

February 24, 2003

Ms. Eva Chu
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

**Re: Fourth Quarter 2002 Groundwater Monitoring Report
ARCO Service Station # 2111
1156 Davis Street
San Leandro, California
URS Project #38486093**

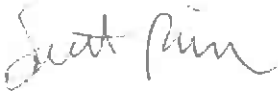
Dear Ms. Chu:

On behalf of Atlantic Richfield Company (ARCO-an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is submitting the *Fourth Quarter 2002 Groundwater Monitoring Report* for ARCO Service Station #2111, located at 1156 Davis Street, San Leandro, California.

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

Sincerely,

URS CORPORATION



Scott Robinson
Project Manager



Amy P. Breckenridge, P.E.
Portfolio Manager

Enclosure: Fourth Quarter 2002 Groundwater Monitoring Report

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



Atlantic Richfield Company
(a BP affiliated company)

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

February 27, 2003

Re: Fourth Quarter 2002 Groundwater Monitoring Report
ARCO Station #2111
1156 Davis Street
San Leandro, CA

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

Submitted by:

Paul Supple
Environmental Business Manager

R E P O R T

**FOURTH QUARTER 2002
GROUNDWATER MONITORING**

ARCO SERVICE STATION #2111
1156 DAVIS STREET
SAN LEANDRO, CALIFORNIA

Prepared for
Atlantic Richfield Company

February 24, 2003

URS

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

38486093

Date: February 24, 2003
Quarter: 4Q 02

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Former Facility No.: 2111 Address: 1156 Davis Street, San Leandro, California
Atlantic Richfield Co. Environmental Engineer: Paul Supple
Consulting Co./Contact Person: URS Corporation / Scott Robinson
Consultant Project No.: 38486093
Primary Agency: ACHCSA

WORK PERFORMED THIS QUARTER (Fourth – 2002):

1. Performed fourth quarter 2002 groundwater monitoring event on October 9, 2002.
2. Prepared third quarter 2002 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER (First – 2003):

1. Perform first quarter 2003 groundwater monitoring event.
2. Prepare and submit fourth quarter 2002 groundwater monitoring report.

Current Phase of Project: GW monitoring/sampling
Frequency of Groundwater Sampling: Wells MW-1 through MW-7; quarterly
Frequency of Groundwater Monitoring: Quarterly
Is Free Product (FP) Present On-Site: FP in MW-2
Cumulative FP Recovered to Date: Approximately 1.98 gallons
Current Remediation Techniques: Bailing free product as needed
Approximate Depth to Groundwater: 15.51 (MW-6) to 18.27 (MW-1)
Groundwater Gradient (direction): West
Groundwater Gradient (magnitude): 0.002 feet per foot

DISCUSSION:

TPH-g was detected in three of the six wells sampled this quarter at concentrations ranging from 240 µg/L (MW-1) to 110,000 µg/L (MW-7). Benzene was detected in three wells at concentrations ranging from 2.2 µg/L (MW-4) to 1,500 µg/L (MW-7). MTBE was detected in five wells by EPA Method 8020 at concentrations ranging from 20 µg/L (MW-4) to 97,000 µg/L (MW-7). MTBE was detected in five wells by EPA Method 8260 at concentrations ranging from 29 µg/L (MW-4) to 120,000 µg/L (MW-7). FP was detected in MW-2. This well will be checked monthly for free product and bailed if necessary.

RECOMMENDATIONS:

For wells MW-1 and MW-3, we recommend reducing the sampling frequency from quarterly to semi-annually. These wells are both cross-gradient and have stable readings. For wells MW-4 and MW-6, we recommend

reducing the sampling from quarterly to annually. Both wells are up-gradient with low to no detections of the constituents of concern. Furthermore, as stated in the Corrective Action Plan submitted in October 2002, we recommend the installation of more down-gradient wells.

ATTACHMENTS:

- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – Groundwater Flow Direction and Gradient
- Figure 1 – Groundwater Elevation Contour and Analytical Summary Map – October 10, 2002
- 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 # 2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Top of Riser Elevation (feet, MSL)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	TPH						MTBE (8020) (mg/L)	MTBE (8260) (mg/L)	
					as Gasoline (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)	Total Xylenes (mg/L)				
MW-1	06/26/00	39.60	16.46	23.14	NA	NA	NA	NA	NA	NA	NA	NA	
	07/20/00		16.89	22.71	360	110	<0.5	<0.5	2.7	2,100	NA	NA	
	09/19/00		17.62	21.98	290	76	<0.5	<0.5	2.3	1,500	NA	NA	
	12/21/00		17.39	22.21	257	64	2.89	1.31	4.57	1,080	1,060	1,060	
	03/13/01		15.7	23.90	<500	52.5	<5.0	<5.0	<5.0	1,430	1,370	1,370	
	09/18/01		18.24	21.36	<500	64	7.3	<5.0	52	810	1,100	1,100	
	12/28/01		15.95	23.65	<500	<5.0	<5.0	5.00	22	1,200	1,100	1,100	
	03/14/02		16.01	23.59	<50	<0.5	<0.5	<0.5	<0.5	34	40	40	
	04/23/02		15.43	24.17	<50	<0.5	<0.5	<0.5	<0.5	30	NA	NA	
	07/17/02	NP		17.50	22.10	<50	1.2	<0.50	<0.50	<0.50	29	NA	NA
	10/09/02			18.27	21.33	240 ^e	4.9	<1.0	4.1	7.0	290	310	310
MW-2	06/26/00	37.99	14.60	23.39 ^a	NA	NA	NA	NA	NA	NA	NA	NA	
	07/20/00		15.14	22.85	95,000	2,300	18,000	2,500	19,000	13,000	NA	NA	
	09/19/00		15.95	22.04	63,000	1,200	6,300	2,000	14,000	19,000	NA	NA	
	12/21/00		15.60	22.39	45,900		2,130	1,160	9,460	22,400	24,700	24,700	
	12/21/00 ^b		NM	NC	5,010	360	189	213	626	54,300	89,200	89,200	
	03/13/01		13.77	23.9	3,650	98.1	<5.0	<5.0	6.42	3,590	3,260	3,260	
	3/13/2001 ^b		NM	NC	<20,000	525	466	408	1,460	91,700	76,000	76,000	
	9/18/2001 ^a		16.86	21.13	NS	NS	NS	NS	NS	NS	NS	NS	
	12/28/01		14.28	23.71	31,000	1,500	3,800	1,300	4,800	9,300	8,800	8,800	
	03/14/02		14.15	23.84	1,800	25	43	43	270	990	960	960	
	04/23/02		13.60	24.39	9,000	220	110	470	2,500	8,500	NA	NA	
	07/17/02	NP SHEEN		15.75	22.24	74,000 ^c	280	290	820	10,000	19,000	NA	NA
	10/9/2002 ^e	NP		16.69	21.30	NS	NS	NS	NS	NS	NS	NS	

**Table I
Groundwater Elevation and Analytical Data**

ARCO Service Station # 2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Top of Riser Elevation (feet, MSL)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	TPH				Ethyl-benzene (mg/L)	Total Xylenes (mg/L)	MTBE (8020) (mg/L)	MTBE (8260) (mg/L)
					as Gasoline (mg/L)	Benzene (mg/L)	Toluene (mg/L)					
MW-3	06/26/00	39.32	15.96	23.36	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00		16.42	22.90	<50	<0.5	<0.5	<0.5	<1.0	130	NA	NA
	09/19/00		17.18	22.14	190	17	<0.5	1.4	2.4	160	NA	NA
	12/21/00		16.97	22.35	187	17.8	<0.5	2.47	2.5	143	125	125
	03/13/01		15.17	24.15	72.4	2.83	<0.5	<0.5	<0.5	126	122	122
	09/18/01		17.81	21.51	140	6.4	<0.5	3.5	1.6	110	75	75
	12/28/01		15.44	23.88	130	5.9	<0.5	0.99	0.55	90	63	63
	03/14/02		15.50	23.82	<50	<0.5	<0.5	<0.5	<0.5	100	88	88
	04/23/02		14.96	24.36	<50	<0.5	<0.5	<0.5	<0.5	77	NA	NA
	07/17/02	NP	17.09	22.23	<50	<0.50	<0.50	<0.50	<0.50	47	NA	NA
10/09/02	NP	17.87	21.45	<50	<0.50	<0.50	<0.50	<0.50	26	29	29	
MW-4	06/26/00	38.10	14.59	23.51	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00		15.04	23.06	97	7.9	<0.5	<0.5	1.1	51	NA	NA
	09/19/00		15.83	22.27	110	7.0	<0.5	<0.5	<1.0	60	NA	NA
	12/21/00		15.59	22.51	120	5.6	<0.5	1.72	<0.5	46.3	48.6	48.6
	03/13/01		13.73	24.37	76	0.796	<0.5	<0.5	<0.5	53.7	50.0	50.0
	09/18/01		16.50	21.60	<50	<0.5	<0.5	<0.5	<0.5	25	26.0	26.0
	12/28/01		14.03	24.07	<50	<0.5	<0.5	<0.5	<0.5	15	11.0	11.0
	03/14/02		14.10	24.00	<50	<0.5	<0.5	<0.5	<0.5	31	28	28
	04/23/02		13.57	24.53	<50	3	<0.5	<0.5	<0.5	42	NA	NA
	07/17/02	NP	15.76	22.34	<50	<0.50	<0.50	<0.50	<0.50	16	NA	NA
10/09/02	NP	16.59	21.51	<50	2.2	<0.50	<0.50	<0.50	20	23	23	

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station # 2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Top of Riser Elevation (feet, MSL)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	TPH				Total Xylenes (mg/L)	MTBE (8020) (mg/L)	MTBE (8260) (mg/L)	
					as Gasoline (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)				
MW-5	06/26/00	37.21	14.27	22.94	NA	NA	NA	NA	NA	NA	NA	
	07/20/00		14.69	22.52	55	<0.5	<0.5	<0.5	<1.0	14,000	NA	
	09/19/00		15.36	21.85	54	<0.5	<0.5	<0.5	<1.0	13,000	NA	
	12/21/00		15.15	22.06	72.9	2.51	<0.5	<0.5	0.961	19,200	21,200	
	03/13/01		13.5	23.71	<500	<5	<5	<5	<5	15,900	20,000	
	09/18/01		15.94	21.27	<10,000	<100	<100	<100	<1,000	22,000	20,000	
	12/28/01		13.45	23.76	<10,000	<100	<100	<100	<100	10,000	10,000	
	03/14/02		13.82	23.39	<5,000	<50	<50	<50	<50	7,100	7,700	
	04/23/02		13.25	23.96	<5,000	<50	<50	<50	<50	8,900	NA	
	07/17/02	NP		15.27	21.94	7,900 ^d	<50	<50	<50	<50	13,000	NA
	10/09/02	NP		16.02	21.19	2,400 ^e	<20	<20	<20	<20	7,300	7,500
MW-6	06/26/00	37.11	13.46	23.65	NA	NA	NA	NA	NA	NA	NA	
	07/20/00		13.94	23.17	<50	<0.5	<0.5	<0.5	<1.0	<3.0	NA	
	09/19/00		14.41	22.70	<50	<0.5	<0.5	<0.5	<1.0	<3.0	NA	
	12/21/00		14.53	22.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	
	03/13/01		12.67	24.44	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	
	09/18/01		15.42	21.69	<50	<0.5	<0.5	<0.5	<0.5	<2.5	<2.0	
	12/28/01		12.96	24.15	<50	<0.5	<0.5	<0.5	<0.5	12	<0.5	
	03/14/02		12.98	24.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	
	04/23/02		12.44	24.67	<50	<0.5	<0.5	<0.5	<0.5	3	NA	
	07/17/02	NP		14.65	22.46	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA
	10/09/02	NP		15.51	21.60	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station # 2111
1156 Davis Street
San Leandro, California

Well Number	Date Sampled	Top of Riser Elevation (feet, MSL)	Depth to Groundwater (feet, TOC)	Groundwater Elevation (feet, MSL)	TPH				Total Xylenes (mg/L)	MTBE (8020) (mg/L)	MTBE (8260) (mg/L)
					as Gasoline (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)			
MW-7	06/26/00	38.68	14.34	24.34	NA	NA	NA	NA	NA	NA	NA
	07/20/00		15.26	23.42	14,000	5.4	<0.5	2.8	5.9	71,000	NA
	09/19/00		15.70	22.98	8,400	420	38	470	220	5,600	NA
	12/21/00		16.02	22.66	NS ^a	NS ^a	NS ^a	NS ^a	NS ^a	NS ^a	NS ^a
	03/13/01		14.18	24.50	<2,000	154	63	46.3	127	175,000	160,000
	09/18/01		17.02	21.66	<100,000	1,900	<1,000	<1,000	2,800	190,000	370,000
	12/28/01		14.81	23.87	<20,000	<200	<200	<200	<200	84,000	72,000
	03/14/02		14.60	24.08	<50,000	<500	<500	<500	<500	85,000	85,000
	04/23/02		13.94	24.74	<20,000	530	200	220	800	67,000	NA
	07/17/02	NP	16.27	22.41	26,000 ^d	720	<250	<250	860	120,000	NA
	10/09/02	NP	17.16	21.52	110,000 ^d	1,500	4,400	820	5,400	97,000	120,000

- TPH = Total Petroleum Hydrocarbons
- MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted
- mg/L = Micrograms per liter
- NM = Not measured
- NC = Not calculated
- MSL = Mean sea level
- TOC = Top of casing
- < = Not detected at or above specified laboratory method detection limit
- a = Product sheen noted
- b = Well was sampled after batch extraction event.
- c = Chromatogram Pattern: Gasoline C6-C10
- d = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel
- e = Discrete peak @C6-C7
- f = This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose.
- g = Well not sampled due to the detection of free product.

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

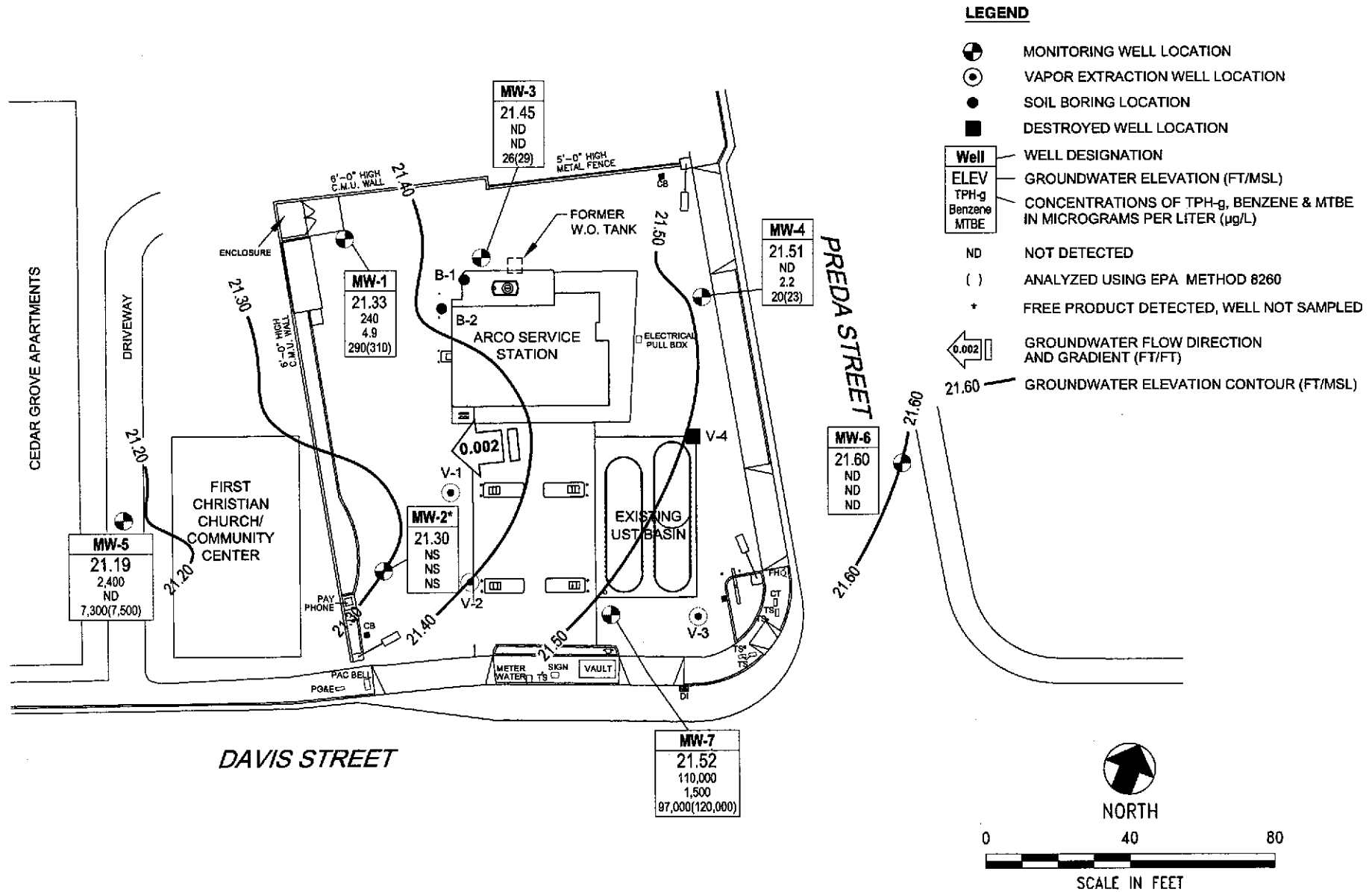
Table 2

Groundwater Flow Direction and Gradient

ARCO Service Station # 2111
1156 Davis Street
San Leandro, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
07/20/00	West-Northwest	0.006
09/19/00	West-Northwest	0.004
12/21/00	West-Northwest	0.004
03/13/01	West-Northwest	0.005
05/30/01	West-Northwest	0.004
09/18/01	West-Northwest	0.003
12/28/01	West-Northwest	0.003
03/14/02	West	0.004
04/23/02	West	0.006
07/17/02	West	0.003
10/09/02	West	0.002

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



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

URS	Project No. 38465919	GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP Fourth Quarter 2002 (October 10, 2002)	FIGURE 1
	Arco Service Station 2111 1156 Davis Street San Leandro, California		

ATTACHMENT A

FIELD PROCEDURES AND FIELD DATA SHEETS

FIELD PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and depth to bottom, and checking for the presence of free phase petroleum product (free product), using either an electronic indicator and a clear Teflon™ bailer or an oil-water interface probe.

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

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>021009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLORD</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-1</u>	Well Diameter: 2 3 <u>4</u> 6 8 _____
Total Well Depth: <u>26.22</u>	Depth to Water: <u>18.27</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

Purge Method: No Purge

Bailer
 Disposable Bailer
 Middleburg
 Electric Submersible Extraction Pump
 Other: _____

Sampling Method: Disposable Bailer

Bailer
 Disposable Bailer
 Extraction Port
 Other: _____

Top of Screen: 12.5' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>0</u>	X	<u>3</u>	=	<u>0</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>09:10</u>	<u>67.7</u>	<u>6.5</u>	<u>116</u>	<u>0</u>	<u>clear</u>

Did well dewater? Yes No

Gallons actually evacuated: 0

Sampling Time: 0910 Sampling Date: 10/09/02

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>1.2</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>024009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLORD</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-2</u>	Well Diameter: 2 3 <u>(4)</u> 6 8 <u> </u>
Total Well Depth: <u>26.68</u>	Depth to Water: <u>16.69</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): <u>(YSI)</u> HACH

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

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

No Purge

Sampling Method: ~~Bailer~~
~~Disposable Bailer~~
~~Extraction Port~~
 Other: _____

Top of Screen: 12' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

ϕ	X	<u>3</u>	=	ϕ	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
<u>1015</u>				ϕ	<i>while sampling</i>
					<i>FREE PRODUCT ENCOUNTERED - NO SAMPLE TAKEN</i>
					<i>Not able to gauge product</i>

Did well dewater? Yes (No) Gallons actually evacuated: ϕ

Sampling Time: 1015 Sampling Date: 10/09/02

Sample I.D.: AWO Laboratory: Pace (Sequoia) Other: _____

Analyzed for: (TPH-G BTEX MTBE) TPH-D Other: _____

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

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>024009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLORD</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-3</u>	Well Diameter: 2 3 <u>4</u> 6 8 _____
Total Well Depth: <u>26.65</u>	Depth to Water: <u>17.87</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

Purge Method: No Purge ~~Bailer~~ ~~Disposable Bailer~~ ~~Middleburg~~ ~~Electric Submersible Extraction Pump~~ Other: _____

Sampling Method: Disposable Bailer ~~Bailer~~ ~~Extraction Port~~ Other: _____

Top of Screen: 11.9' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

\emptyset	X	<u>3</u>	=	\emptyset	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>0920</u>	<u>69.9</u>	<u>7.2</u>	<u>667</u>	<u>∅</u>	<u>clear</u>

Did well dewater? Yes No Gallons actually evacuated: ∅

Sampling Time: 0920 Sampling Date: 10/09/02

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: _____

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

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>021009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLOD</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-4</u>	Well Diameter: 2 3 <u>4</u> 6 8 _____
Total Well Depth: <u>21.63</u>	Depth to Water: <u>16.59</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

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

NO PURGE

Sampling Method: Bailer
Disposable Bailer
 Extraction Port
 Other: _____

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

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

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
<u>0850</u>	<u>70.1</u>	<u>7.1</u>	<u>719</u>	\emptyset	<u>clear</u>

Did well dewater? Yes No

Gallons actually evacuated: \emptyset

Sampling Time: 0850 Sampling Date: 10/09/02

Sample I.D.: MW-4 Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>0.8</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>021009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLORD</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-5</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth: <u>23.85</u>	Depth to Water: <u>16.02</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): <u>(YSI)</u> HACH

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

Purge Method: Bailer Sampling Method: Bailer

Disposable Bailer
 Middleburg
 Electric Submersible Extraction Pump
 Other: _____

Disposable Bailer
 Extraction Port
 Other: _____

No
Purge

Top of Screen: 9.4' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

\emptyset	X	<u>3</u>	=	\emptyset	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
<u>0940</u>	<u>68.2</u>	<u>6.7</u>	<u>685</u>	<u>0</u>	<u>clear</u>

Did well dewater? Yes No Gallons actually evacuated: 0

Sampling Time: 0940 Sampling Date: 10/09/02

Sample I.D.: MW-5 Laboratory: Pace (Sequoia) Other _____

Analyzed for: (TPH-G BTEX MTBE) TPH-D Other: _____

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 #: <u>02/009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLORD</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-6</u>	Well Diameter: <u>(2)</u> 3 4 6 8 _____
Total Well Depth: <u>24.82</u>	Depth to Water: <u>15.51</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

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

No Purge

Sampling Method: Bailer
Disposable Bailer
 Extraction Port
 Other: _____

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

ϕ	X	<u>3</u>	=	ϕ	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>uS</u>)	Gals. Removed	Observations
<u>0835</u>	<u>71.0</u>	<u>7.1</u>	<u>842</u>	ϕ	<u>semi-cloudy brown</u>

Did well dewater? Yes <u>No</u>	Gallons actually evacuated: ϕ
Sampling Time: <u>0835</u>	Sampling Date: <u>10/09/02</u>
Sample I.D.: <u>MW-6</u>	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-G BTEX MTBE</u> TPH-D Other:	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: <u>1.3</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>021009-BA1</u>	Station # <u>2111</u>
Sampler: <u>BRIAN ALLON</u>	Date: <u>10/09/02</u>
Well I.D.: <u>MW-7</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>27.18</u>	Depth to Water: <u>17.16</u> 16.47
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

Purge Method: Bailer Sampling Method: Bailer

Disposable Bailer
 Middleburg
 Electric Submersible
 Extraction Pump
 Other: _____

Disposable Bailer
 Extraction Port
 Other: _____

No
PURGE

Top of Screen: 12' If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

\emptyset	X	<u>3</u>	=	\emptyset	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>1000</u>	<u>70.4</u>	<u>6.8</u>	<u>1122</u>	<u>∅</u>	<u>clear mild odor</u>
<u>1000</u>					

Did well dewater? Yes No Gallons actually evacuated: ∅

Sampling Time: 1000 Sampling Date: 10/09/02

Sample I.D.: MW-7 Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: _____

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>0.9</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV



Chain of Custody Record

Project Name _____
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____
 Requested Due Date (mm/dd/yy) Standard

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

te: 10/09/02

I To: Name: SEQUOIA Address: 885 Jarvis Dr. Morgan Hill, CA 95037	BP/GEM Facility No.: BP/GEM Facility Address: 1156 DAVIS ST, San Leandro, CA Site ID No. ARCO 2111 Site Lat/Long: California Global ID #: T0600101764	Consultant/Contractor: URS Address: 500 12th St., Ste. 200 Oakland, CA 94609-4014 e-mail EDD: syed_rehan@urscorp.com Consultant/Contractor Project No.: J5-00002111.01 00427 Consultant Tele/Fax: 510-874-1735/510-874-3268 Consultant/Contractor PM: Scott Robinson Invoice to: Consultant/Contractor or BP/GEM (Circle one) BP/GEM Work Release No: INTRIM -50277
PM: Latonya Pelt /Fax: 408-776-9800 / 408-782-6308 ort Type & QC Level: Send EDF Reports	BP/GEM PM Contact: PAUL SUPPLE Address: Tele/Fax:	

Bottle Order No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives				Requested Analysis				Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G/BTEX (8015/8021)	TPH-D (8015)	MTBE (8021)	MTBE, TAME, ETBE DIPE, TEA (8260)	
1	MW-5	0940		X			6				X		X				
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

ampler's Name: Brian Alvarez ampler's Company: BLANKTECH SERVICES ipment Date: ipment Method: ipment Tracking No.:	Relinquished By / Affiliation: 	Date: 10/09/02 Time: 1117	Accepted By / Affiliation: 	Date: 10/10/02 Time: 1118
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Special Instructions: Address Invoice to BP/GEM but send to URS for approval CONFIRM ALL MTBE HITS by 8260

Seal in Place Yes No
 Temperature Blank Yes No Cooler Temperature on Receipt °F/C Trip Blank Yes No



Chain of Custody Record

Project Name _____
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____
 Requested Due Date (mm/dd/yy) Standard

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

Date: 10/09/02

Client To:	BP/GEM Facility No.:	Consultant/Contractor:
Name: SEQUOIA	BP/GEM Facility Address: 1156 DAVIS ST, San Leandro, CA	Address: 500 12th St, Ste. 200
Address: 885 Jarvis Dr. Morgan Hill, CA 95037	Site ID No. ARCO 2111	Oakland, CA 94609-4014
	Site Lat/Long:	e-mail EDD: syed_rehan@urscorp.com
	California Global ID #: T0600101784	Consultant/Contractor Project No.: J5-00002111.01 00427
PM: Latonya Pelt	BP/GEM PM Contact: PAUL SUPPLE	Consultant Tele/Fax: 510-874-1735/510-874-3268
Fax: 408-776-9600 / 408-782-6308	Address:	Consultant/Contractor PM: Scott Robinson
Report Type & QC Level: Send EDF Reports	Tele/Fax:	Invoice to: Consultant/Contractor or (BP/GEM) (Circle one)
GEM Account No.:		BP/GEM Work Release No: INTRIM -50277

Bottle Order No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives			Requested Analysis					Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G / BTEX (8015 / 8021)	TPH -D (8015)	MTBE (8021)	MTBE, TAME, ETBE DIPÉ, TBA (8260)	
1	MW-1	0910		X			6			X			X				
2	MW-2						6			X			X				
3	MW-3	0920		X			6			X			X				
4	MW-4	0950		X			6			X			X				
5	MW-6	0835		X			6			X			X				
6	MW-7	1000		X			6			X			X				
7																	
8																	
9																	
10																	

Sampler's Name: <u>Brian Alcorn</u>	Relinquished By / Affiliation: <u>[Signature]</u>	Date: <u>10/10/02</u>	Time: <u>1118</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>10/10/02</u>	Time: <u>1118</u>
Sampler's Company: <u>BRAIN TECH SERVICES</u>						
Deployment Date:						
Deployment Method:						
Deployment Tracking No:						

Special Instructions: Address Invoice to BP/GEM but send to URS for approval CONFIRM ALL MTBE HITS by 8260

Temperature Blank Yes No Cooler Temperature on Receipt °F/C Trip Blank Yes No

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 noted on 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.



14 November, 2002

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

RE: ARCO #2111, San Leandro, Ca
Sequoia Work Order: MLJ0430

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

Sincerely,

Latonya K. Pelt

Latonya Pelt
Project Manager
CA ELAP Certificate #1210



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

Project: ARCO #2111, San Leandro, Ca
Project Number: ARCO #2111, San Leandro, CA
Project Manager: Scott Robinson

MLJ0430
Reported:
11/14/02 06:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	MLJ0430-01	Water	10/10/02 09:10	10/10/02 17:10
MW-3	MLJ0430-02	Water	10/10/02 09:20	10/10/02 17:10
MW-4	MLJ0430-03	Water	10/10/02 08:50	10/10/02 17:10
MW-6	MLJ0430-04	Water	10/10/02 08:35	10/10/02 17:10
MW-7	MLJ0430-05	Water	10/10/02 10:00	10/10/02 17:10
MW-5	MLJ0430-06	Water	10/10/02 09:40	10/10/02 17:10

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

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

 Project: ARCO #2111, San Leandro, Ca
 Project Number: ARCO #2111, San Leandro, CA
 Project Manager: Scott Robinson

 MLJ0430
Reported:
 11/14/02 06:36

Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (MLJ0430-01) Water Sampled: 10/10/02 09:10 Received: 10/10/02 17:10									
Gasoline Range Organics (C6-C10)	240	100	ug/l	2	2J22003	10/22/02	10/22/02	8015Bm/8021B	HC-21
Benzene	4.9	1.0	"	"	"	"	"	"	"
Toluene	ND	1.0	"	"	"	"	"	"	"
Ethylbenzene	4.1	1.0	"	"	"	"	"	"	"
Xylenes (total)	7.0	1.0	"	"	"	"	"	"	"
Methyl tert-butyl ether	290	5.0	"	"	"	"	"	"	"
Surrogate: <i>a,a,a</i> -Trifluorotoluene		85.8 %		55-142	"	"	"	"	"
MW-3 (MLJ0430-02) Water Sampled: 10/10/02 09:20 Received: 10/10/02 17:10									
Gasoline Range Organics (C6-C10)	ND	50	ug/l	1	2J21002	10/21/02	10/21/02	8015Bm/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	26	2.5	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		79.4 %		55-142	"	"	"	"	
MW-4 (MLJ0430-03) Water Sampled: 10/10/02 08:50 Received: 10/10/02 17:10									
Gasoline Range Organics (C6-C10)	ND	50	ug/l	1	2J22003	10/22/02	10/22/02	8015Bm/8021B	
Benzene	2.2	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	20	2.5	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		90.3 %		55-142	"	"	"	"	

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

 Project: ARCO #2111, San Leandro, Ca
 Project Number: ARCO #2111, San Leandro, CA
 Project Manager: Scott Robinson

 MLJ0430
Reported:
 11/14/02 06:36

Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (MLJ0430-04) Water Sampled: 10/10/02 08:35 Received: 10/10/02 17:10									
Gasoline Range Organics (C6-C10)	ND	50	ug/l	1	2J22003	10/22/02	10/22/02	8015Bm/8021B	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		121 %	55-142		"	"	"	"	
MW-7 (MLJ0430-05) Water Sampled: 10/10/02 10:00 Received: 10/10/02 17:10									
Gasoline Range Organics (C6-C10)	11000	5000	ug/l	1000	2J22003	10/22/02	10/22/02	8015Bm/8021B	HC-12
Benzene	1500	500	"	"	"	"	"	"	
Toluene	4400	500	"	"	"	"	"	"	
Ethylbenzene	820	500	"	"	"	"	"	"	
Xylenes (total)	5400	500	"	"	"	"	"	"	
Methyl tert-butyl ether	97000	2500	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		118 %	55-142		"	"	"	"	
MW-5 (MLJ0430-06) Water Sampled: 10/10/02 09:40 Received: 10/10/02 17:10									
Gasoline Range Organics (C6-C10)	2400	2000	ug/l	40	2J24002	10/24/02	10/24/02	8015Bm/8021B	HC-19
Benzene	ND	20	"	"	"	"	"	"	
Toluene	ND	20	"	"	"	"	"	"	
Ethylbenzene	ND	20	"	"	"	"	"	"	
Xylenes (total)	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	7300	100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		97.8 %	55-142		"	"	"	"	

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

 Project: ARCO #2111, San Leandro, Ca
 Project Number: ARCO #2111, San Leandro, CA
 Project Manager: Scott Robinson

 MLJ0430
Reported:
 02/24/03 14:19

**MTBE Confirmation by EPA Method 8260B
Sequoia Analytical - Morgan Hill**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (MLJ0430-01) Water									HT-04
Sampled: 10/10/02 09:10 Received: 10/10/02 17:10									
Methyl tert-butyl ether	310	5.0	ug/l	10	2K01008	11/01/02	11/01/02	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		95.6 %	78-129		"	"	"	"	
MW-3 (MLJ0430-02) Water									HT-04
Sampled: 10/10/02 09:20 Received: 10/10/02 17:10									
Methyl tert-butyl ether	29	0.50	ug/l	1	2K01008	11/01/02	11/01/02	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		93.0 %	78-129		"	"	"	"	
MW-4 (MLJ0430-03) Water									HT-04
Sampled: 10/10/02 08:50 Received: 10/10/02 17:10									
Methyl tert-butyl ether	23	0.50	ug/l	1	2K01008	11/01/02	11/01/02	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		91.4 %	78-129		"	"	"	"	
MW-7 (MLJ0430-05) Water									HT-04
Sampled: 10/10/02 10:00 Received: 10/10/02 17:10									
Methyl tert-butyl ether	120000	1000	ug/l	2000	2K01008	11/01/02	11/01/02	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		91.6 %	78-129		"	"	"	"	
MW-5 (MLJ0430-06) Water									HT-04
Sampled: 10/10/02 09:40 Received: 10/10/02 17:10									
Methyl tert-butyl ether	7500	100	ug/l	200	2K01008	11/01/02	11/01/02	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		93.4 %	78-129		"	"	"	"	



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

Project: ARCO #2111, San Leandro, Ca
Project Number: ARCO #2111, San Leandro, CA
Project Manager: Scott Robinson

MLJ0430
Reported:
11/14/02 06:36

**Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - Quality Control
Sequoia Analytical - Morgan Hill**

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

Batch 2J21002 - EPA 5030B [P/T]

Blank (2J21002-BLK1)

Prepared & Analyzed: 10/21/02

Gasoline Range Organics (C6-C10)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							

Surrogate: *a,a,a*-Trifluorotoluene 10.6 " 10.0 106 55-142

Laboratory Control Sample (2J21002-BS1)

Prepared & Analyzed: 10/21/02

Benzene	10.9	0.50	ug/l	10.0		109	68-140			
Toluene	10.9	0.50	"	10.0		109	76-127			
Ethylbenzene	11.3	0.50	"	10.0		113	77-130			
Xylenes (total)	32.9	0.50	"	30.0		110	78-128			

Surrogate: *a,a,a*-Trifluorotoluene 10.8 " 10.0 108 55-142

Laboratory Control Sample (2J21002-BS2)

Prepared & Analyzed: 10/21/02

Gasoline Range Organics (C6-C10)	209	50	ug/l	250		83.6	62-134			
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Surrogate: *a,a,a*-Trifluorotoluene 8.45 " 10.0 84.5 55-142

Matrix Spike (2J21002-MS1)

Source: MLJ0430-02

Prepared & Analyzed: 10/21/02

Gasoline Range Organics (C6-C10)	560	50	ug/l	550	ND	102	62-134			
Benzene	12.4	0.50	"	6.60	ND	188	68-140			QM-07
Toluene	41.7	0.50	"	39.7	ND	105	76-127			
Ethylbenzene	9.87	0.50	"	9.20	ND	107	77-130			
Xylenes (total)	47.2	0.50	"	46.1	ND	102	78-128			

Surrogate: *a,a,a*-Trifluorotoluene 8.59 " 10.0 85.9 55-142

Matrix Spike Dup (2J21002-MSD1)

Source: MLJ0430-02

Prepared & Analyzed: 10/21/02

Gasoline Range Organics (C6-C10)	523	50	ug/l	550	ND	95.1	62-134	6.83	41	
Benzene	11.6	0.50	"	6.60	ND	176	68-140	6.67	30	QM-07

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
 500 12th Street, Suite 100
 Oakland CA, 94607

 Project: ARCO #2111, San Leandro, Ca
 Project Number: ARCO #2111, San Leandro, CA
 Project Manager: Scott Robinson

 MLJ0430
Reported:
 11/14/02 06:36

Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - 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 2J21002 - EPA 5030B [P/T]
Matrix Spike Dup (2J21002-MSD1)

 Source: **MLJ0430-02** Prepared & Analyzed: 10/21/02

Toluene	39.6	0.50	ug/l	39.7	ND	99.7	76-127	5.17	30	
Ethylbenzene	9.31	0.50	"	9.20	ND	101	77-130	5.84	21	
Xylenes (total)	44.9	0.50	"	46.1	ND	97.4	78-128	4.99	21	

<i>Surrogate: a,a,a-Trifluorotoluene</i>	8.39		"	10.0		83.9	55-142			
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Batch 2J22003 - EPA 5030B [P/T]
Blank (2J22003-BLK1)

Prepared & Analyzed: 10/22/02

Gasoline Range Organics (C6-C10)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	0.619	0.50	"							Q-19
Methyl tert-butyl ether	ND	2.5	"							

<i>Surrogate: a,a,a-Trifluorotoluene</i>	11.5		"	10.0		115	55-142			
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Blank (2J22003-BLK2)

Prepared & Analyzed: 10/22/02

Gasoline Range Organics (C6-C10)	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							

<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.50		"	10.0		95.0	55-142			
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Laboratory Control Sample (2J22003-BS1)

Prepared & Analyzed: 10/22/02

Benzene	10.9	0.50	ug/l	10.0		109	68-140			
Toluene	11.4	0.50	"	10.0		114	76-127			
Ethylbenzene	11.2	0.50	"	10.0		112	77-130			
Xylenes (total)	32.9	0.50	"	30.0		110	78-128			

<i>Surrogate: a,a,a-Trifluorotoluene</i>	12.0		"	10.0		120	55-142			
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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
 500 12th Street, Suite 100
 Oakland CA, 94607

 Project: ARCO #2111, San Leandro, Ca
 Project Number: ARCO #2111, San Leandro, CA
 Project Manager: Scott Robinson

 MLJ0430
Reported:
 11/14/02 06:36

Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - 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 2J22003 - EPA 5030B [P/T]
Laboratory Control Sample (2J22003-BS1)

Prepared & Analyzed: 10/22/02

Laboratory Control Sample (2J22003-BS2)

Prepared & Analyzed: 10/22/02

Gasoline Range Organics (C6-C10)	222	50	ug/l	250		88.8	62-134			
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<i>Surrogate: a,a,a-Trifluorotoluene</i>	13.8		"	10.0		138	55-142			
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Matrix Spike (2J22003-MS1)

Source: MLJ0430-04

Prepared & Analyzed: 10/22/02

Gasoline Range Organics (C6-C10)	403	50	ug/l	550	ND	73.3	62-134			
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Benzene	8.32	0.50	"	6.60	ND	126	68-140			
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Toluene	38.9	0.50	"	39.7	ND	98.0	76-127			
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Ethylbenzene	8.42	0.50	"	9.20	ND	91.5	77-130			
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Xylenes (total)	42.5	0.50	"	46.1	ND	92.2	78-128			
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<i>Surrogate: a,a,a-Trifluorotoluene</i>	9.40		"	10.0		94.0	55-142			
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Matrix Spike Dup (2J22003-MSD1)

Source: MLJ0430-04

Prepared & Analyzed: 10/22/02

Gasoline Range Organics (C6-C10)	405	50	ug/l	550	ND	73.6	62-134	0.495	41	
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Benzene	8.87	0.50	"	6.60	ND	134	68-140	6.40	30	
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Toluene	35.7	0.50	"	39.7	ND	89.9	76-127	8.58	30	
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Ethylbenzene	7.68	0.50	"	9.20	ND	83.5	77-130	9.19	21	
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Xylenes (total)	42.6	0.50	"	46.1	ND	92.4	78-128	0.235	21	
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<i>Surrogate: a,a,a-Trifluorotoluene</i>	14.3		"	10.0		143	55-142			QM-07
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Batch 2J24002 - EPA 5030B [P/T]
Blank (2J24002-BLK1)

Prepared & Analyzed: 10/24/02

Gasoline Range Organics (C6-C10)	ND	50	ug/l							
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Benzene	ND	0.50	"							
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Toluene	ND	0.50	"							
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Ethylbenzene	ND	0.50	"							
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Xylenes (total)	ND	0.50	"							
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Methyl tert-butyl ether	ND	2.5	"							
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<i>Surrogate: a,a,a-Trifluorotoluene</i>	10.4		"	10.0		104	55-142			
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Sequoia Analytical - Morgan Hill

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

Project: ARCO #2111, San Leandro, Ca
Project Number: ARCO #2111, San Leandro, CA
Project Manager: Scott Robinson

MLJ0430
Reported:
11/14/02 06:36

Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - 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 2J24002 - EPA 5030B [P/T]

Laboratory Control Sample (2J24002-BS1)

Prepared & Analyzed: 10/24/02

Benzene	10.5	0.50	ug/l	10.0		105	68-140			
Toluene	10.5	0.50	"	10.0		105	76-127			
Ethylbenzene	10.9	0.50	"	10.0		109	77-130			
Xylenes (total)	31.7	0.50	"	30.0		106	78-128			

Surrogate: a,a,a-Trifluorotoluene 10.1 " 10.0 101 55-142

Laboratory Control Sample (2J24002-BS2)

Prepared & Analyzed: 10/24/02

Gasoline Range Organics (C6-C10)	256	50	ug/l	250		102	62-134			
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Surrogate: a,a,a-Trifluorotoluene 9.13 " 10.0 91.3 55-142

Matrix Spike (2J24002-MS1)

Source: MLJ0521-01

Prepared & Analyzed: 10/24/02

Gasoline Range Organics (C6-C10)	584	50	ug/l	550	90	89.8	62-134			
Benzene	11.2	0.50	"	6.60	ND	170	68-140			QM-07
Toluene	39.9	0.50	"	39.7	ND	100	76-127			
Ethylbenzene	9.54	0.50	"	9.20	ND	104	77-130			
Xylenes (total)	45.8	0.50	"	46.1	ND	99.3	78-128			

Surrogate: a,a,a-Trifluorotoluene 8.96 " 10.0 89.6 55-142

Matrix Spike Dup (2J24002-MSD1)

Source: MLJ0521-01

Prepared & Analyzed: 10/24/02

Gasoline Range Organics (C6-C10)	557	50	ug/l	550	90	84.9	62-134	4.73	41	
Benzene	9.86	0.50	"	6.60	ND	149	68-140	12.7	30	QM-07
Toluene	35.6	0.50	"	39.7	ND	89.5	76-127	11.4	30	
Ethylbenzene	8.34	0.50	"	9.20	ND	90.7	77-130	13.4	21	
Xylenes (total)	40.4	0.50	"	46.1	ND	87.6	78-128	12.5	21	

Surrogate: a,a,a-Trifluorotoluene 8.32 " 10.0 83.2 55-142

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

 Project: ARCO #2111, San Leandro, Ca
 Project Number: ARCO #2111, San Leandro, CA
 Project Manager: Scott Robinson

 MLJ0430
Reported:
 11/14/02 06:36

**MTBE Confirmation 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
Batch 2K01008 - EPA 5030B P/T										
Blank (2K01008-BLK1)										
Prepared & Analyzed: 11/01/02										
Methyl tert-butyl ether	ND	0.50	ug/l							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.64		"	5.00		92.8	78-129			
Laboratory Control Sample (2K01008-BS1)										
Prepared & Analyzed: 11/01/02										
Methyl tert-butyl ether	8.36	0.50	ug/l	10.0		83.6	63-137			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.56		"	5.00		91.2	78-129			
Laboratory Control Sample Dup (2K01008-BSD1)										
Prepared & Analyzed: 11/01/02										
Methyl tert-butyl ether	8.77	0.50	ug/l	10.0		87.7	63-137	4.79	13	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.42		"	5.00		88.4	78-129			



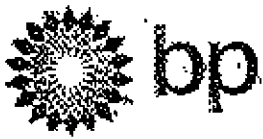
URS Corporation
500 12th Street, Suite 100
Oakland CA, 94607

Project: ARCO #2111, San Leandro, Ca
Project Number: ARCO #2111, San Leandro, CA
Project Manager: Scott Robinson

MLJ0430
Reported:
11/14/02 06:36

Notes and Definitions

- HC-12 Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.
- HC-19 Discrete peak @ C6-C7.
- HC-21 Chromatogram Pattern: Gasoline C6-C10
- HT-04 This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose.
- Q-19 The method blank contains this analyte at a concentration above the method reporting limit. This should be considered in evaluating the data for its intended purpose.
- 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

ML 30430

Project Name _____
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____

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

Date: 10/09/02

Requested Due Date (mm/dd/yy) Standard

Send To: _____
 Lab Name: SEQUOIA
 Lab Address: 885 Jarvis Dr. Morgan Hill, CA 95037
 Lab PM: Latonya Pelt
 Tele/Fax: 408-776-9600 / 408-782-6308
 Report Type & QC Level: Send EDF Reports

BP/GEM Facility No.: _____
 BP/GEM Facility Address: 1156 DAVIS ST, San Leandro, CA
 Site ID No.: ARCO 2111
 Site Lat/Long: _____
 California Global ID #: TC600101784
 BP/GEM PM Contact: PAUL SUPPLE
 Address: _____
 Tele/Fax: _____

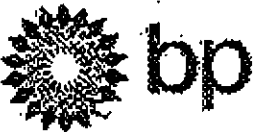
Consultant/Contractor: URS
 Address: 500 12th St., Ste. 200 Oakland, CA 94609-4014
 e-mail EDD: syed_rehan@urscorp.com
 Consultant/Contractor Project No.: JS-000021(1.01 00427
 Consultant Tele/Fax: 510-874-1735/510-874-3268
 Consultant/Contractor PM: Scott Robinson
 Invoice to: Consultant/Contractor or BP/GEM (Circle one)
 BP/GEM Work Release No.: INTRIM-50277

BP/GEM Account No.: _____
 Lab Bottle Order No.: _____

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives				Requested Analysis				Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH/G/TEX (8015/8021)	TPH-D (8015)	MTBE (8021)	MTBE, TAME, ETBE, DIPE, TPA (8160)	
1	MW-1	0910	X				6				X		X				
2							6						X	X			
3	MW-3	0920	X				6						X	X			
4	MW-4	0950	X				6						X	X			
5	MW-6	0935	X				6						X	X			
6	MW-7	1000	X				6										
7																	
8																	
9																	
10																	

Sampler's Name: <u>Brian Accord</u>	Relinquished By / Affiliation: _____	Date: <u>10/10/02</u>	Time: <u>1118</u>	Accepted By / Affiliation: _____	Date: <u>10/10/02</u>	Time: <u>1718</u>
Sampler's Company: <u>Brian Accord Services</u>	_____	Date: <u>10/10/02</u>	Time: <u>1710</u>	_____	Date: <u>10/10/02</u>	Time: <u>1710</u>
Shipment Date: _____	_____	_____	_____	_____	_____	_____
Shipment Method: _____	_____	_____	_____	_____	_____	_____
Shipment Tracking No: _____	_____	_____	_____	_____	_____	_____
Instructions: Address Invoice to BP/GEM but send to URS for approval <u>CONFIRM ALL MTBE HITS by 2200</u>						
Is In Place Yes <input type="checkbox"/> No <input type="checkbox"/>	Temperature Blank Yes <input type="checkbox"/> No <input type="checkbox"/>	Cooler Temperature on Receipt <input type="checkbox"/>	F/C <input type="checkbox"/>	Trip Blank Yes <input type="checkbox"/> No <input type="checkbox"/>		

100



Chain of Custody Record

MLJ0430

Project Name _____
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____

Date: 10/09/02 Requested Due Date (mm/dd/yy) Standard

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

Lab Name: SEQUOIA	BP/GEM Facility No.:	Consultant/Contractor: URS
Lab Address: 885 Jarvis Dr. Morgan Hill, CA 95037	BP/GEM Facility Address: 1158 DAVIS ST. San Leandro, CA	Address: 500 12th St., Ste. 200 Oakland, CA 94609-4014
Lab PM: Latonya Pett	Site ID No. ARCO 2111	e-mail EDD: syed_rehan@urscorp.com
Lab/Fax: 408-776-9600 / 408-782-8308	Site Lat/Long:	Consultant/Contractor Project No.: 15-00002111.01 00427
Report Type & QC Level: Send EDF Reports	California Global ID #: T0600101764	Consultant Tele/Fax: 510-874-1735/510-874-3268
BP/GEM Account No.:	BP/GEM PM Contact: PAUL SUPPLE	Consultant/Contractor PM: Scott Robinson
Lab Bottle Order No.:	Address:	Invoice to: Consultant/Contractor or (BP/GEM (circle one))
	Tele/Fax:	BP/GEM Work Release No: INTRIM -50277

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives			Requested Analysis				Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G/BTEX (8015/8021)	TPH-D (8015)	MTBE (8021)	
1	MW-5	0940		X			6				X	X				
2																
3																
4																
5																
6																
7																
8																
9																
10																

Sampler's Name: <u>Brian Arnold</u>	Relinquished By / Affiliation: _____	Date: <u>10/09/02</u>	Time: <u>1117</u>	Accepted By / Affiliation: _____	Date: <u>10/09/02</u>	Time: <u>1710</u>
Sampler's Company: <u>Brian Tech Services</u>	_____	_____	_____	_____	_____	_____
Shipment Date: _____	_____	_____	_____	_____	_____	_____
Shipment Method: _____	_____	_____	_____	_____	_____	_____

Instructions: Address Invoice to BP/GEM but send to URS for approval COVERED ALL MTBE HITS BY 8260

In Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt °E/C Trip Blank Yes No

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: URS
 REC. BY (PRINT) TL
 WORKORDER: ml 30436

DATE Received at Lab: 10/10/02
 TIME Received at Lab: 1710
 LOG IN DATE: 10-15-02

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

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	#	CLIENT ID	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present/Absent* Intact / Broken*			MW-1	(6) Vials HCL	(L)	10/9/02	2149040
2. Chain-of-Custody Present/Absent*			MW-3	↓	↓	↓	↓
3. Traffic Reports or Packing List: Present/Absent			MW-4	↓	↓	↓	↓
			MW-6	↓	↓	↓	↓
4. Airbill: Airbill / Sticker Present / Absent			MW-7	↓	↓	↓	↓
5. Airbill #:							
6. Sample Labels: Present/Absent							
7. Sample IDs: Listed / Not Listed on Chain-of-Custody							
8. Sample Condition: Intact / Broken* / Leaking*							
9. Does information on custody reports, traffic reports and sample labels agree? Yes/No*							
10. Sample received within hold time: Yes/No*							
11. Proper Preservatives used: Yes/No*							
12. Temp Rec. at Lab: 5°C (Acceptance range for samples requiring thermal pres.: 4±2°C) **Exception (if any):							

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

ATTACHMENT C

HISTORIC GROUNDWATER DATA

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation	Depth to Water	Free Product Thickness	Groundwater Elevation	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8021B*	Toluene EPA 8021B*	Ethylbenzene EPA 8021B*	Total Xylenes EPA 8021B*	MTBE EPA 8021B*	MTBE EPA 8260	TRPH EPA 418.1	TPHD LUFT Method	Dissolved Oxygen	Purged/ Not Purged
		ft-MSL	feet	feet	ft-MSL		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	P/NP
MW-1	08-01-95	39.60	17.45	ND	22.15	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-1	12-14-95	39.60	17.09	ND	22.51	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	03-21-96	39.60	14.72	ND	24.88	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	05-24-96	39.60	15.94	ND	23.66	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	08-09-96	39.60	17.89	ND	21.71	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	11-06-96	39.60	18.66	ND	20.94	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	03-24-97	39.60	16.13	ND	23.47	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	05-27-97	39.60	17.23	ND	22.37	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	08-07-97	39.60	18.68	ND	20.92	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	11-10-97	39.60	19.19	ND	20.41	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	02-16-98	39.60	12.61	ND	26.99	02-16-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	04-15-98	39.60	14.30	ND	25.30	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	07-24-98	39.60	16.40	ND	23.20	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	10-19-98	39.60	17.90	ND	21.70	10-19-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-1	01-28-99	39.60	16.85	ND	22.75	01-28-99	<20,000	580	<200	<200	320	14,000	--	--	--		
MW-1	06-25-99	39.60	17.35	ND	22.25	06-25-99	730	140	5	3	2	7,700	--	--	--	0.79	NP
MW-1	08-25-99	39.60	18.20	ND	21.40	08-25-99	390	66	8.5	<2.5	8.6	3,700	--	--	--	1.56	NP
MW-1	11-10-99	39.60	17.77	ND	21.83	11-10-99	360	70	13	2.2	13	980	--	--	--	0.30	NP
MW-1	02-09-00	39.60	16.25	ND	23.35	02-09-00	190	4.5	0.9	<0.5	12	3,500	--	--	--	0.53	NP
MW-2	08-01-95	37.99	15.67	ND	22.32	08-01-95	23,000	1,300	310	500	3,500	--	--	--	--		
MW-2	12-14-95	37.99	15.36	ND	22.63	12-14-95	7,300	900	25	180	1,000	<200	--	--	--		
MW-2	03-21-96	37.99	12.84	ND	25.15	03-21-96	9,600	850	30	280	1,400	250	--	--	--		
MW-2	05-24-96	37.99	14.03	ND	23.96	05-24-96	2,300	300	<5	73	310	<25	--	--	--		
MW-2	08-09-96	37.99	16.10	ND	21.89	08-09-96	2,800	290	6	75	320	50	--	--	--		

**Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents**

**ARCO Service Station 2111
1156 Davis Street, San Leandro, California**

Well Designation	Water Level Field Date	Top of Casing Elevation	Depth to Water	Free Product Thickness	Groundwater Elevation	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8021B*	Toluene EPA 8021B*	Ethylbenzene EPA 8021B*	Total Xylenes EPA 8021B*	MTBE EPA 8021B*	MTBE EPA 8260	TRPH EPA 418.1	TPHD LUFT Method	Dissolved Oxygen	Purged/ Not Purged
		ft-MSL	feet	feet	ft-MSL		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	P/NP
MW-2	11-06-96	37.99	16.98	ND	21.01	11-06-96	750	76	<1	15	51	110	--	--	--		
MW-2	03-24-97	37.99	14.22	ND	23.77	03-24-97	790	18	<1	2	6	280	--	--	--		
MW-2	05-27-97	37.99	15.42	ND	22.57	05-28-97	750	14	<1	<1	10	150	--	--	--		
MW-2	08-07-97	37.99	16.92	ND	21.07	08-07-97	360	31	<2.5	<2.5	15	260	--	--	--		
MW-2	11-10-97	37.99	17.52	ND	20.47	11-10-97	1,300	82	<5	14	49	550	--	--	--		
MW-2	02-16-98	37.99	12.04	ND	25.95	02-16-98	<2,500	<25	<25	<25	<25	4,200	--	--	--		
MW-2	04-15-98	37.99	12.34	ND	25.65	04-15-98	<10,000	<100	<100	<100	<100	7,300	--	--	--		
MW-2	07-24-98	37.99	14.45	ND	23.54	07-24-98	<2,500	<25	<25	<25	<25	1,500	--	--	--		
MW-2	10-19-98	37.99	16.08	ND	21.91	10-19-98	<1,000	18	<10	<10	<10	1,100	--	--	--		
MW-2	01-28-99	37.99	15.59	0.02	22.41 [1]	01-28-99	160,000	3,000	24,000	4,400	31,000	23,000	--	--	--		
MW-2	06-25-99	37.99	19.20	3.73[4]	21.51 [1]	06-25-99	120,000	6,900	21,000	2,600	19,000	18,000	17,000[3]	--	--	0.49	NP
MW-2	08-25-99	37.99	16.49	0.02	21.51 [1]	08-25-99	92,000	2,200	16,000	3,200	19,000	11,000	9,400[3]	--	--	0.84	NP
MW-2	11-10-99	37.99	16.08	ND	21.91	11-10-99	56,000	2,400	5,900	1,500	10,000	17,000	21,000[3]	--	--	0.41	NP
MW-2	02-09-00	37.99	14.85	ND	23.14	02-09-00	1,700	270	14	17	21	70,000	55,000[3]	--	--	0.97	NP
MW-3	08-01-95	39.32	17.00	ND	22.32	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	600	76[2]		
MW-3	12-14-95	39.32	16.70	ND	22.62	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	<50		
MW-3	03-21-96	39.32	14.17	ND	25.15	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	<50		
MW-3	05-24-96	39.32	15.30	ND	24.02	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	<50		
MW-3	08-09-96	39.32	17.58	ND	21.74	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	--		
MW-3	11-06-96	39.32	18.33	ND	20.99	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	03-24-97	39.32	15.44	ND	23.88	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	05-27-97	39.32	16.75	ND	22.57	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	08-07-97	39.32	18.35	ND	20.97	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	11-10-97	39.32	18.83	ND	20.49	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		

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Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents**

**ARCO Service Station 2111
1156 Davis Street, San Leandro, California**

Well Designation	Water Level Field Date	Top of Casing Elevation	Depth to Water	Free Product Thickness	Groundwater Elevation	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8021B*	Toluene EPA 8021B*	Ethylbenzene EPA 8021B*	Total Xylenes EPA 8021B*	MTBE EPA 8021B*	MTBE EPA 8260	TRPH EPA 418.1	TPHD LUFT Method	Dissolved Oxygen	Purged/ Not Purged
		ft-MSL	feet	feet	ft-MSL		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	P/NP
MW-3	02-16-98	39.32	11.99	ND	27.33	02-16-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	04-15-98	39.32	13.75	ND	25.57	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	07-24-98	39.32	15.90	ND	23.42	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	10-19-98	39.32	17.45	ND	21.87	10-19-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-3	01-28-99	39.32	16.40	ND	22.92	01-28-99	<100	14	4	<1	6	100	--	--	--		
MW-3	06-25-99	39.32	17.92	ND	21.40	06-25-99	83	9.0	1.4	<0.5	2.5	220	--	--	--	1.11	NP
MW-3	08-25-99	39.32	17.79	ND	21.53	08-25-99	240	41	12	3.7	9.9	160	--	--	--	1.13	NP
MW-3	11-10-99	39.32	17.37	ND	21.95	11-10-99	620	100	9.7	4.1	21	150	--	--	--	0.24	NP
MW-3	02-09-00	39.32	15.77	ND	23.55	02-09-00	<50	<0.5	0.7	<0.5	<1	180	--	--	--	0.62	NP
MW-4	08-01-95	38.10	15.65	ND	22.45	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-4	12-14-95	38.10	15.35	ND	22.75	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	03-21-96	38.10	12.74	ND	25.36	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	05-24-96	38.10	14.03	ND	24.07	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	08-09-96	38.10	16.10	ND	22.00	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	11-06-96	38.10	17.00	ND	21.10	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	03-24-97	38.10	14.21	ND	23.89	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	05-27-97	38.10	15.38	ND	22.72	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	08-07-97	38.10	16.95	ND	21.15	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	11-10-97	38.10	17.53	ND	20.57	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	02-16-98	38.10	10.65	ND	27.45	02-16-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	04-15-98	38.10	12.20	ND	25.90	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	07-24-98	38.10	14.47	ND	23.63	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	10-19-98	38.10	16.20	ND	21.90	10-19-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-4	01-28-99	38.10	15.02	ND	23.08	01-28-99	340	52	5.5	<0.5	74	31	--	--	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/ Not Purged P/NP
MW-4	06-25-99	38.10	15.57	ND	22.53	06-25-99	510	78	4.1	0.5	18	94	--	--	--	0.90	NP
MW-4	08-25-99	38.10	16.43	ND	21.67	08-25-99	660	130	21	6.4	39	110	--	--	--	1.01	NP
MW-4	11-10-99	38.10	16.02	ND	22.08	11-10-99	510	98	5.1	3.1	15	69	--	--	--	0.28	NP
MW-4	02-09-00	38.10	14.30	ND	23.80	02-09-00	<50	<0.5	0.9	<0.5	<1	55	--	--	--	0.67	NP
MW-5	03-21-96	37.21	12.60	ND	24.61	03-22-96	<50	<0.5	<0.5	<0.5	<0.5	82	--	--	--		
MW-5	05-24-96	37.21	13.71	ND	23.50	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	7	--	--	--		
MW-5	08-09-96	37.21	15.60	ND	21.61	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	8	--	--	--		
MW-5	11-06-96	37.21	16.36	ND	20.85	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	100	--	--	--		
MW-5	03-24-97	37.21	13.87	ND	23.34	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	460	--	--	--		
MW-5	05-27-97	37.21	14.71	ND	22.50	05-28-97	<100	<1	<1	<1	<1	120	--	--	--		
MW-5	08-07-97	37.21	16.90	ND	20.31	08-07-97	<250	<2.5	<2.5	<2.5	<2.5	250	--	--	--		
MW-5	11-10-97	37.21	16.88	ND	20.33	11-10-97	<1,000	<10	<10	<10	<10	770	--	--	--		
MW-5	02-16-98	37.21	10.56	ND	26.65	02-16-98	<200	<2	<2	<2	<2	230	--	--	--		
MW-5	04-15-98	37.21	12.20	ND	25.01	04-15-98	<500	<5	<5	<5	<5	900	--	--	--		
MW-5	07-24-98	37.21	14.20	ND	23.01	07-24-98	<500	<5	<5	<5	<5	570	--	--	--		
MW-5	10-19-98	37.21	15.74	ND	21.47	10-19-98	<250	<2.5	<2.5	<2.5	<2.5	300	--	--	--		
MW-5	01-28-99	37.21	14.60	ND	22.61	01-28-99	<500	8	<5	<5	<5	290	--	--	--		
MW-5	06-25-99	37.21	15.10	ND	22.11	06-25-99	<50	<0.5	<0.5	<0.5	<0.5	1,300	--	--	--	0.76	NP
MW-5	08-25-99	37.21	15.91	ND	21.30	08-25-99	<50	<0.5	<0.5	<0.5	<0.5	6,700	--	--	--	0.98	NP
MW-5	11-10-99	37.21	15.52	ND	21.69	11-10-99	130	2.0	7.0	1.3	21	5,000	--	--	--	0.21	NP
MW-5	02-09-00	37.21	14.03	ND	23.18	02-09-00	92	<0.5	0.8	<0.5	1.0	7,900	--	--	--	0.51	NP
MW-6	03-21-96	37.11	11.55	ND	25.56	03-22-96	<50	<0.5	1.9	<0.5	<0.5	<5	--	--	--		
MW-6	05-24-96	37.11	12.80	ND	24.31	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	6	--	--	--		

Table 1
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Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/ Not Purged P/NP
MW-6	08-09-96	37.11	Not surveyed			08-09-96	Not sampled: Car parked on well										
MW-6	11-06-96	37.11	Not surveyed			11-06-96	Not sampled: Car parked on well										
MW-6	03-24-97	37.11	13.06	ND	24.05	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	05-27-97	37.11	14.30	ND	22.81	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	08-07-97	37.11	16.40	ND	20.71	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	11-10-97	37.11	16.53	ND	20.58	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	02-16-98	37.11	Not surveyed			02-16-98	Not sampled: Car parked on well										
MW-6	04-15-98	37.11	10.95	ND	26.16	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	07-24-98	37.11	13.30	ND	23.81	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	10-19-98	37.11	Not surveyed			10-19-98	Not sampled: Car parked on well										
MW-6	01-28-99	37.11	13.92	ND	23.19	01-28-99	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--		
MW-6	06-25-99	37.11	15.47	ND	21.64	06-25-99	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	0.74	NP
MW-6	08-25-99	37.11	15.39	ND	21.72	08-25-99	<50	<0.5	3.4	0.6	3.7	∅	--	--	--	0.92	NP
MW-6	11-10-99	37.11	14.92	ND	22.19	11-10-99	<50	<0.5	<0.5	<0.5	<1	∅	--	--	--	0.31	NP
MW-6	02-09-00	37.11	13.30	ND	23.81	02-09-00	<50	<0.5	0.9	<0.5	1.3	∅	--	--	--	0.79	NP
MW-7	03-21-96	38.68	13.32	ND	25.36	03-22-96	32,000	870	450	970	4,900	280	--	--	--		
MW-7	05-24-96	38.68	14.58	ND	24.10	05-24-96	22,000	570	40	42	1,900	<200[2]	--	--	--		
MW-7	08-09-96	38.68	15.33	ND	23.35	08-09-96	14,000	390	<10	180	470	<200[2]	--	--	--		
MW-7	11-06-96	38.68	16.95	ND	21.73	11-06-96	9,500	440	<10	210	150	<100[2]	--	--	--		
MW-7	03-24-97	38.68	14.65	ND	24.03	03-24-97	6,400	420	<10	260	13	480	--	--	--		
MW-7	05-27-97	38.68	15.58	ND	23.10	05-28-97	5,000	420	<5	230	10	460	--	--	--		
MW-7	08-07-97	38.68	17.10	ND	21.58	08-07-97	3,900	350	<5	200	10	330	--	--	--		
MW-7	11-10-97	38.68	18.05	ND	20.63	11-10-97	5,600	590	10	370	43	540	--	--	--		
MW-7	02-16-98	38.68	12.03	ND	26.65	02-16-98	<5,000	390	<50	<50	61	4,300	--	--	--		

Table 1
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ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/ Not Purged P/NP
MW-7	04-15-98	38.68	13.02	ND	25.66	04-15-98	<10,000	<100	<100	<100	<100	8,900	--	--	--		
MW-7	07-24-98	38.68	14.18	ND	24.50	07-24-98	5,800	180	<50	74	<50	4,200	--	--	--		
MW-7	10-19-98	38.68	15.99	ND	22.69	10-19-98	<2,500	54	<25	72	<25	3,000	--	--	--		
MW-7	01-28-99	38.68	15.69	ND	22.99	01-28-99	4,500	560	250	<50	94	6,200	--	--	--		
MW-7	06-25-99	38.68	15.36	ND	23.32	06-25-99	3,900	520	160	46	100	45,000	63,000[3]	--	--	0.56	NP
MW-7	08-25-99	38.68	16.71	ND	21.97	08-25-99	3,400	730	77	51	110	62,000	76,000[3]	--	--	0.90	NP
MW-7	11-10-99	38.68	16.76	ND	21.92	11-10-99	15,000	340	19	13	20	55,000	91,000[3]	--	--	0.37	NP
MW-7	02-09-00	38.68	14.45	0.03	24.25 [1]	02-09-00	Not sampled: free product present										

ft-MSL: elevation in feet, relative to mean sea level
TPHG: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
MTBE: Methyl tert-butyl ether
TRPH: total recoverable petroleum hydrocarbons
TPHD: total petroleum hydrocarbons as diesel, California DHS LUFT Method
*: EPA method 8020 prior to 11/10/99
EPA: United States Environmental Protection Agency
µg/L: micrograms per liter
mg/L: milligrams per liter
ND: none detected
--: not available or not analyzed
<: less than laboratory detection limit stated to the right
[1]: [corrected elevation (Z')] = Z + (h * 0.73) where: Z = measured elevation, h = floating product thickness, 0.73 = density ratio of oil to water
[2]: chromatogram fingerprint is not characteristic of diesel
[3]: also analyzed for fuel oxygenates
[4]: this value is suspected to be erroneous based on subsequent check by bailer (following day). See discussion

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
08-01-95	NR	NR
12-14-95	West	0.002
03-21-96	West-Southwest	0.005
05-24-96	West	0.003
08-09-96	West-Northwest	0.01
11-06-96	West-Northwest	0.007
03-24-97	West	0.005
05-27-97	North-Northwest	0.006
08-07-97	West	0.009
11-10-97	West	0.002
02-16-98	South-Southwest	0.013
04-15-98	West-Southwest	0.014
07-24-98	Northwest	0.01
10-19-98	West	0.008
01-28-99	Southwest	0.01
06-25-99	North-Northwest	0.017
08-25-99	West-Northwest	0.005
11-10-99	West-Southwest	0.002
02-09-00	West-Northwest	0.015

NR: not recorded

**Table 3
Fuel Oxygenates**

**ARCO Service Station 2111
1156 Davis Street, San Leandro, California**

Well I.D. Number	Field Date	TBA EPA 8260 ug/L	MTBE EPA 8260 ug/L	DIPE EPA 8260 ug/L	ETBE EPA 8260 ug/L	TAME EPA 8260 ug/L
MW-2	06-25-99	<25,000	17,000	<2,500	<2,500	<2,500
MW-2	08-25-99	<10,000	9,400	<1,000	<1,000	<1,000
MW-2	11-10-99	<25,000	21,000	<2,500	<2,500	<2,500
MW-2	02-09-00	<50,000	55,000	<5,000	<5,000	<5,000
MW-7	06-25-99	<50,000	63,000	<5,000	<5,000	<5,000
MW-7	08-25-99	<50,000	76,000	<5,000	<5,000	<5,000
MW-7	11-10-99	<50,000	91,000	<5,000	<5,000	<5,000
MW-7	02-09-00	Not sampled: free product present				

TBA = Tert-butyl alcohol
 MTBE = Methyl-tert-Butyl Ether
 DIPE = Di-isopropyl ether
 ETBE = Ethyl tert-butyl ether
 TAME = Tert-amyl methyl ether
 EPA = Environmental Protection Agency
 ug/L = Microgram per liter
 < = less than laboratory detection limit to the right

Table 4
Approximate Cumulative Floating Product Recovered

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Desig- nation	Product Recovery Field Date	Floating Product Thickness (feet)	Floating Product Recovered (gallons)
MW-2	06/28/99	0.45	0.3
MW-2	06/30/99	0.015	0.01
MW-2	07/07/99	0.06	0.04
MW-2	07/23/99	0.008	0.005
MW-2	08/25/99	0.02	0.013
MW-2	09/21/99	0.01	0.013
MW-2	11/10/99	ND	0.00
MW-2	02/09/00	ND	0.00
MW-7	02/09/00	0.03	0.00
Cumulative Floating Product recoverd (gallons):			0.381

ND: not detected

Table 5
High Vacuum Extraction Pilot Test
Extracted Groundwater Analytical Data

ARCO Service Station No. 2111
1156 Davis Street, San Leandro, California

Date (mm/dd/yy)	Sample No. (GW#)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzen (ug/L)	Xylene (ug/L)	MtBE ¹ (ug/L)	tBA ² (ug/L)
11/15/1999	GW1	33000	1300	4500	890	4700	18000	<25000
11/15/1999	GW2	30000	14000	1200	4400	760	14000	<10000
11/16/1999	GW3	5500	260	620	74	980	5700	<5000
11/17/1999	GW4	4700	200	500	38	830	3700	410
11/18/1999	GW5	230	5.2	18	2.9	46	2100	340
11/19/1999	GW6	1500	36	120	28	160	3100	<2500

MtBE and tBA analysis by EPA Method 8260
²tBA MRL was elevated due to high MtBE concentration requiring sample dilution

Table 6
High Vacuum Extraction Pilot Test
Mass Removal from Groundwater

ARCO Service Station No. 2111
1156 Davis Street, San Leandro, California

Date (mm/dd/yy)	Sample No. (GW#)	Volume (gal)	TPHg (lbs) ³	Benzene (lbs)	Toluene (lbs)	Ethylbenzene (lbs)	Xylene (lbs)	MtBE ¹ (lbs)	tBA ² (lbs)
11/15/99	GW1	395.2	0.109	0.004	0.015	0.003	0.015	0.059	0.082
11/16/99	GW2	346.3	0.087	0.040	0.003	0.013	0.002	0.040	0.029
11/17/99	GW3	631.5	0.029	0.001	0.003	0.000	0.005	0.030	0.026
11/18/99	GW4	281.1	0.011	0.000	0.001	0.000	0.002	0.009	0.001
11/19/99	GW5	77.4	0.000	0.000	0.000	0.000	0.000	0.001	0.000
11/19/99	GW6	757.8	0.009	0.000	0.001	0.000	0.001	0.020	0.016
12/07/99	GW6	1400	0.017	0.000	0.001	0.000	0.002	0.036	0.029
Total		3889	0.262	0.047	0.025	0.017	0.028	0.195	0.183

MtBE and tBA analysis by EPA Method 8260
²tBA MRL was elevated due to high MtBE concentration requiring sample dilution
³Mass, lbs = (Concentration, ug/L)(10⁻⁶ g/ug)(2.2x10⁻³ lbs/g)(3.785 L/gal)(Volume, gal)
 12/07/99: Extracted 1400-gallons from MW2 and MW7 by Vac Truck

Table 7
High Vacuum Extraction Pilot Test
Extracted Vapor Analytical Data

ARCO Service Station No. 2111
1156 Davis Street, San Leandro, California

Date (mm/dd/yy)	Sample No. (V#)	TPHg (ppmv)	Benzene (ppmv)	Toluene (ppmv)	Ethylbenzene (ppmv)	Xylene (ppmv)	MtBE (ppmv)
11/15/1999	V1	1900	21	58	12	44	58
11/15/1999	V2	2200	24	69	14	51	61
11/16/1999	V3	1400	13	48	10	37	50
11/17/1999	V4	760	3.4	23	5.5	20	28
11/18/1999	V5	590	7.8	22	4.8	18	31
11/19/1999	V6	830	7.2	29	7.1	25	NA

Analysis by EPA Method 8015M and 8020

Table 8
High Vacuum Extraction Pilot Test
Mass Removal from Vapor

ARCO Service Station No. 2111
1156 Davis Street, San Leandro, California

Date (mm/dd/yy)	Air Flow (cfm)	TPHg (lbs) ¹	Benzene (lbs)	Toluene (lbs)	Ethylbenzene (lbs)	Xylene (lbs)	MtBE (lbs)
11/15/1999	22	1.06	0.010	0.031	0.008	0.028	0.030
11/15/1999	23.5	4.51	0.040	0.137	0.032	0.117	0.116
11/16/1999	10.9	3.00	0.023	0.100	0.024	0.089	0.099
11/17/1999	30	9.78	0.036	0.287	0.079	0.288	0.335
11/18/1999	32	5.08	0.055	0.184	0.046	0.173	0.248
11/19/1999	32	11.2	0.080	0.379	0.107	0.377	NA
Total		34.6	0.244	1.12	0.296	1.07	0.828

Mass, lbs = [(Flow, cfm)(Concentration, ppmv)(g/mole)(Time, min)(28.3 L/cf)] / [(10⁶)(24.45 moles/L)(453.6 g/lb)]
where MW, g/mole: TPHg (C6-C12) = 95; Benzene = 78.1; Toluene = 92.1; Ethylbenzene = 106.2; Xylene = 106.2; MtBE = 88.2

ATTACHMENT D

EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

Error Summary Log

02/17/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #2111, San Leandro,
Work Order Number:	MLJ0430
Global ID:	T0600101764
Lab Report Number:	MLJ0430111420020636

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run Sub
MLJ043011142002 MW-1 0636		MLJ043001	W	CS	SW8020F	SW5030B	10/10/02	10/22/02	10/22/02	2J22003	1
MLJ043011142002 MW-1 0636		MLJ043001	W	CS	SW8260B	SW5030B	10/10/02	11/01/02	11/01/02	2K01008	1
MLJ043011142002 MW-3 0636		MLJ043002	W	CS	SW8020F	SW5030B	10/10/02	10/21/02	10/21/02	2J21002	1
MLJ043011142002 MW-3 0636		MLJ043002	W	CS	SW8260B	SW5030B	10/10/02	11/01/02	11/01/02	2K01008	1
MLJ043011142002 MW-4 0636		MLJ043003	W	CS	SW8020F	SW5030B	10/10/02	10/22/02	10/22/02	2J22003	1
MLJ043011142002 MW-4 0636		MLJ043003	W	CS	SW8260B	SW5030B	10/10/02	11/01/02	11/01/02	2K01008	1
MLJ043011142002 MW-5 0636		MLJ043006	W	CS	SW8020F	SW5030B	10/10/02	10/24/02	10/24/02	2J24002	1
MLJ043011142002 MW-5 0636		MLJ043006	W	CS	SW8260B	SW5030B	10/10/02	11/01/02	11/01/02	2K01008	1
MLJ043011142002 MW-6 0636		MLJ043004	W	CS	SW8020F	SW5030B	10/10/02	10/22/02	10/22/02	2J22003	1
MLJ043011142002 MW-7 0636		MLJ043005	W	CS	SW8020F	SW5030B	10/10/02	10/22/02	10/22/02	2J22003	1
MLJ043011142002 MW-7 0636		MLJ043005	W	CS	SW8260B	SW5030B	10/10/02	11/01/02	11/01/02	2K01008	1
		MLJ052101	W	NC	SW8020F	SW5030B	//	10/24/02	10/24/02	2J24002	1
		2J21002BS1	WQ	BS1	SW8020F	SW5030B	//	10/21/02	10/21/02	2J21002	1
		2J21002BS2	WQ	BS2	SW8020F	SW5030B	//	10/21/02	10/21/02	2J21002	1
		2J21002BLK1	WQ	LB1	SW8020F	SW5030B	//	10/21/02	10/21/02	2J21002	1
		2J21002MS1	W	MS1	SW8020F	SW5030B	//	10/21/02	10/21/02	2J21002	1
		2J21002MSD1	W	SD1	SW8020F	SW5030B	//	10/21/02	10/21/02	2J21002	1
		2J22003BS1	WQ	BS1	SW8020F	SW5030B	//	10/22/02	10/22/02	2J22003	1
		2J22003BS2	WQ	BS2	SW8020F	SW5030B	//	10/22/02	10/22/02	2J22003	1
		2J22003BLK1	WQ	LB1	SW8020F	SW5030B	//	10/22/02	10/22/02	2J22003	1
		2J22003BLK2	WQ	LB2	SW8020F	SW5030B	//	10/22/02	10/22/02	2J22003	1
		2J22003MS1	W	MS1	SW8020F	SW5030B	//	10/22/02	10/22/02	2J22003	1
		2J22003MSD1	W	SD1	SW8020F	SW5030B	//	10/22/02	10/22/02	2J22003	1
		2J24002BS1	WQ	BS1	SW8020F	SW5030B	//	10/24/02	10/24/02	2J24002	1
		2J24002BS2	WQ	BS2	SW8020F	SW5030B	//	10/24/02	10/24/02	2J24002	1
		2J24002BLK1	WQ	LB1	SW8020F	SW5030B	//	10/24/02	10/24/02	2J24002	1
		2J24002MS1	W	MS1	SW8020F	SW5030B	//	10/24/02	10/24/02	2J24002	1

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run	Sub
		2J24002MSD1	W	SD1	SW8020F	SW5030B	//	10/24/02	10/24/02	2J24002		1
		2K01008BSD1	WQ	BD1	SW8260B	SW5030B	//	11/01/02	11/01/02	2K01008		1
		2K01008BS1	WQ	BS1	SW8260B	SW5030B	//	11/01/02	11/01/02	2K01008		1
		2K01008BLK1	WQ	LB1	SW8260B	SW5030B	//	11/01/02	11/01/02	2K01008		1

EDFSAMP: Error Summary Log

02/17/03

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

EDFTEST: Error Summary Log

02/17/03

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

EDFRES: Error Summary Log

02/17/03

Error type	Labsampid	Qcocode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	2J21002MS1	MS1	W	SW8020F	PR	10/21/02	1	AAATFBZME
Warning: extra parameter	2J21002MS1	MS1	W	SW8020F	PR	10/21/02	1	GROC6C10
Warning: extra parameter	2J21002MSD1	SD1	W	SW8020F	PR	10/21/02	1	AAATFBZME
Warning: extra parameter	2J21002MSD1	SD1	W	SW8020F	PR	10/21/02	1	GROC6C10
Warning: extra parameter	2J22003MS1	MS1	W	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	2J22003MS1	MS1	W	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	2J22003MSD1	SD1	W	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	2J22003MSD1	SD1	W	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	2J24002MS1	MS1	W	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	2J24002MS1	MS1	W	SW8020F	PR	10/24/02	1	GROC6C10
Warning: extra parameter	2J24002MSD1	SD1	W	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	2J24002MSD1	SD1	W	SW8020F	PR	10/24/02	1	GROC6C10
Warning: extra parameter	MLJ043001	CS	W	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	MLJ043001	CS	W	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	MLJ043001	CS	W	SW8020F	PR	10/22/02	1	MTBE
Warning: extra parameter	MLJ043002	CS	W	SW8020F	PR	10/21/02	1	AAATFBZME
Warning: extra parameter	MLJ043002	CS	W	SW8020F	PR	10/21/02	1	GROC6C10
Warning: extra parameter	MLJ043002	CS	W	SW8020F	PR	10/21/02	1	MTBE
Warning: extra parameter	MLJ043003	CS	W	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	MLJ043003	CS	W	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	MLJ043003	CS	W	SW8020F	PR	10/22/02	1	MTBE
Warning: extra parameter	MLJ043004	CS	W	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	MLJ043004	CS	W	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	MLJ043004	CS	W	SW8020F	PR	10/22/02	1	MTBE
Warning: extra parameter	MLJ043005	CS	W	SW8020F	PR	10/22/02	1	AAATFBZME

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	MLJ043005	CS	W	SW8020F	PR	10/22/02	1	GROC6C10
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Warning: extra parameter	MLJ043006	CS	W	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	MLJ043006	CS	W	SW8020F	PR	10/24/02	1	GROC6C10
Warning: extra parameter	MLJ043006	CS	W	SW8020F	PR	10/24/02	1	MTBE
Warning: extra parameter	MLJ052101	NC	W	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	MLJ052101	NC	W	SW8020F	PR	10/24/02	1	GROC6C10
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Warning: extra parameter	2J21002BLK1	LB1	WQ	SW8020F	PR	10/21/02	1	GROC6C10
Warning: extra parameter	2J21002BLK1	LB1	WQ	SW8020F	PR	10/21/02	1	MTBE
Warning: extra parameter	2J21002BS1	BS1	WQ	SW8020F	PR	10/21/02	1	AAATFBZME
Warning: extra parameter	2J21002BS2	BS2	WQ	SW8020F	PR	10/21/02	1	AAATFBZME
Warning: extra parameter	2J21002BS2	BS2	WQ	SW8020F	PR	10/21/02	1	GROC6C10
Warning: extra parameter	2J22003BLK1	LB1	WQ	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	2J22003BLK1	LB1	WQ	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	2J22003BLK1	LB1	WQ	SW8020F	PR	10/22/02	1	MTBE
Warning: extra parameter	2J22003BLK2	LB2	WQ	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	2J22003BLK2	LB2	WQ	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	2J22003BLK2	LB2	WQ	SW8020F	PR	10/22/02	1	MTBE
Warning: extra parameter	2J22003BS1	BS1	WQ	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	2J22003BS2	BS2	WQ	SW8020F	PR	10/22/02	1	AAATFBZME
Warning: extra parameter	2J22003BS2	BS2	WQ	SW8020F	PR	10/22/02	1	GROC6C10
Warning: extra parameter	2J24002BLK1	LB1	WQ	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	2J24002BLK1	LB1	WQ	SW8020F	PR	10/24/02	1	GROC6C10
Warning: extra parameter	2J24002BLK1	LB1	WQ	SW8020F	PR	10/24/02	1	MTBE
Warning: extra parameter	2J24002BS1	BS1	WQ	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	2J24002BS2	BS2	WQ	SW8020F	PR	10/24/02	1	AAATFBZME
Warning: extra parameter	2J24002BS2	BS2	WQ	SW8020F	PR	10/24/02	1	GROC6C10

EDFQC: Error Summary Log

02/17/03

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

EDFCL: Error Summary Log

02/17/03

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

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Facility Global ID: T0600101764

Facility Name: ARCO

Submittal Title: Fourth Quarter 2002 Groundwater Monitoring Report for Site #2111

Submittal Type: GW Monitoring Report

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