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

Re: Site Status And Remediation System Performance Report

First 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 site status for the first quarter 2001 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.

Energula 510-450-1983

Ron Scheele, RG Senior Project Manager

Attachment:

Site Status Report, First Quarter 2001

SVE Quarterly Operation and Performance, First Quarter 2001

Oakland, CA

Sonoma, CA

San Ramon, CA

Cc:

Mr. Paul Supple, ARCO, PO Box 6549 Moraga, CA 94570

James A. Lestrange, Property Owner, 2421 Dena Way, Calistoga, Ca 94515 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 Suite A Oakland, CA 94608 Tel (510) 420-0700 Fax (510) 420-9170

## Site Status and Remediation System Performance Report

#### First Quarter 2001

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



Prepared For:

Mr. Paul Supple ARCO

May 11, 2001

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

Written by:

Jason D. Olson

Senior Staff Environmental Scientist

Ron Scheele, RG

Senior Project Manager

No. 6842

#### CAMBRIA

Date:

May 11, 2001

Quarter:

1st Quarter, 2001

#### ARCO QUARTERLY SITE STATUS 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 (FIRST - 2001):**

- 1. Submitted semi-annual groundwater monitoring and remediation system performance report for fourth quarter 2000.
- 2. Repaired soil vapor extraction (SVE) and air sparging systems.

#### **WORK PROPOSED FOR NEXT QUARTER (SECOND - 2001):**

- 1. Prepare and submit first quarter 2001 status report.
- Operate SVE and air sparge systems.
- 3. Perform semi-annual groundwater monitoring and sampling for second quarter 2001.

#### **MONITORING:**

Current Phase of Project: Remediation Frequency of Sampling: Annual (2nd quarter): MW-5 Semi-annual (2nd/4th quarter): MW-1 through MW-4, MW-6, RW-1 Semi-Annual (groundwater), Monthly (SVE) Frequency of Monitoring: offerte Is Free Product (FP) Present On-Site: No Hes Cumulative FP Recovered to Date 27.9 gallons, Wells AS-1, AS-2, RW-1, VW-1, VW-2, and VW-7 FP Recovered This Quarter: Bulk Soil Removed to Date: 605 cubic yards of TPH impacted soil Water Wells or Surface Waters. Within 2000 ft., impacted by site: None **Current Remediation Techniques:** SVE and Air Sparging (RW-1) 10.06 feet (4th Quarter 2000) Average Depth to Groundwater: Groundwater Flow Direction and 0.018 ft/ft toward West (4th Quarter 2000) Gradient:



#### CAMBRIA

Date:

May 11, 2001

Quarter:

1st Quarter, 2001

#### **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):	50.4 ppmv (2/26/01)
Benzene Conc. End of Period (lab):	0.850 ppmv (2/26/01)
SVE Flowrate End of Period:	153 scfm
Total HC Destroyed This Period:	49 pounds
Total HC Destroyed to Date:	3,830 pounds
Utility Usage	
Electric (kWh):	68,736
Gas (Therms):	337
Operating Hours This Period (SVE):	553 hours
Operating Hours to Date (SVE):	16872 hours
Percent Operational (SVE):	32%
Unit Maintenance:	Routine twice-monthly maintenance
Number of Auto Shut Downs:	4
Destruction Efficiency Permit	98.5% (POC >2,000 ppmv); 97% (POC >200 ppmv); 90%
Requirement:	(POC <200 ppmv)
Percent TPH Conversion:	94%
Average Stack Temperature:	660 °F
Average SVE Source Flow:	153 scfm
Average SVE Process Flow:	153 scfm
Average Source Vacuum:	60.0 inches of Water

#### DISCUSSION:

No groundwater sampling was scheduled during the first quarter 2001. The next scheduled sampling event will be performed during the second quarter 2001.

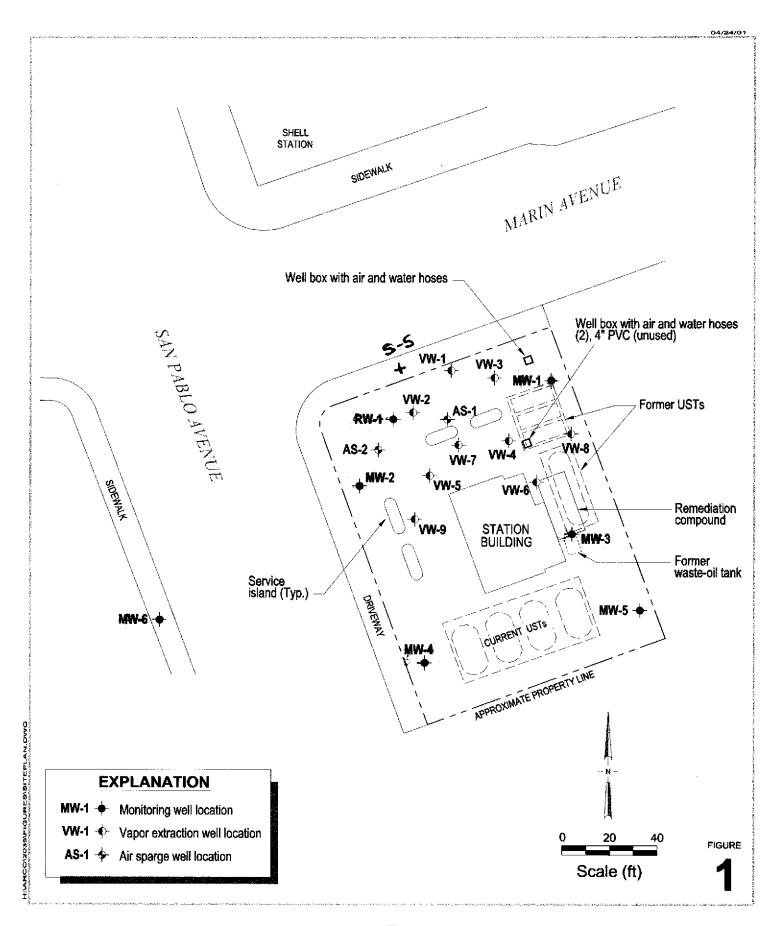
The SVE system ran sporadically for most of the first quarter due to continuing system repairs. Repairs were made to the blower, catalytic oxidizer, and air sparge units. Full system operation is anticipated for the second quarter 2001.

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 February 26, 2001 and submitted for analysis. Please note that SVE data presented in Cambria's Fourth Quarter 2000 Monitoring and Remediation System Performance Report dated January 15, 2001 was revised due to incorrect flow data.

#### ATTACHMENTS:

- Figure 1 Site Plan
- Table 1 Operational Uptime Information
- Table 2 Flow Rates and Analytical Results of Air Samples
- Table 3 Extraction Rates, Emission Rates, Destruction Efficiency, and Mass Removed
- Appendix A Certified Analytical Reports and Chain-of-Custody Documentation





## **ARCO Service Station 2035**

1001 San Pablo Avenue

Albany, California



Site Plan

CAMBRIA

Table 1
Soil Vapor Extraction System (1997-Present)
Operational Uptime Information

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

		Peri	od Operat	ion			Cumulativ	e Operation	
Date	Meter	Total	Uptime	Downtime	Uptime	Total	Uptime	Downtime	Uptime
	(hours)	(days)	(days)	(days)	(%)	(days)	(days)	(days)	(%)
11/01/97						1425	335	1090	24%
12/01/97	11484	30	14	16	47%	1455	349	1106	24%
01/27/98	11484	57	0	57	0%	1512	349	1163	23%
08/12/98	11484	197	0	197	0%	1709	349	1360	20%
09/02/98	11485	21	0	21	0%	1730	349	1381	20%
10/19/98	12280	47	33	14	70%	1777	382	1395	22%
11/10/98	12809	22	22	0	100%	1799	404	1395	22%
01/22/99	12809	73	0	73	0%	1872	404	1468	22%
02/11/99	12810	20	0	20	0%	1892	404	1488	21%
04/01/99	12810	49	0	49	0%	1941	404	1537	21%
06/10/99	12810	70	0	70	0%	2011	404	1607	20%
06/24/99	13146	14	14	0	100%	2025	418	1607	21%
08/17/99	13146	54	0	54	0%	2079	418	1661	20%
09/09/99	13147	23	0	23	0%	2102	418	1684	20%
09/21/99	13435	12	12	0	100%	2114	430	1684	20%
10/06/99	13450	15	1	14	4%	2129	431	1698	20%
10/20/99	13475	14	1	13	7%	2143	432	1711	20%
11/03/99	13812	14	14	0	100%	2157	446	1711	21%
11/17/99	14148	14	14	0	100%	2171	460	1711	21%
12/01/99	14391	14	10	4	72%	2185	470	1715	22%
12/16/99	14751	15	15	0	1 <b>00</b> %	2200	485	1715	22%
01/05/00	14751	20	0	20	0%	2220	485	1735	22%
01/19/00	15087	14	14	0	100%	2234	499	1735	22%
02/21/00	15087	33	0	33	0%	2267	499	1768	22%
03/01/00	15303	9	9	0	100%	2276	508	1768	22%
03/23/00	15831	22	22	0	100%	2298	530	1768	23%

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Table 1
Soil Vapor Extraction System (1997-Present)
Operational Uptime Information

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

T		Peri	od Operat	ion	Cumulative Operation									
Date	Meter (hours)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)	Total (days)	Uptime (days)	Downtime (days)	Uptime (%)					
10/17/00	15832	208	0	208	0%	2506	530	1976	21%					
10/24/00	15998	7	7	0	99%	2513	537	1976	21%					
11/13/00	16319	20	13	7	67%	2533	551	1982	22%					
11/28/00	16319	15	0	15	0%	2548	551	1997	22%					
12/20/00	16319	22	0	22	0%	2570	551	2019	21%					
01/17/01	16324	28	0	28	1%	2598	551	2047	21%					
02/14/01	16346	28	1	27	3%	2626	552	2074	21%					
02/26/01	16458	12	5	7	39%	2638	556	2082	21%					
03/13/01	16466	15	0	15	2%	2653 557		2096	21 %					
03/30/01	16872	17	17	0	99%	2670	574	2096	21%					

Table 2 **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

	·		Velocity	<del>.</del>												
	Sample	Vacuum	/Actual Flow	Flowrate <sup>1, 2</sup>		Hydrocarbon Concentrations (ppmv)										
Date	Location	(in. H20)	(fpm/acfm)	(scfm)	TPHg	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 Effluent	NA	NA	NA	NA	NA	NA	NA	NA							
08/12/98	Influent Effluent	NA	NA	NA	NA	NA	NA	NA	NA							
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						
	<b>E</b> ffluent		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						
:\ARCO\2035\E	Data\2035o.m				1 of 2											

# Table 2 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

****	Velocity Sample Vacuum /Actual Flow Flowrate <sup>1, 2</sup> Hydrocarbon Concentrations (ppmv)											
Date	Location	(in. H20)	(fpm/acfm)	(scfm)	TPHg	Benzene	Toluene	Ethylbenzene	Xylene	MTBE		
02/26/01	Influent Effluent	60.0	180 180	153 153	50.4 <2.84	0.850 <0.0314	3.84 0.0769	0.390 <0.0230	2.02 0.754	11.6 0.132		

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

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

<sup>&</sup>lt;sup>1</sup> Influent Flow Rate previous to 10/17/00, cfm = (Velocity, fpm)(Influent Pipe Area, sq. ft.)(406.8 in.H20 - Vacuum, in.H20) / (406.8 in.H20) 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)]

 $<sup>^2</sup>$  Influent Flow Rate 10/17/00 to present, cfm =(Actual flow, acfm)(406.8 in.H20 - Vacuum, in.H20) / (406.8 in.H20)

Table 3
Soil Vapor Extraction System
Extraction Rates, Emission Rates, Destruction Efficiency, and Mass Removed
(1997 - present)

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

Date	Extraction Rate	from Wellfield <sup>1</sup>	Emission Rate	to Atmosphere <sup>2</sup>	Destruction	n Efficiency <sup>3</sup>	Period 1	Removal <sup>4</sup>	Cumulative Removal		
	TPHg	Benzene	TPHg	Benzene	TPHg	Benzene	TPHg	Benzene	TPHg	Benzene	
	(lbs/day)	(lbs/day)	(lbs/day)	(lbs/day)	(%)	(%)	(lbs)	(lbs)	(lbs)	(lbs)	
12/01/97	13.02	0.0381	0.6508	< 0.0064	95%	NC	0.000	0.000	3023	250.5	
09/02/98	6.11	0.0000	0.3057	< 0.0027	95%	NC	135	0.000	3157	250.5	
10/19/98	0.549	0.0000	< 0.1956	< 0.0031	NC	NC	0.000	0.000	3157	250.5	
11/10/98	0.069	0.0000	< 0.1956	< 0.0031	NC	NC	0.000	0.000	3157	250.5	
06/10/99	2.47	0.0097	< 0.1375	< 0.0021	94%	NC	34.7	0.135	3192	250.7	
09/09/99	0.0000	0.0180	< 0.1693	< 0.0026	NC	NC	0.000	0.217	3192	250.9	
10/06/99	7.59	0.0247	0.2285	< 0.0020	97%	92%	316	1.03	3509	251.9	
12/01/99	7.00	0.0182	< 0.2116	< 0.0033	97%	82%	176	0.458	3685	252.4	
01/05/00	1.27	0.0044	< 0.2046	< 0.0032	84%	27%	17.7	0.0615	3702	252.4	
03/01/00	1.90	0.0357	< 0.2116	< 0.0033	89%	91%	58.9	1.11	3761	253.5	
10/17/00	0.77	0.0110	< 0.2261	< 0.0013	71%	88%	20.2	0.287	3781	253.8	
02/26/01	2.84	0.0374	< 0.1601	< 0.0014	94%	96%	49.0	0.645	3830	254.5	

<sup>&</sup>lt;sup>1</sup> Extraction Rate, lbs/day = (Influent Flow, cfm)(Influent conc., ppmv)(g/mole)(60 min/hr)(24 hr/day)(28.3 L/cf) / (10<sup>6</sup>)(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

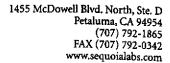
<sup>&</sup>lt;sup>2</sup> Emission Rate, Ibs/day = (Effluent Flow, cfm)(Effluent conc., ppmv)(g/mole)(60 min/hr)(24 hr/day)(28.3 L/cf) / (10<sup>6</sup>)(24.45 moles/L)(453.6 g/lb) where TPHG = 100 g/mole and Benzene = 78.1 g/mole; Effluent conc. = Method Reporting Limit, if reported as non-detect

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

<sup>&</sup>lt;sup>4</sup> Period Removal, lbs = (Extraction Rate)(Uptime)

## **APPENDIX A**

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





March 02, 2001

Ron Scheele Cambria Environmental - Emeryville 6262 Hollis Street Emeryville, CA 94608 RE: ARCO / P102647

Enclosed are the results of analyses for samples received by the laboratory on 02/27/01. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari

Client Services Representative

CA ELAP Certificate Number 2374





6262 Hollis Street

Emeryville CA, 94608

Project: ARCO

Project Number: 2035

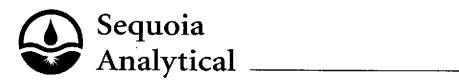
Project Manager: Ron Scheele

Reported:

03/02/01 11:33

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IN	P102647-01	Air	02/26/01 12:30	02/27/01 15:25
EF	P102647-02	Air	02/26/01 12:30	02/27/01 15:25



6262 Hollis Street Emeryville CA, 94608 Project: ARCO

Project Number: 2035
Project Manager: Ron Scheele

Reported: 03/02/01 11:33

## 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
IN (P102647-01) Air Sampled: 02/26	/01 12:30 Recei	ved: 02/27/0	1 15:25		-	-		<del></del>	
Gasoline (ppmv, MW 86.2)	50.4	2.84	ppmv	0.2	1020724	02/28/01	02/28/01	EPA 8015M/8020M	
Benzene (ppmv)	0.850	0.0314	u	"	н	**	*	"	
Toluene (ppmv)	3.84	0.0266	н		"	n	H	н	
Ethylbenzene (ppmv)	0.390	0.0230	н	H			II	Ħ	
Xylenes (total) (ppmv)	2.02	0.0230	n	н	*	**	n	"	
Methyl tert-butyl ether (ppmv)	11.6	0.111	**	н	**	**	**	**	
Gasoline	178	10.0	ug/l	#	**	**	"	n	
Benzene	2.71	0.100	.,	n	H	H	#	II	
Toluene	14.4	0.100	•	n	"	II .	11	н	
Ethylbenzene	1.69	0.100	**	**	н	11	"	н	
Xylenes (total)	8.74	0.100	н		**	*1	n	**	
Methyl tert-butyl ether	41.6	0.500	II	"		•	n .		
Surrogate: a,a,a-Trifluorotoluene		110 %	65-	135	"	"	"	п	
ogate: 4-Bromofluorobenzene		104 %	65-		#	"	"	**	
EF (P102647-02) Air Sampled: 02/26									
	/01 12:30 Recei	ved: 02/27/0	1 15:25						
Gasoline (ppmv, MW 86.2)	/01 12:30 Recei	ved: 02/27/0	1 15:25 ppmv	0.2	1020724	02/28/01	02/28/01	EPA 8015M/8020M	
	•	·		0.2	1020724	02/28/01	02/28/01		
Gasoline (ppmv, MW 86.2)	ND	2.84	ppmv					8015M/8020M	
Gasoline (ppmv, MW 86.2) Benzene (ppmv)	ND ND	2.84 0.0314	ppmv "	*	п	11	**	8015M/8020M "	
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)	ND ND <b>0.0769</b>	2.84 0.0314 0.0266	ppmv "	17	н	н	**	8015M/8020M "	QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)	ND ND <b>0.0769</b> ND	2.84 0.0314 0.0266 0.0230	ppmv " "	19 44 89	11 H	11 19	** ** **	8015M/8020M " "	QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)	ND ND 0.0769 ND 0.0754	2.84 0.0314 0.0266 0.0230 0.0230	ppmv " "	17 44 17	11 15 15	11 19 44 19	** ** **	8015M/8020M " " "	QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)  Methyl tert-butyl ether (ppmv)	ND 0.0769 ND 0.0754 0.132	2.84 0.0314 0.0266 0.0230 0.0230 0.111	ppmv H H H	19 44 19 11	11 11 11	11 14 19	# # # # # # # # # # # # # # # # # # #	8015M/8020M " " " "	QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)  Methyl tert-butyl ether (ppmv)  Gasoline  Benzene  Toluene	ND 0.0769 ND 0.0754 0.132 ND	2.84 0.0314 0.0266 0.0230 0.0230 0.111 10.0	ppmv " " " " " ug/l	29 44 29 44 11	11 18 18 18	11 15 10 10 10	11 11 11 11	8015M/8020M " " " "	QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)  Methyl tert-butyl ether (ppmv)  Gasoline  Benzene	ND ND 0.0769 ND 0.0754 0.132 ND ND	2.84 0.0314 0.0266 0.0230 0.0230 0.111 10.0 0.100	ppmv " " " " ug/1	77 44 17 11 11	11 11 11 11 11	11 11 10 10 10 10	** ** ** ** ** ** ** ** ** ** ** ** **	8015M/8020M " " " " "	QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)  Methyl tert-butyl ether (ppmv)  Gasoline  Benzene  Toluene	ND 0.0769 ND 0.0754 0.132 ND ND 0.289	2.84 0.0314 0.0266 0.0230 0.0230 0.111 10.0 0.100 0.100	ppmv " " " " ug/1 "	# # # # # # # # # # # # # # # # # # #	11 11 11 11 11	11 11 11 11 11 11 11 11 11 11 11 11 11	** ** ** ** ** ** ** ** ** ** ** **	8015M/8020M " " " " " " "	QR-04 QR-04
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)  Methyl tert-butyl ether (ppmv)  Gasoline  Benzene  Toluene  Ethylbenzene	ND  ND 0.0769  ND 0.0754 0.132  ND ND ND ND 0.289 ND	2.84 0.0314 0.0266 0.0230 0.0230 0.111 10.0 0.100 0.100 0.100	ppmv " " " ug/l " "	" " " " " " " "	11 11 11 11 11 11 11 11 11 11 11 11 11	11 19 10 10 10 10 10 10 10 10 10 10 10 10 10	** ** ** ** ** ** ** ** ** ** ** ** **	8015M/8020M " " " " " " " "	·
Gasoline (ppmv, MW 86.2)  Benzene (ppmv)  Toluene (ppmv)  Ethylbenzene (ppmv)  Xylenes (total) (ppmv)  Methyl tert-butyl ether (ppmv)  Gasoline  Benzene  Toluene  Ethylbenzene  Xylenes (total)	ND  ND 0.0769  ND 0.0754 0.132  ND ND 0.289  ND 0.327	2.84 0.0314 0.0266 0.0230 0.0230 0.111 10.0 0.100 0.100 0.100 0.100	ppmv " " " ug/l " " "	# # # # # # # # # # # # # # # # # # #	11 11 11 11 11 11 11 11 11 11 11 11 11	11 17 18 18 18 18 18 18 18 18 18 18 18 18 18	** ** ** ** ** ** ** ** ** ** ** ** **	8015M/8020M " " " " " " " " "	·

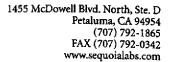


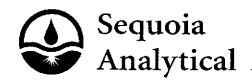
6262 Hollis Street Emeryville CA, 94608 Project: ARCO

Project Number: 2035 Project Manager: Ron Scheele Reported: 03/02/01 11:33

## 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 1020724 - EPA 5030, waters					<del></del>		. <b>_</b>		•		
Blank (1020724-BLK1)			,	Prepared	& Analyz	ed: 02/28/	01				
Gasoline	ND	50.0	ug/l	<del>-</del>			-				
Веплепе	ND	0.500	ii								
Toluene	ND	0.500	11								
Ethylbenzene	ND	0.500	11								
Xylenes (total)	ND	0.500	11								
Methyl tert-butyl ether	ND	2.50	**								
Surrogate: a,a,a-Trifluorotoluene	311		*	300		104	65-135				
Surrogate: 4-Bromofluorobenzene	289		"	300		96.3	65-135				
LCS (1020724-BS1)	5 (1020724-BS1) Prepared & Analyzed: 02/28/01										
Gasoline	2120	50.0	ug/l	2750		77.1	65-135				
nzene	32.7	0.500	•	32.0		102	65-135				
aene	174	0.500	**	193		90.2	65-135				
Ethylbenzene	41.0	0.500	**	46.0		89.1	65-135				
Xylenes (total)	210	0.500	н	231		90.9	65-135				
Methyl tert-butyl ether	57.0	2.50	н	52.0		110	65-135				
Surrogate: a,a,a-Trifluorotoluene	349		**	300		116	65-135				
Surrogate: 4-Bromofluorobenzene	313		"	300		104	65-135				
Matrix Spike (1020724-MS1)	Sou	rce: P10259.	3-02	Prepared a	& Analyze	ed: 02/28/0	01				
Gasoline	2310	50.0	ug/l	2750	ND	84.0	65-135			,	
Benzene .	35.5	0.500	н	32.0	ND	111	65-135				
Toluene	187	0.500	77	193	ND	96.9	65-135				
Ethylbenzene	46.5	0.500	**	46.0	ND	101	65-135				
Cylenes (total)	229	0.500	••	231	ND	99.1	65-135				
Methyl tert-butyl ether	66.9	2.50	"	52.0	ND	127	65-135				
Surrogate: a,a,a-Trifluorotoluene	362		н	300		121	65-135				
Surrogate: 4-Bromofluorobenzene	314		μ	300		105	65-135				





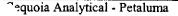
6262 Hollis Street Emeryville CA, 94608 Project: ARCO

Project Number: 2035 Project Manager: Ron Scheele

Reported: 03/02/01 11:33

## 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 1020724 - EPA 5030, waters										
Matrix Spike Dup (1020724-MSD1)	Sou	rce: P10259	3-02	Prepared	& Analyze	ed: 02/28/	01			
Gasoline	2260	50.0	ug/1	2750	ND	82.2	65-135	2.19	20	
Benzene	33.9	0.500	4	32.0	ND	106	65-135	4.61	20	
Toluene	175	0.500	•	193	ND	90.7	65-135	6.63	20	
Ethylbenzene	44.9	0.500	**	46.0	ND	97.6	65-135	3.50	20	
Xylenes (total)	220	0.500	н	231	ND	95.2	65-135	4.01	20	
Methyl tert-butyl ether	61.3	2.50	a	52.0	ND	116	65-135	8.74	20	
Surrogate: a,a,a-Trifluorotoluene	349		"	300		116	65-135			
Surrogate: 4-Bromofluorobenzene	310		"	300		103	65-135			







6262 Hollis Street Emeryville CA, 94608 Project: ARCO

Project Number: 2035

Project Manager: Ron Scheele

Reported:

03/02/01 11:33

#### **Notes and Definitions**

QR-04 Results between the primary and confirmation columns varied by greater than 40% RPD.

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	Prod Division	UCTS I	Comp Richfield	pany Company	<b>&lt;&gt;</b>			Task 0	rder No.	2	71	16	. 🛆	0								C	Chain of Custody
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				Matrix		Prese	rvation				ES SE	ro⊟	п	w				VOA.	00077000				Method of shipment
Sample I.D.	Lab no.	Container no.	Soil	Water	Other	Ice	Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEXTPHS / MTBE EPA MB02/8020/8015		Oil and Grease 413.1 [] 413.2 [	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 824/8240	EPA 625/8270	TCLP S Metals   voA	CAM Metals EPA 69	Lead Org-/DHS ☐ Lead EPA 7420/7421 ☐			
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