



Atlantic Richfield Company  
(a BP affiliated company)

P.O. Box 6549  
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Alameda County  
JUL 24 2003  
Environmental Health

July 3, 2003

Re: Second Quarter 2003 Groundwater Monitoring Report  
ARCO Service Station #4931  
731 West MacArthur Boulevard  
Oakland, CA  
URS Project#38486123

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



July 3, 2003

Ms. Susan Hugo  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Alameda County  
JUL 24 2003  
Environmental Health

**Re: Second Quarter 2003 Groundwater Monitoring Report  
ARCO Service Station #4931  
731 West MacArthur Boulevard  
Oakland, California  
URS Project #38486123**

Dear Ms. Hugo:

On behalf of Atlantic Richfield Company (ARCO – an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is submitting the *Second Quarter 2003 Groundwater Monitoring Report* for ARCO Service Station #4931, located at 731 West MacArthur Boulevard, Oakland, California.

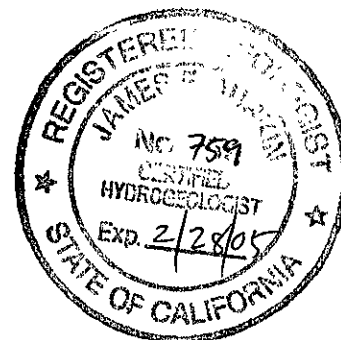
If you have any questions regarding this submission, please call (510) 874-3280.

Sincerely,

**URS CORPORATION**

Scott Robinson  
Project Manager

James F. Durkin, C.Hg.  
Senior Geologist



Enclosure: Second Quarter 2003 Groundwater Monitoring Report

cc: Mr. Paul Supple, ARCO, P.O. Box 6549, Moraga, CA 94570  
Mr. Chuck Headlee, Regional Water Quality Control Board - San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, CA 94612

**R E P O R T**

**SECOND QUARTER 2003  
GROUNDWATER MONITORING**

ARCO SERVICE STATION #4931  
731 WEST MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

*Prepared for*  
Atlantic Richfield Company

July 3, 2003

**URS**

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

38486123

Date: July 3, 2003  
Quarter: 2Q 03

**ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT**

Facility No.: 4931 Address: 731 West MacArthur Boulevard, Oakland, California  
Atlantic Richfield Co. Environmental Engineer: Paul Supple  
Consulting Co./Contact Person: URS Corporation / Scott Robinson  
Consultant Project No.: 38486123  
Primary Agency: Alameda County Health Care Services Agency (ACHCSA)

**WORK PERFORMED THIS QUARTER (Second – 2003):**

1. Performed second quarter groundwater monitoring event on May 28, 2003.
2. Prepared and submitted first quarter 2003 groundwater monitoring report.
3. Prepared and submitted second quarter 2003 groundwater monitoring report.
4. Replaced Oxygen Releasing Compound (ORC) in wells A-4, A-8, A-9, and AR-1 on May 20, 2003.

**WORK PROPOSED FOR NEXT QUARTER (Third – 2003):**

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

Current Phase of Project: Remediation/GW monitoring/sampling  
Frequency of Groundwater Sampling: Annual (2nd Quarter): A-7, A-13  
Semi-Annual (2nd/4th Quarter): A-3, A-5, A-11, A-12  
Quarterly: A-2, A-4, A-6, A-8, A-9  
Frequency of Groundwater Monitoring: Quarterly  
Free Product (FP) Present On-Site: None  
Current Remediation Techniques: Intrinsic Bioremediation Enhancement using ORC in A-4, A-8, A-9,  
and AR-1  
Approximate Depth to Groundwater: 3.33 (AR-2) to 9.75 (A-9) feet  
Groundwater Gradient (direction): Variable but generally to the west  
Groundwater Gradient (magnitude): Variable – 0.022 feet per foot using AR-1 and A-9

**DISCUSSION:**

TPH-g was detected in four of the ten wells sampled this quarter at concentrations ranging from 50 µg/L (A-12) to 7,700 µg/L (A-8). Benzene was detected in two wells at concentrations of 120 µg/L (A-4) and 1,700 µg/L (A-8). MTBE was detected in nine wells at concentrations ranging from 0.53 µg/L (A-11) to 2,500 µg/L (A-4). TAME was detected in six wells at concentrations ranging from 0.94 µg/L (A-7) to 1,100 µg/L (A-8). Well A-6 was inaccessible for sampling as it appears to have been paved over.

**RECOMMENDATIONS:**

We recommend the following changes in sampling frequency due to consistently low or non-detectable concentrations of the constituents of concern: 1) well A-11 from semi-annual to annual, and 2) wells A-2 and A-9 from quarterly to annually. We further recommend adding well A-10 to the annual sampling event.

**ATTACHMENTS:**

- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – Groundwater Flow Direction and Gradient
- Table 3 – Oxygenate Analytical Data
- Figure 1 – Groundwater Elevation Contour and Analytical Summary Map – May 28, 2003
- Attachment A – Field Procedures and Field Data Sheets
- Attachment B – Laboratory Procedures, Certified Analytical Reports and Chain-of-Custody Records
- Attachment C – Historic Groundwater Data
- Attachment D – EDCC and EDF/Geowell Submittal Confirmation

**Table 1  
Groundwater Elevation and Analytical Data**

ARCO Service Station #4931  
731 West Macarthur Boulevard  
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH						DO (mg/L)	
					as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)		
A-2	06/21/00	55.48	6.85	48.63	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3.0	NA	
	09/20/00		10.45	45.03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/26/00		6.27	49.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/20/01		4.57	50.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	06/12/01		9.27	46.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	09/23/01		10.75	44.73	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/31/01		4.13	51.35	ND<50	ND<0.5	ND<0.5	1	3.2	ND<2.5	NA	
	03/21/02		3.26	52.22	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	04/17/02		3.72	51.76	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.1	NA	
	08/12/02		NP	9.95	45.53	ND<10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.50	NA
	12/06/02		NP	10.01	45.47	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	6.0	3.1
	01/30/03*		NP	5.08	50.40	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.6
	<b>05/28/03</b>		<b>NP</b>	<b>4.82</b>	<b>50.66</b>	<b>ND&lt;50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>1.1</b>	<b>5.7</b>
A-3	06/21/00	54.66	9.48	45.18	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	46	NA	
	09/20/00		10.24	44.42	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	89.6	NA	
	12/26/00		9.58	45.08	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7.11	NA	
	03/20/01		6.34	48.32	NS	NS	NS	NS	NS	NS	NA	
	06/12/01		9.76	44.90	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	86	NA	
	09/23/01		10.55	44.11	NS	NS	NS	NS	NS	NS	NA	
	12/31/01		3.70	50.96	ND<50	ND<0.5	ND<0.5	ND<0.5	1	60	NA	
	03/21/02		5.75	48.91	NS	NS	NS	NS	NS	NS	NA	
	04/17/02		7.27	47.39	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	45	NA	
	08/12/02		9.71	44.95	NS	NS	NS	NS	NS	NS	NA	
	12/06/02		P	9.55	45.11	ND<500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	150	2.4
	01/30/03*			6.05	48.61	NS	NS	NS	NS	NS	NS	NA
	<b>05/28/03</b>		<b>P</b>	<b>8.06</b>	<b>46.60</b>	<b>74</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>43</b>	<b>1.5</b>

**Table 1  
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Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as						DO (mg/L)	
					Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)		
A-4	06/21/00	54.73	9.49	45.24	2,100	110	2.1	11	5.9	2,000	NA	
	09/20/00		10.33	44.40	1,540	127	ND<5.0	9.07	7.42	1,940	NA	
	12/26/00		9.34	45.39	1,550	42.7	ND<5.0	11	10.9	1,210	NA	
	03/20/01		7.56	47.17	913	40.9	ND<5.0	15.5	14.6	ND<25	NA	
	06/12/01		9.83	44.90	2,000	230	ND<20	21	ND<20	4,700	NA	
	09/23/01		10.54	44.19	1,600	35	ND<10	ND<10	ND<10	3,000	NA	
	12/31/01		5.42	49.31	ND<500	ND<5.0	ND<5.0	ND<5.0	ND<5.0	880	NA	
	03/21/02		6.18	48.55	ND<5,000	ND<50	ND<50	ND<50	ND<50	1,400	NA	
	04/17/02		7.34	47.39	1,300	79	31	17	55	2,200	NA	
	08/12/02		P	9.56	45.17	2,400 <sup>a</sup>	120	ND<5.0	ND<5.0	ND<5.0	2,100	NA
	12/06/02		P	10.02	44.71	2,200	110	10	42	56	2,000	NA
	01/30/03*		P	7.55	47.18	6,000	180	ND<50	85	ND<50	2,100	1.8
	<b>05/28/03</b>		<b>P</b>	<b>8.94</b>	<b>45.79</b>	<b>6,000</b>	<b>120</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>2,500</b>	<b>1.5</b>
A-5	06/21/00	54.17	9.29	44.88	980	ND<0.5	ND<0.5	ND<0.5	ND<1.0	2,000	NA	
	09/20/00		10.23	43.94	NS	NS	NS	NS	NS	NS	NA	
	12/26/00		9.65	44.52	525	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1,200	NA	
	03/20/01		8.05	46.12	NS	NS	NS	NS	NS	NS	NA	
	06/12/01		9.81	44.36	830	ND<5.0	ND<5.0	ND<5.0	ND<5.0	3,200	NA	
	09/23/01		10.42	43.75	NS	NS	NS	NS	NS	NS	NA	
	12/31/01		6.03	48.14	320	ND<0.5	ND<0.5	ND<0.5	ND<0.5	60	NA	
	03/21/02		6.71	47.46	NS	NS	NS	NS	NS	NS	NA	
	04/17/02		8.01	46.16	1,600	ND<10	ND<10	ND<10	ND<10	3,200	NA	
	08/12/02		9.87	44.30	NS	NS	NS	NS	NS	NS	NA	
	12/06/02		P	9.66	44.51	310	ND<0.50	ND<0.50	ND<0.50	ND<0.50	330	1.9
	01/30/03*			7.67	46.50	NS	NS	NS	NS	NS	NS	NA
	<b>05/28/03</b>		<b>P</b>	<b>8.56</b>	<b>45.61</b>	<b>ND&lt;5,000</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>1,500</b>	<b>1.6</b>

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Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)		
					Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)						
A-6	06/21/00	55.17	8.67	46.50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3.0	NA		
	09/20/00		9.34	45.83	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA		
	12/26/00		8.65	46.52	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA		
	03/20/01		6.84	48.33	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA		
	06/12/01		8.93	46.24	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	7	NA		
	09/23/01		9.74	45.43	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA		
	12/31/01		4.81	50.36	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.2	NA		
	03/21/02		5.44	49.73	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA		
	04/17/02		6.95	48.22	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.1	NA		
	08/12/02		NP	8.90	46.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/06/02			Unable to Sample, Well Paved Over									
	01/30/03*			Unable to Sample, Well Paved Over									
	05/28/03			Unable to Sample, Well Paved Over									
	A-7		06/21/00	54.71	8.58	46.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3.0	NA
09/20/00		9.19	45.52		NS	NS	NS	NS	NS	NS	NA		
12/26/00		8.50	46.21		NS	NS	NS	NS	NS	NS	NA		
03/20/01		6.75	47.96		NS	NS	NS	NS	NS	NS	NA		
06/12/01		8.80	45.91		ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA		
09/23/01		9.59	45.12		NS	NS	NS	NS	NS	NS	NA		
12/31/01		4.78	49.93		NS	NS	NS	NS	NS	NS	NA		
03/21/02		5.35	49.36		NS	NS	NS	NS	NS	NS	NA		
04/17/02		6.88	47.83		ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.5	NA		
08/12/02		8.77	45.94		NS	NS	NS	NS	NS	NS	NA		
12/06/02		9.07	45.64		NS	NS	NS	NS	NS	NS	NA		
01/30/03*		6.65	48.06		NS	NS	NS	NS	NS	NS	NA		
05/28/03		P	7.63		47.08	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	3.8	2.3	



**Table 1**  
**Groundwater Elevation and Analytical Data**

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Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as						DO (mg/L)	
					Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)		
A-8	06/21/00	53.77	9.07	44.70	810	ND<0.5	ND<0.5	ND<0.5	810	1,500	NA	
	09/20/00		9.72	44.05	10,800	2,680	46	439	370	4,410	NA	
	12/26/00		9.20	44.57	7,700	1,440	ND<50	202	106	2,230	NA	
	03/20/01		7.51	46.26	ND<5,000	1,280	ND<50	53.9	ND<50	2,880	NA	
	06/12/01		9.53	44.24	5,600	1,700	ND<50	61	54	2,900	NA	
	09/23/01		10.08	43.69	10,000	3,500	ND<50	110	64	6,500	NA	
	12/31/01		4.34	49.43	4,300	610	ND<10	60	24	520	NA	
	03/21/02		6.67	47.10	6,600	1400	ND<50	130	ND<50	2,700	NA	
	04/17/02		7.72	46.05	3,800	540	ND<10	ND<10	12	3,100	NA	
	08/12/02		NP	9.64	44.13	9,400	1,800	ND<20	35	28	4,200	NA
	12/06/02		NP	9.62	44.15	5,300	1,100	11	11	ND<10	2,200 <sup>b</sup>	1.4
	01/30/03*		NP	7.49	46.28	ND<10,000	1,100	ND<100	ND<100	ND<100	2,200	1.5
	<b>05/28/03</b>		<b>NP</b>	<b>9.17</b>	<b>44.60</b>	<b>7,700</b>	<b>1,700</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>ND&lt;50</b>	<b>2,100</b>	<b>1.0</b>
A-9	06/21/00	53.04	8.56	44.48	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	5.0	NA	
	09/20/00		9.05	43.99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/26/00		8.49	44.55	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/20/01		6.95	46.09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	06/12/01		8.67	44.37	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.8	NA	
	09/23/01		9.21	43.83	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/31/01		4.57	48.47	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/21/02		5.60	47.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	04/17/02		6.89	46.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	08/12/02		P	8.71	44.33	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.5	NA
	12/06/02		P	8.77	44.27	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.0	1.1
	01/30/03*		P	6.88	46.16	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1	0.9
	<b>05/28/03</b>		<b>P</b>	<b>9.75</b>	<b>43.29</b>	<b>ND&lt;50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>0.74</b>	<b>1.9</b>

**Table 1  
Groundwater Elevation and Analytical Data**

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Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH					DO (mg/L)		
					as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)		MTBE (µg/L)	
A-10	06/21/00	54.26	10.47	43.79	NS	NS	NS	NS	NS	NS	NA	
	09/20/00		10.76	43.50	NS	NS	NS	NS	NS	NS	NA	
	12/26/00		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	03/20/01		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	09/23/01		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	12/31/01		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	03/21/02		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	04/17/02		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	08/12/02		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	12/06/02		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	01/30/03*		NM	NC	NS	NS	NS	NS	NS	NS	NM	
<b>05/28/03</b>	<b>NM</b>	<b>NC</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NM</b>		
A-11	06/21/00	53.74	9.54	44.20	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	4.0	NA	
	09/20/00		10.62	43.12	NS	NS	NS	NS	NS	NS	NA	
	12/26/00		10.03	43.71	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/20/01		8.49	45.25	NS	NS	NS	NS	NS	NS	NA	
	06/12/01		10.21	43.53	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	09/23/01		10.77	42.97	NS	NS	NS	NS	NS	NS	NA	
	12/31/01		6.06	47.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/21/02		7.14	46.60	NS	NS	NS	NS	NS	NS	NA	
	04/17/02		8.41	45.33	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	08/12/02		10.25	43.49	NS	NS	NS	NS	NS	NS	NA	
	12/06/02		P	10.43	43.31	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.0	2.4
	01/30/03*			8.42	45.32	NS	NS	NS	NS	NS	NS	NA
	<b>05/28/03</b>		<b>P</b>	<b>9.30</b>	<b>44.44</b>	<b>ND&lt;50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>0.53</b>	<b>1.8</b>

**Table 1**  
**Groundwater Elevation and Analytical Data**

ARCO Service Station #4931  
731 West Macarthur Boulevard  
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as					MTBE (µg/L)	DO (mg/L)	
					Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)			
A-12	06/21/00	52.05	9.28	42.77	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	18	NA	
	09/20/00		9.55	42.50	NS	NS	NS	NS	NS	NS	NA	
	12/26/00		9.05	43.00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	17.3	NA	
	03/20/01		7.92	44.13	NS	NS	NS	NS	NS	NS	NA	
	06/12/01		9.26	42.79	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	25	NA	
	09/23/01		9.68	42.37	NS	NS	NS	NS	NS	NS	NA	
	12/31/01		5.74	46.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	9.5	NA	
	03/21/02		6.64	45.41	NS	NS	NS	NS	NS	NS	NA	
	04/17/02		7.68	44.37	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	29	NA	
	08/12/02		9.30	42.75	NS	NS	NS	NS	NS	NS	NA	
	12/06/02 <sup>c</sup>		P	9.38	42.67	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	13	2.3
	01/30/03*			7.87	44.18	NS	NS	NS	NS	NS	NS	NA
	<b>05/28/03</b>		<b>P</b>	<b>8.51</b>	<b>43.54</b>	<b>50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>10</b>	<b>1.4</b>
	A-13		06/21/00	55.11	NM	NC	NS	NS	NS	NS	NS	NS
09/20/00		NM	NC		NS	NS	NS	NS	NS	NS	NM	
12/26/00		NM	NC		NS	NS	NS	NS	NS	NS	NM	
03/20/01		NM	NC		NS	NS	NS	NS	NS	NS	NM	
06/12/01		NM	NC		NS	NS	NS	NS	NS	NS	NM	
09/23/01		NM	NC		NS	NS	NS	NS	NS	NS	NM	
12/31/01		NM	NC		NS	NS	NS	NS	NS	NS	NM	
03/21/02		6.70	48.41		NS	NS	NS	NS	NS	NS	NA	
04/17/02		7.95	47.16		ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
08/12/02		10.11	45.00		NS	NS	NS	NS	NS	NS	NA	
12/06/02		10.26	44.85		NS	NS	NS	NS	NS	NS	NA	
01/30/03*		7.81	47.30		NS	NS	NS	NS	NS	NS	NA	
<b>05/28/03</b>		<b>P</b>	<b>9.06</b>		<b>46.05</b>	<b>ND&lt;50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>ND&lt;0.50</b>	<b>1.9</b>

**Table 1  
Groundwater Elevation and Analytical Data**

ARCO Service Station #4931  
731 West Macarthur Boulevard  
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)	
					as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)					
AR-1	06/21/00	54.72	NM	NC	NS	NS	NS	NS	NS	NS	NM	
	09/20/00		NM	NC	NS	NS	NS	NS	NS	NS	NM	
	12/26/00		9.95	44.77	NS	NS	NS	NS	NS	NS	NA	
	03/20/01		8.34	46.38	NS	NS	NS	NS	NS	NS	NA	
	06/12/01		10.17	44.55	NS	NS	NS	NS	NS	NS	NA	
	09/23/01		10.72	44.00	NS	NS	NS	NS	NS	NS	NA	
	12/31/01		5.91	48.81	NS	NS	NS	NS	NS	NS	NA	
	03/21/02		7.00	47.72	NS	NS	NS	NS	NS	NS	NA	
	04/17/02		8.33	46.39	NS	NS	NS	NS	NS	NS	NA	
	08/12/02		10.18	44.54	NS	NS	NS	NS	NS	NS	NA	
	12/06/02		10.21	44.51	NS	NS	NS	NS	NS	NS	NA	
	01/30/03*		8.22	46.50	NS	NS	NS	NS	NS	NS	NA	
	<b>05/28/03</b>		<b>9.62</b>	<b>45.10</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NA</b>
	AR-2		06/21/00	54.77	NM	NC	NS	NS	NS	NS	NS	NS
09/20/00		NM	NC		NS	NS	NS	NS	NS	NS	NM	
12/26/00		NM	NC		NS	NS	NS	NS	NS	NS	NM	
03/20/01		3.13	51.64		NS	NS	NS	NS	NS	NS	NA	
06/12/01		4.51	50.26		NS	NS	NS	NS	NS	NS	NA	
09/23/01		6.05	48.72		NS	NS	NS	NS	NS	NS	NA	
12/31/01		2.79	51.98		NS	NS	NS	NS	NS	NS	NA	
03/21/02		7.75	47.02		NS	NS	NS	NS	NS	NS	NA	
04/17/02		2.24	52.53		NS	NS	NS	NS	NS	NS	NA	
08/12/02		4.93	49.84		NS	NS	NS	NS	NS	NS	NA	
12/06/02		6.09	48.68		NS	NS	NS	NS	NS	NS	NA	
01/30/03*		3.89	50.88		NS	NS	NS	NS	NS	NS	NA	
<b>05/28/03</b>		<b>3.33</b>	<b>51.44</b>		<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NA</b>

**Table 1  
Groundwater Elevation and Analytical Data**

ARCO Service Station #4931  
731 West Macarthur Boulevard  
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)
					as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)				
AR-3	06/21/00	54.19	NM	NC	NS	NS	NS	NS	NS	NS	NM
	09/20/00		NM	NC	NS	NS	NS	NS	NS	NS	NM
	12/26/00		9.70	44.49	NS	NS	NS	NS	NS	NS	NA
	03/20/01		NM	NC	NS	NS	NS	NS	NS	NS	NM
	06/12/01		NM	NC	NS	NS	NS	NS	NS	NS	NM
	09/23/01		10.43	43.76	NS	NS	NS	NS	NS	NS	NA
	12/31/01		5.18	49.01	NS	NS	NS	NS	NS	NS	NA
	03/21/02		6.78	47.41	NS	NS	NS	NS	NS	NS	NA
	04/17/02		8.06	46.13	NS	NS	NS	NS	NS	NS	NA
	08/12/02		9.94	44.25	NS	NS	NS	NS	NS	NS	NA
	12/06/02		9.99	44.20	NS	NS	NS	NS	NS	NS	NA
	01/30/03*		7.96	46.23	NS	NS	NS	NS	NS	NS	NA
	<b>05/28/03</b>		<b>8.94</b>	<b>45.25</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NA</b>

**Table 1**  
**Groundwater Elevation and Analytical Data**

ARCO Service Station #4931  
731 West Macarthur Boulevard  
Oakland, California

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TPH	= Total Petroleum Hydrocarbons analyzed using EPA Method 8015B modified (before 1/30/03)
MTBE	= Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted (before 1/30/03)
note	= Samples taken 12/06/02 analyzed using DHS LUFT
µg/L	= Micrograms per liter
mg/L	= Milligrams per liter
DO	= Dissolved oxygen
NM	= Not measured
NC	= Not calculated
NS	= Not sampled
NA	= Not available
ND<	= Not detected at or above the specified laboratory detection limit
P	= Purge
NP	= Not purged
a	= Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
b	= The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
c	= This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose
d	= The result was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria.
*	= Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates

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

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**Table 2  
Groundwater Flow Direction and Gradient**

ARCO Service Station #4931  
731 West MacArthur Boulevard  
Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
06/21/00	West-Southwest	0.031
09/20/00	Southwest	0.013
12/26/00	West	0.028
03/20/01	West	0.046
06/12/01	West	0.014
09/23/01	West	0.012
12/31/01	West	0.024
03/21/02	West	0.047
04/17/02	West	0.03
08/12/02	West	0.016
12/06/02	West	0.015
01/30/03	West	Variable
05/28/03	Westward	0.022 <sup>a</sup>

a = using wells AR-1 and A-9

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

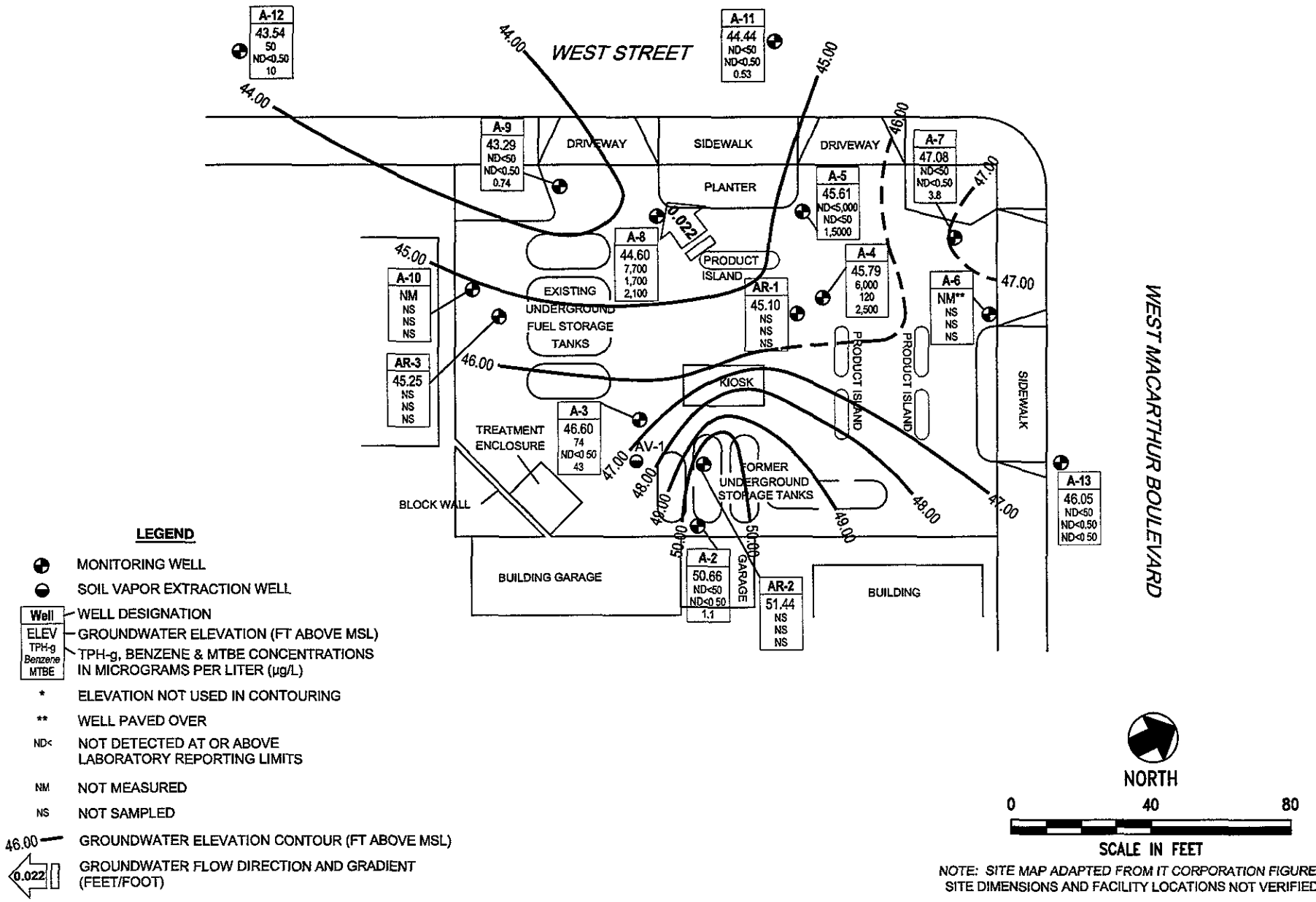
**Table 3**  
**Fuel Oxygenate Analytical Data**

ARCO Service Station #4931  
731 West MacArthur Boulevard  
Oakland, California

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
A-2	01/30/03	ND<40	ND<20 <sup>a</sup>	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	05/28/03	ND<100	ND<20	1.1	ND<0.50	ND<0.50	ND<0.50
A-3	01/30/03	NS	NS	NS	NS	NS	NS
	05/28/03	ND<100	ND<20	43	ND<0.50	ND<0.50	24
A-4	01/30/03	ND<4,000	ND<2,000 <sup>a</sup>	2,100	ND<50	ND<50	530
	05/28/03	ND<10,000	ND<2,000	2,500	ND<50	ND<50	590
A-5	01/30/03	NS	NS	NS	NS	NS	NS
	05/28/03	ND<10,000	ND<2,000	1,500	ND<50	ND<50	620
A-7	01/30/03	NS	NS	NS	NS	NS	NS
	05/28/03	ND<100	ND<20	3.8	ND<0.50	ND<0.50	0.94
A-8	01/30/03	ND<8,000	ND<4,000 <sup>a</sup>	2,200	ND<100	ND<100	900
	05/28/03	ND<10,000	ND<2,000	2,100	ND<50	ND<50	1,100
A-9	01/30/03	ND<40	ND<20	1.1	ND<0.50	ND<0.50	ND<0.50
	05/28/03	ND<100	ND<20	0.74	ND<0.50	ND<0.50	ND<0.50
A-11	01/30/03	NS	NS	NS	NS	NS	NS
	05/28/03	ND<100	ND<20	0.53	ND<0.50	ND<0.50	ND<0.50
A-12	01/30/03	NS	NS	NS	NS	NS	NS
	05/28/03	ND<100	ND<20	10	ND<0.50	ND<0.50	2.5
A-13	01/30/03	NS	NS	NS	NS	NS	NS
	05/28/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50

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< = Not detected at or above laboratory reporting limits  
NS = Not sampled  
a = The result was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria.





<b>URS</b>	Project No. 38486123	<b>GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP Second Quarter 2003 (May 28, 2003)</b>	FIGURE <b>1</b>
	Arco Service Station #4931 731 West MacArthur Boulevard Oakland, California		

**ATTACHMENT A**  
**FIELD PROCEDURES AND FIELD DATA SHEETS**

## FIELD PROCEDURES

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### **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 # 030528-MS-1 Date 5-28-03 Client ARCO 4931

Site 731 W. MacArthur Blvd Oakland CA

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	C-D	
A-2	4					4.82	19.40	TOC	5	
A-3	4					8.06	16.20		8	
A-4	4	odor orc present				8.94	19.42		9	
A-5	3					8.56	24.59		10	
A-6	Paved over (unable to locate)									6
A-7	3					7.63	22.24		4	
A-8	3	2 orc <sup>s</sup> present (one not down well)				9.17	16.80		11	
A-9	6	orc present				9.75	37.81		3	
A-11	3					9.30	29.71		2	
A-12	3					8.51	29.79		7	
A-13	3	Dedicated Tubing removed @				9.06	29.05		1	
AR-1	6	orc present				9.62	29.39		12	
AR-2	6					3.33	26.28		13	
AR-3	4					8.94	28.95		14	

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-2	Well Diameter: 2 3 ④ 6 8
Total Well Depth: 19.40	Depth to Water: 4.82
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

4.58

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

80% = 7.74 D3

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

9.5	x	3	=	28.5	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
1108	70.8	6.3	879	9.5	
109 well dewatered @ ≈ 15 gal removed DTW = 17.87					
sampled @ end of event. per leas. Recharge Rate ≈ 1'/hour					
1239	70.1	6.8	974	—	
sampled @ DTW = 15.99					

Did well dewater? <input checked="" type="radio"/> Yes <input type="radio"/> No	Gallons actually evacuated: 15.0
Sampling Time: 1240	Sampling Date: 5-28-03
Sample I.D.: A-2	Laboratory: Pace <input checked="" type="radio"/> Sequoia <input type="radio"/> Other _____
Analyzed for: <input checked="" type="checkbox"/> TPH-C <input checked="" type="checkbox"/> BTEX <input type="checkbox"/> MTBE <input type="checkbox"/> TPH-D Other: Oxy's + Ethanol	
D.O. (if req'd):	Pre-purge: _____ mg/L <del>Post-purge:</del> 5.17 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-3	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 16.20	Depth to Water: 8.06
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

8.14

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

80% = 9.69

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: Purge 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>5.3</u>	x	<u>3</u>	=	<u>15.9</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
1118	70.3	6.7	629	5.3	Added lock
1118 well dewatered @ ± 8 gal removed					DTW = 14.79
1219	70.8	6.9	687	—	
					sampled @ DTW = 9.47

Did well dewater? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Gallons actually evacuated: <u>8</u>
Sampling Time: <u>1210</u>	Sampling Date: <u>5-28-03</u>
Sample I.D.: <u>A-3</u>	Laboratory: Pace <u>Sequoia</u> Other: _____
Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>See SOW</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L * Post-purge: <u>1.5</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

**ARCO / BP WELL MONITORING DATA SHEET**

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-4	Well Diameter: 2 3 ④ 6 8
Total Well Depth: 19.42	Depth to Water: 8.94
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

10.48

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

80% = 11.04

Purge Method: Bailer Disposable Bailer Middleburg Electric Submersible ✓ Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer ✓ Extraction Port Other: _____
--	---

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

$\frac{6.8}{1 \text{ Case Volume (Gals.)}} \times 3 \text{ Specified Volumes} = \frac{20.4}{\text{Calculated Volume}} \text{ Gals.}$
--

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
1131	71.8	6.6	1339	6.8	
1132	well dewatered @ 2.10 gal removed DTW = 17.38				
1229	71.0	6.7	1360	—	
					sampled @ DTW = 10.91

Did well dewater? (Yes) No	Gallons actually evacuated: 10.0
Sampling Time: 1230	Sampling Date: 5-28-03
Sample I.D.: A-4	Laboratory: Pace (Sequoia) Other _____
Analyzed for: TPH-G BTEX MTBE TPH-D Other: See SOW	
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 #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-5	Well Diameter: 2 (3) 4 6 8
Total Well Depth: 24.59	Depth to Water: 8.56
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

16.03

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

80% = 11.77

Purge Method: Bailer Disposable Bailer Middleburg Electric Submersible ✓ Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer ✓ Extraction Port Other: _____
--	---

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

5.9	x	3	=	17.7	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or $\mu$ S)	Gals. Removed	Observations
1140	73.9	6.6	1111	5.9	Turbid
1141	71.3	6.6	1011	11.8	Very Turbid
1142	71.1	6.6	962	17.7	Well box unsecure <sup>missing 4 of 4 bolts</sup> sampled @ DTW = 11.58

Did well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>	Gallons actually evacuated: 18.0
Sampling Time: 1145	Sampling Date: 5-28-03
Sample I.D.: A-5	Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See Saw
D.O. (if req'd): Pre-purge: _____ mg/L * Post-purge: 1.6 mg/L
O.R.P. (if req'd): Pre-purge: _____ mV Post-purge: _____ mV



## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-6	Well Diameter: 2 3 4 6 8 _____
Total Well Depth:	Depth to Water:
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 <sup>2</sup> * 0.163

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

Top of Screen: 2' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

$\frac{\text{1 Case Volume (Gals.)}}{\text{Specified Volumes}} \times \text{Specified Volumes} = \text{Calculated Volume Gals.}$
--

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
Paved over (unable to locate)					
S					
S					
S					

Did well dewater? Yes <input type="checkbox"/> No <input type="checkbox"/>	Gallons actually evacuated: _____	
Sampling Time: _____	Sampling Date: _____	
Sample I.D.: _____	Laboratory: Pace <u>Sequoia</u> Other _____	
Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>see saw</u>		
D.O. (if req'd):	Pre-purge: _____ mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-7	Well Diameter: 2 (3) 4 6 8
Total Well Depth: 22.24	Depth to Water: 7.63
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

(4.6)

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

80% = 10.55

Purge Method: Bailer Disposable Bailer Middleburg Electric Submersible ✓ Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer ✓ Extraction Port Other: _____
--	---

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

5.4	x	3	=	16.2	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
1052	70.9	6.8	598	5.4	Very Turbid
1053	69.4	6.8	476	10.8	
1054	68.8	6.7	584	16.2	
					sampled @ DTW = 10.42

Did well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>	Gallons actually evacuated: 16.5
Sampling Time: 1100	Sampling Date: 5-28-03
Sample I.D.: A-7	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>See SOW</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L * Post-purge: 2.3 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-8	Well Diameter: 2 (3) 4 6 8
Total Well Depth: 16.80	Depth to Water: 9.17
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 <sup>2</sup> * 0.163

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

Top of Screen: 2' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

_____	X	_____	=	_____	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
1159	73.7	6.8	1128	—	unsecure

Did well dewater? <u>Yes</u> — <u>No</u>	Gallons actually evacuated: _____	
Sampling Time: <u>1200</u>	Sampling Date: <u>5-28-03</u>	
Sample I.D.: <u>A-8</u>	Laboratory: Pace <u>Sequoia</u> Other _____	
Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>See Sow</u>		
D.O. (if req'd):	Pre-purge: _____ mg/L	* Post-purge: <u>1.0</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MICS	Date: 5-28-03
Well I.D.: A-9	Well Diameter: 2 3 4 <u>6</u> 8
Total Well Depth: 37.81	Depth to Water: 9.75
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

28.06

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

80% = 15.36

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

41.2	x	3	=	123.6	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or $\mu$ S)	Gals. Removed	Observations
1023	69.4	6.9	626	41.2	unsecure vault (square) missing 4 of 4 bolts
1031	69.6	6.8	627	82.4	
1039	70.0	6.8	630	123.6	
					sampled @ DTW = 9.78

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 124.0
Sampling Time: 1045	Sampling Date: 5-28-03
Sample I.D.: A-9	Laboratory: Pace <u>Sequoia</u> Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>See Saw</u>		
D.O. (if req'd):	Pre-purge: _____ mg/L	Post-purge: <u>1.9</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-11	Well Diameter: 2 (3) 4 6 8. _____
Total Well Depth: 29.71	Depth to Water: 9.30
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

20.41

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

80% = 13.58 DTW

Purge Method: Bailer Disposable Bailer Middleburg ✓ Electric Submersible Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer ✓ Extraction Port Other: _____
--	---

Top of Screen: Purex 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>7.6</u>	x	<u>3</u>	=	<u>22.8</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
0949	67.4	7.1	619	7.6	3 in sub will not fit down well.
0956	67.5	7.0	620	15.2	
1003	67.8	7.0	617	22.8	
					Sampled @ DTW = 9.86

Did well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>	Gallons actually evacuated: 23.0
Sampling Time: 1010	Sampling Date: 5-28-03
Sample I.D.: A-11	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>See SOW</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L * Post-purge: 1.8 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-12	Well Diameter: 2 (3) 4 6 8
Total Well Depth: 29.79	Depth to Water: 8.51
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

21.28

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

80% = 12.77

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

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

7.9	x	3	=	23.7	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or $\mu$ S)	Gals. Removed	Observations
0906	66.1	6.8	660	7.9	3" sub well not fit down well.
0914	65.5	6.8	644	15.8	well box below grade
0923	65.6	7.0	642	23.7	
					sampled @ DTW = 12.56

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 24.0
Sampling Time: 0930	Sampling Date: 5-28-03
Sample I.D.: A-12	Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See SOW		
D.O. (if req'd):	Pre-purge: <span style="margin-left: 100px;">mg/L</span>	Post-purge: <span style="margin-left: 100px;">mg/L</span>
O.R.P. (if req'd):	Pre-purge: <span style="margin-left: 100px;">mV</span>	Post-purge: <span style="margin-left: 100px;">mV</span>

**ARCO / BP WELL MONITORING DATA SHEET**

BTS #: 030528-MS-1	Station # ARCO 4931
Sampler: MKS	Date: 5-28-03
Well I.D.: A-13	Well Diameter: 2 (3) 4 6 8
Total Well Depth: 29.05	Depth to Water: 9.06
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVE</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

19.09

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

80% = 13.06

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

7.4	x	3	=	22.2	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or $\mu$ S)	Gals. Removed	Observations
0830	67.3	6.7	844	7.4	well below grade
0831	66.6	6.5	1151	15.8	
0833	66.3	6.5	1102	22.2	
					sampled @ DTW = 12.94

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 22.5
Sampling Time: 0840	Sampling Date: 5-28-03
Sample I.D.: A-13	Laboratory: Pace <u>Sequoia</u> Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: <u>See SOL</u>		
D.O. (if req'd):	Pre-purge: _____ mg/L	Post-purge: 1.9 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

# WELLHEAD INSPECTION CHECKLIST

Client ARCO 4931 Date 5-28-03  
 Site Address 731 W. MacArthur Blvd. Oakland CA  
 Job Number 030528-MS-1 Technician MKS

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
A-2	X							
A-3					X			
A-4	X							
A-5				X	X			X
A-6								X
A-7	X							
A-8								X
A-9								X
A-11	X							
A-13								X
AR-1								X
AR-2								X
AR-3								X
A-12								X

NOTES: A-9: unsecured vault missing 4 of 4 bolts, A-12: well box is below grade, A-13: well box is below grade, A-6: paved over  
A-5: PVC uneven, cannot get tight seal & unsecured missing 4 of 4 bolts, A-8 unsecured missing 4 of 4 bolts, (AR-1, AR-2, & AR-3 are all unsecured missing 4 of 4 bolts, all are vaults



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:

ARCO 4931

Station #

731 W. MacArthur Blvd. Oakland, CA

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

261

added equip.  
rinse water

4

any other  
adjustments

—

TOTAL GALS.  
RECOVERED

265

loaded onto  
BTS vehicle #

42

BTS event #

time

date

030528-MS-1

1240

5/28/03

signature

M. chl K Sh

\*\*\*\*\*

REC'D AT

time

date

BTS Sac

1500

5/28/03

unloaded by

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.



20 June, 2003

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

RE: ARCO #4931, Oakland, CA  
Sequoia Work Order: MMF0006

Enclosed are the results of analyses for samples received by the laboratory on 05/29/03 16:00. 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 [Arco]  
500 12th Street, Suite 100  
Oakland CA, 94607

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robmson

MMF0006  
**Reported:**  
06/20/03 13:15

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-2	MMF0006-01	Water	05/28/03 12:40	05/29/03 16:00
A-3	MMF0006-02	Water	05/28/03 12:10	05/29/03 16:00
A-4	MMF0006-03	Water	05/28/03 12:30	05/29/03 16:00
A-5	MMF0006-04	Water	05/28/03 11:45	05/29/03 16:00
A-7	MMF0006-05	Water	05/28/03 11:00	05/29/03 16:00
A-8	MMF0006-06	Water	05/28/03 12:00	05/29/03 16:00
A-9	MMF0006-07	Water	05/28/03 10:45	05/29/03 16:00
A-11	MMF0006-08	Water	05/28/03 10:10	05/29/03 16:00
A-12	MMF0006-09	Water	05/28/03 09:30	05/29/03 16:00
A-13	MMF0006-10	Water	05/28/03 08:40	05/29/03 16:00

There were no custody seals that were received with this project.



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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robinson

MMF0006  
Reported:  
06/20/03 13:15

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A-2 (MMF0006-01) Water Sampled: 05/28/03 12:40 Received: 05/29/03 16:00</b>									
Ethanol	ND	100	ug/l	1	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>1.1</b>	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	"	"	"	"	"
<b>A-3 (MMF0006-02) Water Sampled: 05/28/03 12:10 Received: 05/29/03 16:00</b>									
Ethanol	ND	100	ug/l	1	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>43</b>	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
<b>tert-Amyl methyl ether</b>	<b>24</b>	0.50	"	"	"	"	"	"	"
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	74	50	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		95.6 %		78-129	"	"	"	"	"



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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robinson

MMF0006  
Reported:  
06/20/03 13:15

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A-4 (MMF0006-03) Water Sampled: 05/28/03 12:30 Received: 05/29/03 16:00</b>									
Ethanol	ND	10000	ug/l	100	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	2000	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>2500</b>	50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	50	"	"	"	"	"	"	"
<b>tert-Amyl methyl ether</b>	<b>590</b>	50	"	"	"	"	"	"	"
<b>Benzene</b>	<b>120</b>	50	"	"	"	"	"	"	"
Toluene	ND	50	"	"	"	"	"	"	"
Ethylbenzene	ND	50	"	"	"	"	"	"	"
Xylenes (total)	ND	50	"	"	"	"	"	"	"
<b>Gasoline Range Organics (C6-C10)</b>	<b>6000</b>	5000	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %	78-129	"	"	"	"	"	"
<b>A-5 (MMF0006-04) Water Sampled: 05/28/03 11:45 Received: 05/29/03 16:00</b>									
Ethanol	ND	10000	ug/l	100	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	2000	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>1500</b>	50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	50	"	"	"	"	"	"	"
<b>tert-Amyl methyl ether</b>	<b>620</b>	50	"	"	"	"	"	"	"
Benzene	ND	50	"	"	"	"	"	"	"
Toluene	ND	50	"	"	"	"	"	"	"
Ethylbenzene	ND	50	"	"	"	"	"	"	"
Xylenes (total)	ND	50	"	"	"	"	"	"	"
<b>Gasoline Range Organics (C6-C10)</b>	<b>ND</b>	5000	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %	78-129	"	"	"	"	"	"



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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robinson

MMF0006  
Reported:  
06/20/03 13:15

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A-7 (MMF0006-05) Water Sampled: 05/28/03 11:00 Received: 05/29/03 16:00</b>									
Ethanol	ND	100	ug/l	1	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>3.8</b>	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
<b>tert-Amyl methyl ether</b>	<b>0.94</b>	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>		97.6 %		78-129	"	"	"	"	"
<b>A-8 (MMF0006-06) Water Sampled: 05/28/03 12:00 Received: 05/29/03 16:00</b>									
Ethanol	ND	10000	ug/l	100	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	2000	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>2100</b>	50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	50	"	"	"	"	"	"	"
<b>tert-Amyl methyl ether</b>	<b>1100</b>	50	"	"	"	"	"	"	"
<b>Benzene</b>	<b>1700</b>	50	"	"	"	"	"	"	"
Toluene	ND	50	"	"	"	"	"	"	"
Ethylbenzene	ND	50	"	"	"	"	"	"	"
Xylenes (total)	ND	50	"	"	"	"	"	"	"
<b>Gasoline Range Organics (C6-C10)</b>	<b>7700</b>	5000	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.4 %		78-129	"	"	"	"	"





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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robinson

MMF0006  
Reported:  
06/20/03 13:15

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A-9 (MMF0006-07) Water</b> Sampled: 05/28/03 10:45 Received: 05/29/03 16:00									
Ethanol	ND	100	ug/l	1	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>0.74</b>	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>		102 %		78-129	"	"	"	"	"
<b>A-11 (MMF0006-08) Water</b> Sampled: 05/28/03 10:10 Received: 05/29/03 16:00									
Ethanol	ND	100	ug/l	1	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
<b>Methyl tert-butyl ether</b>	<b>0.53</b>	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>		104 %		78-129	"	"	"	"	"



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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robinson

MMF0006  
Reported:  
06/20/03 13:15

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

Analyte	Result	Reporting		Umts	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>A-12 (MMF0006-09) Water</b> Sampled: 05/28/03 09:30 Received: 05/29/03 16:00										
Ethanol	ND	100		ug/l	1	3F06036	06/06/03	06/07/03	EPA 8260B	
tert-Butyl alcohol	ND	20		"	"	"	"	"	"	"
Methyl tert-butyl ether	10	0.50		"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50		"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50		"	"	"	"	"	"	"
tert-Amyl methyl ether	2.5	0.50		"	"	"	"	"	"	"
Benzene	ND	0.50		"	"	"	"	"	"	"
Toluene	ND	0.50		"	"	"	"	"	"	"
Ethylbenzene	ND	0.50		"	"	"	"	"	"	"
Xylenes (total)	ND	0.50		"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	50	50		"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>			101 %		78-129	"	"	"	"	"
<b>A-13 (MMF0006-10) Water</b> Sampled: 05/28/03 08:40 Received: 05/29/03 16:00										
Ethanol	ND	100		ug/l	1	3F06036	06/06/03	06/07/03	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>			101 %		78-129	"	"	"	"	"



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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robinson

MMF0006  
Reported:  
06/20/03 13:15

**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 3F06036 - EPA 5035**

**Blank (3F06036-BLK1)**

Prepared: 06/06/03 Analyzed: 06/07/03

Ethanol	ND	100	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	"							

*Surrogate: 1,2-Dichloroethane-d4*      4.84      "      5.00      96.8      78-129

**Laboratory Control Sample (3F06036-BS1)**

Prepared: 06/06/03 Analyzed: 06/07/03

Methyl tert-butyl ether	9.45	0.50	ug/l	10.0		94.5	63-137			
Benzene	9.61	0.50	"	10.0		96.1	78-124			
Toluene	9.79	0.50	"	10.0		97.9	78-129			

*Surrogate: 1,2-Dichloroethane-d4*      4.99      "      5.00      99.8      78-129

**Laboratory Control Sample (3F06036-BS2)**

Prepared: 06/06/03 Analyzed: 06/07/03

Gasoline Range Organics (C6-C10)	308	50	ug/l	440		70.0	70-113			
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*Surrogate: 1,2-Dichloroethane-d4*      4.76      "      5.00      95.2      78-129

**Laboratory Control Sample Dup (3F06036-BSD1)**

Prepared: 06/06/03 Analyzed: 06/07/03

Methyl tert-butyl ether	9.24	0.50	ug/l	10.0		92.4	63-137	2.25	13	
Benzene	9.71	0.50	"	10.0		97.1	78-124	1.04	12	
Toluene	9.08	0.50	"	10.0		90.8	78-129	7.53	10	

*Surrogate: 1,2-Dichloroethane-d4*      5.23      "      5.00      105      78-129

Sequoia Analytical - Morgan Hill

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.*



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

Project: ARCO #4931, Oakland, CA  
Project Number: N/P  
Project Manager: Scott Robmson

MMF0006  
Reported:  
06/20/03 13:15

**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 3F06036 - EPA 5035**

**Laboratory Control Sample Dup (3F06036-BSD2)**

Prepared: 06/06/03 Analyzed: 06/07/03

Gasoline Range Organics (C6-C10)	322	50	ug/l	440		73.2	70-113	4.44	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.06</i>		<i>"</i>	<i>5.00</i>		<i>101</i>	<i>78-129</i>			

**Matrix Spike (3F06036-MS1)**

Source: MME0789-01

Prepared: 06/06/03 Analyzed: 06/07/03

Methyl tert-butyl ether	7.90	0.50	ug/l	9.92	ND	79.6	63-137			
Benzene	5.57	0.50	"	6.40	ND	87.0	78-124			
Toluene	30.5	0.50	"	29.7	ND	103	78-129			
Gasoline Range Organics (C6-C10)	334	50	"	440	32	68.6	70-113			QM-07
<i>Surrogate 1,2-Dichloroethane-d4</i>	<i>5.02</i>		<i>"</i>	<i>5.00</i>		<i>100</i>	<i>78-129</i>			

**Matrix Spike Dup (3F06036-MSD1)**

Source: MME0789-01

Prepared: 06/06/03 Analyzed: 06/07/03

Methyl tert-butyl ether	7.85	0.50	ug/l	9.92	ND	79.1	63-137	0.635	13	
Benzene	5.53	0.50	"	6.40	ND	86.4	78-124	0.721	12	
Toluene	30.8	0.50	"	29.7	ND	104	78-129	0.979	10	
Gasoline Range Organics (C6-C10)	342	50	"	440	32	70.5	70-113	2.37	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.04</i>		<i>"</i>	<i>5.00</i>		<i>101</i>	<i>78-129</i>			



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MMF0006  
**Reported:**  
06/20/03 13:15

### Notes and Definitions

- QM-07 The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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 ARCO 4931

MHF0006

BP BU/GEM CO Portfolio:

BP Laboratory Contract Number:

On-site Time: 0700 Temp: 67°  
 Off-site Time: 1300 Temp: 91°  
 Sky Conditions: clear  
 Meteorological Events: none  
 Wind Speed: 1-3 Direction: west

ate: S-28-03

Requested Due Date (mm/dd/yy) standard

Client Name: SEQUOIA / Morgan Hill  
 Address: 885 Jarvis Dr.  
Morgan Hill, CA 95037

BP/GEM Facility No.:  
 BP/GEM Facility Address: 731 W. MACARTHUR BLVD, OAKLAND, CA  
 Site ID No. ARCO 4931  
 Site Lat/Long:  
 California Global ID #: T0600100107  
 BP/GEM PM Contact: PAUL SUPPLE  
 Address:  
 Tele/Fax:

Consultant/Contractor: URS  
 Address: 500 12th St., Ste. 200  
Oakland, CA 94609 4014  
 e-mail (ED): syed\_rehan@urscorp.com  
 Consultant/Contractor Project No.: 15-00004931.01 00427  
 Consultant Tele/Fax: 510-874-1735/510-874-3268  
 Consultant/Contractor PM: Scott Robinson  
 Invoice to: Consultant/Contractor or BP/GEM (Telephone)  
 BP/GEM Work Release No.:

PM: Latonya Pelt

Fax: 408-776-8000 / 408-782-6308

QC Type & QC Level: Send EDF Reports

BP Account No.:

BP Order No.:

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 <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	TPH-G / STPX (8015 / 8021)	TPH-D (8015)	MTBE (8021)	MEB, TAME, ETBB (8015 / 8021)	1,2-DCA & EDB (8250)		External Beta
A-2		1240	W				01	W					X						
A-3		1210	W				02	W					X						
A-4		1230	W				03	W					X						
A-5		1145	W				04	W					X						
A-7		1100	W				05	W					X						
A-8		1200	W				06	W					X						
A-9		1045	W				07	W					X						
A-11		1010	W				08	W					X						
A-12		0930	W				09	W					X						
A-13		0840	W				10	W					X						

Client's Name: Michael K. Shennan

Relinquished By / Affiliation

Client's Company: BYS Sac.

Michael K. Shennan - BYS

Date: 5-29 Time: 1530

Accepted By / Affiliation

Print Date:

Michael Shennan / BYS

Date: 5-29 Time: 1600

Michael Shennan / BYS

Print Method:

Date: 5/29/03 Time: 1600

Print Tracking No.:

5/30/03 1600

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

RELING

5/30/03 1835

5/30/03 1600

Labels In Place Yes  No  Temperature Blank Yes  No  Cooler Temperature on Receipt 6.0

Trip Blank Yes  No

Fax: 1-800-872-1171

May 23 2003 13:54

P.16

## SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: BP  
 REC. BY (PRINT) [Signature]  
 WORKORDER: MMP 0004

DATE REC'D AT LAB: 5/30/03  
 TIME REC'D AT LAB: 18:35  
 DATE LOGGED IN: 6-2-03

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

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	DASH #	CLIENT ID	CONTAINER DESCRIPTION	PRESERVATIVE	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present / <input checked="" type="radio"/> Absent Intact / Broken*	01		A-2	(3) vials	HCL	L	5/28/03	
2. Chain-of-Custody <input checked="" type="radio"/> Present / Absent*	02		3	↓	↓	↓	↓	
3. Traffic Reports or Packing List: Present / <input checked="" type="radio"/> Absent	03		4	↓	↓	↓	↓	
4. Airbill: Airbill / Sticker Present / <input checked="" type="radio"/> Absent	04		5	↓	↓	↓	↓	
5. Airbill #: <u>                    </u>	05		6	↓	↓	↓	↓	
6. Sample Labels: <input checked="" type="radio"/> Present / Absent	06		7	↓	↓	↓	↓	
7. Sample IDs: <input checked="" type="radio"/> Listed / Not Listed on Chain-of-Custody	07		8	↓	↓	↓	↓	
8. Sample Condition: <input checked="" type="radio"/> Intact / Broken* / Leaking*	08		9	↓	↓	↓	↓	
9. Does information on custody reports, traffic reports and sample labels agree? <input checked="" type="radio"/> Yes / No*	09		10	↓	↓	↓	↓	
10. Sample received within hold time: <input checked="" type="radio"/> Yes / No*	10		11	↓	↓	↓	↓	
11. Proper Preservatives used: <input checked="" type="radio"/> Yes / No*			12	↓	↓	↓	↓	
12. Temp Rec. at Lab: <u>6°C</u> Is temp 4 +/- 2°C? <input checked="" type="radio"/> Yes / No**			13	↓	↓	↓	↓	

**\*IF CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.**

**ATTACHMENT C**

**HISTORIC GROUNDWATER DATA**



**Table 1**  
**Groundwater Elevation and Analytical Data**  
**Total Purgeable Petroleum Hydrocarbons**  
**(TPPH as Gasoline, BTEX Compounds, and MTBE)**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
A-2	03/26/96	55.48	5.37	50.11	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
A-2	05/22/96	55.48	5.25	50.23	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
A-2	08/22/96	55.48	10.45	45.03	<50	1.1	1.8	<0.5	1.3	<2.5	NA	NM	
A-2	12/19/96	55.48	5.53	49.95	<50	<0.5	<0.5	<0.5	<0.5	2.7	NA	NM	
A-2	04/01/97	55.48	8.77	46.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NM	
A-2	05/27/97	55.48	9.87	45.61	<50	<0.5	<0.5	<0.5	<0.5	4.6	NA	NM	
A-2	08/12/97	55.48	11.11	44.37	<50	<0.5	<0.5	<0.5	<0.5	5.6	NA	NM	
A-2	11/14/97	55.48	10.63	44.85	<50	0.9	2.8	<0.5	2.4	27	NA	2.6	
A-2	03/18/98	55.48	3.58	51.90	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	NM	
A-2	05/19/98	55.48	4.82	50.66	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.30	P
A-2	07/29/98	55.48	8.94	46.54	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.2	NP
A-2	10/09/98	55.48	10.82	44.66	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	0.5	NP
A-2	02/19/99	55.48	4.46	51.02	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	3.0	P
A-2	06/02/99	55.48	5.59	49.89	<50	<0.5	0.6	<0.5	<0.5	<3	NA	5.35	NP
A-2	08/26/99	55.48	10.67	44.81	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	0.79	NP
A-2	10/26/99	55.48	4.61	50.87	<50	<0.5	<0.5	<0.5	<1	<3	NA	2.14	P
A-2	02/25/00	55.48	3.10	52.38	<50	<0.5	<0.5	<0.5	<1	<3	NA	4.21	NP
A-3	03/26/96	54.66	7.20	47.46	Not Sampled: Well Sampled Semiannually								
A-3	05/22/96	54.66	7.70	46.96	<50	1.2	1.9	0.7	1.3	NA	NA	NM	
A-3	08/22/96	54.66	10.88	43.78	Not Sampled: Well Sampled Semiannually								
A-3	12/19/96	54.66	7.70	46.96	5,900	<25	<25	<25	<25	NA	5,300	NM	
A-3	04/01/97	54.66	9.78	44.88	Not Sampled: Well Sampled Semiannually								
A-3	05/27/97	54.66	10.55	44.11	2,300	<20	<20	<20	<20	3,800	NA	NM	
A-3	08/12/97	54.66	11.12	43.54	Not Sampled: Well Sampled Semiannually								
A-3	11/14/97	54.66	8.24	46.42	<1,000	<10	<10	<10	<10	1,500	NA	3.8	
A-3	03/18/98	54.66	5.05	49.61	Not Sampled: Well Sampled Semiannually								
A-3	05/19/98	54.66	9.00	45.66	<250	<2.5	<2.5	<2.5	<2.5	220	NA	4.60	P
A-3	07/29/98	54.66	9.86	44.80	Not Sampled: Well Sampled Semiannually								
A-3	10/09/98	54.66	11.36	43.30	<250	<2.5	<2.5	<2.5	<2.5	260	NA	1.0	NP
A-3	02/19/99	54.66	6.19	48.47	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.5	NP
A-3	06/02/99	54.66	10.82	43.84	120	<1	<1	<1	<1	160	NA	2.78	NP

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**Total Purgeable Petroleum Hydrocarbons**  
**(TPPH as Gasoline, BTEX Compounds, and MTBE)**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
A-3	08/26/99	54.66	10.73	43.93	Not Sampled: Well Sampled Semiannually							0.95	
A-3	10/26/99	54.66	6.58	48.08	<50	<0.5	<0.5	<0.5	<1	32	NA	2.06	NP
A-3	02/25/00	54.66	5.41	49.25	Not Sampled: Well Sampled Semiannually								
A-4	03/26/96	54.73	7.95	46.78	8,900	1,200	21	200	220	NA	NA	NM	
A-4	05/22/96	54.73	8.35	46.38	5,300	700	<10	170	130	NA	NA	NM	
A-4	08/22/96	54.73	11.03	43.70	3,000	480	<5.0	75	26	150	NA	NM	
A-4	12/19/96	54.73	8.67	46.06	<2,000	<20	<20	<20	<20	NA	15,000	NM	
A-4	04/01/97	54.73	11.95	42.78	8,900	1,700	22	310	260	6,900	NA	NM	
A-4	05/27/97	54.73	10.80	43.93	7,100	960	<20	150	74	7,900	NA	NM	
A-4	08/12/97	54.73	11.38	43.35	4,300	670	12	51	27	2,800	NA	NM	
A-4	11/14/97	54.73	7.74	46.99	<20,000	300	500	<200	<200	27,000	NA	2.2	
A-4	03/18/98	54.73	6.80	47.93	4,700	600	<20	99	94	1,200	NA	1.0	
A-4	05/19/98	54.73	9.06	45.67	<2000	<20	<20	<20	720	2,000	NA	1.28	P
A-4	07/29/98	54.73	10.05	44.68	8,400	1,300	<20	290	130	1,800	NA	0.7	NP
A-4	10/09/98	54.73	11.20	43.53	3,500	400	<20	54	<20	1,700	NA	1.0	NP
A-4	02/19/99	54.73	6.85	47.88	<1,000	<10	<10	<10	12	650	NA	0.1	NP
A-4	06/02/99	54.73	11.00	43.73	6,100	760	16	260	89	2,300	NA	1.12	NP
A-4	08/26/99	54.73	10.80	43.93	1,100	68	5	8	4	1,400	NA	1.15	NP
A-4	10/26/99	54.73	10.11	44.62	1,500	39	2.3	9.0	5	1,700	NA	10.12	NP
A-4	02/25/00	54.73	5.90	48.83	870	53	1.1	4.6	20	600	NA	1.72	NP
A-5	03/26/96	54.17	7.93	46.24	Not Sampled: Well Sampled Semiannually								
A-5	05/22/96	54.17	8.20	45.97	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
A-5	08/22/96	54.17	10.70	43.47	Not Sampled: Well Sampled Semiannually								
A-5	12/19/96	54.17	8.39	45.78	9,900	1,100	330	230	700	NA	24	NM	
A-5	04/01/97	54.17	10.83	43.34	Not Sampled: Well Sampled Semiannually								
A-5	05/27/97	54.17	10.65	43.52	100	<0.5	<0.5	<0.5	<0.5	120	NA	NM	
A-5	08/12/97	54.17	11.05	43.12	Not Sampled: Well Sampled Semiannually								
A-5	11/14/97	54.17	10.51	43.66	<50	<0.5	<0.5	<0.5	<0.5	41	NA	4.8	
A-5	03/18/98	54.17	8.10	46.07	Not Sampled: Well Sampled Semiannually								
A-5	05/19/98	54.17	9.31	44.86	590	<5	<5	<5	<5	710	NA	2.48	P

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**Total Purgeable Petroleum Hydrocarbons**  
**(TPPH as Gasoline, BTEX Compounds, and MTBE)**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)	
A-5	07/29/98	54.17	9.89	44.28	Not Sampled: Well Sampled Semiannually									
A-5	10/09/98	54.17	11.02	43.15	690	<5	<5	<5	<5	710	NA	1.0	NP	
A-5	02/19/99	54.17	6.82	47.35	<2,000	<20	<20	<20	<20	2,300	NA	0.6	NP	
A-5	06/02/99	54.17	10.82	43.35	1,500	<0.5	2.3	<0.5	<0.5	2,400	NA	2.81	NP	
A-5	08/26/99	54.17	10.65	43.52	Not Sampled: Well Sampled Semiannually									
A-5	10/26/99	54.17	10.35	43.82	380	<0.5	<0.5	<0.5	<1	440	NA	1.55	NP	
A-5	02/25/00	54.17	6.89	47.28	Not Sampled: Well Sampled Semiannually									
A-6	03/26/96	55.17	7.15	48.02	52	2.7	<0.5	1.1	2.0	NA	NA	NM		
A-6	05/22/96	55.17	7.35	47.82	<50	2.4	<0.5	0.88	1.7	NA	NA	NM		
A-6	08/22/96	55.17	10.12	45.05	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NM		
A-6	12/19/96	55.17	7.43	47.74	<50	1.7	<0.5	0.78	1.5	<2.5	NA	NM		
A-6	04/01/97	55.17	9.97	45.20	<50	4.7	<0.5	1.9	3.2	<2.5	NA	NM		
A-6	05/27/97	55.17	9.66	45.51	<50	0.69	<0.5	<0.5	<0.5	<2.5	NA	NM		
A-6	08/12/97	55.17	10.43	44.74	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NM		
A-6	11/14/97	55.17	9.76	45.41	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	<1.0		
A-6	03/18/98	55.17	7.00	48.17	<50	6.2	0.5	2.3	2.6	<3	NA	3.0		
A-6	05/19/98	55.17	8.27	46.90	<50	<0.5	<0.5	1.3	4.7	<3	NA	2.16	P	
A-6	07/29/98	55.17	8.96	46.21	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	0.8	NP	
A-6	10/09/98	55.17	10.23	44.94	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.0	NP	
A-6	02/19/99	55.17	5.79	49.38	<50	<0.5	<0.5	<0.5	<0.5	5	NA	0.4	NP	
A-6	06/02/99	55.17	9.71	45.46	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.00	NP	
A-6	08/26/99	55.17	9.79	45.38	<50	<0.5	<0.5	<0.5	0.7	<3	NA	0.66	NP	
A-6	10/26/99	55.17	9.70	45.47	<50	<0.5	<0.5	<0.5	<1	<3	NA	1.66	NP	
A-6	02/25/00	55.17	5.68	49.49	<50	<0.5	<0.5	<0.5	<1	<3	NA	1.22	NP	
A-7	03/26/96	54.71	6.90	47.81	Not Sampled: Well Sampled Semiannually									
A-7	05/22/96	54.71	8.27	46.44	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM		
A-7	08/22/96	54.71	9.80	44.91	Not Sampled: Well Sampled Semiannually									
A-7	12/19/96	54.71	7.19	47.52	Not Sampled: Well Sampled Annually									
A-7	04/01/97	54.71	9.63	45.08	Not Sampled: Well Sampled Annually									
A-7	05/27/97	54.71	9.34	45.37	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NM		

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**Total Purgeable Petroleum Hydrocarbons**  
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**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
A-7	08/12/97	54.71	10.10	44.61	Not Sampled: Well Sampled Annually								
A-7	11/14/97	54.71	9.35	45.36	Not Sampled: Well Sampled Annually								
A-7	03/18/98	54.71	6.75	47.96	Not Sampled: Well Sampled Annually								
A-7	05/19/98	54.71	8.85	45.86	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.82	P
A-7	07/29/98	54.71	8.84	45.87	Not Sampled: Well Sampled Annually								
A-7	10/09/98	54.71	10.05	44.66	Not Sampled: Well Sampled Annually								
A-7	02/19/99	54.71	5.57	49.14	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	4.7	NP
A-7	06/02/99	54.71	9.56	45.15	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.17	NP
A-7	08/26/99	54.71	9.66	45.05	Not Sampled: Well Sampled Annually								
A-7	10/26/99	54.71	9.54	45.17	Not Sampled: Well Sampled Annually								
A-7	02/25/00	54.71	5.60	49.11	Not Sampled: Well Sampled Annually								
A-8	03/26/96	53.77	7.10	46.67	48,000	2,600	<100	650	1,100	NA	NA	NM	
A-8	05/22/96	53.77	7.20	46.57	14,000	2,800	160	320	190	NA	NA	NM	
A-8	08/22/96	53.77	11.57	42.20	8,000	1,000	76	150	96	4,300	NA	NM	
A-8	12/19/96	53.77	8.04	45.73	12,000	450	110	210	230	<500	NA	NM	
A-8	04/01/97	53.77	9.98	43.79	Not Sampled: Well Sampled Semiannually								
A-8	05/27/97	53.77	11.45	42.32	11,000	1,600	100	220	210	2,300	NA	NM	
A-8	08/12/97	53.77	11.59	42.18	Not Sampled: Well Sampled Semiannually								
A-8	11/14/97	53.77	9.85	43.92	26,000	2,300	<200	400	400	4,100	NA	2.2	
A-8	03/18/98	53.77	7.80	45.97	Not Sampled: Well Sampled Semiannually								
A-8	05/19/98	53.77	8.78	44.99	88,000	4,200	150	640	600	6,700	NA	1.36	P
A-8	07/29/98	53.77	9.59	44.18	46,000	4,900	160	620	580	13,000	NA	0.5	NP
A-8	10/09/98	53.77	11.23	42.54	130,000	3,700	110	500	770	7,300	NA	1.0	NP
A-8	02/19/99	53.77	6.51	47.26	<1,000	39	<10	<10	<10	840	NA	0.2	NP
A-8	06/02/99	53.77	10.68	43.09	8,500	1,300	32	180	110	6,700	NA	1.31	NP
A-8	08/26/99	53.77	10.43	43.34	6,200	870	17	64	60	3,700	NA	0.69	NP
A-8	10/26/99	53.77	10.23	43.54	15,000	2,800	140	370	360	480	NA	0.62	NP
A-8	02/25/00	53.77	5.93	47.84	2,600	330	6.6	18	26	1,100	NA	1.43	NP
A-9	03/26/96	53.04	7.05	45.99	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
A-9	05/22/96	53.04	7.20	45.84	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	

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**ARCO Service Station 4931**  
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Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
A-9	08/22/96	53.04	9.68	43.36	<50	<0.5	<0.5	<0.5	<0.5	8.5	NA	NM	
A-9	12/19/96	53.04	7.43	45.61	<50	<0.5	<0.5	<0.5	<0.5	2.6	NA	NM	
A-9	04/01/97	53.04	9.95	43.09	Not Sampled: Well Sampled Semiannually								
A-9	05/27/97	53.04	9.56	43.48	<50	2.3	<0.5	<0.5	<0.5	45	NA	NM	
A-9	08/12/97	53.04	10.15	42.89	Not Sampled: Well Sampled Semiannually								
A-9	11/14/97	53.04	8.64	44.40	<200	<2.0	<2.0	<2.0	<2.0	190	NA	9.6	
A-9	03/18/98	53.04	6.45	46.59	Not Sampled: Well Sampled Semiannually								
A-9	05/19/98	53.04	8.35	44.69	<50	<0.5	<0.5	<0.5	<0.5	7	NA	1.27	P
A-9	07/29/98	53.04	8.74	44.30	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	0.99	NP
A-9	10/09/98	53.04	10.05	42.99	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.0	NP
A-9	02/19/99	53.04	6.91	46.13	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.0	NP
A-9	06/02/99	53.04	9.72	43.32	<50	<0.5	<0.5	<0.5	<0.5	16	NA	2.32	NP
A-9	08/26/99	53.04	9.48	43.56	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	0.71	NP
A-9	10/26/99	53.04	9.17	43.87	1,500	6.2	0.7	78	11	91	NA	2.15	NP
A-9	02/25/00	53.04	5.84	47.20	<50	<0.5	<0.5	<0.5	<1	<3	NA	1.55	NP
A-10	03/26/96	54.26	8.28	45.98	Not Sampled: Well Removed from Sampling Program								
A-10	05/22/96	54.26	8.60	45.66	Not Sampled: Well Removed from Sampling Program								
A-10	08/22/96	54.26	10.98	43.28	Not Sampled: Well Removed from Sampling Program								
A-10	12/19/96	54.26	8.80	45.46	Not Sampled: Well Removed from Sampling Program								
A-10	04/01/97	54.26	11.15	43.11	Not Sampled: Well Removed from Sampling Program								
A-10	05/27/97	54.26	10.90	43.36	Not Sampled: Well Removed from Sampling Program								
A-10	08/12/97	54.26	11.30	42.96	Not Sampled: Well Removed from Sampling Program								
A-10	11/14/97	54.26	10.80	43.46	Not Sampled: Well Removed from Sampling Program								
A-10	03/18/98				Well Removed from Survey Program								
A-11	03/26/96	53.74	8.10	45.64	Not Sampled: Well Sampled Semiannually								
A-11	05/22/96	53.74	8.25	45.49	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
A-11	08/22/96	53.74	10.58	43.16	Not Sampled: Well Sampled Semiannually								
A-11	12/19/96	53.74	8.37	45.37	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NM	
A-11	04/01/97	53.74	10.95	42.79	Not Sampled: Well Sampled Semiannually								
A-11	05/27/97	53.74	10.60	43.14	<50	<0.5	<0.5	<0.5	<0.5	3.1	NA	NM	

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Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
A-11	08/12/97	53.74	11.07	42.67	Not Sampled: Well Sampled Semiannually								
A-11	11/14/97	53.74	10.58	43.16	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.6	
A-11	03/18/98	53.74	8.14	45.60	Not Sampled: Well Sampled Semiannually								
A-11	05/19/98	53.74	9.40	44.34	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.13	P
A-11	07/29/98	53.74	10.32	43.42	Not Sampled: Well Sampled Semiannually								
A-11	10/09/98	53.74	10.91	42.83	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	2.0	NP
A-11	02/19/99	53.74	6.77	46.97	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	1.8	NP
A-11	06/02/99	53.74	10.95	42.79	<50	<0.5	<0.5	<0.5	<0.5	6	NA	1.38	NP
A-11	08/26/99	53.74	11.05	42.69	Not Sampled: Well Sampled Semiannually								
A-11	10/26/99	53.74	10.81	42.93	<50	<0.5	<0.5	<0.5	<1	4	NA	0.49	
A-11	02/25/00	53.74	6.70	47.04	Not Sampled: Well Sampled Semiannually								
A-12	03/26/96	52.05	7.83	44.22	Not Sampled: Well Sampled Semiannually								
A-12	05/22/96	52.05	7.80	44.25	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
A-12	08/22/96	52.05	9.97	42.08	Not Sampled: Well Sampled Semiannually								
A-12	12/19/96	52.05	8.18	43.87	85	<0.5	<0.5	<0.5	<0.5	170	NA	NM	
A-12	04/01/97	52.05	10.30	41.75	Not Sampled: Well Sampled Semiannually								
A-12	05/27/97	52.05	10.05	42.00	50	12	<0.5	<0.5	<0.5	96	NA	NM	
A-12	08/12/97	52.05	10.46	41.59	Not Sampled: Well Sampled Semiannually								
A-12	11/14/97	52.05	9.70	42.35	<50	<0.5	<0.5	<0.5	<0.5	75	NA	7.0	
A-12	03/18/98	52.05	8.15	43.90	Not Sampled: Well Sampled Semiannually								
A-12	05/19/98	52.05	9.15	42.90	<50	<0.5	<0.5	<0.5	<0.5	29	NA	1.47	P
A-12	07/29/98	52.05	9.38	42.67	Not Sampled: Well Sampled Semiannually								
A-12	10/09/98	52.05	10.21	41.84	<50	<0.5	<0.5	<0.5	<0.5	7	NA	2.0	NP
A-12	02/19/99	52.05	6.96	45.09	<50	<0.5	<0.5	<0.5	<0.5	<3	NA	5.2	NP
A-12	06/02/99	52.05	10.25	41.80	<50	<0.5	<0.5	<0.5	<0.5	7	NA	1.38	NP
A-12	08/26/99	52.05	9.91	42.14	Not Sampled: Well Sampled Semiannually								
A-12	10/26/99	52.05	9.73	42.32	<50	<0.5	<0.5	<0.5	<1	12	NA	0.51	
A-12	02/25/00	52.05	6.97	45.08	Not Sampled: Well Sampled Semiannually								
A-13	03/26/96	55.11			----- Well Inaccessible -----								
A-13	05/22/96	55.11			----- Well Inaccessible -----								

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**Total Purgeable Petroleum Hydrocarbons**  
**(TPPH as Gasoline, BTEX Compounds, and MTBE)**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
A-13	08/22/96	55.11											
A-13	12/19/96	55.11											
A-13	04/01/97	55.11											
A-13	05/27/97	55.11											
A-13	08/12/97	55.11											
A-13	11/14/97	55.11											
A-13	03/18/98	55.11											
A-13	05/19/98	55.11											
A-13	07/29/98	55.11											
A-13	10/09/98	55.11											
A-13	02/19/99	55.11											
A-13	06/02/99	55.11											
A-13	08/26/99	55.11											
A-13	10/26/99	55.11											
A-13	02/25/00	55.11											
AR-1	03/26/96	54.72	8.13	46.59	6,200	110	64	38	520	NA	NA	NM	
AR-1	05/22/96	54.72	8.57	46.15	NS	NS	NS	NS	NS	NS	NS	NM	
AR-1	08/22/96	54.72	10.97	43.75	5,600	100	28	29	310	960	NA	NM	
AR-1	12/19/96	54.72	8.93	45.79	Not Sampled: Well Removed from Sampling Program								
AR-1	04/01/97	54.72	11.78	42.94	Not Sampled: Well Removed from Sampling Program								
AR-1	05/27/97	54.72	10.76	43.96	Not Sampled: Well Removed from Sampling Program								
AR-1	08/12/97	54.72	11.40	43.32	Not Sampled: Well Removed from Sampling Program								
AR-1	11/14/97	54.72	10.80	43.92	Not Sampled: Well Removed from Sampling Program								
AR-1	03/18/98	54.72	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-1	05/19/98	54.72	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-1	07/29/98	54.72	10.17	44.55	Not Sampled: Well Removed from Sampling Program								
AR-1	10/09/98	54.72	11.25	43.47	Not Sampled: Well Removed from Sampling Program								
AR-1	02/19/99	54.72	7.02	47.70	Not Sampled: Well Removed from Sampling Program								
AR-1	06/02/99	54.72	11.00	43.72	Not Sampled: Well Removed from Sampling Program								
AR-1	08/26/99	54.72	10.96	43.76	Not Sampled: Well Removed from Sampling Program								0.39
AR-1	10/26/99	54.72	10.68	44.04	Not Sampled: Well Removed from Sampling Program								1.39

**Table 1**  
**Groundwater Elevation and Analytical Data**  
**Total Purgeable Petroleum Hydrocarbons**  
**(TPPH as Gasoline, BTEX Compounds, and MTBE)**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8021B* (ppb)	MTBE 8260 (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
AR-1	02/25/00	54.72	7.15	47.57	Not Sampled: Well Removed from Sampling Program								
AR-2	03/26/96	54.77	4.93	49.84	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
AR-2	05/22/96	54.77	5.65	49.12	NS	NS	NS	NS	NS	NS	NS	NM	
AR-2	08/22/96	54.77	7.27	47.50	<50	<0.5	<0.5	<0.5	<0.5	200	NA	NM	
AR-2	12/19/96	54.77	7.78	46.99	Not Sampled: Well Removed from Sampling Program								
AR-2	04/01/97	54.77	6.80	47.97	Not Sampled: Well Removed from Sampling Program								
AR-2	05/27/97	54.77	6.32	48.45	Not Sampled: Well Removed from Sampling Program								
AR-2	08/12/97	54.77	7.43	47.34	Not Sampled: Well Removed from Sampling Program								
AR-2	11/14/97	54.77	8.95	45.82	Not Sampled: Well Removed from Sampling Program								
AR-2	03/18/98	54.77	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-2	05/19/98	54.77	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-2	07/29/98	54.77	4.47	50.30	Not Sampled: Well Removed from Sampling Program								
AR-2	10/09/98	54.77	6.90	47.87	Not Sampled: Well Removed from Sampling Program								
AR-2	02/19/99	54.77	3.80	50.97	Not Sampled: Well Removed from Sampling Program								
AR-2	06/02/99	54.77	4.61	50.16	Not Sampled: Well Removed from Sampling Program								
AR-2	08/26/99	54.77	5.22	49.55	Not Sampled: Well Removed from Sampling Program								
AR-2	10/26/99	54.77	3.20	51.57	Not Sampled: Well Removed from Sampling Program								
AR-2	02/25/00	54.77	2.33	52.44	Not Sampled: Well Removed from Sampling Program								
AR-3	03/26/96	54.19	7.95	46.24	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	NM	
AR-3	05/22/96	54.19	8.30	45.89	NS	NS	NS	NS	NS	NS	NS	NM	
AR-3	08/22/96	54.19	10.84	43.35	Not Sampled: Well Removed from Sampling Program								
AR-3	12/19/96	54.19	8.56	45.63	Not Sampled: Well Removed from Sampling Program								
AR-3	04/01/97	54.19	11.24	42.95	Not Sampled: Well Removed from Sampling Program								
AR-3	05/27/97	54.19	10.67	43.52	Not Sampled: Well Removed from Sampling Program								
AR-3	08/12/97	54.19	11.10	43.09	Not Sampled: Well Removed from Sampling Program								
AR-3	11/14/97	54.19	10.60	43.59	Not Sampled: Well Removed from Sampling Program								
AR-3	03/18/98	54.19	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-3	05/19/98	54.19	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-3	07/29/98	54.19	9.95	44.24	Not Sampled: Well Removed from Sampling Program								
AR-3	10/09/98	54.19	11.20	42.99	Not Sampled: Well Removed from Sampling Program								



**Table 1**  
**Groundwater Elevation and Analytical Data**  
**Total Purgeable Petroleum Hydrocarbons**  
**(TPPH as Gasoline, BTEX Compounds, and MTBE)**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOB)	Groundwater Elevation (feet, MSL)	TPH Gasoline	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE 8021B*	MTBE 8260	Dissolved Oxygen	Purged/ Not Purged (P/NP)
AR-3	02/19/99	54.19	6.98	47.21	Not Sampled: Well Removed from Sampling Program								
AR-3	06/02/99	54.19	10.80	43.39	Not Sampled: Well Removed from Sampling Program								
AR-3	08/26/99	54.19	10.69	43.50	Not Sampled: Well Removed from Sampling Program								
AR-3	10/26/99	54.19	NM	NM	Not Sampled: Well Removed from Sampling Program								
AR-3	02/25/00	54.19	7.21	46.98	Not Sampled: Well Removed from Sampling Program								

TPH	= Total petroleum hydrocarbons by modified EPA method 8015
BTEX	= Benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 10/26/99).
MTBE	= Methyl tert-butyl ether
*	= EPA method 8020 prior to 10/26/99
MSL	= Mean sea level
TOB	= Top of box
ppb	= Parts per billion
ppm	= Parts per million
<	= Less than laboratory detection limit stated to the right
NA	= Not analyzed
NM	= Not measured
NS	= Not sampled

**Table 2**  
**Groundwater Flow Direction and Gradient**

**ARCO Service Station 4931**  
**731 West MacArthur Boulevard, Oakland, California**

<b>Date Measured</b>	<b>Average Flow Direction</b>	<b>Average Hydraulic Gradient</b>
03/26/96	Southwest	0.03
05/22/96	Southwest	0.04
08/22/96	Southwest	0.02
12/19/96	Southwest	0.03
04/01/97	Southwest	0.03
05/27/97	Southwest	0.04
08/12/97	Southwest	0.02
11/14/97	Southwest	0.02
03/18/98	West	0.03
05/19/98	West-Southwest	0.02
07/29/98	West-Southwest	0.02
10/09/98	Southwest	0.007
02/19/99	Southwest	0.04
06/02/99	West	0.04
08/26/99	West-Southwest	0.02
10/26/99	West-Northwest	0.13
02/25/00	West-Southwest	0.05

**ATTACHMENT D**

**EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION**

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## Error Summary Log

06/23/03

EDF 1.2i All files present in deliverable.

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Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #4931, Oakland, CA
Work Order Number:	MMF0006
Global ID:	T0600100107
Lab Report Number:	MMF0006062020031315

## Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run	Sub
MMF00060620200	A-11	MMF000608	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-12	MMF000609	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-13	MMF000610	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-2	MMF000601	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-3	MMF000602	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-4	MMF000603	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-5	MMF000604	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-7	MMF000605	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-8	MMF000606	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
MMF00060620200	A-9	MMF000607	W	CS	8260+OX	SW5035	05/28/03	06/06/03	06/07/03	3F06036	1	
	31315											
		MME078901	W	NC	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036BSD1	WQ	BD1	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036BSD2	WQ	BD2	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036BS1	WQ	BS1	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036BS2	WQ	BS2	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036BLK1	WQ	LB1	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036MS1	W	MS1	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	
		3F06036MSD1	W	SD1	8260+OX	SW5035	//	06/06/03	06/07/03	3F06036	1	

# EDFSAMP: Error Summary Log

06/23/03

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

# EDFTEST: Error Summary Log

06/23/03

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

# EDFRES: Error Summary Log

06/23/03

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3F06036MS1	MS1	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	3F06036MSD1	SD1	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MME078901	NC	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000601	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000601	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000602	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000602	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000603	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000603	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000604	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000604	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000605	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000605	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000606	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000606	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000607	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000607	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000608	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000608	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000609	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000609	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	MMF000610	CS	W	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	MMF000610	CS	W	8260+OX	PR	06/07/03	1	XYLENES
Warning: extra parameter	3F06036BLK1	LB1	WQ	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	3F06036BLK1	LB1	WQ	8260+OX	PR	06/07/03	1	XYLENES



Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3F06036BS2	BS2	WQ	8260+OX	PR	06/07/03	1	GROC6C10
Warning extra parameter	3F06036BSD2	BD2	WQ	8260+OX	PR	06/07/03	1	GROC6C10

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## EDFQC: Error Summary Log

06/23/03

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

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# EDFCL: Error Summary Log

06/23/03

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Error type	Clredate	Anmcode	Exmcode	Parlabel	Clcode
There are no errors in this data file	/ /				

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**Confirmation Number:** 1355709731

**Date/Time of Submittal:** 6/23/2003 10:35:13 AM

**Facility Global ID:** T0600100110

**Facility Name:** ARCO

**Submittal Title:** 2nd Qtr 2003 Monitoring Report for #4931

**Submittal Type:** GW Monitoring Report

Logged in as URSCORP-OAKLAND (CONTRACTOR)

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<p><b>UPLOADING A GEO_WELL FILE</b></p> <p align="center"><b>Processing is complete. No errors were found!</b> <b>Your file has been successfully submitted!</b></p> <p><b><u>Submittal Title:</u>            2nd Qtr 2003 Geowell for #4931</b> <b><u>Submittal Date/Time:</u>   6/23/2003 10:39:29 AM</b> <b><u>Confirmation Number:</u> 1254810929</b></p> <p align="center"><b><a href="#">Back to Main Menu</a></b></p>

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