	
3/31/1995	--		3.81	0.00	8.03	16,000	1,500	780	370	2,000	--	7.8	--	
5/1/1995	--		4.21	0.00	7.63	--	--	--	--	--	--	--	--	
7/12/1995	--		4.93	0.00	6.91	22,000	3,700	150	950	2,800	--	7.2	--	
10/12/1995	--		5.46	0.00	6.38	30,000	1,600	1,500	1,700	8,500	4,300	7.0	--	

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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			
RW-1 Cont.														
2/27/1996	--	11.84	4.00	0.00	7.84	1,600	30	23	38	420	50	--	--	d
2/27/1996	--		4.00	0.00	7.84	1,800	30	24	41	440	52	7.7	--	
5/8/1996	--		4.65	0.00	7.19	--	--	--	--	--	--	--	--	
5/9/1996	--		--	--	--	3,200	19	19	97	800	<50	7.1	--	
5/9/1996	--		--	--	--	2,900	15	15	78	700	<50	--	--	d
8/9/1996	--		4.96	0.00	6.88	--	--	--	--	--	--	--	--	
8/12/1996	--		--	--	--	6,900	210	270	390	1,920	<100	7.9	--	
8/12/1996	--		--	--	--	8,200	270	330	450	2,330	<100	--	--	d
11/7/1996	--		5.50	0.00	6.34	6,800	360	45	<10	<10	500	--	--	d
11/7/1996	--		5.50	0.00	6.34	6,100	320	45	<10	<10	430	6.9	--	
2/10/1997	--		3.85	0.00	7.99	170,000	<120	<250	<250	<250	150,000	6.7	--	
8/4/1997	--		4.72	0.00	7.12	<25000	580	450	630	3,700	230,000	6.9	--	
1/27/1998	--		3.80	0.00	8.04	51,000	380	300	480	2,980	36,000	--	--	d
1/27/1998	--		3.80	0.00	8.04	52,000	380	330	490	2,970	38,000	6.1	--	
9/2/1998	--		4.91	0.00	6.93	280,000	2,400	<50	1,400	3,170	270,000	--	--	d
9/2/1998	--		4.91	0.00	6.93	260,000	2,500	56	1,400	3,070	250,000	6.6	--	
2/24/1999	--		4.16	0.00	7.68	120	<1.0	<1.0	1.5	13	130/140	--	--	h
8/30/1999	--		5.52	0.00	6.32	3,100	320	<25	120	28	60,000	--	--	
2/21/2000	--		3.68	0.00	8.16	340 i	8.6	1.8	11	66	2,500	--	--	i
8/8/2000	--		4.85	0.00	6.99	1,600	3.2	<0.5	0.82	1.2	19,000	--	--	
2/12/2001	--		4.26	0.00	7.58	1,500	1.33	<0.5	<0.5	5.69	2,420	--	--	
8/13/2001	--		5.34	0.00	6.50	290	<0.5	<0.5	<0.5	<1.5	314	--	--	
2/4/2002	--		4.08	0.00	7.76	570	9.15	0.874	19.2	83.8	97.4	--	--	
8/29/2002	--		5.12	0.00	6.72	<50	0.59	<0.50	<0.50	<0.50	19	--	--	
2/5/2003	--		5.21	0.00	6.63	<50	<0.50	<0.50	0.68	1.7	18	--	--	n
8/14/2003	--		5.07	0.00	6.77	<500	<5.0	<5.0	<5.0	5.4	490	--	--	p
02/12/2004	P		4.19	0.00	7.65	120	1.6	<1.0	3.0	4.1	51	--	5.9	
08/12/2004	P		5.11	0.00	6.73	170	6.9	<0.50	4.5	10	57	--	6.0	
02/10/2005	P		4.15	0.00	7.69	64	1.6	<0.50	0.94	<0.50	39	--	5.9	
08/11/2005	P		4.82	0.00	7.02	480	6.5	<0.50	7.0	14	40	--	6.5	

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

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (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			
RW-1 Cont.														
02/09/2006	P	11.84	3.95	0.00	7.89	<50	1.3	<0.50	0.83	0.80	7.8	--	6.9	
8/10/2006	--		4.90	0.00	6.94	780	43	<1.0	150	200	9.9	--	6.5	
2/8/2007	P		5.03	0.00	6.81	140	4.0	<1.0	<1.0	1.8	14	4.17	6.99	
8/8/2007	P		5.40	0.00	6.44	150	4.4	<0.50	<0.50	1.9	3.0	3.92	6.91	
2/22/2008	P		4.13	0.00	7.71	120	0.87	<0.50	<0.50	<0.50	13	3.68	6.78	
8/13/2008	P		5.50	0.00	6.34	1,900	60	2.2	4.1	670	9.0	0.45	8.72	
2/11/2009	P		5.35	0.00	6.49	220	14	<0.50	<0.50	<0.50	6.2	0.54	6.92	
8/27/2009	P		5.40	0.00	6.44	630	11	0.87	<0.50	180	9.9	0.58	7.23	
2/18/2010	NP		4.57	0.00	7.27	<50	<0.50	<0.50	<0.50	<0.50	6.1	1.08	6.73	
8/12/2010	NP		5.38	0.00	6.46	100	<0.50	<0.50	<0.50	<0.50	23	0.65	7.5	
2/17/2011	**NP**		**4.88**	**0.00**	**6.96**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**3.2**	**0.68**	**6.6**	

Symbols & Abbreviations:
DO = Dissolved oxygen
ft bgs = Feet below ground surface
ft MSL = Feet above mean sea level
GRO = Gasoline range organics, range C4-C12
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
--/--- = Not applicable/available/analyzed/measured
< = Not detected at or above specified laboratory reporting limit
PACE = Pace Analytical Services, Inc.
ATI = Analytical Technologies, Inc.
SPL = Southern Petroleum Laboratories
SEQ/SEQM = Sequoia Analytical/Sequoia Morgan Hill (Laboratories)
CEL = CalScience Environmental Laboratories, Inc.
TOC = Top of casing measured in ft MSL
DTW = Depth to water measured in ft bgs
GWE = Groundwater elevation measured in ft MSL

Footnotes:
a = TOC elevations surveyed in reference to USGS benchmark 14.108 ft MSL at northwest corner of Webster Street and Pacific Avenue
b = Groundwater elevations in ft MSL
c = A copy of the documentation for this data is included in Appendix C of Alisto report 10-155-07-001
d = Blind duplicate
e = Sample also analyzed for cadmium, nickel, chromium, lead, and zinc. None were detected above the reported detection limit
f = Well inaccessible
g = Travel blank
h = MTBE by EPA Methods 8020/8260
i = Gasoline does not include MTBE
j = Unable to sample
k = A copy of the documentation for this data can be found in Baline Tech Services report 010813-N-2. No chromatograms could be located for MTBE data from wells MW-2,MW-3, MW-4, MW-5, and QC-2, sampled on July 9, 1993; all wells sampled on October 8, 1993; wells MW-1, MW-2, and MW-3, sampled on January 6, 1994; and all wells sampled on October 13, 1994
l = Chromatogrom Pattern: Gasoline C6-C10
m = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument
n = The closing calibration was outside acceptance limits by 1% high. This should be considered inevaluating the result. The avg. % difference for all analytes met the 15% requirement and the QC suggests that calibration linearity is not a factor
o = The original scope of work only called for annual gauging of well. This issue has been addressed, and in the future, gauging of this well will be semi-annual 1st and 3rd quarter.
p = Groundwater samples analyzed by EPA Method 8260B for TPH-g, BTEX, and MTBE
q = Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential inclusion of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported
r = Possible obstruction in well
s = Car parked over well
t = Sample > 4x spike concentration

Notes:
During the second quarter of 2002, URS Corporation assumed groundwater monitoring activities for BP

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

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

accuracy of this information

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
7/9/1993	--	--	12,952	--	--	--	--	--	
7/9/1993	--	--	11,919	--	--	--	--	--	
4/26/1994	--	--	16,663	--	--	--	--	--	
7/25/1994	--	--	26,428	--	--	--	--	--	
10/12/1995	--	--	15,000	--	--	--	--	--	
10/12/1995	--	--	14,000	--	--	--	--	--	
2/27/1996	--	--	5,500	--	--	--	--	--	
5/9/1996	--	--	2,700	--	--	--	--	--	
8/12/1996	--	--	1,800	--	--	--	--	--	
11/7/1996	--	--	2,100	--	--	--	--	--	
2/10/1997	--	--	160,000	--	--	--	--	--	
2/10/1997	--	--	160,000	--	--	--	--	--	
8/4/1997	--	--	250,000	--	--	--	--	--	
8/4/1997	--	--	260,000	--	--	--	--	--	
1/27/1998	--	--	490,000	--	--	--	--	--	
9/2/1998	--	--	230,000	--	--	--	--	--	
2/24/1999	--	--	90000/200000	--	--	--	--	--	
8/30/1999	--	--	48,000	--	--	--	--	--	
2/21/2000	--	--	31,000	--	--	--	--	--	
8/8/2000	--	--	60,000	--	--	--	--	--	
2/12/2001	--	--	18,000	--	--	--	--	--	
8/13/2001	--	--	5,590	--	--	--	--	--	
2/4/2002	--	--	2,470	--	--	--	--	--	
8/29/2002	--	--	3,100	--	--	--	--	--	
2/5/2003	--	--	590 m,n	--	--	--	--	--	
8/14/2003	<10,000	<2,000	4,500	<50	<50	89	<50	<50	a
02/12/2004	<2,000	960	1,200	<10	<10	33	<10	<10	
08/12/2004	<1,000	730	260	<5.0	<5.0	9.3	<5.0	<5.0	
02/10/2005	<1,000	2,300	730	<5.0	<5.0	26	<5.0	<5.0	b
08/11/2005	<1,000	460	190	<5.0	<5.0	10	<5.0	<5.0	
02/09/2006	<3,000	400	380	<5.0	<5.0	18	<5.0	<5.0	b, c
8/10/2006	<3,000	<200	47	<5.0	<5.0	<5.0	<5.0	<5.0	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1 Cont.									
2/8/2007	<3,000	210	130	<5.0	<5.0	7.8	<5.0	<5.0	
8/8/2007	<300	190	140	<0.50	<0.50	8.7	<0.50	<0.50	d (MTBE)
2/22/2008	<300	51	59	<0.50	<0.50	3.1	<0.50	<0.50	
8/13/2008	<3,000	340	370	<5.0	<5.0	22	<5.0	<5.0	
2/11/2009	<1,200	480	68	<2.0	<2.0	3.4	<2.0	<2.0	
8/27/2009	<1,200	180	20	<2.0	<2.0	<2.0	<2.0	<2.0	
2/18/2010	<1,200	160	48	<2.0	<2.0	2.8	<2.0	<2.0	
8/12/2010	<1,200	140	76	<2.0	<2.0	6.4	<2.0	<2.0	
2/17/2011	**<1,200**	**120**	**40**	**<2.0**	**<2.0**	**3.1**	**<2.0**	**<2.0**	
MW-2									
4/26/1994	--	--	<5.0	--	--	--	--	--	
7/25/1994	--	--	11.59	--	--	--	--	--	
10/12/1995	--	--	<5.0	--	--	--	--	--	
2/27/1996	--	--	<10	--	--	--	--	--	
8/9/1996	--	--	<10	--	--	--	--	--	
8/4/1997	--	--	<10	--	--	--	--	--	
9/2/1998	--	--	110	--	--	--	--	--	
2/24/1999	--	--	8.2	--	--	--	--	--	
2/21/2000	--	--	0.72	--	--	--	--	--	
2/12/2001	--	--	<0.5	--	--	--	--	--	
2/4/2002	--	--	<0.5	--	--	--	--	--	
2/5/2003	--	--	<2.5	--	--	--	--	--	
02/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b, c
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3									
4/26/1994	--	--	<5.0	--	--	--	--	--	
7/25/1994	--	--	<5.0	--	--	--	--	--	
10/12/1995	--	--	<5.0	--	--	--	--	--	
2/27/1996	--	--	<10	--	--	--	--	--	
8/9/1996	--	--	<10	--	--	--	--	--	
8/4/1997	--	--	<10	--	--	--	--	--	
9/2/1998	--	--	<10	--	--	--	--	--	
2/24/1999	--	--	<1.0	--	--	--	--	--	
2/21/2000	--	--	<0.5	--	--	--	--	--	
02/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-4									
1/6/1994	--	--	<5.0	--	--	--	--	--	
4/26/1994	--	--	<5.0	--	--	--	--	--	
7/25/1994	--	--	<5.0	--	--	--	--	--	
10/12/1995	--	--	<5.0	--	--	--	--	--	
2/27/1996	--	--	<10	--	--	--	--	--	
8/9/1996	--	--	<10	--	--	--	--	--	
8/4/1997	--	--	<10	--	--	--	--	--	
9/2/1998	--	--	<10	--	--	--	--	--	
2/24/1999	--	--	<1.0	--	--	--	--	--	
2/21/2000	--	--	0.66	--	--	--	--	--	
2/12/2001	--	--	0.982	--	--	--	--	--	
2/4/2002	--	--	<0.5	--	--	--	--	--	
2/5/2003	--	--	<2.5	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
02/12/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/10/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b, c
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2011	**<300**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-5									
1/6/1994	--	--	<5.0	--	--	--	--	--	
4/26/1994	--	--	<5.0	--	--	--	--	--	
7/25/1994	--	--	<5.0	--	--	--	--	--	
10/12/1995	--	--	<5.0	--	--	--	--	--	
8/9/1996	--	--	<10	--	--	--	--	--	
8/4/1997	--	--	<10	--	--	--	--	--	
9/2/1998	--	--	<10	--	--	--	--	--	
2/24/1999	--	--	<1.0	--	--	--	--	--	
2/21/2000	--	--	<0.5	--	--	--	--	--	
2/12/2001	--	--	<0.5	--	--	--	--	--	
2/4/2002	--	--	<0.5	--	--	--	--	--	
2/5/2003	--	--	<2.5	--	--	--	--	--	
02/10/2005	<100	<20	0.90	<0.50	<0.50	<0.50	<0.50	<0.50	b, c
2/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2011	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**f**
QC-2									
1/6/1994	--	--	<5.0	--	--	--	--	--	
4/26/1994	--	--	<5.0	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
QC-2 Cont.									
7/25/1994	--	--	<5.0	--	--	--	--	--	
10/12/1995	--	--	<5.0	--	--	--	--	--	
2/27/1996	--	--	<10	--	--	--	--	--	
5/9/1996	--	--	<10	--	--	--	--	--	
RW-1									
1/6/1994	--	--	4,562	--	--	--	--	--	
1/6/1994	--	--	4,663	--	--	--	--	--	
4/26/1994	--	--	6,909	--	--	--	--	--	
4/26/1994	--	--	8,145	--	--	--	--	--	
7/25/1994	--	--	20,608	--	--	--	--	--	
7/25/1994	--	--	<5.0	--	--	--	--	--	
10/12/1995	--	--	4,300	--	--	--	--	--	
2/27/1996	--	--	50	--	--	--	--	--	
2/27/1996	--	--	52	--	--	--	--	--	
5/9/1996	--	--	<50	--	--	--	--	--	
5/9/1996	--	--	<50	--	--	--	--	--	
8/12/1996	--	--	<100	--	--	--	--	--	
8/12/1996	--	--	<100	--	--	--	--	--	
11/7/1996	--	--	500	--	--	--	--	--	
11/7/1996	--	--	430	--	--	--	--	--	
2/10/1997	--	--	150,000	--	--	--	--	--	
8/4/1997	--	--	230,000	--	--	--	--	--	
1/27/1998	--	--	36,000	--	--	--	--	--	
1/27/1998	--	--	38,000	--	--	--	--	--	
9/2/1998	--	--	270,000	--	--	--	--	--	
9/2/1998	--	--	250,000	--	--	--	--	--	
2/24/1999	--	--	130/140	--	--	--	--	--	
8/30/1999	--	--	60,000	--	--	--	--	--	
2/21/2000	--	--	2,500	--	--	--	--	--	
8/8/2000	--	--	19,000	--	--	--	--	--	
2/12/2001	--	--	2,420	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11104, 1716 Webster St., Alameda, CA

Well and Sample Date	Concentrations in (µg/L)								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
RW-1 Cont.									
8/13/2001	--	--	314	--	--	--	--	--	
2/4/2002	--	--	97.4	--	--	--	--	--	
8/29/2002	--	--	19	--	--	--	--	--	
2/5/2003	--	--	18	--	--	--	--	--	
8/14/2003	<1,000	<200	490	<5.0	<5.0	11	<5.0	<5.0	a
02/12/2004	<200	83	51	<1.0	<1.0	1.2	<1.0	<1.0	
08/12/2004	<100	500	57	<0.50	<0.50	1.0	<0.50	<0.50	
02/10/2005	<100	69	39	<0.50	<0.50	0.68	<0.50	<0.50	b, c
08/11/2005	<100	390	40	<0.50	<0.50	1.3	<0.50	<0.50	c
02/09/2006	<300	31	7.8	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2006	<600	190	9.9	<1.0	<1.0	<1.0	<1.0	<1.0	
2/8/2007	<600	220	14	<1.0	<1.0	<1.0	<1.0	<1.0	
8/8/2007	<300	170	3.0	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	56	13	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2008	<300	38	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	
2/11/2009	<300	69	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/27/2009	<300	100	9.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	6.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/12/2010	<300	250	23	<0.50	<0.50	0.81	<0.50	<0.50	
2/17/2011	**<300**	**<10**	**3.2**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	

Symbols & Abbreviations:
TBA = tert-Butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
TAME = tert-Amyl Methyl ether
1,2-DCA = 1,2-Dibromoethane
EDB = 1,2-Dichloroethane
µg/L = Micrograms per liter
< = Not detected at or above specified laboratory reporting limit
-- = Not sampled/analyzed

Footnotes:
a = The continuing calibration was outside of client contractual acceptance limits by 3.4% low. However, it was within the method acceptance limit. The data should still be useful for its intended purpose
b = Possible high bias for 1,2-DCA due to CCV falling outside acceptance criteria
c = Callibration verification for ethanol was within method limits but outside contract limits
d = Sample > 4x spike concentration

Notes:
All fuel oxygenate compounds analyzed using EPA Method 8260B

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

Table 3. Historical Groundwater Flow Direction and Gradient

Former BP Station #11104, 1716 Webster St., Alameda, CA

Date Measured	Approximate Groundwater Flow Direction	Approximate Hydraulic Gradient (ft/ft)
2/9/2006	North-Northwest	0.007
8/10/2006	North-Northwest	0.007
2/8/2007	North-Northwest	0.007
8/8/2007	North-Northwest	0.004
2/22/2008	North-Northwest	0.003
8/13/2008	North-Northwest	0.007
2/11/2009	Northeast	0.004
8/27/2009	Northeast	0.004
2/18/2010	North-Northwest	0.008
8/12/2010	North-Northeast	0.005
2/17/2011	**Northwest**	**0.005**

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

APPENDIX A

FIELD METHODS

BROADBENT & ASSOCIATES INC. FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

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

A.1.1 Water Level & Free-Product Measurement

Prior to ground-water sample collection from each monitoring well, the presence of separate-phase hydrocarbons (SPH or free product, FP) and depth to ground water shall be measured. Depth to ground water will be measured with a standard water level indicator that has been decontaminated prior to its use in accordance with procedures discussed below. Depth to groundwater will be gauged from a saw cut notch at the top of the well casing on each well head. Where FP is suspected, the initial gauging will be done with an oil-water interface probe. Once depth to water has been measured, the first retrieval of a new disposable bailer will be scrutinized for the presence of SPH/FP.

A.1.2 Monitoring Well Purging

Subsequent to measuring depth to ground water and prior to the collection of ground-water samples, purging of standing water within the monitoring will be performed if called for. Consistent with the American Society for Testing and Materials (ASTM) Standard D6452-99, Section 7.1, the well will be purged of approximately three wetted-casing volumes of water, or until the well is dewatered, or until monitored field parameters indicate stabilization. The well will be purged using a pre-cleaned disposable bailer or submersible pump and disposable plastic tubing dedicated to each individual well. The well will be purged at a low flow rate to minimize the possibility of purging the well dry. So that the sample collected is representative of formation water, several field parameters will be monitored during the purging process. The sample will not be collected until these parameters (i.e. temperature, pH, and conductivity) have stabilized to within 10% of the previously measured value. If a well is purged dry, the sample should not be collected until the well has recovered to a minimum 50% of its initial volume.

A.1.3 Ground-Water Sample Collection

Once the wells are satisfactorily purged, water samples will be collected from each well. Water samples for organic analyses will be collected using a pre-cleaned, new, disposable bailer and transferred into the appropriate, new, laboratory-prepared containers such that no head space or air bubbles are present in the sample container (if appropriate to the analysis). The samples will be properly labeled (i.e. sample identification, sampler initials, date/time of collection, site location, requested analyses), placed in an ice chest with bagged ice or ice substitute, and delivered to the contracted analytical laboratory.

A.1.4 Surface Water Sample Collection

Unless specified otherwise, surface water samples will be collected from mid-depth in the central area of the associated surface water body. Water samples will be collected into appropriate, new, laboratory-prepared containers by dipping the container into the surface water unless the container has a preservative present. If a sample preservative is present, a new, cleaned non-preserved surrogate container will be used to obtain the sample which will then be directly transferred into a new, laboratory-provided, preserved container. Samples will be properly labeled and transported as described above.

A.1.5 Decontamination Protocol

Prior to use in each well, re-usable ground-water sampling equipment (e.g., water level indicator, oil-interface probe, purge pump, etc.) will be decontaminated. Decontamination protocol will include thoroughly cleaning with a solution of Liquinox, rinsing with clean water, and final rinsing with control water (potable water of known quality, distilled, or de-ionized water). Pre-cleaned new disposable bailers and disposable plastic tubing will be dedicated to each individual well.

A.1.6 Chain of Custody Procedures

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

Field Custody Procedures

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

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

Transfer of Custody and Shipment

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

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

A.1.7 Field Records

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

APPENDIX B

FIELD DATA SHEETS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

FIELD DATA REPORT

DATE: 2/17/11
PERSONNEL: SB & DD
WEATHER: Rain/wind

PROJECT NO.: 06-88-644
COMMENTS: BP 11104

Equip:	Geosquirt	Tubing	Bailers	DO	wli	Ec/pH

Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	pH	Cond. (X100)	Temp. (C/F)	DO (mg/l)	Redox (mV)	Iron (mg/l)	Alk. (mg/l)	WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC
	1344		4.82									
mw-1	~~1327~~	TOC	~~5.56~~									
mw-2	1327	↓	5.56									
mw-3	1418		5.66									
mw-4	1432		4.25									Car parked over well
mw-5	—		—									
rw-1	1400		4.88									

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: mw-1
Project Name/Location: BP 11104 / Alameda, CA Project #: 06-58-644
Sampler's Name: SB + DP Date: 2/17/11
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:		2	inch
Total Well Depth:		15.35	feet
Depth to Water:	-	4.82	feet
Water Column Thickness:	=	10.53	feet
Unit Casing Volume*:	x	0.16	gallon / foot
Casing Water Volume:	=	1.69	gallons
Casing Volume:	x	3	each
Estimated Purge Volume:	=	5.05	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	1346	0.75	310	—	623.8	57.1	7.2	
2.0	1351	X	X	X	625.1	58.7	7.2	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 2.0 gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1355 Purged Dry? (Y / (N))

Comments:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-2
Project Name/Location: BP 11104 / Alameda, Ca Project #: 06-88-644
Sampler's Name: SO & DD Date: 2/17/07
Purging Equipment: —
Sampling Equipment: bailer
Casing Type: PVC
Casing Diameter: 2 inch
Total Well Depth: ______ feet
Depth to Water: - 5.56 feet
Water Column Thickness: = ______ feet
Unit Casing Volume*: x ______ gallon / foot
Casing Water Volume: = ______ gallons
Casing Volume: x 3 each
Estimated Purge Volume: = ______ gallons
Free product measurement (if present): ______

***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.

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1330	2.83	301	—	531.0	57.7	7.6	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: — gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1338 Purged Dry? (Y / N) — N circled

Comments: NP

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-3
Project Name/Location: BP 11104 / Alameda, Ca Project #: 06-88-644
Sampler's Name: SB & DB Date: 2/17/11
Purging Equipment: ~~bailer~~
Sampling Equipment: bailer
Casing Type: PVC
Casing Diameter: 2 inch
Total Well Depth: _____ feet
Depth to Water: - 5.66 feet
Water Column Thickness: = _____ feet
Unit Casing Volume*: x _____ gallon / foot
Casing Water Volume: = _____ gallons
Casing Volume: x 3 each
Estimated Purge Volume: = _____ gallons
Free product measurement (if present): _____

***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.

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1420	0.92	132	—	318.4	56.7	6.5	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: — gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1425 Purged Dry? (Y / (N))

Comments: NP

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: MW-4
Project Name/Location: BP 11104 / Alameda, CA Project #: 06-88-604
Sampler's Name: SB & DP Date: 2/17/11
Purging Equipment: bailer
Sampling Equipment: bailer
Casing Type: PVC

Casing Diameter:	2	inch	
Total Well Depth:	14.62	feet	
Depth to Water:	- 4.75	feet	
Water Column Thickness:	= 9.87	feet	
Unit Casing Volume*:	x 0.16	gallon / foot	
Casing Water Volume:	= 1.5	gallons	
Casing Volume:	x 3	each	
Estimated Purge Volume:	= 4.7	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	1436	0.84	70	—	408.3	60.8	6.8	
1	1437	X	X	X	393.1	61.5	6.7	
2	1438	X	X	X	384.3	61.8	6.7	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 2.0 gallons
Depth to Water at Sample Collection: — feet
Sample Collection Time: 1445 Purged Dry? (Y / (N))

Comments:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Groundwater Sampling Data Sheet

Well I.D.: RW-7
Project Name/Location: BP 11104/ Alameda, Ca Project #: 06-88-644
Sampler's Name: SB + DD Date: 2/17/11
Purging Equipment:
Sampling Equipment: Bailer
Casing Type: PVC
Casing Diameter: 6 inch
Total Well Depth: _____ feet
Depth to Water: - 4.88 feet
Water Column Thickness: = _____ feet
Unit Casing Volume*: x _____ gallon / foot
Casing Water Volume: = _____ gallons
Casing Volume: x 3 each
Estimated Purge Volume: = _____ gallons
Free product measurement (if present): _____

***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.

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1403	0.68	32	-	330.4	59.1	6.6	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: ~~_____~~ gallons
Depth to Water at Sample Collection: ~~_____~~ feet
Sample Collection Time: 1405
Purged Dry? (Y / (N))

Comments: NP

APPENDIX C

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

Calscience
Environmental
Laboratories, Inc.

March 07, 2011

Tom Sparrowe
Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Subject: **Calscience Work Order No.: 11-02-1455**
Client Reference: ARCO 11104

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/22/2011 and analyzed in accordance with the attached chain-of-custody.

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 analysis, 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.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Richard Villafania
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

ACCREDITED IN ACCORDANCE WITH nelac

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 02/22/11
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: ARCO 11104

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**11-02-1455-1-E**	**02/17/11 13:55**	**Aqueous**	**GC 22**	**02/24/11**	**02/25/11 03:06**	**110224B01**

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	2400	50	1		ug/L

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	116	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**11-02-1455-2-D**	**02/17/11 13:35**	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11 16:39**	**110224B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	76	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**11-02-1455-3-D**	**02/17/11 14:25**	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11 15:00**	**110224B01**

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

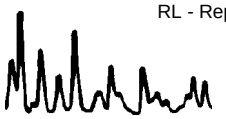
Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	78	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	**11-02-1455-4-D**	**02/17/11 14:45**	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11 17:12**	**110224B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	75	38-134	

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



Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 02/22/11
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: ARCO 11104

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RW-1	**11-02-1455-5-D**	**02/17/11 14:05**	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11 20:30**	**110224B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	74	38-134	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-695-1,017**	**N/A**	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11 13:21**	**110224B01**

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

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	79	38-134	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 02/22/11
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/L

Project: ARCO 11104

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	**11-02-1455-1-B**	**02/17/11 13:55**	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11 15:33**	**110223L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	44	2.0	4		Methyl-t-Butyl Ether (MTBE)	40	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	120	40	4	
1,2-Dichloroethane	ND	2.0	4		Diisopropyl Ether (DIPE)	ND	2.0	4	
Ethylbenzene	160	2.0	4		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	4	
Toluene	ND	2.0	4		Tert-Amyl-Methyl Ether (TAME)	3.1	2.0	4	
Xylenes (total)	230	2.0	4		Ethanol	ND	1200	4	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	90	80-128			Dibromofluoromethane	93	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	96	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	**11-02-1455-2-B**	**02/17/11 13:35**	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11 16:01**	**110223L01**

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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	91	80-128			Dibromofluoromethane	91	80-127		
Toluene-d8	92	80-120			1,4-Bromofluorobenzene	88	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-3	**11-02-1455-3-B**	**02/17/11 14:25**	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11 17:56**	**110223L01**

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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	94	80-128			Dibromofluoromethane	94	80-127		
Toluene-d8	93	80-120			1,4-Bromofluorobenzene	88	68-120		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Broadbent & Associates, Inc	Date Received:	02/22/11
875 Cotting Lane, Suite G	Work Order No:	11-02-1455
Vacaville, CA 95688-9299	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/L

Project: ARCO 11104

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	**11-02-1455-4-B**	**02/17/11 14:45**	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11 18:24**	**110223L01**

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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	95	80-128			Dibromofluoromethane	99	80-127		
Toluene-d8	92	80-120			1,4-Bromofluorobenzene	88	68-120		

RW-1	**11-02-1455-5-B**	**02/17/11 14:05**	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11 18:53**	**110223L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	3.2	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	98	80-128			Dibromofluoromethane	96	80-127		
Toluene-d8	93	80-120			1,4-Bromofluorobenzene	90	68-120		

Method Blank	**099-12-703-1,616**	**N/A**	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11 15:04**	**110223L01**

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	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	91	80-128			Dibromofluoromethane	92	80-127		
Toluene-d8	92	80-120			1,4-Bromofluorobenzene	88	68-120		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 02/22/11
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project ARCO 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-3	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11**	**110224S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	98	101	38-134	4	0-25	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: 02/22/11
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8260B

Project ARCO 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-2	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11**	**110223S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	103	103	76-124	0	0-20	
Carbon Tetrachloride	90	92	74-134	2	0-20	
Chlorobenzene	99	97	80-120	2	0-20	
1,2-Dibromoethane	99	104	80-120	5	0-20	
1,2-Dichlorobenzene	101	103	80-120	2	0-20	
1,2-Dichloroethane	95	98	80-120	3	0-20	
Ethylbenzene	105	102	78-126	3	0-20	
Toluene	98	98	80-120	0	0-20	
Trichloroethene	112	111	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	103	109	67-121	6	0-49	
Tert-Butyl Alcohol (TBA)	100	104	36-162	4	0-30	
Diisopropyl Ether (DIPE)	105	107	60-138	2	0-45	
Ethyl-t-Butyl Ether (ETBE)	103	106	69-123	3	0-30	
Tert-Amyl-Methyl Ether (TAME)	97	105	65-120	8	0-20	
Ethanol	102	109	30-180	7	0-72	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: N/A
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8015B (M)

Project: ARCO 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-1,017	**Aqueous**	**GC 22**	**02/24/11**	**02/24/11**	**110224B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	95	99	78-120	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Broadbent & Associates, Inc
875 Cotting Lane, Suite G
Vacaville, CA 95688-9299

Date Received: N/A
Work Order No: 11-02-1455
Preparation: EPA 5030C
Method: EPA 8260B

Project: ARCO 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-1,616	**Aqueous**	**GC/MS BB**	**02/23/11**	**02/23/11**	**110223L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Benzene	103	99	80-120	73-127	5	0-20	
Carbon Tetrachloride	86	85	74-134	64-144	1	0-20	
Chlorobenzene	99	96	80-120	73-127	3	0-20	
1,2-Dibromoethane	97	96	79-121	72-128	2	0-20	
1,2-Dichlorobenzene	102	99	80-120	73-127	3	0-20	
1,2-Dichloroethane	84	82	80-120	73-127	2	0-20	
Ethylbenzene	104	102	80-120	73-127	2	0-20	
Toluene	95	93	80-120	73-127	2	0-20	
Trichloroethene	109	108	79-127	71-135	1	0-20	
Methyl-t-Butyl Ether (MTBE)	101	98	69-123	60-132	3	0-20	
Tert-Butyl Alcohol (TBA)	108	106	63-123	53-133	2	0-20	
Diisopropyl Ether (DIPE)	105	100	59-137	46-150	6	0-37	
Ethyl-t-Butyl Ether (ETBE)	103	99	69-123	60-132	4	0-20	
Tert-Amyl-Methyl Ether (TAME)	96	96	70-120	62-128	1	0-20	
Ethanol	109	110	28-160	6-182	1	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

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 11-02-1455

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

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

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

1455

Page 1 of 1

BP/ARC Project Name: ARCO 11104 | Req Due Date (mm/dd/yy): STD-TAT | Rush TAT: Yes ___ No X

BP/ARC Facility No: 11104 | Lab Work Order Number:

Lab Name: Cal science	BP/ARC Facility Address: 1716 Webster Street	Consultant/Contractor: Broadbent & Associates, Inc.
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Alameda, CA 94501	Consultant/Contractor Project No: 06-88-644-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane Ste. G, Vacaville, CA 95688
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600101651	Consultant/Contractor PM: Tom Sparrowe
Lab Shipping Accnt: 9255	Enfos Proposal No: 00G8-0004	Phone: 7017-455-7290 / 707-455-7295 (fax)
Lab Bottle Order No:	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email EDD To: tsparrowe@broadbentinc.com
Other Info:	Stage: Operate (5) Activity: Monitoring/MNA (22)	Invoice To: BP/ARC X Contractor ___

BP/ARC EBM: Chuck Carmel

EBM Phone: 925-275-3803

EBM Email: charles.carmel@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix:	No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	HCl	Methanol		Requested Analyses: GRO (8015)	BTEX (8260)	5 Oxys (8260)	EDB (8260)	1,2-DCA (8260)	Ethanol (8260)					Report Type & QC Level: Comments
1	MW-1	2/17/11	1355		X			6				X			X	X	X	X	X	X					
2	MW-2	↓	1335		X			6				X			X	X	X	X	X	X					
3	MW-3	↓	1425		X			6				X			X	X	X	X	X	X					
4	MW-4	↓	1445		X			6				X			X	X	X	X	X	X					
—	~~MW-5~~				~~X~~			~~6~~				~~X~~			~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~					No Sample
5	RW-1	2/17/11	1405		X			6				X			X	X	X	X	X	X					
6	TB - 11104 - 110217	2/17/11	1450		X			2				X													ON HOLD

Sampler's Name: Sam Barkley	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date / Time
Sampler's Company: BAI		2/18/11	1600		
Shipment Method: GSO Ship Date: 2/18/11					
Shipment Tracking No: 106840245					

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

1455

PLEASE PRESS FIRMLY

FROM

1 DATE 7/21/11
COMPANY BAI
ADDRESS 875 Cothly Ln
ADDRESS STE/ROOM
CITY Vacaville ZIP CODE 95687
SENDERS NAME S. Burkley PHONE NUMBER

TO

2 COMPANY CAL SCIENCE
NAME PHONE NUMBER (714) 895-5494
ADDRESS 7440 LINCOLN WAY
ADDRESS STE/ROOM
CITY GARDEN GROVE ZIP CODE 92841

3 YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS

GSO GOLDEN STATE OVERNIGHT

1-800-322-5555

WWW.GSO.COM

SHIPPING AIR BILL

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

5 DELIVERY SERVICE
- ☒ PRIORITY OVERNIGHT BY 10:30 AM
- ☐ EARLY PRIORITY BY 8:00 AM
- ☐ SATURD DELIVEF

*DELIVERY TIMES MAY BE LATER IN SOME AREAS • CONSULT YOUR SERVICE GUIDE OR CALL GOLDEN STATE C

6 RELEASE SIGNATURE _____
SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

7

8 PICK UP INFORMATION _____
TIME DRIVER # ROUTE #

106840327 GSO TRACKING NUMBER

PEEL OFF HERE

106840327

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 11-02-1455

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: BAI DATE: 02/22/11

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

Temperature 1.4 °C + 0.5 °C (CF) = 1.9 °C ☑ Blank ☐ Sample

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

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

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

Ambient Temperature: ☐ Air ☐ Filter **Initial:** JF

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** JF

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** LH

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ 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	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

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

Water: ☐VOA ☑VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s** ☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐500PB ☐500PB**na** ☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Summa® **Other:** ☐_____ **Trip Blank Lot#:** 110103B **Labeled/Checked by:** LH

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

Preservative: h: HCL n: HNO_3 na$_2$: $Na_2S_2O_3$ na: NaOH p: H_3PO_4 s: H_2SO_4 znna: $ZnAc_2$+NaOH f: Field-filtered **Scanned by:** _____

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

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

Submittal Type:	**GEO_WELL**
Submittal Title:	**1Q11 GEO_WELL 11104**
Facility Global ID:	**T0600101651**
Facility Name:	**BP #11104**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**4/28/2011 12:32:41 PM**
Confirmation Number:	**1454940736**

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