



Atlantic Richfield Company  
(a BP affiliated company)

P.O. Box 1257  
San Ramon, CA 94583  
Phone: (925) 275-3801  
Fax: (925) 275-3815



**RECEIVED**

1:27 pm, Jul 31, 2008

Alameda County  
Environmental Health

July 25, 2008

Re: Second Quarter, 2008 Ground-Water Monitoring Report  
Atlantic Richfield Company Station #4977  
2770 Castro Valley Boulevard  
Castro Valley, California  
ACEH Case No. RO0002436

“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 Manager

**Second Quarter, 2008 Ground-Water Monitoring Report**  
Atlantic Richfield Company Station #4977  
2770 Castro Valley Boulevard  
Castro Valley, 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*

July 2008

Project No. 06-02-625

Broadbent & Associates, Inc.  
1324 Mangrove Ave., Suite 212  
Chico, CA 95926  
Voice (530) 566-1400  
Fax (530) 566-1401



July 25, 2008

Project No. 06-02-625

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

Attn.: Mr. Paul Supple

Re: Second Quarter, 2008 Ground-Water Monitoring Report, Atlantic Richfield Company (a BP affiliated company) Station #4977, 2770 Castro Valley Boulevard, Castro Valley, CA. ACEH Case No. RO0002436.

Dear Mr. Supple:

Provided herein is the *Second Quarter, 2008 Ground-Water Monitoring Report* for Atlantic Richfield Company Station #4977 (herein referred to as Station #4977) located at 2770 Castro Valley Boulevard, Castro Valley, CA (Property). This report presents a summary of Second Quarter, 2008 ground-water monitoring results.

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

Sincerely,

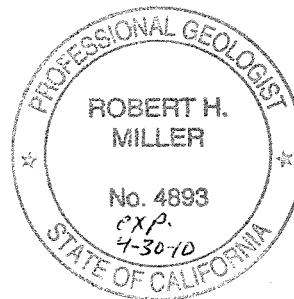
BROADBENT & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read 'Matt Herrick', written over a horizontal line.

Matthew G. Herrick, P.G.  
Senior Hydrogeologist

A handwritten signature in black ink, appearing to read 'Robert H. Miller', written over a horizontal line.

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



Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (submitted via ACEH ftp site)

## STATION #4977 QUARTERLY GROUND-WATER MONITORING REPORT

Facility: #4977	Address:	2770 Castro Valley Boulevard, Castro Valley, CA
Station #4977	Environmental Business Manager:	Mr. Paul Supple
	Consulting Co./Contact Persons:	Broadbent & Associates, Inc. (BAI) / Rob Miller & Matt Herrick
Consultant Project No.:		06-02-625
Facility Permits/Permitting Agency.:		NA

### WORK PERFORMED THIS QUARTER (Second Quarter, 2008):

1. Submitted First Quarter, 2008 Ground-Water Monitoring Report. Work performed by BAI.
2. Conducted ground-water monitoring/sampling for Second Quarter, 2008. Work performed by Stratus Environmental, Inc.

### WORK PROPOSED FOR NEXT QUARTER (Third Quarter, 2008):

1. Submit Second Quarter, 2008 Ground-Water Monitoring Report (contained herein).
2. Conduct quarterly ground-water monitoring/sampling for Third Quarter, 2008.

### QUARTERLY RESULTS SUMMARY:

Current phase of project:	<b>Ground-water monitoring/sampling</b>
Frequency of ground-water sampling:	<b>Wells MW-1 through MW-3: Quarterly</b>
Frequency of ground-water monitoring:	<b>Quarterly</b>
Is free product (FP) present on-site:	<b>No</b>
Current remediation techniques:	<b>None</b>
Depth to ground water (below TOC):	<b>7.04 (MW-2) to 9.17 (MW-1) feet</b>
General ground-water flow direction:	<b>South</b>
Approximate hydraulic gradient:	<b>0.026 Feet per foot</b>

### DISCUSSION:

Gasoline range organics (GRO) were detected in MW-2 and MW-3 at 14,000 micrograms per liter ( $\mu\text{g/L}$ ) and 120  $\mu\text{g/L}$ , respectively. Benzene was detected in MW-2 at 480  $\mu\text{g/L}$ . Ethylbenzene was detected in MW-2 and MW-3 at 730  $\mu\text{g/L}$  and 2.0  $\mu\text{g/L}$ , respectively. Xylenes were detected in MW-2 at 240  $\mu\text{g/L}$ . Methyl tert-butyl ether (MTBE) was detected in MW-1, MW-2, and MW-3 at concentrations ranging from 1.3  $\mu\text{g/L}$  (MW-1) to 100  $\mu\text{g/L}$  (MW-2). Tert-Butyl alcohol (TBA) was detected in MW-3 at 25  $\mu\text{g/L}$ . No other analytes were detected in ground-water samples collected during Second Quarter, 2008.

Analytes detected during Second Quarter, 2008 were all within the historic minimum and maximum concentration ranges recorded for each well, with the following exceptions: Gasoline range organics in MW-2 and MW-3, ethylbenzene and xylenes in MW-2, and MTBE in MW-3 are the lowest concentrations historically detected in each well. Ground-water elevations measured during Second Quarter, 2008 were within historic minimum and maximum ranges for each well.

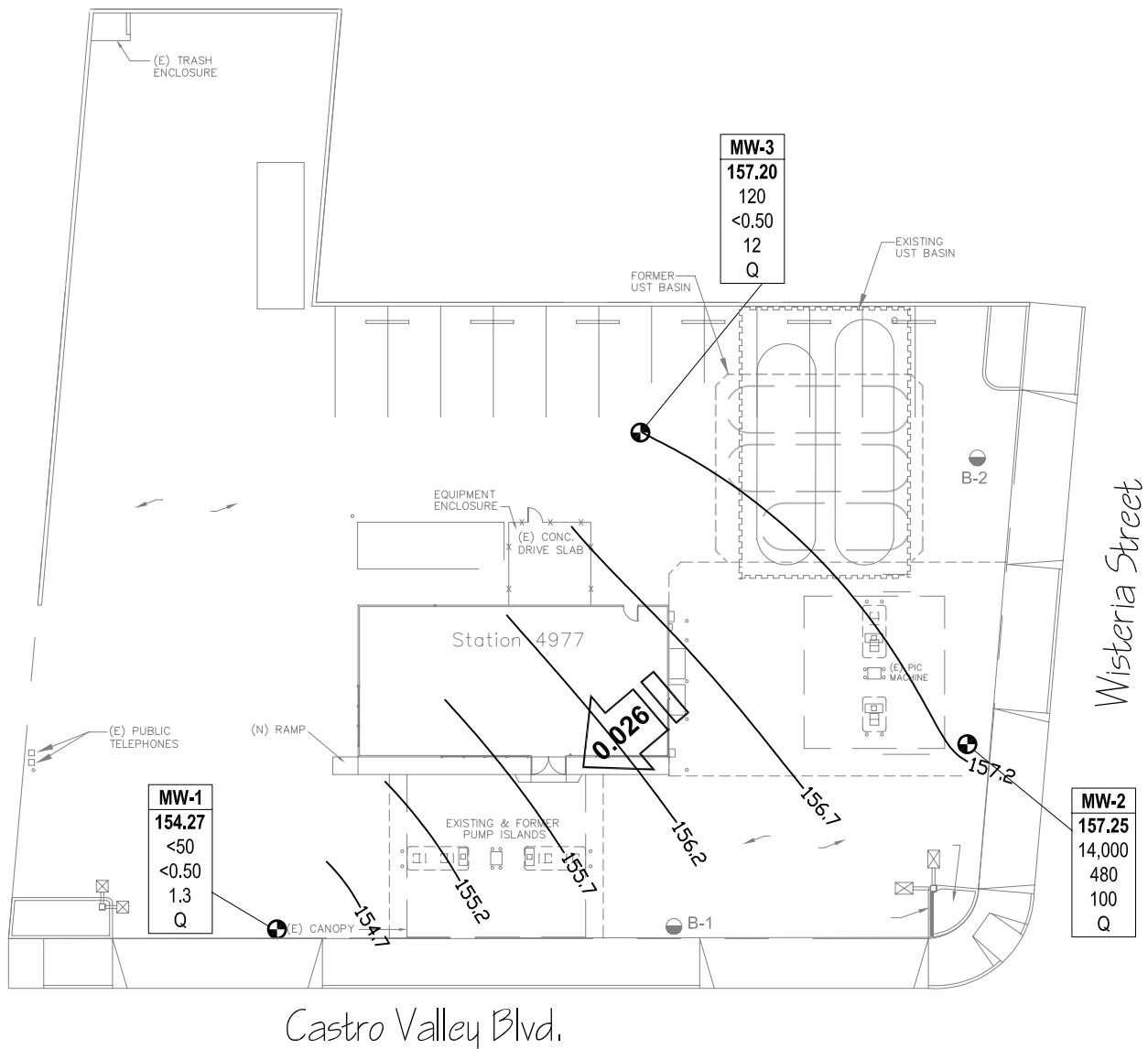
Drawing 1 depicts the ground-water elevation contour and analytical summary map for the Second Quarter, 2008. Table 1 includes a summary of ground-water monitoring data including relative water elevations and laboratory analyses. Table 2 provides a summary of fuel additives analytical data. Table 3 presents historical ground-water flow direction and gradient.

**CLOSURE:**

The findings presented in this report are based upon: observations of Stratus Environmental, Inc. and/or their subcontractor(s) field personnel (see Appendix A), the points investigated, and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, CA). 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 Contour and Analytical Summary Map, Station #4977, Castro Valley, CA
- Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses, Station #4977, Castro Valley, CA
- Table 2. Summary of Fuel Additives Analytical Data, Station #4977, Castro Valley, CA
- Table 3. Historical Ground-Water Flow Direction and Gradient, Station #4977, Castro Valley, CA
- Appendix A. Stratus Environmental, Inc. Ground-Water Sampling Data Package (Includes Field Data Sheets, Non-Hazardous Waste Data Form, Chain of Custody Documentation, Certified Analytical Results, and Field Procedures for Groundwater Sampling)
- Appendix B. GeoTracker Upload Confirmation



**LEGEND**

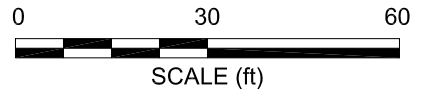
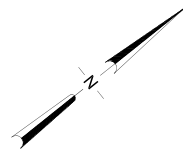
- ⊕ MONITORING WELL
- SOIL BORING

Well	WELL DESIGNATION
ELEV	GROUND-WATER ELEVATION (FT ABOVE MSL)
GRO	CONCENTRATION OF GRO, BENZENE AND MTBE IN GROUND WATER (µg/L)
BZ	
MTBE	
Q	SAMPLING FREQUENCY

- < NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
- Q SAMPLED QUARTERLY
- 155.7 GROUND-WATER ELEVATION CONTOUR (FT ABOVE MSL)



NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES.  
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
<b>MW-1</b>															
4/19/2002	--		161.11	5.0	15.0	11.21	149.90	660	12	1.3	4.3	0.8	38	--	--
9/27/2002	--		161.11	5.0	15.0	9.29	151.82	130	7.7	0.87	5.4	0.79	39	1.7	6.9
12/16/2002	--	a	161.11	5.0	15.0	8.55	152.56	77	1.8	<0.50	0.69	<1.0	42	1.6	6.9
3/11/2003	--		161.11	5.0	15.0	8.07	153.04	140	9.8	<0.50	5.6	<0.50	20	1.4	7.4
6/17/2003	--		161.11	5.0	15.0	8.31	152.80	510	60	1.4	81	<1.0	23	2.2	7
9/18/2003	--	b	161.11	5.0	15.0	9.45	151.66	72	2.4	1.4	1.6	1.5	39	2.7	7
12/11/2003	P		161.11	5.0	15.0	8.80	152.31	79	1.5	<0.50	1.5	4.4	48	2.1	7.0
03/11/2004	P		163.44	5.0	15.0	7.61	155.83	<50	1.3	<0.50	0.77	1.3	17	1.4	6.8
06/02/2004	P		163.44	5.0	15.0	8.95	154.49	53	1.4	<0.50	0.93	<0.50	39	2.3	7.1
09/22/2004	P		163.44	5.0	15.0	9.42	154.02	70	<0.50	<0.50	<0.50	<0.50	48	1.7	6.8
12/15/2004	P		163.44	5.0	15.0	7.88	155.56	63	<0.50	<0.50	<0.50	<0.50	45	1.8	6.9
03/07/2005	P		163.44	5.0	15.0	7.02	156.42	<50	<0.50	<0.50	<0.50	<0.50	4.0	2.4	6.8
06/27/2005	P		163.44	5.0	15.0	7.53	155.91	52	2.0	<0.50	1.9	0.78	8.1	2.8	7.1
09/16/2005	P		163.44	5.0	15.0	9.20	154.24	<50	<0.50	<0.50	<0.50	0.76	14	1.82	6.9
12/27/2005	P		163.44	5.0	15.0	7.60	155.84	<50	1.3	<0.50	1.5	<0.50	9.4	2.02	7.87
03/16/2006	P		163.44	5.0	15.0	6.97	156.47	71	3.0	<0.50	3.5	<0.50	3.4	1.6	7.1
6/26/2006	P		163.44	5.0	15.0	8.58	154.86	71	0.69	<0.50	1.1	3.5	3.2	2.2	6.9
9/29/2006	P		163.44	5.0	15.0	8.85	154.59	<50	<0.50	<0.50	<0.50	<0.50	5.2	2.35	6.7
12/19/2006	P		163.44	5.0	15.0	8.00	155.44	<50	<0.50	<0.50	<0.50	<0.50	4.3	4.80	7.21
3/29/2007	P		163.44	5.0	15.0	7.70	155.74	<50	<0.50	<0.50	<0.50	<0.50	2.3	3.44	7.18
6/5/2007	P		163.44	5.0	15.0	8.77	154.67	<50	<0.50	<0.50	<0.50	<0.50	3.2	3.45	7.29
9/25/2007	P		163.44	5.0	15.0	9.18	154.26	<50	<0.50	<0.50	<0.50	<0.50	5.3	2.61	7.41
12/26/2007	P		163.44	5.0	15.0	8.45	154.99	<50	<0.50	<0.50	<0.50	<0.50	2.9	5.57	7.43
3/25/2008	P		163.44	5.0	15.0	8.29	155.15	<50	<0.50	<0.50	<0.50	<0.50	0.94	3.52	7.80
<b>6/10/2008</b>	<b>P</b>		<b>163.44</b>	<b>5.0</b>	<b>15.0</b>	<b>9.17</b>	<b>154.27</b>	<b>&lt;50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>1.3</b>	<b>3.38</b>	<b>7.01</b>
<b>MW-2</b>															
4/19/2002	--		161.87	5.0	15.0	6.59	155.28	28,000	970	120	860	6,900	760	--	--
9/27/2002	--		161.87	5.0	15.0	7.18	154.69	17,000	1,400	<50	1,200	3,700	1,400	1.5	6.8
12/16/2002	--	a	161.87	5.0	15.0	7.31	154.56	17,000	1,000	<50	980	3,300	980	1.9	6.8
3/11/2003	--		161.87	5.0	15.0	6.02	155.85	24,000	1,600	70	1,300	4,300	920	1.7	7.4

**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
<b>MW-2 Cont.</b>															
6/17/2003	--		161.87	5.0	15.0	6.31	155.56	28,000	1,300	55	1,300	4,500	610	1.4	6.9
9/18/2003	--		161.87	5.0	15.0	7.61	154.26	19,000	960	63	1,100	3,100	580	2.7	6.8
12/11/2003	P		161.87	5.0	15.0	6.50	155.37	29,000	710	53	1,300	3,800	490	2.0	7.0
03/11/2004	P		164.29	5.0	15.0	6.02	158.27	19,000	830	49	1,500	4,000	410	0.8	6.5
06/02/2004	P		164.29	5.0	15.0	7.14	157.15	25,000	680	<50	1,300	3,900	240	4.3	7.1
09/22/2004	--		164.29	5.0	15.0	7.63	156.66	15,000	980	<25	980	940	390	--	6.7
12/15/2004	P	c	164.29	5.0	15.0	6.48	157.81	22,000	610	26	1,300	3,200	290	0.3	6.9
03/07/2005	P		164.29	5.0	15.0	6.08	158.21	25,000	570	33	1,400	3,900	120	2.3	6.8
06/27/2005	P		164.29	5.0	15.0	6.90	157.39	24,000	630	32	1,200	2,900	86	2.5	7.2
09/16/2005	P		164.29	5.0	15.0	7.66	156.63	25,000	550	<25	1,400	3,000	82	1.41	7.0
12/27/2005	P		164.29	5.0	15.0	5.60	158.69	33,000	540	<25	1,300	2,700	100	2.26	7.19
03/16/2006	P	c	164.29	5.0	15.0	7.25	157.04	29,000	710	<50	1,400	2,600	78	1.4	7.1
6/26/2006	P	c	164.29	5.0	15.0	6.60	157.69	20,000	630	<25	1,200	1,100	110	0.64	6.8
9/29/2006	P		164.29	5.0	15.0	6.85	157.44	24,000	530	<25	1,300	1,800	86	1.36	6.7
12/19/2006	P		164.29	5.0	15.0	6.02	158.27	21,000	500	<25	1,400	1,700	70	1.11	7.42
3/29/2007	P		164.29	5.0	15.0	6.03	158.26	16,000	530	<25	1,100	1,100	80	2.98	7.18
6/5/2007	P		164.29	5.0	15.0	6.85	157.44	21,000	420	<25	1,100	1,100	50	2.09	7.20
9/25/2007	P		164.29	5.0	15.0	7.15	157.14	25,000	620	<25	1,400	1,200	70	3.25	7.59
12/26/2007	P		164.29	5.0	15.0	6.25	158.04	16,000	440	<5.0	760	570	80	1.84	7.66
3/25/2008	P		164.29	5.0	15.0	6.63	157.66	16,000	530	7.8	790	470	96	1.78	7.72
<b>6/10/2008</b>	<b>P</b>		<b>164.29</b>	<b>5.0</b>	<b>15.0</b>	<b>7.04</b>	<b>157.25</b>	<b>14,000</b>	<b>480</b>	<b>&lt;25</b>	<b>730</b>	<b>240</b>	<b>100</b>	<b>1.83</b>	<b>6.96</b>
<b>MW-3</b>															
4/19/2002	--		162.14	5.0	15.0	6.94	155.20	1,200	29	1.1	43	62	1,700	--	--
9/27/2002	--		162.14	5.0	15.0	8.26	153.88	740	7.8	<2.5	6.8	4.4	1,100	1	6.7
12/16/2002	--	a	162.14	5.0	15.0	6.76	155.38	1,200	13	<10	170	88	910	2.3	6.8
3/11/2003	--		162.14	5.0	15.0	6.92	155.22	<2,500	<25	<25	<25	<25	470	1.7	7.5
6/17/2003	--		162.14	5.0	15.0	7.44	154.70	<1,000	<10	<10	14	<10	530	1.9	7
9/18/2003	--		162.14	5.0	15.0	8.43	153.71	470	4.8	<2.5	10	9.2	300	2.9	6.8
12/11/2003	P		162.14	5.0	15.0	6.72	155.42	<500	<5.0	<5.0	7.0	13	180	1.9	6.9
03/11/2004	P		164.53	5.0	15.0	6.09	158.44	360	1.9	<1.0	5.6	5.0	110	2.6	6.8



**Table 1. Summary of Ground-Water Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	P/NP	Comments	TOC (feet msl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet bgs)	Water Level Elevation (feet msl)	Concentrations in (µg/L)					DO (mg/L)	pH	
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes			MTBE
<b>MW-3 Cont.</b>															
06/02/2004	P		164.53	5.0	15.0	7.50	157.03	380	2.8	<0.50	8.0	2.1	43	3.6	7.3
09/22/2004	P		164.53	5.0	15.0	8.00	156.53	270	<0.50	<0.50	0.54	<0.50	50	1.8	6.9
12/15/2004	P		164.53	5.0	15.0	6.43	158.10	390	3.5	<0.50	20	3.7	49	1.1	6.9
03/07/2005	P		164.53	5.0	15.0	6.12	158.41	1,900	13	<1.0	93	29	70	2.3	6.8
06/27/2005	P		164.53	5.0	15.0	7.08	157.45	830	4.0	<0.50	13	2.8	33	3.3	7.3
09/16/2005	P		164.53	5.0	15.0	7.28	157.25	320	2.1	<0.50	5.4	0.60	21	2.11	7.0
12/27/2005	P		164.53	5.0	15.0	6.47	158.06	770	6.0	<0.50	33	2.7	36	2.96	7.42
03/16/2006	P		164.53	5.0	15.0	6.10	158.43	1,600	11	<0.50	59	6.4	45	1.4	7.1
6/26/2006	P		164.53	5.0	15.0	6.92	157.61	400	<0.50	<0.50	1.6	2.1	26	2.41	7.0
9/29/2006	P		164.53	5.0	15.0	7.38	157.15	220	0.86	<0.50	2.2	0.58	14	1.95	7.0
12/19/2006	P		164.53	5.0	15.0	6.65	157.88	450	4.3	<0.50	19	1.4	19	3.68	7.30
3/29/2007	P		164.53	5.0	15.0	6.92	157.61	390	3.0	<0.50	9.1	0.60	27	1.98	7.16
6/5/2007	P		164.53	5.0	15.0	7.01	157.52	390	1.9	<0.50	6.9	<0.50	20	1.99	7.34
9/25/2007	P		164.53	5.0	15.0	7.52	157.01	260	1.3	<0.50	2.7	<0.50	12	3.44	7.41
12/26/2007	P		164.53	5.0	15.0	6.65	157.88	460	3.1	<0.50	15	0.89	17	4.05	7.46
3/25/2008	P		164.53	5.0	15.0	6.71	157.82	260	0.91	0.71	2.5	0.54	29	2.40	7.63
<b>6/10/2008</b>	<b>P</b>		<b>164.53</b>	<b>5.0</b>	<b>15.0</b>	<b>7.33</b>	<b>157.20</b>	<b>120</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>2.0</b>	<b>&lt;0.50</b>	<b>12</b>	<b>2.29</b>	<b>7.59</b>

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above specified laboratory reporting limits

-- = Not measured, sampled, analyzed, applicable

ft bgs = Feet below ground surface

DO = Dissolved oxygen

DTW = Depth to water in ft bgs

GRO = Gasoline range organics

GWE = Groundwater elevation in ft MSL

mg/L = Milligrams per liter

ft MSL = Feet above mean sea level

MTBE = Methyl tert-butyl ether analyzed by EPA Method 8021B unless otherwise noted (before 12/16/02)

P/NP = Well was purged/not purged prior to sampling

TPH-g = Total petroleum hydrocarbons as gasoline (C5-C9)

TOC = Top of casing measured in ft MSL

µg/L = Micrograms per liter

FOOTNOTES:

a = TPH, benzene, toluene, ethylbenzene, total xylenes, and MTBE analyzed by EPA Method 8260B beginning on 4th quarter sampling event (12/16/02).

b = This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommended hold time. The results may still be used for their intended purpose.

c = Sheen in well.

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 inclusion of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported.

Wells were re-surveyed on 3/23/2004.

Values for DO and pH were field measurements.

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

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 #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-1</b>									
12/16/2002	<50	<5.0	42	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2003	<100	<20	20	<0.50	<0.50	<0.50	<0.50	<0.50	
6/17/2003	<200	<40	23	<1.0	<1.0	<1.0	<1.0	<1.0	
9/18/2003	<100	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	a
12/11/2003	<100	<20	48	<0.50	<0.50	<0.50	<0.50	<0.50	
03/11/2004	<100	<20	17	<0.50	<0.50	<0.50	<0.50	<0.50	
06/02/2004	<100	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
09/22/2004	<100	<20	48	<0.50	<0.50	<0.50	<0.50	<0.50	
12/15/2004	<100	<20	45	<0.50	<0.50	<0.50	<0.50	<0.50	a
03/07/2005	<100	<20	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	
06/27/2005	<100	<20	8.1	<0.50	<0.50	<0.50	<0.50	<0.50	
09/16/2005	<100	<20	14	<0.50	<0.50	<0.50	<0.50	<0.50	
12/27/2005	<100	<20	9.4	<0.50	<0.50	<0.50	<0.50	<0.50	b
03/16/2006	<300	<20	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	c
6/26/2006	<300	<20	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
9/29/2006	<300	<20	5.2	<0.50	<0.50	<0.50	<0.50	<0.50	
12/9/2006	<300	<20	4.3	<0.50	<0.50	<0.50	<0.50	--	b
3/29/2007	<300	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	
6/5/2007	<300	<20	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
9/25/2007	<300	<20	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	
12/26/2007	<300	<20	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/25/2008	<300	<10	0.94	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>6/10/2008</b>	<b>&lt;300</b>	<b>&lt;10</b>	<b>1.3</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>	
<b>MW-2</b>									
12/16/2002	<5,000	<500	980	<50	<50	<50	<50	<50	
3/11/2003	<10,000	<2,000	920	<50	<50	<50	<50	<50	
6/17/2003	<10,000	<2,000	610	<50	<50	<50	<50	<50	
9/18/2003	<5,000	<1,000	580	<25	<25	<25	<25	<25	
12/11/2003	<5,000	<1,000	490	<25	<25	<25	<25	<25	
03/11/2004	<2,000	<400	410	<10	<10	<10	<10	<10	
06/02/2004	<10,000	<2,000	240	<50	<50	<50	<50	<50	

**Table 2. Summary of Fuel Additives Analytical Data  
Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-2 Cont.</b>									
09/22/2004	<5,000	<1,000	390	<25	<25	<25	<25	<25	
12/15/2004	<2,000	<400	290	<10	<10	<10	<10	<10	a
03/07/2005	<5,000	<1,000	120	<25	<25	<25	<25	<25	
06/27/2005	<5,000	<1,000	86	<25	<25	<25	<25	<25	
09/16/2005	<5,000	<1,000	82	<25	<25	<25	<25	<25	
12/27/2005	<5,000	<1,000	100	<25	<25	<25	<25	<25	b
03/16/2006	<30,000	<2,000	78	<50	<50	<50	<50	<50	c
6/26/2006	<15,000	<1,000	110	<25	<25	<25	<25	<25	
9/29/2006	<15,000	<1,000	86	<25	<25	<25	<25	<25	
12/9/2006	<15,000	<1,000	70	<25	<25	<25	<25	--	b
3/29/2007	<15,000	<1,000	80	<25	<25	<25	<25	<25	
6/5/2007	<15,000	<1,000	50	<25	<25	<25	<25	<25	
9/25/2007	<15,000	<1,000	70	<25	<25	<25	<25	<25	
12/26/2007	<3,000	<200	80	<5.0	<5.0	<5.0	<5.0	<5.0	
3/25/2008	<1,500	<50	96	<2.5	<2.5	<2.5	<2.5	<2.5	
<b>6/10/2008</b>	<b>&lt;15,000</b>	<b>&lt;500</b>	<b>100</b>	<b>&lt;25</b>	<b>&lt;25</b>	<b>&lt;25</b>	<b>&lt;25</b>	<b>&lt;25</b>	
<b>MW-3</b>									
12/16/2002	<1,000	<100	910	<10	<10	12	<10	<10	
3/11/2003	<5,000	<1,000	470	<25	<25	<25	<25	<25	
6/17/2003	<2,000	<400	530	<10	<10	<10	<10	<10	
9/18/2003	<500	<100	300	<2.5	<2.5	3.2	<2.5	<2.5	
12/11/2003	<1,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
03/11/2004	<200	570	110	<1.0	<1.0	<1.0	<1.0	<1.0	
06/02/2004	<100	130	43	<0.50	<0.50	0.56	<0.50	<0.50	
09/22/2004	<100	28	50	<0.50	<0.50	0.51	<0.50	<0.50	
12/15/2004	<100	110	49	<0.50	0.52	0.61	<0.50	<0.50	a
03/07/2005	<200	190	70	<1.0	<1.0	<1.0	<1.0	<1.0	
06/27/2005	<100	130	33	<0.50	<0.50	<0.50	<0.50	<0.50	
09/16/2005	<100	44	21	<0.50	<0.50	<0.50	<0.50	<0.50	
12/27/2005	<100	150	36	<0.50	<0.50	<0.50	<0.50	<0.50	b
03/16/2006	<300	160	45	<0.50	<0.50	0.84	<0.50	<0.50	c

**Table 2. Summary of Fuel Additives Analytical Data  
Station #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-3 Cont.</b>									
6/26/2006	<300	53	26	<0.50	<0.50	<0.50	<0.50	<0.50	
9/29/2006	<300	55	14	<0.50	<0.50	<0.50	<0.50	<0.50	
12/9/2006	<300	<20	19	<0.50	<0.50	<0.50	<0.50	--	b
3/29/2007	<300	130	27	<0.50	<0.50	<0.50	<0.50	<0.50	
6/5/2007	<300	77	20	<0.50	<0.50	<0.50	<0.50	<0.50	
9/25/2007	<300	30	12	<0.50	<0.50	<0.50	<0.50	<0.50	
12/26/2007	<300	76	17	<0.50	<0.50	<0.50	<0.50	<0.50	
3/25/2008	<300	100	29	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>6/10/2008</b>	<b>&lt;300</b>	<b>25</b>	<b>12</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>	

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above specified laboratory reporting limit

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

µg/L = Micrograms per liter

FOOTNOTES:

a = This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommended hold time. The results may still be used for their intended purpose.

b = Calibration verification for ethanol was within method limits but outside contract limits.

c = Possible high bias for DIPE, 1,2-DCA, and ethanol due to CCV falling outside acceptance criteria.

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 #4977, 2770 Castro Valley Blvd., Castro Valley, CA**

<b>Date Sampled</b>	<b>Approximate Flow Direction</b>	<b>Approximate Hydraulic Gradient</b>
4/19/2002	Southwest	0.038
9/27/2002	Southwest	0.021
12/16/2002	Southeast	0.029
3/11/2003	South	0.024
6/17/2003	South-Southwest	0.022
9/18/2003	South-Southwest	0.022
3/11/2004	South-Southwest	0.024
6/2/2004	South	0.025
9/22/2004	South	0.025
12/15/2004	South	0.020
3/7/2005	South	0.02
6/27/2005	South	0.01
9/16/2005	Southeast	0.03
12/27/2005	South-Southeast	0.02
3/16/2006	Southeast	0.02
6/26/2006	South	0.03
9/29/2006	South	0.025
12/19/2006	South	0.024
3/29/2007	South	0.020
6/5/2007	South	0.027
9/25/2007	South	0.023
12/26/2007	South	0.027
3/25/2008	South	0.026
<b>6/10/2008</b>	<b>South</b>	<b>0.026</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 ENVIRONMENTAL, INC. GROUND-WATER SAMPLING DATA PACKAGE  
(INCLUDES FIELD DATA SHEETS, NON-HAZARDOUS WASTE DATA FORM, CHAIN  
OF CUSTODY DOCUMENTATION, CERTIFIED ANALYTICAL RESULTS, AND  
FIELD PROCEDURES FOR GROUNDWATER SAMPLING)**





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

July 1, 2008

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

Re: Groundwater Sampling Data Package, BP Service Station No. 4977, located at  
2770 Castro Valley Road, Castro Valley, California.

### **General Information**

*Data Submittal Prepared / Reviewed by:* Becky Carroll / Steve Carter

*Phone Number:* (530) 676-6004

*On-Site Supplier Representative:* Roberto Heimlich

*Sampling Date:* June 10, 2008

*Arrival:* 10:15 *Departure:* 12:10

*Weather Conditions:* Clear

*Unusual Field Conditions:* None noted.

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

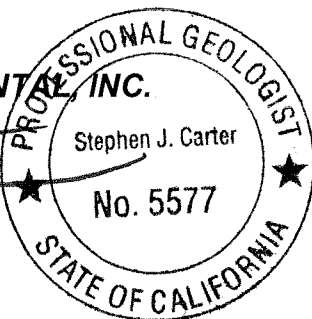
*Variations from Work Scope:* Well MW-3 purged dry after removal of three casing volumes.

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

Sincerely,

**STRATUS ENVIRONMENTAL, INC.**

*for* *SJ Carter*  
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 #: 4977 PURGED BY: RH WELL I.D.: MW-1  
 CLIENT NAME: \_\_\_\_\_ SAMPLED BY: RH SAMPLE I.D.: MW-1  
 LOCATION: Castro Valley - 2770 Castro Valley Road QA SAMPLES: \_\_\_\_\_

DATE PURGED 6/10/08 START (2400hr) 11:37 END (2400hr) 11:57  
 DATE SAMPLED 6/10/08 SAMPLE TIME (2400hr) 11:55  
 SAMPLE TYPE: Groundwater  Surface Water \_\_\_\_\_ Treatment Effluent \_\_\_\_\_ Other \_\_\_\_\_

CASING DIAMETER: 2" \_\_\_\_\_ 3" \_\_\_\_\_ 4"  5" \_\_\_\_\_ 6" \_\_\_\_\_ 8" \_\_\_\_\_ Other \_\_\_\_\_  
 Casing Volume: (gallons per foot) (0.17) (0.33) (0.67) (1.02) (1.50) (2.60) ( )

DEPTH TO BOTTOM (feet) = 15.00 CASING VOLUME (gal) = 3.9  
 DEPTH TO WATER (feet) = 9.17 CALCULATED PURGE (gal) = 11.7  
 WATER COLUMN HEIGHT (feet) = 5.8 ACTUAL PURGE (gal) = 12

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>6/10/08</u>	<u>11:39</u>	<u>4</u>	<u>21.4</u>	<u>1266</u>	<u>7.34</u>	<u>clear</u>	
<u>✓</u>	<u>11:40</u>	<u>8</u>	<u>21.6</u>	<u>1291</u>	<u>7.13</u>	<u>✓</u>	
	<u>11:41</u>	<u>12</u>	<u>21.9</u>	<u>1299</u>	<u>7.01</u>	<u>✓</u>	

SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 11.02 SAMPLE TURBIDITY: clear  
 80% RECHARGE:  YES  NO ANALYSES: SWO  
 ODOR: NO SAMPLE VESSEL / PRESERVATIVE: 6 VOAS HCK

PURGING EQUIPMENT

SAMPLING EQUIPMENT

Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Peristaltic Pump  Dedicated \_\_\_\_\_  
 Other: \_\_\_\_\_  
 Pump Depth: 14.50

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: 0.0 3.78

SIGNATURE: [Signature] Page \_\_\_\_\_ of \_\_\_\_\_

*gn*

**BP ALAMEDA PORTFOLIO**  
**WATER SAMPLE FIELD DATA SHEET**

PROJECT #: 4977 PURGED BY: RH WELL I.D.: MW-2  
 CLIENT NAME: \_\_\_\_\_ SAMPLED BY: RH SAMPLE I.D.: MW-2  
 LOCATION: Castro Valley - 2770 Castro Valley Road QA SAMPLES: \_\_\_\_\_

DATE PURGED 6/10/08 START (2400hr) 11:09 END (2400hr) 11:32  
 DATE SAMPLED 6/10/08 SAMPLE TIME (2400hr) 11:30  
 SAMPLE TYPE: Groundwater  Surface Water \_\_\_\_\_ Treatment Effluent \_\_\_\_\_ Other \_\_\_\_\_

CASING DIAMETER: 2" \_\_\_\_\_ 3" \_\_\_\_\_ 4" X 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) = 14.58 CASING VOLUME (gal) = 5.0  
 DEPTH TO WATER (feet) = 7.04 CALCULATED PURGE (gal) = 15.1  
 WATER COLUMN HEIGHT (feet) = 7.54 ACTUAL PURGE (gal) = 15.5

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>6/10/08</u>	<u>11:11</u>	<u>5</u>	<u>21.6</u>	<u>786</u>	<u>7.63</u>	<u>clear</u>	_____
<u>V</u>	<u>11:13</u>	<u>10</u>	<u>21.6</u>	<u>807</u>	<u>7.24</u>	<u>✓</u>	_____
<u>V</u>	<u>11:14</u>	<u>15.5</u>	<u>21.7</u>	<u>123</u>	<u>6.96</u>	<u>✓</u>	_____

SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 9.06 SAMPLE TURBIDITY: clear  
 80% RECHARGE:  YES  NO ANALYSES: SWO  
 ODOR: NO SAMPLE VESSEL / PRESERVATIVE: 6 VOAS / ACE

PURGING EQUIPMENT

Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Peristaltic Pump  Dedicated \_\_\_\_\_  
 Other: \_\_\_\_\_  
 Pump Depth: 19

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 1.83

SIGNATURE: [Signature] Page \_\_\_\_\_ of \_\_\_\_\_

RV

**BP ALAMEDA PORTFOLIO**  
**WATER SAMPLE FIELD DATA SHEET**

PROJECT #: 4977 PURGED BY: RH WELL I.D.: MW-3  
 CLIENT NAME: \_\_\_\_\_ SAMPLED BY: RH SAMPLE I.D.: MW-3  
 LOCATION: Castro Valley - 2770 Castro Valley Road QA SAMPLES: \_\_\_\_\_

DATE PURGED 6/10/08 START (2400hr) 10:44 END (2400hr) 11:03  
 DATE SAMPLED 6/10/08 SAMPLE TIME (2400hr) 11:01  
 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) = 14.85 CASING VOLUME (gal) = 5  
 DEPTH TO WATER (feet) = 7.33 CALCULATED PURGE (gal) = 15.1  
 WATER COLUMN HEIGHT (feet) = 7.5 ACTUAL PURGE (gal) = 15.5 DRP

FIELD MEASUREMENTS

DATE	TIME (2400hr)	VOLUME (gal)	TEMP. (degrees F)	CONDUCTIVITY (umhos/cm)	pH (units)	COLOR (visual)	TURBIDITY (NTU)
<u>6/10/08</u>	<u>10:46</u>	<u>5</u>	<u>22.3</u>	<u>296</u>	<u>8.23</u>	<u>clear</u>	_____
<u>✓</u>	<u>10:48</u>	<u>10</u>	<u>21.2</u>	<u>759</u>	<u>7.68</u>	<u>✓</u>	_____
<u>✓</u>	<u>10:50</u>	<u>15.5</u>	<u>21.0</u>	<u>702</u>	<u>7.59</u>	<u>✓</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

SAMPLE INFORMATION

SAMPLE DEPTH TO WATER: 9.04 SAMPLE TURBIDITY: clear  
 80% RECHARGE:  YES  NO ANALYSES: SWO  
 ODOR: NO SAMPLE VESSEL / PRESERVATIVE: 6 VOLS / HCL

PURGING EQUIPMENT

SAMPLING EQUIPMENT

Bladder Pump \_\_\_\_\_ Bailer (Teflon) \_\_\_\_\_  
 Centrifugal Pump \_\_\_\_\_ Bailer (PVC) \_\_\_\_\_  
 Submersible Pump \_\_\_\_\_ Bailer (Stainless Steel) \_\_\_\_\_  
 Peristaltic Pump \_\_\_\_\_ Dedicated \_\_\_\_\_  
 Other: \_\_\_\_\_  
 Pump Depth: 14.50

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 2.29

SIGNATURE: [Signature] Page \_\_\_\_\_ of \_\_\_\_\_

90

# WELLHEAD OBSERVATION FORM



Site Name/Number: 4977

Date: 6/10/02

Technician: ROBERTO

Well ID.	Box in Good Condition? <small>X = Yes Blank = No</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 L = Level w/cap</small>	Well Cap? <small>I = Intact M = Missing or Compromised (replaced)</small>	Bolts Missing? <small>X = Yes Blank = No</small>	Bolts Stripped? <small>X = Yes Blank = No</small>	Bolt Holes Stripped? <small>X = Yes Blank = No</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	/	—	—	B	I	—	/	—	—	—	—	
MW-2	/	—	—	B	I	—	—	—	—	—	—	
MW-3	/	—	—	B	I	X	—	—	—	—	—	

### 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.)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

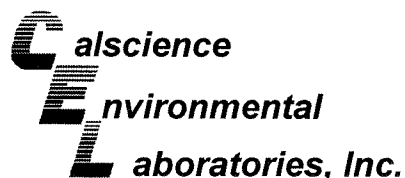
NO. 666744

# NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR	SITE:	EPA I.D. NO.	NOT REQUIRED		
	NAME <u>RD WEST COAST PRODUCTS LLC ARCO # 4977</u>				
	ADDRESS <u>P.O. BOX 80249</u> <u>RANCHO SANTA MARGARITA</u>				
	CITY, STATE, ZIP <u>CA 92688</u>				
	CONTAINERS: No. _____ VOLUME <u>43 GAL</u> WEIGHT _____				
TYPE: <input type="checkbox"/> TANK TRUCK <input type="checkbox"/> DUMP TRUCK <input type="checkbox"/> DRUMS <input type="checkbox"/> CARTONS <input type="checkbox"/> OTHER _____					
WASTE DESCRIPTION: <u>NON-HAZARDOUS WATER</u>	GENERATING PROCESS: <u>WELL DRIBLING/DECON WATER</u>				
COMPONENTS OF WASTE	PPM	%	COMPONENTS OF WASTE		
1. <u>WATER</u> <u>99-100%</u>			5. _____		
2. <u>TBN</u> <u>&lt;1%</u>			6. _____		
3. _____			7. <u>DECON</u>		
4. _____			8. _____		
PROPERTIES: <u>7-20</u> <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID <input type="checkbox"/> SLUDGE <input type="checkbox"/> SLURRY <input type="checkbox"/> OTHER _____					
HANDLING INSTRUCTIONS: <u>WEAR ALL APPROPRIATE PROTECTIVE CLOTHING</u>					
<div style="border: 1px solid black; padding: 2px; width: fit-content;">                 THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.             </div>		Larry Woodhart DEPT for RD TYPED OR PRINTED FULL NAME & SIGNATURE <span style="float: right;">6/1/02</span> DATE			
TRANSPORTER	Transporter #1	Transporter #2	EPA I.D. NO.		
	NAME <u>STRATUS ENVIRONMENTAL</u>				
	ADDRESS <u>3230 CAMERON PARK DR</u>	SERVICE ORDER NO. _____			
	CITY, STATE, ZIP <u>CAMERON PARK, CA 95602</u>	PICK UP DATE _____			
	PHONE NO. <u>530-676-3021</u>	Robert Hamrick TYPED OR PRINTED FULL NAME & SIGNATURE <span style="float: right;">6/1/02</span> DATE			
TRUCK UNIT I.D. NO. _____					
TSD FACILITY	NAME <u>INSTRAT, INC</u>	EPA I.D. NO.			
	ADDRESS <u>1105 AIRPORT RD #C</u>	DISPOSAL METHOD			
	CITY, STATE, ZIP <u>BIO VISTA, CA 94011</u>	<input type="checkbox"/> LANDFILL <input type="checkbox"/> OTHER _____			
	PHONE NO. <u>530-753-1829</u>				
	TYPED OR PRINTED FULL NAME & SIGNATURE _____		DATE _____		
GEN	OLD/NEW	L	A	TCNS	DISCREPANCY
TRANS		S	B		
C/Q		RT/GD	NA/DF	NONE	







June 26, 2008

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

Subject: **CalScience Work Order No.:** 08-06-1161  
**Client Reference:** ARCO 4977

Dear Client:

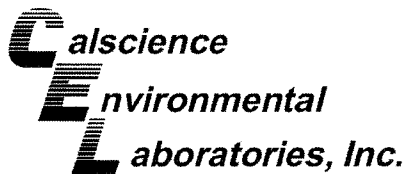
Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 6/12/2008 and analyzed in accordance with the attached chain-of-custody.

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.  
Linda Scharpenberg  
Project Manager



**CASE NARRATIVE – 08-06-1161**

**Data Qualifiers - EPA 8260:**

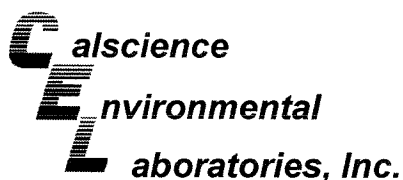
080614L01:

The RPD for TBA was outside criteria in the LCS/LCSD. The % recoveries for both analytes were within acceptance criteria in the LCS/LCSD. The % recoveries and the RPDs were within limits in the associated MS/MSD. The LCS/LCSD has been flagged "X" within the report.

**"X" = BA**

BA – Relative Percent Difference out of Control

A handwritten signature in black ink, appearing to be "M. J. ...", located at the bottom left of the page.



## Analytical Report



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

Date Received: 06/12/08  
Work Order No: 08-06-1161  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 4977

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	08-06-1161-1-D	06/10/08 11:55	Aqueous	GC 29	06/13/08	06/14/08 02:23	080613B01

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	84	38-134			

MW-2	08-06-1161-2-D	06/10/08 11:30	Aqueous	GC 29	06/13/08	06/14/08 02:57	080613B01
------	----------------	-------------------	---------	-------	----------	-------------------	-----------

Comment(s): -LH Surrogate recovery above the acceptance limits.

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	14000	250	5		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	135	38-134		LH	

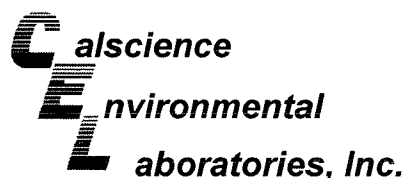
MW-3	08-06-1161-3-D	06/10/08 11:01	Aqueous	GC 29	06/13/08	06/14/08 03:31	080613B01
------	----------------	-------------------	---------	-------	----------	-------------------	-----------

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	120	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	85	38-134			

Method Blank	099-12-695-167	N/A	Aqueous	GC 29	06/13/08	06/13/08 11:12	080613B01
--------------	----------------	-----	---------	-------	----------	-------------------	-----------

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	74	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: 06/12/08  
Work Order No: 08-06-1161  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 4977

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-1</b>	<b>08-06-1161-1-C</b>	<b>06/10/08 11:55</b>	<b>Aqueous</b>	<b>GC/MS Z</b>	<b>06/14/08</b>	<b>06/14/08 23:47</b>	<b>080614L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	1.3	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	
<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>		<b>Qual</b>	<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>		<b>Qual</b>
1,2-Dichloroethane-d4	105	73-157			Dibromofluoromethane	105	82-142		
Toluene-d8	92	82-112			1,4-Bromofluorobenzene	79	75-105		

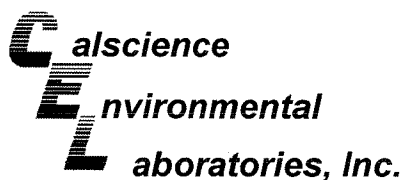
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-2</b>	<b>08-06-1161-2-C</b>	<b>06/10/08 11:30</b>	<b>Aqueous</b>	<b>GC/MS Z</b>	<b>06/14/08</b>	<b>06/15/08 00:48</b>	<b>080614L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	480	25	50		Methyl-t-Butyl Ether (MTBE)	100	25	50	
1,2-Dibromoethane	ND	25	50		Tert-Butyl Alcohol (TBA)	ND	500	50	
1,2-Dichloroethane	ND	25	50		Diisopropyl Ether (DIPE)	ND	25	50	
Ethylbenzene	730	25	50		Ethyl-t-Butyl Ether (ETBE)	ND	25	50	
Toluene	ND	25	50		Tert-Amyl-Methyl Ether (TAME)	ND	25	50	
Xylenes (total)	240	25	50		Ethanol	ND	15000	50	
<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>		<b>Qual</b>	<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>		<b>Qual</b>
1,2-Dichloroethane-d4	107	73-157			Dibromofluoromethane	113	82-142		
Toluene-d8	98	82-112			1,4-Bromofluorobenzene	92	75-105		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-3</b>	<b>08-06-1161-3-C</b>	<b>06/10/08 11:01</b>	<b>Aqueous</b>	<b>GC/MS Z</b>	<b>06/14/08</b>	<b>06/15/08 00:18</b>	<b>080614L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	12	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	25	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	2.0	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	
<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>		<b>Qual</b>	<b>Surrogates:</b>	<b>REC (%)</b>	<b>Control Limits</b>		<b>Qual</b>
1,2-Dichloroethane-d4	109	73-157			Dibromofluoromethane	115	82-142		
Toluene-d8	101	82-112			1,4-Bromofluorobenzene	90	75-105		

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: 06/12/08  
Work Order No: 08-06-1161  
Preparation: EPA 5030B  
Method: EPA 8260B  
Units: ug/L

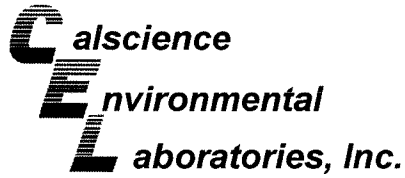
Project: ARCO 4977

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	099-12-703-279	N/A	Aqueous	GC/MS Z	06/14/08	06/14/08 18:12	080614L01

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	111	73-157			Dibromofluoromethane	111	82-142		
Toluene-d8	94	82-112			1,4-Bromofluorobenzene	82	75-105		

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

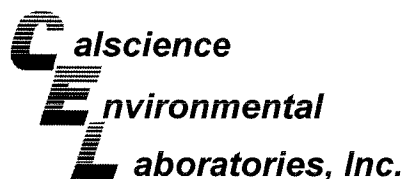
Date Received: 06/12/08  
 Work Order No: 08-06-1161  
 Preparation: EPA 5030B  
 Method: EPA 8015B (M)

Project ARCO 4977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-06-1304-5	Aqueous	GC 29	06/13/08	06/13/08	080613S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	114	113	38-134	1	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: 06/12/08  
Work Order No: 08-06-1161  
Preparation: EPA 5030B  
Method: EPA 8260B

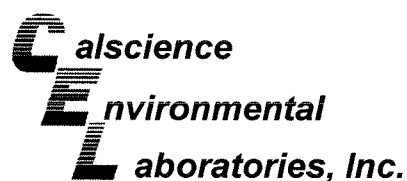
Project ARCO 4977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
08-06-1304-3	Aqueous	GC/MS Z	06/14/08	06/14/08	080614S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	106	107	86-122	1	0-8	
Carbon Tetrachloride	109	108	78-138	1	0-9	
Chlorobenzene	110	105	90-120	5	0-9	
1,2-Dibromoethane	114	118	70-130	4	0-30	
1,2-Dichlorobenzene	117	119	89-119	2	0-10	
1,1-Dichloroethene	96	98	52-142	2	0-23	
Ethylbenzene	117	127	70-130	8	0-30	
Toluene	105	108	85-127	3	0-12	
Trichloroethene	106	109	78-126	3	0-10	
Vinyl Chloride	95	96	56-140	1	0-21	
Methyl-t-Butyl Ether (MTBE)	86	93	64-136	8	0-28	
Tert-Butyl Alcohol (TBA)	118	128	27-183	8	0-60	
Diisopropyl Ether (DIPE)	93	94	78-126	2	0-16	
Ethyl-t-Butyl Ether (ETBE)	87	92	67-133	5	0-21	
Tert-Amyl-Methyl Ether (TAME)	96	102	63-141	5	0-21	
Ethanol	130	118	11-167	10	0-64	

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

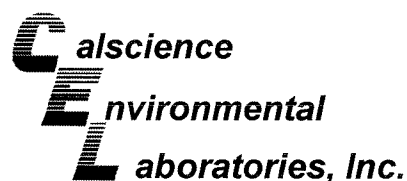
Date Received: N/A  
Work Order No: 08-06-1161  
Preparation: EPA 5030B  
Method: EPA 8015B (M)

Project: ARCO 4977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-167	Aqueous	GC 29	06/13/08	06/13/08	080613B01

Parameter	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	112	113	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: 08-06-1161  
Preparation: EPA 5030B  
Method: EPA 8260B

Project: ARCO 4977

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-703-279	Aqueous	GC/MS Z	06/14/08	06/14/08	080614L01

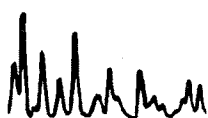
Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	99	103	87-117	4	0-7	
Carbon Tetrachloride	105	109	78-132	3	0-8	
Chlorobenzene	102	106	88-118	4	0-8	
1,2-Dibromoethane	108	114	80-120	6	0-20	
1,2-Dichlorobenzene	113	120	88-118	6	0-8	X
1,1-Dichloroethene	93	99	71-131	6	0-14	
Ethylbenzene	110	114	80-120	3	0-20	
Toluene	101	103	85-127	2	0-7	
Trichloroethene	107	109	85-121	2	0-11	
Vinyl Chloride	92	97	64-136	5	0-10	
Methyl-t-Butyl Ether (MTBE)	85	89	67-133	5	0-16	
Tert-Butyl Alcohol (TBA)	99	121	34-154	20	0-19	X
Diisopropyl Ether (DIPE)	89	94	80-122	5	0-8	
Ethyl-t-Butyl Ether (ETBE)	86	90	73-127	5	0-11	
Tert-Amyl-Methyl Ether (TAME)	96	100	69-135	4	0-12	
Ethanol	118	115	34-124	3	0-44	

RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 08-06-1161

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.





bp  
A BP affiliated company

### Chain of Custody Record

Project Name: ARCO 4977  
 BP BU/AR Region/Enfos Segment: BP > Americas > West > Retail > Alameda > 49  
 State or Lead Regulatory Agency: \_\_\_\_\_  
 Requested Due Date (mm/dd/yy): \_\_\_\_\_

1161

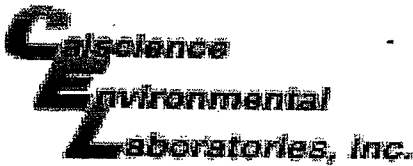
On-site Time:	10:15	Temp:	70
Off-site Time:	12:10	Temp:	72
Sky Conditions:	clear		
Meteorological Events:	NA		
Wind Speed:	0	Direction:	NA

Lab Name: Calscience	BP/AR Facility No.: 4977	Consultant/Contractor: Stratus Environmental, Inc.
Address: 7440 Lincoln Way Garden Grove, CA 92841	BP/AR Facility Address: 2770 Castro Valley Road, Castro Valley	Address: 3330 Cameron Park Drive, Suite 550 Cameron Park, CA 95682
Lab PM: Linda Scharpenberg	California Global ID No.: T060010089	Consultant/Contractor Project No.:
Tele/Fax: 714-895-5494 714-895-7501(fax)	Enfos Project No.: G0C2H-0021	Consultant/Contractor PM: Jay Johnson
BP/AR PM Contact: Paul Supple	Provision or OOC (circle one) Provision	Tele/Fax: (530) 676-6000 / (530) 676-6005
Address: 2010 Crow Canyon Place, Suite 150 San Ramon, CA	Phase/WBS: 04-Monitoring	Report Type & QC Level: Level 1 with EDF
Tele/Fax: 925-275-3506	Sub Phase/Task: 03-Analytical	E-mail EDD To: shayes@stratusinc.net
	Cost Element: 01-Contractor labor	Invoice to: Atlantic Richfield Co.

Item No.	Sample Description	Time	Date	Matrix			Laboratory No.	No. of Containers	Preservative					Requested Analysis					Sample Point Lat/Long and Comments Oxy = MTBE, TAME, ETBE, DIPE, TBA		
				Soil/Solid	Water/Liquid	Air			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	BTEX/Oxy* by 8260	1,2-DCA	Ethanol by 8260	EDE	CRO by 8015m			
1	MW-1	11:55	6/10/08	X				6						X	X	X	X	X			
2	MW-2	11:30	↑	X				6						X	X	X	X	X			
3	MW-3	11:01	↓	X				6						X	X	X	X	X			
4	TB-4977 6/10/08-6:00	6:00	↓	X				2						X	X	X	X	X			HOLD
5																					
6																					
7																					
8																					
9																					
10																					

Sampler's Name: <u>ROBERTO HEMMICH</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: <u>DOULOS ENL</u>						
Shipment Date:						
Shipment Method:						
Shipment Tracking No: <u>105723823</u>						
Special Instructions: <u>Please cc results to rmiller@broadbentinc.com</u>				<i>[Signature]</i>	6/12/08	1030

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 #: 08 - 06 - 1161

Cooler 1 of 1

### SAMPLE RECEIPT FORM

CLIENT: Strabry

DATE: 6/12/08

**TEMPERATURE - SAMPLES RECEIVED BY:**

**CALSCIENCE COURIER:**

\_\_\_\_\_ Chilled, cooler with temperature blank provided.

\_\_\_\_\_ Chilled, cooler without temperature blank.

\_\_\_\_\_ Chilled and placed in cooler with wet ice.

\_\_\_\_\_ Ambient and placed in cooler with wet ice.

\_\_\_\_\_ Ambient temperature (For Air & Filter only).

\_\_\_\_\_ °C Temperature blank.

**LABORATORY (Other than Calscience Courier):**

04.1 °C Temperature blank.

\_\_\_\_\_ °C IR thermometer.

\_\_\_\_\_ Ambient temperature (For Air & Filter only).

Initial: [Signature]

**CUSTODY SEAL INTACT:**

Sample(s): \_\_\_\_\_ Cooler:  No (Not Intact) : \_\_\_\_\_ Not Present: \_\_\_\_\_

Initial: [Signature]

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples.....	<input checked="" type="checkbox"/>	_____	_____
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	_____	_____
Sample container label(s) consistent with custody papers.....	<input checked="" type="checkbox"/>	<u>1 TD</u>	_____
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	_____	_____
Correct containers and volume for analyses requested.....	<input checked="" type="checkbox"/>	_____	_____
Proper preservation noted on sample label(s).....	<input checked="" type="checkbox"/>	_____	_____
VOA vial(s) free of headspace. ....	<input checked="" type="checkbox"/>	_____	_____
Tedlar bag(s) free of condensation.....	_____	_____	<input checked="" type="checkbox"/>

Initial: [Signature]

**COMMENTS:**

• (-4): RECEIVED TWO TRIP BLANKS LABELED AS TB-6041 INSTEAD OF TB-4977 ON COC

- COLLECTION DATE AND TIME ARE THE SAME

06-12-08

[Signature]

## ATTACHMENT

### FIELD PROCEDURES FOR GROUNDWATER SAMPLING

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

#### Equipment Calibration

Standard groundwater sampling equipment – pH/Conductivity/Temperature meter, and dissolved oxygen (DO) meters are calibrated prior to all field work. All calibration is conducted in accordance with equipment manufacturer's recommended procedure and buffer solutions. MSDS for all buffer solutions are maintained in Stratus vehicles. Calibration is completed everyday prior to field work and also once a week. The pH probe is calibrated for a pH of 7.0 daily and for 4.0, 7.0 and 10.0 weekly. The conductivity probe is calibrated for 1413  $\mu$ S daily and 1413  $\mu$ S and 447  $\mu$ S weekly. The temperature probe is calibrated weekly with a NIST-traceable thermometer. The DO probe is calibrated for 100% oxygen daily and 0% and 100% oxygen weekly. All calibration logs are maintained in the Stratus office.

#### 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 CONFIRMATION**

---

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>2Q08 GEO_WELL 4977</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100089</b>
<b><u>Facility Name:</u></b>	<b>ARCO #4977</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>7/8/2008 3:13:21 PM</b>
<b><u>Confirmation Number:</u></b>	<b>2293703973</b>

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!

<b><u>Submittal Type:</u></b>	<b>GWM_R</b>
<b><u>Submittal Title:</u></b>	<b>2Q08 GW Monitoring</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100089</b>
<b><u>Facility Name:</u></b>	<b>ARCO #4977</b>
<b><u>File Name:</u></b>	<b>08061161.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>7/11/2008 12:18:23 PM</b>
<b><u>Confirmation Number:</u></b>	<b>5441588461</b>