

December 22, 2003

Mr. Barney Chen
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Alameda County

DEC 31 2003

Environmental Health

**Re: Fourth Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #2169
889 West Grand Avenue
Oakland, California
URS Project #38486327**

Dear Mr. Chen:

On behalf of Atlantic Richfield Company (ARCO – a BP affiliated company), URS Corporation (URS) is submitting the *Fourth Quarter 2003 Groundwater Monitoring Report* for ARCO Service Station #2169, located at 889 West Grand Avenue, Oakland, California.

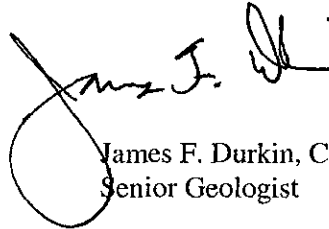
If you have any questions regarding this submission, please call at (510) 874-3280.

Sincerely,

URS CORPORATION



Scott Robinson
Project Manager



James F. Durkin, C.Hg.
Senior Geologist



Enclosure: Fourth Quarter 2003 Groundwater Monitoring Report

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



Atlantic Richfield Company
(a BP affiliated company)

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



December 22, 2003

RE: Fourth Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #2169
889 West Grand Avenue
Oakland, CA
URS Project #38486327

Alameda County
DEC 31 2003
Environmental Health

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

REPORT

**FOURTH QUARTER 2003
GROUNDWATER MONITORING**

ARCO SERVICE STATION #2169
889 WEST GRAND AVENUE
OAKLAND, CALIFORNIA

Alameda County
DEC 31 2003
Environmental Health

Prepared for
Atlantic Richfield Company

December 22, 2003

URS

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

38486327



Date: December 18, 2003

Quarter: 4Q 03

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 2169 Address: 889 West Grand Avenue, Oakland, California
ARCO Environmental Business Manager: Paul Supple
Consulting Co./Contact Person: URS Corporation / Scott Robinson
Consultant Project No.: 38486327
Primary Agency: Alameda County Health Care Services Agency (ACHCSA)

WORK PERFORMED THIS QUARTER (Fourth – 2003):

1. Performed fourth quarter 2003 groundwater monitoring event on November 13, 2003.
2. Prepared and submitted fourth quarter 2003 groundwater monitoring report.
3. Replaced oxygen releasing compounds (ORC) socks in wells A-1, A-5, A-6 and ADR-1 on November 13, 2003.
4. Well repairs are scheduled for the end of December.

WORK PROPOSED FOR NEXT QUARTER (First – 2004):

1. Perform first quarter 2004 groundwater monitoring event.
2. Prepare and submit first quarter 2004 groundwater monitoring report.

Current Phase of Project: GW monitoring/sampling
Frequency of Groundwater Sampling: Beginning this quarter:
Annual: (3rd Quarter): A-2, AR-1, AR-2, ADR-2
Quarterly: A-1, A-5, A-6 and ADR-1
Frequency of Groundwater Monitoring: Quarterly
Is Free Product (FP) Present On-Site: No
FP Recovered this Quarter: None
Cumulative FP Recovered to Date: 4.8 gallons, wells ADR-1 and ADR-2
Bulk Soil Removed This Quarter: None
Bulk Soil Removed to Date: 2,196 cubic yards of TPH impacted soil
Current Remediation Techniques: Natural Attenuation / ORC: A-1, A-5, A-6, AR-2, ADR-1 and ADR-2
Approximate Depth to Groundwater: 11.15 (ADR-1) to 12.05 (AR-1) feet
Groundwater Gradient (direction): Southwest
Groundwater Gradient (magnitude): 0.009 feet per foot

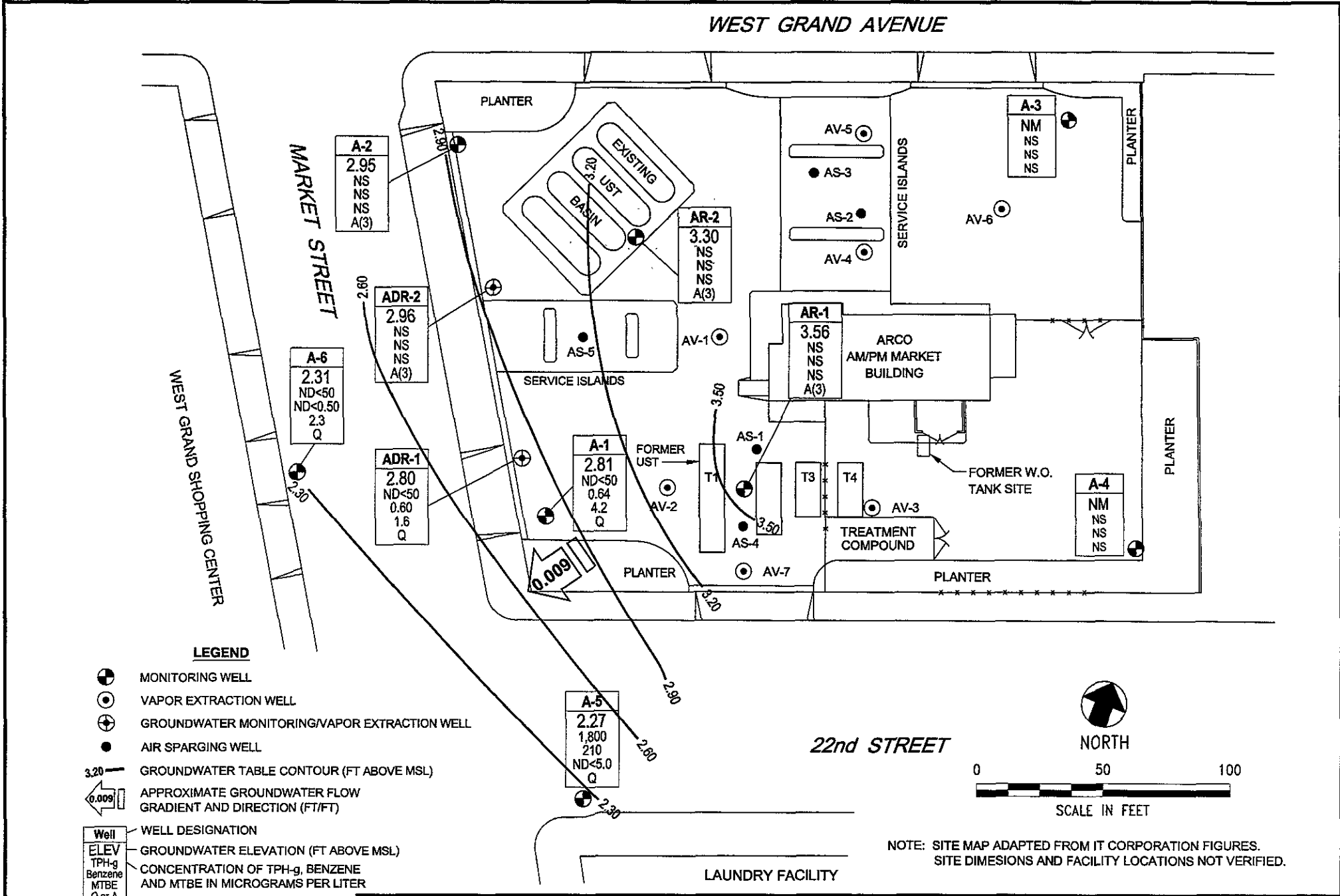
DISCUSSION:

TPH-g was only detected above the laboratory reporting limit in well A-5 of the four wells sampled this quarter at a concentration of 1,800 micrograms per liter ($\mu\text{g/L}$). Benzene was detected above the laboratory reporting limit in three wells at concentrations of 0.60 $\mu\text{g/L}$ in well ADR-2, 0.64 $\mu\text{g/L}$ in well A-1, and 210 $\mu\text{g/L}$ in well A-5. MTBE was detected above the laboratory reporting limit in three wells at concentrations of 1.6 $\mu\text{g/L}$ in well ADR-2, 2.3 $\mu\text{g/L}$ in well A-6, and 4.2 $\mu\text{g/L}$ in well A-1. No other fuel oxygenates were detected above the laboratory reporting limits in any well sampled this quarter.

Beginning this quarter, the following changes in sampling frequency were made due to consistently low or non-detectable concentrations of the constituents of concern: 1) remove wells A-3 and A-4 from the annual sampling schedule, and 2) wells A-2, AR-1, AR-2 and ADR-2 from semi-annual to annual. All of the wells would continue to be gauged quarterly for groundwater levels. Wells A-3 and A-4 were not gauged this quarter by mistake, these wells will be gauged in future quarterly monitoring events.

ATTACHMENTS:

- Figure 1 - Groundwater Elevation Contour and Analytical Summary Map – November 13, 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



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

LEGEND	
	MONITORING WELL
	VAPOR EXTRACTION WELL
	GROUNDWATER MONITORING/VAPOR EXTRACTION WELL
	AIR SPARGING WELL
	GROUNDWATER TABLE CONTOUR (FT ABOVE MSL)
	APPROXIMATE GROUNDWATER FLOW GRADIENT AND DIRECTION (FT/FT)
Well	WELL DESIGNATION
ELEV	GROUNDWATER ELEVATION (FT ABOVE MSL)
TPH-g	CONCENTRATION OF TPH-g, BENZENE AND MTBE IN MICROGRAMS PER LITER
Q or A	SAMPLING FREQUENCY
A(3)	SAMPLED ANNUALLY, 3RD QUARTER
ND<	NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT

	Project No. 38486327 Arco Service Station 2169 889 West Grand Avenue Oakland, California	GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP Fourth Quarter 2003 (November 13, 2003)	FIGURE 1
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Table 1
Groundwater Elevation and Analytical Data

ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Top of Screen Elevation (ft.)	Bottom of Screen Elevation (ft.)	Total Well Depth (ft., BGS)	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 ^f (mg/L)	pH ^f
AR-1	06/26/00	15.61	7.61	-12.39	28.00	11.59	4.02	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					12.06	3.55	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	6	NA	NA
	09/19/00					11.89	3.72	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3	NA	NA
	12/26/00					11.95	3.66	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	03/20/01 ^d					NM	NM	NS	NS	NS	NS	NS	NS	NS	NS
	06/12/01					11.87	3.74	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	17	NA	NA
	09/23/01					12.42	3.19	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/01					7.62	7.99	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	03/21/02					9.37	6.24	NS	NS	NS	NS	NS	NS	NS	NS
	04/17/02					10.43	5.18	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	08/14/02					12.08	3.53	ND<50	ND<0.5	ND<0.5	ND<0.5	1.3	ND<2.5	2.2	7.9
	11/27/02					12.00	3.61	NS	NS	NS	NS	NS	NS	NS	NS
	02/12/03 ^d					10.89	4.72	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.8	7.9
	05/22/03					11.18	4.43	NS	NS	NS	NS	NS	NS	NS	NS
	07/23/03					11.73	3.88	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.3	7.7
11/13/03					12.05	3.56	NS	NS	NS	NS	NS	NS	NS	NS	
AR-2	06/26/00	15.28	6.78	-13.22	29.3	11.79	3.49	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					12.07	3.21	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3	NA	NA
	09/19/00					12.08	3.2	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3	NA	NA
	12/26/00					11.95	3.33	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	03/20/01					10.50	4.78	NS	NS	NS	NS	NS	NS	NS	NS
	06/12/01					11.73	3.55	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	82	NA	NA
	09/23/01					12.43	2.85	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/01					8.60	6.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	30	NA	NA
	03/21/02					9.49	5.79	NS	NS	NS	NS	NS	NS	NS	NS
	04/17/02					10.37	4.91	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3.2	NA	NA
	08/14/02					12.13	3.15	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	1.4	7.9
	11/27/02					12.08	3.20	NS	NS	NS	NS	NS	NS	NS	NS
	02/12/03 ^d					11.15	4.13	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.2	7.5
	05/22/03					11.18	4.10	NS	NS	NS	NS	NS	NS	NS	NS
	07/23/03					11.85	3.43	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.3	8.2
11/13/03 ^f					11.98	3.30	NS	NS	NS	NS	NS	NS	NS	NS	

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Well Number	Date Sampled	Top of Riser Elevation (ft)	Top of Screen Elevation (ft.)	Bottom of Screen Elevation (ft.)	Total Well Depth (ft., BGS)	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 ^f (mg/L)	pH ^f
ADR-1	06/26/00	13.95	8.95	NA	21.9	10.55	3.40	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					10.85	3.10	180	29	ND<0.5	0.8	ND<1.0	22	NA	NA
	09/19/00					11.08	2.87	120	7.4	ND<0.5	1.2	ND<1.0	22	NA	NA
	12/26/00					10.93	3.02	ND<50	1.29	ND<0.5	ND<0.5	ND<0.5	14.7	NA	NA
	03/20/01					9.32	4.63	225	23.4	ND<0.5	8.71	4.13	10.8	NA	NA
	06/12/01					10.65	3.30	250	23	0.5	13	4.2	7.5	NA	NA
	09/23/01					11.25	2.70	ND<50	1.4	ND<0.5	ND<0.5	0.57	2.8	NA	NA
	12/28/01					8.43	5.52	250	16	ND<0.5	1.2	4.1	6.8	NA	NA
	03/21/02					8.27	5.68	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	04/17/02					9.17	4.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	08/14/02					11.88	2.07	ND<50	1.1	ND<0.5	ND<0.5	ND<0.5	ND<2.5	3.4	6.7
	11/27/02					10.91	3.04	ND<50	0.54	ND<0.5	ND<0.5	ND<0.5	1.1	1.8	6.8
	02/12/03 ^d					9.95	4.00	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.73	1.9	7.2
	05/22/03					9.86	4.09	ND<50	0.96	ND<0.50	ND<0.50	ND<0.50	3.5	1.2	7.3
	07/23/03					10.59	3.36	ND<50	2.5	ND<0.50	0.56	ND<0.50	4.0	>20	9.4
11/13/03 ^f	11.15	2.80	ND<50	0.60	ND<0.50	ND<0.50	ND<0.50	1.6	8.5	8.2					
ADR-2	06/26/00	14.64	9.64	NA	26.3	11.22	3.42	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					11.60	3.04	12,000	410	2.5	540	720	23	NA	NA
	09/19/00					11.81	2.83	1,400	530	5	680	740	34	NA	NA
	12/26/00					11.52	3.12	901	26.6	ND<5.0	21.4	32.5	32.8	NA	NA
	03/20/01					10.10	4.54	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen
	06/12/01					11.41	3.23	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen
	09/23/01					11.98	2.66	5300	370	ND<5.0	550	96	60	NA	NA
	12/28/01					9.48	5.16	2,600	190	ND<5.0	160	29	61	NA	NA
	03/21/02					9.1	5.54	180	6	ND<0.5	4.5	3.2	15	NA	NA
	04/17/02					9.93	4.71	730	86	ND<0.5	13	ND<0.5	ND<25	NA	NA
	08/14/02					12.09	2.55	1,300 ^b	170	ND<10	100	47	ND<50	0.9	7.0
	11/27/02					11.66	2.98	1,800 ^b	240	3.1	120	14	74	0.6	6.9
	02/12/03 ^d					10.74	3.90	760	120	ND<5.0	15	5.2	22	1.3	7.1
	05/22/03					10.67	3.97	520	110	ND<5.0	7.1	ND<5.0	9.7	0.7	7.6
	07/23/03					11.38	3.26	140	2.8	ND<0.50	5.0	0.98	8.4	>20	9.4
11/13/03 ^f	11.68	2.96	NS	NS	NS	NS	NS	NS	NS	NS					

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A-1	06/26/00	14.16	5.16	-10.84	25.00	10.75	3.41	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					11.01	3.15	3,900	1,100	28	12	46	25	NA	NA
	09/19/00					11.26	2.90	4,800	2,400	27	20	57	32	NA	NA
	12/26/00					10.96	3.20	429	104	2.85	12.2	9.91	18.7	NA	NA
	03/20/01					9.59	4.57	ND<500	13.9	7.12	13.9	23.2	ND<25	NA	NA
	06/12/01					10.83	3.33	140	2.2	ND<0.5	8.7	9.2	25	NA	NA
	09/23/01					11.43	2.73	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	4.5	NA	NA
	12/28/01					8.66	5.50	930	250.0	7.6	21	13	ND<25	NA	NA
	03/21/02					8.43	5.73	ND<50	ND<0.5	ND<0.5	ND<0.5	1.2	ND<2.5	NA	NA
	04/17/02					9.36	4.80	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	08/14/02					11.12	3.04	170 ^b	8.4	ND<0.5	ND<0.5	1.4	4.9	5.7	7.4
	11/27/02					11.11	3.05	98 ^b	2.9	0.75	ND<0.5	ND<0.5	6.4	1.6	7.0
	02/12/03 ^d					10.10	4.06	73	9.3	ND<0.50	1.0	0.53	2.9	2.1	7.2
	05/22/03					10.18	3.98	400	88	1.6	4.6	11	4.9	1.3	7.4
	07/23/03					10.85	3.31	140	3.2	ND<0.50	ND<0.50	0.56	10	10.8	7.4
11/13/03 ^f					11.35	2.81	ND<50	0.64	ND<0.50	ND<0.50	ND<0.50	4.2	4.3	7.8	
A-2	06/26/00	14.55	4.55	-10.45	25	11.27	3.28	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					11.52	3.03	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<3	NA	NA
	09/19/00					11.63	2.92	NS	NS	NS	NS	NS	NS	NS	NS
	12/26/00					11.44	3.11	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	03/20/01					10.08	4.47	NS	NS	NS	NS	NS	NS	NS	NS
	06/12/01					11.35	3.2	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	09/23/01					11.92	2.63	NS	NS	NS	NS	NS	NS	NS	NS
	12/28/01					9.31	5.24	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA
	03/21/02					9.05	5.5	NS	NS	NS	NS	NS	NS	NS	NS
	04/17/02					9.88	4.67	52	ND<0.5	ND<0.5	ND<0.5	ND<0.5	26	NA	NA
	08/14/02					11.62	2.93	ND<50	ND<0.5	ND<0.5	ND<0.5	1.2 ^c	ND<2.5	3.7	7.2
	11/27/02					11.56	2.99	NS	NS	NS	NS	NS	NS	NS	NS
	02/12/03 ^d					10.75	3.80	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	12	2.9	7.1
	05/22/03					10.72	3.83	NS	NS	NS	NS	NS	NS	NS	NS
	07/23/03					11.39	3.16	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.6	1.3	6.8
11/13/03					11.60	2.95	NS	NS	NS	NS	NS	NS	NS	NS	

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Top of Screen Elevation (ft.)	Bottom of Screen Elevation (ft.)	Total Well Depth (ft., BGS)	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 ^f (mg/L)	pH ^f		
A-3	06/26/00	15.75	6.75	-13.75	29.5	11.98	3.77	NS	NS	NS	NS	NS	NS	NS	NS		
	07/20/00					12.21	3.54	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/19/00					12.50	3.25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/26/00					12.17	3.58	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	
	03/20/01					10.70	5.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/12/01					12.09	3.66	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/23/01					12.65	3.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/28/01					9.94	5.81	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	
	03/21/02					9.69	6.06	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	04/17/02					10.61	5.14	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	08/14/02					12.27	3.48	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	11/27/02					12.22	3.53	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	02/12/03 ^d					11.40	4.35	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.2	6.9
	05/22/03					11.42	4.33	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/23/03					12.00	3.75	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/13/03 ^f	NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS				
A-4	06/26/00	15.25	7.25	-12.75	28	10.99	4.26	NS	NS	NS	NS	NS	NS	NS	NS		
	07/20/00					11.16	4.09	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/19/00					11.97	3.28	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/26/00					11.19	4.06	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	
	03/20/01					9.81	5.44	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/12/01					11.12	4.13	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/23/01					11.63	3.62	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/28/01					8.41	6.84	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.5	NA	NA	
	03/21/02					8.63	6.62	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	04/17/02					9.68	5.57	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	08/14/02					11.31	3.94	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	11/27/02					11.25	4.00	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	02/12/03 ^d					10.37	4.88	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.9	7.1
	05/22/03					10.42	4.83	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	07/23/03					11.02	4.23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11/13/03 ^f	NM	NC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS				

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

Well Number	Date Sampled	Top of Riser Elevation (ft)	Top of Screen Elevation (ft.)	Bottom of Screen Elevation (ft.)	Total Well Depth (ft.. BGS)	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 ^f (mg/L)	pH ^f
A-5	06/26/00	13.51	8.51	NA	30	10.04	3.47	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					10.31	3.20	730	140	11	ND<0.5	8.9	3	NA	NA
	09/19/00					10.55	2.96	160	13	ND<0.5	2.8	1.9	ND<3	NA	NA
	12/26/00					10.37	3.14	8,120	465	108	659	1,450	ND<250	NA	NA
	03/20/01					8.81	4.70	7,990	1110	473	611	1,580	ND<250	NA	NA
	06/12/01					10.13	3.38	450	91	18	35	95	ND<5.0	NA	NA
	09/23/01					10.80	2.71	110	20	ND<0.5	5.0	5.0	2.7	NA	NA
	12/28/01					8.17	5.34	320	24	2	20	27	5	NA	NA
	03/21/02					7.78	5.73	2,500	420	85	130	350	31	NA	NA
	04/17/02					8.68	4.83	1,300	190	36	67	210	ND<25	NA	NA
	08/14/02					10.41	3.10	840 ^b	150	ND<5.0	68	41	ND<25	1.4	6.8
	11/27/02					10.50	3.01	300 ^b	26	2.3	17	6	ND<0.5	1.2	7.2
	02/12/03 ^d					10.81	2.70	ND<500	74	7.0	34	45	ND<5.0	1.0	7.3
	05/22/03					9.46	4.05	500	100	9.0	28	47	ND<5.0	1.0	7.6
	07/23/03					10.29	3.22	900	100	5.7	65	57	ND<5.0	4.5	8.4
11/13/03 ^f	11.24	2.27	1,800	210	5.1	190	140	ND<5.0	4.3	7.3					
A-6	06/26/00	13.51	8.51	NA	28.5	10.09	3.42	NA	NA	NA	NA	NA	NA	NA	NA
	07/20/00					10.91	2.60	170	ND<0.5	ND<0.5	0.6	2.0	6	NA	NA
	09/19/00					11.27	2.24	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.0	6	NA	NA
	12/26/00					10.65	2.86	56.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	8.17	NA	NA
	03/20/01					8.72	4.79	216	ND<0.5	ND<0.5	ND<0.5	1.8	19.9	NA	NA
	06/12/01					10.80	2.71	80	0.62	ND<0.5	ND<0.5	ND<0.5	15	NA	NA
	09/23/01					10.79	2.72	450	1.7	1.9	2.3	3.3	53	NA	NA
	12/28/01					8.05	5.46	270	0.98	3.5	0.77	1.4	26	NA	NA
	03/21/02					7.83	5.68	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5	19	NA	NA
	04/17/02					8.73	4.78	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	16	NA	NA
	08/14/02					10.43	3.08	980 ^b	4.8	2.6	2.0	4.9	75	1.5	7.1
	11/27/02					10.47	3.04	280 ^b	ND<0.5	0.74	ND<0.5	ND<0.5	16	0.9	6.9
	02/12/03 ^d					10.44	3.07	51	ND<0.50	ND<0.50	ND<0.50	ND<0.50	9.9	0.8	7.1
	05/22/03					9.43	4.08	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	11	1.2	8.2
	07/23/03					10.27	3.24	120	ND<0.50	ND<0.50	ND<0.50	ND<0.50	14	>20	9.6
11/13/03 ^f	11.20	2.31	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	2.3	6.2	9.0					

**Table 2
Groundwater Flow Direction and Gradient**

ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
07/20/00	Northwest	0.004
09/19/00	West-Northwest	0.003
12/26/00	Northwest	0.004
03/20/01	Northwest	0.003
06/12/01	Northwest	0.004
09/23/01	Northwest	0.004
12/28/01	Variable	Variable
03/21/02	Northwest	0.004
04/17/02	Northwest	0.003
08/14/02	West	0.003
11/27/02	West	0.003
02/12/03	South	0.005
05/22/03	West to Northwest	0.002 to 0.003
07/23/03	Southwest to Northwest	0.005 to 0.004
11/13/03	Southwest	0.009

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

**Table 3
Fuel Oxygenate Analytical Data**

ARCO Service Station #2169
889 West Grand 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)
AR-1	02/12/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/23/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
AR-2	02/12/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/23/03	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
ADR-1	02/12/03	ND<40	ND<20	0.73	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/22/03	ND<100	ND<20	3.5	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/23/03	ND<100	ND<20	4.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	11/13/03	ND<100	ND<20	1.6	ND<0.50	ND<0.50	ND<0.50	NA	NA
ADR-2	02/12/03	ND<400	ND<200	22	ND<5.0	ND<5.0	ND<5.0	NA	NA
	05/22/03	ND<1,000	ND<200	9.7	ND<5.0	ND<5.0	ND<5.0	NA	NA
	07/23/03	ND<100	ND<20	8.4	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
A-1	02/12/03	ND<40	ND<20	2.9	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/22/03	ND<100	ND<20	4.9	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/23/03	ND<100	ND<20	10	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	11/13/03	ND<100	ND<20	4.2	ND<0.50	ND<0.50	ND<0.50	NA	NA
A-2	02/12/03	ND<40	ND<20	12	ND<0.50	ND<0.50	ND<0.50	NA	NA
	07/23/03	ND<100	ND<20	2.6	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
A-3	02/12/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
A-4	02/12/03	ND<40	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	NA	NA
A-5	02/12/03	ND<400	ND<200	ND<5.0	ND<5.0	ND<5.0	ND<5.0	NA	NA
	05/22/03	ND<1,000	ND<200	ND<5.0	ND<5.0	ND<5.0	ND<5.0	NA	NA
	07/23/03	ND<1,000	ND<200	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0
	11/13/03	ND<1,000	ND<200	ND<5.0	ND<5.0	ND<5.0	ND<5.0	NA	NA
A-6	02/12/03	ND<40	ND<20	9.9	ND<0.50	ND<0.50	ND<0.50	NA	NA
	05/22/03	ND<100	ND<20	11	ND<0.50	ND<0.50	0.60	NA	NA
	07/23/03	ND<100	ND<20	14	ND<0.50	ND<0.50	0.54	ND<0.50	ND<0.50
	11/13/03	ND<100	ND<20	2.3	ND<0.50	ND<0.50	ND<0.50	NA	NA

Note = All fuel oxygenate compounds analyzed using EPA Method 8260B
TBA = tert-Butyl alcohol
MTBE = Methyl tert-Butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert Butyl ether
TAME = tert-Amyl Methyl ether
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 = Not analyzed

ATTACHMENT A
FIELD PROCEDURES AND FIELD DATA SHEETS

FIELD PROCEDURES

Sampling Procedures

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

WELL GAUGING DATA

Project # 031113-551 Date 11/13/03 Client ARCO # 2169

Site 889 WEST GRAND 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		
A-1	3	REPLACED OPG.				11.35	23.72	22	NO BOLTS	
A-2	3					11.60	24.56	↓	NO BOLTS H ₂ O in vault	
A-5	3	REPLACED OPG.				11.24	24.12		MP @ 5'	
A-6	3	REPLACED OPG				11.20	26.97		MP @ 5'	
AR-1	6					12.05	27.64		NO BOLTS H ₂ O in vault	
AR-2	4	REPLACED OPG.				11.98	28.59		NO BOLTS	
ADR-1	4	REPLACED OPG				11.15	21.90		MP @ 5'	
* ADR-2	4					11.68	26.30		NO BOLTS	
* GAUGED	w/ OPG IN WELL.									

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 031113-551	Station # 2169
Sampler: 500CH	Date: 11/13/03
Well I.D.: A-1	Well Diameter: 2 (3) 4 6 8
Total Well Depth: 23.72	Depth to Water: 11.35
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

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

Purge Method: Bailer Disposable Bailer Positive Air Displacement Electric Submersible Extraction Pump Other: _____	Sampling Method: Bailer Disposable Bailer Extraction Port Other: _____
---	---

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

4.6	X	3	=	13.8	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>AS</u>)	Gals. Removed	Observations
1025	72.5	7.86	1132	4.6	MILD GAS ODDOR, SLIGHTLY TURBID
1039	72.9	7.80	1112	9.2	TURBID
1043	72.6	7.75	1099	19.0	CLEAR

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: 19
Sampling Time: 1047	Sampling Date: 11/13/03
Sample I.D.: A-1	Laboratory: Pace Sequoia Other _____
Analyzed for: TPH-G BTEX MTBE TPH-D Other: OXY'S ETHANOL ALB 8260	
D.O. (if req'd):	Pre-purge: _____ mg/L Post-purge: 4.3 mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 031113-551	Station # 2169
Sampler: 500ct	Date: 11/13/03
Well I.D.: A-5	Well Diameter: (2) 3 4 6 8
Total Well Depth: 24.12	Depth to Water: 11.24
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

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

Purge Method: Bailer
 Disposable Bailer
 Positive Air Displacement
 Electric Submersible
 Extraction Pump
 Other: _____

Sampling Method: Bailer
 Disposable Bailer
 Extraction Port
 Other: _____

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

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

Time	Temp (°F)	pH	Conductivity (mS or μ S)	Gals. Removed	Observations
1013	68.8	7.32	1113	_____	TURBID, GAS ODOR

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Time: 1010 Sampling Date: 11/13/03

Sample I.D.: A-5 Laboratory: Pace Sequoia Other _____

Analyzed for: ~~TPH-G~~ ~~BTEX~~ MTBE TPH-D Other: OXY'S + ETHANOL A+B 8260

D.O. (if req'd): Pre-purge: _____ mg/L Post-purge: 4.3 mg/L

O.R.P. (if req'd): Pre-purge: _____ mV Post-purge: _____ mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 031113-551	Station # 2169
Sampler: 500ct	Date: 11/13/03
Well I.D.: A-6	Well Diameter: (2) 3 4 6 8
Total Well Depth: 26.97	Depth to Water: 11.20
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH

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

Purge Method: Bailer
 Disposable Bailer
 Positive Air Displacement
 Electric Submersible
 Extraction Pump
 Other: _____

Sampling Method: Bailer
 Disposable Bailer
 Extraction Port
 Other: _____

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

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

Time	Temp (°F)	pH	Conductivity (mS or μS)	Gals. Removed	Observations
9:58	70.9	9.00	1146	_____	TRP B:0

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Time: 9:58 Sampling Date: 11/13/03

Sample I.D.: A-6 Laboratory: Pace Sequoia Other _____

Analyzed for: ~~PH-G~~ ~~BTEX~~ MTBE TPH-D Other: OXY'S ETHANOL ALCOH 8260

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	6.2	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

ARCO / BP WELL MONITORING DATA SHEET

BTS #: 031113-551	Station # 2169
Sampler: 500ct	Date: 11/13/03
Well I.D.: ADP-1	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 21.90	Depth to Water: 11.15
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
 Positive Air Displacement
 Electric Submersible
 Extraction Pump
 Other: _____

Sampling Method: Bailer
 Disposable Bailer
 Extraction Port
 Other: _____

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

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

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u>)	Gals. Removed	Observations
928	73.9	8.20	1528	_____	TURBID

Did well dewater? Yes No Gallons actually evacuated: _____

Sampling Time: 925 Sampling Date: 11/13/03

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

Analyzed for: TPH-G BTEX MTBE TPH-D Other: OXYS F ETHANOL ALBI 8260

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>0.5</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 BLAINE TECH SERVICES, INC. (BTS), 1680 Rogers Avenue, San Jose, CA 95112 (phone [408] 573-0555). Blaine Tech Services, Inc. is authorized by BP GEM OIL COMPANY to recover, collect, apportion into loads the Non-Hazardous Well Purgewater that is drawn from wells at the BP GEM Oil Company facility indicated below and deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one BP GEM facility to the designated destination point; from one BP GEM facility to the designated destination point via another BP GEM facility; from a BP GEM facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of BP GEM Oil Company.

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

2169

Station # _____

Station Address 889 W. GRAND AVE. OAKLAND

Total Gallons Collected From Groundwater Monitoring Wells: _____

added equip. _____ any other adjustments _____
 rinse water _____

TOTAL GALS. RECOVERED 15 loaded onto BTS vehicle # 54

BTS event # _____ time _____ date _____
031113-851 1115 11/13/03

signature [Signature]

REC'D AT _____ time _____ date _____
BTS 1500 11/13/03

unloaded by _____ signature [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 ARCO have been reviewed and verified by that laboratory.



3 December, 2003

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

RE: ARCO #2169, Oakland, CA
Work Order: MMK0612

Enclosed are the results of analyses for samples received by the laboratory on 11/14/03 18:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

James Hartley For Theresa Allen
Project Manager

CA ELAP Certificate #1210

URS Corporation [Arco] 500 12th Street, Suite 200 Oakland CA, 94607	Project: ARCO #2169, Oakland, CA Project Number: INTRIM -50325 Project Manager: Scott Robinson	MMK0612 Reported: 12/03/03 09:33
---	--	---

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A-1	MMK0612-01	Water	11/13/03 10:47	11/14/03 18:20
A-5	MMK0612-02	Water	11/13/03 10:10	11/14/03 18:20
A-6	MMK0612-03	Water	11/13/03 09:55	11/14/03 18:20
ADR-1	MMK0612-04	Water	11/13/03 09:25	11/14/03 18:20
TB-2169-1113-2003	MMK0612-05	Water	11/13/03 00:00	11/14/03 18:20

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

 Project: ARCO #2169, Oakland, CA
 Project Number: INTRIM -50325
 Project Manager: Scott Robinson

 MMK0612
 Reported:
 12/03/03 09:33

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
A-1 (MMK0612-01) Water Sampled: 11/13/03 10:47 Received: 11/14/03 18:20									
Ethanol	ND	100	ug/l	1	3K25005	11/25/03	11/25/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	"
Methyl tert-butyl ether	4.2	0.50	"	"	"	"	"	"	"
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	"
Benzene	0.64	0.50	"	"	"	"	"	"	"
Toluene	ND	0.50	"	"	"	"	"	"	"
Ethylbenzene	ND	0.50	"	"	"	"	"	"	"
Xylenes (total)	ND	0.50	"	"	"	"	"	"	"
Gasoline Range Organics	ND	50	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>105 %</i>		<i>78-129</i>					

A-5 (MMK0612-02) Water Sampled: 11/13/03 10:10 Received: 11/14/03 18:20									
Ethanol	ND	1000	ug/l	10	3K25005	11/25/03	11/25/03	EPA 8260B	
tert-Butyl alcohol	ND	200	"	"	"	"	"	"	"
Methyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	"
Di-isopropyl ether	ND	5.0	"	"	"	"	"	"	"
Ethyl tert-butyl ether	ND	5.0	"	"	"	"	"	"	"
tert-Amyl methyl ether	ND	5.0	"	"	"	"	"	"	"
Benzene	210	5.0	"	"	"	"	"	"	"
Toluene	5.1	5.0	"	"	"	"	"	"	"
Ethylbenzene	190	5.0	"	"	"	"	"	"	"
Xylenes (total)	140	5.0	"	"	"	"	"	"	"
Gasoline Range Organics	1800	500	"	"	"	"	"	"	"
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>106 %</i>		<i>78-129</i>					

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

Project: ARCO #2169, Oakland, CA
Project Number: INTRIM -50325
Project Manager: Scott Robinson

MMK0612
Reported:
12/03/03 09:33

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
A-6 (MMK0612-03) Water Sampled: 11/13/03 09:55 Received: 11/14/03 18:20									
Ethanol	ND	100	ug/l	1	3K25005	11/25/03	11/25/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	2.3	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	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	78-129	"	"	"	"	"	
ADR-1 (MMK0612-04) Water Sampled: 11/13/03 09:25 Received: 11/14/03 18:20									
Ethanol	ND	100	ug/l	1	3K25005	11/25/03	11/25/03	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	0.60	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Gasoline Range Organics	ND	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	78-129	"	"	"	"	"	

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

 Project: ARCO #2169, Oakland, CA
 Project Number: INTRIM -50325
 Project Manager: Scott Robinson

 MMK0612
 Reported:
 12/03/03 09:33

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 3K25005 - EPA 5030B P/T
Blank (3K25005-BLK1)

Prepared & Analyzed: 11/25/03

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	ND	50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.33		"	5.00		107	78-129			

Laboratory Control Sample (3K25005-BS1)

Prepared & Analyzed: 11/25/03

Ethanol	174	100	ug/l	200		87.0	31-186			
tert-Butyl alcohol	37.9	20	"	50.0		75.8	0-206			
Methyl tert-butyl ether	9.25	0.50	"	10.0		92.5	63-137			
Di-isopropyl ether	10.1	0.50	"	10.0		101	76-130			
Ethyl tert-butyl ether	9.75	0.50	"	10.0		97.5	61-141			
tert-Amyl methyl ether	9.51	0.50	"	10.0		95.1	56-140			
1,2-Dichloroethane	10.0	0.50	"	10.0		100	77-136			
1,2-Dibromoethane (EDB)	8.93	0.50	"	10.0		89.3	77-132			
Benzene	10.5	0.50	"	10.0		105	78-124			
Toluene	9.47	0.50	"	10.0		94.7	78-129			
Ethylbenzene	9.25	0.50	"	10.0		92.5	84-117			
Xylenes (total)	27.1	0.50	"	30.0		90.3	83-125			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.14		"	5.00		103	78-129			

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

Project: ARCO #2169, Oakland, CA
Project Number: INTRIM -50325
Project Manager: Scott Robinson

MMK0612
Reported:
12/03/03 09:33

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 3K25005 - EPA 5030B P/T
Laboratory Control Sample (3K25005-BS2)

Prepared & Analyzed: 11/25/03

Methyl tert-butyl ether	8.06	0.50	ug/l	9.92		81.2	63-137			
Benzene	5.40	0.50	"	6.40		84.4	78-124			
Toluene	28.9	0.50	"	29.7		97.3	78-129			
Ethylbenzene	6.81	0.50	"	6.96		97.8	84-117			
Xylenes (total)	33.8	0.50	"	33.7		100	83-125			
Gasoline Range Organics	402	50	"	440		91.4	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.22		"	5.00		104	78-129			

Laboratory Control Sample Dup (3K25005-BSD1)

Prepared & Analyzed: 11/25/03

Ethanol	199	100	ug/l	200		99.5	31-186	13.4	37	
tert-Butyl alcohol	44.6	20	"	50.0		89.2	0-206	16.2	22	
Methyl tert-butyl ether	9.71	0.50	"	10.0		97.1	63-137	4.85	13	
Di-isopropyl ether	9.72	0.50	"	10.0		97.2	76-130	3.83	9	
Ethyl tert-butyl ether	9.73	0.50	"	10.0		97.3	61-141	0.205	9	
tert-Amyl methyl ether	9.68	0.50	"	10.0		96.8	56-140	1.77	12	
1,2-Dichloroethane	10.2	0.50	"	10.0		102	77-136	1.98	13	
1,2-Dibromoethane (EDB)	9.21	0.50	"	10.0		92.1	77-132	3.09	9	
Benzene	10.1	0.50	"	10.0		101	78-124	3.88	12	
Toluene	9.15	0.50	"	10.0		91.5	78-129	3.44	10	
Ethylbenzene	9.10	0.50	"	10.0		91.0	84-117	1.63	10	
Xylenes (total)	26.9	0.50	"	30.0		89.7	83-125	0.741	11	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.12		"	5.00		102	78-129			

Laboratory Control Sample Dup (3K25005-BSD2)

Prepared & Analyzed: 11/25/03

Methyl tert-butyl ether	8.38	0.50	ug/l	9.92		84.5	63-137	3.89	13	
Benzene	5.63	0.50	"	6.40		88.0	78-124	4.17	12	
Toluene	30.1	0.50	"	29.7		101	78-129	4.07	10	
Ethylbenzene	7.32	0.50	"	6.96		105	84-117	7.22	10	
Xylenes (total)	34.4	0.50	"	33.7		102	83-125	1.76	11	
Gasoline Range Organics	412	50	"	440		93.6	70-113	2.46	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.09		"	5.00		102	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 200
Oakland CA, 94607

Project: ARCO #2169, Oakland, CA
Project Number: INTRIM -50325
Project Manager: Scott Robinson

MMK0612
Reported:
12/03/03 09:33

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference



Chain of Custody Record

(MMK0612)

Project Name 2169 GWM
BP BU/GEM CO Portfolio Retail
BP Laboratory Contract Number: Atlantic Richfield Company

On-site Time: <u>855</u>	Temp: <u>65°</u>
Off-site Time: <u>11:15</u>	Temp: <u>70°</u>
Sky Conditions: <u>cloudy</u>	
Meteorological Events:	
Wind Speed: <u>10mp</u>	Direction: <u>NE</u>

Date: 11/3/03 Requested Due Date (mm/dd/yy) 14 day TAT

Send To:	BP/GEM Facility No.: <u>ARCO 2169</u>	Consultant/Contractor: <u>URS</u>
Lab Name: <u>SEQUOIA</u>	BP/GEM Facility Address: <u>889 W. GRAND AVE, OAKLAND, CA</u>	Address: <u>500 12th St, Ste. 200</u>
Lab Address: <u>885 Jarvis Dr.</u>	Site ID No. <u>ARCO 2169</u>	<u>Oakland, CA 94609-4014</u>
<u>Morgan Hill, CA 95037</u>	Site Lat/Long:	e-mail EDD: <u>donna.casper@URSCorp.com</u>
	California Global ID #: <u>T0600100112</u>	Consultant/Contractor Project No.: <u>J5-00002169.01 00427</u>
Lab PM <u>Theresa Allen</u>	BP/GEM PM Contact: <u>PAUL SUPPLE</u>	Consultant Tele/Fax: <u>510-893-3600/510-874-3268</u>
Tele/Fax: <u>408-776-9600 / 408-782-6308</u>	Address: <u>P.O. Box 6549</u>	Consultant/Contractor PM: <u>Scott Robinson</u>
Report Type & QC Level: <u>1 Send EDF Reports</u>	<u>Moraga, CA 94570</u>	Invoice to: <u>Consultant/Contractor of BP/GEM (circle one)</u>
BP/GEM Account No.:	Tele/Fax: <u>925-299-8891/925-299-8872</u>	BP/GEM Work Release No: <u>INTRIM -50325</u>

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives				Requested Analysis					Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G/BTEX (8015/8021/8260)	TPH-D (8015)	MTBE (8021)	MIBE (8260)	MTBE, TAME, ETBE, DIPE, TBA (8260)	
1	A-1	1047	X				MMK0612-01	3						X			X	
2	A-5	1010	X				-02	3						X			X	
3	A-10	955	X				-03	3						X			X	
4	102-1	925	X				-04	3						X			X	
5	102-1		X				-05	2										on hold on 11/14/03
6																		
7																		
8																		
9																		
10																		

Sampler's Name: <u>SUCHZON SUNG</u>	Relinquished By / Affiliation: <u>[Signature]</u>	Date: <u>11/14</u>	Time: <u>18:00</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>11/14</u>	Time: <u>11:55</u>
Sampler's Company: <u>BIKING TEST</u>						
Relinquish Date: <u>11/14/03</u>						
Relinquish Method:						
Relinquish Tracking No:						

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

As In Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt Trip Blank Yes No

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: BP
 REC. BY (PRINT): TL
 WORKORDER: mmk0612

DATE REC'D AT LAB: 11/14/03
 TIME REC'D AT LAB: 1620
 DATE LOGGED IN: 11-19-03

DRINKING WATER for
 regulatory purposes: YES / NO
 WASTE WATER 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="radio"/> Absent Intact / Broken*	01		A-1	(3) Vials	HU	L	11/13/03	
2. Chain-of-Custody	<input checked="" type="radio"/> Present / Absent*	02		A-5	↓	↓	↓	↓	
3. Traffic Reports or Packing List:	Present / <input checked="" type="radio"/> Absent	03		A-6	↓	↓	↓	↓	
4. Airbill:	Airbill / Sticker Present / <input checked="" type="radio"/> Absent	04		ADR-1	↓	↓	↓	↓	
5. Airbill #:		05		TB	(2) ↓	↓	↓	↓	
6. Sample Labels:	<input checked="" type="radio"/> Present / Absent								
7. Sample IDs:	<input checked="" type="radio"/> Listed / Not Listed on Chain-of-Custody								
8. Sample Condition:	<input checked="" type="radio"/> Intact / Broken* / -Leaking*								
9. Does information on chain-of-custody, traffic reports and sample labels agree?	<input checked="" type="radio"/> Yes / No*								
10. Sample received within hold time:	<input checked="" type="radio"/> Yes / No*								
11. Adequate sample volume received?	<input checked="" type="radio"/> Yes / No*								
12. Proper Preservatives used:	<input checked="" type="radio"/> Yes / No*								
13. Temp Rec. at Lab: Is temp 4 ± 2°C?	<u>5°C</u> <input checked="" type="radio"/> Yes / No**								

(Acceptance range for samples requiring thermal pres.)

**Exception (if any): METALS / DFF ON ICE
 or Problem COC

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

ATTACHMENT C

HISTORIC GROUNDWATER DATA

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

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	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 8021B* (µg/L)	MTBE 8260 (µg/L)			TPH Diesel (µg/L)
A-1	03-24-95	14.16	8.10	ND	6.06	03-24-95	1,200	230	39	34	66	--	--	160		
A-1	06-05-95	14.16	11.13	ND	3.03	06-05-95	1,500	310	27	36	76	--	--	710		
A-1	08-17-95	14.16	11.71	ND	2.45	08-18-95	1,600	470	35	48	110	120	--	240		
A-1	12-04-95	14.16	12.28	ND	1.88	12-04-95	1,200	240	17	25	56	--	120	--		
A-1	03-01-96	14.16	8.78	ND	5.38	03-13-96	1,300	300	74	29	73	100	--	--		
A-1	05-29-96	14.16	9.85	ND	4.31	05-29-96	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
A-1	08-29-96	14.16	11.08	ND	3.08	08-29-96	1,200	320	5.9	25	27	110	--	--		
A-1	11-21-96	14.16	10.54	ND	3.62	11-21-96	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
A-1	03-26-97	14.16	10.55	ND	3.61	03-26-97	<50	0.8	<0.5	<0.5	<0.5	64	--	--		
A-1	05-21-97	14.16	11.10	ND	3.06	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
A-1	08-08-97	14.16	11.32	ND	2.84	08-08-97	91	7	<0.5	0.5	3.9	<60	--	--		
A-1	11-18-97	14.16	3.46	ND	10.70	11-18-97	54	<0.5	<0.5	<0.5	0.6	27	--	--		
A-1	02-20-98	14.16	7.10	ND	7.06	02-23-98	590	160	22	15	28	70	--	--		
A-1	05-11-98	14.16	9.87	ND	4.29	05-11-98	280	26	<0.5	0.8	2.3	6	--	--		
A-1	07-30-98	14.16	10.73	ND	3.43	07-30-98	1,000	210	5	<5	38	<30	--	--		
A-1	10-08-98	14.16	11.15	ND	3.01	10-08-98	3,100	740	11	<10	24	<60	--	--		
A-1	02-18-99	14.16	8.00	ND	6.16	02-18-99	510	87	7.1	6.4	13	52	--	--		
A-1	05-26-99	14.16	10.60	ND	3.56	05-26-99	240	26	<0.5	1.2	6.2	34	--	--		
A-1	08-23-99	14.16	11.22	ND	2.94	08-23-99	79	3.9	0.6	<0.5	1.7	38	--	--		
A-1	10-27-99	14.16	11.37	ND	2.79	10-27-99	110	2.2	<0.5	<0.5	<1	25	--	--	0.68	NP
A-1	01-31-00	14.16	9.44	ND	4.72	01-31-00	<50	<0.5	<0.5	<0.5	<1	25	--	--	0.80	NP
													--	--	1.0	NP

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

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH										Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
							Gasoline (µg/L)	Eenzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)				
A-2	03-24-95	14.55	8.64	ND	5.91	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--			
A-2	06-05-95	14.55	11.72	ND	2.83	06-05-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--			
A-2	08-17-95	14.55	12.35	ND	2.20	08-17-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--			
A-2	12-04-95	14.55	12.74	ND	1.81	12-04-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	12	--	--			
A-2	03-01-96	14.55	9.34	ND	5.21	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--			
A-2	05-29-96	14.55	10.40	ND	4.15	05-29-96	<50	<0.5	0.6	<0.5	<0.5	1.3	<9	--	--			
A-2	08-29-96	14.55	11.50	ND	3.05	08-29-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<20	--	--			
A-2	11-21-96	14.55	11.06	ND	3.49	11-21-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<39	--	--			
A-2	03-26-97	14.55	11.12	ND	3.43	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<30	--	--			
A-2	05-21-97	14.55	11.58	ND	2.97	05-21-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<20	--	--			
A-2	08-08-97	14.55	11.82	ND	2.73	08-08-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<20	--	--			
A-2	11-18-97	14.55	3.33	ND	11.22	11-18-97	Not sampled: well sampled semi-annually, during the first and third quarters											
A-2	02-20-98	14.55	7.68	ND	6.87	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<20	--	--			
A-2	05-11-98	14.55	10.45	ND	4.10	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	17	--	--			
A-2	07-30-98	14.55	11.23	ND	3.32	07-30-98	Not sampled											
A-2	10-08-98	14.55	11.62	ND	2.93	10-08-98	Not sampled: well sampled semi-annually, during the first and second quarters											
A-2	02-18-99	14.55	8.62	ND	5.93	02-18-99	93	<0.5	<0.5	<0.5	<1	26	--	--				
A-2	05-26-99	14.55	11.16	ND	3.39	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--				
A-2	08-23-99	14.55	11.69	ND	2.86	08-23-99	Not sampled: well sampled semi-annually, during the first and second quarters											
A-2	10-27-99	14.55	11.88	ND	2.67	10-27-99	Not sampled: well sampled semi-annually, during the first and second quarters										0.59	
A-2	01-31-00	14.55	10.17	ND	4.38	01-31-00	<50	<0.5	<0.5	<0.5	<1	<3	--	--		0.59		
																1.0	NP	

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Well Number	Date Gauged	TOC Elevation (ft.-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft.-MSL)	Date Sampled	TPH			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/Not Purged (P/NP)
							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)							
A-3	03-24-95	15.75	8.83	ND	6.92	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-3	06-05-95	15.75	12.44	ND	3.31	06-05-95	Not sampled: well sampled annually									
A-3	08-17-95	15.75	13.04	ND	2.71	08-17-95	Not sampled: well sampled annually									
A-3	12-04-95	15.75	13.57	ND	2.18	12-04-95	Not sampled: well sampled annually									
A-3	03-01-96	15.75	9.90	ND	5.85	03-01-96	Not sampled: well sampled annually									
A-3	05-29-96	15.75	11.08	ND	4.67	05-29-96	Not sampled: well sampled annually									
A-3	08-29-96	15.75	12.38	ND	3.37	08-29-96	Not sampled: well sampled annually									
A-3	11-21-96	15.75	11.86	ND	3.89	11-21-96	Not sampled: well sampled annually									
A-3	03-26-97	15.75	11.81	ND	3.94	03-26-97	Not sampled: well sampled annually									
A-3	05-21-97	15.75	12.35	ND	3.40	05-21-97	Not sampled: well sampled annually									
A-3	08-08-97	15.75	12.62	ND	3.13	08-08-97	Not sampled: well sampled annually									
A-3	11-18-97	15.75	3.75	ND	12.00	11-18-97	Not sampled: well sampled annually									
A-3	02-20-98	15.75	8.06	ND	7.69	02-20-98	Not sampled: well sampled annually									
A-3	05-11-98	15.75	11.19	ND	4.56	05-11-98	Not sampled: well sampled annually									
A-3	07-30-98	15.75	12.05	ND	3.70	07-30-98	Not sampled: well sampled annually									
A-3	10-08-98	15.75	12.43	ND	3.32	10-08-98	Not sampled: well sampled annually									
A-3	02-18-99	15.75	9.05	ND	6.70	02-18-99	Not sampled: well sampled annually									
A-3	05-26-99	15.75	11.93	ND	3.82	05-26-99	Not sampled: well sampled annually									
A-3	08-23-99	15.75	12.57	ND	3.18	08-23-99	Not sampled: well sampled annually									
A-3	10-27-99	15.75	12.65	ND	3.10	10-27-99	Not sampled: well sampled annually									
A-3	01-31-00	15.75	9.55	ND	6.20	01-31-00	Not sampled: well sampled annually									
							<50	<0.5	<0.5	<0.5	<1	9	--	--	0.88	
															1.0	NP

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Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH				Total Xylenes (ug/L)	MTBE 8021B* (ug/L)	MTBE #260 (ug/L)	TPH Diesel (ug/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
							Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)						
A-4	03-24-95	15.25	7.20	ND	8.05	03-24-95										
A-4	06-05-95	15.25	11.70	ND	3.55	06-05-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-4	08-17-95	15.25	12.28	ND	2.97	08-17-95	Not sampled: well sampled annually									
A-4	12-04-95	15.25	12.63	ND	2.62	12-04-95	Not sampled: well sampled annually									
A-4	03-01-96	15.25	8.55	ND	6.70	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	∇	--	--		
A-4	05-29-96	15.25	10.32	ND	4.93	05-29-96	Not sampled: well sampled annually									
A-4	08-29-96	15.25	11.55	ND	3.70	08-29-96	Not sampled: well sampled annually									
A-4	11-21-96	15.25	10.83	ND	4.42	11-21-96	Not sampled: well sampled annually									
A-4	03-26-97	15.25	10.97	ND	4.28	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	∇	--	--		
A-4	05-21-97	15.25	11.51	ND	3.74	05-21-97	Not sampled: well sampled annually									
A-4	08-08-97	15.25	11.73	ND	3.52	08-08-97	Not sampled: well sampled annually									
A-4	11-18-97	15.25	4.37	ND	10.88	11-18-97	Not sampled: well sampled annually									
A-4	02-20-98	15.25	6.25	ND	9.00	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	∇	--	--		
A-4	05-11-98	15.25	10.33	ND	4.92	05-11-98	Not sampled: well sampled annually									
A-4	07-30-98	15.25	11.25	ND	4.00	07-30-98	Not sampled: well sampled annually									
A-4	10-08-98	15.25	11.62	ND	3.63	10-08-98	Not sampled: well sampled annually									
A-4	02-18-99	15.25	7.12	ND	8.13	02-18-99	Not sampled: well sampled annually									
A-4	05-26-99	15.25	11.12	ND	4.13	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	∇	--	--		
A-4	08-23-99	15.25	11.62	ND	3.63	08-23-99	Not sampled: well sampled annually									
A-4	10-27-99	15.25	11.74	ND	3.51	10-27-99	Not sampled: well sampled annually									
A-4	01-31-00	15.25	9.45	ND	5.80	01-31-00	<50	<0.5	<0.5	<0.5	∇	4	--	--	0.54	
															1.0	NP

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							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)								
A-5	03-24-95	13.51	7.40	ND	6.11													
A-5	06-05-95	13.51	10.43	ND	3.08	03-24-95	3,300	200	310	130	460	--	--	--				
A-5	08-17-95	13.51	11.15	ND	2.36	06-05-95	57,000	2,700	4,600	1,500	6,800	--	--	--				
A-5	12-04-95	13.51	11.42	ND	2.09	08-18-95	34,000	1,600	2,700	1,100	5,100	<28	--	--				
A-5	03-01-96	13.51	8.11	ND	5.40	12-04-95	61	<0.5	<0.5	<0.5	<0.5	--	--	--				
A-5	05-29-96	13.51	9.30	ND	4.21	03-13-96	11,000	860	960	380	1,600	<100	--	--				
A-5	08-29-96	13.51	10.60	ND	2.91	05-29-96	19,000	1,600	1,900	880	3,300	<100	--	--				
A-5	11-21-96	13.51	10.05	ND	3.46	08-29-96	7,700	490	450	260	990	<30	--	--				
A-5	03-26-97	13.51	9.87	ND	3.64	11-21-96	8,000	450	550	340	1,100	<30	--	--				
A-5	05-21-97	13.51	10.25	ND	3.26	03-26-97	3,100	190	140	130	340	<30	--	--				
A-5	08-08-97	13.51	10.42	ND	3.09	05-21-97	16,000	1,500	900	700	2,700	<120	--	--				
A-5	11-18-97	13.51				08-08-97	9,000	690	240	440	1,300	<30	--	--				
A-5	02-20-98	13.51																
A-5	05-11-98	13.51																
A-5	07-30-98	13.51																
A-5	10-08-98	13.51																
A-5	02-18-99	13.51	7.63	ND	5.88													
A-5	05-26-99	13.51	9.85	ND	3.66	02-18-99	<50	0.8	<0.5	<0.5	1.5	<10	--	--				
A-5	08-23-99	13.51	10.60	ND	2.91	05-26-99	1,700	240	41	110	330	<12	--	--				
A-5	10-27-99	13.51	10.72	ND	2.79	08-23-99	560	65	3	30	52	<6	--	--				
A-5	01-31-00	13.51	9.37	ND	4.14	10-27-99	480	93	1.0	16	19	<6	--	--	0.73	NP		
						01-31-00	Not sampled: well was inaccessible										0.65	NP

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							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)						
A-6	03-24-95	13.51	7.89	ND	5.62	03-24-95											
A-6	06-05-95	13.51	10.06	ND	3.45	06-05-95	120	<0.5	<1	<0.5	<1.5	--	--	--			
A-6	08-17-95	13.51	11.10	ND	2.41	08-18-95	160	<0.5	<0.6	<0.5	<0.5	--	--	--			
A-6	12-04-95	13.51	11.52	ND	1.99	12-04-95	530	<0.5	<0.5	<2.4	<4.2	6	--	--			
A-6	03-01-96	13.51	8.21	ND	5.30	03-13-96	28,000	1,600	1,800	880	3,600	--	--	--			
A-6	05-29-96	13.51	9.25	ND	4.26	05-29-96	1,400	<3	<15	<7	<10	<20	--	--			
A-6	08-29-96	13.51	10.52	ND	2.99	08-29-96	410	<2	<2	<2	<2	3	--	--			
A-6	11-21-96	13.51	10.54	ND	2.97	11-21-96	80	<0.5	<0.5	<0.5	<0.5	6	--	--			
A-6	03-26-97	13.51	9.93	ND	3.58	03-26-97	62	<0.5	<0.5	<0.5	<0.5	12	--	--			
A-6	05-21-97	13.51	10.54	ND	2.97	05-21-97	110	<0.5	0.8	1	1.4	15	--	--			
A-6	08-08-97	13.51	10.77	ND	2.74	08-08-97	600	0.6	0.6	<2	2.7	<3	--	--			
A-6	11-18-97	13.51	3.41	ND	10.10	11-18-97	850	<0.5	<0.5	6.1	<0.5	<4	--	--			
A-6	02-20-98	13.51	6.73	ND	6.78	02-20-98	690	<1	<1	3	2	7	--	--			
A-6	05-11-98	13.51	9.26	ND	4.25	05-11-98	60	<0.5	0.6	1.3	0.5	4	--	--			
A-6	07-30-98	13.51	10.12	ND	3.39	07-30-98	140	<0.5	0.7	0.6	<0.5	6	--	--			
A-6	10-08-98	13.51	10.53	ND	2.98	10-08-98	910	<2	<2	3	7	34	--	--			
A-6	02-18-99	13.51	7.50	ND	6.01	02-18-99	1,300	<2	4	3	4	21	--	--			
A-6	05-26-99	13.51	10.00	ND	3.51	05-26-99	150	<0.5	<0.5	1.4	1.7	35	--	--			
A-6	08-23-99	13.51	10.70	ND	2.81	08-23-99	100	<0.5	<0.5	<0.5	<0.5	17	--	--			
A-6	10-27-99	13.51	11.00	ND	2.51	10-27-99	98	0.6	<0.5	1.1	4.3	13	--	--	2.42	NP	
A-6	01-31-00	13.51	9.31	ND	4.20	01-31-00	<50	<0.5	<0.5	<0.5	<1	7	--	--	13.23	NP	
							<50	<0.5	<0.5	<0.5	<1	9	--	--	1.0	NP	

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							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MIBE 3021B* (µg/L)	MIBE 8260 (µg/L)			TPH Diesel (µg/L)	
AR-1	03-24-95	15.61	7.25	ND	8.36	03-24-95											
AR-1	06-05-95	15.61	11.37	ND	4.24	06-05-95	270	14	0.6	2.5	2.1	--	--	130			
AR-1	08-17-95	15.61	12.40	ND	3.21	08-17-95	190	10	<0.5	0.8	0.5	--	--	580			
AR-1	12-04-95	15.61	12.90	ND	2.71	12-04-95	960	110	12	4.5	150	14	--	<50			
AR-1	03-01-96	15.61	8.19	ND	7.42	12-04-95	<50	1.5	<0.5	<0.5	0.8	--	--	--			
AR-1	05-29-96	15.61	10.41	ND	5.20	03-13-96	150	3.8	0.5	1.4	1.3	<3	--	--			
AR-1	08-29-96	15.61	12.12	ND	3.49	05-29-96	Not sampled: well sampled semi-annually, during the first and third quarters							--	--		
AR-1	11-21-96	15.61	11.52	ND	4.09	08-29-96	<50	<0.5	<0.5	<0.5	0.8	<3	--	--			
AR-1	03-26-97	15.61	11.33	ND	4.28	11-21-96	Not sampled: well sampled semi-annually, during the first and third quarters							--	--		
AR-1	05-21-97	15.61	12.02	ND	3.59	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			
AR-1	08-08-97	15.61	12.31	ND	3.30	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters							--	--		
AR-1	11-18-97	15.61	3.97	ND	11.64	08-08-97	<50	0.7	<0.5	1	<0.5	<3	--	--			
AR-1	02-20-98	15.61	6.42	ND	9.19	11-18-97	Not sampled: well sampled semi-annually, during the first and third quarters							--	--		
AR-1	05-11-98	15.61	10.93	ND	4.68	02-23-98	<200	<2	<2	<2	<2	160	--	--			
AR-1	07-30-98	15.61	11.82	ND	3.79	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	4	--	--			
AR-1	10-08-98	15.61	12.24	ND	3.37	07-30-98	<50	<0.5	<0.5	<0.5	<0.5	6	--	--			
AR-1	02-18-99	15.61	7.75	ND	7.86	10-08-98	<50	<0.5	<0.5	<0.5	<0.5	6	--	--			
AR-1	05-26-99	15.61	11.62	ND	3.99	02-18-99	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--			
AR-1	08-23-99	15.61	9.32	ND	6.29	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--			
AR-1	10-27-99	15.61	12.14	ND	3.47	08-23-99	Not sampled: well sampled semi-annually, during the first and second quarters							--	--		
AR-1	01-31-00	15.61	Not surveyed; well inaccessible				10-27-99	Not sampled: well sampled semi-annually, during the first and second quarters									

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							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)			TPH Diesel (µg/L)
AR-2	03-24-95	15.28	9.13	ND	6.15	03-24-95	<50	6.2	<0.5	<0.5	<0.5	0.6	--	--	<50	
AR-2	06-05-95	15.28	12.09	ND	3.19	06-05-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	<50	
AR-2	08-17-95	15.28	12.78	ND	2.50	08-18-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	<50	
AR-2	12-04-95	15.28	11.44	ND	3.84	12-13-95	<50	<0.5	<0.5	<0.5	<0.5	4	--	--	<50	
AR-2	03-01-96	15.28	9.83	ND	5.45	03-13-96	190	26	2.6	3.3	13	200	--	--	--	
AR-2	05-29-96	15.28	10.97	ND	4.31	05-29-96	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
AR-2	08-29-96	15.28	12.20	ND	3.08	08-29-96	<50	<0.5	<0.5	<0.5	<0.5	95	--	--	--	
AR-2	11-21-96	15.28	11.57	ND	3.71	11-21-96	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
AR-2	03-26-97	15.28	11.60	ND	3.68	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	9	--	--	--	
AR-2	05-21-97	15.28	12.12	ND	3.16	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
AR-2	08-08-97	15.28	12.35	ND	2.93	08-08-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
AR-2	11-18-97	15.28	3.48	ND	11.80	11-18-97	Not sampled: well sampled semi-annually, during the first and third quarters							--	--	
AR-2	02-20-98	15.28	8.00	ND	7.28	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	43	--	--	--	
AR-2	05-11-98	15.28	10.97	ND	4.31	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
AR-2	07-30-98	15.28	11.76	ND	3.52	07-30-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
AR-2	10-08-98	15.28	12.17	ND	3.11	10-08-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
AR-2	02-18-99	15.28	5.17	ND	6.11	02-18-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	
AR-2	05-26-99	15.28	11.72	ND	3.56	05-26-99	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--	--	
AR-2	08-23-99	15.28	12.31	ND	2.97	08-23-99	Not sampled: well sampled semi-annually, during the first and second quarters							--	--	
AR-2	10-27-99	15.28	12.42	ND	2.86	10-27-99	Not sampled: well sampled semi-annually, during the first and second quarters							0.61		
AR-2	01-31-00	15.28	10.31	ND	4.97	01-31-00	Not sampled									

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

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH				Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)	
							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)							
ADR-1	03-24-95	13.95	8.04	0.01	** 5.92	03-24-95	Not sampled: well contained floating product										
ADR-1	06-05-95	13.95	11.02	ND	2.93	06-05-95	23,000	310	420	300	1,900	--	--	13,000			
ADR-1	08-17-95	13.95	11.86	ND	2.09	08-18-95	4,400	150	120	95	620	120	--	4,500			
ADR-1	12-04-95	13.95	10.05	ND	3.90	12-13-95	8,800	100	130	120	990	--	--	--			
ADR-1	03-01-96	13.95	8.76	ND	5.19	03-13-96	89,000	370	1,000	840	8,100	<500	--	--			
ADR-1	05-29-96	13.95	9.74	ND	4.21	05-30-96	27,000	230	380	370	2,700	<100	--	--			
ADR-1	08-29-96	13.95	10.77	ND	3.18	08-29-96	5,300	190	58	76	470	85	--	--			
ADR-1	11-21-96	13.95	10.49	ND	3.46	11-21-96	1,900	82	21	32	270	110	--	--			
ADR-1	03-26-97	13.95	10.37	ND	3.58	03-26-97	1,300	260	6	39	27	95	--	--			
ADR-1	05-21-97	13.95	10.90	ND	3.05	05-21-97	2,100	300	18	37	200	79	--	--			
ADR-1	08-08-97	13.95	11.12	ND	2.83	08-08-97	3,900	620	49	110	470	<200	--	--			
ADR-1	11-18-97	13.95	3.47	ND	10.48	11-18-97	18,000	900	140	360	2,700	<60	--	--			
ADR-1	02-20-98	13.95	Not surveyed: well inaccessible														
ADR-1	05-11-98	13.95	Not surveyed: well inaccessible														
ADR-1	07-30-98	13.95	Not surveyed: well inaccessible														
ADR-1	10-08-98	13.95	Not surveyed: well inaccessible														
ADR-1	02-18-99	13.95	7.80	ND	6.15	02-18-99	200	4.4	<0.5	1.3	1.3	43	--	--			
ADR-1	05-26-99	13.95	10.40	ND	3.55	05-26-99	160	10	<0.5	1.7	1.8	43	--	--			
ADR-1	08-23-99	13.95	10.70	ND	3.25	08-23-99	7,400	310	16	210	970	18	--	--			
ADR-1	10-27-99	13.95	10.82	ND	3.13	10-27-99	5,000	210	6.3	180	490	5	--	--	0.37	NP	
ADR-1	01-31-00	13.95	9.21	ND	4.74	01-31-00	290	3.6	<0.5	1.1	<1	26	--	--	0.73	NP	
															1.0	NP	

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

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft.-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft.-MSL)	Date Sampled	TPH									
							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/Not Purged (P/NP)
ADR-2	03-24-95	14.64	8.41	>3.00	NR[1]	03-24-95	Not sampled: well contained floating product									
ADR-2	06-05-95	14.64	11.45	>3.00	NR[1]	06-05-95	Not sampled: well contained floating product									
ADR-2	08-17-95	14.64	12.10	0.03	** 2.56	08-17-95	Not sampled: well contained floating product									
ADR-2	12-04-95	14.64	10.93	0.03	** 3.73	12-13-95	Not sampled: well contained floating product									
ADR-2	03-01-96	14.64	8.74	ND	5.90	03-13-96	29,000	1,100	1,200	710	3,800	<500	--	--		
ADR-2	05-29-96	14.64	10.43	ND	4.21	05-29-96	33,000	510	500	470	2,300	120	--	--		
ADR-2	08-29-96	14.64	11.64	ND	3.00	08-29-96	8,000	230	180	150	730	53	--	--		
ADR-2	11-21-96	14.64	11.23	ND	3.41	11-21-96	15,000	630	440	390	2,100	75	--	--		
ADR-2	03-26-97	14.64	11.13	ND	3.51	03-26-97	6,100	320	23	180	400	32	--	--		
ADR-2	05-21-97	14.64	11.64	ND	3.00	05-21-97	6,100	380	22	210	320	<30	--	--		
ADR-2	08-08-97	14.64	11.85	ND	2.79	08-08-97	8,400	380	35	230	910	<30	--	--		
ADR-2	11-18-97	14.64	3.33	ND	11.31	11-18-97	11,000	230	29	300	1,200	<60	--	--		
ADR-2	02-20-98	14.64	7.67	ND	6.97	02-20-98	4,700	320	30	130	360	20	--	--		
ADR-2	05-11-98	14.64	10.47	ND	4.17	05-11-98	Not sampled									
ADR-2	07-30-98	14.64	Not surveyed: well inaccessible													
ADR-2	10-08-98	14.64	11.67	ND	2.97	10-08-98	Not sampled									
ADR-2	02-18-99	14.64	Not surveyed: well inaccessible													
ADR-2	05-26-99	14.64	11.02	ND	3.62	05-26-99	5,900	670	5	340	104	16	--	--		
ADR-2	08-23-99	14.64	9.32	ND	4.82	08-23-99	9,100	570	12	410	1,000	28	--	--		
ADR-2	10-27-99	14.64	9.85	Sheen	4.79	10-27-99	Not sampled: sheen present									
ADR-2	01-31-00	14.64	10.15	ND	4.49	01-31-00	7,700	280	3.4	370	390	23	--	--	0.50	NP
															0.65	NP
															2.0	NP

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

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH			Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
							Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)							

TOC: top of casing

ft-MSL: elevation in feet, relative to mean sea level

TPH: total petroleum hydrocarbons, California DHS LUFT Method

BTEX: benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 10/27/99)

MTBE: Methyl tert-butyl ether

µg/L: micrograms per liter

mg/L: milligrams per liter

ND: none detected

NR: not reported; data not available or not measurable

--: not analyzed or not applicable

< denotes concentration not present at or above laboratory detection limit stated to the right.

[1]: well contained more than 3 feet of floating product; exact product thickness and groundwater elevation could not be measured

*: EPA method 8020 prior to 10/27/99

***: [corrected elevation (Z)] = Z + (h * 0.73) where: Z = measured elevation, h = floating product thickness, 0.73 = density ratio of oil to water

***: For previous historical groundwater elevation data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results and Remediation System Performance Evaluation Report, ARCO Service Station 2169, 889 West Grand Avenue, Oakland, California, (EMCON, March 4, 1996).*

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
03-24-95	Northwest	0.009
06-05-95	Northwest	0.002
08-17-95	West	0.001
12-04-95	North-Northwest	0.002
03-01-96	Northwest	0.003
05-29-96	Northwest	0.002
08-29-96	West	0.002
11-21-96	West-Northwest	0.002
03-26-97	Northwest	0.002
05-21-97	North-Northwest	0.002
08-08-97	North-Northwest	0.002
11-18-97	North-Northwest	0.003
02-20-98	North	0.013
05-11-98	North	0.03
07-30-98	North	0.002
10-08-98	North-Northwest	0.002
02-18-99	Northwest	0.008
05-26-99	North-Northwest	0.003
08-23-99	Variable	Variable
10-27-99	Variable	Variable
01-31-00	West-Northwest	0.006

ATTACHMENT D

EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

Error Summary Log

12/15/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #2169, Oakland, CA
Work Order Number:	MMK0612
Global ID:	T0600100112
Lab Report Number:	MMK0612120320031028

EDFSAMP: Error Summary Log

12/15/03

Error type	Logcode	Projname	Npdlwo	Sampid	Matrix
Error: LOGCODE field is blank or invalid	URSO	ARCO #2169, Oakland, CA	MMK0612	A-1	W
Error: LOGCODE field is blank or invalid	URSO	ARCO #2169, Oakland, CA	MMK0612	A-5	W
Error: LOGCODE field is blank or invalid	URSO	ARCO #2169, Oakland, CA	MMK0612	A-6	W
Error: LOGCODE field is blank or invalid	URSO	ARCO #2169, Oakland, CA	MMK0612	ADR-1	W

EDFRES: Error Summary Log

12/15/03

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

EDFQC: Error Summary Log

12/15/03

Error type	Lablotcti	Anmcode	Parlabel	Qccode	Labqcid
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DIPE	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DIPE	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DIPE	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BS2	3K25005BS2

Error type	Lablotcti	Anmcode	Parlabel	Qccode	Labqcid
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EDB	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EDB	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EDB	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETBE	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETBE	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETBE	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETHANOL	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETHANOL	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETHANOL	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	GRO	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	GRO	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	GRO	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TAME	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TAME	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TAME	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TBA	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TBA	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TBA	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	LB1	3K25005BLK1

EDFSAMP: Error Summary Log

12/15/03

Error type	Logcode	Projname	Npdlwo	Sampid	Matrix
Error: LOGCODE field is blank or invalid	URSO	ARCO #4931, Oakland, CA	MMK0619	A-4	W
Error: LOGCODE field is blank or invalid	URSO	ARCO #4931, Oakland, CA	MMK0619	A-8	W

EDFTEST: Error Summary Log

12/15/03

Error type	Labsampid	Qccode	Anmcode	Exmcode	Anadate	Run number
Error: ANMCODE field is blank or invalid	3K25005BLK1	LB1	8260TPH	SW5030B	11/25/03	1
Error: ANMCODE field is blank or invalid	3K25005BS1	BS1	8260TPH	SW5030B	11/25/03	1
Error: ANMCODE field is blank or invalid	3K25005BS2	BS2	8260TPH	SW5030B	11/25/03	1
Error: ANMCODE field is blank or invalid	3K25005BSD1	BD1	8260TPH	SW5030B	11/25/03	1
Error: ANMCODE field is blank or invalid	3K25005BSD2	BD2	8260TPH	SW5030B	11/25/03	1
Error: ANMCODE field is blank or invalid	MMK061902	CS	8260TPH	SW5030B	11/26/03	1
Error: ANMCODE field is blank or invalid	MMK061901	CS	8260TPH	SW5030B	11/26/03	1

EDFRES: Error Summary Log

12/15/03

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

EDFQC: Error Summary Log

12/15/03

Error type	Lablotctl	Anmcode	Parlabel	Qccode	Labqcld
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZ	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	BZME	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DCA12D4	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DIPE	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DIPE	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	DIPE	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	BS2	3K25005BS2

Error type	Lablotcti	Anmcode	Parlabel	Qccode	Labqcid
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EBZ	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EDB	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EDB	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	EDB	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETBE	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETBE	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETBE	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETHANOL	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETHANOL	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	ETHANOL	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	GRO	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	GRO	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	GRO	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	MTBE	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TAME	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TAME	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TAME	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TBA	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TBA	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	TBA	LB1	3K25005BLK1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BD1	3K25005BSD1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BD2	3K25005BSD2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BS1	3K25005BS1
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	BS2	3K25005BS2
Error: ANMCODE field is blank or invalid	3K25005	8260TPH	XYLENES	LB1	3K25005BLK1

EDFCL: Error Summary Log

12/15/03

Error type	Clevdate	Anmcode	Exmcode	Parlabel	Cicode
Error: ANMCODE field is blank or invalid	08/30/02	8260TPH	SW5030B	DCA12D4	SLSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	BZ	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	BZ	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	BZME	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	BZME	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	DCA12	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	DCA12	LSP
Error: ANMCODE field is blank or invalid	08/30/02	8260TPH	SW5030B	DCA12D4	SLSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	DIPE	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	DIPE	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	EBZ	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	EBZ	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	EDB	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	EDB	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	ETBE	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	ETBE	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	ETHANOL	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	ETHANOL	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	GRO	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	GRO	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	MTBE	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	MTBE	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	TAME	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	TAME	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	TBA	LSA

Error type	Cirevdate	Anmcode	Exmcode	Parlabel	Cicode
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	TBA	LSP
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	XYLENES	LSA
Error: ANMCODE field is blank or invalid	11/25/03	8260TPH	SW5030B	XYLENES	LSP

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