



Atlantic Richfield Company
(a BP affiliated company)

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



Alameda County

JUL 1 0 2003

Environmental Health

July 3, 2003

Re: Second Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #374
6407 Telegraph Avenue
Oakland, CA

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

Submitted by:

Paul Supple
Environmental Business Manager



Alameda County

JUL 18 2003

Environmental Health

July 3, 2003

Ms. Susan Hugo
Alameda County Health Care Services
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

**Re: Second Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #0374
6407 Telegraph Avenue
Oakland, California
URS Project #38486086**

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 #0374, located at 6407 Telegraph Avenue, 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. Chuck Headlee, California Regional Water Quality Control Board 1515
Clay Street, Suite 1400 Oakland, CA 94612
Mr. Paul Supple, ARCO, P.O. Box 6549, Moraga, CA 94570

R E P O R T

Alameda County

JUL 1 8 2003

Environmental Health

**SECOND QUARTER 2003
GROUNDWATER MONITORING**

ARCO SERVICE STATION #0374
6407 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA

Prepared for
Atlantic Richfield Company

July 3, 2003

URS

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

38486086

Date: July 3, 2003
Quarter: 2Q 03

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 0374 Address: 6407 Telegraph Avenue, Oakland CA
Atlantic Richfield Co. Environmental Engineer: Paul Supple
Consulting Co./Contact Person: URS Corporation/ Scott Robinson
Consultant Project No.: 38486086
Primary Agency Alameda County Health Care Services Agency (ACHCSA)

WORK PERFORMED THIS QUARTER (Second – 2003):

1. Performed second quarter groundwater monitoring event on May 23, 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) socks in wells MW-3 and MW-4 on May 22, 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: GW monitoring/sampling
Frequency of Groundwater Sampling: Quarterly: MW-5
Semi-Annually (2nd & 4th quarters): MW-3, MW-4
Annually (2nd quarter): MW-1, MW-2, MW-6
Frequency of Groundwater Monitoring: Quarterly
Is Free Product (FP) Present On-Site: No
Current Remediation Techniques: ORC Socks (MW-3 and MW-4)
Approximate Depth to Groundwater: 4.31 (MW-6) to 7.31 (MW-5) feet
Groundwater Gradient (direction): Southwest
Groundwater Gradient (magnitude): 0.039 feet per foot

DISCUSSION:

TPH-g was not detected in any of the six wells sampled this quarter. Benzene was detected in one well at a concentration of 1,300 µg/L (MW-4). MTBE was detected in four wells at concentrations ranging from 1.6 µg/L (MW-3) to 1,600 µg/L (MW-1).

RECOMMENDATIONS:

We recommend increasing the sampling frequency of the following wells due to consistent detections of MTBE: MW-1 from annually to quarterly and MW-2 from annually to semi-annually.

We further recommend changing the sampling frequency of well MW-5 from quarterly to annually and well MW-3 from semi-annually to annually. These two downgradient wells have consistently had low to non-detect concentrations for the constituents of concern. We will continue to gauge water levels quarterly to calculate groundwater flow.

ATTACHMENTS:

- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – Groundwater Flow Direction and Gradient
- Table 3 – Fuel Oxygenate Data
- Figure 1 – Groundwater Elevation Contour and Analytical Summary Map – May 23, 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 Report and EDF/Geowell Submittal Confirmation

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station #374
6407 Telegraph Avenue
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Dissolved Oxygen (mg/L)
MW-1	06/20/00	158.91	6.86	152.05	NS	NS	NS	NS	NS	NS	NA
	09/28/00		7.50	151.41	NS	NS	NS	NS	NS	NS	NA
	12/17/00		7.49	151.42	NS	NS	NS	NS	NS	NS	NA
	03/23/01		5.90	153.01	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2,710	NA
	06/21/01		7.45	151.46	NS	NS	NS	NS	NS	NS	NA
	09/23/01		8.46	150.45	NS	NS	NS	NS	NS	NS	NA
	12/31/01		5.50	153.41	NS	NS	NS	NS	NS	NS	NA
	03/21/02		4.71	154.2	ND<5,000	ND<50	ND<50	ND<50	ND<50	2,000	NA
	04/17/02		5.54	153.37	NS	NS	NS	NS	NS	NS	NA
	08/12/02		7.77	151.14	NS	NS	NS	NS	NS	NS	NA
	12/06/02		7.65	151.26	NS	NS	NS	NS	NS	NS	NA
	01/29/03 ^b		5.88	153.03	NS	NS	NS	NS	NS	NS	NA
	05/23/03		5.62	153.29	ND<10,000	ND<100	ND<100	ND<100	ND<100	1,600	1.3
	MW-2	06/20/00	157.92	7.67	150.25	NS	NS	NS	NS	NS	NS
09/28/00			8.51	149.41	NS	NS	NS	NS	NS	NS	NA
12/17/00			8.14	149.78	NS	NS	NS	NS	NS	NS	NA
03/23/01			7.21	150.71	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA
06/21/01			7.99	149.93	NS	NS	NS	NS	NS	NS	NA
09/23/01			8.52	149.4	NS	NS	NS	NS	NS	NS	NA
12/31/01			6.01	151.91	NS	NS	NS	NS	NS	NS	NA
03/21/02			5.95	151.97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	45	NA
04/17/02			6.45	151.47	NS	NS	NS	NS	NS	NS	NA
08/12/02			8.08	149.84	NS	NS	NS	NS	NS	NS	NA
12/06/02			8.29	149.63	NS	NS	NS	NS	NS	NS	NA
01/29/03 ^b			7.22	150.70	NS	NS	NS	NS	NS	NS	NA
05/23/03			6.85	151.07	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	55	1.4

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station #374
6407 Telegraph Avenue
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Dissolved Oxygen (mg/L)	
MW-3	06/20/00	153.64	6.42	147.22	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<10	ND<10	NA	
	09/28/00		7.31	146.33	NS	NS	NS	NS	NS	NS	NA	
	12/17/00		6.45	147.19	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/23/01		6.01	147.63	NS	NS	NS	NS	NS	NS	NA	
	06/21/01		6.80	146.84	110	5.5	ND<0.5	5.4	4.1	2.5	NA	
	09/23/01		7.32	146.32	NS	NS	NS	NS	NS	NS	NA	
	12/31/01		4.48	149.16	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.9	NA	
	03/21/02		4.36	149.28	NS	NS	NS	NS	NS	NS	NA	
	04/17/02		5.31	148.33	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	8.7	NA	
	08/12/02		7.00	146.64	NS	NS	NS	NS	NS	NS	NA	
	12/06/02		7.32	146.32	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.2	1.4	
	01/29/03 ^b		6.07	147.57	NS	NS	NS	NS	NS	NS	NA	
	05/23/03			6.45	147.19	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.6	0.9
	MW-4	06/20/00	156.53	7.50	149.03	20,000	5,100	440	1,000	1,700	ND<250	NA
09/28/00			8.20	148.33	NS	NS	NS	NS	NS	NS	NA	
12/17/00			8.11	148.42	4,320	1,240	ND<20	27.2	249	ND<100	NA	
03/23/01			6.69	149.84	NS	NS	NS	NS	NS	NS	NA	
06/21/01			8.01	148.52	2,800	470	16	19	160	130	NA	
09/23/01			8.91	147.62	NS	NS	NS	NS	NS	NS	NA	
12/31/01			4.42	152.11	4,600	1,500	100	160	210	160	NA	
03/21/02			4.98	151.55	NS	NS	NS	NS	NS	NS	NA	
04/17/02			6.23	150.30	7,100	2,200	110	290	450	ND<250	NA	
08/12/02			8.24	148.29	NS	NS	NS	NS	NS	NS	NA	
12/06/02			8.42	148.11	1,500 ^a	410	6.8	20	29	43	1.1	
01/29/03 ^b			7.20	149.33	NS	NS	NS	NS	NS	NS	NA	
05/23/03				7.18	149.35	ND<5,000	1,300	89	210	260	ND<50	1.4

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station #374
6407 Telegraph Avenue
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Dissolved Oxygen (mg/L)	
MW-5	06/20/00	151.33	7.84	143.49	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<10	NA	
	09/28/00		8.37	142.96	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/17/00		8.36	142.97	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/23/01		7.55	143.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	06/21/01		8.20	143.13	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	09/23/01		8.68	142.65	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	12/31/01		7.57	143.76	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	03/21/02		6.12	145.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.2	NA	
	04/17/02		6.61	144.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
	08/12/02		8.14	143.19	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	4.1	
	12/06/02		8.65	142.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	1.1	
	01/29/03 ^b		7.22	144.11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.0	
	05/23/03		7.31	144.02	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1
	MW-6	06/20/00	153.84	4.79	149.05	NS	NS	NS	NS	NS	NS	NA
09/28/00			5.39	148.45	NS	NS	NS	NS	NS	NS	NA	
12/17/00			4.71	149.13	NS	NS	NS	NS	NS	NS	NA	
03/23/01			4.69	149.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	
06/21/01			5.22	148.62	NS	NS	NS	NS	NS	NS	NA	
09/23/01			5.40	148.44	NS	NS	NS	NS	NS	NS	NA	
12/31/01			3.95	149.89	NS	NS	NS	NS	NS	NS	NA	
03/21/02			2.94	150.9	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	5.2	NA	
04/17/02			5.11	148.73	NS	NS	NS	NS	NS	NS	NA	
08/12/02			5.23	148.61	NS	NS	NS	NS	NS	NS	NA	
12/06/02			5.29	148.55	NS	NS	NS	NS	NS	NS	NA	
01/29/03 ^b			4.79	149.05	NS	NS	NS	NS	NS	NS	NA	
05/23/03			4.31	149.53	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	9.4	1.0	

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #374
6407 Telegraph Avenue
Oakland, California

TPH	= Total Petroleum Hydrocarbons
MTBE	= Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted
µg/L	= Micrograms per liter
mg/L	= Milligram per liter
NM	= Not measured
NS	= Not sampled
ND<	= less than laboratory detection limit stated to the right
NA	= Not Available
a	= Chromatogram Pattern: Gasoline C6-C10
b	= 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 its previous consultants. URS has not verified the accuracy of this information

**Table 2
Groundwater Flow Direction and Gradient**

ARCO Service Station #0374
6407 Telegraph Avenue
Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
1/31/1996	Southwest	0.04
4/10/1996	Southwest	0.04
7/16/1996	Southwest	0.03
10/14/1996	Southwest	0.03
3/27/1997	Southwest	0.04
5/27/1997	Southwest	0.03
8/12/1997	Southwest	0.04
11/17/1997	Southwest	0.03
3/16/1998	Southwest	0.03
5/12/1998	Southwest	0.04
07/27/98	Southwest	0.04
10/15/98	Southwest	0.02
02/18/99	Southwest	0.05
05/24/99	Southwest	0.03
08/27/99	Southwest	0.03
10/26/99	Southwest	0.03
02/03/00	Southwest	0.047
06/20/00	Southwest	0.035
09/28/00	Southwest	0.034
12/17/00	Southwest	0.032
03/23/01	Southwest	0.034
06/21/01	Southwest	0.032
09/23/01	Southwest	0.029
12/31/01	Southwest	0.043
03/21/02	Southwest	0.038
04/17/02	Southwest	0.031
08/12/02	Southwest	0.032
12/06/02	Southwest	0.020
01/29/03	Southwest	0.027
05/23/03	Southwest	0.039

Note:

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

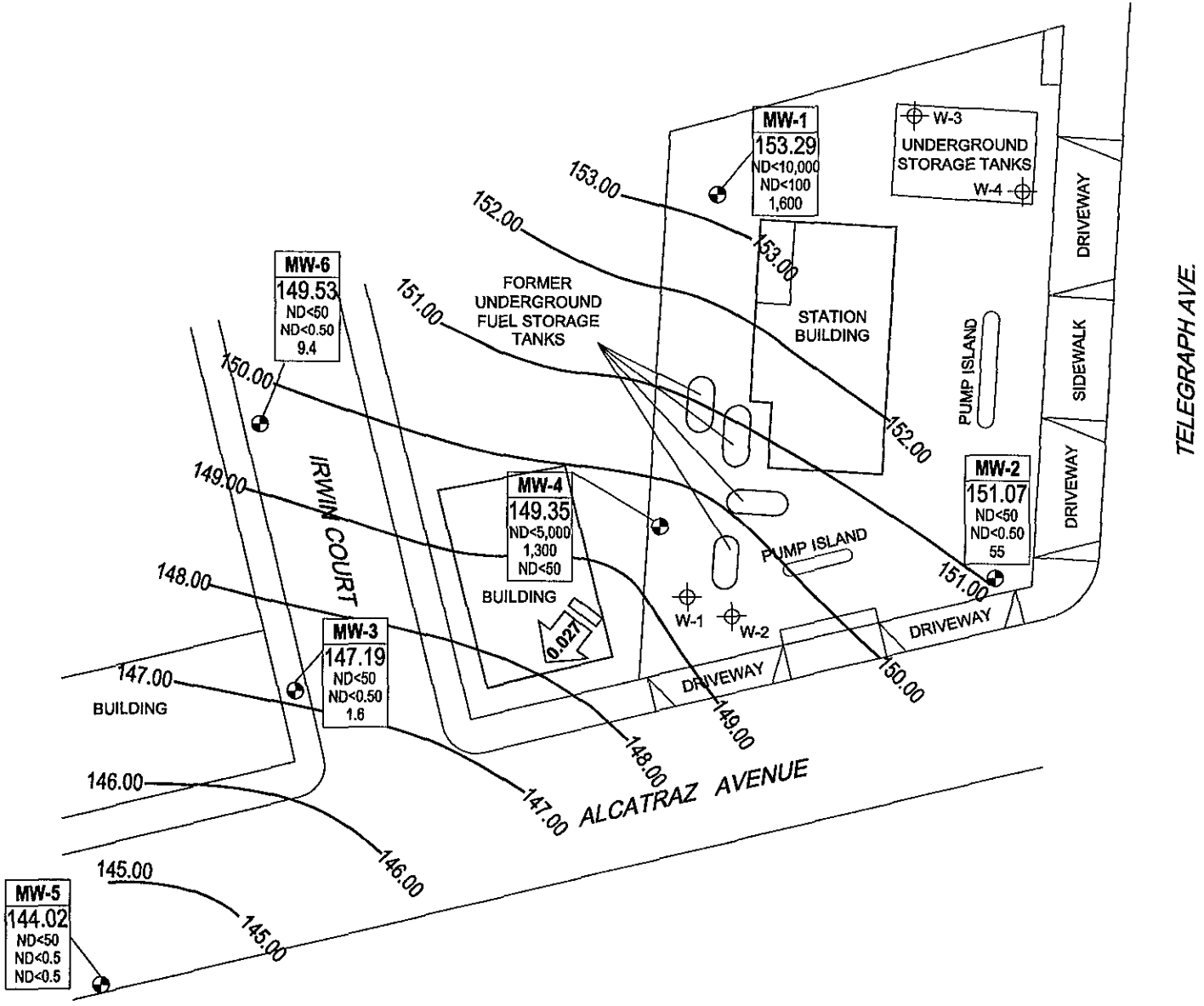
Table 3
Fuel Oxygenate Analytical Data

ARCO Service Station #0374
6407 Telegraph Avenue
Oakland, California

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-1	05/23/03	ND<20,000	ND<4,000	1,600	ND<100	ND<100	ND<100
MW-2	05/23/03	ND<100	ND<20	55	ND<0.50	ND<0.50	0.53
MW-3	05/23/03	ND<100	ND<20	1.6	ND<0.50	ND<0.50	ND<0.50
MW-4	05/23/03	ND<10,000	ND<2,000	ND<50	ND<50	ND<50	ND<50
MW-5	01/29/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	05/23/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-6	05/23/03	ND<100	ND<20	9.4	ND<0.50	ND<0.50	ND<0.50

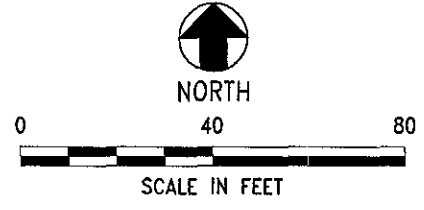
Note: All fuel oxygenate compounds analyzed using EPA Method 8260B
TBA = tert-Butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert butyl ether
TAME = tert-Amyl methyl ether
µg/L = micrograms per liter
ND< = Not detected at or above the laboratory reporting limit

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LEGEND

- MONITORING WELL LOCATION
- TANK PIT MONITORING WELL LOCATION
- Well** WELL DESIGNATION
- ELEV** GROUNDWATER ELEVATION
- TPH-g** TPH-g, BENZENE & MTBE CONCENTRATIONS IN GROUNDWATER (µg/L)
- Benzene**
- MTBE**
- ND< NOT DETECTED AT OR ABOVE LABORATORY LIMITS
- NS NOT SAMPLED
- APPROXIMATE GROUNDWATER FLOW AND DIRECTION (FT/FT)
- 150 — GROUNDWATER ELEVATION CONTOUR (FT ABOVE MSL)



NOTE: SITE MAP ADAPTED FROM IT CORPORATION FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



Project No. 38486086
Arco Service Station #0374
6407 Telegraph Avenue
Oakland, California

GROUNDWATER ELEVATION CONTOUR
AND ANALYTICAL SUMMARY MAP
Second Quarter 2003 (May 23, 2003)

FIGURE
1

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 TeflonTM 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>030523-MTI</u>	Station # <u>374</u>
Sampler: <u>M. TOI</u>	Date: <u>05-23-03</u>
Well I.D.: <u>MW-1</u>	Well Diameter: 2 3 <u>4</u> 6 8 <u> </u>
Total Well Depth: <u>26.76</u>	Depth to Water: <u>5.62</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

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

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

<u>13.7</u>	x	<u>3</u>	=	<u>41.1</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>1030</u>	<u>65.0</u>	<u>7.3</u>	<u>1126</u>	<u>13.7</u>	
<u>1033</u>	<u>65.1</u>	<u>7.1</u>	<u>1002</u>	<u>27.4</u>	
<u>1037</u>	<u>65.0</u>	<u>7.1</u>	<u>1000</u>	<u>41.1</u>	

Did well dewater? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Gallons actually evacuated: <u>41.1</u>	
Sampling Time: <u>1045</u>	Sampling Date: <u>05-23-03</u>	
Sample I.D.: <u>MW-1</u>	Laboratory: Pace <u>Sequoia</u> Other _____	
Analyzed for: <u>TPH-C</u> <u>BTEX</u> MTBE TPH-D Other: <u>Oxy's & Ethanol By 8260</u>		
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>030523-MTI</u>	Station #: <u>374</u>
Sampler: <u>M. TOU</u>	Date: <u>05-23-03</u>
Well I.D.: <u>MW-2</u>	Well Diameter: 2 3 <u>(4)</u> 6 8 _____
Total Well Depth: <u>216.35</u>	Depth to Water: <u>6.35</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	Multplier	Well Diameter	Multplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: Bailer Sampling Method: Bailer

Disposable Bailer Disposable Bailer
 Middleburg Extraction Port
 Electric Submersible
 Extraction Pump
 Other: _____

4 GPM

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

<u>12.7</u>	X	<u>3</u>	=	<u>38.1</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>1012</u>	<u>69.2</u>	<u>7.4</u>	<u>609</u>	<u>12.7</u>	
<u>1015</u>	<u>68.9</u>	<u>7.2</u>	<u>613</u>	<u>25.4</u>	
<u>1018</u>	<u>69.0</u>	<u>7.2</u>	<u>610</u>	<u>38.1</u>	

Did well dewater? Yes No Gallons actually evacuated: 38.1

Sampling Time: 1025 Sampling Date: 05-23-03

Sample I.D.: MW-2 Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Dry's & Ethanol By 8260

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>030523-MTI</u>	Station # <u>374</u>
Sampler: <u>M.TDI</u>	Date: <u>05-23-03</u>
Well I.D.: <u>MW-3</u>	Well Diameter: 2 3 <u>4</u> 6 8 _____
Total Well Depth: <u>26.70</u>	Depth to Water: <u>6.45</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	Multipier	Well Diameter	Multipier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: Bailer Sampling Method: Bailer

Disposable Bailer Disposable Bailer
 Middleburg Extraction Port
 Electric Submersible
 Extraction Pump Other: _____

Other: _____

3.0 GPM

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

<u>13.2</u>	x	<u>3</u>	=	<u>39.6</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>0949</u>	<u>66.9</u>	<u>7.9</u>	<u>1061</u>	<u>13.2</u>	
<u>0954</u>	<u>66.5</u>	<u>7.8</u>	<u>1093</u>	<u>26.4</u>	
<u>0959</u>	<u>66.4</u>	<u>7.7</u>	<u>1096</u>	<u>39.6</u>	

Did well dewater? Yes No Gallons actually evacuated: 39.6

Sampling Time: 1005 Sampling Date: 05-23-03

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

Analyzed for: TPH-C BTEX MTBE TPH-D Other: Dry's & Ethanol By 8260

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

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030523-MT1</u>	Station # <u>874</u>
Sampler: <u>M. TOLL</u>	Date: <u>05-23-03</u>
Well I.D.: <u>MW-4</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>26.85</u>	Depth to Water: <u>7.13</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

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

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

<u>12.8</u>	<u>x</u>	<u>3</u>	<u>=</u>	<u>38.4</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>1056</u>	<u>66.0</u>	<u>7.3</u>	<u>1473</u>	<u>12.8</u>	<u>odor</u>
<u>1058</u>	<u>65.6</u>	<u>6.9</u>	<u>1303</u>	<u>25.6</u>	"
<u>1100</u>	<u>66.0</u>	<u>6.9</u>	<u>1290</u>	<u>38.4</u>	"

Did well dewater? Yes <input checked="" type="radio"/> <u>No</u>	Gallons actually evacuated: <u>38.4</u>
Sampling Time: <u>1110</u>	Sampling Date: <u>05-23-03</u>

Sample I.D.: <u>MW-4</u>	Laboratory: Pace <u>Sequoia</u> Other _____
--------------------------	---

Analyzed for: <u>TPH-G</u> <u>BTEX</u> MTBE TPH-D Other: <u>Oxy's & Ethanol By 9260</u>

D.O. (if req'd):	Pre-purge: _____ ^{mg/L}	Post-purge: <u>1.4</u> ^{mg/L}
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030523-MTI</u>	Station # <u>374</u>
Sampler: <u>M. TOLL</u>	Date: <u>05-23-03</u>
Well I.D.: <u>MW-5</u>	Well Diameter: 2 3 <u>4</u> 6 8 <u> </u>
Total Well Depth: <u>23.05</u>	Depth to Water: <u>7.31</u>
Depth to Free Product: <u> </u>	Thickness of Free Product (feet): <u> </u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

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

2.0 GPM

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

<u>10.2</u>	x	<u>3</u>	=	<u>30.6</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>0910</u>	<u>66.2</u>	<u>6.5</u>	<u>1112</u>	<u>10.2</u>	
<u>0915</u>	<u>67.4</u>	<u>6.7</u>	<u>625</u>	<u>20.4</u>	
<u>0920</u>	<u>67.5</u>	<u>6.7</u>	<u>619</u>	<u>30.6</u>	

Did well dewater? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <u>30.6</u>
Sampling Time: <u>0925</u>	Sampling Date: <u>05-23-03</u>
Sample I.D.: <u>MW-5</u>	Laboratory: Pace <u>Sequoia</u> Other <u> </u>

Analyzed for: <u>TPH-C</u> <u>BTEX</u> MTBE TPH-D Other: <u>Oxy's & Ethanol By 8260</u>		
D.O. (if req'd):	Pre-purge: <u> </u> mg/L	Post-purge: <u>1.1</u> mg/L
O.R.P. (if req'd):	Pre-purge: <u> </u> mV	Post-purge: <u> </u> mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030523-MT1</u>	Station # <u>374</u>
Sampler: <u>M. TOLL</u>	Date: <u>05-23-03</u>
Well I.D.: <u>MW-10</u>	Well Diameter: 2 3 <u>(4)</u> 6 8 <u> </u>
Total Well Depth: <u>14-55</u>	Depth to Water: <u>4.31</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

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

Purge Method: <u>Bailer</u> <u>Disposable Bailer</u> <u>Middleburg</u> <u>Electric Submersible</u> <u>Extraction Pump</u> Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> <u>Extraction Port</u> Other: _____ 2.0 GPM
---	--

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

<u>6.7</u>	x	<u>3</u>	=	<u>20.1</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
<u>0930</u>	<u>66.3</u>	<u>6.8</u>	<u>621</u>	<u>6.7</u>	
<u>0933</u>	<u>65.1</u>	<u>6.7</u>	<u>592</u>	<u>13.4</u>	
<u>0937</u>	<u>65.0</u>	<u>6.7</u>	<u>599</u>	<u>20.1</u>	

Did well dewater? Yes <input checked="" type="radio"/> No <input type="radio"/>	Gallons actually evacuated: <u>20.1</u>
Sampling Time: <u>0940</u>	Sampling Date: <u>05-23-03</u>
Sample I.D.: <u>MW-10</u>	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-C</u> <u>BTEX</u> MTBE TPH-D Other: <u>Day's Ethanol By 8260</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

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 PLAINE 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:

374

Station #

6407 Telegraph Ave., Oakland

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

208

added equip.
rinse water

5

any other
adjustments

TOTAL GALS.
RECOVERED

213

loaded onto
BTS vehicle #

52

BTS event #

D30523-MTI

time

date

11:30

5/23/03

signature

[Handwritten Signature]

REC'D AT

time

date

BTS

5/23/03

unloaded by

signature

[Handwritten 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 #374, Oakland, CA
Sequoia Work Order: MME0742

Enclosed are the results of analyses for samples received by the laboratory on 05/27/03 15:40. 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 #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robmson

MME0742
Reported:
06/20/03 08:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	MME0742-01	Water	05/23/03 10:45	05/27/03 15:40
MW-2	MME0742-02	Water	05/23/03 10:25	05/27/03 15:40
MW-3	MME0742-03	Water	05/23/03 10:05	05/27/03 15:40
MW-4	MME0742-04	Water	05/23/03 11:10	05/27/03 15:40
MW-5	MME0742-05	Water	05/23/03 09:25	05/27/03 15:40
MW-6	MME0742-06	Water	05/23/03 09:40	05/27/03 15:40

There were no custody seals that were received with this project. This is a revised report to replace report dated 6/10/03.

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

 Project: ARCO #374, Oakland, CA
 Project Number: INTRIM-50419
 Project Manager: Scott Robmson

 MME0742
 Reported:
 06/20/03 08:00

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (MME0742-01) Water Sampled: 05/23/03 10:45 Received: 05/27/03 15:40									
Ethanol	ND	20000	ug/l	200	3F06006	06/06/03	06/06/03	EPA 8260B	
tert-Butyl alcohol	ND	4000	"	"	"	"	"	"	"
Methyl tert-butyl ether	1600	100	"	"	"	"	"	"	"
Di-isopropyl ether	ND	100	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	100	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	100	"	"	"	"	"	"	"
Benzene	ND	100	"	"	"	"	"	"	"
Toluene	ND	100	"	"	"	"	"	"	"
Ethylbenzene	ND	100	"	"	"	"	"	"	"
Xylenes (total)	ND	100	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	ND	10000	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		91.0 %		78-129	"	"	"	"	"
MW-2 (MME0742-02) Water Sampled: 05/23/03 10:25 Received: 05/27/03 15:40									
Ethanol	ND	100	ug/l	1	3F06006	06/06/03	06/06/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
Methyl tert-butyl ether	55	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
tert-Amyl methyl ether	0.53	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 #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robinson

MME0742
Reported:
06/20/03 08:00

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (MME0742-03) Water Sampled: 05/23/03 10:05 Received: 05/27/03 15:40									
Ethanol	ND	100	ug/l	1	3F06006	06/06/03	06/06/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
Methyl tert-butyl ether	1.6	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	"
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	78-129	"	"	"	"	"	"
MW-4 (MME0742-04) Water Sampled: 05/23/03 11:10 Received: 05/27/03 15:40									
Ethanol	ND	10000	ug/l	100	3F06006	06/06/03	06/06/03	EPA 8260B	
tert-Butyl alcohol	ND	2000	"	"	"	"	"	"	"
Methyl tert-butyl ether	ND	50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	50	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	50	"	"	"	"	"	"	"
Benzene	1300	50	"	"	"	"	"	"	"
Toluene	89	50	"	"	"	"	"	"	"
Ethylbenzene	210	50	"	"	"	"	"	"	"
Xylenes (total)	260	50	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	ND	5000	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		90.2 %	78-129	"	"	"	"	"	"



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

Project: ARCO #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robinson

MME0742
Reported:
06/20/03 08:00

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

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
MW-5 (MME0742-05) Water Sampled: 05/23/03 09:25 Received: 05/27/03 15:40										
Ethanol	ND	100		ug/l	1	3F06010	06/06/03	06/06/03	EPA 8260B	O-12
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>			109 %		78-129		"	"	"	"
MW-6 (MME0742-06) Water Sampled: 05/23/03 09:40 Received: 05/27/03 15:40										
Ethanol	ND	100		ug/l	1	3F06010	06/06/03	06/06/03	EPA 8260B	O-12
tert-Butyl alcohol	ND	20		"	"	"	"	"	"	"
Methyl tert-butyl ether	9.4	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>			110 %		78-129		"	"	"	"



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

Project: ARCO #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robinson

MME0742
Reported:
06/20/03 08:00

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 3F06006 - EPA 5030B P/T

Blank (3F06006-BLK1)

Prepared & Analyzed: 06/06/03

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 (E1B)	ND	0.50	"							(-)-09
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 4.78 " 5.00 95.6 78-129

Laboratory Control Sample (3F06006-BS1)

Prepared & Analyzed: 06/06/03

Methyl tert-butyl ether	8.67	0.50	ug/l	10.0		86.7	63-137			
Benzene	9.56	0.50	"	10.0		95.6	78-124			
Toluene	11.8	0.50	"	10.0		118	78-129			

Surrogate: 1,2-Dichloroethane-d4 4.49 " 5.00 89.8 78-129

Laboratory Control Sample (3F06006-BS2)

Prepared & Analyzed: 06/06/03

Methyl tert-butyl ether	8.14	0.50	ug/l	9.92		82.1	63-137			
Benzene	5.04	0.50	"	6.40		78.8	78-124			
Toluene	34.8	0.50	"	29.7		117	78-129			
Gasoline Range Organics (C6-C10)	434	50	"	440		98.6	70-113			

Surrogate: 1,2-Dichloroethane-d4 4.67 " 5.00 93.4 78-129



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

Project: ARCO #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robinson

MME0742
Reported:
06/20/03 08:00

**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
Batch 3F06006 - EPA 5030B P/T										
Laboratory Control Sample Dup (3F06006-BSD1)				Prepared: 06/06/03 Analyzed: 06/07/03						
Methyl tert-butyl ether	7.96	0.50	ug/l	10.0		79.6	63-137	8.54	13	
Benzene	9.03	0.50	"	10.0		90.3	78-124	5.70	12	
Toluene	10.2	0.50	"	10.0		102	78-129	14.5	10	QR-02
<i>Surrogate: 1,2-Dichloroethane-d4</i>										
	4.71		"	5.00		94.2	78-129			
Laboratory Control Sample Dup (3F06006-BSD2)				Prepared: 06/06/03 Analyzed: 06/07/03						
Methyl tert-butyl ether	7.04	0.50	ug/l	9.92		71.0	63-137	14.5	13	QR-02
Benzene	4.82	0.50	"	6.40		75.3	78-124	4.46	12	Q-LIM
Toluene	32.6	0.50	"	29.7		110	78-129	6.53	10	
Gasoline Range Organics (C6-C10)	406	50	"	440		92.3	70-113	6.67	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>										
	4.59		"	5.00		91.8	78-129			
Matrix Spike (3F06006-MS1)				Source: MME0745-05 Prepared & Analyzed: 06/06/03						
Methyl tert-butyl ether	1380	50	ug/l	992	640	74.6	63-137			
Benzene	3190	50	"	640	2800	60.9	78-124			QM-4X
Toluene	4170	50	"	2970	970	108	78-129			
Gasoline Range Organics (C6-C10)	75200	5000	"	44000	35000	91.4	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>										
	4.98		"	5.00		99.6	78-129			
Matrix Spike Dup (3F06006-MSD1)				Source: MME0745-05 Prepared & Analyzed: 06/06/03						
Methyl tert-butyl ether	1300	50	ug/l	992	640	66.5	63-137	5.97	13	
Benzene	3060	50	"	640	2800	40.6	78-124	4.16	12	QM-4X
Toluene	4260	50	"	2970	970	111	78-129	2.14	10	
Gasoline Range Organics (C6-C10)	75000	5000	"	44000	35000	90.9	70-113	0.266	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>										
	4.50		"	5.00		90.0	78-129			
Batch 3F06010 - EPA 5030B P/T										
Blank (3F06010-BLK1)				Prepared & Analyzed: 06/06/03						
Ethanol	ND	100	ug/l							O-12
tert-Butyl alcohol	ND	20	"							

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 #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robinson

MME0742
Reported:
06/20/03 08:00

**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 3F06010 - EPA 5030B P/T

Blank (3F06010-BLK1)

Prepared & Analyzed: 06/06/03

Methyl tert-butyl ether	ND	0.50	ug/l							
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 5.39 " 5.00 108 78-129

Laboratory Control Sample (3F06010-BS1)

Prepared & Analyzed: 06/06/03

Methyl tert-butyl ether	10.6	0.50	ug/l	10.0		106	63-137			
Benzene	10.5	0.50	"	10.0		105	78-124			
Toluene	11.3	0.50	"	10.0		113	78-129			

Surrogate: 1,2-Dichloroethane-d4 5.35 " 5.00 107 78-129

Laboratory Control Sample (3F06010-BS2)

Prepared & Analyzed: 06/06/03

Gasoline Range Organics (C6-C10)	929	50	ug/l	880		106	70-113			
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Surrogate: 1,2-Dichloroethane-d4 5.56 " 5.00 111 78-129

Matrix Spike (3F06010-MS1)

Source: MME0755-01

Prepared & Analyzed: 06/06/03

Methyl tert-butyl ether	335	10	ug/l	198	150	93.4	63-137			
Benzene	121	10	"	128	12	85.2	78-124			
Toluene	777	10	"	594	150	106	78-129			
Gasoline Range Organics (C6-C10)	15400	1000	"	8800	6700	98.9	70-113			

Surrogate: 1,2-Dichloroethane-d4 5.59 " 5.00 112 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 #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robmson

MME0742
Reported:
06/20/03 08:00

**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
Batch 3F06010 - EPA 5030B P/T										
Matrix Spike Dup (3F06010-MSD1)		Source: MME0755-01			Prepared & Analyzed: 06/06/03					
Methyl tert-butyl ether	332	10	ug/l	198	150	91.9	63-137	0.900	13	
Benzene	120	10	"	128	12	84.4	78-124	0.830	12	
Toluene	757	10	"	594	150	102	78-129	2.61	10	
Gasoline Range Organics (C6-C10)	14500	1000	"	8800	6700	88.6	70-113	6.02	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.37</i>		<i>"</i>	<i>5.00</i>		<i>107</i>	<i>78-129</i>			



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

Project: ARCO #374, Oakland, CA
Project Number: INTRIM-50419
Project Manager: Scott Robinson

MME0742
Reported:
06/20/03 08:00

Notes and Definitions

- A-01 Analyzed outside the 12 hour time clock window
- O-09 The result was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria.
- O-12 "The continuing calibration verification was outside of client contractual acceptance limits by 10% high. However, it was within method acceptance limits. The data should still be useful for its intended purpose."
- Q-11M The percent recovery was outside of the control limits. The samples results may still be useful for their intended purpose.
- QM-4X The spike recovery was outside of control limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
- QR-02 The RPD result exceeded the control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- 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 030523-MTI
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____
 Date: 5-23-03 Requested Due Date (mm/dd/yy) _____

On-site Time: 0800 Temp: 70°
 Off-site Time: _____ Temp: 78°
 Sky Conditions: Clear
 Meteorological Events: Hot
 Wind Speed: _____ Direction: _____

MM160742

Send To: _____
 Lab Name: SEQUOIA
 Lab Address: 885 Jarvis Dr.
Morgan Hill, CA 95037
 Lab PM: Lalonya Pell
 Tele/Fax: 408-776-9600 / 408-782-6308
 Report Type & QC Level: Send EDP Reports
 BP/GEM Account No.: _____

BP/GEM Facility No.: _____
 BP/GEM Facility Address: 6407 TELEGRAPH AVE, OAKLAND, CA
 Site ID No. ARCO 374
 Site Lat/Long: _____
 California Global ID #: 10600100108
 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.: 15-00000374.01 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 -50419

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives			Requested Analysis					Sample Point Lat/Long and Comments	
			Salt/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G/BTEX (8015/8021)	TPH-D (8015)	MTBE (8021)	MTHS, TAME, ETBE, DIPE, TBA (8260)		1,2-DCA & EDB (8260)
1	MW-1	1045	X				01	3					X	X				
2	MW-2	1025	X				02	3					X	X				
3	MW-3	1005	X				03	3					X	X				
4	MW-4	1110	X				04	3					X	X				
5	MW-5	0925	X				05	3					X	X				
6	MW-6	0940	X				06	3					X	X				
7																		
8																		
9																		
10																		

Sampler's Name: Michael Toll Relinquished By / Affiliation: _____ Date: _____ Time: _____
 Sampler's Company: Blaine Tech Services Date: 5/22/03 Time: 1150
 Shipment Date: 5/22/03 Time: 1540
 Shipment Method: _____
 Shipment Tracking No: _____

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

Seats In Place Yes _____ No X Temperature Blank Yes _____ No X Cooler Temperature on Receipt 6 °C Trip Blank Yes _____ No X

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: BP
 REC. BY (PRINT) [Signature]
 WORKORDER: MMU 0792

DATE REC'D AT LAB: 5/27/03
 TIME REC'D AT LAB: 1:15 PM
 DATE LOGGED IN: 5-28-03

Drinking water for regulatory purposes: YES NO
 Wastewater for regulatory purposes: 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="checkbox"/> Absent Intact / Broken*	01		MW-1	(3) vials	HCC	L	5/23/03	
2. Chain-of-Custody <input checked="" type="checkbox"/> Present / Absent*	02		2	↓	↓	↓	↓	
3. Traffic Reports or Packing List: Present / <input checked="" type="checkbox"/> Absent	03		3	↓	↓	↓	↓	
4. Airbill: Airbill / Sticker Present / <input checked="" type="checkbox"/> Absent	04		4	↓	↓	↓	↓	
5. Airbill #:	05		5	↓	↓	↓	↓	
6. Sample Labels: <input checked="" type="checkbox"/> Present / Absent	06		6	↓	↓	↓	↓	
7. Sample IDs: <input checked="" type="checkbox"/> Listed / Not Listed on Chain-of-Custody								
8. Sample Condition: <input checked="" type="checkbox"/> Intact / Broken* / Leaking*								
9. Does information on custody reports, traffic reports and sample labels agree? <input checked="" type="checkbox"/> Yes / No*								
10. Sample received within hold time: <input checked="" type="checkbox"/> Yes / No*								
11. Proper Preservatives used: <input checked="" type="checkbox"/> Yes / No*								
12. Temp Rec. at Lab: <u>LC</u> Is temp 4 ± 2°C? <input checked="" type="checkbox"/> Yes / No**								
(Acceptance range for samples requiring thermal pres.) **Exception (if any): Metals / DFF (Direct From Field) or Problem COC								

***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 0374
6407 Telegraph Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-1	01/31/96	158.91	6.34	152.57	Not Sampled: Well Sampled Annually							
MW-1	04/10/96	158.91	5.82	153.09	Not Sampled: Well Sampled Annually							
MW-1	07/16/96	158.91	7.23	151.68	<50	<0.5	<0.5	<0.5	<0.5	340	NM	
MW-1	10/14/96	158.91	8.34	150.57	Not Sampled: Well Sampled Annually							
MW-1	03/27/97	158.91	6.37	152.54	Not Sampled: Well Sampled Annually							
MW-1	05/27/97	158.91	7.30	151.61	Not Sampled: Well Sampled Annually							
MW-1	08/12/97	158.91	8.22	150.69	<50	<0.5	<0.5	<0.5	<0.5	620	NM	
MW-1	11/17/97	158.91	7.98	150.93	Not Sampled: Well Sampled Annually							
MW-1	03/16/98	158.91	4.94	153.97	Not Sampled: Well Sampled Annually							
MW-1	05/12/98	158.91	5.28	153.63	Not Sampled: Well Sampled Annually							
MW-1	07/27/98	158.91	6.84	152.07	<500	<5	<5	<5	<5	580	0.6	P
MW-1	10/15/98	158.91	7.32	151.59	Not Sampled: Well Sampled Annually							
MW-1	02/18/99	158.91	6.28	152.63	Not Sampled: Well Sampled Annually							
MW-1	05/24/99	158.91	6.45	152.46	<50	<0.5	<0.5	<0.5	<0.5	1,300	2.0	NP
MW-1	08/27/99	158.91	7.86	151.05	<50	<0.5	<0.5	<0.5	<0.5	1,500	1.65	NP
MW-1	10/26/99	158.91	8.43	150.48	Not Sampled: Well Sampled Annually							
MW-1	02/03/00	158.91	7.28	151.63	<50	<0.5	<0.5	<0.5	<1	4,000	1.0	NP
MW-2	01/31/96	157.92	6.51	151.41	Not Sampled: Well Sampled Annually							
MW-2	04/10/96	157.92	6.94	150.98	Not Sampled: Well Sampled Annually							
MW-2	07/16/96	157.92	7.73	150.19	<50	1.2	<0.5	<0.5	<0.5	33	NM	
MW-2	10/14/96	157.92	8.35	149.57	Not Sampled: Well Sampled Annually							
MW-2	03/27/97	157.92	7.40	150.52	Not Sampled: Well Sampled Annually							
MW-2	05/27/97	157.92	7.82	150.10	Not Sampled: Well Sampled Annually							
MW-2	08/12/97	157.92	8.29	149.63	<50	<0.5	<0.5	<0.5	<0.5	23	NM	
MW-2	11/17/97	157.92	8.05	149.87	Not Sampled: Well Sampled Annually							
MW-2	03/16/98	157.92	6.45	151.47	Not Sampled: Well Sampled Annually							

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-2	05/12/98	157.92	6.93	150.99	Not Sampled: Well Sampled Annually							
MW-2	07/27/98	157.92	7.39	150.53	<50	<0.5	<0.5	<0.5	<0.5	<3	0.85	NP
MW-2	10/15/98	157.92	7.67	150.25	Not Sampled: Well Sampled Annually							
MW-2	02/18/99	157.92	6.63	151.29	Not Sampled: Well Sampled Annually							
MW-2	05/24/99	157.92	7.43	150.49	<50	6.3	<0.5	0.7	<0.5	29	3.0	P
MW-2	08/27/99	157.92	8.22	149.70	<50	<0.5	<0.5	<0.5	<0.5	<3	0.95	NP
MW-2	10/26/99	157.92	8.46	149.46	Not Sampled: Well Sampled Annually							
MW-2	02/03/00	157.92	7.75	150.17	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP
MW-3 *	01/31/96	153.64	7.02	146.62	140	20	0.87	11	14	NA	NM	
MW-3 *	04/10/96	153.64	7.82	145.82	84	2.4	<0.5	1.9	1.1	NA	NM	
MW-3 *	07/16/96	153.64	6.80	146.84	<50	2.2	<0.5	<0.5	<0.5	<2.5	NM	
MW-3 *	10/14/96	153.64	7.67	145.97	<50	1.2	<0.5	<0.5	0.81	2.9	NM	
MW-3 *	03/27/97	153.64	7.62	146.02	<50	0.94	<0.5	0.9	0.63	<2.5	NM	
MW-3 *	05/27/97	153.64	6.72	146.92	Not Sampled: Well Sampled Semiannually							
MW-3 *	08/12/97	153.64	8.20	145.44	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM	
MW-3 *	11/17/97	153.64	7.64	146.00	Not Sampled: Well Sampled Semiannually							
MW-3 *	03/18/98	153.64	5.14	148.50	<50	<0.5	<0.5	<0.5	<0.5	<3	4.0	P
MW-3 *	05/12/98	153.64	5.53	148.11	Not Sampled: Well Sampled Semiannually							
MW-3 *	07/27/98	153.64	7.63	146.01	74	<0.5	<0.5	<0.5	<0.5	<3	1.7	NP
MW-3 *	10/15/98	153.64	7.46	146.18	Not Sampled: Well Sampled Semiannually							
MW-3 *	02/18/99	153.64	5.85	147.79	Not Sampled							
MW-3 *	05/24/99	153.64	7.00	146.64	<50	<0.5	<0.5	<0.5	<0.5	4	6.0	NP
MW-3 *	08/27/99	153.64	7.16	146.48	<50	<0.5	<0.5	<0.5	<0.5	<3	16.57	NP
MW-3 *	10/26/99	153.64	7.79	145.85	<50	<0.5	<0.5	<0.5	<1	<3	14.86	NP
MW-3 *	02/03/00	153.64	7.11	146.53	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)		
MW-4	01/31/96	156.53	5.64	150.89	230	23	2.2	3.7	32	NA	NM			
MW-4	04/10/96	156.53	6.66	149.87	7,300	1,600	350	350	830	NA	NM			
MW-4	07/16/96	156.53	7.73	148.80	5,600	1,100	160	240	520	150	NM			
MW-4	10/14/96	156.53	8.55	147.98	4,500	860	72	160	340	<62	NM			
MW-4	03/27/97	156.53	7.15	149.38	25,000	5,200	760	850	2,600	<250	NM			
MW-4	05/27/97	156.53	7.75	148.78	Not Sampled: Well Sampled Semiannually									
MW-4	08/12/97	156.53	8.46	148.07	4,800	950	40	140	210	170	NM			
MW-4	11/17/97	156.53	8.24	148.29	Not Sampled: Well Sampled Semiannually									
MW-4	03/16/98	156.53	5.32	151.21	<50	<0.5	<0.5	<0.5	<0.5	<3	1.5	P		
MW-4	05/12/98	156.53	6.38	150.15	Not Sampled: Well Sampled Semiannually									
MW-4	07/27/98	156.53	7.36	149.17	21,000	6,100	390	810	1,600	<300	0.5	NP		
MW-4 *	10/15/98	156.53	8.30	148.23	Not Sampled: Well Sampled Semiannually									
MW-4 *	02/18/99	156.53	4.39	152.14	Not Sampled									
MW-4 *	05/24/99	156.53	7.45	149.08	18,000	5,600	350	410	1,300	<300	1.0	NP		
MW-4 *	08/27/99	156.53	8.07	148.46	12,000	3,200	170	490	810	65	1.32	NP		
MW-4 *	10/26/99	156.53	8.72	147.81	12,000	3,100	130	450	680	12	1.39	NP		
MW-4 *	02/03/00	156.53	7.41	149.12	9,300	2,800	96	330	400	73	1.0	NP		
MW-5	01/31/96	151.33	8.64	142.69	<50	<0.5	<0.5	<0.5	<0.5	NA	NM			
MW-5	04/10/96	151.33	N/A	--	<50	<0.5	<0.5	<0.5	<0.5	NA	NM			
MW-5	07/16/96	151.33	8.15	143.18	<50	0.79	1.3	<0.5	<0.5	<2.5	NM			
MW-5	10/14/96	151.33	7.92	143.41	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM			
MW-5	03/27/97	151.33	7.75	143.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM			
MW-5	05/27/97	151.33	8.16	143.17	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NM			
MW-5	08/12/97	151.33	Well Inaccessible											
MW-5	11/17/97	151.33	8.75	142.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.0	NP		
MW-5	03/16/98	151.33	6.90	144.43	<50	<0.5	<0.5	<0.5	<0.5	<3	1.5	P		

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MW-5	05/12/98	151.33	7.24	144.09	<50	<0.5	<0.5	<0.5	<0.5	<3	2.2	P
MW-5	07/27/98	151.33	7.91	143.42	<50	<0.5	<0.5	<0.5	<0.5	<3	1.3	P
MW-5	10/15/98	151.33	8.31	143.02	<50	<0.5	<0.5	<0.5	0.6	<3	3.0	P
MW-5	02/18/99	151.33	7.25	144.08	<50	<0.5	<0.5	<0.5	<0.5	<3	2.0	P
MW-5	05/24/99	151.33	7.52	143.81	<50	<0.5	<0.5	<0.5	<0.5	<3	2.0	NP
MW-5	08/27/99	151.33	8.31	143.02	<50	<0.5	<0.5	<0.5	<0.5	<3	2.28	P
MW-5	10/26/99	151.33	8.61	142.72	<50	<0.5	<0.5	<0.5	<1	<3	1.99	P
MW-5	02/03/00	151.33	10.09	141.24	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP
MW-6	01/31/96	153.84	5.15	148.69	Not Sampled: Well Sampled Annually							
MW-6	04/10/96	153.84	4.58	149.26	Not Sampled: Well Sampled Annually							
MW-6	07/16/96	153.84	4.96	148.88	<50	<0.5	<0.5	<0.5	<0.5	150	NM	
MW-6	10/14/96	153.84	6.15	147.69	Not Sampled: Well Sampled Annually							
MW-6	03/27/97	153.84	4.40	149.44	Not Sampled: Well Sampled Annually							
MW-6	05/27/97	153.84	4.90	148.94	Not Sampled: Well Sampled Annually							
MW-6	08/12/97	153.84	5.43	148.41	<50	<0.5	<0.5	<0.5	<0.5	39	NM	
MW-6	11/17/97	153.84	5.87	147.97	Not Sampled: Well Sampled Annually							
MW-6	03/16/98	153.84	4.52	149.32	Not Sampled: Well Sampled Annually							
MW-6	05/12/98	153.84	4.42	149.42	Not Sampled: Well Sampled Annually							
MW-6	07/27/98	153.84	4.75	149.09	<50	<0.5	<0.5	<0.5	<0.5	18	0.9	P
MW-6	10/15/98	153.84	5.75	148.09	Not Sampled: Well Sampled Annually							
MW-6	02/18/99	153.84	3.93	149.91	Not Sampled: Well Sampled Annually							
MW-6	05/24/99	153.84	4.32	149.52	<50	<0.5	<0.5	<0.5	<0.5	6	2.0	NP
MW-6	08/27/99	153.84	5.72	148.12	<50	<0.5	<0.5	<0.5	<0.5	8	1.02	NP
MW-6	10/26/99	153.84	5.94	147.90	Not Sampled: Well Sampled Annually							
MW-6	02/03/00	153.84	5.44	148.40	<50	<0.5	<0.5	<0.5	<1	<3	1.0	NP

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

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE (ppb)	Dissolved Oxygen (ppm)	Purged/ Not Purged (P/NP)
MSL	= Mean sea level.											
TOC	= Top of casing.											
TPPH	= Total purgeable 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 by EPA method 8021B. (EPA method 8020 prior to 10/26/99).											
ppb	= Parts per billion.											
ppm	= Parts per million.											
<	= Less than laboratory detection limit stated to the right.											
NA	= Not analyzed.											
NM	= Not measured.											
N/A	= Not available.											
*	= ORCs installed in well MW-3 beginning 11/14/95 and in well MW-4 beginning 09/29/98. Please refer to Appendix D for details.											

**Table 2
Groundwater Flow Direction and Gradient**

**ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California**

Date Measured	Average Flow Direction	Average Hydraulic Gradient
01-31-96	Southwest	0.04
04-10-96	Southwest	0.04
07-16-96	Southwest	0.03
10-14-96	Southwest	0.03
03-27-97	Southwest	0.04
05-27-97	Southwest	0.03
08-12-97	Southwest	0.04
11-17-97	Southwest	0.03
03-16-98	Southwest	0.03
05-12-98	Southwest	0.04
07-27-98	Southwest	0.04
10-15-98	Southwest	0.02
02-18-99	Southwest	0.05
05-24-99	Southwest	0.03
08-27-99	Southwest	0.03
10-26-99	Southwest	0.03
02-03-00	Southwest	0.047

Table D-1
Intrinsic Bioremediation Evaluation and Enhancement Data

ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California

Well	Date Sampled	<u>Field Analyses</u>					<u>Laboratory Analyses</u>										
		Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO ₃ /L)	B.O.D. (mg/L)	Carbon Dioxide (mg/L)	C.O.D. (mg/L)	Methane (%)	Nitrate as Nitrate (mg/L)	Nitrite as Nitrite (mg/L)	Sulfate (mg/L)	TPH as Gasoline (µg/L)	Total BTEX (µg/L)	
MW-3	11/14/95	**	65.5*	6.76*	508*	7.17	N/A	NS	NS	NS	NS	NS	6.6	<1.0	NS	140	46
MW-3	06/06/96	**	66.2	7.38	700	12.28	N/A	NS	NS	NS	NS	NS	NS	NS	NS	84†	5.4†
MW-3	07/16/96		67.8	7.08	1,010	8.73	0.0	280	1.8	270	44	<0.020	<1.0	NS	78	<50	2.2
MW-3	01/21/97	**	59	N/A	N/A	11.15	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	08/12/97	**	74.4	6.65	600	6.7	1.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	11/17/97		N/A	N/A	N/A	12.0	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-3	03/16/98		68.5	7.75	806	4.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	05/12/98		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3	07/27/98		68.1	6.81	904	1.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	74	ND
MW-3	09/29/98	**	ORC installed														
MW-3	10/15/98		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3	02/18/99		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3	05/24/99		66.2	7.24	799	6.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	07/26/99	**	ORC installed														
MW-3	08/27/99		69.0	7.97	782	16.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	10/26/99		66.5	5.93	794	14.86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-3	02/03/00		62.0	7.42	7,877	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-4	07/16/96		69.5	6.72	1,370	3.20	4.20	420	NS	470	NS	0.11	<1.0	NS	18	5,600	2,020
MW-4	03/16/98		66.2	6.89	1,411	1.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-4	05/12/98		NM	NM	NM	NM	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	07/27/98		70.5	6.34	1,434	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21,000	8,900
MW-4	09/29/98	**	ORC installed														
MW-4	10/15/98		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	02/18/99		NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	05/24/99		67.6	6.72	1,509	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18,000	7,660
MW-4	07/26/99	**	ORC installed														

**Table D-1
Intrinsic Bioremediation Evaluation and Enhancement Data**

**ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California**

Well	Date Sampled	<u>Field Analyses</u>					<u>Laboratory Analyses</u>									
		Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO ₃ /L)	B.O.D. (mg/L)	Carbon Dioxide (mg/L)	C.O.D. (mg/L)	Methane (%)	Nitrate as Nitrate (mg/L)	Nitrite as Nitrite (mg/L)	Sulfate (mg/L)	TPH as Gasoline (µg/L)	Total BTEX (µg/L)
MW-4	08/27/99	70.5	7.09	1,469	1.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12,000	4,670
MW-4	10/26/99	66.8	7.05	1,565	1.39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12,000	4,360
MW-4	02/03/00	64.1	7.27	1,506	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9,300	3,626
MW-5	07/16/96	70.4	6.85	690	6.80	0.0	170	NS	180	NS	<0.020	<1.0	NS	35	<50	1.1
MW-5	03/16/98	69.5	7.19	584	1.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	05/12/98	65.9	7.04	619	2.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	07/27/98	73.6	7.39	569	1.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	10/15/98	65.8	6.88	626	3.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	0.6
MW-5	02/18/99	63.4	6.98	616	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	05/24/99	66.7	6.70	591	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	08/27/99	72.6	7.10	624	2.28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	10/26/99	70.4	5.95	601	1.99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-5	02/03/00	62.1	7.31	6,072	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	06/06/96	N/A	N/A	N/A	3.47	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	03/16/98	N/A	N/A	N/A	N/A	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	05/12/98	NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	07/27/98	70.3	6.67	638	0.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	10/15/98	NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	02/18/99	NM	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	05/24/99	65.5	6.62	713	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	08/27/99	73.0	7.12	589	1.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND
MW-6	10/26/99	NM	NM	NM	2.51	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	02/03/00	61.7	7.32	5,091	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND

**Table D-1
Intrinsic Bioremediation Evaluation and Enhancement Data**

**ARCO Service Station 0374
6407 Telegraph Avenue, Oakland, California**

Well	Date Sampled	<u>Field Analyses</u>					<u>Laboratory Analyses</u>									
		Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	D.O. (mg/L)	Ferrous Iron (mg/L)	Total Alkalinity (mg CaCO ₃ /L)	B.O.D. (mg/L)	Carbon Dioxide (mg/L)	C.O.D. (mg/L)	Methane (%)	Nitrate as Nitrate (mg/L)	Nitrite as Nitrite (mg/L)	Sulfate (mg/L)	TPH as Gasoline (µg/L)	Total BTEX (µg/L)
		D.O.	= Dissolved oxygen		µg/L	= Micrograms per liter										
		B.O.D.	= Biochemical oxygen demand		NM	= not measured										
		C.O.D.	= Chemical oxygen demand		NS	= Not sampled										
		TPPH	= Total purgeable petroleum hydrocarbons		ND	= Not detected										
		BTEX	= Benzene, toluene, ethylbenzene, and xylenes		N/A	= Not available										
		deg F	= Degrees Fahrenheit		*	Field measurements collected on November 2, 1995.										
		µmhos	= Micromhos		**	ORC installed										
		mg/L	= Milligrams per liter		†	From April 10, 1996 groundwater monitoring event.										

ATTACHMENT D

EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

Error Summary Log

06/20/03

EDF 1.2: All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #374, Oakland, CA
Work Order Number:	MME0742
Global ID:	T0600100106
Lab Report Number:	MME0742062020030803

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotcl	Run	Sub
MME07420620200	MW-1 30803	MME074201	W	CS	8260+OX	SW5030B	05/23/03	06/06/03	06/06/03	3F06006	1	
MME07420620200	MW-2 30803	MME074202	W	CS	8260+OX	SW5030B	05/23/03	06/06/03	06/06/03	3F06006	1	
MME07420620200	MW-3 30803	MME074203	W	CS	8260+OX	SW5030B	05/23/03	06/06/03	06/06/03	3F06006	1	
MME07420620200	MW-4 30803	MME074204	W	CS	8260+OX	SW5030B	05/23/03	06/06/03	06/06/03	3F06006	1	
MME07420620200	MW-5 30803	MME074205	W	CS	8260+OX	SW5030B	05/23/03	06/06/03	06/06/03	3F06010	1	
MME07420620200	MW-6 30803	MME074206	W	CS	8260+OX	SW5030B	05/23/03	06/06/03	06/06/03	3F06010	1	
		MME074505	W	NC	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06006	1	
		MME075501	W	NC	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06010	1	
		3F06006BSD1	WQ	BD1	8260+OX	SW5030B	//	06/06/03	06/07/03	3F06006	1	
		3F06006BSD2	WQ	BD2	8260+OX	SW5030B	//	06/06/03	06/07/03	3F06006	1	
		3F06006BS1	WQ	BS1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06006	1	
		3F06006BS2	WQ	BS2	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06006	1	
		3F06006BLK1	WQ	LB1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06006	1	
		3F06006MS1	W	MS1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06006	1	
		3F06006MSD1	W	SD1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06006	1	
		3F06010BS1	WQ	BS1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06010	1	
		3F06010BS2	WQ	BS2	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06010	1	
		3F06010BLK1	WQ	LB1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06010	1	
		3F06010MS1	W	MS1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06010	1	
		3F06010MSD1	W	SD1	8260+OX	SW5030B	//	06/06/03	06/06/03	3F06010	1	

EDFSAMP: Error Summary Log

06/20/03

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

EDFTEST: Error Summary Log

06/20/03

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

EDFRES: Error Summary Log

06/20/03

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3F06006MS1	MS1	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06006MSD1	SD1	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06010MS1	MS1	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06010MSD1	SD1	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074201	CS	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074201	CS	W	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	MME074202	CS	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074202	CS	W	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	MME074203	CS	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074203	CS	W	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	MME074204	CS	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074204	CS	W	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	MME074205	CS	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074205	CS	W	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	MME074206	CS	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME074206	CS	W	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	MME074505	NC	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	MME075501	NC	W	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06006BLK1	LB1	WQ	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06006BLK1	LB1	WQ	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	3F06006BS2	BS2	WQ	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06006BSD2	BD2	WQ	8260+OX	PR	06/07/03	1	GROC6C10
Warning: extra parameter	3F06010BLK1	LB1	WQ	8260+OX	PR	06/06/03	1	GROC6C10
Warning: extra parameter	3F06010BLK1	LB1	WQ	8260+OX	PR	06/06/03	1	XYLENES
Warning: extra parameter	3F06010BS2	BS2	WQ	8260+OX	PR	06/06/03	1	GROC6C10

EDFQC: Error Summary Log

06/20/03

Error type	Lablotcti	Anmcode	Parlabel	Qccode	Labqcid
There are no errors in this data files					

EDFCL: Error Summary Log

06/20/03

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

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Date/Time of Submittal: 6/20/2003 9:09:04 AM

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Facility Name: ARCO

Submittal Title: 2nd Qtr 2003 Monitoring Report for #374

Submittal Type: GW Monitoring Report

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