



August 30, 2003

Alameda County
SEP 03 2003
Environmental Health

Mr. Don Hwang
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

**Re: Third Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #6148
5131 Shattuck Avenue
Oakland, California
URS Project #38486335**

Dear Mr. Hwang:

On behalf of Atlantic Richfield Company (ARCO – an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is submitting the *Third Quarter 2003 Groundwater Monitoring Report* for the ARCO Service Station #6148, located at 5131 Shattuck 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: Third Quarter 2003 Groundwater Monitoring Report

cc: Mr. Paul Supple, ARCO, (electronic copy uploaded to ENFOS)

REPORT

Alameda County
SEP 03 2003
Environmental Health

**THIRD QUARTER 2003
GROUNDWATER MONITORING**

**ARCO SERVICE STATION #6148
5131 SHATTUCK AVENUE
OAKLAND, CALIFORNIA**

Prepared for
Atlantic Richfield Company

August 30, 2003

URS

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

38486335

Date: August 30, 2003
Quarter: 3Q 03

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 6148 Address: 5131 Shattuck Avenue, Oakland, California
Atlantic Richfield Co. Environmental Engineer: Paul Supple
Consulting Co./Contact Person: URS Corporation / Scott Robinson
Consultant Project No.: 38486335
Primary Agency: Alameda County Health Care Services Agency (ACHCSA)

WORK PERFORMED THIS QUARTER (Third – 2003):

1. Performed third quarter 2003 groundwater monitoring event on July 31, 2003.
2. Prepared and submitted third quarter 2003 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER (Fourth – 2003):

1. Perform fourth quarter 2003 groundwater monitoring event.
2. Prepare and submit fourth quarter 2003 groundwater monitoring report.
3. Replace oxygen releasing compounds (ORC) socks in wells MW-2 and MW-5.

Current Phase of Project: GW monitoring/sampling
Frequency of Groundwater Sampling: Quarterly : MW-1, MW-2, MW-3, & MW-5
Semi-Annually (1st/3rd Quarter): Well MW-4
Annually (3rd Quarter): MW-6 & MW-7
Frequency of Groundwater Monitoring: Quarterly
Is Free Product (FP) Present On-Site: No
Current Remediation Techniques: Soil Vapor Extraction (SVE), Air-Sparge and Air-Bubbling Systems
(all non-operational), ORC: (MW-2 and MW-5)
Bulk Soil Removed to Date: 560 cubic yards
Approximate Depth to Groundwater: 14.18 (MW-6) to 17.74 (MW-1) feet
Groundwater Gradient (direction): Southwest
Groundwater Gradient (magnitude): 0.014 feet per foot

DISCUSSION:

TPH-g was detected in two of the seven wells sampled this quarter at concentrations of 67 µg/L (MW-6) and 320 µg/L (MW-3). Benzene was not detected in any wells sampled this quarter. MTBE was detected in four wells at concentrations ranging from 0.55 µg/L (MW-1) to 2.1 µg/L (MW-3). No other fuel oxygenates were detected during this sampling event.

RECOMMENDATIONS:

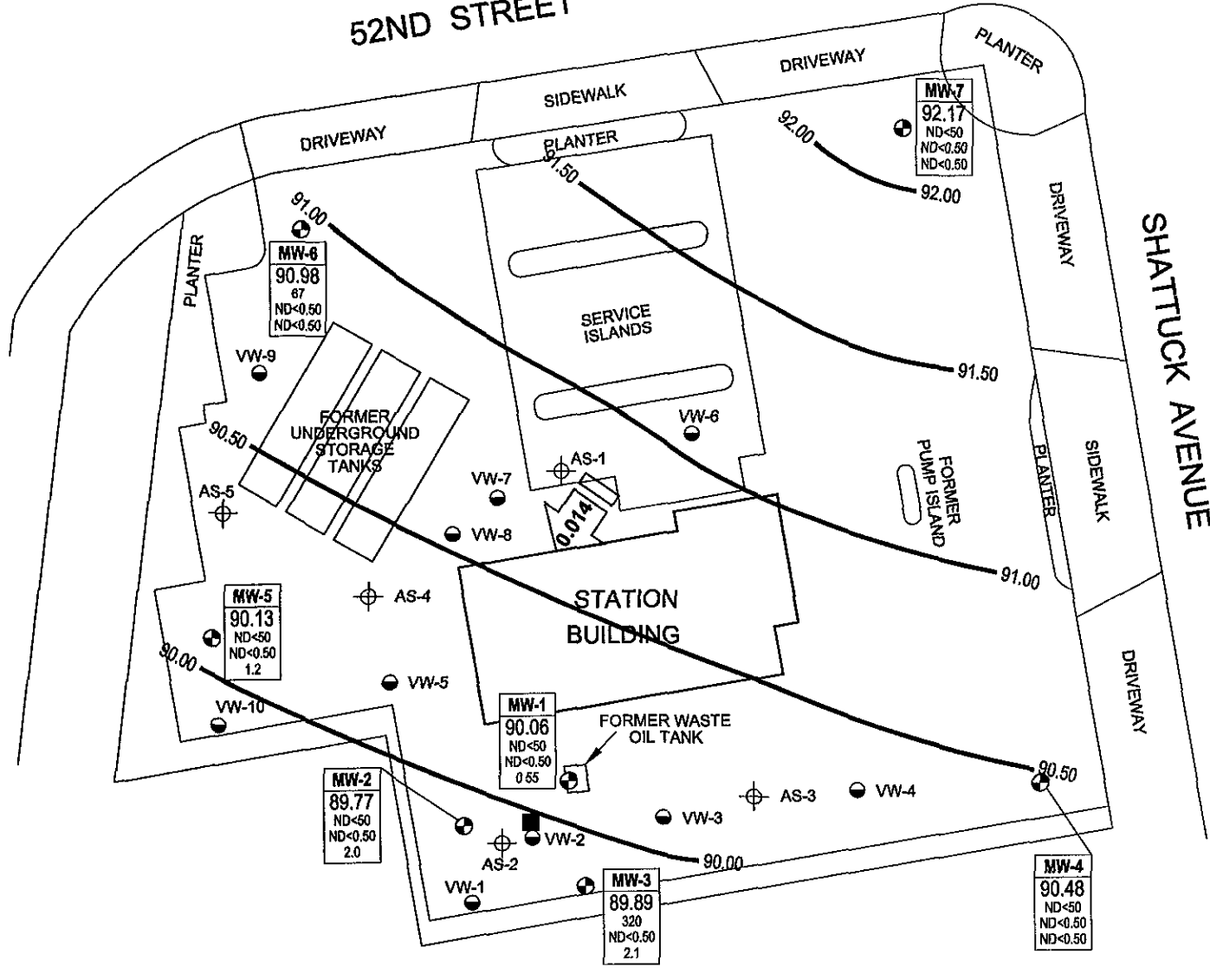
We recommend reducing the sampling frequency on the following wells from quarterly to semi-annually due to the consistently low to non-detect values for the constituents of concern: MW-2, MW-3, and MW-5. Due to consistently stable detections, we further recommend changing well MW-1 from quarterly to annual sampling and well MW-4 from semi-annual to annual sampling. All wells would continue to be gauged quarterly.

ATTACHMENTS:

- Figure 1 – Groundwater Elevation Contour and Analytical Summary Map – July 31, 2003
- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – Groundwater Flow Direction and Gradient
- Table 3 – Fuel Oxygenate Analytical Data
- 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

52ND STREET

SHATTUCK AVENUE

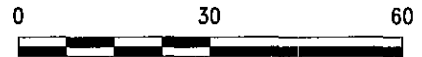


LEGEND:

- MONITORING WELL
- AIR SPARGING WELL
- SOIL VAPOR EXTRACTION WELL
- DESTROYED WELL
- Well** WELL DESIGNATION
- ELEV** GROUNDWATER ELEVATION (FT/MSL)
- TPH-g** TPH-g, BENZENE & MTBE CONCENTRATION
- Benzene** IN MICROGRAMS PER LITER (µg/L)
- MTBE**
- ND< NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
- GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT)
- 91.00 — GROUNDWATER ELEVATION CONTOUR (FT ABOVE MSL)



NORTH



SCALE IN FEET

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

X:\x_env\wastel\BP_GEMS\Sites\Scott_Robinson\Paul_Supple\6148\Monitoring\Ctr_3_2003\Drawings\GWEC-AS_7-31.dwg, 08/27/2003 10:53:34 AM, JKMT, URS



Project No. 38486335
 Arco Service Station 6148
 5131 Shattuck Avenue
 Oakland, California

**GROUNDWATER ELEVATION CONTOUR
 AND ANALYTICAL SUMMARY MAP**
 Third Quarter 2003 (July 31, 2003)

FIGURE
 1

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6148
5131 Shattuck 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 ⁵ (mg/L)	pH ⁵
MW-1	06/21/00	107.80	17.49	90.31	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3.0	NA	NA
	09/20/00		17.64	90.16	ND<50	ND<0.5	0.677	ND<0.5	0.969	ND<2.5	NA	NA
	12/22/00		16.87	90.93	186	5.38	0.522	9.52	30.2	8.91	NA	NA
	03/26/01		16.60	91.20	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	9.1	NA	NA
	05/30/01		17.10	90.70	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	09/23/01		17.53	90.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.7	NA	NA
	12/28/01		15.57	92.23	ND<50	2.7	ND<0.5	ND<0.5	ND<0.5	20	NA	NA
	03/21/02		15.57	92.23	NS	NS	NS	NS	NS	NS	NA	NA
	04/17/02		16.25	91.55	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	08/19/02		17.69	90.11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	2.0	7.1
	11/27/02		17.45	90.35	ND <50	ND<0.50	1.8	0.65	3.5	1.7	1.0	6.3
	02/05/03 ⁴		16.93	90.87	ND <50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1	1.2	7.3
	05/13/03	NP	16.95	90.85	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.0	6.5
	07/31/03	NP	17.74	90.06	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.55	1.2	6.0

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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 ⁵ (mg/L)	pH ⁵
MW-2	06/21/00	107.28	17.19	90.09	69	ND<0.5	ND<0.5	ND<0.5	ND<1.0	12	NA	NA
	09/20/00		17.31	89.97	ND<50	0.964	ND<0.5	ND<0.5	ND<.05	5 05	NA	NA
	12/22/00		16.58	90.70	2,140	174	60.2	118	438	123	NA	NA
	03/26/01		16.45	90.83	8,490	333	148	495	1,660	ND<250	NA	NA
	05/30/01		16.83	90.45	4,700	200	71	260	780	43	NA	NA
	09/23/01		17.30	89.98	160	5.9	1.8	0.80	41	14	NA	NA
	12/28/01		15.38	91.90	1,800	54	ND<5.0	ND<5.0	240	30	NA	NA
	03/21/02		15.36	91.92	NS	NS	NS	NS	NS	NS	NA	NA
	04/17/02		16.01	91.27	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10	NA	NA
	08/19/02		17.53	89.75	170 ¹	22	0.92	14	26	ND<2.5	3.0	6.9
	11/27/02		17.21	90.07	340	22	0.68	13	26	ND<0.50	1.6	6.6
	02/05/03 ⁴		16.72	90.56	83	2.7	ND<0.50	0.97	15	4.3	0.7	7.0
	05/13/03 ⁶	NP	16.72	90.56	ND<50	0.91	ND<0.50	ND<0.50	0.60	2.8	0.7	6.5
	07/31/03	NP	17.51	89.77	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.0	7.1	6.7

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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 ⁵ (mg/L)	pH ⁵
MW-3	06/21/00	107.61	17.52	90.09	200	ND<0.5	ND<0.5	ND<0.5	2.1	24	NA	NA
	09/20/00		17.61	90.00	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	20	NA	NA
	12/22/00		16.85	90.76	227	4.73	1.06	2.58	5.22	27.3	NA	NA
	03/26/01		16.79	90.82	287	6.29	1.58	6.47	12.1	24.2	NA	NA
	05/30/01		17.11	90.50	500	10	ND<0.5	7.00	16	20	NA	NA
	09/23/01		17.57	90.04	400	6.4	0.74	ND<0.5	0.62	22	NA	NA
	12/28/01		15.41	92.20	270	2.5	2.4	ND<0.5	2.3	9.2	NA	NA
	03/21/02		15.58	92.03	NS	NS	NS	NS	NS	NS	NA	NA
	04/17/02		16.25	91.36	360	2.5	0.72	ND<0.5	ND<0.5	12	NA	NA
	08/19/02		17.66	89.95	750 ²	11	2.1	ND<0.5	2.4	14	1.4	6.8
	11/27/02		17.69	89.92	470	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1	6.6
	02/05/03 ⁴		16.82	90.79	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.4	1.3	6.6
	05/13/03	NP	17.12	90.49	300	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.2	1.4	6.7
	07/31/03	NP	17.72	89.89	320	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.1	1.4	6.8

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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 ⁵ (mg/L)	pH ⁵
MW-4	06/21/00	106.71	16.00	90.71	1,400	5.3	7.3	36	85	4	NA	NA
	09/20/00		16.03	90.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	12/22/00		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS
	03/26/01		15.05	91.66	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	05/30/01		15.62	91.09	NS	NS	NS	NS	NS	NS	NS	NS
	09/23/01		16.07	90.64	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	12/28/01		13.68	93.03	NS	NS	NS	NS	NS	NS	NS	NS
	03/21/02		14.04	92.67	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	04/17/02		14.78	91.93	NS	NS	NS	NS	NS	NS	NS	NS
	08/19/02		16.18	90.53	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	1.4	6.8
	11/27/02		15.89	90.82	NS	NS	NS	NS	NS	NS	NS	NS
	02/05/03 ⁴		15.40	91.31	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1	6.6
	05/13/03		15.42	91.29	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/03		P	16.23	90.48	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.4

Table 1
Groundwater Elevation and Analytical Data

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Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Dissolved Oxygen ⁵ (mg/L)	pH ⁵	
MW-5	06/21/00	106.60	16.52	90.08	67	ND<0.5	ND<0.5	ND<0.5	ND<1.0	10	NA	NA	
	09/20/00		16.34	90.26	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.48	NA	NA	
	12/22/00		15.58	91.02	341	11.5	2.53	4.02	6.25	146	NA	NA	
	03/26/00		15.45	91.15	767	12.4	ND<5.0	ND<5.0	ND<5.0	163	NA	NA	
	05/30/01		15.77	90.83	110	2.3	ND<0.5	ND<0.5	0.81	72	NA	NA	
	09/23/01		16.16	90.44	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	
	12/28/01		14.09	92.51	240	2.8	1.9	ND<0.5	2.6	48	NA	NA	
	03/21/02		14.43	92.17	NS	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NS	NS	NS	
	04/17/02		14.96	91.64	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	
	08/19/02		16.34	90.26	NS ³	NS ³	NS ³	NS ³	NS ³	NS ³	NS ³	NS ³	
	11/27/02			NM ³	NM ³	NS ³	NS ³	NS ³	NS ³	NS ³	NS	NS	
	02/05/03 ⁴			NM ³	NM ³	NS ³	NS ³	NS ³	NS ³	NS ³	NS ³	NS ³	
	05/13/03 ⁶	NP		15.43	91.17	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	15	14	6.2
	07/31/03	NP		16.47	90.13	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.2	14.1	8.1

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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 ⁵ (mg/L)	pH ⁵
MW-6	06/21/00	105.13	13.91	91.22	NS	NS	NS	NS	NS	NS	NS	NS
	09/20/00		14.03	91.10	NS	NS	NS	NS	NS	NS	NS	NS
	12/22/00		NM	NC	NS	NS	NS	NS	NS	NS	NS	NS
	03/26/01		12.59	92.54	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	05/30/01		13.40	91.73	NS	NS	NS	NS	NS	NS	NS	NS
	09/23/01		13.49	91.64	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/01		12.07	93.06	NS	NS	NS	NS	NS	NS	NS	NS
	03/21/02		11.79	93.34	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	04/17/02		12.45	92.68	NS	NS	NS	NS	NS	NS	NS	NS
	08/19/02		13.96	91.17	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	2.8	6.9
	11/27/02		14.07	91.06	NS	NS	NS	NS	NS	NS	NS	NS
	02/05/03 ⁴		13.55	91.58	NS	NS	NS	NS	NS	NS	NS	NS
	05/13/03		13.57	91.56	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/03		P	14.18	90.95	67	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.8

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #6148
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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 ⁵ (mg/L)	pH ⁵
MW-7	06/21/00	107.05	14.57	92.48	NS	NS	NS	NS	NS	NS	NS	NS
	09/20/00		14.58	92.47	NS	NS	NS	NS	NS	NS	NS	NS
	12/22/00		13.21	93.84	NS	NS	NS	NS	NS	NS	NS	NS
	03/26/01		13.18	93.87	71.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	05/30/01		13.80	93.25	NS	NS	NS	NS	NS	NS	NS	NS
	09/23/01		14.27	92.78	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/01		12.24	94.81	NS	NS	NS	NS	NS	NS	NS	NS
	03/21/02		12.16	94.89	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	04/17/02		13.08	93.97	NS	NS	NS	NS	NS	NS	NS	NS
	08/19/02		14.73	92.32	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	1.4	6.7
	11/27/02		14.76	92.29	NS	NS	NS	NS	NS	NS	NS	NS
	02/05/03 ⁴		14.07	92.98	NS	NS	NS	NS	NS	NS	NS	NS
	05/13/03		14.00	93.05	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/03		P	14.88	92.17	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.6

Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station # 6148
5131 Shattuck Avenue
Oakland, California

TPH = Total Petroleum Hydrocarbons

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted (Prior to 2/5/03)

µg/L = Milligrams per liter

mg/L = Micrograms per liter

NA = Not available

NS = Not Sampled

ND< = Not detected above specified laboratory detection limit

P = Purge

NP = No Purge

1 = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

2 = Chromatogram Pattern: Gasoline C6-C10

3 = Well MW-5 not sampled due to ORC sock wedged in well.

4 = TPH-g, BTEX, and MTBE analyzed by EPA method 8260B beginning on 1st Quarter Sampling Event (2/5/03)

5 = pH and dissolved oxygen are field measurements.

6 = During this monitoring event, the oxygen releasing compounds (ORC) were replaced for this well.

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

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station #6148
5131 Shattuck Avenue
Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
06/21/00	South-Southwest	0.02
09/20/00	South-Southwest	0.017
12/22/00	South-Southwest	0.022
03/26/01	South-Southwest	0.020
05/30/01	South-Southwest	0.020
09/23/01	South-Southwest	0.019
12/28/01	Southwest	0.019
03/21/02	Southwest	0.019
04/17/02	Southwest	0.017
08/19/02	Southwest	0.016
11/27/02	Southwest	0.015
02/05/03	Southwest	0.017
05/13/03	Southwest	0.013
07/31/03	Southwest	0.014

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

**Table 3
Oxygenate Analytical Data**

ARCO Service Station #6148
5131 Shattuck Avenue
Oakland, California

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)
MW-1	02/05/03	ND<40	ND<20	1.1	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/13/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/31/03	ND<100	ND<20	0.55	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-2	02/05/03	ND<40	ND<20	4.3	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/13/03	ND<100	ND<20	2.8	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/31/03	ND<100	ND<20	2.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-3	02/05/03	ND<40	ND<20	2.4	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/13/03	ND<100	ND<20	2.2	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/31/03	ND<100	ND<20	2.1	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-4	02/05/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/13/03	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-5	02/05/03 ¹	NS	NS	NS	NS	NS	NS	NS	NS
	05/13/03	ND<100	ND<20	15	ND<0.50	ND<0.50	1.1	NA	NA
	07/31/03	ND<100	ND<20	1.2	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-6	02/05/03	NS	NS	NS	NS	NS	NS	NS	NS
	05/13/03	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-7	02/05/03	NS	NS	NS	NS	NS	NS	NS	NS
	05/13/03	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50

- Note = All fuel oxygenate compounds analyzed using EPA Method 8260B
- TBA = tert-Butyl alcohol
- MTBE = Methyl tert-butyl ether
- DIPE = Di-isopropyl ether
- ETBE = Ethyl tert butyl ether
- TAME = tert-Amyl methyl ether
- 1,2-DCA = 1,2-Dichloroethane
- EDB = 1,2-Dibromoethane
- µg/L = micrograms per liter
- ND< = Not detected at or above the laboratory detection limit
- NA = Data not available, not analyzed, or not applicable
- NS = Not Sampled
- 1 = Well MW-5 not sampled due to ORC sock wedged in well.

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.

WELL GAUGING DATA

Project # 030731-BA1 Date 7/31/03 Client ARCO 6148

Site 5131 SHATTUCK AVE, OAKLAND

	Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC
.5'	MW-1	4					17.74	25.50	TOC
2'	MW-2	4	gauged w/ ORC in well				17.72 ⁵¹	25.55	
0'	MW-3	4	gauged w/ ORC in well				17.72	25.60	
	MW-4	4					16.23	26.05	
2'	MW-5	4	gauged w/ ORC in well				16.47	24.80	
	MW-6	4					14.18	26.60	
	MW-7	4					14.88	26.95	

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030731-BA1	Station # 6148
Sampler: BRIAN ALCOCK	Date: 7/31/03
Well I.D.: MW-1	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 25.50	Depth to Water: 17.74
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: _____

Sampling Method: Bailer Disposable Bailer Extraction Port Other: _____

Top of Screen: 11.5 If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

No Purge

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

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
0905	69.0	6.0	509	-	clear

Did well dewater? Yes No Gallons actually evacuated: -

Sampling Time: 0905 Sampling Date: 7/31/03

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxys + Ethanol by 8260

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

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030731-BA1</u>	Station # <u>6148</u>
Sampler: <u>Brian Alcorn</u>	Date: <u>7/31/03</u>
Well I.D.: <u>MW-2</u>	Well Diameter: 2 3 <u>4</u> 6 8 <u> </u>
Total Well Depth: <u>25.55</u>	Depth to Water: <u>17.51</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: <u>Bailer</u> Disposable Bailer Middleburg Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> 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.

No Purge

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

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>0940</u>	<u>67.9</u>	<u>6.7</u>	<u>483</u>	<u>—</u>	<u>clear</u>

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <u> </u>
Sampling Time: <u>0940</u>	Sampling Date: <u>7/31/03</u>
Sample I.D.: <u>MW-2</u>	Laboratory: Pace <u>(Sequoia)</u> Other _____
Analyzed for: <u>TPH-G BTEX</u> MTBE TPH-D Other: <u>Oxys + Ethanol by 8260</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: <u>7.1</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030731-BA1	Station # 6148
Sampler: BRIAN ALCOX	Date: 7/31/03
Well I.D.: MW- 2 3	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 25.55 25.60	Depth to Water: 17.72
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 Disposable Bailer
 Middleburg Extraction Port
 Electric Submersible Other: _____
 Extraction Pump

Top of Screen: 12' 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.

No Purge

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

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
0930	67.5	6.8	615	—	cloudy brown orange

Did well dewater? Yes No Gallons actually evacuated: —

Sampling Time: 0930 Sampling Date: 7/31/03

Sample I.D.: MW-~~2~~3 Laboratory: Pace (Sequoia) Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxys + Ethanol by 8260

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
			1.21	
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030731-BA1</u>	Station # <u>6148</u>
Sampler: <u>Brian Alcorn</u>	Date: <u>7/31/03</u>
Well I.D.: <u>MW-4</u>	Well Diameter: 2 3 <u>4</u> 6 8 _____
Total Well Depth: <u>26.05</u>	Depth to Water: <u>16.23</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</u>	Other: _____
<u>Extraction Pump</u>	
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>6.5</u>	X	<u>3</u>	=	<u>19.5</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>1020</u>	<u>71.5</u>	<u>6.4</u>	<u>417</u>	<u>6.5</u>	<u>clear</u> @ 56PM
<u>1021</u>	<u>71.6</u>	<u>6.4</u>	<u>422</u>	<u>13.0</u>	"
<u>1022</u>	<u>71.6</u>	<u>6.4</u>	<u>414</u>	<u>19.5</u>	"

Did well dewater? Yes <input type="checkbox"/> <u>No</u>	Gallons actually evacuated: <u>19.5</u>
Sampling Time: <u>1025</u>	Sampling Date: <u>7/31/03</u>
Sample I.D.: <u>MW-4</u>	Laboratory: Pace <u>Sequoia</u> , Other _____
Analyzed for: <u>TPH-G BTEX</u> MTBE TPH-D Other: <u>Oxys + Ethanol by 826a</u>	
D.O. (if req'd):	Pre-purge: _____ mg/l, Post-purge: <u>1.7</u> mg/l
O.R.P. (if req'd):	Pre-purge: _____ mV, Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030731-BA1</u>	Station # <u>6148</u>
Sampler: <u>Brian Alcorn</u>	Date: <u>7/31/03</u>
Well I.D.: <u>MW-5</u>	Well Diameter: 2 3 <u>4</u> 6 8 _____
Total Well Depth: <u>24.30</u>	Depth to Water: <u>16.47</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 Middleboring Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable-Bailer</u> 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.

No Purge

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

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
<u>0420</u>	<u>66.2</u>	<u>8.1</u>	<u>644</u>	—	<u>clear-brown</u>

Did well dewater? Yes <input type="checkbox"/> No <input type="checkbox"/>	Gallons actually evacuated: <u>—</u>
Sampling Time: <u>0420</u>	Sampling Date: <u>7/31/03</u>
Sample I.D.: <u>MW-5</u>	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-G BTEX MTBE TPH-D</u> Other: <u>Oxys + Ethanol by 826a</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L
	Post-purge: <u>14.1</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV
	Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 030731-BA1	Station # 6148
Sampler: BRIAN ALCOBA	Date: 7/31/03
Well I.D.: MW-60	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 26.60	Depth to Water: 14.18
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 Middieburg <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>8.5</u>	X	<u>3</u>	=	<u>25.5</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
0959	69.0	6.5	428	8.5	cloudy brown @ 36m
1001	68.9	6.5	419	17.0	cloudy brown @ 46m
1002	68.9	6.5	419	25.5	" @ 56m

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 25.5
Sampling Time: 1005	Sampling Date: 7/31/03
Sample I.D.: MW-60	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-G BTEX</u> MTBE TPH-D Other: <u>Oxys + Ethanol by 8260</u>	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: <u>1.8</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>030731-BA1</u>	Station # <u>6148</u>
Sampler: <u>BRIAN ALCON</u>	Date: <u>7/31/03</u>
Well I.D.: <u>MW-7</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>26.95</u>	Depth to Water: <u>14.88</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 Disposable Bailer
 Middleburg Extraction Port
 Electric Submersible Other: _____
 Extraction Pump

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>8.0</u>	x	<u>3</u>	=	<u>24.0</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
1037	71.0	6.4	381	8.0	cloudy brown @ SERA
1038	70.9	6.3	379	16.0	"
1039	70.9	6.4	375	24.0	"

Did well dewater? Yes No Gallons actually evacuated: 24

Sampling Time: 1040 Sampling Date: 7/31/03

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Oxys + Ethanol by 8268

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>1.6</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:

6148
Station #

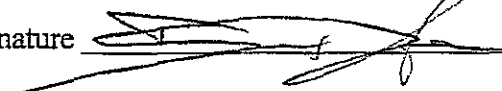
5131 Shattuck Ave, Oakland
Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

added equip. any other
rinse water _____ adjustments _____

TOTAL GALS. loaded onto
RECOVERED 69 BTS vehicle # 52

BTS event # time date
030731-BA1 1100 7/31/03

signature 

REC'D AT time date
_____ / /

unloaded by
signature _____

ATTACHMENT B

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

LABORATORY PROCEDURES

Laboratory Procedures

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



13 August, 2003

Scott Robinson
URS Corporation [Arco]
500 12th Street, Suite 200
Oakland, CA 94607

RE: ARCO #6148, Oakland, CA
Work Order: MMH0066

Enclosed are the results of analyses for samples received by the laboratory on 08/01/03 15:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Theresa Allen
Project Manager

CA ELAP Certificate #1210



URS Corporation [Arco]
500 12th Street, Suite 200
Oakland CA, 94607

Project: ARCO #6148, Oakland, CA
Project Number: INTRIM-50769
Project Manager: Scott Robinson

MMH0066
Reported:
08/13/03 09:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	MMH0066-01	Water	07/31/03 09:05	08/01/03 15:35
MW-2	MMH0066-02	Water	07/31/03 09:40	08/01/03 15:35
MW-3	MMH0066-03	Water	07/31/03 09:30	08/01/03 15:35
MW-4	MMH0066-04	Water	07/31/03 10:25	08/01/03 15:35
MW-5	MMH0066-05	Water	07/31/03 09:20	08/01/03 15:35
MW-6	MMH0066-06	Water	07/31/03 10:05	08/01/03 15:35
MW-7	MMH0066-07	Water	07/31/03 10:40	08/01/03 15:35

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

URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

 Project: ARCO #6148, Oakland, CA
 Project Number: INTRIM-50769
 Project Manager: Scott Robinson

 MMH0066
 Reported:
 08/13/03 09:58

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-1 (MMH0066-01) Water Sampled: 07/31/03 09:05 Received: 08/01/03 15:35

Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
Methyl tert-butyl ether	0.55	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	"
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	"
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	"
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 110 % 78-129 " " " "

MW-2 (MMH0066-02) Water Sampled: 07/31/03 09:40 Received: 08/01/03 15:35

Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
Methyl tert-butyl ether	2.0	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	"
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	"
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	"
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 111 % 78-129 " " " "

URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

 Project: ARCO #6148, Oakland, CA
 Project Number: INTRIM-50769
 Project Manager: Scott Robinson

 MMH0066
 Reported:
 08/13/03 09:58

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-3 (MMH0066-03) Water Sampled: 07/31/03 09:30 Received: 08/01/03 15:35

Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	2.1	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	320	50	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 113 % 78-129 " " " "

MW-4 (MMH0066-04) Water Sampled: 07/31/03 10:25 Received: 08/01/03 15:35

Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
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 108 % 78-129 " " " "

URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

 Project: ARCO #6148, Oakland, CA
 Project Number: INTRIM-50769
 Project Manager: Scott Robinson

 MMH0066
 Reported:
 08/13/03 09:58

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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MW-5 (MMH0066-05) Water Sampled: 07/31/03 09:20 Received: 08/01/03 15:35

Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	1.2	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 110 % 78-129 " " " "

MW-6 (MMH0066-06) Water Sampled: 07/31/03 10:05 Received: 08/01/03 15:35

Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
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)	67	50	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 111 % 78-129 " " " "

URS Corporation [Arco]
500 12th Street, Suite 200
Oakland CA, 94607

Project: ARCO #6148, Oakland, CA
Project Number: INTRIM-50769
Project Manager: Scott Robinson

MMH0066
Reported:
08/13/03 09:58

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (MMH0066-07) Water Sampled: 07/31/03 10:40 Received: 08/01/03 15:35									
Ethanol	ND	100	ug/l	1	3H11002	08/11/03	08/11/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
Methyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	"
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	"
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	"
Benzene	ND	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Gasoline Range Organics (C6-C10)	ND	50	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %		78-129	"	"	"	"	"

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 Oakland CA, 94607

 Project: ARCO #6148, Oakland, CA
 Project Number: INTRIM-50769
 Project Manager: Scott Robinson

 MMH0066
 Reported:
 08/13/03 09:58

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3H11002 - EPA 5030B P/T
Blank (3H11002-BLK1)

Prepared & Analyzed: 08/11/03

Ethanol	ND	100	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Gasoline Range Organics (C6-C10)	ND	50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.94		"	5.00		119	78-129			

Laboratory Control Sample (3H11002-BS1)

Prepared & Analyzed: 08/11/03

Methyl tert-butyl ether	20.4	0.50	ug/l	20.0		102	63-137			
Benzene	19.7	0.50	"	20.0		98.5	78-124			
Toluene	20.6	0.50	"	20.0		103	78-129			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.45		"	5.00		109	78-129			

Laboratory Control Sample (3H11002-BS2)

Prepared & Analyzed: 08/11/03

Methyl tert-butyl ether	4.23	0.50	ug/l	4.96		85.3	63-137			
Benzene	2.60	0.50	"	3.20		81.2	78-124			
Toluene	16.4	0.50	"	14.8		111	78-129			
Gasoline Range Organics (C6-C10)	198	50	"	220		90.0	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.56		"	5.00		111	78-129			

URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

 Project: ARCO #6148, Oakland, CA
 Project Number: INTRIM-50769
 Project Manager: Scott Robinson

 MMH0066
 Reported:
 08/13/03 09:58

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3H11002 - EPA 5030B P/T
Laboratory Control Sample (3H11002-BS3)

Prepared & Analyzed: 08/11/03

Methyl tert-butyl ether	10.2	0.50	ug/l	10.0		102	63-137			
Benzene	10.2	0.50	"	10.0		102	78-124			
Toluene	10.8	0.50	"	10.0		108	78-129			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.53</i>		<i>"</i>	<i>5.00</i>		<i>111</i>	<i>78-129</i>			

Laboratory Control Sample Dup (3H11002-BSD2)

Prepared & Analyzed: 08/11/03

Methyl tert-butyl ether	4.46	0.50	ug/l	4.96		89.9	63-137	5.29	13	
Benzene	2.97	0.50	"	3.20		92.8	78-124	13.3	12	QR-02
Toluene	16.9	0.50	"	14.8		114	78-129	3.00	10	
Gasoline Range Organics (C6-C10)	207	50	"	220		94.1	70-113	4.44	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.41</i>		<i>"</i>	<i>5.00</i>		<i>108</i>	<i>78-129</i>			

Matrix Spike (3H11002-MS1)

Source: MMH0126-02

Prepared & Analyzed: 08/11/03

Methyl tert-butyl ether	152	2.5	ug/l	49.6	110	84.7	63-137			
Benzene	26.8	2.5	"	32.0	0.45	82.3	78-124			
Toluene	162	2.5	"	148	ND	109	78-129			
Gasoline Range Organics (C6-C10)	2090	250	"	2200	230	84.5	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.49</i>		<i>"</i>	<i>5.00</i>		<i>110</i>	<i>78-129</i>			

Matrix Spike Dup (3H11002-MSD1)

Source: MMH0126-02

Prepared & Analyzed: 08/11/03

Methyl tert-butyl ether	149	2.5	ug/l	49.6	110	78.6	63-137	1.99	13	
Benzene	26.8	2.5	"	32.0	0.45	82.3	78-124	0.00	12	
Toluene	166	2.5	"	148	ND	112	78-129	2.44	10	
Gasoline Range Organics (C6-C10)	2160	250	"	2200	230	87.7	70-113	3.29	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.44</i>		<i>"</i>	<i>5.00</i>		<i>109</i>	<i>78-129</i>			



URS Corporation [Arco]
500 12th Street, Suite 200
Oakland CA, 94607

Project: ARCO #6148, Oakland, CA
Project Number: INTRIM-50769
Project Manager: Scott Robinson

MMH0066
Reported:
08/13/03 09:58

Notes and Definitions

- 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 _____
 BP BU/GEM CO Portfolio: _____
 BP Laboratory Contract Number: _____

Date: 7/31/03

Requested Due Date (mm/d/yyyy) MMH0066

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

Send To:	BP/GEM Facility No.:	Consultant/Contractor: URS
Lab Name: SEQUOIA	BP/GEM Facility Address: 5131 Shattuck Ave, OAKLAND, CA	Address: 500 12th St, Ste. 200
Lab Address: 885 Jarvis Dr. Morgan Hill, CA 95037	Site ID No. ARCO 6148	Oakland, CA 94609-4014
	Site Lat/Long:	e-mail EDD: syed_rehan@urscorp.com
	California Global ID #: T0600100103	Consultant/Contractor Project No.: 15-00006148.01 00427
Lab PM: Latonya Pelt	BP/GEM PM Contact: PAUL SUPPLE	Consultant Tele/Fax: 510-874-3280/510-874-3268
Tele/Fax: 408-776-8600 / 408-782-6308	Address: P.O. Box 6549 Moraga, CA 94570	Consultant/Contractor PM: Scott Robinson
Report Type & QC Level: Send RDP Reports	Tele/Fax: 925-299-8891/925-289-8572	Invoice to: Consultant/Contractor of <u>BP/GEM</u> (Circle one)
BP/GEM Account No.:		BP/GEM Work Release No: INTRIM -50769

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 (8260)	TPH-D (8015)	MTBE (8021)	MTBE (8260)	MTBE, TAME, ETBE (8260)	DPE, TBA (8260)		1,2-DCA & EDB (8260)
1	MW-1	0965	X				01	3					X					X		
2	MW-2	0940	X				02	3					X					X		
3	MW-3	0930	X				03	3					X					X		
4	MW-4	1025	X				04	3					X					X		
5	MW-5	0920	X				05	3					X					X		
6	MW-6	1005	X				06	3					X					X		
7	MW-7	1040	X				07	3					X					X		
8																				
9																				
10																				

Sampler's Name: Brian Accord	Relinquished By / Affiliation: <i>[Signature]</i>	Date: 8/1/03	Time: 9:42	Accepted By / Affiliation: <i>[Signature]</i>	Date: 8/1/03	Time: 9:42
Shipment Date: 8/1/03	Shipment Method: <i>[Signature]</i>	Date: 8/1/03	Time: 1535	Date: 8/1/03	Time: 1535	

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

Seals In Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt U/C Trip Blank Yes No

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: BP
 REC. BY (PRINT): AT
 WORKORDER: MW10066

DATE REC'D AT LAB: 9/1/03
 TIME REC'D AT LAB: 15:35
 DATE LOGGED IN: 9-9-03

Drinking water for regulatory purposes: YES/NO NO
 Wastewater for regulatory purposes: YES/NO 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 / Absent Intact / Broken*	01		MW-1	(B) Vials	HCL	L	7/3/02	3031040
2. Chain-of-Custody Present / Absent*	02		-2					
3. Traffic Reports or Packing List: Present / Absent	03		-3					
4. Airbill: Airbill / Sticker Present / Absent	04		-4					
	05		-5					
	06		-6					
	07		-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? <u>Yes</u> / No*								
10. Sample received within hold time: <u>Yes</u> / No*								
11. Proper Preservatives used: <u>Yes</u> / No*								
12. Temp Rec. at Lab: Is temp 4 +/- 2°C? <u>5°C</u> <u>Yes</u> / No***								

(Acceptance range for samples requiring thermal pres.)
 ***Exception (if any): Metals / DEF (Direct From Field) or Problem COC

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

ATTACHMENT C

HISTORICAL GROUNDWATER DATA

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present**

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Top of Casing Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH					Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)		
						Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)			MTBE (µg/L)	TRPH (mg/L)
MW-1	03-20-95	108.03	15.75	ND	92.28	830	140	5	41	110	--	--		
MW-1	06-06-95	108.03	17.68	ND	90.35	210	30	<0.5	7.3	16	--	--		
MW-1	08-24-95	107.80	17.45	ND	90.35	Not sampled: well was inaccessible due to construction								
MW-1	11-16-95	107.80	17.64	ND	90.16	<50	5.6	<0.5	1.4	1.2	55	--		
MW-1	02-27-96	107.80	15.21	ND	92.59	1,400	240	88	44	110	200	--		
MW-1	05-15-96	107.80	17.53	ND	90.27	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-1	08-14-96	107.80	17.15	ND	90.65	98	18	<0.5	1.9	1	45	--		
MW-1	11-11-96	107.80	17.78	ND	90.02	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-1	03-25-97	107.80	17.68	ND	90.12	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	05-15-97	107.80	17.91	ND	89.89	Not sampled: well sampled semi-annually, during the first and third quarter								
MW-1	10-26-97	107.80	18.85	ND	88.95	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	11-10-97	107.80	18.10	ND	89.70	<50	<0.5	<0.5	<0.5	<0.5	4	--		
MW-1	02-13-98	107.80	13.15	ND	94.65	<100	8.4	<1	<1	14	130	--		
MW-1	05-12-98	107.80	12.30	ND	95.50	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	07-28-98	107.80	17.04	ND	90.76	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	10-28-98	107.80	18.10	ND	89.70	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-1	02-12-99	107.80	15.84	ND	91.96	72	<0.5	<0.5	<0.5	<0.5	23	--		
MW-1	06-03-99	107.80	17.62	ND	90.18	890	33	1.5	12	2.8	250	--	1.44	NP
MW-1	10-26-99	107.80	16.92	ND	90.88	<50	<0.5	<0.5	<0.5	<1	9	--	9.58	NP
MW-2	03-20-95	107.43	15.50	ND#	91.93	Not sampled: floating product entered well during purging								
MW-2	06-06-95	107.43	17.43	ND	90.00	1,200	60	21	35	140	--	--		
MW-2	08-24-95	107.28	17.22	ND	90.06	Not sampled: well was inaccessible due to construction								
MW-2	11-16-95	107.28	17.36	ND	89.92	360	45	1.3	7.1	7.5	210	--		
MW-2	02-27-96	107.28	14.82	ND	92.46	8,900	1,400	980	150	550	940	--		
MW-2	05-15-96	107.28	17.40	ND	89.88	480	82	48	8	48	87	--		
MW-2	08-14-96	107.28	17.00	ND	90.28	130	22	4	2	9	120	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present**

ARCO Service Station 6148
5131 Shattuck Avenue, Oakland, California

Well Number	Date Gauged/ Sampled	Top of Casing Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	TPH			Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TRPH (mg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
						Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)						
MW-2	11-11-96	107.28	17.55	ND	89.73	1,200	150	120	21	160	110	--		
MW-2	03-25-97	107.28	17.32	ND	89.96	670	23	58	13	120	28	--		
MW-2	05-15-97	107.28	17.61	ND	89.67	<50	<0.5	<0.5	<0.5	<0.5	23	--		
MW-2	10-26-97	107.28	18.43	ND	88.85	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-2	11-10-97	107.28	17.84	ND	89.44	<100	<1	<1	<1	1	74	--		
MW-2	02-13-98	107.28	12.75	ND	94.53	220	9.5	3.9	3.7	48	84	--		
MW-2	05-12-98	107.28	17.02	ND	90.26	3,900	210	280	86	910	35	--		
MW-2	07-28-98	107.28	17.30	ND	89.98	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-2	10-28-98	107.28	17.80	ND	89.48	170	17	<0.5	1.7	5.0	24	--		
MW-2	02-12-99	107.28	15.55	ND	91.73	12,000	620	95	490	2,200	270	--		
MW-2	06-03-99	107.28	17.31	ND	89.97	<50	<0.5	<0.5	<0.5	1.1	8	--	2.53	NP
MW-2	10-26-99	107.28	16.58	ND	90.70	<50	1.0	<0.5	<0.5	3	<3	--	8.17	NP
MW-3	03-20-95	107.77	15.60	ND	92.17	29,000	880	190	760	2,000	--	16		
MW-3	06-06-95	107.77	17.54	ND	90.23	22,000	450	54	380	1,300	--	7.1		
MW-3	08-24-95	107.61	17.42	ND	90.19	Not sampled: well was inaccessible due to construction								
MW-3	11-16-95	107.61	17.58	ND	90.03	13,000	210	<20	320	1,000	790	8.3		
MW-3	02-27-96	107.61	15.03	ND	92.58	9,700	94	15	290	720	430	10		
MW-3	05-15-96	107.61	17.35	ND	90.26	5,600	66	12	37	67	230	--		
MW-3	08-14-96	107.61	17.10	ND	90.51	830	17	<1*	8	7	110	--		
MW-3	11-11-96	107.61	17.73	ND	89.88	500	28	3	12	13	150	--		
MW-3	03-25-97	107.61	17.99	ND	89.62	<50	<0.5	<0.5	<0.5	<0.5	94	--		
MW-3	05-15-97	107.61	17.84	ND	89.77	<50	<0.5	<0.5	<0.5	<0.5	65	--		
MW-3	10-26-97	107.61	18.50	ND	89.11	220	4	<1	<1	<1	160	--		
MW-3	11-10-97	107.61	18.00	ND	89.61	350	8	<2	3	3	230	--		
MW-3	02-13-98	107.61	13.00	ND	94.61	<50	1.3	<0.5	<0.5	1	21	--		
MW-3	05-12-98	107.61	17.20	ND	90.41	120	<0.5	<0.5	<0.5	<0.9	71	--		

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5131 Shattuck Avenue, Oakland, California

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MW-3	07-28-98	107.61	17.46	ND	90.15	<50	1.4	<0.5	<0.5	<0.5	52	--			
MW-3	10-28-98	107.61	18.00	ND	89.61	170	<0.5	<0.5	<0.5	0.7	35	--			
MW-3	02-12-99	107.61	15.76	ND	91.85	120	2.0	0.6	<0.5	1.3	37	--			
MW-3	06-03-99	107.61	Well inaccessible: Surveyed well VW-1 as an alternative												
MW-3	10-26-99	107.61	16.69	ND	90.92	630	14	0.7	13	2	38	--	1.24	NP	
MW-4	03-20-95	106.58	13.85	ND	92.73	88	1	<0.5	<0.5	0.7	--	--			
MW-4	06-06-95	106.58	15.70	ND	90.88	<50	<0.5	<0.5	<0.5	<0.5	--	--			
MW-4	08-24-95	106.71	15.86	ND	90.85	Not sampled: well was inaccessible due to construction									
MW-4	11-16-95	106.71	16.10	ND	90.61	<50	<0.5	<0.5	<0.5	<0.5	6	--			
MW-4	02-27-96	106.71	13.72	ND	92.99	<50	<0.5	<0.5	<0.5	<0.5	10	--			
MW-4	05-15-96	106.71	15.90	ND	90.81	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	08-14-96	106.71	15.68	ND	91.03	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-4	11-11-96	106.71	16.19	ND	90.52	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	03-25-97	106.71	16.10	ND	90.61	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-4	05-15-97	106.71	16.38	ND	90.33	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	10-26-97	106.71	17.78	ND	88.93	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-4	11-10-97	106.71	16.43	ND	90.28	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	02-13-98	106.71	13.05	ND	93.66	<50	1.3	0.7	<0.5	2.3	19	--			
MW-4	05-12-98	106.71	15.69	ND	91.02	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	07-28-98	106.71	15.93	ND	90.78	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-4	10-28-98	106.71	16.40	ND	90.31	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	02-12-99	106.71	14.13	ND	92.58	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-4	06-03-99	106.71	16.00	ND	90.71	Not sampled: well sampled semi-annually, during the first and third quarter									
MW-4	10-26-99	106.71	15.76	ND	90.95	Not sampled: well sampled semi-annually, during the first and third qtr.									1.72
MW-5	03-20-95	106.68	14.92	ND	91.76	21,000	6,900	450	800	1,300	--	--			

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5131 Shattuck Avenue, Oakland, California

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MW-5	06-06-95	106.68	16.61	ND	90.07	6,500	1,700	<20	120	69	--	--			
MW-5	08-24-95	106.60	16.47	ND	90.13	Not sampled: well was inaccessible due to construction									
MW-5	11-16-95	106.60	16.69	ND	89.91	1,800	470	<5	17	5	1,000	--			
MW-5	02-27-96	106.60	14.35	ND	92.25	10,000	1,000	71	690	1,000	440/450*	--			
MW-5	05-15-96	106.60	16.58	ND	90.02	3,400	350	6	72	20	220	--			
MW-5	08-14-96	106.60	17.26	ND	89.34	2,100	130	2.7	47	4.7	220	--			
MW-5	11-11-96	106.60	16.62	ND	89.98	1,200	31	1	8	2	130	--			
MW-5	03-25-97	106.60	16.38	ND	90.22	<50	<0.5	<0.5	<0.5	<0.5	5	--			
MW-5	05-15-97	106.60	16.54	ND	90.06	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-5	10-26-97	106.60	17.60	ND	89.00	<50	<0.5	<0.5	<0.5	<0.5	7	--			
MW-5	11-10-97	106.60	16.78	ND	89.82	<50	<0.5	<0.5	<0.5	<0.5	24	--			
MW-5	02-13-98	106.60	12.21	ND	94.39	11,200	51	<10	<10	<10	2,000	--			
MW-5	05-12-98	106.60	NR	ND	NR	Not sampled: well inaccessible									
MW-5	07-28-98	106.60	16.47	ND	90.13	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-5	10-28-98	106.60	16.80	ND	89.80	<50	0.8	<0.5	<0.5	<0.5	99	--			
MW-5	02-12-99	106.60	14.88	ND	91.72	<1,000	<10	<10	<10	<10	1,100	--			
MW-5	06-03-99	106.60	16.65	ND	89.95	290	10	<0.5	<0.5	0.6	200	--	2.45	NP	
MW-5	10-26-99	106.60	16.10	ND	90.50	<50	<0.5	<0.5	<0.5	<1	11	--	NM	NP	
MW-6	03-20-95	105.16	12.13	ND	93.03	<50	<0.5	<0.5	<0.5	<0.5	--	--			
MW-6	06-06-95	105.16	13.95	ND	91.21	<50	<0.5	<0.5	<0.5	<0.5	--	--			
MW-6	08-24-95	105.13	14.07	ND	91.06	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-6	11-16-95	105.13	14.34	ND	90.79	<60	<0.5	<0.5	<0.5	<0.5	--	--			
MW-6	02-27-96	105.13	12.00	ND	93.13	<50	<0.5	<0.5	<0.5	<0.5	<3	--			
MW-6	05-15-96	105.13	14.10	ND	91.03	Not sampled: well sampled annually, during the first quarter									
MW-6	08-14-96	105.13	13.70	ND	91.43	Not sampled: well sampled annually, during the first quarter									
MW-6	11-11-96	105.13	14.11	ND	91.02	Not sampled: well sampled annually, during the first quarter									

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MW-6	03-25-97	105.13	14.15	ND	90.98	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-6	05-15-97	105.13	14.44	ND	90.69	Not sampled: well sampled annually, during the first quarter								
MW-6	10-26-97	105.13	16.02	ND	89.11	Not sampled: well sampled annually, during the first quarter								
MW-6	11-10-97	105.13	14.52	ND	90.61	Not sampled: well sampled annually, during the first quarter								
MW-6	02-13-98	105.13	10.06	ND	95.07	<50	<0.5	<0.5	<0.5	<0.5	8	--		
MW-6	05-12-98	105.13	13.75	ND	91.38	Not sampled: well sampled annually, during the first quarter								
MW-6	07-28-98	105.13	14.06	ND	91.07	Not sampled: well sampled annually, during the first quarter								
MW-6	10-28-98	105.13	14.71	ND	90.42	Not sampled: well sampled annually, during the first quarter								
MW-6	02-12-99	105.13	12.22	ND	92.91	<100	<1	<1	<1	<1	110	--		
MW-6	06-03-99	105.13	13.95	ND	91.18	Not sampled: well sampled annually, during the first quarter								
MW-6	10-26-99	105.13	14.06	ND	91.07	Not sampled: well sampled annually, during the first quarter								
													3.94	
MW-7	03-20-95	107.08	12.32	ND	94.76	<50	<0.5	<0.5	<0.5	<0.5	--	--		
MW-7	06-06-95	107.08	14.59	ND	92.49	Not sampled: well sampled semi-annually, during the first and third quarters								
MW-7	08-24-95	107.05	14.64	ND	92.41	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	11-16-95	107.05	15.30	ND	91.75	Not sampled: well sampled semi-annually, during the first and third quarters								
MW-7	02-27-96	107.05	12.24	ND	94.81	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	05-15-96	107.05	14.65	ND	92.40	Not sampled: well sampled annually, during the first quarter								
MW-7	08-14-96	107.05	14.35	ND	92.70	Not sampled: well sampled annually, during the first quarter								
MW-7	11-11-96	107.05	14.92	ND	92.13	Not sampled: well sampled annually, during the first quarter								
MW-7	03-25-97	107.05	14.80	ND	92.25	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	05-15-97	107.05	15.27	ND	91.78	Not sampled: well sampled annually, during the first quarter								
MW-7	10-26-97	107.05	16.68	ND	90.37	Not sampled: well sampled annually, during the first quarter								
MW-7	11-10-97	107.05	15.37	ND	91.68	Not sampled: well sampled annually, during the first quarter								
MW-7	02-13-98	107.05	10.80	ND	96.25	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	05-12-98	107.05	14.32	ND	92.73	Not sampled: well sampled annually, during the first quarter								
MW-7	07-28-98	107.05	14.79	ND	92.26	Not sampled: well sampled annually, during the first quarter								

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						Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)			MTBE (µg/L)	TRPH (mg/L)
MW-7	10-28-98	107.05	15.57	ND	91.48	Not sampled: well sampled annually, during the first quarter								
MW-7	02-12-99	107.05	12.46	ND	94.59	<50	<0.5	<0.5	<0.5	<0.5	<3	--		
MW-7	06-03-99	107.05	14.53	ND	92.52	Not sampled: well sampled annually, during the first quarter								
MW-7	10-26-99	107.05	14.74	ND	92.31	Not sampled: well sampled annually, during the first quarter					1.97			
VW-1	06-03-99	NR	17.51	ND	NR	420	2.3	0.6	2.0	2.2	74	--	1.28	P

ft-MSL: elevation in feet, relative to mean sea level
 TPH: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
 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).
 TRPH: total recoverable petroleum hydrocarbons
 µg/L: micrograms per liter
 mg/L: milligrams per liter
 NR: not reported; data not available
 ND: none detected
 #: floating product entered the well during purging
 --: not analyzed or not applicable
 *: confirmed by EPA 8240
 **: For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results and Remediation System Performance Evaluation Report, ARCO Service Station 6148, Oakland, California, (EMCON, March 4, 1996).*

ATTACHMENT D

EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

Error Summary Log

08/14/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #6148, Oakland, CA
Work Order Number:	MMH0066
Global ID:	T0600100103
Lab Report Number:	MMH0066081320030958

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctf	Run	Sub
MMH00660813200 MW-1 30958		MMH006601	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
MMH00660813200 MW-2 30958		MMH006602	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
MMH00660813200 MW-3 30958		MMH006603	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
MMH00660813200 MW-4 30958		MMH006604	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
MMH00660813200 MW-5 30958		MMH006605	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
MMH00660813200 MW-6 30958		MMH006606	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
MMH00660813200 MW-7 30958		MMH006607	W	CS	8260FAB	SW5030B	07/31/03	08/11/03	08/11/03	3H11002	1	
		MMH012602	W	NC	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002BSD2	WQ	BD2	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002BS1	WQ	BS1	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002BS2	WQ	BS2	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002BS3	WQ	BS3	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002BLK1	WQ	LB1	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002MS1	W	MS1	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	
		3H11002MSD1	W	SD1	8260FAB	SW5030B	//	08/11/03	08/11/03	3H11002	1	

EDFSAMP: Error Summary Log

08/14/03

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

EDFTEST: Error Summary Log

08/14/03

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

EDFRES: Error Summary Log

08/14/03

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3H11002MS1	MS1	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	3H11002MS1	MS1	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	3H11002MSD1	SD1	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	3H11002MSD1	SD1	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006601	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006601	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006602	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006602	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006603	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006603	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006604	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006604	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006605	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006605	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006606	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006606	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH006607	CS	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH006607	CS	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	MMH012602	NC	W	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	MMH012602	NC	W	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	3H11002BLK1	LB1	WQ	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	3H11002BLK1	LB1	WQ	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	3H11002BS1	BS1	WQ	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	3H11002BS2	BS2	WQ	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	3H11002BS2	BS2	WQ	8260FAB	PR	08/11/03	1	GROC6C10
Warning: extra parameter	3H11002BS3	BS3	WQ	8260FAB	PR	08/11/03	1	DCA12D4

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
Warning: extra parameter	3H11002BSD2	BD2	WQ	8260FAB	PR	08/11/03	1	DCA12D4
Warning: extra parameter	3H11002BSD2	BD2	WQ	8260FAB	PR	08/11/03	1	GROC6C10

EDFQC: Error Summary Log

08/14/03

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

EDFCL: Error Summary Log

08/14/03

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

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Confirmation Number: 9131851017

Date/Time of Submittal: 8/14/2003 2:08:07 PM

Facility Global ID: T0600100103

Facility Name: ARCO

Submittal Title: Third Quarter 03 Ground Water Monitoring Site #6148

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6148

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