

Atlantic Richfield Company

(a BP affiliated company)

P.O. Box 1257

San Ramon, CA 94583 Phone: (925) 275-3801 Fax: (925) 275-3815

7 July 2009

9:38 am, Jul 08, 2009

Alameda County Environmental Health

RECEIVED



Re: Second Quarter 2009 Ground-Water Monitoring Report

Atlantic Richfield Company Station #374

6407 Telegraph Avenue Oakland, California ACEH Case # RO0000078

"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:

Paul Supple

Environmental Business Manger



Second Quarter 2009 Ground-Water Monitoring Report

Atlantic Richfield Company Station #374 6407 Telegraph Avenue Oakland, California

Prepared for

Mr. Paul Supple 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

7 July 2009

Project No. 06-88-602



7 July 2009

Project No. 06-88-602

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

Attn.: Mr. Paul Supple

Re:

Second Quarter 2009 Ground-Water Monitoring Report, Atlantic Richfield Company (a BP affiliated company) Station #374, 6407 Telegraph Avenue, Oakland, Alameda

County, California. ACEH Case #RO0000078

Dear Mr. Supple:

Attached is the *Second Quarter 2009 Ground-Water Monitoring Report* for Atlantic Richfield Company Station #374 located at 6407 Telegraph Avenue, Oakland, California (Site). This report presents results of ground-water monitoring conducted at the Site during the Second Quarter of 2009.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.

Senior Engineer

Robert H. Miller, P.G., C.HG.

flubred 7/ Mile

Principal Hydrogeologist

Enclosures

Mr. Paresh Khatri, Alameda County Environmental Health (Submitted via ACEH ftp site)

Electronic copy uploaded to GeoTracker

NEVADA

ARIZONA

CALIFORNIA

TEXAS

ROBERT H

MILLER

No. 561

STATION #374 QUARTERLY GROUND-WATER MONITORING REPORT

Facility: #374 Address: 6407 Telegraph Avenue, Oakland, California

Environmental Business Manager: Mr. Paul Supple

Consulting Co./Contact Persons: Broadbent & Associates, Inc.(BAI)/Rob Miller & Tom Venus

(530) 566-1400

Consultant Project No.: 06-88-602

Primary Agency/Regulatory ID No.: Alameda County Environmental Health (ACEH)

ACEH Case #RO0000078

Facility Permits/Permitting Agency: NA

WORK PERFORMED THIS QUARTER (Second Quarter 2009):

1. Prepared and submitted *First Quarter 2009 Ground-Water Monitoring Report* (BAI, 4/30/2009).

- 2. Conducted ground-water monitoring/sampling for Second Quarter 2009. Work performed on 14 May 2009 by Stratus.
- 3. Prepared and submitted *Work Plan for On-Site Soil Investigation* on 19 May 2009, as requested by ACEH in their letter dated 20 March 2009.

WORK PROPOSED FOR NEXT QUARTER (Third Quarter 2009):

- 1. Prepared and submitted this *Second Quarter 2009 Ground-Water Monitoring Report* (contained herein).
- 2. Negotiate semi-annual ground-water monitoring consistent with the State Water Resources Control Board's Resolution No.2009-0042, adopted 19 May 2009.
- 3. Conduct quarterly ground-water monitoring/sampling for Third Quarter 2009, if appropriate.
- 4. Implement work plan for on-site soil investigation following ACEH approval.

QUARTERLY RESULTS SUMMARY:

Current phase of project: Ground-water monitoring/sampling

Frequency of ground-water Quarterly: MW-1, MW-2, MW-3, MW-4, MW-5, MW-6

monitoring:

Frequency of ground-water sampling: Quarterly: MW-1

Semi-Annually (1Q and 3Q): MW-2 and MW-4

Annually (3Q): MW-3, MW-5, and MW-6

Is free product (FP) present on-site: No

Current remediation techniques: N

Depth to ground water (below TOC):

General ground-water flow direction:

Approximate hydraulic gradient:

4.60 ft (MW-6) to 9.63 ft (MW-5)

Southwest

0.03 ft/ft

DISCUSSION:

Second quarter 2009 ground-water monitoring and sampling was conducted at Station #374 on 14 May 2009 by Stratus. Water levels were gauged in each of the six wells at the Site. No irregularities were noted in the field during this quarter's water level gauging. Depth-to-water measurements ranged from 4.60 ft at MW-6 to 9.63 ft at MW-5. Resulting ground-water surface elevations ranged from 157.90 ft above datum in well MW-1 to 141.70 ft at well MW-5. Water level elevations were between historic minimum and maximum ranges for each well, as summarized in Table 1. Water level elevations yielded a potentiometric ground-water flow direction and gradient to the southwest at approximately

Page 2

0.03 ft/ft, generally consistent with historical data reported in Table 3. 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. Potentiometric ground-water elevation contours are presented in Drawing 1.

Consistent with the current ground-water sampling schedule, water samples were collected from well MW-1 at the Site. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to Calscience Environmental Laboratories, Inc. (Garden Grove, California), for analysis of Gasoline Range Organics (GRO, C6-12) by EPA Method 8015B; for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) by EPA Method 8260B; and Tert-Amyl Methyl Ether (TAME), Tert-Butyl Alcohol (TBA), Di-Isopropyl ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Ethanol, Ethyl Tert-Butyl Ether (ETBE), and Methyl Tert-Butyl Ether (MTBE) by EPA Method 8260B. No significant irregularities were noted during laboratory 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.

GRO was detected above the laboratory reporting limits in well MW-1 at a concentration of 53 micrograms per liter (μ g/L). TAME was detected above the laboratory reporting limits in well MW-1 at a concentration of 1.3 μ g/L. MTBE was detected above the laboratory reporting limits in well MW-1 at a concentration of 200 μ g/L. The remaining fuel additives and oxygenates were not detected above their laboratory reporting limits in well MW-1. Detected analyte concentrations were within the historic minimum and maximum ranges recorded for well MW-1. Historic laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 1. A copy of the laboratory analytical report, including chain-of-custody documentation is provided in Appendix A. Ground-water monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation pages are provided in Appendix B.

CLOSURE:

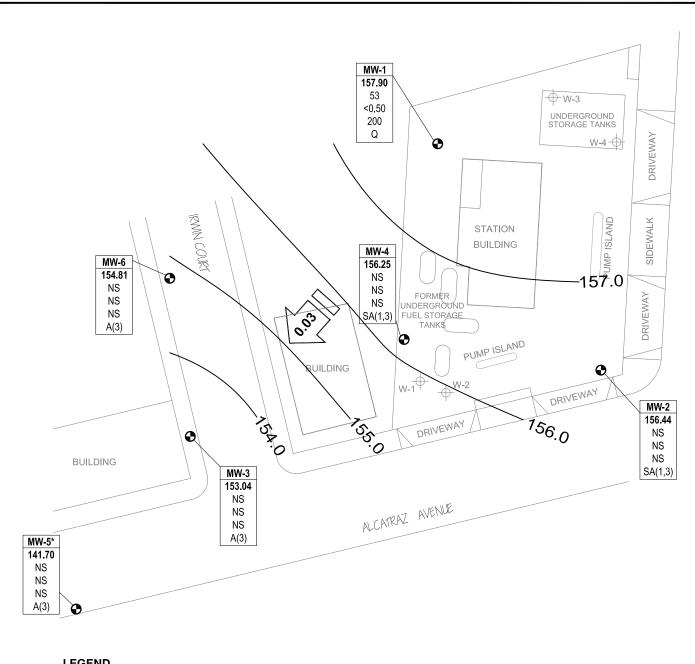
The findings presented in this report are based upon: observations of Stratus field personnel (see Appendix A), the points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, California). Our services were performed in accordance with 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. 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:

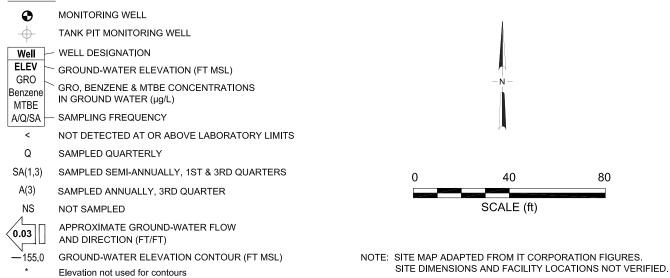
- Drawing 1. Ground-Water Elevation Contours and Analytical Summary Map, 7 May 2009, Station #374, 6407 Telegraph Avenue, Oakland, California
- Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #374, 6407 Telegraph Ave., Oakland, California
- Table 2. Summary of Fuel Additives Analytical Data, Station #374, 6407 Telegraph Ave., Oakland, California

Page 3

- Table 3. Historical Ground-Water Flow Direction and Gradient, Station #374, 6407 Telegraph Ave., Oakland, California
- Appendix A. Stratus Ground-Water Sampling Data Package (Includes Field Data Sheets, Laboratory Analytical Report with Chain-of-Custody Documentation, and Field Procedures)
- Appendix B. GeoTracker Upload Confirmations



LEGEND



BROADBENT & ASSOCIATES, INC.

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL 1324 Mangrove Ave. Suite 212, Chico, California Project No.: 06-88-602 Date: 6/24/09

Station #374 6407 Telegraph Ave. Oakland, California

Ground-Water Elevation Contours and Analytical Summary Map 14 May 2009

Drawing

TELEGRAPH AVE,

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and			TOC	Screen	Screen	DTW	Elevation	GRO/			Ethyl-	Total		DO	
Sample Date	P/NP	Comments	(feet)	(ft bgs)	(ft bgs)	(feet bgs)	(feet)	TPHg	Benzene	Toluene	Benzene	Xylenes	MTBE	(mg/L)	pН
MW-1															
6/20/2000			158.91	7.00	27.0	6.86	152.05								
9/28/2000			158.91	7.00	27.0	7.50	151.41								
12/17/2000			158.91	7.00	27.0	7.49	151.42								
3/23/2001			158.91	7.00	27.0	5.90	153.01	< 50	< 0.5	< 0.5	< 0.5	< 0.5	2,710		
6/21/2001			158.91	7.00	27.0	7.45	151.46								
9/23/2001			158.91	7.00	27.0	8.46	150.45								
12/31/2001			158.91	7.00	27.0	5.50	153.41								
3/21/2002			158.91	7.00	27.0	4.71	154.20	<5,000	< 50	< 50	< 50	< 50	2,000		
4/17/2002			158.91	7.00	27.0	5.54	153.37								
8/12/2002			158.91	7.00	27.0	7.77	151.14								
12/6/2002			158.91	7.00	27.0	7.65	151.26								
1/29/2003		b	158.91	7.00	27.0	5.88	153.03								
5/23/2003			158.91	7.00	27.0	5.62	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1
9/4/2003			158.91	7.00	27.0	7.85	151.06								
11/20/2003	P		158.91	7.00	27.0	8.17	150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7
02/02/2004	P	f	164.57	7.00	27.0	6.71	157.86							1.0	
05/14/2004	P		164.57	7.00	27.0	7.08	157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6
09/02/2004	P		164.57	7.00	27.0	8.12	156.45	580	< 5.0	< 5.0	< 5.0	< 5.0	660	3.8	6.7
11/04/2004	P		164.57	7.00	27.0	7.38	157.19	1,700	<10	<10	<10	<10	580	6.0	6.5
02/08/2005	P		164.57	7.00	27.0	6.60	157.97	<1,000	<10	<10	<10	<10	610	0.71	6.5
05/09/2005	P	e	164.57	7.00	27.0	6.84	157.73	540	<5.0	< 5.0	<5.0	5.5	620	3.12	6.6
08/11/2005	P		164.57	7.00	27.0	7.36	157.21	540	<2.5	<2.5	<2.5	4.0	390	0.8	6.6
11/18/2005	P	e	164.57	7.00	27.0	8.02	156.55	350	<2.5	<2.5	<2.5	<2.5	340	2.6	6.7
02/16/2006	P	e	164.57	7.00	27.0	6.44	158.13	350	<2.5	<2.5	<2.5	<2.5	340	1.6	6.7
5/30/2006	P		164.57	7.00	27.0	6.87	157.70	270	<2.5	<2.5	<2.5	<2.5	420	4.73	6.4
8/24/2006	P		164.57	7.00	27.0	7.75	156.82	95	< 5.0	< 5.0	< 5.0	< 5.0	180	0.65	6.9
11/1/2006	P		164.57	7.00	27.0	8.28	156.29	120	<5.0	< 5.0	<5.0	< 5.0	220	1.65	7.07
2/7/2007	NP	e	164.57	7.00	27.0	7.40	157.17	120	<5.0	< 5.0	< 5.0	< 5.0	190	1.88	7.45
5/8/2007	P		164.57	7.00	27.0	6.50	158.07	< 500	<5.0	< 5.0	<5.0	<5.0	420	1.21	6.94
8/8/2007	NP	e	164.57	7.00	27.0	8.17	156.40	82	< 0.50	< 0.50	< 0.50	< 0.50	110	1.16	7.00
11/14/2007	NP		164.57	7.00	27.0	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and			TOC	Screen	Screen	DTW	Elevation	GRO/			Ethyl-	Total		DO	
Sample Date	P/NP	Comments	(feet)	(ft bgs)	(ft bgs)	(feet bgs)	(feet)	TPHg	Benzene	Toluene	Benzene	Xylenes	MTBE	(mg/L)	pН
MW-1 Cont.															
2/22/2008	P		164.57	7.00	27.0	6.00	158.57	<50	< 0.50	< 0.50	< 0.50	< 0.50	250	2.57	6.65
5/24/2008	NP		164.57	7.00	27.0	7.58	156.99	< 50	< 5.0	< 5.0	< 5.0	< 5.0	380	2.28	6.81
8/21/2008	NP		164.57	7.00	27.0	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98
11/19/2008	NP		164.57	7.00	27.0	8.88	155.69	< 50	< 0.50	< 0.50	< 0.50	< 0.50	30	2.12	7.27
2/23/2009	P		164.57	7.00	27.0	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03
5/14/2009	P		164.57	7.00	27.0	6.67	157.90	53	< 0.50	< 0.50	<0.50	<0.50	200	1.75	6.69
MW-2															
6/20/2000			157.92	7.00	27.0	7.67	150.25								
9/28/2000			157.92	7.00	27.0	8.51	149.41								
12/17/2000			157.92	7.00	27.0	8.14	149.78								
3/23/2001			157.92	7.00	27.0	7.21	150.71	< 50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
6/21/2001			157.92	7.00	27.0	7.99	149.93								
9/23/2001			157.92	7.00	27.0	8.52	149.40								
12/31/2001			157.92	7.00	27.0	6.01	151.91								
3/21/2002			157.92	7.00	27.0	5.95	151.97	< 50	< 0.5	< 0.5	< 0.5	< 0.5	45		
4/17/2002			157.92	7.00	27.0	6.45	151.47								
8/12/2002			157.92	7.00	27.0	8.08	149.84								
12/6/2002			157.92	7.00	27.0	8.29	149.63								
1/29/2003		b	157.92	7.00	27.0	7.22	150.70								
5/23/2003			157.92	7.00	27.0	6.85	151.07	< 50	< 0.50	< 0.50	< 0.50	< 0.50	55	1.4	7.2
9/4/2003			157.92	7.00	27.0	7.94	149.98								
11/20/2003			157.92	7.00	27.0	8.05	149.87								
02/02/2004	P	f	163.46	7.00	27.0	7.00	156.46	74	< 0.50	< 0.50	< 0.50	< 0.50	37	1.1	8.9
05/14/2004			163.46	7.00	27.0	7.97	155.49								
09/02/2004	P		163.46	7.00	27.0	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9
11/04/2004			163.46	7.00	27.0	7.54	155.92								
02/08/2005	P		163.46	7.00	27.0	6.72	156.74	< 50	< 0.50	< 0.50	< 0.50	< 0.50	30	0.86	6.7
05/09/2005			163.46	7.00	27.0	7.16	156.30								
08/11/2005	P		163.46	7.00	27.0	7.85	155.61	< 50	< 0.50	< 0.50	< 0.50	< 0.50	35	1.0	6.6
11/18/2005			163.46	7.00	27.0	8.23	155.23								

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and			TOC	Screen	Screen	DTW	Elevation	GRO/			Ethyl-	Total		DO	
Sample Date	P/NP	Comments	(feet)	(ft bgs)	(ft bgs)	(feet bgs)	(feet)	TPHg	Benzene	Toluene	Benzene	Xylenes	MTBE	(mg/L)	pН
MW-2 Cont.															
02/16/2006	P		163.46	7.00	27.0	6.82	156.64	<50	< 0.50	< 0.50	< 0.50	< 0.50	39	1.3	7.0
5/30/2006			163.46	7.00	27.0	7.23	156.23								
8/24/2006	P		163.46	7.00	27.0	8.00	155.46	60	< 0.50	< 0.50	< 0.50	< 0.50	25	0.90	6.8
11/1/2006			163.46	7.00	27.0	8.38	155.08								
2/7/2007	NP		163.46	7.00	27.0	7.88	155.58	< 50	0.50	< 0.50	< 0.50	< 0.50	7.2	0.94	7.39
5/8/2007			163.46	7.00	27.0	7.28	156.18								
8/8/2007	NP		163.46	7.00	27.0	8.38	155.08	88	3.2	< 0.50	< 0.50	< 0.50	7.2	0.94	7.75
11/14/2007			163.46	7.00	27.0	8.10	155.36								
2/22/2008	P		163.46	7.00	27.0	6.75	156.71	< 50	< 0.50	< 0.50	< 0.50	< 0.50	24	2.18	7.02
5/24/2008			163.46	7.00	27.0	7.98	155.48								
8/21/2008	NP		163.46	7.00	27.0	8.58	154.88	< 50	2.6	< 0.50	< 0.50	< 0.50	4.9	2.20	7.11
11/19/2008			163.46	7.00	27.0	8.66	154.80								
2/23/2009	P		163.46	7.00	27.0	6.67	156.79	74	1.0	< 0.50	< 0.50	< 0.50	24	2.25	6.16
5/14/2009			163.46	7.00	27.0	7.02	156.44								
MW-3															
6/20/2000			153.64	7.00	27.0	6.42	147.22	<50	< 0.5	< 0.5	< 0.5	<1.0	<10		
9/28/2000			153.64	7.00	27.0	7.31	146.33								
12/17/2000			153.64	7.00	27.0	6.45	147.19	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
3/23/2001			153.64	7.00	27.0	6.01	147.63								
6/21/2001			153.64	7.00	27.0	6.80	146.84	110	5.5	< 0.5	5.4	4.1	2.5		
9/23/2001			153.64	7.00	27.0	7.32	146.32								
12/31/2001			153.64	7.00	27.0	4.48	149.16	< 50	< 0.5	< 0.5	< 0.5	<0.5	4.9		
3/21/2002			153.64	7.00	27.0	4.36	149.28								
4/17/2002			153.64	7.00	27.0	5.31	148.33	<50	< 0.5	< 0.5	< 0.5	< 0.5	8.7		
8/12/2002			153.64	7.00	27.0	7.00	146.64								
12/6/2002			153.64	7.00	27.0	7.32	146.32	<50	< 0.5	< 0.5	< 0.5	<0.5	6.2	1.4	6.7
1/29/2003		b	153.64	7.00	27.0	6.07	147.57								
5/23/2003			153.64	7.00	27.0	6.45	147.19	<50	< 0.50	< 0.50	< 0.50	< 0.50	1.6	0.9	7.7
9/4/2003		С	153.64	7.00	27.0	6.93	146.71								
11/20/2003		с	153.64	7.00	27.0	7.04	146.60								

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and			TOC	Screen	Screen	DTW	Elevation	GRO/			Ethyl-	Total		DO	
Sample Date	P/NP	Comments	(feet)	(ft bgs)	(ft bgs)	(feet bgs)	(feet)	TPHg	Benzene	Toluene	Benzene	Xylenes	MTBE	(mg/L)	pН
MW-3 Cont.															
02/02/2004		f	159.21	7.00	27.0	5.92	153.29								
05/14/2004			159.21	7.00	27.0	7.52	151.69								
09/02/2004	P		159.21	7.00	27.0	7.19	152.02	<50	< 0.50	< 0.50	< 0.50	< 0.50	6.5	9.3	8.9
11/04/2004			159.21	7.00	27.0	6.40	152.81								
02/08/2005			159.21	7.00	27.0	6.01	153.20								
05/09/2005			159.21	7.00	27.0	6.74	152.47								
08/11/2005	P		159.21	7.00	27.0	6.77	152.44	<50	< 0.50	< 0.50	< 0.50	< 0.50	11	1.9	6.5
11/18/2005			159.21	7.00	27.0	7.83	151.38								
02/16/2006			159.21	7.00	27.0	7.26	151.95								
5/30/2006			159.21	7.00	27.0	5.82	153.39								
8/24/2006	P		159.21	7.00	27.0	7.00	152.21	<50	< 0.50	< 0.50	< 0.50	< 0.50	7.6	1.15	6.4
11/1/2006			159.21	7.00	27.0	7.50	151.71								
2/7/2007			159.21	7.00	27.0	6.90	152.31								
5/8/2007			159.21	7.00	27.0	5.95	153.26								
8/8/2007	NP		159.21	7.00	27.0	7.47	151.74	<50	< 0.50	< 0.50	< 0.50	< 0.50	1.2	1.21	6.93
11/14/2007			159.21	7.00	27.0	7.05	152.16								
2/22/2008			159.21	7.00	27.0	5.50	153.71								
5/24/2008			159.21	7.00	27.0	7.03	152.18								
8/21/2008	NP		159.21	7.00	27.0	7.80	151.41	<50	< 0.50	< 0.50	< 0.50	< 0.50	3.1	2.11	6.84
11/19/2008			159.21	7.00	27.0	7.69	151.52								
2/23/2009			159.21	7.00	27.0	7.28	151.93								
5/14/2009			159.21	7.00	27.0	6.17	153.04								
MW-4															
6/20/2000		С	156.53	7.00	27.0	7.50	149.03	20,000	5,100	440	1,000	1,700	<250		
9/28/2000			156.53	7.00	27.0	8.20	148.33								
12/17/2000			156.53	7.00	27.0	8.11	148.42	4,320	1,240	<20	27.2	249	<100		
3/23/2001			156.53	7.00	27.0	6.69	149.84								
6/21/2001			156.53	7.00	27.0	8.01	148.52	2,800	470	16	19	160	130		
9/23/2001			156.53	7.00	27.0	8.91	147.62								
12/31/2001			156.53	7.00	27.0	4.42	152.11	4,600	1,500	100	160	210	160		

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and			TOC	Screen	Screen	DTW	Elevation	GRO/			Ethyl-	Total		DO	
Sample Date	P/NP	Comments	(feet)	(ft bgs)	(ft bgs)	(feet bgs)	(feet)	TPHg	Benzene	Toluene	Benzene	Xylenes	MTBE	(mg/L)	pН
MW-4 Cont.															
3/21/2002			156.53	7.00	27.0	4.98	151.55								
4/17/2002			156.53	7.00	27.0	6.23	150.30	7,100	2,200	110	290	450	<250		
8/12/2002			156.53	7.00	27.0	8.24	148.29								
12/6/2002		a	156.53	7.00	27.0	8.42	148.11	1,500	410	6.8	20	29	43	1.1	6.7
1/29/2003		b	156.53	7.00	27.0	7.20	149.33								
5/23/2003			156.53	7.00	27.0	7.18	149.35	<5,000	1,300	89	210	260	< 50	1.4	6.9
9/4/2003		c	156.53	7.00	27.0	8.15	148.38								
11/20/2003		С	156.53	7.00	27.0	8.73	147.80								
02/02/2004	P	c, f, g	163.25	7.00	27.0	6.25	157.00	980	280	21	29	38	29	1.4	10.6
05/14/2004		g	163.25	7.00	27.0	8.38	154.87								
09/02/2004	P	g	163.25	7.00	27.0	8.36	154.89	260	11	<1.0	5.5	14	28	2.4	7.4
11/04/2004		c, g	163.25	7.00	27.0	7.71	155.54								
02/08/2005	P	g	163.25	7.00	27.0	6.27	156.98	7,500	1,700	320	480	920	45	0.65	6.5
05/09/2005		g	163.25	7.00	27.0	5.90	157.35								
08/11/2005	P	g	163.25	7.00	27.0	7.96	155.29	3,100	1,100	41	160	110	32	0.6	6.5
11/18/2005		g	163.25	7.00	27.0	8.57	154.68								
02/16/2006	P	g	163.25	7.00	27.0	6.28	156.97	9,400	1,800	130	600	420	35	0.5	6.8
5/30/2006		g	163.25	7.00	27.0	7.02	156.23								
8/24/2006	P	g	162.47	7.00	27.0	8.26	154.21	3,600	1,400	21	110	70	39	1.00	6.8
11/1/2006			163.25	7.00	27.0	8.67	154.58								
2/7/2007	NP		163.25	7.00	27.0	8.02	155.23	3,100	570	17	170	110	67	0.95	7.07
5/8/2007			163.25	7.00	27.0	7.03	156.22								
8/8/2007	NP		163.25	7.00	27.0	8.60	154.65	2,900	630	22	67	57	72	0.93	6.79
11/14/2007			163.25	7.00	27.0	8.53	154.72								
2/22/2008	P		163.25	7.00	27.0	6.25	157.00	3,900	880	39	180	92	70	2.31	6.87
5/24/2008		d	163.25	7.00	27.0										
8/21/2008	NP		163.25	7.00	27.0	8.96	154.29	3,700	1,100	26	85	130	53	2.26	6.80
11/19/2008			163.25	7.00	27.0	9.20	154.05								
2/23/2009	P		163.25	7.00	27.0	6.35	156.90	3,000	220	9.1	23	19	39	2.21	6.51
5/14/2009			163.25	7.00	27.0	7.00	156.25								

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

							Ave., Oakia			G (<i>(</i> (1)			
Well and			тос	Top of	Bottom of	DTW	Water Level	GRO/		Concentra	tions in (µ;	g/L) Total		DO	
Sample Date	P/NP	Comments	(feet)	Screen (ft bgs)	Screen (ft bgs)	(feet bgs)	Elevation (feet)	TPHg	Benzene	Toluene	Ethyl- Benzene	Xylenes	MTBE	(mg/L)	pН
	17111	Comments	(reet)	(It bgs)	(It bgs)	(rece bgs)	(Icct)	11119	Benzene	Torucire	Benzene	Hylenes	WILDE	(mg/L)	PII
MW-5															
6/20/2000			151.33	10.00	23.0	7.84	143.49	<50	< 0.5	< 0.5	< 0.5	<1.0	<10		
9/28/2000			151.33	10.00	23.0	8.37	142.96	< 50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
12/17/2000			151.33	10.00	23.0	8.36	142.97	<50	< 0.5	< 0.5	< 0.5	<0.5	<2.5		
3/23/2001			151.33	10.00	23.0	7.55	143.78	< 50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
6/21/2001			151.33	10.00	23.0	8.20	143.13	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
9/23/2001			151.33	10.00	23.0	8.68	142.65	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
12/31/2001			151.33	10.00	23.0	7.57	143.76	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
3/21/2002			151.33	10.00	23.0	6.12	145.21	< 50	< 0.5	< 0.5	< 0.5	< 0.5	3.2		
4/17/2002			151.33	10.00	23.0	6.61	144.72	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
8/12/2002			151.33	10.00	23.0	8.14	143.19	< 50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5	4.1	7.6
12/6/2002			151.33	10.00	23.0	8.65	142.68	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5	1.1	6.8
1/29/2003		b	151.33	10.00	23.0	7.22	144.11	<50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1	6.6
5/23/2003			151.33	10.00	23.0	7.31	144.02	<50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.1	6.6
9/4/2003			151.33	10.00	23.0	9.50	141.83	<50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.2	6.7
11/20/2003			151.33	10.00	23.0	8.31	143.02								
02/02/2004		c, f, h	151.33	10.00	23.0	6.92	144.41								
05/14/2004		h	151.33	10.00	23.0	8.56	142.77								
09/02/2004	P	h	151.33	10.00	23.0	8.79	142.54	<50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.5	6.8
11/04/2004		c, h	151.33	10.00	23.0	8.33	143.00								
02/08/2005		h	151.33	10.00	23.0	7.28	144.05								
05/09/2005		h	151.33	10.00	23.0	8.19	143.14								
08/11/2005	P	h	151.33	10.00	23.0	8.39	142.94	<50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.2	6.6
11/18/2005		h	151.33	10.00	23.0	11.25	140.08								
02/16/2006		h	151.33	10.00	23.0	9.22	142.11								
5/30/2006		h	151.33	10.00	23.0	7.52	143.81								
8/24/2006	P	h		10.00	23.0	7.95		<50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.60	6.6
11/1/2006			151.33	10.00	23.0	8.32	143.01								
2/7/2007			151.33	10.00	23.0	8.25	143.08								
5/8/2007			151.33	10.00	23.0	7.60	143.73								
8/8/2007	P		151.33	10.00	23.0	8.12	143.21	<50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	3.26	7.31
11/14/2007			151.33	10.00	23.0	9.10	142.23								

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and			TOC	Screen	Screen	DTW	Elevation	GRO/			Ethyl-	Total		DO	
Sample Date	P/NP	Comments	(feet)	(ft bgs)	(ft bgs)	(feet bgs)	(feet)	TPHg	Benzene	Toluene	Benzene	Xylenes	MTBE	(mg/L)	pН
MW-5 Cont.															
2/22/2008			151.33	10.00	23.0	7.48	143.85								
5/24/2008			151.33	10.00	23.0	8.12	143.21								
8/21/2008	P		151.33	10.00	23.0	8.65	142.68	< 50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.14	6.54
11/19/2008			151.33	10.00	23.0	11.86	139.47								
2/23/2009			151.33	10.00	23.0	10.20	141.13								
5/14/2009			151.33	10.00	23.0	9.63	141.70								
MW-6															
6/20/2000			153.84	5.00	15.0	4.79	149.05								
9/28/2000			153.84	5.00	15.0	5.39	148.45								
12/17/2000			153.84	5.00	15.0	4.71	149.13								
3/23/2001			153.84	5.00	15.0	4.69	149.15	< 50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5		
6/21/2001			153.84	5.00	15.0	5.22	148.62								
9/23/2001			153.84	5.00	15.0	5.40	148.44								
12/31/2001			153.84	5.00	15.0	3.95	149.89								
3/21/2002			153.84	5.00	15.0	2.94	150.90	< 50	< 0.5	< 0.5	< 0.5	< 0.5	5.2		
4/17/2002			153.84	5.00	15.0	5.11	148.73								
8/12/2002			153.84	5.00	15.0	5.23	148.61								
12/6/2002			153.84	5.00	15.0	5.29	148.55								
1/29/2003		b	153.84	5.00	15.0	4.79	149.05								
5/23/2003			153.84	5.00	15.0	4.31	149.53	<50	< 0.50	< 0.50	< 0.50	< 0.50	9.4	1	6.7
09/04/03		d	153.84	5.00	15.0										
11/20/2003			153.84	5.00	15.0	6.31	147.53								
02/02/2004			159.41	5.00	15.0	4.78	154.63								
05/14/2004			159.41	5.00	15.0	6.29	153.12								
09/02/2004		d	159.41	5.00	15.0	5.79	153.62								
11/04/2004		d	159.41	5.00	15.0										
02/08/2005			159.41	5.00	15.0	5.13	154.28								
05/09/2005			159.41	5.00	15.0	4.52	154.89								
08/11/2005	P		159.41	5.00	15.0	5.02	154.39	< 50	< 0.50	< 0.50	< 0.50	< 0.50	7.9	2.1	6.6
11/18/2005			159.41	5.00	15.0	6.31	153.10								

Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses
Station #374, 6407 Telegraph Ave., Oakland, CA

				Top of	Bottom of		Water Level			Concentra	tions in (µ	g/L)			
Well and Sample Date	P/NP	Comments	TOC (feet)	Screen (ft bgs)	Screen (ft bgs)	DTW (feet bgs)	Elevation (feet)	GRO/ TPHg	Benzene	Toluene	Ethyl- Benzene	Total Xylenes	МТВЕ	DO (mg/L)	pН
MW-6 Cont.															
02/16/2006			159.41	5.00	15.0	4.24	155.17								
5/30/2006			159.41	5.00	15.0	4.45	154.96								
8/24/2006	P		159.41	5.00	15.0	5.18	154.23	<50	< 0.50	< 0.50	< 0.50	< 0.50	12	3.4	6.8
11/1/2006			159.41	5.00	15.0	6.05	153.36								
2/7/2007			159.41	5.00	15.0	5.00	154.41								
5/8/2007			159.41	5.00	15.0	4.30	155.11								
8/8/2007	NP		159.41	5.00	15.0	5.51	153.90	<50	< 0.50	< 0.50	< 0.50	< 0.50	0.57	2.94	6.87
11/14/2007			159.41	5.00	15.0	5.38	154.03								
2/22/2008			159.41	5.00	15.0	4.70	154.71								
5/24/2008			159.41	5.00	15.0	5.25	154.16								
8/21/2008	NP		159.41	5.00	15.0	6.14	153.27	<50	< 0.50	< 0.50	< 0.50	< 0.50	1.9	1.99	7.13
11/19/2008			159.41	5.00	15.0	5.94	153.47								
2/23/2009			159.41	5.00	15.0	5.00	154.41								
5/14/2009			159.41	5.00	15.0	4.60	154.81								

SYMBOLS AND ABBREVIATIONS:

- -- = Not analyzed/applicable/measured/available
- < = Not detected at or above laboratory reporting limit

DO = Dissolved oxygen

DTW = Depth to water in ft bgs

ft bgs = Feet below ground surface

GRO = Gasoline range organics

GWE = Groundwater elevation measured in ft

mg/L = Milligrams per liter

MTBE = Methyl tert-butyl ether

NP = Well was not purged prior to sampling

P = Well was purged prior to sampling

TOC = Top of casing measured in ft

TPH-g = Total petroleum hydrocarbons as gasoline

 $\mu g/L = Micrograms per liter$

BTEX = Benzene, toluene, ethylbenzene and xylenes

FOOTNOTES:

- a = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g.
- b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates.
- c = Wells gauged with ORC sock in well.
- d = Well inaccessible
- e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range.
- f = Well resurveyed on 1/27/2004
- g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.
- h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable.

NOTES:

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

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

Values for DO and pH were obtained through field measurements.

The DTW's and TOC's for wells MW-5 and MW-6 were taken from Delta Environmental sampling sheets because the well logs were not available.

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 #374, 6407 Telegraph Ave., Oakland, CA

Well and				Concentrati	ons in (µg/L)				
Sample Date	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	Comments
MW-1									
5/23/2003	<20,000	<4,000	1,600	<100	<100	<100			
11/20/2003	<2,000	<400	1,500	<10	<10	<10			a
05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
11/04/2004	<2,000	<400	580	<10	<10	<10	<10	<10	
02/08/2005	<2,000	<400	610	<10	<10	<10	<10	<10	
05/09/2005	<1,000	<200	620	<5.0	<5.0	<5.0	<5.0	< 5.0	a
08/11/2005	< 500	250	390	<2.5	<2.5	2.6	<2.5	<2.5	a
11/18/2005	< 500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	a
02/16/2006	<1,500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	
5/30/2006	<1,500	<100	420	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/24/2006	<3,000	<200	180	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
11/1/2006	<3,000	<200	220	<5.0	<5.0	<5.0	<5.0	< 5.0	a
2/7/2007	<3,000	<200	190	< 5.0	<5.0	< 5.0	< 5.0	< 5.0	
5/8/2007	<3,000	<200	420	<5.0	<5.0	<5.0	<5.0	< 5.0	
8/8/2007	<300	<20	110	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
11/14/2007	<1,500	<100	210	<2.5	<2.5	<2.5	<2.5	<2.5	
2/22/2008	<300	<10	250	< 0.50	< 0.50	1.5	< 0.50	< 0.50	
5/24/2008	<3,000	<100	380	<5.0	<5.0	<5.0	<5.0	< 5.0	
8/21/2008	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
10/19/2008	<300	<10	30	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
2/23/2009	<1,500	< 50	240	<2.5	<2.5	<2.5	<2.5	<2.5	
5/14/2009	<300	<10	200	<0.50	<0.50	1.3	<0.50	< 0.50	
MW-2									
5/23/2003	<100	<20	55	< 0.50	< 0.50	0.53			
02/02/2004	<100	<20	37	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
02/08/2005	<100	<20	30	< 0.50	<0.50	< 0.50	< 0.50	< 0.50	
08/11/2005	<100	<20	35	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	a
02/16/2006	<300	<20	39	<0.50	<0.50	<0.50	< 0.50	< 0.50	
8/24/2006	<300	<20	25	<0.50	<0.50	<0.50	<0.50	< 0.50	

Table 2. Summary of Fuel Additives Analytical Data Station #374, 6407 Telegraph Ave., Oakland, CA

Well and				Concentrati	ons in (µg/L)				
Sample Date	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	Comments
MW-2 Cont.									
2/7/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	< 0.50	
8/8/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<300	<10	24	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
MW-3									
5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50			
09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	7.6	< 0.50	<0.50	<0.50	<0.50	< 0.50	
8/8/2007	<300	<20	1.2	<0.50	< 0.50	< 0.50	< 0.50	< 0.50	
8/21/2008	<300	<10	3.1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
MW-4									
5/23/2003	<10,000	<2,000	<50	<50	<50	<50			
02/02/2004	< 500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	
09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
02/08/2005	<5,000	<1,000	45	<25	<25	<25	<25	<25	
08/11/2005	<2,000	<400	32	<10	<10	<10	<10	<10	
02/16/2006	<6,000	<400	35	<10	<10	<10	<10	<10	
8/24/2006	<1,500	<100	39	<2.5	<2.5	<2.5	<2.5	<2.5	
2/7/2007	<6,000	<400	67	<10	<10	<10	<10	<10	
8/8/2007	<6,000	<400	72	<10	<10	<10	<10	<10	
2/22/2008	<6,000	<200	70	<10	<10	<10	<10	<10	
8/21/2008	<12,000	<400	53	<20	<20	<20	<20	<20	
2/23/2009	<3,000	<100	39	<5.0	<5.0	<5.0	<5.0	< 5.0	
MW-5									
1/29/2003	<40	<20	< 0.50	< 0.50	< 0.50	< 0.50			
5/23/2003	<100	<20	< 0.50	< 0.50	< 0.50	< 0.50			
9/4/2003	<100	<20	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
09/02/2004	<100	<20	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	

Table 2. Summary of Fuel Additives Analytical Data Station #374, 6407 Telegraph Ave., Oakland, CA

Well and				Concentration	ons in (µg/L)				
Sample Date	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	Comments
MW-5 Cont.									
08/11/2005	<100	<20	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
8/24/2006	<300	<20	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
8/8/2007	<300	<20	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
8/21/2008	<300	<10	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
MW-6									
5/23/2003	<100	<20	9.4	< 0.50	< 0.50	< 0.50			
08/11/2005	<100	<20	7.9	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	a
8/24/2006	<300	<20	12	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
8/8/2007	<300	<20	0.57	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
8/21/2008	<300	<10	1.9	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	

SYMBOLS AND ABBREVIATIONS:

- -- = Not analyzed/applicable/measured/available
- < = Not detected at or above the laboratory reporting limi

1,2-DCA = 1,2-Dichloroethane

DIPE = Di-isopropyl ether

EDB = 1,2-Dibromoethane

 $ETBE = Ethyl \ tert-butyl \ ether$

MTBE = Methyl tert-butyl ether

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

 $\mu g/L = Micrograms per Liter$

FOOTNOTES:

a = The continuing calibration verification for ethanol was outside of client contractual limits, however, it was within method acceptance limits. The data should still be useful for its intended purpose.

NOTES:

All volatile organic compounds analyzed using EPA Method 8260B.

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

Table 3. Historical Ground-Water Flow Direction and Gradient Station #374, 6407 Telegraph Ave., Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
1/31/1996	Southwest	0.04
4/10/1996	Southwest	0.04
7/16/1996	Southwest	0.03
10/14/1996	Southwest	0.03
3/27/1997	Southwest	0.04
5/27/1997	Southwest	0.03
8/12/1997	Southwest	0.04
11/17/1997	Southwest	0.03
3/16/1998	Southwest	0.03
5/12/1998	Southwest	0.04
7/27/1998	Southwest	0.04
10/15/1998	Southwest	0.02
2/18/1999	Southwest	0.05
5/24/1999	Southwest	0.03
8/27/1999	Southwest	0.03
10/26/1999	Southwest	0.03
2/3/2000	Southwest	0.047
6/20/2000	Southwest	0.035
9/28/2000	Southwest	0.034
12/17/2000	Southwest	0.032
3/23/2001	Southwest	0.034
6/21/2001	Southwest	0.032
9/23/2001	Southwest	0.029
12/31/2001	Southwest	0.043
3/21/2002	Southwest	0.038
4/17/2002	Southwest	0.031
8/12/2002	Southwest	0.032
12/6/2002	Southwest	0.020
1/29/2003	Southwest	0.027
5/23/2003	Southwest	0.039
9/4/2003	Southwest	0.033
11/20/2003	Southwest	0.029
2/2/2004	Southwest	0.043 (a)
5/14/2004	Southwest	0.037 (a)
9/2/2004	Southwest	0.027 (a)
11/4/2004	Southwest	0.034 (a)
2/8/2005	Southwest	0.061 (a)
5/9/2005	Southwest	0.08 (a)
8/11/2005	Southwest	0.06 (a)
11/18/2005	Southwest	0.07 (a)
2/16/2006	Southwest	0.09 (a)
5/30/2006	Southwest	0.06 (a)

Table 3. Historical Ground-Water Flow Direction and Gradient Station #374, 6407 Telegraph Ave., Oakland, CA

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
8/24/2006	Southwest	0.03
11/1/2006	Southwest	0.02
2/7/2007	Southwest	0.03
5/8/2007	Southwest	0.03
8/8/2007	Southwest	0.03
11/14/2007	Southwest	0.03
2/22/2008	Southwest	0.03
5/24/2008	Southwest	0.03
8/21/2008	Southwest	0.03
11/19/2008	Southwest	0.03
2/23/2009	Southwest	0.04
5/14/2009	Southwest	0.03

a = Gradients protentially suspect due to error in MW-4 and MW-5 TOC measuring point elevations discovered third quarter 2006.

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 ANALYTICAL REPORT WITH CHAIN-OF-CUSTODY DOCUMENTATION, AND FIELD PROCEDURES)



May 20, 2009

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

Re: Groundwater Sampling Data Package, ARCO Service Station No. 374, located at

6407 Telegraph Avenue, Oakland, California.

General Information

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

Phone Number: (530) 676-6000

On-Site Supplier Representative: Jerry Gonzales and Arturo Heimlich

Sampling Date: May 14, 2009

Unusual Field Conditions: None noted.

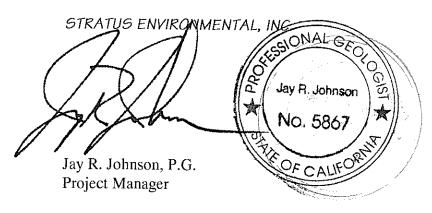
Scope of Work Performed: Quarterly monitoring and sampling.

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. 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.

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

Sincerely,



Attachments:

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

CC: Mr. Paul Supple, BP/ARCO

BP Alameda Portfolio

		5/140				Proje	ct Name	: <u>6407 ele</u>	graph Ave, Oal	<u>Kland</u>					
Field [*]	Technician:	Jeri	٤			Project	Number	374		**************************************					
	TOC = Top of W TOS = Depth to DTW = Depth to DTB = Depth to	Top of Screen	ነ 'Below TOO	C elow TOC	DIA = Well Casing Diameter ELEV = Groundwater Elevation DUP = Duplicate										
WELL OR LOCATION	TIME			MEASU	REMENT			PURGE &	SHEEN CONFIRMATION	COMMENTS					
		TOC	TOS	DTW	DTB	DIA	ELEV		(w/bailer)						
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w.r	/0:00			7.02	26.15	411									
'W_]	9.41			6.17	2665	411									
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W-6	945			460	1485	4/1									

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RECEIVED

BY CH | DATE 5/20/09

BP ALAMEDA PORTFOLIO											
	WA	ATER SAMPI	LE FIELD	DATA SF	HEET						
PROJECT #: 374 CLIENT NAME: LOCATION: Oakland - 6407	7 Telegraph Av	PURGED BY:SAMPLED BY:	<u>カ</u>		WELL I. SAMPLI QA SAN	D.: MC E I.D.: MC IPLES:	V-1				
SAMPLE TYPE: Ground	dwater x	START (2400hr) SAMPLE TIME Surface Wa	(2400hr) <u>/</u>	1035	END (24	Other					
CASING DIAMETER: Casing Volume: (gallons per foot)	2" (0.17)	3" (0.38)	4" (0.67)	5" (1.02)	6" (1.50)	8" (2.60)	Other ()				
DEPTH TO BOTTOM (feet) = DEPTH TO WATER (feet) = WATER COLUMN HEIGHT (feet) =	265 667 798			CALCUL	VOLUME (gal) = .ATED PURGE (gal) =	13- ai)= 39 40	. 9				
		FIELD I	MEASUREME	NTS							
DATE TIME (2400hr) 5/64/09 /026 / 027 / 027	VOLUME (gal) / 3-3 Z 6-7 Y 0-0	TEMP. (degrees C) / 8 - S / 8 - S	CONDUCT (umhos/ 186 82/ 583	cm)	pH (units) 6-65 6-69	COLOR (visual)	TURBIDITY (NTU)				
SAMPLE DEPTH TO WATER:	7.09	SAMPLI	E INFORMATI	ON	SAMPLE TURBI	DITY: <u>C/</u>	'ew				
80% RECHARGE: YES	NO	ANAL	LYSES: _	suo							
ODOR: 100	SAMPLE VES	SEL / PRESERVA	.TIVE; <u>6</u>	Vou	HCC						
PURGING EQU Bladder Pump Centrifugal Pump Submersible Pump Peristalic Pump Other:	JIPMENT Bailer (Teff Bailer (PVC Bailer (Stai	C)	Cer Sut	dder Pump ntrifugal Pum omersible Pur istalic Pump	Baile p Baile np Baile	MPLING EQUIPMENT Bailer (Teflon) Bailer (PVC or disposable) Bailer (Stainless Steel) Dedicated					
WELL INTEGRITY: GOOD REMARKS: DO- 1.75					LOCK#:	læstr					
SIGNATURE:				-			Pageof				

Æ:

WELLHEAD OBSERVATION FORM

Date: 5/14/6/ Technican: Jesty

Well L.D.	Box in Good Condition? N= Yes Mark = No	Lock Missing? N = Ves (emplaced): Blank = No.	Water in Wellbox? **Yes **Black ** No	Water Level Relative to Cap? A = Above cap B = Believ cop L = Level w/cap	Well Cap? I * Intect M in Mixing or Comproresed (replaced)	Bolts Missing? X = Ye, Slank = No	Bolts Stripped? No Yes Blank = No	Bolt Holes Stripped? **X*********************************	Cracked or Broken Lid? N=Yes Black = No	Cracked or Broken Box? X * Yes Stank ** No	Grout Level more than 1ft below TOC? X#Yes Blank **Nn	Additional Comments (such as mining bid, construct needs replacement, or other - explaint)
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<u>DRUM INVENTORY</u>	GENERAL SITE CONDITIONS
Drums on site? Yes To (circle) Type and # Steel: Plastic:	Make notes on housekeeping conditions (such as trash around remediation system enclosure/compound, bent or missing bollards, signs missing from compound fences, grafitti on compound, etc.)
Note whether drums are full or empty, solids or liquids:	
Drum label info (description, date, contact info):	
and the state of t	
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(arrangement)	

Site Name/Number: 3 7/

NO. 853785

NON-HAZARDOUS WASTE DATA FORM

				sSI €			
	2. Generator's Name and Marking Address SEC 1992 SEC 199	Generator's Silve A #374	sdress (f diff)	went than r	naling address		
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	6 Waste Shipping Name and Description		7. Con	***********	B Folax	Ts us I	10 Profits No.
GENERATOR	A. PRONOMERZAGOORIES ORATES			Туре	Quantity 1/0	VarVoi	re-rains age
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	11. Special Handling Instructions and Additional Information						
	verg of appropriate protective of conservations.	17344.0					
	12. GENERATOR'S CERTIFICATION: Libertify the meterials described above on the Generator's Cifferor's Printic/Typed Name						
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SPOR	Transporter 2 Printed Typed Name	Signature					Month Day Yea
FACILITY TRANSPORTER	14. Designated Facility Owner or Operator: Certification of receipt of materials cove	ared by this data form.					
ZQE E		Signatura					Mento Qay Yest

GENERATOR



Laboratory Management Program LaMP Chain of Custody Record

Req Due Date (mm/dd/yy): 14 Day TAT

BP/ARC Project Name: BP 374

Page 1 of 1

Rush TAT: Yes

(Company	BP/ARC Facility No			82	3/4	······································			374	***************************************		***************************************	×	•	Req Due Date (mm/dd/yy): 14 Day TAT Rush TAT: Yes No : Lab Work Order Number:					Rush TAT: Yes No X					
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Lab Ad	ddress: 7440 Lincoln Way, G	arden Grove	, CA 92841	······································	╫		le, ZIP			-		land.								Consultant/Contractor: Stratus Environmental Inc.						
Lab Pl	M: Richard Villafania				+		gulator			······································		neda				•••••					Consultant/Contractor Project No:					
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EBM Phone: (925) 275- 3801 FAX:925-275-3815				1				5																	StandardX	
EBME	MEmail: paul.supple@bp.com				1			Į	Containe								Ø									Full Data Package
Lab No.	Sample Descriptio	n	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor		Total Number of Co	Unpreserved	H ₂ SO ₄	HNO3	HCI	Methanol		GRO by 8015M	BTEX/5 FO* by 8260B	Ethanol by 8260B	EDB by 6260B	1,2-DCA by 8260B						Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description. Comments *Oxy = MTBE, TAME, ETBE, DIPE, TBA
	MW-1	5	14/09	1035	T	X			6				Χ.			X	x	X	X	. х		_	-			
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May 29, 2009

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

Subject:

Calscience Work Order No.:

09-05-1551

Client Reference:

BP 374

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 5/16/2009 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,

Calscience Environmental

Laboratories, Inc.

Richard Villafania

Richard Vellar

Project Manager



Analytical Report

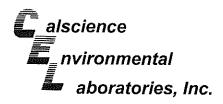
Stratus Environmental, inc. 3330 Cameron Park Drive, Suite 550 Cameron Park, CA 95682-8861

Date Received: Work Order No: Preparation: Method:

05/16/09 09-05-1551 **EPA 5030B** EPA 8015B (M)

Project: BP 374

Floject. BP 374							Pa	ge 1 of 1
Client Sample Number		Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1		09-05-1551-1-D	05/14/09 10:35	Aqueous	GC 4	05/26/09	05/27/09 10:01	090526B02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Gasoline Range Organics (C6-C12)	53	50	1		ug/L			
Surrogates:	REC (%)	Control Limits		Qual				
1,4-Bromofluorobenzene	105	38-134						
Method Blank		099-12-695-551	N/A	Aqueous	GC 4	05/26/09	05/27/09 02:21	090526B02
<u>Parameter</u>	Result	<u>RL</u>	DF	<u>Qual</u>	<u>Units</u>			
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L			
Surrogates:	REC (%)	Control Limits		<u>Qual</u>				
1,4-Bromofluorobenzene	47	38-134						



Analytical Report

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

Date Received: Work Order No: Preparation: Method: Units: 05/16/09 09-05-1551 EPA 5030B EPA 8260B

Project: BP 374

Page 1 of 1

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Client Sample Number			L	ab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/T I Analy		QC Batch ID
MW-1			09-05	-1551-1-A	05/14/09 A 10:35	dueous	GC/MS BB	05/23/09	05/23 21:4		090523L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Parameter</u>			Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Eth	her (MTB	Ξì	200	5.0	10	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcoho		/	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether			ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ethe			ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl	, ,		1.3	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	- Laios (17	((*)L)	ND.	300	1	
Surrogates:	REC (%)	Control	•	Qual	Surrogates:			REC (%)	Control	1	Qual
		Limits		<u> </u>	ourrogutos.		1	VEQ [70]	Limits		Quai
1,2-Dichloroethane-d4	97	73-145			Dibromofluorome	thane		96	81-135		
Toluene-d8	98	83-119			1,4-Bromofluorob			84	74-110		
Method Blank			000 44	. 700 000							
method blank			099-12	2-703-893	N/A A	queous	GC/MS BB	05/23/09	05/23/ 12:3		090523L01
<u>Parameter</u>	Result	RL	<u>DF</u>	<u>Qual</u>	<u>Parameter</u>			Result	<u>RL</u>	<u>DF</u>	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Eth	er (MTBE	3)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol	L(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	` '		ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl	,	ME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ND	300	1	
Surrogates:	REC (%)	Control		Quai	Surrogates:		F	REC (%)	Control	,	Qual
•		Limits					<u>.</u>	<u> </u>	Limits		<u>Quai</u>
1,2-Dichloroethane-d4	99	73-145			Dibromofluoromet			103	81-135		
Toluene-d8	100	83-119			1,4-Bromofluorobe	enzene		101	74-110		
Method Blank			099-12	-703-896	N/A A	queous	GC/MS BB	05/26/09	05/27/ 01:04		090526L02
<u>Parameter</u>	Result	RL	<u>DF</u>	<u>Qual</u>	<u>Parameter</u>			Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Eth	er (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 I			ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	`	,		300	1	
Surrogates:	REC (%)	Control		Qual	Surrogates:				Control	•	Qual
		Limits							Limits		
1,2-Dichloroethane-d4	102	73-145			Dibromofluorometi	hane		101	81-135		
Foluene-d8	100	83-119			1,4-Bromofluorobe	enzene			74-110		



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: Work Order No: Preparation: Method:

05/16/09 09-05-1551 EPA 5030B EPA 8015B (M)

Project BP 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
09-05-1757-3	Aqueous	GC 4	05/26/09		05/27/09	090526S02
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	104	104	38-134	1	0-25	

Mulha_



Quality Control - Spike/Spike Duplicate

0

1

0

78-126

67-133

63-141

11-167

0-16

0-21

0-21

0-64

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

Date Received: Work Order No: Preparation: Method:

05/16/09 09-05-1551 **EPA 5030B** EPA 8260B

Project BP 374

Diisopropyl Ether (DIPE)

Ethanol

Ethyl-t-Butyl Ether (ETBE)

Tert-Amyl-Methyl Ether (TAME)

Quality Control Sample ID	Matrix	Instrument	Date Prepared	1	Date Analyzed	MS/MSD Batch Number	
09-05-1246-6	Aqueous	GC/MS BB	05/23/09		05/23/09	090523S01	
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers	
Benzene	102	100	86-122	2	0-8		
Carbon Tetrachloride	104	101	78-138	3	0-9		
Chlorobenzene	101	100	90-120	2	0-9		
1,2-Dibromoethane	96	99	70-130	3	0-30		
1,2-Dichlorobenzene	101	103	89-119	2	0-10		
1,1-Dichloroethene	103	105	52-142	2	0-23		
Ethylbenzene	100	99	70-130	1	0-30		
Toluene	103	101	85-127	2	0-12		
Trichloroethene	100	98	7 8-126	2	0-10		
Vinyl Chloride	77	78	56-140	1	0-21		
Methyl-t-Butyl Ether (MTBE)	102	102	64-136	1	0-28		
Tert-Butyl Alcohol (TBA)	99	110	27-183	11	0-60		

104

104

101

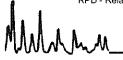
102

104

104

100

98





Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.

3330 Cameron Park Drive, Suite 550 Cameron Park, CA 95682-8861

Date Received: Work Order No: Preparation: Method:

05/16/09 09-05-1551 **EPA 5030B** EPA 8260B

Project BP 374

Tert-Amyl-Methyl Ether (TAME)

Ethanol

Matrix	Instrument	Date Prepared			MS/MSD Batch Number
Aqueous	GC/MS BB	05/26/09		05/27/09	090526802
MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
101	100	86-122	1	0-8	
97	98	78-138	1	0-9	
100	101	90-120	1		
97	100	70-130	3		
101	104	89-119	3		
107	105	52-142	3		
101	100	70-130	1		
100	99	85-127	1		
98	98	78-126	0		
81	77	56-140	5		
111	1 1 1	64-136	1		
104	107	27-183	3		
113	110	78-126	3		
112	111	67-133	1	0-21	
	MS %REC 101 97 100 97 101 107 101 100 98 81 111 104 113	Aqueous GC/MS BB MS %REC MSD %REC 101 100 97 98 100 101 97 100 101 104 107 105 101 100 100 99 98 98 81 77 111 111 104 107 113 110	Matrix Instrument Prepared Aqueous GC/MS BB 05/26/09 MS %REC MSD %REC %REC CL 101 100 86-122 97 98 78-138 100 101 90-120 97 100 70-130 101 104 89-119 107 105 52-142 101 100 70-130 100 99 85-127 98 98 78-126 81 77 56-140 111 111 64-136 104 107 27-183 113 110 78-126	Matrix Instrument Prepared Aqueous GC/MS BB 05/26/09 MS %REC MSD %REC %REC CL RPD 101 100 86-122 1 97 98 78-138 1 100 101 90-120 1 97 100 70-130 3 101 104 89-119 3 107 105 52-142 3 101 100 70-130 1 100 99 85-127 1 98 98 78-126 0 81 77 56-140 5 111 111 64-136 1 104 107 27-183 3 113 110 78-126 3	Matrix Instrument Prepared Analyzed Aqueous GC/MS BB 05/26/09 05/27/09 MS %REC MSD %REC %REC CL RPD RPD CL 101 100 86-122 1 0-8 97 98 78-138 1 0-9 100 101 90-120 1 0-9 97 100 70-130 3 0-30 101 104 89-119 3 0-10 107 105 52-142 3 0-23 101 100 70-130 1 0-30 100 99 85-127 1 0-12 98 98 78-126 0 0-10 81 77 56-140 5 0-21 111 111 64-136 1 0-28 104 107 27-183 3 0-60 113 110 78-126 3 0-16

105

95

63-141

11-167

2

0-21

0-64

103

105



Quality Control - LCS/LCS Duplicate



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

Date Received: Work Order No: Preparation: Method:

N/A 09-05-1551 EPA 5030B EPA 8015B (M)

Project: BP 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LC	S/LCSD Batch Number	า
099-12-695-551	Aqueous	GC 4	05/26/09	05/27/09		090526B02	
<u>Parameter</u>	LCS %RE	EC LCSD %	6REC %RE	<u> CCL</u> <u>F</u>	<u>RPD</u>	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	108	110	78	-120	2	0-20	

RPD - Rela



Quality Control - LCS/LCS Duplicate



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

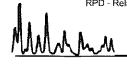
Date Received: Work Order No: Preparation: Method: N/A 09-05-1551 EPA 5030B EPA 8260B

Project: BP 374

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ate yzed	LCS/LCSD Numbe	
099-12-703-893	Aqueous	GC/MS BB	05/23/09	05/23	/09	090523L	01
<u>Parameter</u>	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	99	103	87-117	82-122	4	0-7	
Carbon Tetrachloride	100	101	78-132	69-141	1	0-8	
Chlorobenzene	100	103	88-118	83-123	2	0-8	
1,2-Dibromoethane	95	101	80-120	73-127	6	0-20	
1,2-Dichlorobenzene	101	103	88-118	83-123	2	0-8	
1,1-Dichloroethene	105	106	71-131	61-141	1	0-14	
Ethylbenzene	100	102	80-120	73-127	2	0-20	
Toluene	101	105	85-127	78-134	5	0-7	
Trichloroethene	98	104	85-121	79-127	6	0-11	
Vinyl Chloride	80	81	64-136	52-148	1	0-10	
Methyl-t-Butyl Ether (MTBE)	103	107	67-133	56-144	4	0-16	
Tert-Butyl Alcohol (TBA)	102	102	34-154	14-174	0	0-19	
Diisopropyl Ether (DIPE)	105	106	80-122	73-129	2	0-8	
Ethyl-t-Butyl Ether (ETBE)	106	109	73-127	64-136	3	0-11	
Tert-Amyl-Methyl Ether (TAME)	100	106	69-135	58-146	6	0-12	
Ethanol	91	100	34-124	19-139	9	0-44	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed:

LCS ME CL validation result: Pass





Quality Control - LCS/LCS Duplicate

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

Date Received: Work Order No: Preparation: Method: N/A 09-05-1551 EPA 5030B EPA 8260B

Project: BP 374

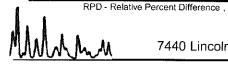
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Da Analy		LCS/LCSD B Number	atch
099-12-703-896	Aqueous	GC/MS BB	05/26/09	05/26/	09	090526L0	2
<u>Parameter</u>	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	103	104	87-117	82-122	1	0-7	GCCATTCTC
Carbon Tetrachloride	103	105	78-132	69-141	2	0-8	
Chlorobenzene	102	101	88-118	83-123	1	0-8	
1,2-Dibromoethane	101	101	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	105	106	88-118	83-123	1	0-8	
1,1-Dichloroethene	108	108	71-131	61-141	0	0-14	
Ethylbenzene	101	101	80-120	73-127	0	0-20	
Toluene	103	105	85-127	78-134	1	0-7	
Trichloroethene	110	117	85-121	79-127	6	0-11	
Vinyl Chloride	80	83	64-136	52-148	4	0-10	
Methyl-t-Butyl Ether (MTBE)	108	110	67-133	56-144	2	0-16	
Tert-Butyl Alcohol (TBA)	100	99	34-154	14-174	1	0-19	
Diisopropyl Ether (DIPE)	107	109	80-122	73-129	2	0-8	
Ethyl-t-Butyl Ether (ETBE)	107	110	73-127	64-136	3	0-11	
Tert-Amyl-Methyl Ether (TAME)	105	107	69-135	58-146	1	0-12	
Ethanol	108	100	34-124	19-139	8	0-44	

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





Glossary of Terms and Qualifiers



Work Order Number: 09-05-1551

Qualifier	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
AZ	Surrogate recovery outside of acceptance limits due to matrix interference.
ВА	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.
ВН	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.
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 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.

Work Order Number: 09-05-1551

Qualifier	<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

BP/ARC Project Name: BP 374



Req Due Date (mm/dd/yy): 14 Day TAT

Page 1 of 1

Rush TAT: Yes No X BP/ARC Facility No: A BP affiliated company 374 Lab Work Order Number: Lab Name: CalScience BP/ARC Facility Address: 6407 Telegraph Avenue Consultant/Contractor: Stratus Environmental Inc. Lab Address: 7440 Lincoln Way, Garden Grove, CA 92841 City, State, ZIP Code: Oakland, 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.: T06000100106 Consultant/Contractor PM: Jay Johnson Lab Shipping Acent: Enfos Proposal No: 000XK-0007 530-676-6000 Fax: 530-676-6005 Lab Bottle Order No: Accounting Mode: Provision X OOC-BU OOC-RM Email EDD To: chuff@stratusinc.net Other Info: Stage: Operate Activity: Monitoring Invoice To: BP/ARC X Contractor_ BP/ARC EBM: Paul Supple Matrix No. Containers / Preservative Requested Analyses Report Type & QC Level EBM Phone: (925) 275- 3801 FAX:925-275-3815 Standard __X___ Total Number of Containers EBM Email: paul.supple@bp.com Full Data Package . BTEX/5 FO* by 8260B Note: If sample not collected, indicate "No 1,2-DCA by 8260B Sample" in comments and single-strike out Ethanol by 8260B GRO by 8015M and initial any preprinted sample description. Lab Water / Liquid Sample Description Date Time No. Soil / Solid Air / Vapor Comments Methano H₂SO₄ EDB by HNO3 *Oxy = MTBE, TAME, ETBE, 걸 DIPE, TBA MW-1 5/14/09 1035 Х 6 Х Х Х Х Х TB-374- Q5 14 2009 500 Х 2 х ON HOLD Sampler's Name:) evy opy ZoleS Relinquished By / Affiliation Date Time Accepted By / Affiliation Date Time Sampler's Company: Stratus Environmental Inc. Shipment Method: Ship Date: Shipment Tracking No: Special Instructions: TB Sample ON HOLD! Cc results to bpedf@broadbentinc.com THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes / No Temp Blank: Yes / No Cooler Temp on Receipt: °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No



work order #: **09-05-** 교명병

Laboratories, Inc. SAMPLE RECEIPT FORM Cooler ____ of ___

CLIENT: Stratus	DATE: _	05/16/0				
TEMPERATURE: (Criteria: 0.0 °C − 6.0 °C, not frozen) Temperature	☑ Blank ay of samplin	☐ Sample				
☐ Received at ambient temperature, placed on ice for transport by Col Ambient Temperature: ☐ Air ☐ Filter ☐ Metals Only ☐ PCBs C	urier.	Initial:				
CUSTODY SEALS INTACT: Cooler	□ N/A	Initial: MH				
	Yes	No N/A				
Chain-Of-Custody (COC) document(s) received with samples	Ø					
COC document(s) received complete	X 50 CM					
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.	6.16.0					
☐ COC not relinquished. ☑ No date relinquished. ☑ No time relinquished.						
Sampler's name indicated on COC	 ✓					
Sample container label(s) consistent with COC						
Sample container(s) intact and good condition	ď					
Correct containers and volume for analyses requested	ď					
Analyses received within holding time						
Proper preservation noted on COC or sample container						
☐ Unpreserved vials received for Volatiles analysis						
Volatile analysis container(s) free of headspace	d					
Tedlar bag(s) free of condensation						
CONTAINER TYPE:		-				
Solid: □4ozCGJ □8ozCGJ □16ozCGJ □Sleeve □EnCores® □7	TerraCores [®]	· 🗖				
Water: □VOA □VOAna₂ □125AGB □125AGBh □125AGBp □1AGB □1AGBna₂ □1AGBs						
□500AGB □500AGJ □500AGJs □250AGB □250CGB □250CGBs	□1PR □5	CODE TENDER				
□250PB □250PBn □125PB □125PBznna □100PB □100PBna₂ □		Подотрия				
Air: □Tedlar® □Summa® □ Other: □	Charled/L:					
Air: ☐Tedlar® ☐Summa® ☐ Other: ☐ Container: C: Clear A: Amber P: Plastic G: Glass J: Jar (Wide-mouth) B: Bottle (Narrow-mouth Preservative: h: HCL n: HNO3 na::Na:S-O2 Na: NaOH n: H-PO s: H	n) Rev	riewed by:				

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® 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

GEOTRACKER UPLOAD CONFIRMATIONS

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: 2Q09 GEO_WELL 374

Facility Global ID: T0600100106
Facility Name: ARCO #0374
File Name: GEO_WELL.zip

Organization Name: Broadbent & Associates, Inc.

<u>Username:</u> BROADBENT-C IP Address: 67.118.40.90

Submittal Date/Time: 6/17/2009 3:57:54 PM

Confirmation Number: 1965068995

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STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

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

Submittal Type: EDF - Monitoring Report - Quarterly

Submittal Title: 2Q09 GW Monitoring

 Facility Global ID:
 T0600100106

 Facility Name:
 ARCO #0374

 File Name:
 09051551.zip

Organization Name: Broadbent & Associates, Inc.

<u>Username:</u> BROADBENT-C IP Address: 67.118.40.90

Submittal Date/Time: 6/17/2009 3:58:59 PM

Confirmation Number: 1469735264

VIEW QC REPORT

VIEW DETECTIONS REPORT

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