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February 6, 2002

Barney Chan
Alameda Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

FEB 14 2002

Re: **Monitoring and Remediation System Performance Report
Fourth Quarter 2001**

ARCO Service Station No. 2035
1001 San Pablo Avenue
Albany, California
Cambria Project #438-1608



Dear Mr. Chan:

On behalf of ARCO, Cambria Environmental Technology, Inc. (Cambria) is submitting the attached report which presents the results of the fourth quarter 2001 groundwater monitoring program at ARCO Service Station No. 2035, located at 1001 San Pablo Avenue, Albany, California. Operation and performance data for the soil vapor extraction (SVE) remediation system is also presented. The monitoring program complies with the Alameda County Health Care Services Agency (ACHCSA) requirements regarding underground tank investigations.

Please call if you have questions.

Sincerely,

Cambria Environmental Technology, Inc.

Ron Scheele, RG
Senior Project Manager

Attachment: Semi-Annual Groundwater Monitoring Report, Fourth Quarter 2001
SVE Quarterly Operation and Performance, Fourth Quarter 2001

Oakland, CA
San Ramon, CA
Sonoma, CA

Cc: Mr. Paul Supple, ARCO, PO Box 6549 Moraga, CA 94570
Barbara and James A. Lestrage, Property Owner, 20 San Juan Court, St. Helena, CA 94574
Muriel & Emile Turpin, Trustees, 957 Arlington Ave, Berkeley, CA, 94707
Mr. Robert Cave, BAAQMD-Permit Division, 939 Ellis Street, San Francisco, California 94109

**Cambria
Environmental
Technology, Inc.**

1144 65th Street
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Tel (510) 420-0700
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C A M B R I A

**Monitoring and Remediation System Performance
Report**

Fourth Quarter 2001

**ARCO Service Station No. 2035
1001 San Pablo Avenue
Albany, California
Cambria Project #438-1608**

FEB 14 2002



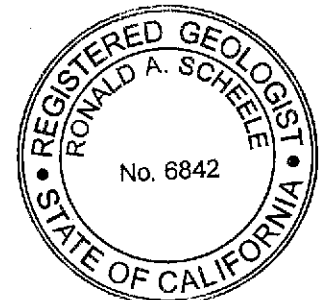
Prepared For:

Mr. Paul Supple
ARCO

February 6, 2002

Prepared By:

Cambria Environmental Technology, Inc.
6262 Hollis Street
Emeryville, California 94608



Oakland, CA
San Ramon, CA
Sonoma, CA

Written by:

**Cambria
Environmental
Technology, Inc.**

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Oakland, CA 94608
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Sara Dwight
Staff Environmental Scientist

Ron Scheele

Ron Scheele, RG
Senior Project Manager

ARCO SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Station No.: 2035 Address: 1001 San Pablo Avenue, Albany, California
 ARCO Environmental Engineer Paul Supple
 Consulting Co./Contact Person: Cambria Environmental Technology, Inc./ Ron Scheele, RG
 Consultant Project No.: 438-1608
 Primary Agency/Regulatory ID No.: ACHCSA

WORK PERFORMED THIS QUARTER (FOURTH - 2001):

1. Submitted site status report and remediation system performance report for third quarter 2001.
2. Perform semi-annual groundwater monitoring and sampling for fourth quarter 2001.
3. Operated soil vapor extraction (SVE) and air sparge (AS) remediation systems.

WORK PROPOSED FOR NEXT QUARTER (FIRST - 2002):

1. Prepare and submit fourth quarter 2001 semi-annual groundwater monitoring and remediation system performance report.
2. Operate SVE and air sparge systems.

MONITORING:

Current Phase of Project:	<u>Remediation</u>
Frequency of Sampling:	<u>Annual (2nd quarter): MW-5 Semi-annual (2nd/4th quarter): MW-1 through MW-4, MW-6, RW-1, and S-5</u>
Frequency of Monitoring:	<u>Semi-Annual (groundwater), Monthly (SVE)</u>
Is Free Product (FP) Present On-Site:	<u>No</u>
Cumulative FP Recovered to Date	<u>27.9 gallons, Wells AS-1, AS-2, RW-1, VW-1, VW-2, and VW-7</u>
FP Recovered This Quarter :	<u>None</u>
Bulk Soil Removed to Date :	<u>605 cubic yards of TPH impacted soil</u>
Water Wells or Surface Waters, Within 2000 ft., impacted by site:	<u>None</u>
Current Remediation Techniques:	<u>SVE and Air Sparging (RW-1)</u>
Average Depth to Groundwater:	<u>10.53 feet (4th Quarter 2001)</u>
Groundwater Flow Direction and Gradient:	<u>0.013 ft/ft toward Southwest (4th Quarter 2001)</u>



SVE QUARTERLY OPERATION AND PERFORMANCE

Equipment Inventory:	Therm Tech Model VAC-10 Thermal/Catalytic Oxidizer
Operating Mode:	Catalytic Oxidation
BAAQMD Permit #:	8694
TPH Conc. End of Period (lab):	7.5 ppmv (12/5/01)
Benzene Conc. End of Period (lab):	0.16 ppmv (12/5/01)
SVE Flowrate End of Period:	170 scfm
Total HC Destroyed This Period:	67 pounds
Total HC Destroyed to Date:	3,873 pounds
Utility Usage	
Electric (kWh):	94,088
Gas (Therms):	6,142
Operating Hours This Period (SVE):	2,089 Hours
Operating Hours to Date (SVE):	22,514 Hours
Percent Operational (SVE):	100%
Unit Maintenance:	Routine twice-monthly maintenance
Number of Auto Shut Downs:	0
Destruction Efficiency Permit Requirement:	98.5% (POC >2,000 ppmv); 97% (POC >200 ppmv); 90% (POC <200 ppmv)
Percent TPH Conversion:	Not calculated
Average Stack Temperature:	675 °F
Average SVE Source Flow:	187.3 scfm
Average SVE Process Flow:	187.3 scfm
Average Source Vacuum:	49.6 inches of Water

DISCUSSION:

Based on field measurements collect on October 3, 2001, groundwater beneath the site flows towards the southwest at a gradient of 0.013 ft/ft. This is consistent with the historic groundwater flow direction and gradient.

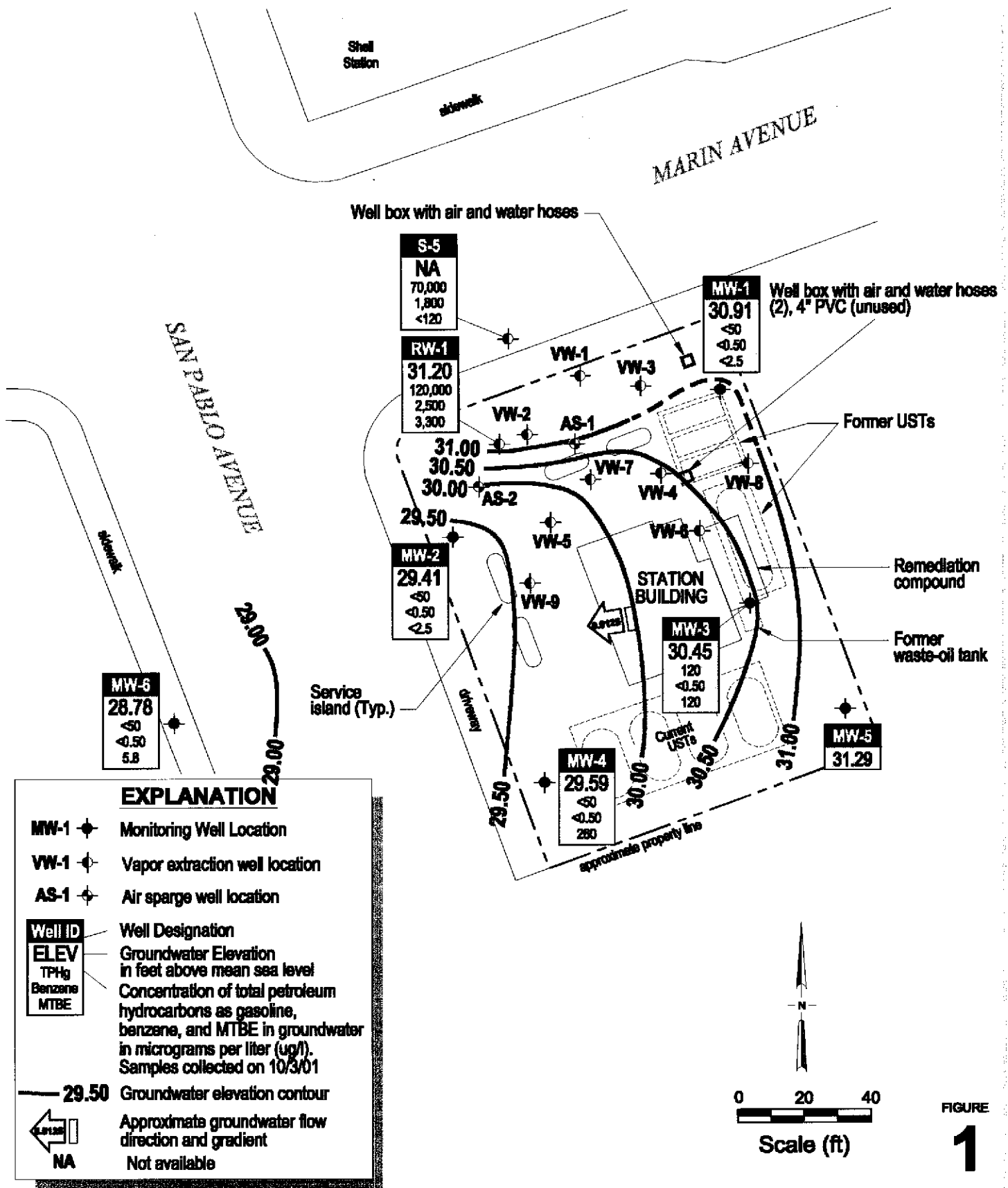
Hydrocarbon concentrations detected this quarter are consistent with the previous sampling event with the exception of well RW-1, which showed a decrease in TPHg, benzene, and MTBE, and of well S-5, which showed a decrease in TPHg and benzene. The maximum TPHg, benzene, and MTBE concentrations were detected in well RW-1 at 120,000, 2,500, and 3,300 micrograms per liter (µg/L), respectively.

As per Bay Area Air Quality Management (BAAQMD) permit requirements, the catalytic oxidizer was operated at a temperature greater than 600 degrees Fahrenheit and the temperature was continuously measured using a chart recorder. All system operations parameters were recorded in specialized field forms for future system optimization and agency inspection. System influent and effluent vapor samples were collected on October 1, November 7, and December 5, 2001 and submitted for analysis.

ATTACHMENTS:

- Figure 1 - Groundwater Elevation Contour and Analytical Summary Map
- Table 1 - Groundwater Monitoring Data
- Table 2 - Groundwater Flow Direction and Gradient
- Table 3 - SVE System Operational Uptime Information
- Table 4 - SVE System Flow Rates and Analytical Results of Air Samples
- Table 5 - SVE System Extraction Rates, Emission Rates, Destruction Efficiency, and Mass Removed
- Appendix A - Sampling and Analysis Procedures
- Appendix B - Certified Analytical Reports and Chain-of Custody Documentation
- Appendix C - Field Data Sheets





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ARCO Service Station 2035
 1001 San Pablo Avenue
 Albany, California



Groundwater Elevation Contour and Analytical Summary Map
 October 3, 2001

FIGURE 1

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC	Depth	FP	Groundwater		TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8240/8260 (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
		Elevation (ft-MSL)	to Water (feet)	Thickness (feet)	Elevation [1] (ft-MSL)	Date Sampled									
MW-1	03-24-95	41.41	6.21	0.00	35.20	03-24-95	8,800	3,600	<50	62	99	--	--	--	--
MW-1	05-24-95	41.41	9.37	0.00	32.04	05-24-95	4,800	2,000	<20	52	<20	--	--	--	--
MW-1	08-22-95	41.41	10.30	0.00	31.11	08-22-95	780	310	<2.5	12	<2.5	14	--	--	--
MW-1	11-09-95	41.41	12.25	0.00	29.16	11-09-95	58	14	<0.5	<0.5	<0.5	--	--	--	--
MW-1	02-27-96	41.41	9.08	0.00	32.33	02-27-96	2,700	930	12	18	32	51	--	--	--
MW-1	04-22-96	41.41	9.11	0.00	32.30	04-22-96	2,700	1,000	<10	22	<10	<60	--	--	--
MW-1	08-15-96	41.41	10.37	0.00	31.04	08-15-96	300	52	<0.5	0.9	<0.5	22	--	--	--
MW-1	12-10-96	41.41	8.79	0.00	32.62	12-10-96	270	63	0.7	<0.5	1	25	--	--	--
MW-1	03-27-97	41.41	9.80	0.00	31.61	03-27-97	1,500	610	<5	15	7	56	--	--	--
MW-1	05-22-97	41.41	9.65	0.00	31.76	05-22-97	110	6	<0.5	<0.5	0.7	10	--	--	--
MW-1	09-04-97	41.41	10.22	0.00	31.19	09-04-97	180	40	<0.5	1.2	0.5	26	--	--	--
MW-1	11-03-97	41.41	10.68	0.00	30.73	11-03-97	83	8	<0.5	<0.5	<0.5	13	--	--	--
MW-1	02-20-98	41.41	6.92	0.00	34.49	02-20-98	1,800	540	7	27	31	46	--	--	--
MW-1	05-18-98	41.41	9.28	0.00	32.13	05-18-98	4,500	1,300	20	57	20	<60	--	--	--
MW-1	08-20-98	41.41	10.05	0.00	31.36	08-21-98	530	110	<5	<5	<5	400	--	--	--
MW-1	10-20-98	41.41	10.42	0.00	30.99	10-20-98	66	9.1	<0.5	<0.5	<0.5	8	--	--	--
MW-1	02-16-99	41.41	8.10	0.00	33.31	02-16-99	1,200	390	<5	<5	6	45	--	--	--
MW-1	05-24-99	41.41	9.53	0.00	31.88	05-24-99	1,300	600	3	13	3	26	--	--	--
MW-1	08-24-99	41.41	10.03	0.00	31.38	08-24-99	100	21	1.3	<0.5	<0.5	8	--	0.55	P
MW-1	11-16-99	41.41	9.80	0.00	31.61	11-16-99	99	10	0.6	<0.5	<1	7	--	2.1	P
MW-1	02-01-00	41.41	8.82	0.00	32.59	02-02-00	400	93	1.6	3.6	3.7	19	--	1.0	P
DUP 1	06-21-00	--	--	--	--	06-21-00	416	88.4	<2.50	4.61	1.56	<5.00	--	--	--
MW-1	06-21-00	41.41	9.60	0.00	31.81	06-21-00	444	100	<2.50	4.15	<2.50	15.9	--	1.7	P
MW-1	11-06-00	41.41	9.50	0.00	31.91	11-06-00	73.2	17.8	<0.500	<0.500	<0.500	7.80	--	1.04	P
MW-1	05-04-01	41.41	9.28	0.00	32.13	05-04-01	714	392	<5.00	<5.00	<5.00	26.1	--	--	P
MW-1	10-03-01	41.41	10.50	0.00	30.91	10-03-01	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	0.59	P
DUP 1	10-03-01	--	--	--	--	10-03-01	<50	<0.50	<0.50	<0.50	0.52	<2.5	--	--	--

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC	Depth	FP	Groundwater		TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8240/8260 (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)	
		Elevation (ft-MSL)	to Water (feet)	Thickness (feet)	Elevation [1] (ft-MSL)	Date Sampled										
MW-2	03-24-95	40.38	6.96	0.00	33.42	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
MW-2	05-24-95	40.38	10.02	0.00	30.36	05-24-95	Not sampled: well sampled semi-annually, during the first and third quarters									
MW-2	08-22-95	40.38	10.87	0.00	29.51	08-22-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
MW-2	11-09-95	40.38	13.12	0.00	27.26	11-09-95	Not sampled: well sampled semi-annually, during the first and third quarters									
MW-2	02-27-96	40.38	10.25	0.00	30.13	02-27-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
MW-2	04-22-96	40.38	9.98	0.00	30.40	04-22-96	Not sampled: well sampled semi-annually, during the first and third quarters									
MW-2	08-15-96	40.38	11.10	0.00	29.28	08-15-96	<50	<0.5	<0.5	<0.5	<0.5	4	--	--	--	
MW-2	12-10-96	40.38	10.00	0.00	30.38	12-10-96	Not sampled: well sampled semi-annually, during the first and third quarters									
MW-2	03-27-97	40.38	10.38	0.00	30.00	03-27-97	<50	<0.5	<0.5	<0.5	<0.5	12	--	--	--	
MW-2	05-22-97	40.38	10.65	0.00	29.73	05-22-97	Not sampled: well sampled semi-annually, during the first and third quarters									
MW-2	09-04-97	40.38	10.87	0.00	29.51	09-04-97	<50	<0.5	<0.5	<0.5	<0.5	19	--	--	--	
MW-2	11-03-97	40.38	11.25	0.00	29.13	11-03-97	<50	<0.5	<0.5	<0.5	<0.5	18	--	--	--	
MW-2	02-20-98	40.38	7.69	0.00	32.69	02-20-98	<50	0.5	<0.5	<0.5	<0.5	12	--	--	--	
MW-2	05-18-98	40.38	9.88	0.00	30.50	05-18-98	<50	<0.5	<0.5	<0.5	<0.5	10	--	--	--	
MW-2	08-20-98	40.38	10.62	0.00	29.76	08-21-98	<50	<0.5	<0.5	<0.5	<0.5	3	--	--	--	
MW-2	10-20-98	40.38	11.00	0.00	29.38	10-20-98	<50	<0.5	<0.5	<0.5	<0.5	31	--	--	--	
MW-2	02-16-99	40.38	9.04	0.00	31.34	02-16-99	<50	<0.5	<0.5	<0.5	<0.5	13	--	--	--	
MW-2	05-24-99	40.38	9.90	0.00	30.48	05-24-99	<50	0.6	<0.5	<0.5	<0.5	47	--	--	--	
MW-2	08-24-99	40.38	10.60	0.00	29.78	08-24-99	<50	<0.5	<0.5	<0.5	<0.5	20	--	0.88	P	
MW-2	11-16-99	40.38	10.45	0.00	29.93	11-16-99	<50	<0.5	<0.5	<0.5	<1	<3	--	2.5	P	
MW-2	02-01-00	40.38	9.49	0.00	30.89	02-02-00	<50	<0.5	<0.5	<0.5	<1	59	--	1.0	P	
MW-2	06-21-00	40.38	10.30	0.00	30.08	06-21-00	<50.0	<0.500	<0.500	<0.500	<0.500	4.17	--	1.5	P	
MW-2	11-06-00	40.38	10.19	0.00	30.19	11-06-00	<50.0	<0.500	<0.500	<0.500	<0.500	30.6	--	1.27	P	
MW-2	05-04-01	40.38	10.15	0.00	30.23	05-04-01	<50.0	<0.500	<0.500	<0.500	<0.500	32.7	--	--	P	
DUP	05-04-01	--	--	--	--	05-04-01	<50.0	<0.500	<0.500	<0.500	1.18	31.5	--	--	--	
MW-2	10-03-01	40.38	10.97	0.00	29.41	10-03-01	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--	0.63	P	

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC	Depth	FP	Groundwater		TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8240/8260 (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
		Elevation (ft-MSL)	to Water (feet)	Thickness (feet)	Elevation [1] (ft-MSL)	Date Sampled									
MW-3	03-24-95	41.44	7.29	0.00	34.15	03-24-95	51	0.8	<0.5	2.4	<0.5	--	--	--	--
MW-3	05-24-95	41.44	9.53	0.00	31.91	05-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-3	08-22-95	41.44	11.19	0.00	30.25	08-22-95	<50	<0.5	<0.5	<0.5	<0.5	79	--	--	--
MW-3	11-09-95	41.44	12.77	0.00	28.67	11-09-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-3	02-27-96	41.44	9.41	0.00	32.03	02-27-96	120	3.6	<0.5	2.2	3.7	90	--	--	--
MW-3	04-22-96	41.44	9.63	0.00	31.81	04-22-96	<50	<0.5	<0.5	<0.5	<0.5	90	--	--	--
MW-3	08-15-96	41.44	11.12	0.00	30.32	08-15-96	<50	<0.5	<0.5	<0.5	<0.5	54	--	--	--
MW-3	12-10-96	41.44	10.34	0.00	31.10	12-10-96	71	<0.5	<0.5	<0.5	<0.5	130	--	--	--
MW-3	03-27-97	41.44	10.28	0.00	31.16	03-27-97	<100	<1	<1	<1	<1	170	--	--	--
MW-3	05-22-97	41.44	10.40	0.00	31.04	05-22-97	<100	<1	<1	<1	<1	95	--	--	--
MW-3	09-04-97	41.44	10.75	0.00	30.69	09-04-97	<50	<0.5	<0.5	<0.5	<0.5	37	--	--	--
MW-3	11-03-97	41.44	11.44	0.00	30.00	11-03-97	<200	<2	<2	<2	<2	130	--	--	--
MW-3	02-20-98	41.44	7.48	0.00	33.96	02-20-98	<200	<2	5	<2	8	140	--	--	--
MW-3	05-18-98	41.44	9.87	0.00	31.57	05-18-98	<100	<1	<1	<1	<1	150	--	--	--
MW-3	08-20-98	41.44	10.72	0.00	30.72	08-21-98	<200	<2	<2	<2	<2	210	--	--	--
MW-3	10-20-98	41.44	11.30	0.00	30.14	10-20-98	<200	<2	<2	<2	<2	270	--	--	--
MW-3	02-16-99	41.44	8.60	0.00	32.84	02-16-99	<500	<5	<5	<5	<5	700	--	--	--
MW-3	05-24-99	41.44	9.87	0.00	31.57	05-24-99	<50	<0.5	<0.5	<0.5	<0.5	150	140	--	--
MW-3	08-24-99	41.44	10.83	0.00	30.61	08-24-99	<50	<0.5	<0.5	<0.5	<0.5	54	71	0.41	P
MW-3	11-16-99	41.44	10.54	0.00	30.90	11-16-99	100	<0.5	3.3	<0.5	<1	500	--	6.2	P
MW-3	02-01-00	41.44	5.69	0.00	35.75	02-02-00	18,000	1,000	45	1,500	940	100	--	2.12	P
MW-3	06-21-00	41.44	9.99	0.00	31.45	06-21-00	90.9	1.52	<0.500	<0.500	<0.500	187	--	2.6	P
MW-3	11-06-00	41.44	10.15	0.00	31.29	11-06-00	138	2.37	<0.500	<0.500	<0.500	216	--	0.47	P
MW-3	05-04-01	41.44	10.17	0.00	31.27	05-04-01	316	15.7	1.14	<0.500	<0.500	178	--	--	P
MW-3	10-03-01	41.44	10.99	0.00	30.45	10-03-01	120	<0.50	<0.50	<0.50	<0.50	120	--	0.47	P

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater		TPHg ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethyl-benzene ($\mu\text{g/L}$)	Total Xylenes ($\mu\text{g/L}$)	MTBE 8021B* ($\mu\text{g/L}$)	MTBE 8240/8260 ($\mu\text{g/L}$)	Dissolved Oxygen (mg/L)	Purged/Not Purged (P/NP)
					Elevation [1] (ft-MSL)	Date Sampled									
MW-4	03-24-95	40.33	5.92	0.00	34.41	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-4	05-24-95	40.33	9.23	0.00	31.10	05-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-4	08-22-95	40.33	10.61	0.00	29.72	08-22-95	<50	<0.5	<0.5	<0.5	<0.5	99	--	--	--
MW-4	11-09-95	40.33	11.97	0.00	28.36	11-09-95	<50	<0.5	<0.5	<0.5	<0.5	--	89	--	--
MW-4	02-27-96	40.33	8.84	0.00	31.49	02-27-96	<50	0.8	<0.5	<0.5	<0.5	<3	--	--	--
MW-4	04-22-96	40.33	9.15	0.00	31.18	04-22-96	Not sampled: well sampled annually, during the first quarter							--	--
MW-4	08-15-96	40.33	10.35	0.00	29.98	08-15-96	Not sampled: well sampled annually, during the first quarter							--	--
MW-4	12-10-96	40.33	8.70	0.00	31.63	12-10-96	Not sampled: well sampled annually, during the first quarter							--	--
MW-4	03-27-97	40.33	9.75	0.00	30.58	03-27-97	<5,000	<50	<50	<50	<50	4,200	--	--	--
MW-4	05-22-97	40.33	9.91	0.00	30.42	05-22-97	Not sampled: well sampled annually, during the first quarter							--	--
MW-4	09-04-97	40.33	10.25	0.00	30.08	09-04-97	Not sampled: well sampled annually, during the first quarter							--	--
MW-4	11-03-97	40.33	10.79	0.00	29.54	11-03-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-4	02-20-98	40.33	6.78	0.00	33.55	02-20-98	<2,000	<20	<20	<20	<20	3,300	--	--	--
MW-4	05-18-98	40.33	9.26	0.00	31.07	05-18-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-4	08-20-98	40.33	10.10	0.00	30.23	08-21-98	<50	<0.5	<0.5	<0.5	<0.5	9	--	--	--
MW-4	10-20-98	40.33	10.43	0.00	29.90	10-20-98	<50	<0.5	<0.5	<0.5	<0.5	17	--	--	--
MW-4	02-16-99	40.33	8.56	0.00	31.77	02-16-99	<500	<5	<5	<5	<5	400	--	--	--
MW-4	05-24-99	40.33	9.52	0.00	30.81	05-24-99	<50	<0.5	<0.5	<0.5	<0.5	10	7.6	--	--
MW-4	08-24-99	40.33	9.99	0.00	30.34	08-24-99	<2,500	<25	<25	<25	<25	1,200	1,300	0.84	NP
MW-4	11-16-99	40.33	9.80	0.00	30.53	11-16-99	<50	<0.5	<0.5	<0.5	<1	<3	--	0.0	NP
MW-4	02-01-00	40.33	9.11	0.00	31.22	02-02-00	<50	<0.5	<0.5	<0.5	<1	1,200	--	1.0	NP
MW-4	06-21-00	40.33	9.60	0.00	30.73	06-21-00	<50.0	<0.500	<0.500	<0.500	<0.500	60.5	--	1.3	NP
MW-4	11-06-00	40.33	9.53	0.00	30.80	11-06-00	<50.0	<0.500	<0.500	<0.500	<0.500	14.0	--	0.71	NP
MW-4	05-04-01	40.33	9.21	0.00	31.12	05-04-01	<50.0	<0.500	<0.500	<0.500	<0.500	83.6	--	--	NP
MW-4	10-03-01	40.33	10.74	0.00	29.59	10-03-01	<50	<0.50	<0.50	<0.50	<0.50	260	--	0.59	NP

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC	Depth	FP	Groundwater	Date Sampled	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8240/8260 (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
		Elevation (ft-MSL)	to Water (feet)	Thickness (feet)	Elevation [1] (ft-MSL)										
MW-5	03-24-95	41.84	6.23	0.00	35.61	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-5	05-24-95	41.84	9.61	0.00	32.23	05-24-95	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	08-22-95	41.84	11.12	0.00	30.72	08-22-95	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	11-09-95	41.84	12.52	0.00	29.32	11-09-95	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	02-27-96	41.84	9.52	0.00	32.32	02-27-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-5	04-22-96	41.84	9.44	0.00	32.40	04-22-96	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	08-15-96	41.84	10.83	0.00	31.01	08-15-96	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	12-10-96	41.84	9.20	0.00	32.64	12-10-96	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	03-27-97	41.84	10.10	0.00	31.74	03-27-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-5	05-22-97	41.84	10.28	0.00	31.56	05-22-97	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	09-04-97	41.84	10.73	0.00	31.11	09-04-97	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	11-03-97	41.84	11.23	0.00	30.61	11-03-97	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	02-20-98	41.84	6.67	0.00	35.17	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-5	05-18-98	41.84	9.61	0.00	32.23	05-18-98	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	08-20-98	41.84	10.58	0.00	31.26	08-21-98	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	10-20-98	41.84	10.66	0.00	31.18	10-20-98	Not sampled: well sampled annually, during the first quarter							--	--
MW-5	02-16-99	41.84	8.35	0.00	33.49	02-16-99	Not sampled							--	--
MW-5	05-24-99	41.84	9.95	0.00	31.89	05-24-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-5	08-24-99	41.84	10.51	0.00	31.33	08-24-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	0.79	NP
MW-5	11-16-99	41.84	10.37	0.00	31.47	11-16-99	Not sampled: well sampled annually, during the second quarter							--	--
MW-5	02-01-00	41.84	9.35	0.00	32.49	02-02-00	<50	<0.5	<0.5	<0.5	<1	<3	--	1.0	NP
MW-5	06-21-00	41.84	10.03	0.00	31.81	06-21-00	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	3.1	NP
MW-5	11-06-00	41.84	9.89	0.00	31.95	11-06-00	Not sampled: well sampled annually, during the second quarter							--	--
MW-5	05-04-01	41.84	9.42	0.00	32.42	05-04-01	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--	--	NP
MW-5	10-03-01	41.84	10.55	0.00	31.29	10-03-01	Not sampled: well sampled annually, during the second quarter							--	--

**Table 1
Groundwater Monitoring Data**

**ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California**

Well Number	Date Gauged	TOC	Depth	FP	Groundwater	Date Sampled	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8240/8260 (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)	
		Elevation (ft-MSL)	to Water (feet)	Thickness (feet)	Elevation [1] (ft-MSL)											
MW-6	03-24-95	40.13	9.03	0.00	31.10	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	
MW-6	05-24-95	40.13	12.45	0.00	27.68	05-24-95	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	08-22-95	40.13	13.32	0.00	26.81	08-22-95	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	11-09-95	40.13	14.13	0.00	26.00	11-09-95	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	02-27-96	40.13	11.86	0.00	28.27	02-27-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
MW-6	04-22-96	40.13	12.35	0.00	27.78	04-22-96	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	08-15-96	40.13	13.18	0.00	26.95	08-15-96	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	12-10-96	40.13	11.94	0.00	28.19	12-10-96	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	03-27-97	40.13	13.10	0.00	27.03	03-27-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
MW-6	05-22-97	40.13	13.00	0.00	27.13	05-22-97	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	09-04-97	40.13	13.30	0.00	26.83	09-04-97	Not sampled: well sampled annually, during the first quarter								--	--
MW-6	11-03-97	40.13	13.42	0.00	26.71	11-03-97	<50	<0.5	<0.5	<0.5	<0.5	19	--	--	--	
MW-6	02-20-98	40.13	10.57	0.00	29.56	02-20-98	<100	<1	<1	<1	<1	95	--	--	--	
MW-6	05-18-98	40.13	12.64	0.00	27.49	05-18-98	<100	<1	<1	<1	<1	180	--	--	--	
MW-6	08-20-98	40.13	13.13	0.00	27.00	08-21-98	<100	<1	<1	<1	<1	180	--	--	--	
MW-6	10-20-98	40.13	13.48	0.00	26.65	10-20-98	<100	<1	<1	<1	<1	180	--	--	--	
MW-6	02-16-99	40.13	11.92	0.00	28.21	02-16-99	<200	<2	<2	<2	<2	200	--	--	--	
MW-6	05-24-99	40.13	12.80	0.00	27.33	05-24-99	<50	<0.5	<0.5	<0.5	<0.5	120	--	--	--	
MW-6	08-24-99	40.13	13.03	0.00	27.10	08-24-99	<50	<0.5	<0.5	<0.5	<0.5	44	--	0.46	NP	
MW-6	11-16-99	40.13	12.70	0.00	27.43	11-16-99	<50	<0.5	<0.5	<0.5	<1	17	17	0.0	NP	
MW-6	02-01-00	40.13	8.61	0.00	31.52	02-02-00	<50	<0.5	<0.5	<0.5	<1	6	--	1.0	NP	
MW-6	06-21-00	40.13	12.88	0.00	27.25	06-21-00	<50.0	<0.500	<0.500	<0.500	<0.500	2.57	--	2.8	NP	
MW-6	11-06-00	40.13	12.74	0.00	27.39	11-06-00	<50.0	<0.500	<0.500	<0.500	<0.500	3.77	--	1.51	NP	
DUP	11-06-00	--	--	--	--	11-06-00	<50.0	<0.500	<0.500	<0.500	<0.500	4.03	--	--	--	
MW-6	05-04-01	40.13	11.29	0.00	28.84	05-04-01	<50.0	<0.500	<0.500	<0.500	<0.500	10.5	12.3	--	NP	
MW-6	10-03-01	40.13	11.35	0.00	28.78	10-03-01	<50	<0.50	<0.50	<0.50	<0.50	5.8	4.8	0.61	NP	

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater		Date Sampled	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8240/8260 (µg/L)	Dissolved Oxygen (mg/L)	Purged/Not Purged (P/NP)	
					Elevation [1] (ft-MSL)												
RW-1	03-24-95	40.33	9.32	0.01	31.02		03-24-95	11,000	560	660	150	1,700	--	--	--	--	
RW-1	05-24-95	40.33	9.75	0.03	30.60		05-24-95	Not sampled: well contained floating product								--	--
RW-1	08-22-95	40.33	10.86	0.02	29.48		08-22-95	Not sampled: well contained floating product								--	--
RW-1	11-09-95	40.33	20.61	0.00	19.72		11-09-95	1,600	79	46	13	240	--	--	--	--	
RW-1	02-27-96	40.33	16.56	0.00	23.77		02-27-96	210	44	7.5	2.5	24	29	--	--	--	
RW-1	04-22-96	40.33	9.65	0.00	30.68		04-22-96	36,000	7,400	3,700	580	3,400	<300	--	--	--	
RW-1	08-15-96	40.33	10.60	0.00	29.73		08-15-96	1,800	31	38	15	150	<30	--	--	--	
RW-1	12-10-96	40.33	8.72	0.00	31.61		12-10-96	25,000	1,900	1,000	330	3,200	<100	--	--	--	
RW-1	03-27-97	40.33	10.33	0.00	30.00		03-27-97	7,200	1,900	59	95	240	480	--	--	--	
RW-1	05-22-97	40.33	10.10	0.00	30.23		05-22-97	3,000	630	84	45	340	<60	--	--	--	
RW-1	09-04-97	40.33	10.42	0.00	29.91		09-04-97	7,100	120	55	14	160	<60	--	--	--	
RW-1	11-03-97	40.33	9.10	0.00	31.23		11-03-97	<200	14	19	3	19	140	--	--	--	
RW-1	02-20-98	40.33	7.49	0.00	32.84		02-20-98	3,800	1,000	85	64	220	950	--	--	--	
RW-1	05-18-98	40.33	8.90	0.00	31.43		05-18-98	<200	45	<2	2	4	220	--	--	--	
RW-1	08-20-98	40.33	11.06	0.00	29.27		08-21-98	480	200	<2	<2	30	180	--	--	--	
RW-1	10-20-98	40.33	11.12	0.00	29.21		10-20-98	110	36	2.9	<0.5	4.1	5	--	--	--	
RW-1	02-16-99	40.33	7.70	0.00	32.63		02-17-99	250	61	2	2	19	94	--	--	--	
RW-1	05-24-99	40.33	11.12	0.00	29.21		05-24-99	4,500	2,000	7	<2	180	35	--	--	--	
RW-1	08-24-99	40.33	10.15	0.00	30.18		08-24-99	2,600	1,100	6.3	2.3	17	39	--	0.52	NP	
RW-1	11-16-99	40.33	9.95	0.00	30.38		11-16-99	1,200	2,600	16	86	41	140	--	1.4	P	
RW-1	02-01-00	40.33	11.88	0.00	28.45		02-02-00	11,000	980	230	200	1,400	38	--	1.0	NP	
RW-1	06-21-00	40.33	9.83	0.00	30.50		06-21-00	899	278	<2.50	8.70	8.46	61.1	--	1.3	NP	
RW-1	11-06-00	40.33	8.45	0.00	31.88		11-06-00	156,000	3,260	28,800	4,570	25,700	26,200	--	0.63	P	
RW-1	05-04-01	40.33	8.57	0.00	31.76		05-04-01	244,000	8,420	56,000	5,660	36,200	23,400	11,000	--	P	
RW-1	10-03-01	40.33	9.13	0.00	31.20		10-03-01	120,000	2,500	33,000	3,800	21,000	3,300	--	0.38	P	
S-5	05-31-01	--	--	--	--		05-31-01	310,000	3,000	11,000	4,000	34,000	<2,500	--	--	--	
S-5	10-03-01	--	10.00	--	--		10-03-01	70,000	1,800	7,800	1,400	20,000	<120	--	0.25	NP	

Table 1
Groundwater Monitoring Data
ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation [1] (ft-MSL)	Date Sampled	TPHg ($\mu\text{g/L}$)	Benzene ($\mu\text{g/L}$)	Toluene ($\mu\text{g/L}$)	Ethyl-benzene ($\mu\text{g/L}$)	Total Xylenes ($\mu\text{g/L}$)	MTBE 8021B* ($\mu\text{g/L}$)	MTBE 8240/8260 ($\mu\text{g/L}$)	Dissolved Oxygen (mg/L)	Purged/Not Purged (P/NP)
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TOC: top of casing

ft-MSL: elevation in feet, relative to mean sea level

TPH: total petroleum hydrocarbons as gasoline, California DHS LUFT Method

BTEX: benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 11/16/99).

MTBE: Methyl tert-butyl ether

$\mu\text{g/L}$: micrograms per liter

mg/L: milligrams per liter

--: not analyzed or not applicable

<: denotes concentration not present at or above laboratory detection limit stated to the right.

[1] = Computed by adding correction factor to groundwater elevation. Correction factor = free product thickness times 0.73 (approximate specific gravity of gasoline).

*: EPA method 8020 prior to 11/16/99

** : For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results and Remediation System Performance Evaluation Report, ARCO Service Station 2035, Albany, California*, (EMCON, March 25, 1996).

DUP: duplicate sample

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
03-24-95	Northwest	0.037
05-24-95	West-Northwest	0.013
08-22-95	Southwest	0.012
11-09-95	West-Southwest	0.01
02-27-96	Southwest	0.009
04-22-96	West-Southwest	0.014
08-15-96	Southwest	0.011
12-10-96	West-Southwest	0.023
03-27-97	West-Southwest	0.026
05-22-97	West-Southwest	0.024
09-04-97	West	0.019
11-03-97	Southwest	0.038
02-20-98	West	0.031
05-18-98	West	0.02
08-20-98	West	0.02
10-20-98	West	0.02
02-16-99	West	0.03
05-24-99	West-Southwest	0.03
08-24-99	West-Southwest	0.01
11-16-99	West-Southwest	0.02
02-01-00	Northwest	0.08
06-21-00	West	0.023
11-06-00	West	0.018
05-04-01	West-Southwest	0.015
10-03-01	Southwest	0.013

Table 3
Soil Vapor Extraction System (1997-Present)
Operational Uptime Information

ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Date	Period Operation					Cumulative Operation				
	Meter (hours)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total Operating Time (hours)
11/01/97						1425	335	1090	24%	6873.20
12/01/97	11484	30	14	16	47%	1455	349	1106	24%	7211.10
01/27/98	11484	57	0	57	0%	1512	349	1163	23%	7211.10
08/12/98	11484	197	0	197	0%	1709	349	1360	20%	7211.10
09/02/98	11485	21	0	21	0%	1730	349	1381	20%	7211.33
10/19/98	12280	47	33	14	70%	1777	382	1395	22%	8006.35
11/10/98	12809	22	22	0	100%	1799	404	1395	22%	8536.00
01/22/99	12809	73	0	73	0%	1872	404	1468	22%	8536.00
02/11/99	12810	20	0	20	0%	1892	404	1488	21%	8536.17
04/01/99	12810	49	0	49	0%	1941	404	1537	21%	8536.28
06/10/99	12810	70	0	70	0%	2011	404	1607	20%	8536.67
06/24/99	13146	14	14	0	100%	2025	418	1607	21%	8872.83
08/17/99	13146	54	0	54	0%	2079	418	1661	20%	8872.83
09/09/99	13147	23	0	23	0%	2102	418	1684	20%	8873.40
09/21/99	13435	12	12	0	100%	2114	430	1684	20%	9162.06
10/06/99	13450	15	1	14	4%	2129	431	1698	20%	9176.92
10/20/99	13475	14	1	13	7%	2143	432	1711	20%	9201.52
11/03/99	13812	14	14	0	100%	2157	446	1711	21%	9538.34
11/17/99	14148	14	14	0	100%	2171	460	1711	21%	9874.70
12/01/99	14391	14	10	4	72%	2185	470	1715	22%	10117.75
12/16/99	14751	15	15	0	100%	2200	485	1715	22%	10478.02
01/05/00	14751	20	0	20	0%	2220	485	1735	22%	10478.05
01/19/00	15087	14	14	0	100%	2234	499	1735	22%	10813.74
02/21/00	15087	33	0	33	0%	2267	499	1768	22%	10813.79
03/01/00	15303	9	9	0	100%	2276	508	1768	22%	11030.07
03/23/00	15831	22	22	0	100%	2298	530	1768	23%	11557.23

Table 3
Soil Vapor Extraction System (1997-Present)
Operational Uptime Information

ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Date	Period Operation					Cumulative Operation				
	Meter (hours)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total Operating Time (hours)
10/17/00	15832	208	0	208	0%	2506	530	1976	21%	11558.53
10/24/00	15998	7	7	0	99%	2513	537	1976	21%	11724.74
11/13/00	16319	20	13	7	67%	2533	551	1982	22%	12045.33
11/28/00	16319	15	0	15	0%	2548	551	1997	22%	12045.52
12/20/00	16319	22	0	22	0%	2570	551	2019	21%	12045.52
01/17/01	16324	28	0	28	1%	2598	551	2047	21%	12050.49
02/14/01	16346	28	1	27	3%	2626	552	2074	21%	12072.45
02/26/01	16458	12	5	7	39%	2638	556	2082	21%	12184.69
03/13/01	16466	15	0	15	2%	2653	557	2096	21%	12192.59
03/30/01	16872	17	17	0	99%	2670	574	2096	21%	12598.53
04/19/01	17029	20	7	13	33%	2690	580	2110	22%	12755.92
04/30/01	17292	11	11	0	99%	2701	591	2110	22%	13018.45
05/14/01	17601	14	13	1	92%	2715	604	2111	22%	13327.26
05/22/01	17793	8	8	0	100%	2723	612	2111	22%	13519.64
06/05/01	18126	14	14	0	99%	2737	626	2111	23%	13852.16
06/25/01	18305	20	7	13	37%	2757	633	2124	23%	14031.64
07/06/01	18569	11	11	0	100%	2768	644	2124	23%	14295.84
07/18/01	18856	12	12	0	100%	2780	656	2124	24%	14582.70
07/31/01	19166	13	13	0	99%	2793	669	2124	24%	14892.60
08/09/01	19388	9	9	0	103%	2802	643	2159	23%	15114.69
08/23/01	19720	14	14	0	99%	2816	656	2160	23%	15446.56
09/05/01	20029	13	13	0	99%	2829	655	2174	23%	15755.98
09/17/01	20321	12	12	0	101%	2841	668	2173	23%	16047.51
09/24/01	20420	7	4	3	59%	2848	672	2176	24%	16146.19

**Table 3
Soil Vapor Extraction System (1997-Present)
Operational Uptime Information**

**ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California**

Date	Period Operation					Cumulative Operation				
	Meter (hours)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total Operating Time (hours)
10/01/01	20425	7	0	7	3%	2855	672	2183	24%	16151.50
10/09/01	20621	8	8	0	100%	2863	680	2183	24%	16347.39
10/15/01	20762	6	6	0	100%	2869	686	2183	24%	16488.76
11/07/01	21320	23	23	0	100%	2892	709	2183	25%	17046.89
11/21/01	21650	14	14	0	100%	2906	723	2183	25%	17376.59
12/05/01	21986	14	14	0	100%	2920	737	2183	25%	17712.60
12/27/01	22514	22	22	0	100%	2942	759	2183	26%	18240.53

Table 4
Soil Vapor Extraction System
Flow Rates and Analytical Results of Air Samples (1997 - present)

ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Date	Sample Location	Vacuum (in. H2O)	Velocity		Flowrate ^{1,2} (scfm)	TPHg	Hydrocarbon Concentrations (ppmv)				
			/Actual Flow (fpm/acfm)				Benzene	Toluene	Ethylbenzene	Xylene	MTBE
12/01/97	Influent				221	160	0.6	<0.1	1.6	2.5	
	Effluent					8	<0.1	0.1	<0.1	0.3	
01/27/98	Influent	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Effluent										
08/12/98	Influent	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	Effluent										
09/02/98	Influent	30.0	600	27	610	<1	<1	2	3		
	Effluent		1050	92	9	<0.1	<0.1	0.1	<0.2		
10/19/98	Influent	20.0	500	23	64	<0.1	0.7	<0.1	<0.2		
	Effluent		1200	106	<5	<0.1	<0.1	<0.1	<0.2		
11/10/98	Influent	20.0	500	23	8	<0.1	0.1	<0.1	<0.2		
	Effluent		1200	106	<5	<0.1	<0.1	<0.1	<0.2		
06/10/99	Influent	35.0	1500	67	100	0.5	3	<0.1	0.9	<1	
	Effluent		975	75	<5	<0.1	<0.1	<0.1	<0.2	<1	
09/09/99	Influent	15.4	1900	90	<49	0.7	1.1	<0.1	<0.2	33	
	Effluent		1200	92	<5	<0.1	<0.1	<0.1	<0.2	<0.8	
10/06/99	Influent	16.0	1825	86	240	1	2.9	<0.1	0.7	67	
	Effluent		900	69	9	<0.1	0.1	0.1	<0.2	<0.8	
12/01/99	Influent	11.0	1900	91	210	0.7	0.8	<0.2	0.2	61	
	Effluent		1500	115	<5	<0.1	<0.1	<0.1	<0.2	1.4	
01/05/00	Influent	9.8	800	38	90	0.4	0.7	0.1	<0.2	33	
	Effluent		1450	111	<5	<0.1	<0.1	<0.1	<0.2	<0.8	
03/01/00	Influent	9.8	2000	96	54	1.3	4.8	1.1	7.2	19	
	Effluent		1500	115	<5	<0.1	<0.1	<0.1	<0.2	<0.8	
10/17/00	Influent	10.0	--	27	77	1.4	1.8	0.33	1.4	20	
	Effluent		--	103	6.0	0.044	0.16	0.055	0.38	0.59	

Table 4
Soil Vapor Extraction System
Flow Rates and Analytical Results of Air Samples (1997 - present)

ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Date	Sample Location	Vacuum (in. H2O)	Velocity		Flowrate ^{1,2} (scfm)	TPHg	Hydrocarbon Concentrations (ppmv)				
			/Actual Flow (fpm/acfm)				Benzene	Toluene	Ethylbenzene	Xylene	MTBE
02/26/01	Influent	60.0	180		153	50.4	0.850	3.84	0.390	2.02	11.6
	Effluent		180			153	<2.84	<0.0314	0.0769	<0.0230	0.754
04/19/01	Influent	45.0	124		110	180	2.0	2.6	0.25	2.0	<1.5
	Effluent		124			110	<10.0	<0.15	0.24	<0.15	0.79
05/14/01	Influent	40.0	76		69	41.0	0.511	0.299	0.0357	0.293	0.492
	Effluent		76			69	<2.84	<0.0314	<0.0266	<0.0230	<0.0230
06/05/01	Influent	45.0	108		96	6.6	<0.31	0.41	0.072	0.32	2.2
	Effluent		108			96	<2.40	<0.31	<0.027	<0.023	0.068
08/09/01	Influent	40.0	98.5		89	4.3	0.034	0.19	<0.024	0.15	0.20
	Effluent		98.5			89	<2.8	<0.032	0.026	<0.024	0.13
09/05/01	Influent	50.0	113		99	5.2	0.038	0.39	0.025	0.14	0.83
	Effluent		113			99	<2.8	<0.032	<0.026	<0.024	0.027
10/01/01	Influent	40.0	218		197	31	0.23	0.56	0.077	0.30	2.1
	Effluent		218			197	<2.8	<0.032	0.071	<0.024	0.036
11/07/01	Influent	48.0	221		195	6.4	<0.032	0.33	0.029	0.14	1.4
	Effluent		221			195	<2.8	<0.032	<0.026	<0.024	<0.024
12/05/01	Influent	61.0	200		170	7.5	0.16	0.52	<0.024	0.11	
	Effluent		200			170	<2.8	<0.032	<0.026	<0.024	<0.024

¹ Influent Flow Rate previous to 10/17/00, cfm = (Velocity, fpm)(Influent Pipe Area, sq. ft.)(406.8 in.H2O - Vacuum, in.H2O) / (406.8 in.H2O)
where Influent Pipe Diameter = 3"

Effluent Flow Rate, cfm = (Velocity, fpm)(Effluent Pipe Area, sq.ft.)[(460° R + 77° F) / (460° R + Vapor Temp F)]
where Effluent (after blower) Pipe Diameter = 4"

² Influent Flow Rate 10/17/00 to present, cfm = (Actual flow, acfm)(406.8 in.H2O - Vacuum, in.H2O) / (406.8 in.H2O)

Effluent Flow Rate 10/17/00 to present, scfm = (Actual flow, acfm)[(460° R + 77° F) / (460° R + Vapor Temp F)]
when dilution valve is open. If dilution valve is closed, influent flow = effluent flow

Table 5
Soil Vapor Extraction System
Extraction Rates, Emission Rates, Destruction Efficiency, and Mass Removed
(1997 - present)

ARCO Service Station No. 2035
1001 San Pablo Avenue, Albany, California

Date	Extraction Rate from Wellfield ¹		Emission Rate to Atmosphere ²		Destruction Efficiency ³		Period Removal ⁴		Cumulative Removal	
	TPHg (lbs/day)	Benzene (lbs/day)	TPHg (lbs/day)	Benzene (lbs/day)	TPHg (%)	Benzene (%)	TPHg (lbs)	Benzene (lbs)	TPHg (lbs)	Benzene (lbs)
12/01/97	13.0	0.0381	0.651	<0.0064	95%	NC	183	0.54	3023	250.5
09/02/98	6.11	0.0000	0.306	<0.0027	95%	NC	0.06	0.00	3023	250.5
10/19/98	0.55	0.0000	<0.196	<0.0031	NC	NC	18.2	0.00	3041	250.5
11/10/98	0.07	0.0000	<0.196	<0.0031	NC	NC	1.51	0.00	3042	250.5
06/10/99	2.47	0.0097	<0.138	<0.0021	NC	NC	0.07	0.00	3042	250.5
09/09/99	1.61	0.0180	<0.169	<0.0026	NC	NC	22.7	0.25	3065	250.8
10/06/99	7.59	0.0247	0.229	<0.0020	97%	NC	95.9	0.31	3161	251.1
12/01/99	7.00	0.0182	<0.212	<0.0033	NC	NC	274	0.71	3435	251.8
01/05/00	1.27	0.0044	<0.205	<0.0032	NC	NC	19.0	0.07	3454	251.9
03/01/00	1.90	0.0357	<0.212	<0.0033	NC	NC	43.7	0.82	3498	252.7
10/17/00	0.77	0.0110	<0.226	<0.0013	71%	88%	17.0	0.24	3515	252.9
02/26/01	2.84	0.0374	<0.160	<0.0014	NC	NC	74.1	0.98	3589	253.9
04/19/01	7.29	0.0633	<0.405	<0.0047	NC	NC	174	1.51	3763	255.4
05/14/01	1.03	0.0100	<0.0715	<0.0006	NC	NC	24.6	0.24	3787	255.7
06/25/01	0.23	<0.0085	<0.0847	<0.0085	NC	NC	6.84	0.25	3794	255.9
08/09/01	0.14	0.0009	<0.0914	<0.0008	NC	NC	6.33	0.04	3801	256.0
09/05/01	0.19	0.0011	<0.1020	<0.0009	NC	NC	5.06	0.03	3806	256.0
10/01/01	2.24	0.0130	<0.2022	<0.0018	NC	NC	36.9	0.21	3843	256.2
11/07/01	0.46	0.0018	<0.2005	<0.0018	NC	NC	17.1	0.07	3860	256.3
12/05/01	0.47	0.0078	<0.1749	<0.0016	NC	NC	13.0	0.22	3873	256.5

¹ Extraction Rate, lbs/day = (Influent Flow, cfm)(Influent conc., ppmv)(g/mole)(60 min/hr)(24 hr/day)(28.3 L/cf) / (10⁶)(24.45 moles/L)(453.6 g/lb)

where TPHg = 100 g/mole and Benzene = 78.1 g/mole; Influent conc. = 0, if reported as non-detect

² Emission Rate, lbs/day = (Effluent Flow, cfm)(Effluent conc., ppmv)(g/mole)(60 min/hr)(24 hr/day)(28.3 L/cf) / (10⁶)(24.45 moles/L)(453.6 g/lb)

where TPHg = 100 g/mole and Benzene = 78.1 g/mole; Effluent conc. = Method Reporting Limit, if reported as non-detect

³ Destruction Efficiency, % = (Extraction Rate - Emission Rate)(100) / (Extraction Rate); NC = Not Calculated due to non-detection.

⁴ Period Removal, lbs = (Extraction Rate)(Uptime)

NC = Not Calculated

APPENDIX A

SAMPLING AND ANALYSIS PROCEDURES

APPENDIX A

SAMPLING AND ANALYSIS PROCEDURES

The sampling and analysis procedures for water quality monitoring programs are contained in this appendix. The procedures provided for consistent and reproducible sampling methods, proper application of analytical methods, and accurate and precise analytical results. Finally, these procedures provided guidelines so that the overall objectives of the monitoring program were achieved.

The following documents have been used as guidelines for developing these procedures:

- Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities, Environmental Protection Agency (EPA)-530/SW-611, August 1977
- Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring Technical Enforcement Guidance Document, Office of Solid Waste and Emergency Response (OSWER) 9950.1, September 1986
- Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA SW-846, 3rd edition, November 1986
- Methods for Organic Chemical Analysis of Municipal and Industrial Waste Water, EPA-600/4-82-057, July 1982
- Methods for Organic Chemical Analysis of Water and Wastes, EPA-600/4-79-020, revised March 1983
- Leaking Underground Fuel Tank (LUFT) Field Manual, California State Water Resources Control Board, revised October 1989

Sample Collection

Sample collection procedures include equipment cleaning, water level and total well depth measurements, and well purging and sampling.

Equipment Cleaning

Before the sampling event was started, equipment that was used to sample groundwater was disassembled and cleaned with detergent water and then rinsed with tap water. During field sampling, equipment surfaces that were placed in the well or came into

contact with groundwater during field sampling were washed with detergent and double rinsed with tap water before the next well was purged or sampled.

Water Level, Floating Hydrocarbon, and Total Well Depth Measurements

Before purging and sampling occurred, the depth to water, floating hydrocarbon thickness and total well depth were measured using an oil/water interface measuring system. The oil/water interface measuring system consists of a probe that emits a continuous audible tone when immersed in a nonconductive fluid, such as oil or gasoline and an intermittent tone when immersed in a conductive fluid, such as water. The floating hydrocarbon thickness and water level were measured by lowering the probe into the well. Liquid levels were recorded relative to the tone emitted at the groundwater surface. The sonic probe was decontaminated after each use. A bottom-filling, clear disposable bailer was used to verify floating hydrocarbon thickness measurements of less than 0.02 foot. Alternatively, an electric sounder and a bottom-filling Teflon bailer may have been used to record floating hydrocarbon thickness and depth to water.

The electric sounder is a transistorized instrument that uses a reel-mounted, two-conductor, coaxial cable that connects the control panel to the sensor. Cable markings are stamped at 1-foot intervals. The water level was measured by lowering the sensor into the monitoring well. A low-current circuit was completed when the sensor contacted the water, which served as an electrolyte. The current was amplified and fed into an indicator light and audible buzzer, signaling when water had been contacted. A sensitivity control compensated for highly saline or conductive water. The electric sounder was decontaminated after each use. The bailer was lowered to a point just below the liquid level, retrieved, and observed for floating hydrocarbon.

Liquid measurements were recorded to the nearest 0.01 foot on the depth to water/floating product survey form. The groundwater elevation at each monitoring well was calculated by subtracting the measured depth to water from the surveyed elevation of the top of the well casing. (Every attempt was made to measure depth to water for all wells on the same day.) Total well depth was then measured by lowering the sensor to the bottom of the well. Total well depth, used to calculate purge volumes and to determine whether the well screen was partially obstructed by silt, was recorded to the nearest 0.1 foot on the depth to water/floating product survey form.

Well Purging

If the depth to groundwater was above the top of screens of the monitoring wells, then the wells were purged, otherwise non-purge groundwater samples were collected. Before sampling occurred, a polyvinyl chloride (PVC) bailer, centrifugal pump, low-flow submersible pump, or disposable bailer was used to purge standing water in the casing and gravel pack from the monitoring well. In most monitoring wells, the amount of water purged before sampling was greater than or equal to three casing volumes. Some monitoring wells were expected to be evacuated to dryness after removing fewer than three casing volumes. These low-yield monitoring wells were allowed to recharge for up to 24 hours. Samples were obtained as soon as the monitoring wells recharged to a level

sufficient for sample collection. If insufficient water recharged after 24 hours, the monitoring well was recorded as dry for the sampling event.

Groundwater purged from the monitoring wells was transported in a 240-gallon truck-mounted tank to Integrated Waste Management's Milpitas storage facility for disposal.

Field measurements of pH, specific conductance, and temperature were recorded in a waterproof field logbook. Field data sheets were reviewed for completeness by the sampling coordinator after the sampling event was completed.

The pH, specific conductance, and temperature meter were calibrated each day before field activities were begun. The calibration was checked once each day to verify meter performance. Field meter calibrations were recorded on the water sample field data sheet.

Well Sampling

A disposable bailer was the only equipment acceptable for well sampling. When samples for volatile organic analysis were being collected, the flow of groundwater from the bailer was regulated to minimize turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon-lined septa were used in sampling for volatile organics. These bottles were filled completely to prevent air from remaining in the bottle. A positive meniscus formed when the bottle was completely full. A convex Teflon septum was placed over the positive meniscus to eliminate air. After the bottle was capped, it was inverted and tapped to verify that it contained no air bubbles. The sample containers for other parameters were filled, filtered as required, and capped.

When required, dissolved concentrations of metals were determined using appropriate field filtration techniques. The sample was filtered by emptying the contents of the disposable bailer into a pressure transfer vessel. A disposable 0.45-micron acrylic copolymer filter was threaded onto the transfer vessel at the discharge point, and the vessel was sealed. Pressure was applied to the vessel with a hand pump and the filtrate directed into the appropriate containers. Each filter was used once and discarded.

Sample Preservation and Handling

The following section specifies sample containers, preservation methods, and sample handling procedures.

Sample Containers and Preservation

Sample containers vary with each type of analytical parameter. Container types and materials were selected to be nonreactive with the particular analytical parameter tested.

Sample Handling

Sample containers were labeled immediately prior to sample collection. Samples were kept cool with cold packs or ice until received by the laboratory. At the time of

sampling, each sample was logged on an ARCO chain-of-custody record that accompanied the sample to the laboratory. Samples that required overnight storage prior to shipping to the laboratory were kept cool (4° C) in a refrigerator.

Samples were transferred from Cambria to an ARCO-approved laboratory by courier or taken directly to the laboratory by the environmental sampler. Sample shipments from Cambria to laboratories performing the selected analyses routinely occurred within two to three days of sample collection.

Sample Documentation

The following procedures were used during sampling and analysis to provide chain-of-custody control during sample handling from collection through storage. Sample documentation included the use of the following:

- Water sample field data sheets to document sampling activities in the field
- Labels to identify individual samples
- Chain-of-custody record sheets for documenting possession and transfer of samples
- Laboratory analysis request sheets for documenting analyses to be performed

Field Logbook

In the field, the sampler recorded the following information on the water sample field data sheet (see Figure A-2) for each sample collected:

- Project number
- Client's name
- Location
- Name of sampler
- Date and time
- Well accessibility and integrity
- Pertinent well data (e.g., casing diameter, depth to water, well depth)
- Calculated and actual purge volumes
- Purging equipment used
- Sampling equipment used
- Appearance of each sample (e.g., color, turbidity, sediment)
- Results of field analyses (temperature, pH, specific conductance)
- General comments

The water sample field data sheet was signed by the sampler and reviewed by the sampling coordinator.

Labels

Sample labels contained the following information:

- Project number
- Sample number (i.e., well designation)
- Sample depth
- Sampler's initials
- Date and time of collection
- Type of preservation used (if any)

Sampling and Analysis Chain-of-Custody Record

The ARCO chain-of-custody record initiated at the time of sampling contained, at a minimum, the sample designation (including the depth at which the sample was collected), sample type, analytical request, date of sampling, and the name of the sampler. The record sheet was signed, timed, and dated by the sampler when transferring the samples. The number of custodians in the chain of possession was minimized. A copy of the ARCO chain-of-custody record was returned to Cambria with the analytical results.

Groundwater Sampling and Analysis Request Form

A groundwater sampling and analysis request form (see Figure A-3) was used to communicate to the environmental sampler the requirements of the monitoring event. At a minimum, the groundwater sampling and analysis request form included the following information:

- Date scheduled
- Site-specific instructions
- Specific analytical parameters
- Well number
- Well specifications (expected total depth, depth of water, and product thickness)

APPENDIX B

**CERTIFIED ANALYTICAL REPORTS
AND CHAIN-OF-CUSTODY DOCUMENTATION**



**Sequoia
Analytical**

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

18 October, 2001

Ron Scheele
Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville, CA 94608

RE: ARCO
Sequoia Report: P110151

Enclosed are the results of analyses for samples received by the laboratory on 10/05/01 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari
Client Services Representative

CA ELAP Certificate #2374



**Sequoia
Analytical**

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(707) 792-1865
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Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: Arco 2035/Albany
Project Manager: Ron Scheele

Reported:
10/18/01 18:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	P110151-01	Water	10/03/01 16:35	10/05/01 16:00
MW-2	P110151-02	Water	10/03/01 15:35	10/05/01 16:00
MW-3	P110151-03	Water	10/03/01 14:30	10/05/01 16:00
MW-4	P110151-04	Water	10/03/01 13:20	10/05/01 16:00
MW-6	P110151-05	Water	10/03/01 13:05	10/05/01 16:00
RW-1	P110151-06	Water	10/03/01 17:55	10/05/01 16:00
S-5	P110151-07	Water	10/03/01 18:10	10/05/01 16:00
DUP	P110151-08	Water	10/03/01 00:00	10/05/01 16:00

Sequoia Analytical - Petaluma

Angelee Cari, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

Project: ARCO
 Project Number: Arco 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/18/01 18:17

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (P110151-01) Water Sampled: 10/03/01 16:35 Received: 10/05/01 16:00									
Gasoline (C6-C12)	ND	50	ug/l	1	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		101 %	65-135		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %	65-135		"	"	"	"	
MW-2 (P110151-02) Water Sampled: 10/03/01 15:35 Received: 10/05/01 16:00									
Gasoline (C6-C12)	ND	50	ug/l	1	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		101 %	65-135		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.7 %	65-135		"	"	"	"	
MW-3 (P110151-03) Water Sampled: 10/03/01 14:30 Received: 10/05/01 16:00									
Gasoline (C6-C12)	120	50	ug/l	1	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	120	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		98.0 %	65-135		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	65-135		"	"	"	"	

Cambria Environmental - Emeryville
 6262 Hollis Street
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 Project: ARCO
 Project Number: Arco 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/18/01 18:17

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (P110151-04) Water Sampled: 10/03/01 13:20 Received: 10/05/01 16:00									
Gasoline (C6-C12)	ND	50	ug/l	1	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	260	2.5	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		<i>101 %</i>		<i>65-135</i>	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>96.7 %</i>		<i>65-135</i>	"	"	"	"	
MW-6 (P110151-05) Water Sampled: 10/03/01 13:05 Received: 10/05/01 16:00									
Gasoline (C6-C12)	ND	50	ug/l	1	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	5.8	2.5	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		<i>98.7 %</i>		<i>65-135</i>	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>95.0 %</i>		<i>65-135</i>	"	"	"	"	
RW-1 (P110151-06) Water Sampled: 10/03/01 17:55 Received: 10/05/01 16:00									
Gasoline (C6-C12)	120000	10000	ug/l	200	1100206	10/09/01	10/09/01	EPA 8015M/8020M	
Benzene	2500	100	"	"	"	"	"	"	
Toluene	33000	100	"	"	"	"	"	"	
Ethylbenzene	3800	100	"	"	"	"	"	"	
Xylenes (total)	21000	100	"	"	"	"	"	"	
Methyl tert-butyl ether	3300	500	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		<i>105 %</i>		<i>65-135</i>	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>92.3 %</i>		<i>65-135</i>	"	"	"	"	



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 Emeryville CA, 94608

Project: ARCO
 Project Number: Arco 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/18/01 18:17

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
S-5 (P110151-07) Water Sampled: 10/03/01 18:10 Received: 10/05/01 16:00									
Gasoline (C6-C12)	70000	2500	ug/l	50	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	1800	25	"	"	"	"	"	"	
Toluene	7800	25	"	"	"	"	"	"	
Ethylbenzene	1400	25	"	"	"	"	"	"	
Xylenes (total)	20000	25	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	120	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		99.3 %		65-135	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.3 %		65-135	"	"	"	"	
DUP (P110151-08) Water Sampled: 10/03/01 00:00 Received: 10/05/01 16:00									
Gasoline (C6-C12)	ND	50	ug/l	1	1100182	10/08/01	10/08/01	EPA 8015M/8020M	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	0.52	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		101 %		65-135	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %		65-135	"	"	"	"	



Cambria Environmental - Emeryville
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Reported:
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**Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (P110151-05) Water Sampled: 10/03/01 13:05 Received: 10/05/01 16:00									
Methyl tert-butyl ether	4.8	0.50	ug/l	1	1100231	10/09/01	10/09/01	EPA 8260B	
Surrogate: Dibromofluoromethane		89.0 %	84-122		"	"	"	"	

Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: Arco 2035/Albany
Project Manager: Ron Scheele

Reported:
10/18/01 18:17

**Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1100182 - EPA 5030, waters
Blank (1100182-BLK1)

Prepared & Analyzed: 10/08/01

Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	304		"	300		101	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	280		"	300		93.3	65-135			

LCS (1100182-BS1)

Prepared & Analyzed: 10/08/01

Gasoline (C6-C12)	2330	50	ug/l	2750		84.7	65-135			
Benzene	40.0	0.50	"	33.0		121	65-135			
Toluene	195	0.50	"	198		98.5	65-135			
Ethylbenzene	44.1	0.50	"	46.0		95.9	65-135			
Xylenes (total)	241	0.50	"	230		105	65-135			
Methyl tert-butyl ether	66.6	2.5	"	52.5		127	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	308		"	300		103	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	290		"	300		96.7	65-135			

Matrix Spike (1100182-MS1)

Source: P110061-01

Prepared & Analyzed: 10/08/01

Gasoline (C6-C12)	2590	50	ug/l	2750	ND	93.2	65-135			
Benzene	42.1	0.50	"	33.0	ND	128	65-135			
Toluene	209	0.50	"	198	ND	106	65-135			
Ethylbenzene	47.1	0.50	"	46.0	ND	102	65-135			
Xylenes (total)	258	0.50	"	230	ND	112	65-135			
Methyl tert-butyl ether	58.7	2.5	"	52.5	ND	112	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	311		"	300		104	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	302		"	300		101	65-135			

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 6262 Hollis Street
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 Project: ARCO
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 Reported:
 10/18/01 18:17

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1100182 - EPA 5030, waters
Matrix Spike Dup (1100182-MSD1)

Source: P110061-01

Prepared & Analyzed: 10/08/01

Gasoline (C6-C12)	2570	50	ug/l	2750	ND	92.5	65-135	0.775	20	
Benzene	43.0	0.50	"	33.0	ND	130	65-135	2.12	20	
Toluene	212	0.50	"	198	ND	107	65-135	1.43	20	
Ethylbenzene	48.0	0.50	"	46.0	ND	104	65-135	1.89	20	
Xylenes (total)	262	0.50	"	230	ND	114	65-135	1.54	20	
Methyl tert-butyl ether	61.6	2.5	"	52.5	ND	117	65-135	4.82	20	

Surrogate: a,a,a-Trifluorotoluene

317

"

300

106

65-135

Surrogate: 4-Bromofluorobenzene

297

"

300

99.0

65-135

Batch 1100206 - EPA 5030, waters
Blank (1100206-BLK1)

Prepared & Analyzed: 10/09/01

Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							

Surrogate: a,a,a-Trifluorotoluene

314

"

300

105

65-135

Surrogate: 4-Bromofluorobenzene

277

"

300

92.3

65-135

Blank (1100206-BLK2)

Prepared & Analyzed: 10/16/01

Gasoline (C6-C12)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							

Surrogate: a,a,a-Trifluorotoluene

310

"

300

103

65-135

Surrogate: 4-Bromofluorobenzene

282

"

300

94.0

65-135

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 6262 Hollis Street
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 Project: ARCO
 Project Number: Arco 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/18/01 18:17

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 1100206 - EPA 5030, waters

LCS (1100206-BS1)		Prepared & Analyzed: 10/09/01								
Gasoline (C6-C12)	2280	50	ug/l	2750		82.9	65-135			
Benzene	36.3	0.50	"	33.0		110	65-135			
Toluene	191	0.50	"	198		96.5	65-135			
Ethylbenzene	40.2	0.50	"	46.0		87.4	65-135			
Xylenes (total)	207	0.50	"	230		90.0	65-135			
Methyl tert-butyl ether	55.0	2.5	"	52.5		105	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	338		"	300		113	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	295		"	300		98.3	65-135			

LCS (1100206-BS2)		Prepared & Analyzed: 10/16/01								
Gasoline (C6-C12)	1970	50	ug/l	2750		71.6	65-135			
Benzene	29.3	0.50	"	33.0		88.8	65-135			
Toluene	172	0.50	"	198		86.9	65-135			
Ethylbenzene	40.6	0.50	"	46.0		88.3	65-135			
Xylenes (total)	206	0.50	"	230		89.6	65-135			
Methyl tert-butyl ether	65.9	2.5	"	52.5		126	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	324		"	300		108	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	293		"	300		97.7	65-135			

Matrix Spike (1100206-MS1)		Source: P110154-01		Prepared & Analyzed: 10/09/01						
Gasoline (C6-C12)	2370	50	ug/l	2750	ND	86.2	65-135			
Benzene	38.1	0.50	"	33.0	ND	115	65-135			
Toluene	207	0.50	"	198	ND	105	65-135			
Ethylbenzene	43.0	0.50	"	46.0	ND	93.5	65-135			
Xylenes (total)	223	0.50	"	230	ND	97.0	65-135			
Methyl tert-butyl ether	62.7	2.5	"	52.5	ND	118	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	334		"	300		111	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	292		"	300		97.3	65-135			

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Project: ARCO
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 Project Manager: Ron Scheele

Reported:
 10/18/01 18:17

**Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
 Sequoia Analytical - Petaluma**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1100206 - EPA 5030, waters										
Matrix Spike Dup (1100206-MSD1)		Source: P110154-01			Prepared & Analyzed: 10/09/01					
Gasoline (C6-C12)	2330	50	ug/l	2750	ND	84.7	65-135	1.70	20	
Benzene	37.4	0.50	"	33.0	ND	113	65-135	1.85	20	
Toluene	204	0.50	"	198	ND	103	65-135	1.46	20	
Ethylbenzene	42.3	0.50	"	46.0	ND	92.0	65-135	1.64	20	
Xylenes (total)	218	0.50	"	230	ND	94.8	65-135	2.27	20	
Methyl tert-butyl ether	64.2	2.5	"	52.5	ND	120	65-135	2.36	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	336		"	300		112	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	292		"	300		97.3	65-135			



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Project: ARCO
 Project Number: Arco 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/18/01 18:17

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1100231 - EPA 5030 waters										
Blank (1100231-BLK1) Prepared & Analyzed: 10/09/01										
Methyl tert-butyl ether	ND	0.50	ug/l							
<i>Surrogate: Dibromofluoromethane</i>	4.45		"	5.00		89.0	84-122			
LCS (1100231-BS1) Prepared & Analyzed: 10/09/01										
Methyl tert-butyl ether	4.75	0.50	ug/l	5.00		95.0	79-118			
<i>Surrogate: Dibromofluoromethane</i>	4.75		"	5.00		95.0	84-122			
Matrix Spike (1100231-MS1) Source: P110115-02 Prepared & Analyzed: 10/09/01										
Methyl tert-butyl ether	5.25	0.50	ug/l	5.00	ND	97.8	79-118			
<i>Surrogate: Dibromofluoromethane</i>	4.71		"	5.00		94.2	84-122			
Matrix Spike Dup (1100231-MSD1) Source: P110115-02 Prepared & Analyzed: 10/09/01										
Methyl tert-butyl ether	5.22	0.50	ug/l	5.00	ND	97.2	79-118	0.573	20	
<i>Surrogate: Dibromofluoromethane</i>	4.87		"	5.00		97.4	84-122			



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Emeryville CA, 94608

Project: ARCO
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10/18/01 18:17

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

ARCO Facility no. 2035	City (Facility) Albany	Project manager (Consultant) Ron Scheele	Laboratory name Seguioia
ARCO engineer Paul Supple	Telephone no. (ARCO) 985-299-8891	Telephone no. (Consultant) 510-450-1983	Contract number 510-450-8295
Consultant name Cambria Env. Tech	Address (Consultant) 6262 Hollis St. Emeryville, Ca		

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH/MTH EPA 8010/8011/8012 8213 & 8260	TPH Modified 8015 Gas Diesel	Oil and Grease 412 1 413.2	TPH EPA 418 1/SW803E	EPA 801/8010	EPA 824/8240	EPA 825/8270	TCDF Metals VOC/VOL	CAN METALS EPA 6010700 THCC STCC	Lead/Cd/Cr/Hg Lead EPA 7430.7431	Method of shipment
			Soil	Water	Other	Ice	Acid														
MW-1	4		X			X	X	10-3-01	4:35	X											Special detection Limit/reporting Lowest Possible
MW-2	4		X			X	X	10-3-01	3:35	X											Special O&OC
MW-3	4		X			X	X	10-3-01	2:30	X											
MW-4	4		X			X	X	10-3-01	1:20	X											
MW-6	4		X			X	X	10-3-01	1:05	X											
RW-1	4		X			X	X	10-3-01	5:55	X											
S-5	4		X			X	X	10-3-01	6:10	X											
DUP	4		X			X	X	10-3-01		X											

COOLER CUSTODY SEALS INTACT
 NOT INTACT
 COOLER TEMPERATURE 3.0 °C

Remarks
Report results in Edt format
for MW-6 TPHs BTEX MTH by 8213 & 8260

Condition of sample:	Temperature received:	Rush
Relinquished by sampler S. Hill	Received by scuse location	1 Business Day
Relinquished by P. Hill	Date 10-5-01 11:00	2 Business Days
Relinquished by	Date 10-5-01 1400	5 Business Days
Relinquished by	Date	Standard 10 Business Days <input checked="" type="checkbox"/>



**Sequoia
Analytical**

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5 October, 2001

Ron Scheele
Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville, CA 94608

RE: ARCO
Sequoia Report: P110047

Enclosed are the results of analyses for samples received by the laboratory on 10/02/01 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari
Client Services Representative

CA ELAP Certificate #2374



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Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: 2035/Albany
Project Manager: Ron Scheele

Reported:
10/05/01 10:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF	P110047-01	Air	10/01/01 11:00	10/02/01 17:00
EFF	P110047-02	Air	10/01/01 11:00	10/02/01 17:00

Sequoia Analytical - Petaluma

A handwritten signature in cursive script that reads "Angelee Cari".

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Angelee Cari, Client Services Representative

Page 1 of 5



Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

Project: ARCO
 Project Number: 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/05/01 10:02

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF (P110047-01) Air Sampled: 10/01/01 11:00 Received: 10/02/01 17:00									
Gasoline (C6-C12)	31	2.8	ppmv	0.2	1100038	10/03/01	10/03/01	EPA 8015M/8020M	
Benzene	0.23	0.032	"	"	"	"	"	"	
Toluene	0.56	0.026	"	"	"	"	"	"	QR-04
Ethylbenzene	0.077	0.024	"	"	"	"	"	"	
Xylenes (total)	0.30	0.024	"	"	"	"	"	"	
Methyl tert-butyl ether	2.1	0.11	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		106 %	65-135		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.5 %	65-135		"	"	"	"	
EFF (P110047-02) Air Sampled: 10/01/01 11:00 Received: 10/02/01 17:00									
Gasoline (C6-C12)	ND	2.8	ppmv	0.2	1100038	10/03/01	10/03/01	EPA 8015M/8020M	
Benzene	ND	0.032	"	"	"	"	"	"	
Toluene	0.071	0.026	"	"	"	"	"	"	
Ethylbenzene	ND	0.024	"	"	"	"	"	"	
Xylenes (total)	0.036	0.024	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.11	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		105 %	65-135		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.1 %	65-135		"	"	"	"	



Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: 2035/Albany
Project Manager: Ron Scheele

Reported:
10/05/01 10:02

**Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1100038 - EPA 5030, waters										
Blank (1100038-BLK1)					Prepared & Analyzed: 10/02/01					
Gasoline (C6-C12)	ND	14	ppmv							
Benzene	ND	0.16	"							
Toluene	ND	0.13	"							
Ethylbenzene	ND	0.12	"							
Xylenes (total)	ND	0.12	"							
Methyl tert-butyl ether	ND	0.56	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	53.5		"	50.3		106	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	40.2		"	41.9		95.9	65-135			
Blank (1100038-BLK2)					Prepared & Analyzed: 10/03/01					
Gasoline (C6-C12)	ND	14	ppmv							
Benzene	ND	0.16	"							
Toluene	ND	0.13	"							
Ethylbenzene	ND	0.12	"							
Xylenes (total)	ND	0.12	"							
Methyl tert-butyl ether	ND	0.56	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	52.6		"	50.3		105	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	39.6		"	41.9		94.5	65-135			
LCS (1100038-BS1)					Prepared & Analyzed: 10/02/01					
Gasoline (C6-C12)	686	14	ppmv	780		87.9	65-135			
Benzene	10.9	0.16	"	10.3		106	65-135			
Toluene	53.6	0.13	"	52.8		102	65-135			
Ethylbenzene	11.8	0.12	"	10.6		111	65-135			
Xylenes (total)	55.1	0.12	"	53.2		104	65-135			
Methyl tert-butyl ether	18.6	0.56	"	14.6		127	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	56.7		"	50.3		113	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	42.0		"	41.9		100	65-135			

Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

 Project: ARCO
 Project Number: 2035/Albany
 Project Manager: Ron Scheele

Reported:
 10/05/01 10:02

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1100038 - EPA 5030, waters
LCS (1100038-BS2)

Prepared & Analyzed: 10/03/01

Gasoline (C6-C12)	731	14	ppmv	780		93.7	65-135			
Benzene	11.2	0.16	"	10.3		109	65-135			
Toluene	54.7	0.13	"	52.8		104	65-135			
Ethylbenzene	12.4	0.12	"	10.6		117	65-135			
Xylenes (total)	56.7	0.12	"	53.2		107	65-135			
Methyl tert-butyl ether	17.8	0.56	"	14.6		122	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	57.6		"	50.3		115	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	41.5		"	41.9		99.0	65-135			

Matrix Spike (1100038-MS1)

Source: P110008-02

Prepared & Analyzed: 10/02/01

Gasoline (C6-C12)	754	14	ppmv	780	ND	96.7	65-135			
Benzene	11.7	0.16	"	10.3	ND	114	65-135			
Toluene	54.7	0.13	"	52.8	ND	104	65-135			
Ethylbenzene	12.4	0.12	"	10.6	ND	117	65-135			
Xylenes (total)	56.7	0.12	"	53.2	ND	107	65-135			
Methyl tert-butyl ether	19.8	0.56	"	14.6	ND	136	65-135			QM-07
<i>Surrogate: a,a,a-Trifluorotoluene</i>	56.0		"	50.3		111	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	43.0		"	41.9		103	65-135			

Matrix Spike Dup (1100038-MSD1)

Source: P110008-02

Prepared & Analyzed: 10/02/01

Gasoline (C6-C12)	724	14	ppmv	780	ND	92.8	65-135	4.06	20	
Benzene	11.1	0.16	"	10.3	ND	108	65-135	5.26	20	
Toluene	53.6	0.13	"	52.8	ND	102	65-135	2.03	20	
Ethylbenzene	12.2	0.12	"	10.6	ND	115	65-135	1.63	20	
Xylenes (total)	55.2	0.12	"	53.2	ND	104	65-135	2.68	20	
Methyl tert-butyl ether	18.3	0.56	"	14.6	ND	125	65-135	7.87	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	56.8		"	50.3		113	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	42.0		"	41.9		100	65-135			



Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: 2035/Albany
Project Manager: Ron Scheele

Reported:
10/05/01 10:02

Notes and Definitions

- QM-07 The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- QR-04 Primary and confirmation results varied by greater than 40% RPD. The results may still be useful for their intended purpose.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

ARCO Products Company

Division of Atlantic Richfield Company

Task Order No. **WA # 27116.00**

Chain of Custody

ARCO Facility no. 2035	City (Facility) ALBANY	Project manager (Consultant) RON SCHEELE
ARCO engineer PAUL SUPPLE	Telephone no. (ARCO) 925 299 8891	Telephone no. (Consultant) 510 450 1983
Consultant name CAMBRIA	Address (Consultant) 6262 Hollis ST Emeryville CA	
		Fax no. (Consultant) 510 450 8295

Laboratory name **SEQUOIA**

Contract number

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 802/801/806	EST/TPH EPA 1602/801/8015	TPH Modified 8015 Gas <input checked="" type="checkbox"/> Diesel <input type="checkbox"/>	Oil and Grease 413.1... 413.2...	TPH EPA 418 1-SM603E	EPA 801/8017	EPA 824/8240	EPA 825/8250	TCLP Metals: VOA... VOA... Sewer	Cadmium EPA 8210 TLC... STC...	Lead EPA 7420/7421	
			Soil	Water	Other	Ice	Acid														
INF		1			AIR			10/1/01	11 AM	X	X										
EFF		1			AIR			10/1/01	11 AM	X	X										

Method of shipment
**Cooler
COURIER**

Special detection Limit/reporting
Report in ppmv

Special QA/QC

Remarks

COOLER CUSTODY SEALS INTACT
NOT INTACT
COOLER TEMPERATURE 33 °C

Lab number

Turnaround time

Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

Standard 10 Business Days

Condition of sample:	Temperature received:
Relinquished to sampler [Signature]	Date 10/1/01 Time 5pm
Relinquished by [Signature]	Received by Secured Location
Date 10/2/01 Time 12:00	Date 10/2/01 Time 17:00



**Sequoia
Analytical**

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

12 November, 2001

Ron Scheele
Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville, CA 94608

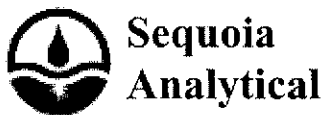
RE: ARCO
Sequoia Work Order: P111159

Enclosed are the results of analyses for samples received by the laboratory on 11/08/01 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari
Client Services Representative

CA ELAP Certificate #2374



**Sequoia
Analytical**

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: ARCO 2035/Albany
Project Manager: Ron Scheele

Reported:
11/12/01 14:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF	P111159-01	Air	11/07/01 18:30	11/08/01 15:30
EFF	P111159-02	Air	11/07/01 18:30	11/08/01 15:30

Sequoia Analytical - Petaluma

Angelee Cari, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: ARCO 2035/Albany
Project Manager: Ron Scheele

Reported:
11/12/01 14:30

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF (P111159-01) Air Sampled: 11/07/01 18:30 Received: 11/08/01 15:30									
Gasoline (C6-C12)	6.4	2.8	ppmv	0.2	1110230	11/09/01	11/09/01	EPA 8015M/8020M	
Benzene	ND	0.032	"	"	"	"	"	"	
Toluene	0.33	0.026	"	"	"	"	"	"	
Ethylbenzene	0.029	0.024	"	"	"	"	"	"	
Xylenes (total)	0.14	0.024	"	"	"	"	"	"	
Methyl tert-butyl ether	1.4	0.11	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		98.8 %	65-135	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	65-135	"	"	"	"	"	
EFF (P111159-02) Air Sampled: 11/07/01 18:30 Received: 11/08/01 15:30									
Gasoline (C6-C12)	ND	2.8	ppmv	0.2	1110230	11/09/01	11/09/01	EPA 8015M/8020M	
Benzene	ND	0.032	"	"	"	"	"	"	
Toluene	ND	0.026	"	"	"	"	"	"	
Ethylbenzene	ND	0.024	"	"	"	"	"	"	
Xylenes (total)	ND	0.024	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.11	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		100 %	65-135	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	65-135	"	"	"	"	"	

Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

 Project: ARCO
 Project Number: ARCO 2035/Albany
 Project Manager: Ron Scheele

 Reported:
 11/12/01 14:30

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1110230 - EPA 5030, waters
Blank (1110230-BLK1)

Prepared & Analyzed: 11/09/01

Gasoline (C6-C12)	ND	14	ppmv							
Benzene	ND	0.16	"							
Toluene	ND	0.13	"							
Ethylbenzene	ND	0.12	"							
Xylenes (total)	ND	0.12	"							
Methyl tert-butyl ether	ND	0.56	"							
<i>Surrogate: a,a,a-Trifluorotoluene</i>	50.7		"	50.3		101	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	40.9		"	41.9		97.6	65-135			

LCS (1110230-BS1)

Prepared & Analyzed: 11/09/01

Gasoline (C6-C12)	679	14	ppmv	780		87.1	65-135			
Benzene	13.8	0.16	"	10.3		134	65-135			
Toluene	51.9	0.13	"	52.8		98.3	65-135			
Ethylbenzene	11.3	0.12	"	10.6		107	65-135			
Xylenes (total)	52.1	0.12	"	53.2		97.9	65-135			
Methyl tert-butyl ether	19.4	0.56	"	14.6		133	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	55.3		"	50.3		110	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	43.9		"	41.9		105	65-135			

Matrix Spike (1110230-MS1)

Source: P111144-04

Prepared & Analyzed: 11/09/01

Gasoline (C6-C12)	728	14	ppmv	780	ND	93.3	65-135			
Benzene	13.7	0.16	"	10.3	ND	133	65-135			
Toluene	50.8	0.13	"	52.8	ND	96.2	65-135			
Ethylbenzene	11.8	0.12	"	10.6	ND	111	65-135			
Xylenes (total)	53.2	0.12	"	53.2	ND	100	65-135			
Methyl tert-butyl ether	18.0	0.56	"	14.6	ND	123	65-135			
<i>Surrogate: a,a,a-Trifluorotoluene</i>	52.5		"	50.3		104	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	44.6		"	41.9		106	65-135			

Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

 Project: ARCO
 Project Number: ARCO 2035/Albany
 Project Manager: Ron Scheele

Reported:
 11/12/01 14:30

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1110230 - EPA 5030, waters										
Matrix Spike Dup (1110230-MSD1)										
		Source: P111144-04				Prepared & Analyzed: 11/09/01				
Gasoline (C6-C12)	725	14	ppmv	780	ND	92.9	65-135	0.413	20	
Benzene	13.6	0.16	"	10.3	ND	132	65-135	0.733	20	
Toluene	50.3	0.13	"	52.8	ND	95.3	65-135	0.989	20	
Ethylbenzene	11.8	0.12	"	10.6	ND	111	65-135	0.00	20	
Xylenes (total)	52.6	0.12	"	53.2	ND	98.9	65-135	1.13	20	
Methyl tert-butyl ether	18.1	0.56	"	14.6	ND	124	65-135	0.554	20	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	52.4		"	50.3		104	65-135			
<i>Surrogate: 4-Bromofluorobenzene</i>	45.3		"	41.9		108	65-135			

Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: ARCO 2035/Albany
Project Manager: Ron Scheele

Reported:
11/12/01 14:30

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

ARCO Products Company
Division of Atlantic Richfield Company

Task Order No. **WA# 27116.00**

Chain of Custody

ARCO Facility no. 2035	City (Facility) ALBANY	Project manager (Consultant) Ron Schulte	Laboratory name SEQUOIA
ARCO engineer PAUL SUPPLE	Telephone no (ARCO) 925-297-8891	Telephone no (Consultant) 510 450 1983	Contract number
Consultant name CAMBRIA	Address (Consultant) 6262 HOLLIS ST. EMERYVILLE CA 94608		

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 802	MTBE EPA 802	TPH Modified 8015 Diesel	Oil and Grease 413.1, 413.2	TPH EPA 418 1,5,8,9,10	EPA 801 8,10	EPA 804 8,9,10	EPA 625 8,7,10	TCDF MERCURY VOIAC VOIAD	CAN METALS EPA 6010700 TLC STCC	Lead Cadmium Copper EPA 71207421	
			Soil	Water	Other	Ice	Acid														
INF		1			AIR			11/7/01	6:30	X	X										
EFF		1			AIR			11/7/01	6:30	X	X										

Method of shipment
**COOLER
COURIER**

Special detection
Limit/reporting
**REPORT IN PPMV
10ppmv LIMIT**

Special QA/QC

Remarks

COOLER CUSTODY SEALS INTACT
NOT INTACT
COOLER TEMPERATURE **22°C**

Lab number

Turnaround time
Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

Standard 10 Business Days

Condition of samples	Temperature received:
Relinquished by Paul Schulte	Received by Sealed location
Date 11/7/01 Time 7:00 pm	Date 11-8-01 Time 12:22
Relinquished by Ron Schulte	Received by [Signature]
Date 11/8/01 Time 12:22 pm	Date 11-8-01 Time 12:22
Relinquished by	Received by



**Sequoia
Analytical**

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

12 December, 2001

Ron Scheele
Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville, CA 94608

RE: ARCO
Sequoia Work Order: P112112

Enclosed are the results of analyses for samples received by the laboratory on 12/05/01 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari
Client Services Representative

CA ELAP Certificate #2374



Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: ARCO 2035/Albany
Project Manager: Ron Scheele

Reported:
12/12/01 14:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF	P112112-01	Air	12/05/01 11:30	12/05/01 15:30
EFF	P112112-02	Air	12/05/01 12:00	12/05/01 15:30

Sequoia Analytical - Petaluma

Angelee Cari

Angelee Cari, Client Services Representative

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: ARCO 2035/Albany
Project Manager: Ron Scheele

Reported:
12/12/01 14:53

**Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M
Sequoia Analytical - Petaluma**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF (P112112-01) Air Sampled: 12/05/01 11:30 Received: 12/05/01 15:30									
Gasoline (C6-C12)	7.5	2.8	ppmv	0.2	1120129	12/06/01	12/06/01	EPA 8015M/8020M	
Benzene	0.16	0.032	"	"	"	"	"	"	
Toluene	0.52	0.026	"	"	"	"	"	"	
Ethylbenzene	ND	0.024	"	"	"	"	"	"	
Xylenes (total)	0.11	0.024	"	"	"	"	"	"	
Surrogate: <i>a,a,a-Trifluorotoluene</i>		100 %	65-135		"	"	"	"	
Surrogate: <i>4-Bromofluorobenzene</i>		99 %	65-135		"	"	"	"	
EFF (P112112-02) Air Sampled: 12/05/01 12:00 Received: 12/05/01 15:30									
Gasoline (C6-C12)	ND	2.8	ppmv	0.2	1120129	12/06/01	12/06/01	EPA 8015M/8020M	
Benzene	ND	0.032	"	"	"	"	"	"	
Toluene	ND	0.026	"	"	"	"	"	"	
Ethylbenzene	ND	0.024	"	"	"	"	"	"	
Xylenes (total)	ND	0.024	"	"	"	"	"	"	
Surrogate: <i>a,a,a-Trifluorotoluene</i>		99 %	65-135		"	"	"	"	
Surrogate: <i>4-Bromofluorobenzene</i>		95 %	65-135		"	"	"	"	

Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

 Project: ARCO
 Project Number: ARCO 2035/Albany
 Project Manager: Ron Scheele

Reported:
 12/12/01 14:53

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
Batch 1120129 - EPA 5030, waters								
Blank (1120129-BLK1)				Prepared & Analyzed: 12/06/01				
Gasoline (C6-C12)	ND	14	ppmv					
Benzene	ND	0.16	"					
Toluene	ND	0.13	"					
Ethylbenzene	ND	0.12	"					
Xylenes (total)	ND	0.12	"					
<i>Surrogate: a,a,a-Trifluorotoluene</i>	50.0		"	50.3		99	65-135	
<i>Surrogate: 4-Bromofluorobenzene</i>	39.7		"	41.9		95	65-135	
Blank (1120129-BLK2)				Prepared & Analyzed: 12/07/01				
Gasoline (C6-C12)	ND	14	ppmv					
Benzene	ND	0.16	"					
Toluene	ND	0.13	"					
Ethylbenzene	ND	0.12	"					
Xylenes (total)	ND	0.12	"					
<i>Surrogate: a,a,a-Trifluorotoluene</i>	50.0		"	50.3		99	65-135	
<i>Surrogate: 4-Bromofluorobenzene</i>	40.6		"	41.9		97	65-135	
LCS (1120129-BS1)				Prepared & Analyzed: 12/06/01				
Gasoline (C6-C12)	612	14	ppmv	780		78	65-135	
Benzene	12.4	0.16	"	10.3		120	65-135	
Toluene	48.3	0.13	"	52.8		91	65-135	
Ethylbenzene	10.7	0.12	"	10.6		101	65-135	
Xylenes (total)	50.8	0.12	"	53.2		95	65-135	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	51.8		"	50.3		103	65-135	
<i>Surrogate: 4-Bromofluorobenzene</i>	41.3		"	41.9		99	65-135	
LCS (1120129-BS2)				Prepared & Analyzed: 12/07/01				
Gasoline (C6-C12)	714	14	ppmv	780		92	65-135	
Benzene	10.8	0.16	"	10.3		105	65-135	
Toluene	48.6	0.13	"	52.8		92	65-135	
Ethylbenzene	11.1	0.12	"	10.6		105	65-135	
Xylenes (total)	49.4	0.12	"	53.2		93	65-135	

Sequoia Analytical - Petaluma

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cambria Environmental - Emeryville
 6262 Hollis Street
 Emeryville CA, 94608

 Project: ARCO
 Project Number: ARCO 2035/Albany
 Project Manager: Ron Scheele

Reported:
 12/12/01 14:53

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015M/8020M - Quality Control
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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Batch 1120129 - EPA 5030, waters
LCS (1120129-BS2)

Prepared & Analyzed: 12/07/01

Surrogate: <i>a,a,a</i> -Trifluorotoluene	52.4		ppmv	50.3		104	65-135			
Surrogate: 4-Bromofluorobenzene	43.0		"	41.9		103	65-135			

Matrix Spike (1120129-MS1)

Source: P112091-01

Prepared & Analyzed: 12/06/01

Gasoline (C6-C12)	627	14	ppmv	780	ND	80	65-135			
Benzene	12.3	0.16	"	10.3	ND	119	65-135			
Toluene	48.5	0.13	"	52.8	ND	92	65-135			
Ethylbenzene	11.4	0.12	"	10.6	ND	108	65-135			
Xylenes (total)	51.8	0.12	"	53.2	ND	97	65-135			

Surrogate: <i>a,a,a</i> -Trifluorotoluene	52.9		"	50.3		105	65-135			
Surrogate: 4-Bromofluorobenzene	41.9		"	41.9		100	65-135			

Matrix Spike Dup (1120129-MSD1)

Source: P112091-01

Prepared & Analyzed: 12/06/01

Gasoline (C6-C12)	620	14	ppmv	780	ND	79	65-135	1	20	
Benzene	12.1	0.16	"	10.3	ND	117	65-135	2	20	
Toluene	48.0	0.13	"	52.8	ND	91	65-135	1	20	
Ethylbenzene	10.8	0.12	"	10.6	ND	102	65-135	5	20	
Xylenes (total)	50.0	0.12	"	53.2	ND	94	65-135	4	20	

Surrogate: <i>a,a,a</i> -Trifluorotoluene	53.6		"	50.3		107	65-135			
Surrogate: 4-Bromofluorobenzene	42.7		"	41.9		102	65-135			

Cambria Environmental - Emeryville
6262 Hollis Street
Emeryville CA, 94608

Project: ARCO
Project Number: ARCO 2035/Albany
Project Manager: Ron Scheele

Reported:
12/12/01 14:53

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

APPENDIX C

FIELD DATA SHEETS

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1			10.50			purge
MW-2			10.97			purge
MW-3			10.99			purge
MW-4			10.74			no purge
MW-5			10.55			no purge
MW-6			11.35			no purge
RW-1			9.13			purge
S-5			10.00		15.51	screen depth 6.0'

Project Name: Acco 2035

Project Number: 438-1608

Measured By: J. Hill

Date: 10-3-01

CAMBRIA

WELL SAMPLING FORM

Project Name: <u>Arco 2035</u>	Cambria Mgr: <u>RS</u>	Well ID: <u>MW-1</u>
Project Number: <u>438-1608</u>	Date: <u>10-3-01</u>	Well Yield: <u>----</u>
Site Address: <u>1001 San Pablo Ave Albany</u>	Sampling Method: <u>Disposable bailer</u>	Well Diameter: <u>4" pvc</u>
Initial Depth to Water: <u>10.50</u>	Total Well Depth: <u>30.10</u>	Technician(s): <u>SG</u>
Volume/ft: <u>0.65</u>	1 Casing Volume: <u>12.74</u>	Water Column Height: <u>19.60</u>
Purging Device: <u>4" PVC bailer</u>	Did Well Dewater?: <u>00</u>	3 Casing Volumes: <u>38.22</u>
Start Purge Time: <u>3:45</u>	Stop Purge Time: <u>4:29</u>	Total Gallons Purged: <u>38</u>
		Total Time: <u>44 mins</u>

1 Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. C	pH	Cond. uS	Comments
4:00	12	17.2	7.05	721	
4:15	24	17.4	7.19	794	
4:30	38	17.2	7.10	821	
					DO = 0.59 mg/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1	10-3-01	4:35	400A	HCl	TPHs BTEX MTBE	8021B

DUP

CAMBRIA

WELL SAMPLING FORM

Project Name: Arco 2035	Cambria Mgr: RS	Well ID: MW-4
Project Number: 438-1608	Date: 10-3-01	Well Yield: ---
Site Address: 1001 San Pablo Ave Albany	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
Initial Depth to Water: 9.21	Total Well Depth: 25.80	Technician(s): SG
Volume/ft:	1 Casing Volume:	3 Casing Volumes:
Purging Device:	Did Well Dewater?:	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

1 Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. C	pH	Cond. uS	Comments
	1				
	2				
	3				
		no purge			
					DO = 0.59mg/L

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-4	10-3-01	01:20	4VDA	HCl	TPH, BTEX, MTBE	8021B
MW-						

