

# Atlantic Richfield Company

**Chuck Carmel**  
Environmental Business Manager

**RECEIVED**

1:59 pm, Oct 30, 2009

Alameda County  
Environmental Health

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San Ramon, CA 94583  
Phone: (925) 275-3803  
Fax: (925) 275-3815  
E-Mail: charles.carmel@bp.com

30 October 2009

Re: Third Quarter 2009 Semi-Annual Ground-Water 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  
Environmental Business Manager

Attachment

**Third Quarter 2009 Semi-Annual  
Ground-Water Monitoring Report**  
Former BP Service Station #11104  
1716 Webster Street, Alameda, California  
ACEH Case #RO0000281

Prepared for

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

Prepared by



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

30 October 2009

Project No. 06-88-644

30 October 2009

Project No. 06-88-644

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

Attn.: Mr. Chuck Carmel

Re: Third Quarter 2009 Semi-Annual Ground-Water Monitoring Report, Former BP Service Station #11104, 1716 Webster Street, Alameda, Alameda County, California  
ACEH Case #RO0000281

Dear Mr. Carmel:

Provided herein is the *Third Quarter 2009 Semi-Annual Ground-Water Monitoring Report* for Former BP Service Station #11104 located at 1716 Webster Street, Alameda, California (Site). This report presents a summary of results from semi-annual ground-water monitoring conducted at the Site during the Third Quarter of 2009.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.



Thomas A. Venus, P.E.  
Senior Engineer



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

## STATION #11104 SEMI-ANNUAL GROUND-WATER MONITORING REPORT

Facility: #11104	Address:	1716 Webster Street, Alameda, California
BP Environmental Business Manager:		Mr. Chuck Carmel
Consulting Co./Contact Persons:		Broadbent & Associates, Inc./Rob Miller & Tom Venus (530) 566-1400
Primary Agency/Regulatory ID No.:		Alameda County Environmental Health (ACEH) ACEH Case #RO0000281
Consultant Project No.:		06-88-644

### WORK PERFORMED THIS QUARTER (Third Quarter 2009):

1. Prepared and submitted *Second Quarter 2009 Status Report* (BAI, 7/7/2009).
2. Conducted semi-annual ground-water monitoring/sampling for Third Quarter 2009 on 27 August 2009. Work performed by Stratus Environmental, Inc. (Stratus). (Nearby Chevron Station #9-0290 ground-water levels gauged by Blaine Tech Services, Inc. for Chevron on 27 August 2009)

### WORK PROPOSED FOR NEXT QUARTER (Fourth Quarter 2009):

1. Prepare and submit this *Third Quarter 2009 Semi-Annual Ground-Water Monitoring Report* (contained herein).
2. No environmental work activities are scheduled to be conducted at the Site during the Fourth Quarter 2009.

### QUARTERLY RESULTS SUMMARY:

Current phase of project:	<b>Ground-water monitoring/sampling</b>
Frequency of ground-water monitoring:	<b>Semi-Annually (1Q &amp; 3Q): Wells MW-1 through MW-5 and RW-1</b>
Frequency of ground-water sampling:	<b>Semi-Annually (1Q &amp; 3Q): Wells MW-1 and RW-1 Annually (1Q): Wells MW-2 through MW-5</b>
Is free product (FP) present on-site:	<b>No</b>
Current remediation techniques:	<b>NA</b>
Depth to ground water (below TOC):	<b>4.99 ft (MW-5) to 6.78 ft (MW-3)</b>
General ground-water flow direction:	<b>Northeast</b>
Approximate hydraulic gradient:	<b>0.004 ft/ft</b>

### DISCUSSION:

Third Quarter 2009 semi-annual ground-water monitoring and sampling was conducted at Station #11104 by Stratus on 27 August 2009. Ground-water gauging was conducted by Blaine Tech Services, Inc. for Conestoga-Rover & Associates at the nearby Chevron Station #9-0290 on the same date. Water levels were gauged in the six wells associated with Station #11104, and 11 wells associated with nearby Chevron Station #9-0290. No irregularities were noted during water level gauging at Station #11104. Depth to water measurements at the Site ranged from 4.99 ft at well MW-5 to 6.78 ft at MW-3. Resulting ground-water surface elevations at the Site ranged from 6.86 ft above mean sea level in well MW-2 to 5.16 ft at well MW-4. Water level elevations yielded a potentiometric ground-water flow direction and gradient to the northeast at 0.004 ft/ft. Ground-water monitoring field data sheets are provided within Appendix A. Measured depths to ground water and respective ground-water elevations are summarized in Table 1. Current and historic ground-water flow directions and gradients are provided within Table 3. Depth to water measurements for Chevron Station #9-0290 are provided within Appendix B. A Site

Location Map is provided as Drawing 1. Ground-water elevations for Chevron Station #9-0290 and potentiometric ground-water elevation contours for the Site and Chevron Station #9-0290 are presented in Drawing 2.

Consistent with the current ground-water monitoring schedule for the Site, water samples were collected from Station #11104 wells MW-1 and RW-1. No irregularities were encountered during sampling at the Site. Samples were not collected from nearby Chevron Station #9-0290 for reasons discussed within the Conclusions and Recommendations section below. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove, California) for analysis of Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Di-Isopropyl Ether (DIPE), Tert-Amyl Methyl Ether (TAME), 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. Ground-water sampling field data sheets and the laboratory analytical report, including chain-of-custody documentation, are provided in Appendix A.

Gasoline range organics (GRO) were detected above the laboratory reporting limits in each of the two wells sampled at concentrations of 3,300 micrograms per liter ( $\mu\text{g/L}$ ) in well MW-1 and 630  $\mu\text{g/L}$  in well RW-1. Benzene was detected above the laboratory reporting limit in each of the two wells sampled at concentrations of 37  $\mu\text{g/L}$  in well MW-1 and 11  $\mu\text{g/L}$  in well RW-1. Toluene was detected above the laboratory reporting limit in each of the two wells sampled at concentrations of 2.5  $\mu\text{g/L}$  in well MW-1 and 0.87  $\mu\text{g/L}$  in well RW-1. Ethylbenzene was detected above the laboratory reporting limit in well MW-1 at a concentration of 9.5  $\mu\text{g/L}$ . Total Xylenes were detected above the laboratory reporting limit in each of the two wells sampled at concentrations of 650  $\mu\text{g/L}$  in well MW-1 and 180  $\mu\text{g/L}$  in well RW-1. MTBE was detected above the laboratory reporting limit in each of the two wells sampled at concentrations of 20  $\mu\text{g/L}$  in well MW-1 and 9.9  $\mu\text{g/L}$  in well RW-1. TBA was detected in each of the two wells sampled at concentrations of 180  $\mu\text{g/L}$  in well MW-1 and 100  $\mu\text{g/L}$  in well RW-1. The remaining fuel constituents were not detected above their respective laboratory reporting limits in the two wells sampled this quarter. Historic laboratory analytical results for the Site are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. Ground-water monitoring data (GEO\_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix C.

## **CONCLUSIONS AND RECOMMENDATIONS:**

Ground-water elevations were between the historic minimum and maximum values for each well gauged this quarter at Station #11104. The potentiometric ground-water flow direction and gradient of 0.004 ft/ft to the northeast was generally consistent with historical data. Detected analyte concentrations were within the historic minimum and maximum ranges recorded for each well with the following exception: MTBE (20  $\mu\text{g/L}$ ) reached a historic minimum concentration in well MW-1.

Conestoga-Rover & Associates (CRA) has historically had nearby Chevron Station #9-0290 sampled quarterly. Recently, CRA modified the ground-water monitoring and sampling schedule at Chevron Station #9-0290 to occur semi-annually during the second and fourth calendar quarters of the year. Due to this modification, co-monitoring analytical data from Chevron Station #9-0290 was not available for inclusion in the Third Quarter 2009 Semi-Annual Ground-Water Monitoring Report for Station #11104. Former BP Station #11104 has been monitored and sampled during the first and third calendar quarters since 1996. BAI recommends that BP Service Station #11104 continue semi-annual monitoring during the first and third calendar quarters of the year. If the data from joint monitoring is

considered imperative, BAI recommends that CRA be directed by ACEH to modify the recently changed sampling schedule at Chevron Station #9-0290 from the second and fourth calendar quarters of the year to the first and third calendar quarters. Unless directed by ACEH, no change to the monitoring program at Station #11104 is presently deemed warranted or recommended.

#### **CLOSURE:**

The findings presented in this report are based upon: observations of Stratus and Blaine Tech Services field personnel (see Appendices A and B), the 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 Atlantic Richfield Company (a BP affiliated company). It is possible that variations in soil or ground-water conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

#### **ATTACHMENTS:**

- Drawing 1. Site Location Map, Station #11104, 1716 Webster Street, Alameda, California
- Drawing 2. Ground-Water Elevation Contour and Analytical Summary Map, 27 August 2009, Station #11104, 1716 Webster Street, Alameda, California
- Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #11104, 1716 Webster St., Alameda, California
- Table 2. Summary of Fuel Additives Analytical Data, Station #11104, 1716 Webster St., Alameda, California
- Table 3. Historical Ground-Water Flow Direction and Gradient, Station #11104, 1716 Webster St., Alameda, California
- Appendix A. Stratus Ground-Water Sampling Data Package (Includes Field Data Sheets, Laboratory Report, Chain-of-Custody Documentation, and Field Procedures)
- Appendix B. Blaine Tech Services, Inc., Ground-Water Gauging Results (Chevron Service Station #9-0290)
- Appendix C. GeoTracker Upload Confirmation Receipts

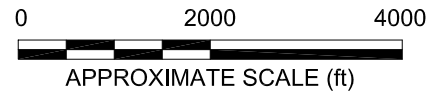
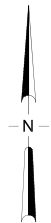
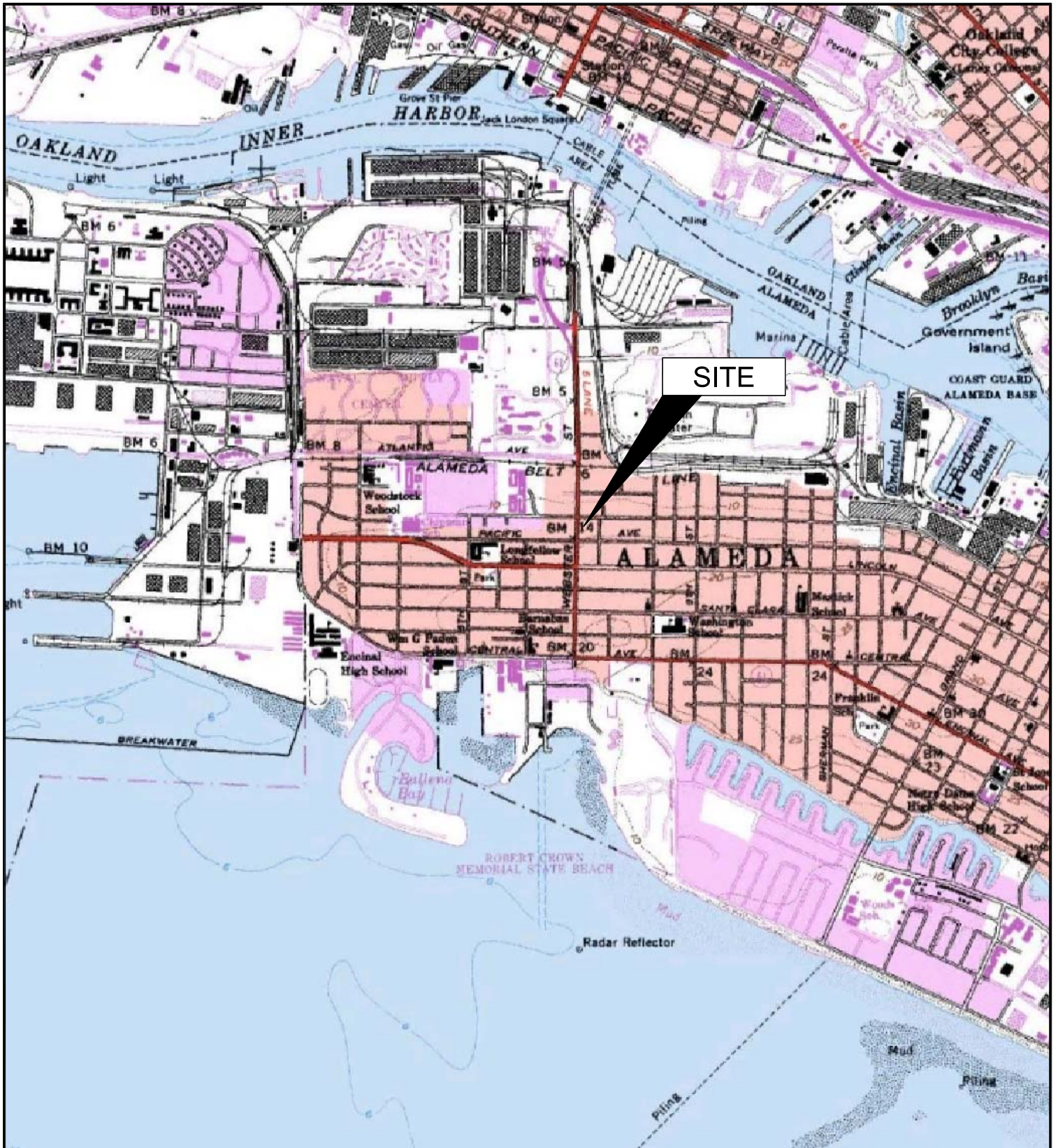


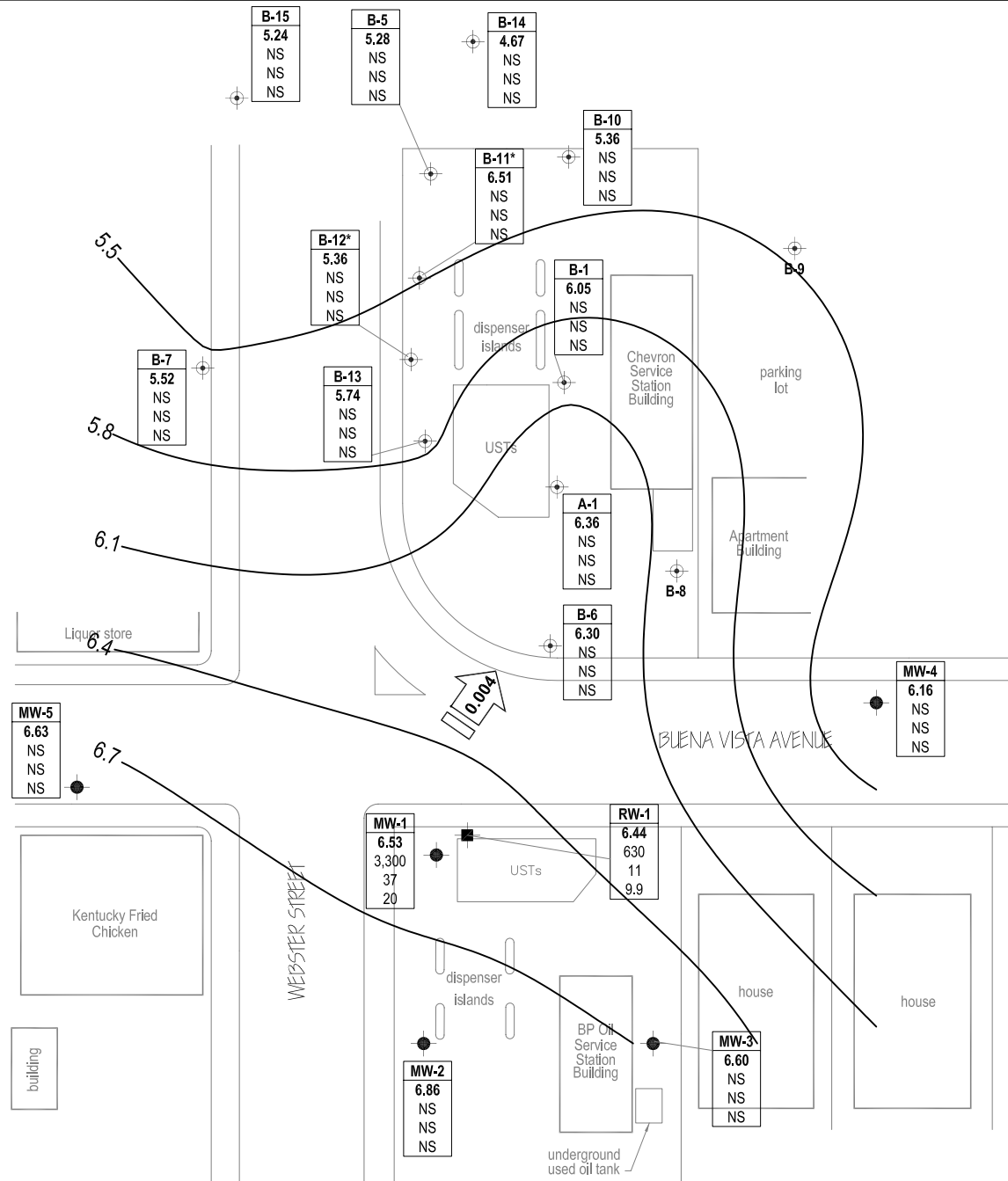
IMAGE SOURCE: USGS

**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
- Ground-water recovery well
- Chevron monitoring well
- Ground-water flow direction and gradient (ft/MSL)
- 5.5 Ground-water elevation contour (Feet above site datum)

Well	Well designation
ELEV	Ground-water elevation (ft/MSL)
GRO	GRO, Benzene and MTBE concentrations in ground water (µg/L)
Benzene	
MTBE	

- < 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 DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



**BROADBENT & ASSOCIATES, INC.**  
 ENGINEERING, WATER RESOURCES & ENVIRONMENTAL  
 1324 Mangrove Ave. Suite 212, Chico, California  
 Project No.: 06-88-644 Date: 10/13/09

Station #11104  
 1716 Webster Street  
 Alameda, California

Ground-Water Elevation Contour  
 and Analytical Summary Map  
 27 August 2009

Drawing  
2



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-1</b>															
7/21/1992	--	11.98	5.91	--	6.07	34,000	7,000	1,700	2,500	6,900	--	--	--	--	
10/20/1992	--	11.98	6.66	--	5.32	--	--	--	--	--	--	--	--	--	
3/5/1993	--	11.98	4.56	--	7.42	--	--	--	--	--	--	--	--	--	
4/1/1993	--	11.98	4.57	--	7.41	--	--	--	--	--	--	--	--	--	
7/9/1993	--	11.98	--	--	--	79,000	16,000	1,500	2,200	7,700	12,952	--	PACE	--	c, d, k
7/9/1993	--	11.98	5.25	--	6.73	77,000	15,000	1,400	2,100	7,400	11,919	--	PACE	--	c, k
10/8/1993	--	11.98	6.01	--	5.97	42,000	7,100	270	2,700	4,700	--	--	PACE	--	k
1/6/1994	--	11.98	6.24	--	5.74	45,000	12,000	4,300	3,000	6,700	--	--	PACE	--	k
4/26/1994	--	11.98	5.26	--	6.72	39,000	6,500	500	1,800	1,200	16,663	6.3	PACE	--	c, k
7/25/1994	--	11.98	5.60	--	6.38	38,000	6,300	240	1,500	1,100	26,428	1.7	PACE	--	c, k
10/13/1994	--	11.98	--	--	--	25,000	7,300	120	1,200	740	--	--	PACE	--	d, k
10/13/1994	--	11.98	6.15	--	5.83	25,000	6,300	130	1,300	830	--	2.3	PACE	--	k
1/17/1995	--	11.98	--	--	--	8,400	3,100	1,200	470	1,000	--	--	ATI	--	d
1/17/1995	--	11.98	4.19	--	7.79	7,800	3,100	1,100	460	850	--	7.9	ATI	--	
3/31/1995	--	11.98	4.48	--	7.50	37,000	6,700	6,900	1,200	4,500	--	6.4	ATI	--	
3/31/1995	--	11.98	--	--	--	40,000	6,900	7,300	1,300	5,000	--	--	ATI	--	d
5/1/1995	--	11.98	4.39	--	7.59	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.98	5.02	--	6.96	29,000	7,000	300	1,500	3,900	--	7.2	ATI	--	
7/12/1995	--	11.98	--	--	--	29,000	6,600	380	1,500	3,900	--	--	ATI	--	d
10/12/1995	--	11.98	5.68	--	6.30	20,000	3,400	310	1,100	3,000	15,000	6.3	ATI	--	
10/12/1995	--	11.98	--	--	--	20,000	3,500	310	1,100	3,000	14,000	--	ATI	--	d
2/27/1996	--	11.98	4.18	--	7.80	18,000	4,400	2,900	860	2,380	5,500	7.9	SPL	--	
5/8/1996	--	11.98	4.89	--	7.09	--	--	--	--	--	--	--	--	--	
5/9/1996	--	11.98	--	--	--	14,000	2,300	1,900	540	3,340	2,700	6.1	SPL	--	
8/9/1996	--	11.98	5.13	--	6.85	--	--	--	--	--	--	--	--	--	
8/12/1996	--	11.98	--	--	--	13,000	2,800	190	1,300	3,040	1,800	7.1	SPL	--	
11/7/1996	--	11.98	5.65	--	6.33	12,000	2,100	35	<25	<25	2,100	7.2	SPL	--	
2/10/1997	--	11.98	4.80	--	7.18	180,000	1,900	<500	<500	<500	160,000	6.8	SPL	--	
2/10/1997	--	11.98	--	--	--	180,000	2,100	<500	<500	<500	160,000	--	SPL	--	d
8/4/1997	--	11.98	--	--	--	<25000	2,600	<50	1,200	1,100	260,000	--	SPL	--	d
8/4/1997	--	11.98	5.69	--	6.29	14,000	2,700	<50	1,200	1,220	250,000	7.2	SPL	--	

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-1 Cont.</b>															
1/27/1998	--	11.98	3.96	--	8.02	390,000	4,400	4,300	1,600	2,890	490,000	6.4	SPL	--	
9/2/1998	--	11.98	5.03	--	6.95	230,000	3,900	<50	1,900	1,000	230,000	6.3	SPL	--	
2/24/1999	--	11.98	4.94	--	7.04	82,000	3,000	520	2,600	3,200	190000/200000	--	SPL	--	h
8/30/1999	--	11.98	6.31	--	5.67	11,000	2,100	<25	1,800	580	48,000	--	SPL	--	
2/21/2000	--	11.98	4.47	--	7.51	12,000 i	1,200	250	930	1,800	31,000	--	PACE	--	i
8/8/2000	--	11.98	5.59	--	6.39	4,500	160	2.8	76	88	60,000	--	PACE	--	
2/12/2001	--	11.98	6.04	--	5.94	14,000	363	<12.5	108	293	18,000	--	PACE	--	
8/13/2001	--	11.98	6.44	--	5.54	14,000	161	17.1	255	545	5,590	--	PACE	--	
2/4/2002	--	11.98	4.49	--	7.49	17,000	176	57.9	538	1,670	2,470	--	PACE	--	
8/29/2002	--	11.98	5.22	--	6.76	4,800 l	180	43	130	540	3,100	--	SEQ	--	l
2/5/2003	--	11.98	5.43	--	6.55	770	29	9.8	4.2	47	590 m,n	--	SEQ	--	m,n
8/14/2003	--	11.98	6.34	--	5.64	5,400	210	<50	90	200	4,500	--	SEQ	--	p
02/12/2004	P	11.98	4.55	--	7.43	2,600	140	20	87	170	1,200	--	SEQM	6.8	
08/12/2004	P	11.98	5.22	--	6.76	5,700	500	12	41	1,400	260	--	SEQM	6.3	
02/10/2005	P	11.98	4.48	--	7.50	2,400	120	10	72	110	730	--	SEQM	6.1	
08/11/2005	P	11.98	4.60	--	7.38	4,600	500	13	44	870	190	--	SEQM	6.8	
02/09/2006	P	11.98	4.47	--	7.51	2,600	180	12	96	230	380	--	SEQM	7.0	
8/10/2006	--	11.98	4.77	--	7.21	7,000	720	17	62	870	47	--	TAMC	6.7	
2/8/2007	P	11.98	5.13	--	6.85	2,200	100	6.3	53	120	130	5.52	TAMC	6.82	
8/8/2007	P	11.98	5.47	--	6.51	1,500	78	4.9	43	120	140	4.32	TAMC	7.04	t (BZ, EBZ, XYLENES, MTBE)
2/22/2008	P	11.98	4.40	--	7.58	4,400	130	71	390	1,200	59	5.01	CEL	7.06	
8/13/2008	P	11.98	5.55	--	6.43	7,500	220	16	130	1,600	370	0.48	CEL	8.13	
2/11/2009	P	11.98	5.51	--	6.47	1,900	26	<2.0	15	35	68	0.57	CEL	6.62	
<b>8/27/2009</b>	<b>P</b>	<b>11.98</b>	<b>5.45</b>	<b>--</b>	<b>6.53</b>	<b>3,300</b>	<b>37</b>	<b>2.4</b>	<b>9.5</b>	<b>650</b>	<b>20</b>	<b>0.61</b>	<b>CEL</b>	<b>7.51</b>	
<b>MW-2</b>															
7/21/1992	--	12.98	6.44	--	6.54	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
10/20/1992	--	12.98	7.39	--	5.59	--	--	--	--	--	--	--	--	--	
3/5/1993	--	12.98	4.91	--	8.07	--	--	--	--	--	--	--	--	--	
4/1/1993	--	12.98	4.92	--	8.06	--	--	--	--	--	--	--	--	--	
7/9/1993	--	12.98	5.60	--	7.38	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-2 Cont.</b>															
10/8/1993	--	12.98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	d, k
10/8/1993	--	12.98	6.50	--	6.48	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	12.98	6.25	--	6.73	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
4/26/1994	--	12.98	5.73	--	7.25	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.5	PACE	--	k
7/25/1994	--	12.98	6.07	--	6.91	<50	<0.5	<0.5	<0.5	<0.5	11.59	2.4	PACE	--	k
10/13/1994	--	12.98	6.80	--	6.18	<50	<0.5	<0.5	<0.5	<0.5	--	2.4	PACE	--	k
1/17/1995	--	12.98	5.10	--	7.88	--	--	--	--	--	--	--	--	--	
3/31/1995	--	12.98	4.69	--	8.29	<50	<0.50	<0.50	<0.50	<1.0	--	7.3	ATI	--	
5/1/1995	--	12.98	5.23	--	7.75	--	--	--	--	--	--	--	--	--	
7/12/1995	--	12.98	5.40	--	7.58	--	--	--	--	--	--	--	--	--	
10/12/1995	--	12.98	6.06	--	6.92	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.9	ATI	--	
2/27/1996	--	12.98	4.66	--	8.32	<50	<0.5	<1	<1	<1	<10	8.7	SPL	--	
5/8/1996	--	12.98	5.28	--	7.70	--	--	--	--	--	--	--	--	--	
8/9/1996	--	12.98	5.59	--	7.39	<50	<0.5	<1.0	<1.0	<1.0	<10	7.8	SPL	--	
11/7/1996	--	12.98	6.11	--	6.87	--	--	--	--	--	--	--	--	--	
2/10/1997	--	12.98	5.26	--	7.72	--	--	--	--	--	--	--	--	--	
8/4/1997	--	12.98	6.14	--	6.84	<50	<0.5	<1.0	<1.0	<1.0	<10	6.5	SPL	--	
1/27/1998	--	12.98	4.42	--	8.56	--	--	--	--	--	--	--	--	--	
9/2/1998	--	12.98	5.47	--	7.51	100	0.56	3.6	<1.0	3	110	6.9	SPL	--	
2/24/1999	--	12.98	5.12	--	7.86	<50	<1.0	<1.0	<1.0	<1.0	8.2	--	SPL	--	
8/30/1999	--	12.98	6.60	--	6.38	--	--	--	--	--	--	--	--	--	
2/21/2000	--	12.98	4.64	--	8.34	<50	<0.5	<0.5	<0.5	<0.5	0.72	--	PACE	--	
2/12/2001	--	12.98	5.13	--	7.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	PACE	--	
2/4/2002	--	12.98	5.63	--	7.35	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	PACE	--	
8/29/2002	--	12.98	5.79	--	7.19	--	--	--	--	--	--	--	--	--	
2/5/2003	--	12.98	5.61	--	7.37	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	SEQ	--	n
8/14/2003	--	12.98	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P	12.98	5.19	--	7.79	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.4	p
08/12/2004	--	12.98	6.17	--	6.81	--	--	--	--	--	--	--	--	--	
02/10/2005	P	12.98	5.01	--	7.97	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	5.9	
08/11/2005	--	12.98	6.39	--	6.59	--	--	--	--	--	--	--	--	--	

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses  
Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-2 Cont.</b>															
02/09/2006	P	12.98	4.80	--	8.18	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.8	
8/10/2006	--	12.98	6.18	--	6.80	--	--	--	--	--	--	--	--	--	
2/8/2007	P	12.98	5.67	--	7.31	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.94	TAMC	7.04	
8/8/2007	--	12.98	6.00	--	6.98	--	--	--	--	--	--	--	--	--	
2/22/2008	P	12.98	5.15	--	7.83	52	<0.50	<0.50	<0.50	<0.50	<0.50	5.81	CEL	7.12	
8/13/2008	--	12.98	6.20	--	6.78	--	--	--	--	--	--	--	--	--	
2/11/2009	P	12.98	6.02	--	6.96	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.90	CEL	6.73	
<b>8/27/2009</b>	<b>--</b>	<b>12.98</b>	<b>6.12</b>	<b>--</b>	<b>6.86</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>MW-3</b>															
7/21/1992	--	13.38	7.07	--	6.31	<50	0.95	<0.5	<0.5	<0.5	--	--	--	--	e
10/20/1992	--	13.38	8.06	--	5.32	--	--	--	--	--	--	--	--	--	
3/5/1993	--	13.38	5.16	--	8.22	--	--	--	--	--	--	--	--	--	
4/1/1993	--	13.38	5.25	--	8.13	--	--	--	--	--	--	--	--	--	
7/9/1993	--	13.38	5.80	--	7.58	<50	0.6	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	13.38	7.17	--	6.21	<50	0.6	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	13.38	6.94	--	6.44	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
4/26/1994	--	13.38	6.18	--	7.20	<50	<0.5	<0.5	<0.5	<0.5	<5.0	3.1	PACE	--	k
7/25/1994	--	13.38	6.67	--	6.71	<50	<0.5	<0.5	<0.5	<0.5	<5.0	2.2	PACE	--	k
10/13/1994	--	13.38	7.43	--	5.95	<50	<0.5	<0.5	<0.5	<0.5	--	2.1	PACE	--	k
1/17/1995	--	13.38	5.07	--	8.31	--	--	--	--	--	--	--	--	--	
3/31/1995	--	13.38	4.03	--	9.35	<50	<0.50	<0.50	<0.50	<1.0	--	6.6	ATI	--	
5/1/1995	--	13.38	4.94	--	8.44	--	--	--	--	--	--	--	--	--	
7/12/1995	--	13.38	5.80	--	7.58	--	--	--	--	--	--	--	--	--	
10/12/1995	--	13.38	6.64	--	6.74	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.4	ATI	--	
2/27/1996	--	13.38	4.75	--	8.63	<50	<0.5	<1	<1	<1	<10	8.5	SPL	--	
5/8/1996	--	13.38	5.86	--	7.52	--	--	--	--	--	--	--	--	--	
8/9/1996	--	13.38	5.70	--	7.68	<50	<0.5	<1.0	<1.0	<1.0	<10	7.9	SPL	--	
11/7/1996	--	13.38	6.21	--	7.17	--	--	--	--	--	--	--	--	--	
2/10/1997	--	13.38	5.14	--	8.24	--	--	--	--	--	--	--	--	--	
8/4/1997	--	13.38	6.01	--	7.37	<50	<0.5	<1.0	<1.0	<1.0	<10	6.6	SPL	--	

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-3 Cont.</b>															
1/27/1998	--	13.38	4.30	--	9.08	--	--	--	--	--	--	--	--	--	
9/2/1998	--	13.38	5.80	--	7.58	<50	<0.5	2.2	<1.0	<1.0	<10	6.6	SPL	--	
2/24/1999	--	13.38	4.34	--	9.04	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	SPL	--	
8/30/1999	--	13.38	6.59	--	6.79	--	--	--	--	--	--	--	--	--	
2/21/2000	--	13.38	4.56	--	8.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	PACE	--	
2/12/2001	--	13.38	4.98	--	8.40	--	--	--	--	--	--	--	--	--	j
2/4/2002	--	13.38	6.11	--	7.27	--	--	--	--	--	--	--	--	--	j
8/29/2002	--	13.38	6.22	--	7.16	--	--	--	--	--	--	--	--	--	j
2/5/2003	--	13.38	--	--	--	--	--	--	--	--	--	--	--	--	f
8/14/2003	--	13.38	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P	13.38	4.94	--	8.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.0	p
08/12/2004	--	13.38	6.22	--	7.16	--	--	--	--	--	--	--	--	--	
02/10/2005	P	13.38	5.45	--	7.93	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	5.1	
08/11/2005	--	13.38	5.77	--	7.61	--	--	--	--	--	--	--	--	--	r
02/09/2006	P	13.38	5.17	--	8.21	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.7	
8/10/2006	--	13.38	5.86	--	7.52	--	--	--	--	--	--	--	--	--	
2/8/2007	P	13.38	6.00	--	7.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.34	TAMC	7.04	
8/8/2007	--	13.38	6.68	--	6.70	--	--	--	--	--	--	--	--	--	
2/22/2008	P	13.38	5.38	--	8.00	54	<0.50	<0.50	<0.50	<0.50	<0.50	3.81	CEL	6.87	
8/13/2008	--	13.38	6.37	--	7.01	--	--	--	--	--	--	--	--	--	
2/11/2009	P	13.38	6.70	--	6.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.79	CEL	7.18	
<b>8/27/2009</b>	<b>--</b>	<b>13.38</b>	<b>6.78</b>	<b>--</b>	<b>6.60</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>MW-4</b>															
3/5/1993	--	11.80	4.81	--	6.99	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
4/1/1993	--	11.80	4.80	--	7.00	--	--	--	--	--	--	--	--	--	
7/9/1993	--	11.80	5.54	--	6.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	11.80	6.28	--	5.52	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	11.80	5.82	--	5.98	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	k
4/26/1994	--	11.80	5.50	--	6.30	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.4	PACE	--	k
7/25/1994	--	11.80	5.83	--	5.97	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.2	PACE	--	k

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-4 Cont.</b>															
10/13/1994	--	11.80	6.26	--	5.54	<50	<0.5	<0.5	<0.5	<0.5	--	6.7	PACE	--	k
1/17/1995	--	11.80	4.19	--	7.61	--	--	--	--	--	--	--	--	--	
3/31/1995	--	11.80	3.96	--	7.84	<50	<0.50	<0.50	<0.50	<1.0	--	7.1	ATI	--	
5/1/1995	--	11.80	4.49	--	7.31	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.80	5.16	--	6.64	--	--	--	--	--	--	--	--	--	
10/12/1995	--	11.80	5.80	--	6.00	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.9	ATI	--	
2/27/1996	--	11.80	4.22	--	7.58	<50	<0.5	<1	<1	<1	<10	8.9	SPL	--	
5/8/1996	--	11.80	5.00	--	6.80	--	--	--	--	--	--	--	--	--	
8/9/1996	--	11.80	5.13	--	6.67	<50	<0.5	<1.0	<1.0	<1.0	<10	8.5	SPL	--	
11/7/1996	--	11.80	5.65	--	6.15	--	--	--	--	--	--	--	--	--	
2/10/1997	--	11.80	4.81	--	6.99	--	--	--	--	--	--	--	--	--	
8/4/1997	--	11.80	5.72	--	6.08	<50	<0.5	<1.0	<1.0	<1.0	<10	6.4	SPL	--	
1/27/1998	--	11.80	4.06	--	7.74	--	--	--	--	--	--	--	--	--	
9/2/1998	--	11.80	4.89	--	6.91	<50	<0.5	<1.0	<1.0	<1.0	<10	5.8	SPL	--	
2/24/1999	--	11.80	3.89	--	7.91	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	SPL	--	
8/30/1999	--	11.80	5.62	--	6.18	--	--	--	--	--	--	--	--	--	
2/21/2000	--	11.80	4.00	--	7.80	<50	<0.5	<0.5	<0.5	<0.5	0.66	--	PACE	--	
2/12/2001	--	11.80	4.93	--	6.87	<50	<0.5	<0.5	<0.5	<0.5	0.982	--	PACE	--	
2/4/2002	--	11.80	4.49	--	7.31	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	PACE	--	
8/29/2002	--	11.80	5.38	--	6.42	--	--	--	--	--	--	--	--	--	
2/5/2003	--	11.80	4.50	--	7.30	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	SEQ	--	n
8/14/2003	--	11.80	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	P	11.80	4.41	--	7.39	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.3	p
08/12/2004	--	11.80	5.20	--	6.60	--	--	--	--	--	--	--	--	--	
02/10/2005	P	11.80	4.43	--	7.37	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	5.5	
08/11/2005	--	11.80	5.09	--	6.71	--	--	--	--	--	--	--	--	--	
02/09/2006	P	11.80	4.32	--	7.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	--	SEQM	6.8	
7/26/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8/10/2006	--	11.80	5.07	--	6.73	--	--	--	--	--	--	--	--	--	
2/8/2007	P	11.80	5.10	--	6.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.63	TAMC	7.07	
8/8/2007	--	11.80	5.55	--	6.25	--	--	--	--	--	--	--	--	--	

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Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-4 Cont.</b>															
2/22/2008	P	11.80	4.35	--	7.45	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.61	CEL	6.88	
8/13/2008	--	11.80	5.70	--	6.10	--	--	--	--	--	--	--	--	--	
2/11/2009	P	11.80	6.58	--	5.22	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.66	CEL	6.36	
<b>8/27/2009</b>	<b>--</b>	<b>11.80</b>	<b>5.64</b>	<b>--</b>	<b>6.16</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>MW-5</b>															
4/1/1993	--	11.62	4.77	--	6.85	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
7/9/1993	--	11.62	5.40	--	6.22	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
10/8/1993	--	11.62	5.87	--	5.75	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	k
1/6/1994	--	11.62	5.75	--	5.87	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	k
4/26/1994	--	11.62	5.49	--	6.13	<50	<0.5	<0.5	<0.5	<0.5	<5.0	7.1	PACE	--	k
7/25/1994	--	11.62	5.69	--	5.93	<50	<0.5	<0.5	<0.5	<0.5	<5.0	6.6	PACE	--	k
10/13/1994	--	11.62	6.03	--	5.59	<50	<0.5	<0.5	<0.5	<0.5	--	3.0	PACE	--	k
1/17/1995	--	11.62	4.74	--	6.88	--	--	--	--	--	--	--	--	--	
3/31/1995	--	11.62	4.58	--	7.04	<50	<0.50	<0.50	<0.50	<1.0	--	7.1	ATI	--	
5/1/1995	--	11.62	4.79	--	6.83	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.62	5.32	--	6.30	--	--	--	--	--	--	--	--	--	
10/12/1995	--	11.62	5.70	--	5.92	<50	<0.50	<0.50	<0.50	<1.0	<5.0	6.7	ATI	--	
2/27/1996	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	f
5/8/1996	--	11.62	4.91	--	6.71	--	--	--	--	--	--	--	--	--	
8/9/1996	--	11.62	5.01	--	6.61	<50	<0.5	<1.0	<1.0	<1.0	<10	7.7	SPL	--	
11/7/1996	--	11.62	5.54	--	6.08	--	--	--	--	--	--	--	--	--	
2/10/1997	--	11.62	4.66	--	6.96	--	--	--	--	--	--	--	--	--	
8/4/1997	--	11.62	5.51	--	6.11	<50	<0.5	<1.0	<1.0	<1.0	<10	6.9	SPL	--	
1/27/1998	--	11.62	4.01	--	7.61	--	--	--	--	--	--	--	--	--	
9/2/1998	--	11.62	5.17	--	6.45	<50	<0.5	<1.0	<1.0	<1.0	<10	6.4	SPL	--	
2/24/1999	--	11.62	4.52	--	7.10	<50	<1.0	<1.0	<1.0	<1.0	<1.0	--	SPL	--	
8/30/1999	--	11.62	6.02	--	5.60	--	--	--	--	--	--	--	--	--	
2/21/2000	--	11.62	4.62	--	7.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	PACE	--	
2/12/2001	--	11.62	4.80	--	6.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	PACE	--	
2/4/2002	--	11.62	4.63	--	6.99	<50	<0.5	<0.5	<0.5	<1.0	<0.5	--	PACE	--	

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>MW-5 Cont.</b>															
8/29/2002	--	11.62	5.15	--	6.47	--	--	--	--	--	--	--	--	--	
2/5/2003	--	11.62	4.36	--	7.26	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	SEQ	--	
8/14/2003	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	o
02/12/2004	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	f
08/12/2004	--	11.62	4.91	--	6.71	--	--	--	--	--	--	--	--	--	
02/10/2005	P	11.62	4.54	--	7.08	<50	<0.50	<0.50	<0.50	<0.50	0.90	--	SEQM	6.1	
08/11/2005	--	11.62	4.92	--	6.70	--	--	--	--	--	--	--	--	--	
02/09/2006	--	11.62	--	--	--	--	--	--	--	--	--	--	--	--	s
8/10/2006	--	11.62	5.07	--	6.55	--	--	--	--	--	--	--	--	--	
2/8/2007	P	11.62	5.10	--	6.52	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.01	TAMC	7.20	
8/8/2007	--	11.62	5.42	--	6.20	--	--	--	--	--	--	--	--	--	
2/22/2008	P	11.62	4.20	--	7.42	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.52	CEL	7.25	
8/13/2008	--	11.62	5.27	--	6.35	--	--	--	--	--	--	--	--	--	
2/11/2009	P	11.62	4.81	--	6.81	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.87	CEL	6.71	
<b>8/27/2009</b>	<b>--</b>	<b>11.62</b>	<b>4.99</b>	<b>--</b>	<b>6.63</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>QC-2</b>															
7/9/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	g,k
10/8/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	g,k
1/6/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	g,k
4/26/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	g,k
7/25/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	PACE	--	g,k
10/13/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	PACE	--	g,k
1/17/1995	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1	--	--	ATI	--	g
3/31/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	g
7/12/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	ATI	--	g
10/12/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	ATI	--	g
2/27/1996	--	--	--	--	--	<50	<0.5	<1	<1	<1	<10	--	SPL	--	g
5/9/1996	--	--	--	--	--	<50	<0.5	<1	<1	<1	<10	--	SPL	--	g
<b>RW-1</b>															



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>RW-1 Cont.</b>															
1/6/1994	--	11.84	5.59	--	6.25	23,000	3,800	210	840	2,100	4,663	--	PACE	--	c,k
1/6/1994	--	11.84	--	--	--	24,000	3,700	210	830	2,000	4,562	--	PACE	--	c,d,k
4/26/1994	--	11.84	5.21	--	6.63	24,000	3,500	120	800	1,700	8,145	6.4	PACE	--	c,k
4/26/1994	--	11.84	--	--	--	22,000	3,300	110	700	1,700	6,909	--	PACE	--	c,d,k
7/25/1994	--	11.84	5.52	--	6.32	31,000	4,800	290	1,100	1,700	<5.0	5.5	PACE	--	c,k
7/25/1994	--	11.84	--	--	--	28,000	4,400	240	960	1,400	20,608	--	PACE	--	c,d,k
10/13/1994	--	11.84	6.05	--	5.79	20,000	4,200	46	990	440	--	6.8	PACE	--	k
1/17/1995	--	11.84	4.02	--	7.82	9,600	1,500	65	300	2,700	--	7.7	ATI	--	
3/31/1995	--	11.84	3.81	--	8.03	16,000	1,500	780	370	2,000	--	7.8	ATI	--	
5/1/1995	--	11.84	4.21	--	7.63	--	--	--	--	--	--	--	--	--	
7/12/1995	--	11.84	4.93	--	6.91	22,000	3,700	150	950	2,800	--	7.2	ATI	--	
10/12/1995	--	11.84	5.46	--	6.38	30,000	1,600	1,500	1,700	8,500	4,300	7.0	ATI	--	
2/27/1996	--	11.84	4.00	--	7.84	1,800	30	24	41	440	52	7.7	SPL	--	
2/27/1996	--	11.84	--	--	--	1,600	30	23	38	420	50	--	SPL	--	d
5/8/1996	--	11.84	4.65	--	7.19	--	--	--	--	--	--	--	--	--	
5/9/1996	--	11.84	--	--	--	2,900	15	15	78	700	<50	--	SPL	--	d
5/9/1996	--	11.84	--	--	--	3,200	19	19	97	800	<50	7.1	SPL	--	
8/9/1996	--	11.84	4.96	--	6.88	--	--	--	--	--	--	--	--	--	
8/12/1996	--	11.84	--	--	--	6,900	210	270	390	1,920	<100	7.9	SPL	--	
8/12/1996	--	11.84	--	--	--	8,200	270	330	450	2,330	<100	--	SPL	--	d
11/7/1996	--	11.84	5.50	--	6.34	6,100	320	45	<10	<10	430	6.9	SPL	--	
11/7/1996	--	11.84	--	--	--	6,800	360	45	<10	<10	500	--	SPL	--	d
2/10/1997	--	11.84	3.85	--	7.99	170,000	<120	<250	<250	<250	150,000	6.7	SPL	--	
8/4/1997	--	11.84	4.72	--	7.12	<25000	580	450	630	3,700	230,000	6.9	SPL	--	
1/27/1998	--	11.84	3.80	--	8.04	52,000	380	330	490	2,970	38,000	6.1	SPL	--	
1/27/1998	--	11.84	--	--	--	51,000	380	300	480	2,980	36,000	--	SPL	--	d
9/2/1998	--	11.84	4.91	--	6.93	260,000	2,500	56	1,400	3,070	250,000	6.6	SPL	--	
9/2/1998	--	11.84	--	--	--	280,000	2,400	<50	1,400	3,170	270,000	--	SPL	--	d
2/24/1999	--	11.84	4.16	--	7.68	120	<1.0	<1.0	1.5	13	130/140	--	SPL	--	h
8/30/1999	--	11.84	5.52	--	6.32	3,100	320	<25	120	28	60,000	--	SPL	--	
2/21/2000	--	11.84	3.68	--	8.16	340 i	8.6	1.8	11	66	2,500	--	PACE	--	i

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses  
Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	P/NP	TOC Elevation (feet)	Depth to Water (feet bgs)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	Lab	pH	Comments
						GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE				
<b>RW-1 Cont.</b>															
8/8/2000	--	11.84	4.85	--	6.99	1,600	3.2	<0.5	0.82	1.2	19,000	--	PACE	--	
2/12/2001	--	11.84	4.26	--	7.58	1,500	1.33	<0.5	<0.5	5.69	2,420	--	PACE	--	
8/13/2001	--	11.84	5.34	--	6.50	290	<0.5	<0.5	<0.5	<1.5	314	--	PACE	--	
2/4/2002	--	11.84	4.08	--	7.76	570	9.15	0.874	19.2	83.8	97.4	--	PACE	--	
8/29/2002	--	11.84	5.12	--	6.72	<50	0.59	<0.50	<0.50	<0.50	19	--	SEQ	--	
2/5/2003	--	11.84	5.21	--	6.63	<50	<0.50	<0.50	0.68	1.7	18	--	SEQ	--	n
8/14/2003	--	11.84	5.07	--	6.77	<500	<5.0	<5.0	<5.0	5.4	490	--	SEQ	--	p
02/12/2004	P	11.84	4.19	--	7.65	120	1.6	<1.0	3.0	4.1	51	--	SEQM	5.9	
08/12/2004	P	11.84	5.11	--	6.73	170	6.9	<0.50	4.5	10	57	--	SEQM	6.0	
02/10/2005	P	11.84	4.15	--	7.69	64	1.6	<0.50	0.94	<0.50	39	--	SEQM	5.9	
08/11/2005	P	11.84	4.82	--	7.02	480	6.5	<0.50	7.0	14	40	--	SEQM	6.5	
02/09/2006	P	11.84	3.95	--	7.89	<50	1.3	<0.50	0.83	0.80	7.8	--	SEQM	6.9	
8/10/2006	--	11.84	4.90	--	6.94	780	43	<1.0	150	200	9.9	--	TAMC	6.5	
2/8/2007	P	11.84	5.03	--	6.81	140	4.0	<1.0	<1.0	1.8	14	4.17	TAMC	6.99	
8/8/2007	P	11.84	5.40	--	6.44	150	4.4	<0.50	<0.50	1.9	3.0	3.92	TAMC	6.91	
2/22/2008	P	11.84	4.13	--	7.71	120	0.87	<0.50	<0.50	<0.50	13	3.68	CEL	6.78	
8/13/2008	P	11.84	5.50	--	6.34	1,900	60	2.2	4.1	670	9.0	0.45	CEL	8.72	
2/11/2009	P	11.84	5.35	--	6.49	220	14	<0.50	<0.50	<0.50	6.2	0.54	CEL	6.92	
<b>8/27/2009</b>	<b>P</b>	<b>11.84</b>	<b>5.40</b>	<b>--</b>	<b>6.44</b>	<b>630</b>	<b>11</b>	<b>0.87</b>	<b>&lt;0.50</b>	<b>180</b>	<b>9.9</b>	<b>0.58</b>	<b>CEL</b>	<b>7.23</b>	

ABBREVIATIONS AND SYMBOLS:

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 = Chromatogram 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  
Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-1</b>									
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	
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	
<b>8/27/2009</b>	<b>&lt;1,200</b>	<b>180</b>	<b>20</b>	<b>&lt;2.0</b>	<b>&lt;2.0</b>	<b>&lt;2.0</b>	<b>&lt;2.0</b>	<b>&lt;2.0</b>	
<b>MW-2</b>									
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	
<b>MW-3</b>									
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	
<b>MW-4</b>									
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

**Table 2. Summary of Fuel Additives Analytical Data  
Station #11104, 1716 Webster St., Alameda, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-4 Cont.</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	
<b>MW-5</b>									
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	
<b>RW-1</b>									
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	
<b>8/27/2009</b>	<b>&lt;300</b>	<b>100</b>	<b>9.9</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	

ABBREVIATIONS AND SYMBOLS:

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 Ground-Water Flow Direction and Gradient  
Station #11104, 1716 Webster St., Alameda, CA**

<b>Date Sampled</b>	<b>Approximate Flow Direction</b>	<b>Approximate Hydraulic Gradient</b>
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
<b>8/27/2009</b>	<b>Northeast</b>	<b>0.004</b>

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.



**APPENDIX A**

**STRATUS GROUND-WATER SAMPLING DATA PACKAGE  
(INCLUDES FIELD DATA SHEETS, LABORATORY REPORT, CHAIN-OF-CUSTODY  
DOCUMENTATION, AND FIELD PROCUDURES)**



3330 Cameron Park Drive, Ste 550  
Cameron Park, California 95682  
(530) 676-6004 ~ Fax: (530) 676-6005

September 10, 2009

Mr. Rob Miller  
Broadbent & Associates, Inc.  
2000 Kirman Avenue  
Reno, NV 89502

Re: Groundwater Sampling Data Package, BP Service Station No. 11104, located at  
1716 Webster Street, Alameda, California.

### **General Information**

*Data Submittal Prepared / Reviewed by:* Carol Huff / Jay Johnson

*Phone Number:* (530) 676-6000

*On-Site Supplier Representative:* Roberto Heimlich and Diego Heimlich

*Sampling Date:* August 27, 2009

*Unusual Field Conditions:* None noted.

*Scope of Work Performed:* Quarterly monitoring and sampling.

*Variations from Work Scope:* None noted.

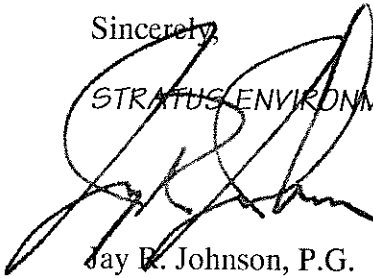
This submittal presents the data collected in association with routine groundwater monitoring. The attachments include field data sheets, non-hazardous waste data form, chain of custody documentation, certified analytical results, and field procedures for groundwater sampling documentation. The information is being provided to BP-ARCO's Scoping Supplier for use in preparing a report for regulatory submittal. This submittal is limited to presentation of collected data and does not include data interpretation or conclusions or recommendations.

Mr. Rob Miller, Broadbent & Associates, Inc.  
Groundwater Data Package  
BP Service Station No. 11104, Alameda, CA  
Page 2

September 10, 2009

Any questions concerning this submittal should be addressed to the Preparer/Reviewer identified above.

Sincerely,



STRATUS ENVIRONMENTAL

Jay R. Johnson, P.G.  
Project Manager



**Attachments:**

- Field Data Sheets
- Non-Hazardous Waste Data Form
- Chain of Custody Documentation
- Certified Analytical Results
- Field Procedures for Groundwater Sampling

cc: Mr. Paul Supple, BP/ARCO



# BP ALAMEDA PORTFOLIO

## WATER SAMPLE FIELD DATA SHEET

PROJECT #: 11104 PURGED BY: RH WELL I.D.: MW-1  
 CLIENT NAME: \_\_\_\_\_ SAMPLED BY: RH SAMPLE I.D.: \_\_\_\_\_  
 LOCATION: Alameda- 1716 Webster Street QA SAMPLES: MW-1

DATE PURGED 8/27/09 START (2400hr) 10:36 END (2400hr) 10:43  
 DATE SAMPLED 8/27/09 SAMPLE TIME (2400hr) 10:47  
 SAMPLE TYPE: Groundwater  Surface Water \_\_\_\_\_ Treatment Effluent \_\_\_\_\_ Other \_\_\_\_\_

CASING DIAMETER: 2"  3" \_\_\_\_\_ 4" \_\_\_\_\_ 5" \_\_\_\_\_ 6" \_\_\_\_\_ 8" \_\_\_\_\_ Other \_\_\_\_\_  
 Casing Volume: (gallons per foot) (0.17) (0.38) (0.67) (1.02) (1.50) (2.60) ( )

DEPTH TO BOTTOM (feet) = 15.15 CASING VOLUME (gal) = 1.6  
 DEPTH TO WATER (feet) = 5.45 CALCULATED PURGE (gal) = 4.9  
 WATER COLUMN HEIGHT (feet) = 9.7 ACTUAL PURGE (gal) = 6

### FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees C)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>8/27/09</u>	<u>10:38</u>	<u>2</u>	<u>22.3</u>	<u>689</u>	<u>7.73</u>	<u>clear</u>	
<u>✓</u>	<u>10:40</u>	<u>4</u>	<u>21.9</u>	<u>739</u>	<u>7.60</u>	<u>✓</u>	
	<u>10:42</u>	<u>6</u>	<u>21.9</u>	<u>772</u>	<u>7.51</u>		

### SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 6.18 SAMPLE TURBIDITY: clear

80% RECHARGE:  YES  NO ANALYSES: SWD  
 ODOR: NO SAMPLE VESSEL / PRESERVATIVE: 6 L VOAS / HCL

#### PURGING EQUIPMENT

Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Peristaltic Pump  Dedicated \_\_\_\_\_  
 Other: \_\_\_\_\_  
 Pump Depth: 15

#### SAMPLING EQUIPMENT

Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (  PVC or  Disposable)  
 Submersible Pump  Bailer (Stainless Steel)  
 Peristaltic Pump  Dedicated \_\_\_\_\_  
 Other: \_\_\_\_\_

WELL INTEGRITY: GOOD LOCK#: MASTER

REMARKS: NO O&G

SIGNATURE: [Signature]

# BP ALAMEDA PORTFOLIO

## WATER SAMPLE FIELD DATA SHEET

PROJECT #: 11104 PURGED BY: RH WELL I.D.: RW-1  
 CLIENT NAME: \_\_\_\_\_ SAMPLED BY: RH SAMPLE I.D.: \_\_\_\_\_  
 LOCATION: Alameda- 1716 Webster Street QA SAMPLES: RW-1

DATE PURGED 8/27/09 START (2400hr) 10:53 END (2400hr) 11:10  
 DATE SAMPLED 8/27/09 SAMPLE TIME (2400hr) 11:16  
 SAMPLE TYPE: Groundwater  Surface Water \_\_\_\_\_ Treatment Effluent \_\_\_\_\_ Other \_\_\_\_\_

CASING DIAMETER: 2" \_\_\_\_\_ 3" \_\_\_\_\_ 4" \_\_\_\_\_ 5" \_\_\_\_\_ 6" X 8" \_\_\_\_\_ Other \_\_\_\_\_  
 Casing Volume: (gallons per foot) (0.17) (0.38) (0.67) (1.02) (1.50) (2.60) ( )

DEPTH TO BOTTOM (feet) = 22.55 CASING VOLUME (gal) = 25.7  
 DEPTH TO WATER (feet) = 6.40 CALCULATED PURGE (gal) = 77.1  
 WATER COLUMN HEIGHT (feet) = 17.1 ACTUAL PURGE (gal) = 77.5

### FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees C)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>8/27/09</u>	<u>10:59</u>	<u>25</u>	<u>21.7</u>	<u>566</u>	<u>7.64</u>	<u>clear</u>	
<u>✓</u>	<u>11:04</u>	<u>50</u>	<u>22.3</u>	<u>598</u>			
<u>✓</u>	<u>11:09</u>	<u>77.5</u>	<u>22.8</u>	<u>609</u>	<u>7.23</u>	<u>✓</u>	

SAMPLE DEPTH TO WATER: 8.07 SAMPLE INFORMATION SAMPLE TURBIDITY: clear

80% RECHARGE:  YES  NO ANALYSES: SWO  
 ODOR: NO SAMPLE VESSEL / PRESERVATIVE: 6 L VOAG/HCL

**PURGING EQUIPMENT**

Bladder Pump \_\_\_\_\_ Bailer (Teflon) \_\_\_\_\_  
 Centrifugal Pump \_\_\_\_\_ Bailer (PVC) \_\_\_\_\_  
 Submersible Pump \_\_\_\_\_ Bailer (Stainless Steel) \_\_\_\_\_  
 Peristaltic Pump \_\_\_\_\_ Dedicated \_\_\_\_\_

Other: \_\_\_\_\_  
 Pump Depth: 22

**SAMPLING EQUIPMENT**

\_\_\_\_\_ Bladder Pump \_\_\_\_\_ Bailer (Teflon) \_\_\_\_\_  
 \_\_\_\_\_ Centrifugal Pump  Bailer ( \_\_\_\_\_ PVC or  disposable) \_\_\_\_\_  
 \_\_\_\_\_ Submersible Pump \_\_\_\_\_ Bailer (Stainless Steel) \_\_\_\_\_  
 \_\_\_\_\_ Peristaltic Pump \_\_\_\_\_ Dedicated \_\_\_\_\_

Other: \_\_\_\_\_

WELL INTEGRITY: GOOD LOCK#: MASTER  
 REMARKS: DO 0.58

SIGNATURE: [Signature]

# WELLHEAD OBSERVATION FORM



Site Name/Number: 11104

Date: 8/27/09

Technician: ROBERTO

Well I.D.	Box in Good Condition <small>X = Yes Blank = No</small>	Well lid secure? <small>X = Yes If our call PM prior to departure</small>	Lock Missing? <small>X = Yes (replaced) Blank = No</small>	Water in Wellbox? <small>X = Yes Blank = No</small>	Water Level Relative to Cap? <small>A = Above cap B = Below cap I = Level w/cap</small>	Well Cap? <small>I = Intact M = Missing or Compromised (replaced)</small>	Bolts Missing? <small># of missing/ Total #</small>	Bolts Stripped? <small># of stripped/ Total #</small>	Bolt Holes Stripped? <small># of stripped/ Total #</small>	Cracked or Broken Lid? <small>X = Yes Blank = No</small>	Cracked or Broken Box? <small>X = Yes Blank = No</small>	Grout Level more than 1ft below TOC? <small>X = Yes Blank = No</small>	Additional Comments <small>(such as missing lid, concrete needs replacement or other explain)</small>
MW-1	X	X	-	-	-	I	-	NA	NA	-	-	-	SEWER TYPE LID
MW-2	X	X	-	-	-	I	NA	NA	NA	-	-	-	SEWER TYPE LID
MW-3	X	X	-	X	B	I	NA	NA	NA	-	-	-	SEWER TYPE LID
MW-4	X	X	-	-	-	I	-	-	-	-	-	-	
MW-5	X	-	-	-	-	I	X3	-	X	-	X	-	BOX IS BROKEN ON EARS
RW-1	X	X	-	-	-	I	-	-	-	-	-	-	WERE BOLTS 60 IN.

\* Explain corrective action taken ( replaced bolt/tapped bolt hole etc. . . ) or if a safety issue, please call PM

**DRUM INVENTORY**

Drums on site? Yes  No  (circle)  
 Type and # Steel \_\_\_\_\_ Plastic: \_\_\_\_\_

Note whether drums are full or empty, solids or liquids:  
 \_\_\_\_\_  
 \_\_\_\_\_

Drum label info (description, date, contact info):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**GENERAL SITE CONDITIONS**

Make notes on housekeeping conditions (such as trash around remediation system enclosure/compound, bent or missing bollards, signs missing from compound fences, graffiti on compound, etc.)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NO. 855671

NON-HAZARDOUS WASTE DATA FORM

1. BEIS #

2. Generator's Name and Mailing Address BP WEST COAST PRODUCTS, LLC P.O. BOX 30249 RANCHO SANTA MARGARITA, CA 92069		Generator's Site Address (if different than mailing address) BP # 1104 1716 WEBSTER ST. ALAMEDA	
Generator's Phone: (949) 460-5200		24-HOUR EMERGENCY PHONE: (949) 698-3706	

3. Transporter 1 Company Name Stratus Environmental, Inc.	Phone # (530) 676-0000
--	---------------------------

4. Transporter 2 Company Name Gomes Excavating	Phone # (707) 974-2981
---	---------------------------

5. Designated Facility Name and Site Address INTRAT, INC. 1105 AIRPORT RD #C RIO VISTA, CA 94571	Phone # (530) 753-1829
---	---------------------------

6. Waste Shipping Name and Description	7. Containers		8. Total Quantity	9. Unit Wt/Vol	10. Profile No.
	No.	Type			
A. NON-HAZARDOUS WATER	1	TT	83.5	G	
B.					
C.					
D.					

11. Special Handling Instructions and Additional Information  
WEAR ALL APPROPRIATE PROTECTIVE CLOTHING  
WELL FURGING / DECON WATER

12. GENERATOR'S CERTIFICATION: I certify the materials described above on this data form are non-hazardous.

Generator's/Owner's Printed/Typed Name ROBERTO DOMINGUEZ	Signature 	Month 8	Day 27	Year 09
---	---------------	------------	-----------	------------

13. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name ROBERTO DOMINGUEZ	Signature 	Month 8	Day 27	Year 09
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

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

Printed/Typed Name	Signature	Month	Day	Year
--------------------	-----------	-------	-----	------

GENERATOR

FACILITY TRANSPORTER





# Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: BP 11104  
 BP/ARC Facility No: 11104

Req Due Date (mm/dd/yy): 14 Day TAT Rush TAT: Yes  No   
 Lab Work Order Number: \_\_\_\_\_

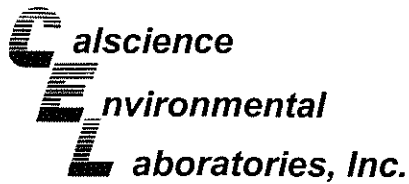
Lab Name: CalScience	BP/ARC Facility Address: 1716 Webster Street	Consultant/Contractor: Stratus Environmental Inc.
Lab Address: 7440 Lincoln Way, Garden Grove, CA 92841	City, State, ZIP Code: Alameda, CA	Consultant/Contractor Project No:
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda	Address: 3330 Cameron Park Drive, #550, Cameron Park, CA 95682
Lab Phone: 714-895-5494 Fax: 714-895-7501	California Global ID No.: T0600101651	Consultant/Contractor PM: Jay Johnson
Lab Shipping Acct:	Enfos Proposal No: 000G8-0003	Phone: 530-676-6000 Fax: 530-676-6005
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: <a href="mailto:mmorgan@stratusinc.net">mmorgan@stratusinc.net</a>
Other Info:	Stage: Operate Activity: Monitor	Invoice To: BP/ARC <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP/ARC EBM: Paul Supple				Matrix		No. Containers / Preservative					Requested Analyses					Report Type & QC Level			
EBM Phone: (925) 275-3801				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO by 8015M	BTEX/5 FO* by 8260B	Ethanol by 8260B	EDB by 8260B	1,2-DCA by 8260B	Standard <input checked="" type="checkbox"/>	
EBM Email: <a href="mailto:paul.supple@bp.com">paul.supple@bp.com</a>																		Full Data Package <input type="checkbox"/>	
Lab No.	Sample Description	Date	Time															Comments	
	MW-1	8/27/09	10:47	X			6				X	X	X	X	X				
	RW-1	✓	11:16	X			6				X	X	X	X	X				
	TB-11104-08272009	✓	6:00	X			2											ON HOLD	

Sampler's Name: <u>ROBERTO HEIMLICH</u> / Doulos Env.	Relinquished By / Affiliation: <u>[Signature]</u>	Date: <u>8/27/09</u>	Time: <u>13:30</u>	Accepted By / Affiliation: _____	Date: _____	Time: _____
Sampler's Company: Stratus Environmental Inc.						
Shipment Method: _____	Shipment Date: _____					
Shipment Tracking No: _____						

Special Instructions: TB Sample ON HOLD! Cc results to Bpdata@secor.com; bpbayarea@secor.com

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



September 09, 2009

Jay Johnson  
Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Subject: **Calscience Work Order No.: 09-08-2300**  
Client Reference: **BP 11104**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 8/28/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. 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.

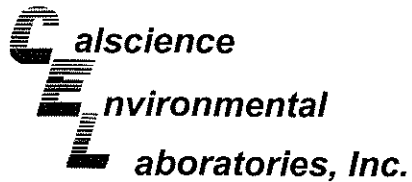
If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard Villafania".

Calscience Environmental  
Laboratories, Inc.  
Richard Villafania  
Project Manager

A handwritten signature in black ink, appearing to read "Richard Villafania".



## Analytical Report

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Date Received: 08/28/09  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: BP 11104

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	09-08-2300-1-E	08/27/09 10:47	Aqueous	GC 4	09/01/09	09/02/09 03:59	090901B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	3300	1000	20		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	83	38-134			

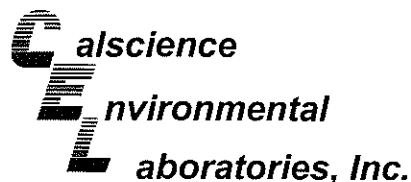
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RW-1	09-08-2300-2-E	08/27/09 11:16	Aqueous	GC 4	09/01/09	09/02/09 04:32	090901B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	630	100	2		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	83	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-695-651	N/A	Aqueous	GC 4	09/01/09	09/01/09 21:24	090901B01

Parameter	Result	RL	DF	Qual	Units
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	71	38-134			

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



## Analytical Report

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Date Received: 08/28/09  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: BP 11104

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	09-08-2300-1-B	08/27/09 10:47	Aqueous	GC/MS BB	09/02/09	09/03/09 08:36	090902L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	37	2.0	4		Methyl-t-Butyl Ether (MTBE)	20	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	180	40	4	
1,2-Dichloroethane	ND	2.0	4		Diisopropyl Ether (DIPE)	ND	2.0	4	
Ethylbenzene	9.5	2.0	4		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	4	
Toluene	2.4	2.0	4		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	4	
Xylenes (total)	650	10	20		Ethanol	ND	1200	4	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	87	80-128			Dibromofluoromethane	97	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	98	68-120		

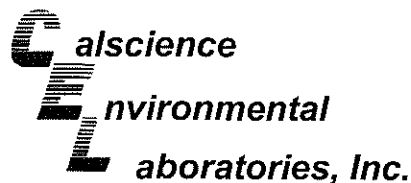
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RW-1	09-08-2300-2-B	08/27/09 11:16	Aqueous	GC/MS BB	09/02/09	09/03/09 09:08	090902L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	11	0.50	1		Methyl-t-Butyl Ether (MTBE)	9.9	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	100	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	0.87	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	180	5.0	10		Ethanol	ND	300	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	88	80-128			Dibromofluoromethane	95	80-127		
Toluene-d8	88	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
Method Blank	099-12-703-1,063	N/A	Aqueous	GC/MS BB	09/02/09	09/03/09 00:38	090902L02

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	95	80-127		
Toluene-d8	91	80-120			1,4-Bromofluorobenzene	92	68-120		

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



Analytical Report

Stratus Environmental, Inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Date Received: 08/28/09  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

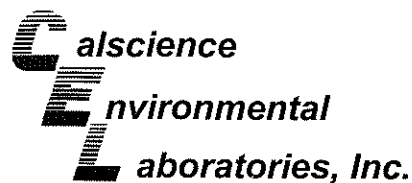
Project: BP 11104

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	099-12-703-1,067	N/A	Aqueous	GC/MS BB	09/04/09	09/05/09 01:37	090904L02

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>
1,2-Dichloroethane-d4	100	80-128			Dibromofluoromethane	92	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	79	68-120		

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



## Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

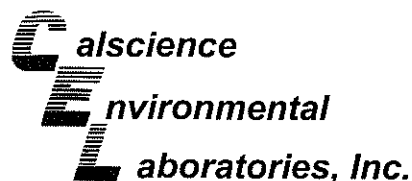
Date Received: 08/28/09  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project BP 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-08-2404-2	Aqueous	GC 4	09/01/09	09/01/09	090901S01

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	100	89	38-134	11	0-25	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

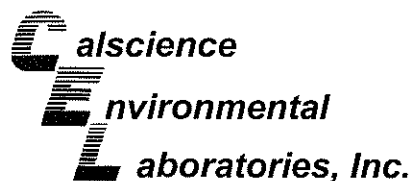
Date Received: 08/28/09  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8260B

Project BP 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-08-2301-2	Aqueous	GC/MS BB	09/02/09	09/03/09	090902S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	101	95	76-124	6	0-20	
Carbon Tetrachloride	100	98	74-134	2	0-20	
Chlorobenzene	105	103	80-120	2	0-20	
1,2-Dibromoethane	97	95	80-120	1	0-20	
1,2-Dichlorobenzene	102	98	80-120	4	0-20	
1,1-Dichloroethene	93	99	73-127	6	0-20	
Ethylbenzene	102	99	78-126	4	0-20	
Toluene	98	81	80-120	19	0-20	
Trichloroethene	100	96	77-120	5	0-20	
Vinyl Chloride	88	80	72-126	10	0-20	
Methyl-t-Butyl Ether (MTBE)	96	97	67-121	0	0-49	
Tert-Butyl Alcohol (TBA)	110	131	36-162	17	0-30	
Diisopropyl Ether (DIPE)	101	97	60-138	4	0-45	
Ethyl-t-Butyl Ether (ETBE)	94	91	69-123	4	0-30	
Tert-Amyl-Methyl Ether (TAME)	90	86	65-120	4	0-20	
Ethanol	140	119	30-180	16	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Date Received: 08/28/09  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8260B

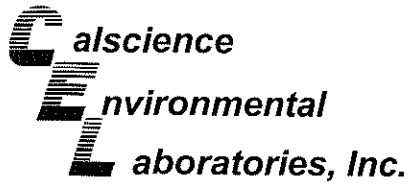
Project BP 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
09-09-0103-2	Aqueous	GC/MS BB	09/04/09	09/05/09	090904S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	99	103	76-124	4	0-20	
Carbon Tetrachloride	103	108	74-134	5	0-20	
Chlorobenzene	96	99	80-120	3	0-20	
1,2-Dibromoethane	98	100	80-120	1	0-20	
1,2-Dichlorobenzene	96	101	80-120	6	0-20	
1,1-Dichloroethene	96	88	73-127	9	0-20	
Ethylbenzene	91	89	78-126	2	0-20	
Toluene	90	94	80-120	5	0-20	
Trichloroethene	96	99	77-120	3	0-20	
Vinyl Chloride	89	97	72-126	9	0-20	
Methyl-t-Butyl Ether (MTBE)	96	96	67-121	0	0-49	
Tert-Butyl Alcohol (TBA)	112	120	36-162	3	0-30	
Diisopropyl Ether (DIPE)	97	100	60-138	3	0-45	
Ethyl-t-Butyl Ether (ETBE)	96	99	69-123	2	0-30	
Tert-Amyl-Methyl Ether (TAME)	91	95	65-120	5	0-20	
Ethanol	236	264	30-180	11	0-72	LM,AY

RPD - Relative Percent Difference , CL - Control Limit





**Quality Control - LCS/LCS Duplicate**



Stratus Environmental, inc.  
 3330 Cameron Park Drive, Suite 550  
 Cameron Park, CA 95682-8861

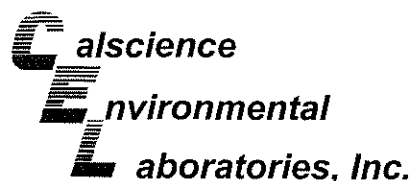
Date Received: N/A  
 Work Order No: 09-08-2300  
 Preparation: EPA 5030B  
 Method: EPA 8015B (M)

Project: BP 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-651	Aqueous	GC 4	09/01/09	09/01/09	090901B01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	99	100	78-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Date Received: N/A  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: BP 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,063	Aqueous	GC/MS BB	09/02/09	09/02/09	090902L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	115	80-120	73-127	12	0-20	
Carbon Tetrachloride	103	116	74-134	64-144	12	0-20	
Chlorobenzene	105	115	80-120	73-127	9	0-20	
1,2-Dibromoethane	104	110	79-121	72-128	5	0-20	
1,2-Dichlorobenzene	106	113	80-120	73-127	7	0-20	
1,1-Dichloroethene	105	118	78-126	70-134	12	0-28	
Ethylbenzene	104	117	80-120	73-127	11	0-20	
Toluene	92	134	80-120	73-127	38	0-20	LQ,BA
Trichloroethene	104	119	79-127	71-135	14	0-20	
Vinyl Chloride	92	102	72-132	62-142	10	0-20	
Methyl-t-Butyl Ether (MTBE)	106	114	69-123	60-132	7	0-20	
Tert-Butyl Alcohol (TBA)	105	104	63-123	53-133	0	0-20	
Diisopropyl Ether (DIPE)	110	121	59-137	46-150	9	0-37	
Ethyl-t-Butyl Ether (ETBE)	109	111	69-123	60-132	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	98	106	70-120	62-128	8	0-20	
Ethanol	120	116	28-160	6-182	4	0-57	

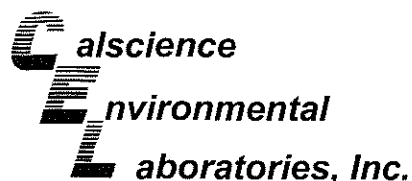
Total number of LCS compounds : 16

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

Stratus Environmental, inc.  
3330 Cameron Park Drive, Suite 550  
Cameron Park, CA 95682-8861

Date Received: N/A  
Work Order No: 09-08-2300  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: BP 11104

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,067	Aqueous	GC/MS BB	09/04/09	09/05/09	090904L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	100	80-120	73-127	2	0-20	
Carbon Tetrachloride	107	110	74-134	64-144	2	0-20	
Chlorobenzene	99	96	80-120	73-127	2	0-20	
1,2-Dibromoethane	101	101	79-121	72-128	0	0-20	
1,2-Dichlorobenzene	102	102	80-120	73-127	0	0-20	
1,1-Dichloroethene	103	104	78-126	70-134	1	0-28	
Ethylbenzene	97	95	80-120	73-127	3	0-20	
Toluene	99	95	80-120	73-127	4	0-20	
Trichloroethene	118	117	79-127	71-135	1	0-20	
Vinyl Chloride	99	94	72-132	62-142	5	0-20	
Methyl-t-Butyl Ether (MTBE)	94	98	69-123	60-132	4	0-20	
Tert-Butyl Alcohol (TBA)	114	94	63-123	53-133	19	0-20	
Diisopropyl Ether (DIPE)	97	98	59-137	46-150	1	0-37	
Ethyl-t-Butyl Ether (ETBE)	97	100	69-123	60-132	3	0-20	
Tert-Amyl-Methyl Ether (TAME)	95	96	70-120	62-128	1	0-20	
Ethanol	114	91	28-160	6-182	22	0-57	

Total number of LCS compounds : 16

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: 09-08-2300
 

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<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.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; 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.



<u>Qualifier</u>	<u>Definition</u>
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.
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.





# Laboratory Management Program LaMP Chain of Custody Record

2300

BP/ARC Project Name: BP 11104  
 BP/ARC Facility No: 11104

Req Due Date (mm/dd/yy): 14 Day TAT Rush TAT: Yes  No   
 Lab Work Order Number: \_\_\_\_\_

Lab Name: CalScience	BP/ARC Facility Address: 1716 Webster Street	Consultant/Contractor: Stratus Environmental Inc.
Lab Address: 7440 Lincoln Way, Garden Grove, CA 92841	City, State, ZIP Code: Alameda, CA	Consultant/Contractor Project No:
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda	Address: 3330 Cameron Park Drive, #550, Cameron Park, CA 95682
Lab Phone: 714-895-5494 Fax: 714-895-7501	California Global ID No.: T0600101651	Consultant/Contractor PM: Jay Johnson
Lab Shipping Acct:	Enfos Proposal No: 000G8-0003	Phone: 530-676-6000 Fax: 530-676-6005
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: <u>mmorgan@stratusinc.net</u>
Other Info:	Stage: Operate Activity: Monitor	Invoice To: BP/ARC <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP/ARC EBM: Paul Supple				Matrix			No. Containers / Preservative						Requested Analyses						Report Type & QC Level		
EBM Phone: (925) 275-3801				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO by 8015M	BTEX/S FO* by 8260B	Ethanol by 8260B	EDB by 8260B	1,2-DCA by 8260B			Standard <input checked="" type="checkbox"/>	Full Data Package <input type="checkbox"/>
EBM Email: <u>paul.supple@bp.com</u>																				<small>Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.</small> <b>Comments</b> *Oxy = MTBE, TAME, ETBE, DIPE, TBA	
Lab No.	Sample Description	Date	Time																		
1	MW-1	8/27/09	10:47	X			6				X		X	X	X	X					
2	RW-1	8/27/09	11:16	X			6				X		X	X	X	X					
3	TB-11104-08272009	8/27/09	6:00	X			2				X										ON HOLD

Sampler's Name: <u>ROBERTO HEIMLICH</u> / Doulos Env.	Relinquished By / Affiliation: <u>DOULOS</u>	Date: <u>8/27/09</u>	Time: <u>13:30</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>8/28/09</u>	Time: <u>10:00</u>
Sampler's Company: Stratus Environmental Inc.						
Shipment Method: _____	Ship Date: _____					
Shipment Tracking No: <u>106462253</u>						

Special Instructions: \_\_\_\_\_ to Bpdata@secor.com; bpbayarea@secor.com

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

Page 13 of 14

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: Stratus

DATE: 8/28/09

**TEMPERATURE:** (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 3.4 °C - 0.2 °C (CF) = 3.2 °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  Metals Only  PCBs Only

Initial: JF

**CUSTODY SEALS INTACT:**

Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A

Initial: JF

Sample  \_\_\_\_\_  No (Not Intact)  Not Present

Initial: JSI

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> COC not relinquished. <input type="checkbox"/> No date relinquished. <input type="checkbox"/> No time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve  EnCores®  TerraCores®  \_\_\_\_\_

Water:  VOA  VOA<sub>h</sub>  VOA<sub>na2</sub>  125AGB  125AGB<sub>h</sub>  125AGB<sub>p</sub>  1AGB  1AGB<sub>na2</sub>  1AGB<sub>s</sub>  
 500AGB  500AGJ  500AGJ<sub>s</sub>  250AGB  250CGB  250CGB<sub>s</sub>  1PB  500PB  500PB<sub>na</sub>  
 250PB  250PB<sub>n</sub>  125PB  125PB<sub>z<sub>na</sub></sub>  100PJ  100PJ<sub>na2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Air:  Tedlar®  Summa®  \_\_\_\_\_ Other:  \_\_\_\_\_ Checked/Labeled by: JSI

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

Preservative: h: HCL n: HNO3 na2:Na2S2O3 Na: NaOH p: H3PO4 s: H2SO4 z<sub>na</sub>: ZnAc2+NaOH f: Field-filtered Scanned by: JSI

# ATTACHMENT

## FIELD PROCEDURES FOR GROUNDWATER SAMPLING

---

The sampling procedures for groundwater monitoring events are contained in this appendix.

### **Groundwater and Liquid-Phase Petroleum Hydrocarbon Depth Assessment**

Prior to measuring the depth to liquid in the well, the well caps are removed and the liquid level allowed to stabilize. A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present, and a water level indicator is used to measure the groundwater depth in monitoring wells that do not contain LPH. Depth to groundwater or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typically a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

### **Subjective Analysis of Groundwater**

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

### **Monitoring Well Sampling**

In many cases, determining whether to purge or not to purge wells prior to sample collection is made in the field and is often based on depth to water relative to the screen interval of the well. Site-specific field data sheets present details associated with the purge method and equipment used.

Monitoring wells, when purged, use a pump or bailer until pH, temperature, and conductivity of the purge water has stabilized and a minimum of three well volumes of water has been removed. Field measuring equipment is calibrated and maintained according to the manufacturer's instructions. If three well volumes cannot be removed in one half hour's time the well is allowed to recharge to 80% of original level. After recharging, a groundwater sample is then collected from each of the wells using disposable bailers.

A Teflon bailer, electric submersible or bladder pump will be the only equipment used for well sampling. When samples for volatile organic analysis are being collected, the pump flow will be regulated at approximately 100 milliliters per minute to minimize pump effluent turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These



bottles will be filled completely to prevent air accumulation in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it is inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will be filled, filtered as required, and capped. Glass and plastic bottles used by Stratus to collect groundwater samples are supplied by the laboratory.

### **Groundwater Sample Labeling and Preservation**

Samples are collected in appropriate containers supplied by the laboratory. All required chemical preservation is added to the bottles prior to delivery to Stratus. Sample label information includes a unique sample identification number, job identification number, date, and time. After labeling, all groundwater samples are placed in a Ziploc<sup>®</sup> type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at Stratus' office the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form. Trip and temperature blanks supplied by the laboratory accompany the groundwater sample containers and groundwater samples.

### **Sample Identification and Chain-of-Custody Procedures**

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, is recorded in the field records. The samples are analyzed by a California-certified laboratory.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis. These conditions are noted on a Laboratory Sample Receipt Checklist that becomes part of the laboratory report upon request.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory. The sample description, date received, client's name, and other relevant information is also recorded.

### **Equipment Cleaning**

All reusable sampling equipments are cleaned using phosphate-free detergents and rinsed with de-ionized water.

**APPENDIX B**

BLAINE TECH SERVICES, INC. GROUND-WATER GAUGING RESULTS (CHEVRON  
SERVICE STATION #9-0290)





**APPENDIX C**

**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!

<b><u>Submittal Type:</u></b>	<b>GEO_WELL</b>
<b><u>Submittal Title:</u></b>	<b>3Q09 GEO_WELL 11104</b>
<b><u>Facility Global ID:</u></b>	<b>T0600101651</b>
<b><u>Facility Name:</u></b>	<b>BP #11104</b>
<b><u>File Name:</u></b>	<b>GEO_WELL.zip</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>9/16/2009 11:51:05 AM</b>
<b><u>Confirmation Number:</u></b>	<b>6252184212</b>

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

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<b><u>Submittal Title:</u></b>	3Q09 GW Monitoring
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<b><u>Facility Name:</u></b>	BP #11104
<b><u>File Name:</u></b>	09082300.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
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