



April 15, 2003

Mr. Amir Gholami
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Alameda County
APR 30 2003
Environmental Health

**Re: First Quarter 2003 Monitoring Report
Former ARCO Service Station # 6002
6235 Seminary Avenue
Oakland, California
URS Project #38486162**

Dear Mr. Gholami:

On behalf of the Group Environmental Management Company (a BP affiliated company), URS Corporation (URS) is submitting the *First Quarter 2003 Groundwater Monitoring Report* for the Former ARCO Service Station # 6002, located at 6235 Seminary Avenue, Oakland, California.

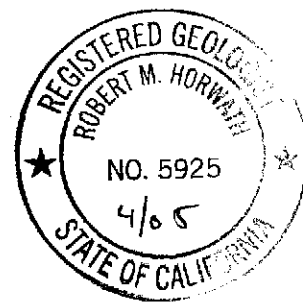
If you have any questions regarding this submission, please call (510) 874-3280.

Sincerely,

URS CORPORATION

Scott Robinson
Project Manager

Robert M. Horwath, R.G. #5925
Portfolio Manager



Enclosure: First Quarter 2003 Groundwater Monitoring Report

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



Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 6549
Moraga, California 94570
Phone: (925) 299-8891
Fax: (925) 299-8872



Alameda County
APR 30 2003
Environmental Health
April 15, 2003

Re: First Quarter 2003 Groundwater Monitoring Report
ARCO Station 6002
6235 Seminary Ave
Oakland, CA.

I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by:

Paul Supple
Environmental Business Manager

R E P O R T

Alameda County
APR 30 2003
Environmental Health

**FIRST QUARTER 2003
GROUNDWATER MONITORING**

**FORMER ARCO SERVICE STATION # 6002
6235 SEMINARY AVENUE
OAKLAND, CALIFORNIA**

Prepared for
Atlantic Richfield Company

April 15, 2003

URS

URS Corporation
500 12th Street, Suite 200
Oakland, California 94607

38486162

Date: April 15, 2003

Quarter: 1Q 03

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Former Facility No.: 6002 Address: 6235 Seminary Avenue, Oakland, California

Atlantic Richfield Co. Environmental Engineer: Paul Supple

Consulting Co./Contact Person: URS Corporation / Scott Robinson

Consultant Project No.: 38486162

Primary Agency: Alameda County Health Care Services Agency

WORK PERFORMED THIS QUARTER (First – 2003):

1. Submitted fourth quarter 2002 groundwater monitoring event.
2. Performed first quarter 2003 groundwater monitoring event on February 10, 2003.

WORK PROPOSED FOR NEXT QUARTER (Second – 2003):

1. Prepare and submit first quarter 2003 groundwater monitoring report.
2. Perform second quarter 2003 groundwater monitoring event.

Current Phase of Project: GW monitoring/sampling

Frequency of Groundwater Sampling: Annual : MW-3, MW-6 (first quarter)

Quarterly: MW-4, MW-5, MW-7, MW-8, VW-1, VW-4

Frequency of Groundwater Monitoring: Quarterly

Is Free Product (FP) Present On-Site: No

Bulk Soil Removed to Date : Approximately 370 cubic yards of TPH impacted soil

Current Remediation Techniques: Natural Attenuation

Approximate Depth to Groundwater: 6.74 (MW-6) to 12.62 (MW-5) feet

Groundwater Gradient (direction): Southwest

Groundwater Gradient (magnitude): 0.062 feet per foot

DISCUSSION:

TPH-g was detected in two of the eight wells sampled this quarter at concentrations of 52 µg/L (VW-1) and 2,600 µg/L (MW-5). Benzene was not detected above its detection limit in any of the eight wells sampled during this event. MTBE was detected in three wells at concentrations of 11 µg/L (VW-1), 100 µg/L (MW-5), and 2,500 µg/L (VW-4)

RECOMMENDATION:

We recommend changing the sampling frequency of wells MW-4, MW-7 and MW-8 from quarterly to annual. MW-4 and MW-8 are cross gradient, while MW-7 is downgradient. All of these wells have consistently had low to no detections above the laboratory reporting limits for the constituents of concern.

ATTACHMENTS:

- Table 1 - Groundwater Elevation and Analytical Data
- Table 2 - Groundwater Flow Direction and Gradient
- Table 3 – Fuel Oxygenate Analytical Data
- Figure 1 - Groundwater Elevation Contour and Analytical Summary Map – February 10, 2003
- Attachment A - Field Procedures and Field Data Sheets
- Attachment B - Laboratory Procedures, Certified Analytical Reports and Chain-of-Custody Records
- Attachment C - EDCC and EDF/Geowell Submittal Confirmation

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)		
MW-1	03/15/95	247.06	7.37	0.00	239.69	13,000	1,200	44	770	1,100	--	--			
	05/30/95	247.06	8.48	0.00	238.58	19,000	1,600	30	890	1,400	--	--			
	09/01/95	247.06	9.47	0.00	237.59	14,000	1,300	28	480	780	24,000	--			
	11/13/95	247.06	8.78	0.01	238.29[1]	11,000	570	17	260	410	--	25,000[2]			
	02/23/96	247.06	Well was decommissioned on 2-12-96												
MW-2	03/15/95	249.30	8.25	0.00	241.05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--			
	05/30/95	249.30	9.93	0.00	239.37	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--			
	09/01/95	249.30	10.69	0.00	238.61	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--			
	11/13/95	249.30	10.32	0.00	238.98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--			
	02/23/96	249.30	Well was decommissioned on 2-12-96												
MW-3	03/15/95	248.35	6.76	0.00	241.59	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--			
	05/30/95		7.81	0.00	240.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--			
	09/01/95		8.65	0.00	239.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	11/13/95		8.25	0.00	240.10	120	45	0.7	ND<0.5	6.2	--	--			
	02/23/96		6.64	0.00	241.71	ND<50	ND<0.5	ND<0.5	0.6	1.9	ND<3	--			
	05/10/96		7.95	0.00	240.40	Not sampled: well sampled annually, during the first quarter									
	08/09/96		8.06	0.00	240.29	Not sampled: well sampled annually, during the first quarter									
	11/08/96		NR	NR	NR	Not sampled: inaccessible									
	03/21/97		8.21	0.00	240.14	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	05/27/97		8.25	0.00	240.10	Not sampled: well sampled annually, during the first quarter									
	08/05/97		8.29	0.00	240.06	Not sampled: well sampled annually, during the first quarter									
	10/29/97		8.58	0.00	239.77	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/25/98		7.69	0.00	240.66	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	05/12/98		8.20	0.00	240.15	Not sampled: well sampled annually, during the first quarter									
	07/28/98		8.55	0.00	239.80	Not sampled: well sampled annually, during the first quarter									
	10/27/98		8.30	0.00	240.05	Not sampled: well sampled annually, during the first quarter									
	02/08/99		7.90	0.00	240.45	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	06/01/99		8.40	0.00	239.95	Not sampled: well sampled annually, during the first quarter									
	08/25/99		8.49	0.00	239.86	Not sampled: well sampled annually, during the first quarter									1.67
	10/29/99		8.52	0.00	239.83	Not sampled: well sampled annually, during the first quarter									6.90
02/16/00	NP	8.03	0.00	240.32	ND<50	ND<0.5	0.8	ND<0.5	ND<1	ND<3	--	8.51			
06/23/00		7.55	0.00	240.80	Not sampled: well sampled annually, during the first quarter									2.10	
08/17/00		8.65	0.00	239.70	Not sampled: well sampled annually, during the first quarter									1.10	
11/10/00		7.19	0.00	241.16	Not sampled: well sampled annually, during the first quarter										
02/12/01	NP	8.60	0.00	239.75	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50		0.81		
04/13/01		6.13	0.00	242.22	Not sampled: well sampled annually, during the first quarter										
07/18/01		6.47	0.00	241.88	Not sampled: well sampled annually, during the first quarter										

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)	
	10/01/01		6.99	0.00	241.36	Not sampled: well sampled annually, during the first quarter								
	01/14/02	NP	5.47	0.00	242.88	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<5.0	--		
	04/03/02		6.95	0.00	241.40	Not sampled: well sampled annually, during the first quarter								
	08/08/02		8.78	0.00	239.57	Not sampled: well sampled annually, during the first quarter								
	11/27/02		8.52	0.00	239.83	Not sampled: well sampled annually, during the first quarter								
	2/10/2003 ⁴	NP	8.40	0.00	239.95	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50		ND<0.50	0.7	
MW-4	03/15/95	242.91	9.37	0.00	233.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--		
	05/30/95		11.47	0.00	231.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--		
	09/01/95		12.28	0.00	230.63	78	ND<0.5	0.7	ND<0.5	ND<0.5	ND<3	--		
	11/13/95		11.75	0.00	231.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--		
	02/23/96		8.51	0.00	234.40	59	1.2	7.4	1.6	9.3	3	--		
	05/10/96		11.35	0.00	231.56	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	08/09/96		9.70	0.00	233.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	11/08/96		11.79	0.00	231.12	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	03/21/97		10.94	0.00	231.97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	81	--		
	05/27/97		11.51	0.00	231.40	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	08/05/97		11.90	0.00	231.01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	10/29/97		12.00	0.00	230.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/25/98		8.34	0.00	234.57	ND<50	ND<0.5	0.9	ND<0.5	0.9	4	--		
	05/12/98		10.93	0.00	231.98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	07/28/98		12.08	0.00	230.83	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	10/27/98		11.40	0.00	231.51	ND<5,000	ND<50	ND<50	160	64	6,400	--		
	02/08/99		8.40	0.00	234.51	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	06/01/99	NP	11.93	0.00	230.98	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	4.0	
	08/25/99	NP	12.21	0.00	230.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	1.29	
	10/29/99	NP	12.37	0.00	230.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<3	--	1.50	
	02/16/00	NP	7.45	0.00	235.46	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<3	--	2.38	
	06/23/00	NP	12.31	0.00	230.60	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	2.80	
DUP	08/17/00		--	--	--	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--		
	08/17/00	NP	11.92	0.00	230.99	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	2.38	
	11/10/00	NP	10.80	0.00	232.11	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.55	
	02/12/01	NP	11.65	0.00	231.26	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.12	
	04/13/01	NP	8.17	0.00	234.74	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--		
DUP	04/13/01		--	--	--	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--		
	07/18/01	NP	8.51	0.00	234.40	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--		
	10/01/01	NP	8.71	0.00	234.20	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--		
	01/14/02	NP	7.13	0.00	235.78	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<5.0	--		
DUP	01/14/02		--	--	--	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<5.0	--		

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC	Depth to	FP	Groundwater				Ethyl-	Total	MTBE	MTBE	Dissolved Oxygen
		Elevation (ft-MSL)	Water (feet)	Thickness (feet)	Elevation (ft-MSL)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	benzene (µg/L)	Xylenes (µg/L)	8021B* (µg/L)	8260 (µg/L)	
	04/03/02	NP	10.1	0.00	232.81	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--	
	08/08/02	NP	12.64	0.00	230.27	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--	2.4
	11/27/02	NP	12.01	0.00	230.90	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	4.7	2.5
	2/10/2003 ⁴	NP	11.22	0.00	231.69	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.50	0.8
MW-5	03/15/95		244.82	11.99	0.00	232.83	21,000	870	22	1,600	1,900	--	--
	05/30/95			12.97	0.00	231.85	17,000	2,100	250	1,000	520	--	--
	09/01/95			14.03	0.00	230.79	19,000	1,500	25	1,600	880	8,300	--
	11/13/95			13.65	0.00	231.17	21,000	1,300	22	1,400	630	--	--
	02/23/96			11.93	0.00	232.89	27,000	1,300	ND<50	1,600	1,500	730	--
	05/10/96			13.05	0.00	231.77	17,000	460	21	760	480	1,000	--
	08/09/96			13.22	0.00	231.60	16,000	420	14	870	390	1,500	--
	11/08/96			NR	NR	NR	Not sampled: well inaccessible						
	03/21/97			13.24	0.00	231.58	18,000	110	ND<50	730	1,500	1,800	--
	05/27/97			13.10	0.00	231.72	21,000	86	ND<20	810	610	1,700	--
	08/05/97			13.14	0.00	231.68	340	2.2	ND<0.5	15	8.8	39	--
	10/29/97			13.03	0.00	231.79	19,000	130	ND<20	1,400	620	1,700	--
	02/25/98			11.33	0.00	233.49	8,500	19	13	190	100	170	--
	05/12/98			12.81	0.00	232.01	10,000	34	ND<10	390	220	610	--
	07/28/98			13.12	0.00	231.70	15,000	68	ND<10	690	620	1,000	--
	10/27/98			12.90	0.00	231.92	15,000	60	ND<10	770	400	890	--
	02/08/99			11.08	0.00	233.74	8,200	23	ND<10	290	120	ND<60	--
	06/01/99	NP		12.95	0.00	231.87	11,000	33	3.3	340	180	580	--
	08/25/99	NP		12.99	0.00	231.83	9,200	26	14	420	270	1,100	--
	10/29/99	NP		13.10	0.00	231.72	11,000	19	9.8	260	150	590	--
	02/16/00	NP		8.21	0.00	236.61	12,000	8.1	10	340	160	130	--
	06/23/00	NP		12.90	0.00	231.92	9,680	38.0	ND<20.0	212	114	930	--
	08/17/00	NP		13.00	0.00	231.82	10,500	15.0	7.98	223	118	430	--
	11/10/00	NP		12.50	0.00	232.32	7,030	19.7	ND<10.0	190	43.6	445	--
	02/12/01	NP		12.81	0.00	232.01	8,840	33.9	ND<10.0	186	56.4	352	--
	04/13/01	NP		11.31	0.00	233.51	9,020	54.2	43.3	137	96.0	297	--
	07/18/01	NP		11.59	0.00	233.23	13,000	19	10	110	49	230	--
	10/01/01	NP		11.84	0.00	232.98	8,500	6.9	ND<1.0	87	27	220	--
	01/14/02	NP		10.75	0.00	234.07	9,500	ND<20	ND<20	140	22	ND<200	--
	04/03/02	NP		12.50	0.00	232.32	2,400	21	ND<5.0	91	8.5	130	--
DUP	04/03/02	NP		--	--	--	2,700	24.0	5.1	92	8.5	130	--
	08/08/02	NP		12.83	0.00	231.99	2,000	ND<20	ND<20	48	ND<20	520	--
	11/27/02	NP		12.79	0.00	232.03	2,200	ND<10	ND<10	33	ND<10	--	150
	2/10/2003 ⁴	NP		12.62	0.00	232.20	2,600	ND<2.5	ND<2.5	47	4.2	--	100

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC	Depth to	FP	Groundwater	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)	
		Elevation (ft-MSL)	Water (feet)	Thickness (feet)	Elevation (ft-MSL)									
MW-6	06/29/95	NR	6.63	0.00	NR	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--		
	09/01/95	NR	NR	NR	NR	Not sampled								
	11/13/95	NR	7.70	0.00	NR	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/23/96	NR	9.82	0.00	NR	ND<50	ND<0.5	0.8	ND<0.5	0.6	ND<3	--		
	05/10/96	NR	15.25	0.00	NR	Not sampled: well sampled annually, during the first quarter								
	08/09/96	252.20	11.11	0.00	241.09	Not sampled: well sampled annually, during the first quarter								
	11/08/96		9.31	0.00	242.89	Not sampled: well sampled annually, during the first quarter								
	03/21/97		9.40	0.00	242.80	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	05/27/97		7.08	0.00	245.12	Not sampled: well sampled annually, during the first quarter								
	08/05/97		7.12	0.00	245.08	Not sampled: well sampled annually, during the first quarter								
	10/29/97		7.42	0.00	244.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/25/98		10.35	0.00	241.85	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	05/12/98		15.83	0.00	236.37	Not sampled: well sampled annually, during the first quarter								
	07/28/98		11.84	0.00	240.36	Not sampled: well sampled annually, during the first quarter								
	10/27/98		9.73	0.00	242.47	Not sampled: well sampled annually, during the first quarter								
	02/08/99		8.10	0.00	244.10	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	06/01/99		17.84	0.00	234.36	Not sampled: well sampled annually, during the first quarter								
	08/25/99		11.00	0.00	241.20	Not sampled: well sampled annually, during the first quarter								0.77
	10/29/99		9.03	0.00	243.17	Not sampled: well sampled annually, during the first quarter								3.42
	02/16/00	P	7.71	0.00	244.49	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<3	--	2.42	
06/23/00		6.69	0.00	245.51	Not sampled: well sampled annually, during the first quarter								2.30	
08/17/00		6.95	0.00	245.25	Not sampled: well sampled annually, during the first quarter								2.51	
11/10/00		11.79	0.00	240.41	Not sampled: well sampled annually, during the first quarter									
02/12/01	P	7.35	0.00	244.85	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.66		
DUP	02/12/01	--	--	--	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	--		
	04/13/01		10.52	0.00	241.68	Not sampled: well sampled annually, during the first quarter								
	07/18/01		11.03	0.00	241.17	Not sampled: well sampled annually, during the first quarter								
	10/01/01		11.31	0.00	240.89	Not sampled: well sampled annually, during the first quarter								
	01/14/02	P	9.87	0.00	242.33	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<5.0	--	--	
	04/03/02		12.19	0.00	240.01	Not sampled: well sampled annually, during the first quarter								
	08/08/02		7.04	0.00	245.16	Not sampled: well sampled annually, during the first quarter								
	11/27/02		6.85	0.00	245.35	Not sampled: well sampled annually, during the first quarter								
	2/10/2003 ⁴	NP	6.74	0.00	245.46	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.50	1.1	

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC	Depth to	FP	Groundwater	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)
		Elevation (ft-MSL)	Water (feet)	Thickness (feet)	Elevation (ft-MSL)								
MW-7	08/09/96	235.95	NR	NR	NR	Not sampled: well was dry							
	11/08/96		NR	NR	NR	Not sampled: well was dry							
	01/27/97		NR	NR	NR	2,900	29	ND<5	ND<5	580	220	--	
	03/21/97		7.13	0.00	228.82	590	3.5	ND<0.5	ND<0.5	1.3	90	--	
	05/27/97		9.02	0.00	226.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	
	08/05/97		12.33	0.00	223.62	110	0.5	ND<0.5	ND<0.5	0.8	81	--	
	10/29/97		NR	NR	NR	Not sampled: well was dry							
	02/25/98		8.04	0.00	227.91	ND<50	ND<0.5	0.6	ND<0.5	0.7	ND<3	--	
	05/12/98		8.88	0.00	227.07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	
	07/28/98		10.50	0.00	225.45	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	
	10/27/98		8.75	0.00	227.20	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	
	02/08/99		9.35	0.00	226.60	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--	
	06/01/99	NP	9.85	0.00	226.10	250	ND<0.5	0.6	ND<0.5	1.6	18	--	1.0
	08/25/99	NP	11.31	0.00	224.64	119	ND<0.5	5.7	ND<0.5	ND<0.5	11	--	0.41
	10/29/99	NP	9.08	0.00	226.87	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	ND<3	--	1.29
	02/25/00	NP	8.02	0.00	227.93	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	38	--	2.10
	06/23/00	NP	10.68	0.00	225.27	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	14.4	--	1.60
	08/17/00	NP	11.85	0.00	224.10	70.0	ND<0.500	0.678	ND<0.500	1.07	14.2	--	1.59
	11/10/00	NP	9.62	0.00	226.33	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.09
	02/12/01	NP	12.10	0.00	223.85	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	0.84
	04/13/01	P	7.95	0.00	228.00	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	
	07/18/01	P	8.20	0.00	227.75	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--	
	10/01/01	NP	8.59	0.00	227.36	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--	
	01/14/02	P	6.93	0.00	229.02	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<5.0	--	
	04/03/02	P	8.31	0.00	227.64	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--	
	08/08/02	P	12.11	0.00	223.84	Not sampled: insufficient water/recharge for purge/sample							
	11/27/02	NP	13.01	0.00	222.94	Not sampled: insufficient water							
	2/10/2003 ⁴	NP	10.02	0.00	225.93	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.50	1.5

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)	
MW-8	08/09/96	240.37	9.41	0.00	230.96	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	11/08/96		9.19	0.00	231.18	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	03/21/97		8.55	0.00	231.82	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	05/27/97		11.06	0.00	229.31	91	0.6	ND<0.5	ND<0.5	0.6	66	--		
	08/05/97		9.32	0.00	231.05	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	10/29/97		9.35	0.00	231.02	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/25/98		7.08	0.00	233.29	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	05/12/98		8.61	0.00	231.76	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	07/28/98		9.63	0.00	230.74	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4	--		
	10/27/98		9.30	0.00	231.07	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/08/99		5.56	0.00	234.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	06/01/99			NR	NR	NR	Not sampled: well inaccessible							
	08/25/99			NR	NR	NR	Not sampled: well inaccessible							
	10/29/99			NR	NR	NR	Not sampled: well inaccessible							
	02/16/00			NR	NR	NR	Not sampled: well inaccessible							
	06/23/00	NP		9.45	0.00	230.92	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.90
	08/17/00	NP		6.40	0.00	233.97	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	2.56
11/10/00	NP		6.25	0.00	234.12	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.93	
DUP 11/10/00			--	--	--	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--		
02/12/01	NP		8.11	0.00	232.26	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--	1.65	
04/13/01	P		5.19	0.00	235.18	ND<50.0	ND<0.500	ND<0.500	ND<0.500	ND<0.500	ND<2.50	--		
07/18/01	NP		5.55	0.00	234.82	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--		
10/01/01	NP		6.41	0.00	233.96	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--		
01/14/02	P		5.07	0.00	235.30	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<5.0	--		
04/03/02	P		8.60	0.00	231.77	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--		
08/08/02	P		9.58	0.00	230.79	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	--	1.7	
11/27/02	P		9.15	0.00	231.22	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.50	3.1	
2/10/2003 ⁴	P		8.55	0.00	231.82	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	--	ND<0.50	1.3	
AS-1	06/29/95	NR	9.20	0.00	NR	ND<50	1.6	ND<0.5	0.9	0.9	--	--		

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC	Depth to	FP	Groundwater	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)	
		Elevation (ft-MSL)	Water (feet)	Thickness (feet)	Elevation (ft-MSL)									
VW-1	02/23/96	NR	5.29	0.00	NR	21,000	490	57	520	1,500	240	--		
	05/10/96	NR	6.80	0.00	NR	3,700	61	ND<5	100	50	200	--		
	08/09/96	NR	7.03	0.00	NR	970	2.7	ND<2.5	2.7	3.7	180	--		
	11/08/96	NR	NR	NR	NR	Not sampled: well inaccessible								
	03/21/97	NR	7.51	0.00	NR	640	ND<4	ND<1	1	3	194	--		
	05/27/97	NR	7.51	0.00	NR	Not sampled: well sampled semi-annually, during the first and third quarters								
	08/05/97	NR	7.51	0.00	NR	630	ND<1	ND<1	3	2	120	--		
	10/29/97	NR	7.53	0.00	NR	600	ND<0.5	ND<0.5	ND<0.5	1.6	84	--		
	02/25/98	NR	6.77	0.00	NR	230	ND<4	ND<0.7	1.2	0.5	27	--		
	05/12/98	NR	7.43	0.00	NR	340	ND<0.5	0.5	2.3	0.8	29	--		
	07/28/98	NR	7.00	0.00	NR	240	ND<0.5	ND<0.5	ND<0.5	1.1	54	--		
	10/27/98	NR	7.52	0.00	NR	230	ND<0.5	ND<0.5	ND<0.5	ND<0.5	65	--		
	02/08/99	NR	7.05	0.00	NR	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	36[3]	--	
	06/01/99	NP	NR	7.55	0.00	NR	180	ND<0.5	ND<0.5	ND<0.5	ND<0.5	23	--	1.0
	08/25/99	NP	NR	7.66	0.00	NR	130	ND<0.5	5.6	ND<0.5	ND<0.5	40	--	0.39
	10/29/99	NP	NR	7.59	0.00	NR	200	1.0	ND<0.5	0.6	1.6	36	--	0.89
	02/16/00	NP	NR	7.03	0.00	NR	210	ND<0.5	0.9	2.2	1.9	11	--	1.41
	06/23/00	NP	NR	7.71	0.00	NR	175	1.04	ND<0.500	ND<0.500	ND<0.500	14.4	--	1.90
	08/17/00	NP	NR	7.75	0.00	NR	180	ND<0.500	ND<0.500	0.622	0.760	23.7	--	0.63
	11/10/00	NP	NR	6.83	0.00	NR	157	0.955	ND<0.500	0.973	ND<0.500	32.5	--	1.03
	02/12/01	NP	NR	7.85	0.00	NR	273	0.627	ND<0.500	ND<0.500	0.507	9.19	--	0.47
	04/13/01	P	NR	5.11	0.00	NR	213	ND<0.500	ND<0.500	ND<0.500	ND<0.500	6.38	--	
	07/18/01	P	NR	5.39	0.00	NR	270	ND<0.500	ND<0.500	ND<0.500	ND<0.500	20	--	
10/01/01	NP	NR	6.50	0.00	NR	200	ND<0.500	ND<0.500	ND<0.500	0.81	14	--		
01/14/02	P	NR	5.04	0.00	NR	110	ND<0.500	ND<0.500	ND<0.500	ND<0.500	6.4	--		
04/03/02	P	NR	7.51	0.00	NR	91	0.72	ND<0.500	ND<0.500	ND<0.500	12.0	--		
08/08/02	P	NR	9.58	0.00	NR	ND<50	ND<0.500	ND<0.500	ND<0.500	ND<0.500	33.0	--	0.6	
11/17/02	P	NR	7.42	0.00	NR	52	0.72	0.78	ND<0.500	ND<0.500	--	21	1.0	
2/10/2003 ⁴	NP	NR	7.38	0.00	NR	52	ND<0.500	ND<0.500	ND<0.500	ND<0.500	--	11	1.7	
VW-2	02/23/96	NR	6.92	0.00	NR	Not sampled: well not part of sampling program								
	08/08/02	NR	10.51	0.00	NR	Not sampled: well not part of sampling program								
VW-3	08/08/02	NR	8.85	0.00	NR	NDND<50	NDND<0.500	NDND<0.500	NDND<0.500	NDND<0.500	2.5	--	0.7	
	11/27/02	NR	8.80	0.00	NR	Not sampled: well not part of sampling program								
	2/10/2003 ⁴	NR	8.41	0.00	NR	Not sampled: well not part of sampling program								

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Well Number	Date Sampled	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	Dissolved Oxygen (mg/L)	
VW-4	05/10/96	NR	8.58	0.00	NR	13,000	2,500	41	420	660	43,000	--		
	08/09/96	NR	11.70	0.00	NR	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6,200	--		
	11/08/96	NR	9.38	0.00	NR	7,800	510	7	180	370	21,000	--		
	03/21/97	NR	9.11	0.00	NR	10,000	290	10	270	230	8,900	--		
	05/27/97	NR	9.34	0.00	NR	Not sampled: well sampled semi-annually, during the first and third quarters								
	08/05/97	NR	9.47	0.00	NR	ND<10,000	180	ND<100	ND<100	110	12,000	--		
	10/29/97	NR	9.35	0.00	NR	9,800	200	69	260	360	4,900	--		
	02/25/98	NR	7.08	0.00	NR	ND<50	2.5	ND<0.5	ND<0.5	0.7	ND<3	--		
	05/12/98	NR	9.17	0.00	NR	3,200	ND<20	22	29	52	2,100	--		
	07/28/98	NR	9.55	0.00	NR	ND<10,000	ND<100	ND<100	ND<100	ND<100	5,100	--		
	10/27/98	NR	9.92	0.00	NR	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<3	--		
	02/08/99	NR	7.50	0.00	NR	ND<2,500	ND<25	ND<25	28	ND<25	2,400	3,100[3]		
	06/01/99	NP	NR	9.87	0.00	NR	2,100	2.5	1.1	2.5	15	3,300	--	2.0
	08/25/99	NP	NR	9.78	0.00	NR	1,300	4.4	4.9	1.7	2.9	4,600	--	0.36
	10/29/99	NP	NR	9.93	0.00	NR	1,400	ND<0.5	1.8	1.6	3.0	4,200	--	1.18
	02/16/00	NP	NR	7.45	0.00	NR	1,800	ND<0.5	2.9	15	10	3,400	--	1.01
DUP 1	06/23/00	--	--	--	--	1,260	ND<2.00	ND<2.00	ND<2.00	2.73	2,720	--		
	06/23/00	NP	NR	9.74	0.00	NR	1,360	ND<2.00	2.26	ND<2.00	2.25	4,900	--	1.50
	08/17/00	NP	NR	9.95	0.00	NR	2,230	ND<10.0	ND<10.0	ND<10.0	5,310	--	1.13	
	11/10/00	NP	NR	9.22	0.00	NR	1,390	18.5	ND<5.00	ND<5.00	8,840	--	1.25	
	02/12/01	NP	NR	8.99	0.00	NR	1,400	9.42	ND<2.00	17.8	3,570	--	0.91	
	04/13/01	NP	NR	7.80	0.00	NR	556	3.82	ND<1.25	ND<1.25	2,450	--		
DUP 1	07/18/01	NP	NR	7.73	0.00	NR	2,100	9.2	ND<2.0	ND<2.0	3,700	--		
	07/18/01	--	--	--	--	2,000	8.7	2.2	ND<2.0	ND<2.0	3,400	--		
DUP	10/01/01	NP	NR	6.69	0.00	NR	2,000	ND<10	ND<10	13	5,900	--		
	10/01/01	--	--	--	--	1,800	ND<10	ND<10	ND<10	ND<10	5,800	--		
	01/14/02	P	NR	5.93	0.00	NR	580	ND<2.0	ND<2.0	ND<2.0	2,700	--		
	04/03/02	NP	NR	9.6	0.00	NR	1,400	5.2	16.0	ND<5.0	9.6	2,200	--	
	08/08/02	NR	10.01	0.00	NR	NS	NS	NS	NS	NS	NS	NS	NS	
	11/27/02	P	NR	10.30	0.00	NR	ND<10,000	ND<100	ND<100	ND<100	ND<100	--	3,800	1.7
	2/10/2003 ⁴	NP	NR	10.06	0.00	NR	ND<5,000	ND<50	ND<50	ND<50	ND<50	--	2,500	1.0

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6002
6235 Seminary Avenue, Oakland, California

Abbreviation

TPH-g	= Total petroleum hydrocarbons as gasoline by modified EPA method 8015
BTEX	= Benzene, toluene, ethylbenzene, xylenes by EPA method 8021B. (EPA method 8020 prior to 10/29/99).
MTBE	= Methyl tertiary butyl ether
*	= EPA method 8020 prior to 10/29/99
TOC	= Top of Casing
ft-MSL	= elevation in feet, relative to mean sea level
µg/L	= micrograms per liter
mg/L	= milligrams per liter
NR	= not reported; data not available or not measurable
--	= not analyzed or not applicable
ND<	= not detected at or above the laboratory detection limit.
1	= [corrected elevation (Z)] = Z + (h * 0.73) where: Z: measured elevation, h: floating product thickness, 0.73: density ratio of oil to water
2	= analyzed by EPA method 8240
3	= also analyzed for fuel oxygenates
4	=TPH-g, BTEX and MTBE analyzed by EPA method 8260B beginning on 1st quarter 2003 sampling event
**	= For previous historical groundwater elevation data please refer to Fourth Quarter 1995 Groundwater Monitoring Program Results, ARCO Service Station 6002, Oakland, California, (EMCON, February 23, 1996)
DUP	= duplicate

Source: The data within this table collected prior to April 2002 was provided to URS by Group Environmental Management Company and their previous consultants. URS has not verified the accuracy of this information.

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station 6002
6235 Seminary Avenue, Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
03/15/95	West-Southwest	0.08
05/30/95	West-Southwest	0.08
09/01/95	West-Southwest	0.09
11/13/95	West-Southwest	0.08
02/23/96	West-Southwest	0.08
05/10/96	West-Southwest	0.08
08/09/96	Southwest	0.08
11/08/96	Southwest	0.055
03/21/97	West-Southwest	0.051
05/27/97	West-Southwest	0.069
08/05/97	West	0.076
10/29/97	West-Southwest	0.036
02/25/98	West-Southwest	0.052
05/12/98	West	0.07
07/28/98	West	0.07
10/27/98	West-Southwest	0.06
02/08/99	West-Southwest	0.07
06/01/99	West-Northwest	0.07
08/25/99	West-Southwest	0.07
10/29/99	West	0.07
02/16/00	Southwest	0.05
06/23/00	West	0.042
08/17/00	West	0.087
11/10/00	West-Southwest	0.080
02/12/01	West-Southwest	0.074
04/13/01	West	0.085
07/18/01	West	0.075
10/01/01	West-Southwest	0.083
01/14/02	West-Southwest	0.072
04/03/02	West-Southwest	0.084
08/08/02	West-Southwest	0.088
11/27/02	West-Southwest	0.075
02/10/03	Southwest	0.062

Source: The data within this table collected prior to April 2002 was provided to URS by Group Environmental Management Company and their previous consultants. URS has not verified the accuracy of this information.

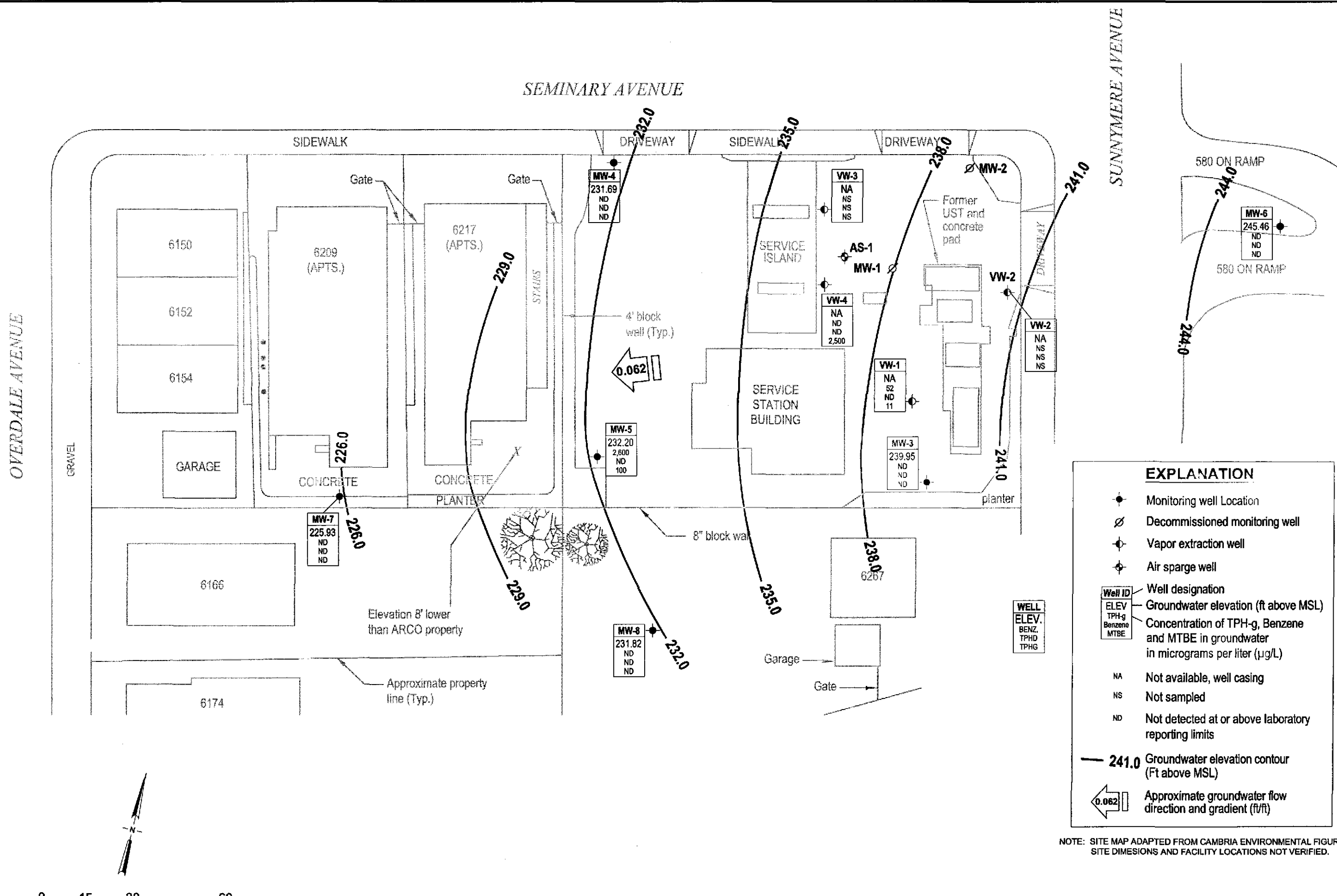
Table 3
Fuel Oxygenate Analytical Data

ARCO Service Station # 6002
6235 Seminary Avenue
Oakland, California

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-Dichloroethane (µg/L)	Ethylene Dibromide (µg/L)
MW-3	02/10/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
MW-4	02/10/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
MW-5	02/10/03	ND<200	ND<100	100	ND<0.50	ND<0.50	ND<0.50	NA	NA
MW-6	02/10/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
MW-7	02/10/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
MW-8	02/10/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
VW-1	02/10/03	ND<40	ND<20	11	ND<0.50	ND<0.50	ND<0.50	NA	NA
VW-4	02/10/03	ND<4,000	ND<2,000	2,500	ND<0.50	ND<0.50	ND<0.50	NA	NA

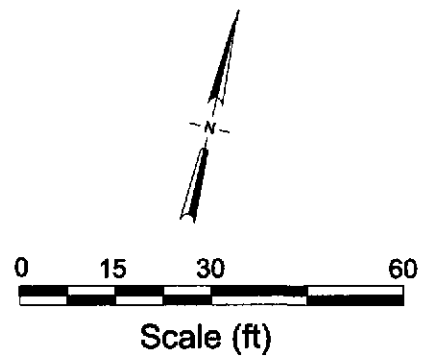
Note = All fuel oxygenate compounds analyzed using EPA Method 8260B
TBA = tert-Butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert butyl ether
TAME = tert-Amyl methyl ether
µg/L = micrograms per liter
ND< = Less than laboratory reporting limit
NA = Data not available, not analyzed, or not applicable

X:\x_enn\water\BP_GEM\Sites\Scott Robinson\Paul_Supp\6002\Reports\Monitoring\Qtr-1_2003\Drawings\GWEC-AS_2-10.dwg



EXPLANATION	
	Monitoring well Location
	Decommissioned monitoring well
	Vapor extraction well
	Air sparge well
Well ID	Well designation
ELEV.	Groundwater elevation (ft above MSL)
TPH-g	Concentration of TPH-g, Benzene and MTBE in groundwater in micrograms per liter (µg/L)
BENZ	
TPHD	
TPHG	
NA	Not available, well casing
NS	Not sampled
ND	Not detected at or above laboratory reporting limits
	241.0 Groundwater elevation contour (Ft above MSL)
	0.062 Approximate groundwater flow direction and gradient (ft/ft)

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



URS	Project No. 38486162	GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP	FIGURE 1
	Arco Service Station #6002 6235 Seminary Avenue Oakland, California		

ATTACHMENT A
FIELD PROCEDURES AND FIELD DATA SHEETS

FIELD PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and depth to bottom, and checking for the presence of free phase petroleum product (free product), using either an electronic indicator and a clear Teflon™ bailer or an oil-water interface probe. Wells not containing free product are purged approximately three casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. Equipment and purging method used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially (approximately 80%) recover. Groundwater samples (both purge and no purge) are collected using a Teflon bailer, placed into appropriate Environmental Protection Agency- (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to a California State-certified laboratory. Wells with free product are not sampled and free product is removed according to California Code of Regulation, Title 23, Div. 3, Chap. 16, Section 2655, UST Regulations.

WELL GAUGING DATA

Project # 030210-0W-2 Date 2-10-03 Client Arco 6002

Site 6235 Seminary Ave Oakland

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	NP @
MW-3	4					8.40	24.54		5'
MW-4	4					11.22	24.12		4.5'
9 MW-5	4					12.62	24.31		5'
MW-6	2					6.74	32.01		
MW-7	2					10.02	13.25		10'
MW-8	2					8.55	14.00		
7 VW-1	4					7.38	13.96		
6 VW-3	4					8.41	14.16		60
5 VW-4	4					10.06	14.94		V

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030210-DW-2</u>	Station # <u>6002</u>
Sampler: <u>Dave Walter</u>	Date: <u>2-10-03</u>
Well I.D.: <u>MW-3</u>	Well Diameter: 2 3 (4) 6 8
Total Well Depth: <u>24.54</u>	Depth to Water: <u>24.54</u> 7.38 <u>8.40</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: Bailer
 Disposable Bailer
 Middleburg
 Electric Submersible
 Extraction Pump
 Other: _____

Sampling Method: Bailer
 Disposable Bailer
 Extraction Port
 Other: _____

Top of Screen: 5' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

1 Case Volume (Gals.)	X <u>no purge</u>	Gals.
Specified Volumes	Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
15:15	63.1	6.4	895	—	

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Time: 15:15 Sampling Date: 2-10-03

Sample I.D.: MW-3 Laboratory: Pace **(Sequoia)** Other _____

Analyzed for: **(TPH-G BTEX)** MTBE TPH-D Other: Oxygenates, Ethanol by 8260

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	0.7	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030210-DW-2</u>	Station # <u>6002</u>
Sampler: <u>Dave Walter</u>	Date: <u>2-10-03</u>
Well I.D.: <u>MW-4</u>	Well Diameter: 2 3 <u>(4)</u> 6 8 <u> </u>
Total Well Depth: <u>24.12</u>	Depth to Water: <u>11.22</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): <u>(YSI)</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: <u>Bailer</u> <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port Other: _____
---	---

Top of Screen: 4.5' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

1 Case Volume (Gals.)	x	Specified Volumes <u>no purge</u>	Gals.
		Specified Volumes	Calculated Volume

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
<u>15:25</u>	<u>63.3</u>	<u>6.6</u>	<u>456</u>	—	<u>clear</u>

Did well dewater? Yes No	Gallons actually evacuated: <u> </u>
Sampling Time: <u>15:25</u>	Sampling Date: <u>2-10-03</u>
Sample I.D.: <u>MW-4</u>	Laboratory: Pace <u>(Sequoia)</u> Other _____
Analyzed for: <u>(TPH-G BTEX)</u> MTBE TPH-D Other: <u>Oxygenates, Ethanol by 8260</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L <u>(Post-purge)</u> <u>0.8</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030210-DW-2	Station # 6002
Sampler: Dave Walter	Date: 2-10-03
Well I.D.: MW-5	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 24.31	Depth to Water: 12.62
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: <u>Bailer</u> Disposable Bailer <u>Middleburg</u> Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> Disposable Bailer Extraction Port Other: _____
--	---

Top of Screen: 5' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

I Case Volume (Gals.)	X <u>12</u> <u>No Purge</u>	Gals.
	Specified Volumes	Calculated Volume

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
16:15	63.3	6.6	528	-	odor

Did well dewater? Yes No	Gallons actually evacuated: <u> </u>
Sampling Time: <u>16:15</u>	Sampling Date: <u>2-10-03</u>
Sample I.D.: <u>MW-5</u>	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-G BTEX</u> MTBE TPH-D Other: <u>Oxygenates, Ethanol by 8260</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L <u>Post-purge</u> : <u>0.7</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030210-DW-2	Station # 6002
Sampler: Dave Walter	Date: 2-10-03
Well I.D.: mw-6	Well Diameter: (2) 3 4 6 8
Total Well Depth: 32.01	Depth to Water: 6.74
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: <input type="checkbox"/> Bailer <input type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible <input type="checkbox"/> Extraction Pump Other: _____	Sampling Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port Other: _____
--	---

Top of Screen: _____ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

4.0	x	3	=	12.0	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
14:05	64.4	7.2	428	4	Brown
14:10	64.4	7.3	427	8	
14:15	65.0	7.4	436	12	

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 12
Sampling Time: 14:20	Sampling Date: 2-10-03
Sample I.D.: mw-6	Laboratory: Pace (Sequoia) Other _____
Analyzed for: (TPH-G BTEX) MTBE TPH-D Other: Oxygenates, Ethanol by 8260	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: 1.1 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030210-DW-2	Station # 6002
Sampler: Dave Walter	Date: 2-10-03
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 _____
Total Well Depth: 13.25	Depth to Water: 10.02
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer Middleburg Electric Submersible Extraction Pump Other: _____	Sampling Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer Extraction Port Other: _____
---	--

Top of Screen: 10' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

1 Case Volume (Gals.)	x	(B) no purge =	Gals.
		Specified Volumes	Calculated Volume

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
15:05	61.7	6.7	431	-	clear

Did well dewater? Yes No	Gallons actually evacuated: _____
Sampling Time: 15:05	Sampling Date: 2-10-03
Sample I.D.: MW-7	Laboratory: Pace (Sequoia) Other _____
Analyzed for: (TPH-G BTEX) MTBE TPH-D Other: Oxygenates, Ethanol by 8260	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: 1.5 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030210-DW-2	Station # 6002
Sampler: Dave Walter	Date: 2-10-03
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8
Total Well Depth: 14.00 32.00 / 14.00	Depth to Water: 8.59
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): (YSI) HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: Bailer Sampling Method: Bailer

Disposable Bailer Disposable Bailer

Middleburg Extraction Port

Electric Submersible

Extraction Pump Other: _____

Other: _____

Top of Screen: _____ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

10 0.9	x	3	=	36 2.7	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
14:36	60.6	6.7	459	0.9	
14:38	60.8	6.6	455	1.8	
14:40	60.6	6.6	456	2.7	

Did well dewater? Yes No Gallons actually evacuated: ~~36~~ 2.7

Sampling Time: 14:45 Sampling Date: 2-10-03

Sample I.D.: MW-8 Laboratory: Pace Sequoia Other _____

Analyzed for: (TPH-G BTEX) MTBE TPH-D Other: Oxygenates, Ethanol by 8260

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	1.3	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030210-DW-2	Station # 6002
Sampler: Dave Walter	Date: 2-10-03
Well I.D.: VW-1	Well Diameter: 2 3 (4) 6 8
Total Well Depth: 13.96	Depth to Water: 7.38
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: Bailer Disposable Bailer Middleburg Electric Submersible Extraction Pump Other: _____

Sampling Method: Bailer Disposable Bailer Extraction Port Other: _____

Top of Screen: _____ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>4.3</u>	x	<u>3</u>	=	<u>12.9</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
15:50	63.8	6.5	888	5	
15:51	64.1	6.5	847	10	
15:52	64.1	6.5	836	15	

Did well dewater? Yes No Gallons actually evacuated: 15

Sampling Time: 15:57 Sampling Date: 2-10-03

Sample I.D.: VW-1 Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxygenates, Ethanol by 8260

D.O. (if req'd):	Pre-purge:	mEq/L	Post-purge:	1.7	mEq/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030210-DW-2	Station # 6002
Sampler: Dave Walter	Date: 2-10-03
Well I.D.: VW-4	Well Diameter: 2 3 4 6 8
Total Well Depth: 14.94	Depth to Water: 10.06
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: <input type="checkbox"/> Bailer <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Middleburg <input checked="" type="checkbox"/> Electric Submersible <input type="checkbox"/> Extraction Pump Other: _____	Sampling Method: <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port Other: _____
--	---

Top of Screen: _____ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

3.2	x	3	=	9.6	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
15:33	62.4	6.8	798	4	
15:34	63.9	6.8	790	8	
15:35	64.1	6.8	790	12	

Did well dewater? Yes <input type="checkbox"/> No	Gallons actually evacuated: 12
Sampling Time: 15:40	Sampling Date: 2-10-03
Sample I.D.: VW-4	Laboratory: Pace Sequoia Other _____
Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxygenates, Ethanol by 8260	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: 1.0 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

BP GEM OIL COMPANY TYPE A BILL OF LADING

SOURCE RECORD BILL OF LADING FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT BP GEM OIL COMPANY FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND- WATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED BY DILLARD ENVIRONMENTAL TO THE ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY IN LIVERMORE, CALIFORNIA.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BTS), 1680 Rogers Avenue, San Jose, CA 95112 (phone [408] 573-0555). Blaine Tech Services, Inc. is authorized by BP GEM OIL COMPANY to recover, collect, apportion into loads the Non-Hazardous Well Purgewater that is drawn from wells at the BP GEM Oil Company facility indicated below and deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one BP GEM facility to the designated destination point; from one BP GEM facility to the designated destination point via another BP GEM facility; from a BP GEM facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of BP GEM Oil Company.

This Source Record BILL OF LADING was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the BP GEM Oil Company facility described below:

6002		
Station #		
6235 Seminary Ave Oakland		
Station Address		
Total Gallons Collected From Groundwater Monitoring Wells:		
42		
added equip. rinse water	10	any other adjustments
TOTAL GALS. RECOVERED	52	loaded onto BTS vehicle #
BTS event #		time date
030210-DW-2		1630 2/10/03
signature <u>David C. Walt</u>		

REC'D AT	time	date
unloaded by		1/1
signature		

ATTACHMENT B

**LABORATORY PROCEDURES,
CERTIFIED ANALYTICAL REPORTS,
AND CHAIN-OF-CUSTODY RECORDS**

LABORATORY PROCEDURES

Laboratory Procedures

The groundwater samples were analyzed for the presence of the chemicals mentioned in the chain of custody using standard EPA methods. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical reports and chain-of-custody record are presented in this attachment. The analytical data provided by the laboratory approved by Group Environmental Management Company have been reviewed and verified by that laboratory.



13 March, 2003

Scott Robinson
URS Corporation
500 12th Street, Suite 100
Oakland, CA 94607

RE: ARCO #6002, Oakland, Ca
Sequoia Work Order: MMB0319

Enclosed are the results of analyses for samples received by the laboratory on 02/11/03 13:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Latonya Pelt
Project Manager

CA ELAP Certificate #1210



URS Corporation
500 12th Street, Suite 100
Oakland CA, 94607

Project: ARCO #6002, Oakland, Ca
Project Number: ARCO #6002, Oakland, CA
Project Manager: Scott Robinson

MMB0319
Reported:
03/13/03 07:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	MMB0319-01	Water	02/10/03 15:15	02/11/03 13:45
MW-4	MMB0319-02	Water	02/10/03 15:25	02/11/03 13:45
MW-5	MMB0319-03	Water	02/10/03 16:15	02/11/03 13:45
MW-6	MMB0319-04	Water	02/10/03 14:20	02/11/03 13:45
MW-7	MMB0319-05	Water	02/10/03 15:05	02/11/03 13:45
MW-8	MMB0319-06	Water	02/10/03 14:45	02/11/03 13:45
VW-1	MMB0319-07	Water	02/10/03 15:57	02/11/03 13:45
VW-4	MMB0319-08	Water	02/10/03 15:40	02/11/03 13:45

URS Corporation
 500 12th Street, Suite 100
 Oakland CA, 94607

 Project: ARCO #6002, Oakland, Ca
 Project Number: ARCO #6002, Oakland, CA
 Project Manager: Scott Robinson

 MMB0319
 Reported:
 03/13/03 07:58

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (MMB0319-01) Water Sampled: 02/10/03 15:15 Received: 02/11/03 13:45									
Ethanol	ND	40	ug/l	1	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	78-129	"	"	"	"	"	
MW-4 (MMB0319-02) Water Sampled: 02/10/03 15:25 Received: 02/11/03 13:45									
Ethanol	ND	40	ug/l	1	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %	78-129	"	"	"	"	"	



URS Corporation
500 12th Street, Suite 100
Oakland CA, 94607

Project: ARCO #6002, Oakland, Ca
Project Number: ARCO #6002, Oakland, CA
Project Manager: Scott Robinson

MMB0319
Reported:
03/13/03 07:58

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (MMB0319-03) Water Sampled: 02/10/03 16:15 Received: 02/11/03 13:45									
Ethanol	ND	200	ug/l	5	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	100	"	"	"	"	"	"	
Methyl tert-butyl ether	100	2.5	"	"	"	"	"	"	
Di-isopropyl ether	ND	2.5	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	2.5	"	"	"	"	"	"	
Benzene	ND	2.5	"	"	"	"	"	"	
Toluene	ND	2.5	"	"	"	"	"	"	
Ethylbenzene	47	2.5	"	"	"	"	"	"	
Xylenes (total)	4.2	2.5	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	2600	250	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		108 %	78-129		"	"	"	"	
MW-6 (MMB0319-04) Water Sampled: 02/10/03 14:20 Received: 02/11/03 13:45									
Ethanol	ND	40	ug/l	1	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %	78-129		"	"	"	"	



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03/13/03 07:58

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (MMB0319-05) Water Sampled: 02/10/03 15:05 Received: 02/11/03 13:45									
Ethanol	ND	40	ug/l	1	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	78-129	"	"	"	"	"	
MW-8 (MMB0319-06) Water Sampled: 02/10/03 14:45 Received: 02/11/03 13:45									
Ethanol	ND	40	ug/l	1	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	78-129	"	"	"	"	"	



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03/13/03 07:58

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
VW-1 (MMB0319-07) Water Sampled: 02/10/03 15:57 Received: 02/11/03 13:45									
Ethanol	ND	40	ug/l	1	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	11	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	52	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	78-129	"	"	"	"	"	
VW-4 (MMB0319-08) Water Sampled: 02/10/03 15:40 Received: 02/11/03 13:45									
Ethanol	ND	4000	ug/l	100	3B23001	02/23/03	02/23/03	EPA 8260B	
tert-Butyl alcohol	ND	2000	"	"	"	"	"	"	
Methyl tert-butyl ether	2500	50	"	"	"	"	"	"	
Di-isopropyl ether	ND	50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	50	"	"	"	"	"	"	
Benzene	ND	50	"	"	"	"	"	"	
Toluene	ND	50	"	"	"	"	"	"	
Ethylbenzene	ND	50	"	"	"	"	"	"	
Xylenes (total)	ND	50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	5000	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	78-129	"	"	"	"	"	

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 Project: ARCO #6002, Oakland, Ca
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 MMB0319
 Reported:
 03/13/03 07:58

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3B23001 - EPA 5030B P/T
Blank (3B23001-BLK1)

Prepared & Analyzed: 02/23/03

Ethanol	ND	40	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Gasoline Range Organics (C6-C10)	ND	50	"							

<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.42		"	5.00		108	78-129			
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Laboratory Control Sample (3B23001-BS1)

Prepared & Analyzed: 02/23/03

Methyl tert-butyl ether	10.7	0.50	ug/l	10.0		107	63-137			
Benzene	10.6	0.50	"	10.0		106	78-124			
Toluene	10.9	0.50	"	10.0		109	78-129			

<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.53		"	5.00		111	78-129			
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Laboratory Control Sample (3B23001-BS2)

Prepared & Analyzed: 02/23/03

Methyl tert-butyl ether	8.89	0.50	ug/l	9.04		98.3	63-137			
Benzene	5.87	0.50	"	5.44		108	78-124			
Toluene	35.9	0.50	"	32.8		109	78-129			
Gasoline Range Organics (C6-C10)	467	50	"	440		106	70-113			

<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.35		"	5.00		107	78-129			
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Project: ARCO #6002, Oakland, Ca
Project Number: ARCO #6002, Oakland, CA
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MMB0319
Reported:
03/13/03 07:58

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3B23001 - EPA 5030B P/T

Matrix Spike (3B23001-MS1)

Source: MMB0319-08

Prepared & Analyzed: 02/23/03

Methyl tert-butyl ether	3410	50	ug/l	904	2500	101	0-200			
Benzene	595	50	"	544	ND	109	78-124			
Toluene	3560	50	"	3280	ND	109	78-129			
Gasoline Range Organics (C6-C10)	51100	5000	"	44000	3700	108	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.34</i>		<i>"</i>	<i>5.00</i>		<i>107</i>	<i>78-129</i>			

Matrix Spike Dup (3B23001-MSD1)

Source: MMB0319-08

Prepared & Analyzed: 02/23/03

Methyl tert-butyl ether	3440	50	ug/l	904	2500	104	0-200	0.876	200	
Benzene	586	50	"	544	ND	108	78-124	1.52	12	
Toluene	3580	50	"	3280	ND	109	78-129	0.560	10	
Gasoline Range Organics (C6-C10)	51300	5000	"	44000	3700	108	70-113	0.391	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.24</i>		<i>"</i>	<i>5.00</i>		<i>105</i>	<i>78-129</i>			



URS Corporation
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Oakland CA, 94607

Project: ARCO #6002, Oakland, Ca
Project Number: ARCO #6002, Oakland, CA
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MMB0319
Reported:
03/13/03 07:58

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



Chain of Custody Record

Project Name 030210-DW-2
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____

Date: 2-10-03

Requested Due Date (mm/dd/yy) _____

MMB0319

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Send To:	BP/GEM Facility No.:	Consultant/Contractor: URS
Lab Name: SEQUOIA	BP/GEM Facility Address: 6235 Seminary Ave. OAKLAND, GA	Address: 500 12th St, Ste. 200
Lab Address: 885 Jarvis Dr. Morgan Hill, CA 95037	Site ID No. ARCO 6002	Oakland, CA 94609-4014
	Site Lat/Long:	e-mail EDD: syed.rehan@urscorp.com
	California Global ID #: T0600100105	Consultant/Contractor Project No.: 15-00006002.01 00427
Lab PM: Latonya Pelt	BP/GEM PM Contact: PAUL SUPPLE	Consultant Tele/Fax: 510-874-1735/510-874-3268
Tele/Fax: 408-776-9600 / 408-782-6308	Address:	Consultant/Contractor PM: Scott Robinson
Report Type & QC Level: Send EDF Reports		Invoice to: Consultant/Contractor or (BP/GEM) (Circle one)
BP/GEM Account No.:	Tele/Fax:	BP/GEM Work Release No: INTRIM -50675

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives				Requested Analysis				Sample Point Lat/Long and Comments	
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G/BTEX (API 4200011 2/6)	TPH-D (8015)	MTBE (8021)	MTBE, TAME, BIBE DPE, TBA (8260)		1,2-DCA & EDB (8260)
1	MW-3	15:15		X			01	3					X					
2	MW-4	15:25					02	1					X					
3	MW-5	16:15					03	1					X					
4	MW-6	14:20					04	1					X					
5	MW-7	15:05					05	1					X					
6	MW-8	14:45					06	1					X					
7	VW-1	15:57					07	1					X					
8	VW-4	15:40					08	1					X					
9																		
10																		

Sampler's Name: <u>Dave Walker</u>	Relinquished By / Affiliation: <u>[Signature]</u>	Date: <u>2/10/03</u>	Time: <u>12:05</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>2/11/03</u>	Time: <u>12:05</u>
Sampler's Company: <u>BTS</u>						
Instrument Date:						
Instrument Method:						
Instrument Tracking No.:						

Instructions: Address Invoice to BP/GEM but send to URS for approval

Seals In Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt 0°F/C Trip Blank Yes No

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: URS
 REC. BY (PRINT) TL
 WORKORDER: MMB03109

DATE Received at Lab: 2/11/03
 TIME Received at Lab: 1345
 LOG IN DATE: 2-13-03

Drinking water for regulatory purposes: YES / NO
 Wastewater for regulatory purposes: YES / NO

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	#	CLIENT ID	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present / <input checked="" type="radio"/> Absent Intact / Broken*	1		MW-3	(3) Voad. H/L	(L)	2/10/03	2275020
2. Chain-of-Custody <input checked="" type="radio"/> Present / Absent*	2		-4				
3. Traffic Reports or Packing List: Present / <input checked="" type="radio"/> Absent	3		-5				
4. Airbill: Airbill / Sticker Present / <input checked="" type="radio"/> Absent	4		-6				
5. Airbill #:	5		-7				
6. Sample Labels: <input checked="" type="radio"/> Present / Absent	6		-8				
7. Sample IDs: <input checked="" type="radio"/> Listed / Not Listed on Chain-of-Custody	7		VW-1				
8. Sample Condition: <input checked="" type="radio"/> Intact / Broken* / Leaking*	8		L-4				
9. Does information on custody reports, traffic reports and sample labels agree? <input checked="" type="radio"/> Yes / No*							
10. Sample received within hold time: <input checked="" type="radio"/> Yes / No*							
11. Proper Preservatives used: <input checked="" type="radio"/> Yes / No*							
12. Temp Rec. at Lab: Is temp 4 +/-2°C? <input checked="" type="radio"/> Yes / No** <small>(Acceptance range for samples requiring thermal pres.)</small>							
**Exception (if any): Metals / DFF on ice? / DFF no ice? or Problem COC							

***If Circled, contact Project Manager and attach record of resolution.**

ATTACHMENT C

EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

Error Summary Log

03/25/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #6002, Oakland, Ca
Work Order Number:	MMB0319
Global ID:	T0600100105
Lab Report Number:	MMB0319031320030758

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run	Sub
MMB03190313200 MW-3 30758		MMB031901	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 MW-4 30758		MMB031902	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 MW-5 30758		MMB031903	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 MW-6 30758		MMB031904	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 MW-7 30758		MMB031905	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 MW-8 30758		MMB031906	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 VW-1 30758		MMB031907	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
MMB03190313200 VW-4 30758		MMB031908	W	CS	8260+OX	SW5030B	02/10/03	02/23/03	02/23/03	3B23001	1	
		3B23001BS1	WQ	BS1	8260+OX	SW5030B	//	02/23/03	02/23/03	3B23001	1	
		3B23001BS2	WQ	BS2	8260+OX	SW5030B	//	02/23/03	02/23/03	3B23001	1	
		3B23001BLK1	WQ	LB1	8260+OX	SW5030B	//	02/23/03	02/23/03	3B23001	1	
		3B23001MS1	W	MS1	8260+OX	SW5030B	//	02/23/03	02/23/03	3B23001	1	
		3B23001MSD1	W	SD1	8260+OX	SW5030B	//	02/23/03	02/23/03	3B23001	1	

EDFSAMP: Error Summary Log

03/25/03

Error type	Logcode	Projname	Npdlwo	Sampid	Matrix
There are no errors in this data file					

EDFTEST: Error Summary Log

03/25/03

Error type	Labsampid	Qccode	Anmcode	Exmcode	Anadate	Run number
There are no errors in this data file					//	0

EDFRES: Error Summary Log

03/25/03

Error type	Labsampid	Qcocode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3B23001MS1	MS1	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	3B23001MSD1	SD1	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031901	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031901	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031902	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031902	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031903	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031903	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031904	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031904	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031905	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031905	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031906	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031906	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031907	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031907	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	MMB031908	CS	W	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	MMB031908	CS	W	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	3B23001BLK1	LB1	WQ	8260+OX	PR	02/23/03	1	GROC6C10
Warning: extra parameter	3B23001BLK1	LB1	WQ	8260+OX	PR	02/23/03	1	XYLENES
Warning: extra parameter	3B23001BS2	BS2	WQ	8260+OX	PR	02/23/03	1	GROC6C10

EDFQC: Error Summary Log

03/25/03

Error type	Labiqtcti	Anmcode	Parlabel	Qccode	Labqid
There are no errors in this data files					

EDFCL: Error Summary Log

03/25/03

Error type	Cirevdate	Anmcode	Exmcode	Parlabel	Cicode
There are no errors in this data file	//				

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UPLOADING A GEO_WELL FILE

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

**Submittal Title: First Quarter 03 Geowell for site #
6002**

Submittal Date/Time: 3/25/2003 11:31:54 AM

**Confirmation
Number: 3314198136**

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Confirmation Number: 1523817718

Date/Time of Submittal: 3/25/2003 11:33:22 AM

Facility Global ID: T0600100105

Facility Name: ARCO

Submittal Title: First Quarter 03 Groundwater Monitoring Report for site # 6002

Submittal Type: GW Monitoring Report

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