12076
HWANG

URS

January 28, 2003

Alameda County
FEB 05 2003
Environmental Health

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

**Re: Third Quarter 2002 Groundwater Monitoring Report**
**ARCO Service Station #4931**
**731 West MacArthur Boulevard**
**Oakland, California**
**URS Project #38465952**

Dear Ms. Hugo:

On behalf of Atlantic Richfield Company (ARCO-an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is submitting the *Third Quarter 2002 Groundwater Monitoring Report* for ARCO Service Station #4931, located at 731 MacArthur Boulevard, Oakland, California.

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

Sincerely,

**URS CORPORATION**

REGISTERED PROFESSIONAL ENGINEER
AMY P. BRECKENRIDGE
No. C057141
Exp. 12/31/05
CIVIL
STATE OF CALIFORNIA

Scott Robinson
Project Manager

Amy P. Breckenridge, P.E.
Portfolio Manager

Enclosure: Third Quarter 2002 Groundwater Monitoring Report

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

URS Corporation
500 12th Street, Suite 200
Oakland, CA 94607-4014
Tel: 510.893.3600
Fax: 510.874.3268

**ARCO Products Company**
4 Centerpointe Drive
La Palma, California 90623-1066
Telephone 714 670 5300

Mailing Address: P.O. Box 6549
Moraga, California 94549



January 31, 2003

Re: ARCO Station # 4931 • 731 West MacArthur Boulevard • Oakland, CA
Third Quarter 2002 Quarterly Monitoring Report

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

Submitted by:

Paul Supple
Environmental Engineer

**REPORT**

# THIRD QUARTER 2002 GROUNDWATER MONITORING

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

*Prepared for*
Atlantic Richfield Company

January 28, 2003

URS

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

38465952

URS

Date: January 28, 2003
Quarter: 3Q 02

## ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

| | | | |
|---|---|---|---|
| Facility No.: | 4931 | Address: | 731 West MacArthur Boulevard, Oakland, CA |
| Atlantic Richfield Co. Environmental Engineer: | | | Paul Supple |
| Consulting Co./Contact Person: | | | URS Corporation/Scott Robinson |
| Consultant Project No.: | | | 38465952 |
| Primary Agency: | | | ACHCSA |

**WORK PERFORMED THIS QUARTER (Third– 2002):**

1. Performed third quarter 2002 monitoring event.
2. Prepared second quarter 2002 groundwater monitoring report.
3. Pre-construction meeting for line replacement work.

**WORK PROPOSED FOR NEXT QUARTER (Fourth – 2002):**

1. Perform fourth quarter 2002 groundwater monitoring event.
2. Prepare third quarter 2002 groundwater monitoring report.
3. Replace fuel lines onsite.

| | |
|---|---|
| Current Phase of Project | GW monitoring/sampling/remediation |
| Frequency of Groundwater Sampling: | Annual (2nd Quarter): A-7, A-13<br>Semi-Annual (2nd/4th Quarter): A-3, A-5, A-11, A-12<br>Quarterly: A-2, A-4, A-6, A-8, A-9 |
| Frequency of Groundwater Monitoring: | Quarterly |
| Is Free Product (FP) Present On–Site: | No |
| FP Recovered this Quarter: | None |
| Cumulative FP Recovered to Date: | Unknown |
| Bulk Soil Removed This Quarter: | None |
| Bulk Soil Removed to Date: | Unknown |
| Current Remediation Techniques: | Intrinsic Bioremediation Enhancement using ORC |
| Approximate Depth to Groundwater: | 4.93 (AR-2) to 10.25 (A-11) feet |
| Groundwater Gradient (direction) | West |
| Groundwater Gradient (magnitude) | 0.016 feet per foot |

**DISCUSSION:**

TPH-g was detected in two of five wells sampled this quarter at concentrations of 2,400 micrograms per liter (µg/L) in well A-4 and 9,400 µg/L in well A-8. Benzene was detected in two wells at concentrations of 120 µg/L in well A-4 and 1,800 µg/L in well A-8. MTBE was detected in two wells at concentrations of 2,100 µg/L in well A-4 and 4,200 µg/L in well A-8. Bioremediation enhancement is ongoing using oxygen releasing compounds (ORC) in wells A-4, A-8, A-9 and AR-1.

URS

**ATTACHMENTS:**

- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – Groundwater Flow Direction and Gradient
- Figure 1 – Groundwater Elevation Contour and Analytical Summary Map – August 12, 2002
- Attachment A – Field Procedures and Field Data Sheets
- Attachment B – Laboratory Procedures, Certified Analytical Reports, and Chain-of-Custody Records
- Attachment C – Historic Groundwater Data
- Attachment D – EDCC Report and EDF/Geowell Submittal Confirmation

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

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

| Well Number | Date Sampled | Top of Riser Elevation (ft) | Depth to Groundwater (ft) | Groundwater Elevation (ft) | TPH as Gasoline (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-2 | 06/21/00 | 55.48 | 6 85 | 48.63 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <3.0 |
| | 09/20/00 | | 10.45 | 45 03 | <50 | < 0.5 | < 0.5 | <0.5 | <0.5 | <2.5 |
| | 12/26/00 | | 6.27 | 49.21 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 03/20/01 | | 4 57 | 50.91 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 06/12/01 | | 9.27 | 46.21 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 09/23/01 | | 10.75 | 44 73 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 12/31/01 | | 4.13 | 51 35 | <50 | < 0.5 | < 0.5 | 1 | 3.2 | <2.5 |
| | 03/21/02 | | 3 26 | 52.22 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 |
| | 04/17/02 | | 3.72 | 51.76 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 3.1 |
| | **08/12/02** | | **9.95** | **45.53** | **<10** | **<0.10** | **<0.10** | **<0.10** | **<0.10** | **<0.50** |
| A-3 | 06/21/00 | 54.66 | 9 48 | 45.18 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 46 |
| | 09/20/00 | | 10.24 | 44 42 | <50 | < 0.5 | < 0.5 | <0.5 | <0.5 | 89.6 |
| | 12/26/00 | | 9.58 | 45 08 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | 7 11 |
| | 03/20/01 | | 6.34 | 48.32 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 9.76 | 44.90 | < 50 | < 0.5 | < 0 5 | < 0.5 | <0.5 | 86 |
| | 09/23/01 | | 10.55 | 44.11 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 3.70 | 50.96 | <50 | < 0.5 | < 0.5 | < 0.5 | 1 | 60 |
| | 03/21/02 | | 5.75 | 48.91 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 7.27 | 47.39 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 45 |
| | **08/12/02** | | **9.71** | **44.95** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

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

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

| Well Number | Date Sampled | Top of Riser Elevation (ft) | Depth to Groundwater (ft) | Groundwater Elevation (ft) | TPH as Gasoline (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-4 | 06/21/00 | 54.73 | 9 49 | 45.24 | 2,100 | 110 | 2.1 | 11 | 5.9 | 2,000 |
| | 09/20/00 | | 10.33 | 44.40 | 1,540 | 127 | <5.0 | 9.07 | 7.42 | 1,940 |
| | 12/26/00 | | 9.34 | 45.39 | 1,550 | 42.7 | <5.0 | 11 | 10.9 | 1,210 |
| | 03/20/01 | | 7.56 | 47.17 | 913 | 40.9 | <5.0 | 15.5 | 14.6 | <25 |
| | 06/12/01 | | 9.83 | 44.90 | 2,000 | 230 | <20 | 21 | <20 | 4,700 |
| | 09/23/01 | | 10.54 | 44.19 | 1,600 | 35 | <10 | <10 | <10 | 3,000 |
| | 12/31/01 | | 5 42 | 49.31 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 880 |
| | 03/21/02 | | 6.18 | 48.55 | <5,000 | <50 | <50 | <50 | <50 | 1,400 |
| | 04/17/02 | | 7.34 | 47.39 | 1,300 | 79 | 31 | 17 | 55 | 2,200 |
| | **08/12/02** | | **9.56** | **45.17** | **2,400** [a] | **120** | **<5.0** | **<5.0** | **<5.0** | **2,100** |
| A-5 | 06/21/00 | 54 17 | 9.29 | 44.88 | 980 | <0.5 | <0.5 | <0.5 | <1.0 | 2,000 |
| | 09/20/00 | | 10.23 | 43.94 | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | 9.65 | 44.52 | 525 | <0.5 | <0 5 | <0.5 | <0.5 | 1,200 |
| | 03/20/01 | | 8.05 | 46.12 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 9.81 | 44.36 | 830 | <5.0 | <5.0 | <5.0 | <5.0 | 3,200 |
| | 09/23/01 | | 10.42 | 43.75 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 6.03 | 48.14 | 320 | <0 5 | <0 5 | <0.5 | <0.5 | 60 |
| | 03/21/02 | | 6.71 | 47 46 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 8.01 | 46 16 | 1,600 | <10 | <10 | <10 | <10 | 3,200 |
| | **08/12/02** | | **9.87** | **44.30** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

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

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

| Well Number | Date Sampled | Top of Riser Elevation (ft) | Depth to Groundwater (ft) | Groundwater Elevation (ft) | TPH as Gasoline (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-6 | 06/21/00 | 55.17 | 8.67 | 46.50 | <50 | <0 5 | <0.5 | <0.5 | <1.0 | <3.0 |
| | 09/20/00 | | 9.34 | 45.83 | <50 | < 0.5 | < 0.5 | <0.5 | <0.5 | <2.5 |
| | 12/26/00 | | 8.65 | 46.52 | < 50 | < 0.5 | < 0.5 | < 0 5 | <0.5 | <2.5 |
| | 03/20/01 | | 6.84 | 48.33 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 06/12/01 | | 8.93 | 46.24 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0 5 | 7 |
| | 09/23/01 | | 9.74 | 45.43 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 12/31/01 | | 4.81 | 50.36 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | 3.2 |
| | 03/21/02 | | 5.44 | 49.73 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 |
| | 04/17/02 | | 6.95 | 48.22 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 3.1 |
| | **08/12/02** | | **8.90** | **46.27** | **<50** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<2.5** |
| A-7 | 06/21/00 | 54.71 | 8.58 | 46 13 | <50 | <0 5 | <0.5 | <0.5 | <1.0 | <3.0 |
| | 09/20/00 | | 9.19 | 45.52 | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | 8.50 | 46.21 | NS | NS | NS | NS | NS | NS |
| | 03/20/01 | | 6 75 | 47.96 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 8.80 | 45.91 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 09/23/01 | | 9.59 | 45.12 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 4.78 | 49.93 | NS | NS | NS | NS | NS | NS |
| | 03/21/02 | | 5.35 | 49.36 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 6.88 | 47.83 | <50 | <0.5 | <0.5 | <0 5 | <0 5 | 2.5 |
| | **08/12/02** | | **8.77** | **45.94** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

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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) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-8 | 06/21/00 | 53.77 | 9.07 | 44.70 | 810 | <0 5 | <0.5 | <0.5 | 810 | 1,500 |
| | 09/20/00 | | 9.72 | 44.05 | 10,800 | 2,680 | 46 | 439 | 370 | 4,410 |
| | 12/26/00 | | 9.20 | 44.57 | 7,700 | 1,440 | <50 | 202 | 106 | 2,230 |
| | 03/20/01 | | 7.51 | 46.26 | <5,000 | 1,280 | <50 | 53.9 | <50 | 2,880 |
| | 06/12/01 | | 9.53 | 44 24 | 5,600 | 1,700 | <50 | 61 | 54 | 2,900 |
| | 09/23/01 | | 10.08 | 43.69 | 10,000 | 3,500 | <50 | 110 | 64 | 6,500 |
| | 12/31/01 | | 4.34 | 49.43 | 4,300 | 610 | <10 | 60 | 24 | 520 |
| | 03/21/02 | | 6.67 | 47.10 | 6,600 | 1400 | <50 | 130 | <50 | 2,700 |
| | 04/17/02 | | 7.72 | 46 05 | 3,800 | 540 | <10 | <10 | 12 | 3,100 |
| | **08/12/02** | | **9.64** | **44.13** | **9,400** | **1,800** | **<20** | **35** | **28** | **4,200** |
| A-9 | 06/21/00 | 53.04 | 8.56 | 44.48 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 5.0 |
| | 09/20/00 | | 9.05 | 43.99 | <50 | < 0.5 | < 0 5 | <0.5 | <0.5 | <2.5 |
| | 12/26/00 | | 8.49 | 44.55 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 03/20/01 | | 6.95 | 46.09 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 06/12/01 | | 8.67 | 44.37 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | 4.8 |
| | 09/23/01 | | 9 21 | 43.83 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0 5 | <2.5 |
| | 12/31/01 | | 4.57 | 48.47 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 03/21/02 | | 5.60 | 47.44 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 |
| | 04/17/02 | | 6.89 | 46.15 | <50 | <0 5 | <0.5 | <0.5 | <0.5 | <2.5 |
| | **08/12/02** | | **8.71** | **44.33** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **<2.5** |

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

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

| Well Number | Date Sampled | Top of Riser Elevation (ft) | Depth to Groundwater (ft) | Groundwater Elevation (ft) | TPH as Gasoline (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-10 | 06/21/00 | 54.26 | 10.47 | 43.79 | NS | NS | NS | NS | NS | NS |
| | 09/20/00 | | 10.76 | 43.50 | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 03/20/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/23/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 03/21/02 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | **08/12/02** | | **NM** | **NC** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |
| A-11 | 06/21/00 | 53 74 | 9.54 | 44.20 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 4.0 |
| | 09/20/00 | | 10.62 | 43.12 | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | 10.03 | 43.71 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | <2.5 |
| | 03/20/01 | | 8.49 | 45.25 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 10.21 | 43.53 | < 50 | < 0.5 | < 0 5 | < 0 5 | <0.5 | <2 5 |
| | 09/23/01 | | 10.77 | 42.97 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 6.06 | 47.68 | < 50 | < 0 5 | < 0.5 | < 0.5 | <0.5 | <2 5 |
| | 03/21/02 | | 7 14 | 46.60 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 8 41 | 45.33 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 |
| | **08/12/02** | | **10.25** | **43.49** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

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

ARCO Service Station #4931
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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) |
|---|---|---|---|---|---|---|---|---|---|---|
| A-12 | 06/21/00 | 52.05 | 9.28 | 42 77 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 18 |
| | 09/20/00 | | 9.55 | 42.50 | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | 9.05 | 43.00 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0 5 | 17 3 |
| | 03/20/01 | | 7.92 | 44.13 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 9.26 | 42 79 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0.5 | 25 |
| | 09/23/01 | | 9.68 | 42.37 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 5.74 | 46.31 | < 50 | < 0.5 | < 0.5 | < 0.5 | <0 5 | 9.5 |
| | 03/21/02 | | 6.64 | 45.41 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 7.68 | 44 37 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 29 |
| | **08/12/02** | | **9.30** | **42.75** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |
| A-13 | 06/21/00 | 55.11 | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/20/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 03/20/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/23/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 03/21/02 | | 6 70 | 48.41 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 7 95 | 47.16 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2 5 |
| | **08/12/02** | | **10.11** | **45.00** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

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

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

| Well Number | Date Sampled | Top of Riser Elevation (ft) | Depth to Groundwater (ft) | Groundwater Elevation (ft) | TPH as Gasoline (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| AR-1 | 06/21/00 | 54.72 | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/20/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | 9.95 | 44.77 | NS | NS | NS | NS | NS | NS |
| | 03/20/01 | | 8.34 | 46.38 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 10.17 | 44.55 | NS | NS | NS | NS | NS | NS |
| | 09/23/01 | | 10 72 | 44.00 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 5.91 | 48.81 | NS | NS | NS | NS | NS | NS |
| | 03/21/02 | | 7.00 | 47.72 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 8.33 | 46.39 | NS | NS | NS | NS | NS | NS |
| | **08/12/02** | | **10.18** | **44.54** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |
| AR-2 | 06/21/00 | 54.77 | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/20/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 03/20/01 | | 3.13 | 51.64 | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | 4.51 | 50.26 | NS | NS | NS | NS | NS | NS |
| | 09/23/01 | | 6.05 | 48.72 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 2 79 | 51.98 | NS | NS | NS | NS | NS | NS |
| | 03/21/02 | | 7.75 | 47.02 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 2.24 | 52.53 | NS | NS | NS | NS | NS | NS |
| | **08/12/02** | | **4.93** | **49.84** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

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

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

| Well Number | Date Sampled | Top of Riser Elevation (ft) | Depth to Groundwater (ft) | Groundwater Elevation (ft) | TPH as Gasoline (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|
| AR-3 | 06/21/00 | 54.19 | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/20/00 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 12/26/00 | | 9.70 | 44 49 | NS | NS | NS | NS | NS | NS |
| | 03/20/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 06/12/01 | | NM | NC | NS | NS | NS | NS | NS | NS |
| | 09/23/01 | | 10.43 | 43.76 | NS | NS | NS | NS | NS | NS |
| | 12/31/01 | | 5.18 | 49.01 | NS | NS | NS | NS | NS | NS |
| | 03/21/02 | | 6.78 | 47.41 | NS | NS | NS | NS | NS | NS |
| | 04/17/02 | | 8.06 | 46.13 | NS | NS | NS | NS | NS | NS |
| | **08/12/02** | | **9.94** | **44.25** | **NS** | **NS** | **NS** | **NS** | **NS** | **NS** |

TPH = Total Petroleum Hydrocarbons analyzed using EPA Method 8015B modified

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted

µg/L = Micrograms per liter

NM = Not measured

NC = Not calculated

NS = Not sampled

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

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

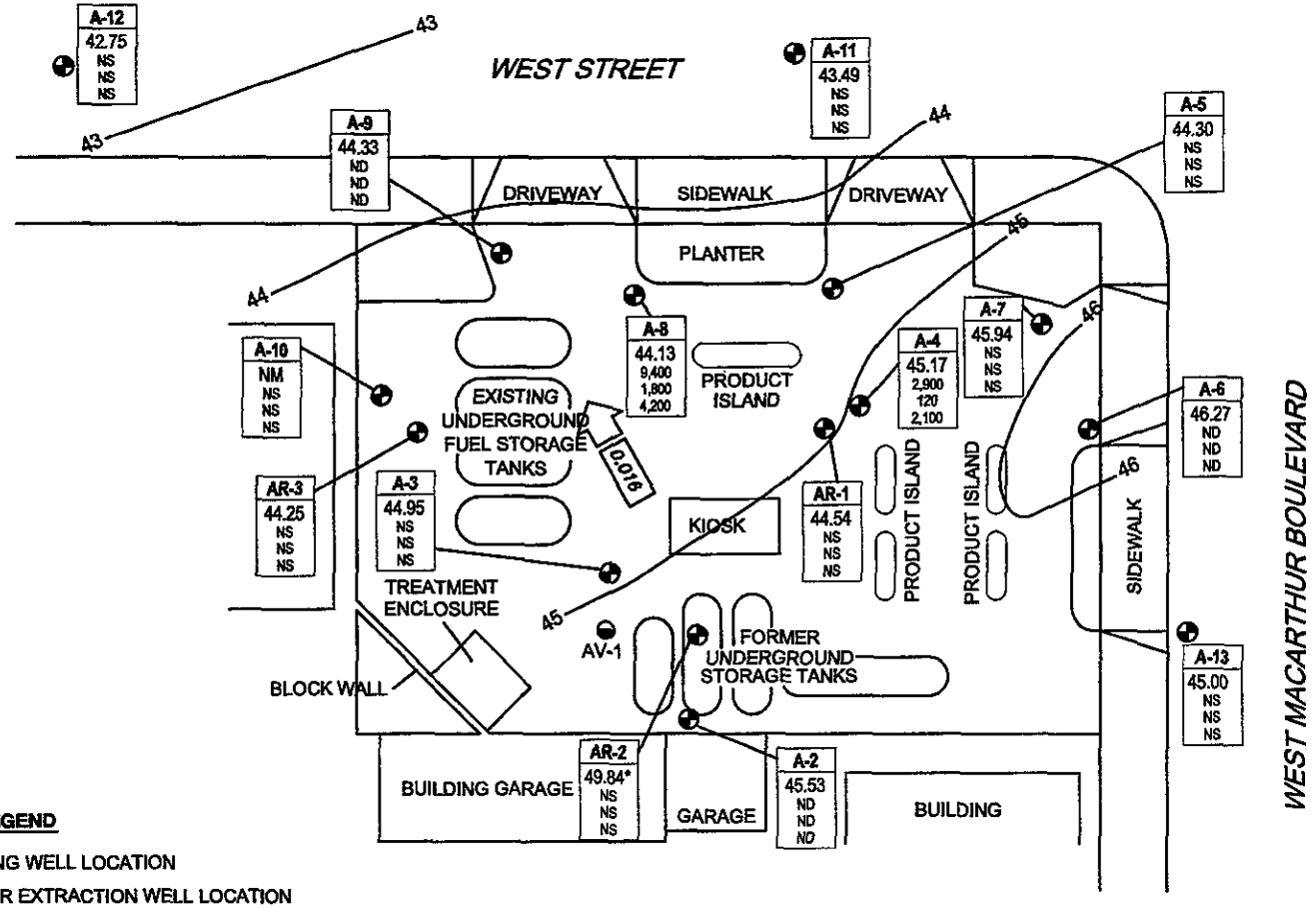
**Table 2**
**Groundwater Flow Direction and Gradient**

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

| Date Measured | Average Flow Direction | Average Hydraulic Gradient |
|---|---|---|
| 06/21/00 | West-Southwest | 0.031 |
| 09/20/00 | Southwest | 0.013 |
| 12/26/00 | West | 0.028 |
| 03/20/01 | West | 0.046 |
| 06/12/01 | West | 0.014 |
| 09/23/01 | West | 0.012 |
| 12/31/01 | West | 0.024 |
| 03/21/02 | West | 0 047 |
| 04/17/02 | West | 0.03 |
| **08/12/02** | **West** | **0.016** |

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

X:\x_env\waste\BP GEM\Sites\Scott Robinson\Paul Supple\4931\Reports\Monitoring\Qtr. 3, 2002\Drawings\GWEC-AS_8-12.dwg




**LEGEND**

- A-2 — MONITORING WELL LOCATION
- AV-1 — SOIL VAPOR EXTRACTION WELL LOCATION
- Well — WELL DESIGNATION
- ELEV — GROUNDWATER ELEVATION (FEET ABOVE MSL)
- TPH-g, Benzene, MTBE — CONCENTRATIONS OF TPH-g, BENZENE & MTBE IN MICROGRAMS PER LITER (µg/L)
- * — ELEVATION NOT USED IN CONTOURING
- ND — NOT DETECTED
- NM — NOT MEASURED
- NS — NOT SAMPLED
- 46 — GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MSL)
- 0.016 — GROUNDWATER FLOW DIRECTION AND GRADIENT

NORTH

0 40 80

SCALE IN FEET

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

| | | | |
|---|---|---|---|
| URS | Project No. 38465952<br>Arco Service Station 4931<br>731 West MacArthur Boulevard<br>Oakland, California | GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP<br>Third Quarter 2002 (August 12, 2002) | FIGURE<br>1 |

# ATTACHMENT A

# FIELD PROCEDURES AND FIELD DATA SHEETS

# FIELD PROCEDURES

## Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and depth to bottom, and checking for the presence of free phase petroleum product (free product), using either an electronic indicator and a clear 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 # 020812-BA2 Date 8/12/02 Client Arco 4931

Site 731 W. MacArthur Blvd, 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 | |
|---|---|---|---|---|---|---|---|---|---|---|
| No odors | A-2 | 4 | | | | | 9.95 | 19.39 | TOC | Sample NPE @ 5' |
| No odors | A-3 | 4 | | | | | 9.71 | 16.15 | | |
| No odors | A-4 | 4 | | | | | 9.56 | 19.45 | | Sample ORCs |
| No odors | A-5 | 3 | | | | | 9.87 | 24.82 | | |
| No odors | A-6 | 3 | | | | | 8.90 | 24.46 | | Sample NPE @ 2' |
| No odors | A-7 | 3 | | | | | 8.77 | 22.14 | | |
| x2 fault | A-8 | 3 | | | | | 9.64 | 19.25* | | Sample NPE @ 2' ORCs |
| x2 fault | A-9 | 6 | | | | | 8.71 | 37.76 | | Sample ORCs |
| No odors | A-11 | 3 | | | | | 10.25 | 29.75 | | TRAFFIC WELL |
| No odors | A-12 | 3 | | | | | 9.30 | 29.77 | | TRAFFIC WELL |
| No odors | A-13 | 3 | | | | | 10.11 | 29.04 | | DEDICATED TUBING PRESENT TRAFFIC WELL PAVED OVER |
| 2x2 fault | AR-1 | 6 | | | | | 10.18 | 28.00* | | ORCs |
| x2 fault | AR-2 | 6 | | | | | 4.93 | 26.30 | | |
| x2 fault | AR-3 | 4 | | | | | 9.94 | 29.00 | | |
| | | | | | | | | | | |
| | * Gauged w/ ORCs in Well | | | | | | | | | |
| | Purged wells gauged without ORCs in well | | | | | | | | | |

# ARCO / BP WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 020812-BA2 | Station # 4981 |
| Sampler: Brian Alcorn | Date: 8/12/02 |
| Well I.D.: A-2 | Well Diameter: 2 3 (4) 6 8 ___ |
| Total Well Depth: 19.38 | Depth to Water: 9.95 |
| 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 | radius² * 0.163 |

Purge Method: Bailer / Disposable Bailer / Middleburg / Electric Submersible / Extraction Pump / Other: ___

Sampling Method: Bailer / (Disposable Bailer) / Extraction Port / Other: ___

Top of Screen: NPE 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.

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

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| 1250 | 70.6 | 7.7 | 756 | Ø | clear |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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

Sampling Time: 1250 Sampling Date: 8/12/02

Sample I.D.: A-2 Laboratory: Pace (Sequoia) Other ___

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

| | | | | |
|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | (Post-purge:) 3.1 | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | mV |

# ARCO / BP WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 020812-BA2 | Station # 4981 |
| Sampler: Brian Alcorn | Date: 8/12/02 |
| Well I.D.: A-4 | Well Diameter: 2 3 (4) 6 8 ___ |
| Total Well Depth: 19.45 | Depth to Water: 9.56 |
| 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 | radius² * 0.163 |

Purge Method: Bailer / Disposable Bailer / Middleburg / (Electric Submersible) / Extraction Pump / Other: ___

Sampling Method: Bailer / (Disposable Bailer) / Extraction Port / Other: ___

Top of Screen: N/A

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

6.4 (1 Case Volume (Gals.)) X 3 (Specified Volumes) = 19.2 (Calculated Volume) Gals.

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| DEWATERED | | | | @ 6 | DTW 17.05 |
| 1400 | 70.7 | 7.2 | 1535 | GRAB SAMPLE @ DEPARTURE | DTW 17.03 |
| | | | | | |
| | | | | | |
| | | | | | |

Did well dewater? (Yes) No Gallons actually evacuated: 6

Sampling Time: 1400 Sampling Date: 8/12/02

Sample I.D.: A-4 Laboratory: Pace (Sequoia) Other ___

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

| | | | | | |
|---|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | (Post-purge:) | 2.0 | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | | mV |

# ARCO / BP WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 020812-BA2 | Station # 4981 |
| Sampler: Brian Alcoran | Date: 8/12/02 |
| Well I.D.: A-6 | Well Diameter: 2 (3) 4 6 8 ____ |
| Total Well Depth: 24.46 | Depth to Water: 8.90 |
| 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 | radius² * 0.163 |

Purge Method: Bailer / Disposable Bailer / Middleburg / Electric Submersible / Extraction Pump / Other: ____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Other: ____

Top of Screen: NPE 2'

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

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

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| 1225 | 73.4 | 7.9 | 403 | Ø | cloudy brown |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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

Sampling Time: 1225 Sampling Date: 8/12/02

Sample I.D.: A-6 Laboratory: Pace (Sequoia) Other ____

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

| | | | | |
|---|---|---|---|---|
| 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 #: 020812-BA2 | Station # 4981 |
| Sampler: Brian Allcorn/MK | Date: 8/12/02 |
| Well I.D.: A-8 | Well Diameter: 2 (3) 4 6 8 ___ |
| Total Well Depth: 19.25 | Depth to Water: 9.64 |
| 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; Middleburg; Electric Submersible; Extraction Pump; Other: ___

Sampling Method: Bailer; (X) Disposable Bailer; Extraction Port; Other: ___

Top of Screen: 2'

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

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

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| 1337 | 73.5 | 6.7 | 1305 | — | Bentonite or similar substance on inside of casing walls. Sheen, Odor ✓ |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

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

Sampling Time: 1335 Sampling Date: 8/12/02

Sample I.D.: A-8 Laboratory: Pace (Sequoia) Other ___

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

| | | | | |
|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | (Post-purge:) 1.0 | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | mV |

# ARCO / BP WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 020812-BA2 | Station # 4981 |
| Sampler: Brian Alcorn | Date: 8/12/02 |
| Well I.D.: A-9 | Well Diameter: 2 3 4 (6) 8 ___ |
| Total Well Depth: 37.76 | Depth to Water: 8.71 |
| 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 | radius² * 0.163 |

Purge Method: Bailer / Disposable Bailer / Middleburg / (Electric Submersible) / Extraction Pump / Other: ___

Sampling Method: Bailer / (Disposable Bailer) / Extraction Port / Other: ___

Top of Screen: N/A

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

42.7 (1 Case Volume (Gals.)) X 3 (Specified Volumes) = 128.1 (Calculated Volume) Gals.

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| 1320 | 68.9 | 7.4 | 630 | 43 | cloudy brown |
| 1324 | 69.0 | 7.5 | 623 | 86 | clear |
| 1329 | 68.5 | 7.6 | 631 | 129 | " |
| | | | | | |
| | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 129

Sampling Time: 1335 Sampling Date: 8/12/02

Sample I.D.: A-9 Laboratory: Pace (Sequoia) Other ___

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

| | | | | |
|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | (Post-purge:) 4.0 | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | mV |

# Chain of Custody Record

bp

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

**Date:** 8/12/02 **Requested Due Date (mm/dd/yy)** Standard

| | |
|---|---|
| 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: 731 W. MACARTHUR BLVD, OAKLAND, CA | Address: 529 12th St., Ste. 200 Oakland, CA 94609-4014 |
| Lab Address: 885 Jarvis Dr. Morgan Hill, CA 95037 | Site ID No. ARCO 4931 | e-mail EDD: syed_rehan@urscorp.com |
| | Site Lat/Long: | Consultant/Contractor Project No.: J5-00004931.01 00427 |
| Lab PM: Latonya Pelt | ~~California Global ID #:~~ T0600100107 | Consultant Tele/Fax: 510-874-3280/510-874-3268 |
| Tele/Fax: 408-776-9600 / 408-782-6308 | ~~BP/GEM PM Contact:~~ PAUL SUPPLE | Consultant/Contractor PM: Scott Robinson |
| Report Type & QC Level: Send EDF Reports | Address: | Invoice to: Consultant/Contractor or ~~BP/GEM~~ (Circle one) |
| BP/GEM Account No.: | Tele/Fax: | BP/GEM Work Release No: |

Lab Bottle Order No:

| Item No. | Sample Description | Time | Matrix: Soil/Solid | Water/Liquid | Sediments | Air | Laboratory No. | No. of containers | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | Requested Analysis: TPH-G / BTEX (8015 / 8021) | TPH –D (8015) | MTBE (8021) | MTBE, TAME, ETBE DIPE, TBA (8260) | 1,2-DCA & EDB (8260) | Sample Point Lat/Long and Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A-2 | 1250 | | X | | | | 3 | | | | X | X | | X | | | |
| 2 | A-4 | 1400 | | X | | | | 3 | | | | X | X | | X | | | |
| 3 | A-6 | 1225 | | X | | | | 3 | | | | X | X | | X | | | |
| 4 | A-8 | 1335 | | X | | | | 3 | | | | X | X | | X | | | |
| 5 | A-9 | 1335 | | X | | | | 3 | | | | X | X | | X | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sampler's Name: Brian Vilcoen | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
| Sampler's Company: Blaine Tech | | 8/13/02 | 1429 | | 8/13/02 | 1429 |
| Shipment Date: | | | | | | |
| Shipment Method: | | | | | | |
| Shipment Tracking No: | | | | | | |

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

Custody Seals In Place Yes___ No___ Temperature Blank Yes___ No___ Cooler Temperature on Receipt ___ °F/C Trip Blank Yes___ No___

# WELLHEAD INSPECTION CHECKLIST AND REPAIR ORDER

Client ARCO Inspection Date 8/12/02

Site Address 731 W. MACARTHUR BLVD, OAKLAND Inspected By BRIAN ALLEN

| | | | |
|---|---|---|---|
| 1. Lid on box? | 6. Casing secure? | 12. Water standing in wellbox? | 15. Well cap functional? |
| 2. Lid broken? | 7. Casing cut level? | 12a. Standing above the top of casing? | 16. Can cap be pulled loose? |
| 3. Lid bolts missing? | 8. Debris in wellbox? | 12b. Standing below the top of casing? | 17. Can cap seal out water? |
| 4. Lid bolts stripped? | 9. Wellbox is too far above grade? | 12c. Water even with the top of casing? | 18. Padlock present? |
| 5. Lid seal intact? | 10. Wellbox is too far below grade? | 13. Well cap present? | 19. Padlock functional? |
| | 11. Wellbox is crushed/damaged? | 14. Well cap found secure? | |

☐ Check box if no deficiencies were found. Note below deficiencies you were able to correct.

| Well I.D. | Deficiency | Corrective Action Taken |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Note below all deficiencies that could not be corrected and still need to be corrected.

| Well I.D. | Persisting Deficiency | BTS Office assigns or defers Correction to: | Date assigned | Date corrected |
|---|---|---|---|---|
| A-11 | (13/18) Iron hinge cap No Lock (12b) | BTS can | | |
| A-13 | (15/19) Bad cap Rusted Lock | Make corrections | | |
| A-7 | (13/18) Iron Hinge Cap No Lock | if requested | | |
| A-9 | (2) Vault Lid stuck/Possibly need has no handle/ two techs | | | |
| A-6 | (13/18) Iron hinge cap No Lock | | | |
| A-2 | (13/18) Iron hinge cap No Lock | | | |
| A-12 | (13/18) Iron hinge cap No Lock | | | |
| A-3 | (13/18) Bad Cap No Lock (16) Yes | | | |
| A-5 | (2) cracked (13/18) Iron hinge cap (17) No No Lock | | | |
| AR-3 | (2) No handle Stuck (19) No Lock (13) Has 8" PVC cap | | | |

AR-1
AR-2 > Not Inspected
A-8

# 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:

4931

Station #

731 W. MacArthur Blvd, Oakland

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

135

added equip. rinse water 4

any other adjustments

**TOTAL GALS. RECOVERED** 139

loaded onto BTS vehicle # 14

| BTS event # | time | date |
|---|---|---|
| 020812-BA2 | 1415 | 8/12/02 |

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

Sequoia Analytical

885 Jarvis Drive
Morgan Hill, CA 95037
(408) 776-9600
FAX (408) 782-6308
www.sequoialabs.com

23 August, 2002

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

RE: ARCO #4931, Oakland, Ca
Sequoia Report: MLH0322

Enclosed are the results of analyses for samples received by the laboratory on 08/13/02 19:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Latonya K. Pelt

Latonya Pelt
Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

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|---|---|---|
| URS Corporation | Project: ARCO #4931, Oakland, Ca | |
| 500 12th Street, Suite 100 | Project Number: ARCO #4931, Oakland, CA | **Reported:** |
| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

**ANALYTICAL REPORT FOR SAMPLES**

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| A-2 | MLH0322-01 | Water | 08/12/02 12:50 | 08/13/02 19:45 |
| A-4 | MLH0322-02 | Water | 08/12/02 14:00 | 08/13/02 19:45 |
| A-6 | MLH0322-03 | Water | 08/12/02 12:25 | 08/13/02 19:45 |
| A-8 | MLH0322-04 | Water | 08/12/02 13:35 | 08/13/02 19:45 |
| A-9 | MLH0322-05 | Water | 08/12/02 13:35 | 08/13/02 19:45 |

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Latonya K. Pelt

Latonya Pelt, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

## Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B

## Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **A-2 (ML/H0322-01) Water Sampled: 08/12/02 12:50 Received: 08/13/02 19:45** | | | | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 10 | ug/l | 1 | 2H20026 | 08/19/02 | 08/20/02 | 8015Bm/8021 B | |
| Benzene | ND | 0.10 | " | " | " | " | " | " | |
| Toluene | ND | 0.10 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.10 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.10 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 0.50 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *108 %* | | *60-140* | " | " | " | " | |
| Gasoline Range Organics (C6-C10) | ND | 50 | " | " | 2H19015 | " | " | " | |
| Benzene | ND | 0.50 | " | " | " | " | " | " | |
| Toluene | ND | 0.50 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.50 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.50 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 2.5 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *108 %* | | *70-130* | " | " | " | " | |
| **A-4 (ML/H0322-02) Water Sampled: 08/12/02 14:00 Received: 08/13/02 19:45** | | | | | | | | | |
| **Gasoline Range Organics (C6-C10)** | **2400** | 500 | ug/l | 10 | 2H19015 | 08/19/02 | 08/20/02 | 8015Bm/8021 B | HC-12 |
| **Benzene** | **120** | 5.0 | " | " | " | " | " | " | |
| Toluene | ND | 5.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 5.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 5.0 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **2100** | 25 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *121 %* | | *70-130* | " | " | " | " | |
| **A-6 (ML/H0322-03) Water Sampled: 08/12/02 12:25 Received: 08/13/02 19:45** | | | | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 50 | ug/l | 1 | 2H19015 | 08/19/02 | 08/20/02 | 8015Bm/8021 B | |
| Benzene | ND | 0.50 | " | " | " | " | " | " | |
| Toluene | ND | 0.50 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.50 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.50 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 2.5 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *107 %* | | *70-130* | " | " | " | " | |

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| 500 12th Street, Suite 100 | Project Number: ARCO #4931, Oakland, CA | **Reported:** |
| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

## Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B

### Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **A-8 (MLH0322-04) Water Sampled: 08/12/02 13:35 Received: 08/13/02 19:45** | | | | | | | | | |
| **Gasoline Range Organics (C6-C10)** | **9400** | 2000 | ug/l | 40 | 2H20039 | 08/20/02 | 08/21/02 | 8015Bm/8021B | |
| **Benzene** | **1800** | 20 | " | " | " | " | " | " | |
| Toluene | ND | 20 | " | " | " | " | " | " | |
| **Ethylbenzene** | **35** | 20 | " | " | " | " | " | " | |
| **Xylenes (total)** | **28** | 20 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **4200** | 100 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *124 %* | *70-130* | | " | " | " | " | |
| **A-9 (MLH0322-05) Water Sampled: 08/12/02 13:35 Received: 08/13/02 19:45** | | | | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 50 | ug/l | 1 | 2H19014 | 08/19/02 | 08/20/02 | 8015Bm/8021B | |
| Benzene | ND | 0.50 | " | " | " | " | " | " | |
| Toluene | ND | 0.50 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.50 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.50 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 2.5 | " | " | " | " | " | " | |
| *Surrogate: a,a,a-Trifluorotoluene* | | *104 %* | *70-130* | | " | " | " | " | |

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| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

## Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - Quality Control

## Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2H19014 - EPA 5030B [P/T]** | | | | | | | | | | |
| **Blank (2H19014-BLK1)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 50 | ug/l | | | | | | | |
| Benzene | ND | 0.50 | " | | | | | | | |
| Toluene | ND | 0.50 | " | | | | | | | |
| Ethylbenzene | ND | 0.50 | " | | | | | | | |
| Xylenes (total) | ND | 0.50 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 2.5 | " | | | | | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *9.86* | | " | *10.0* | | *98.6* | *70-130* | | | |
| **LCS (2H19014-BS1)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Benzene | 9.48 | 0.50 | ug/l | 10.0 | | 94.8 | 70-130 | | | |
| Toluene | 9.53 | 0.50 | " | 10.0 | | 95.3 | 70-130 | | | |
| Ethylbenzene | 9.70 | 0.50 | " | 10.0 | | 97.0 | 70-130 | | | |
| Xylenes (total) | 28.8 | 0.50 | " | 30.0 | | 96.0 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *10.2* | | " | *10.0* | | *102* | *70-130* | | | |
| **LCS (2H19014-BS2)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 181 | 50 | ug/l | 250 | | 72.4 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *10.1* | | " | *10.0* | | *101* | *70-130* | | | |
| **Matrix Spike (2H19014-MS1)** | | **Source: MLH0247-01** | | Prepared: 08/19/02 Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 435 | 50 | ug/l | 550 | ND | 79.1 | 60-140 | | | |
| Benzene | 11.4 | 0.50 | " | 6.60 | ND | 168 | 60-140 | | | QM-07 |
| Toluene | 41.7 | 0.50 | " | 39.7 | ND | 104 | 60-140 | | | |
| Ethylbenzene | 10.1 | 0.50 | " | 9.20 | ND | 110 | 60-140 | | | |
| Xylenes (total) | 49.0 | 0.50 | " | 46.1 | ND | 106 | 60-140 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *11.4* | | " | *10.0* | | *114* | *70-130* | | | |
| **Matrix Spike Dup (2H19014-MSD1)** | | **Source: MLH0247-01** | | Prepared: 08/19/02 Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 430 | 50 | ug/l | 550 | ND | 78.2 | 60-140 | 1.16 | 25 | |
| Benzene | 11.3 | 0.50 | " | 6.60 | ND | 167 | 60-140 | 0.881 | 25 | QM-07 |
| Toluene | 41.7 | 0.50 | " | 39.7 | ND | 104 | 60-140 | 0.00 | 25 | |
| Ethylbenzene | 10.4 | 0.50 | " | 9.20 | ND | 113 | 60-140 | 2.93 | 25 | |
| Xylenes (total) | 49.6 | 0.50 | " | 46.1 | ND | 107 | 60-140 | 1.22 | 25 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *10.6* | | " | *10.0* | | *106* | *70-130* | | | |

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| 500 12th Street, Suite 100 | Project Number: ARCO #4931, Oakland, CA | **Reported:** |
| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

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

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2H19015 - EPA 5030B [P/T]** | | | | | | | | | | |
| **Blank (2H19015-BLK1)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 50 | ug/l | | | | | | | |
| Benzene | ND | 0.50 | " | | | | | | | |
| Toluene | ND | 0.50 | " | | | | | | | |
| Ethylbenzene | ND | 0.50 | " | | | | | | | |
| Xylenes (total) | ND | 0.50 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 2.5 | " | | | | | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *11.7* | | " | *10.0* | | *117* | *70-130* | | | |
| **LCS (2H19015-BS1)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Benzene | 10.3 | 0.50 | ug/l | 10.0 | | 103 | 70-130 | | | |
| Toluene | 10.6 | 0.50 | " | 10.0 | | 106 | 70-130 | | | |
| Ethylbenzene | 10.7 | 0.50 | " | 10.0 | | 107 | 70-130 | | | |
| Xylenes (total) | 31.1 | 0.50 | " | 30.0 | | 104 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *11.7* | | " | *10.0* | | *117* | *70-130* | | | |
| **LCS (2H19015-BS2)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 200 | 50 | ug/l | 250 | | 80.0 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *13.9* | | " | *10.0* | | *139* | *70-130* | | | *S-02* |
| **Matrix Spike (2H19015-MS1)** | | **Source: MLH0322-01** | | Prepared: 08/19/02 Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 352 | 50 | ug/l | 550 | ND | 64.0 | 60-140 | | | |
| Benzene | 9.00 | 0.50 | " | 6.60 | ND | 136 | 60-140 | | | |
| Toluene | 41.1 | 0.50 | " | 39.7 | ND | 104 | 60-140 | | | |
| Ethylbenzene | 9.76 | 0.50 | " | 9.20 | ND | 106 | 60-140 | | | |
| Xylenes (total) | 47.8 | 0.50 | " | 46.1 | ND | 104 | 60-140 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *13.7* | | " | *10.0* | | *137* | *70-130* | | | *QM-07* |
| **Matrix Spike Dup (2H19015-MSD1)** | | **Source: MLH0322-01** | | Prepared: 08/19/02 Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 355 | 50 | ug/l | 550 | ND | 64.5 | 60-140 | 0.849 | 25 | |
| Benzene | 9.58 | 0.50 | " | 6.60 | ND | 145 | 60-140 | 6.24 | 25 | QM-07 |
| Toluene | 42.8 | 0.50 | " | 39.7 | ND | 108 | 60-140 | 4.05 | 25 | |
| Ethylbenzene | 10.1 | 0.50 | " | 9.20 | ND | 110 | 60-140 | 3.42 | 25 | |
| Xylenes (total) | 49.4 | 0.50 | " | 46.1 | ND | 107 | 60-140 | 3.29 | 25 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *14.1* | | " | *10.0* | | *141* | *70-130* | | | *QM-07* |

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## Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - Quality Control

## Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2H20026 - EPA 5030B [P/T]** | | | | | | | | | | |
| **Blank (2H20026-BLK1)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 10 | ug/l | | | | | | | |
| Benzene | ND | 0.10 | " | | | | | | | |
| Toluene | ND | 0.10 | " | | | | | | | |
| Ethylbenzene | ND | 0.10 | " | | | | | | | |
| Xylenes (total) | ND | 0.10 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 0.50 | " | | | | | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *2.33* | | " | *2.00* | | *116* | *60-140* | | | |
| **LCS (2H20026-BS1)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Benzene | 2.06 | 0.10 | ug/l | 2.00 | | 103 | 70-130 | | | |
| Toluene | 2.12 | 0.10 | " | 2.00 | | 106 | 70-130 | | | |
| Ethylbenzene | 2.14 | 0.10 | " | 2.00 | | 107 | 70-130 | | | |
| Xylenes (total) | 6.22 | 0.10 | " | 6.00 | | 104 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *2.35* | | " | *2.00* | | *118* | *60-140* | | | |
| **LCS (2H20026-BS2)** | | | | Prepared & Analyzed: 08/19/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 39.9 | 10 | ug/l | 50.0 | | 79.8 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *2.79* | | " | *2.00* | | *140* | *60-140* | | | |
| **Matrix Spike (2H20026-MS1)** | | **Source: MLH0322-01** | | Prepared: 08/19/02 Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 70.5 | 10 | ug/l | 110 | ND | 64.1 | 60-140 | | | |
| Benzene | 1.80 | 0.10 | " | 1.32 | ND | 136 | 60-140 | | | |
| Toluene | 8.21 | 0.10 | " | 7.94 | ND | 103 | 60-140 | | | |
| Ethylbenzene | 1.95 | 0.10 | " | 1.84 | ND | 106 | 60-140 | | | |
| Xylenes (total) | 9.56 | 0.10 | " | 9.22 | ND | 104 | 60-140 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *2.74* | | " | *2.00* | | *137* | *60-140* | | | |
| **Matrix Spike Dup (2H20026-MSD1)** | | **Source: MLH0322-01** | | Prepared: 08/19/02 Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 71.0 | 10 | ug/l | 110 | ND | 64.5 | 60-140 | 0.707 | 25 | |
| Benzene | 1.92 | 0.10 | " | 1.32 | ND | 145 | 60-140 | 6.45 | 25 | QM-07 |
| Toluene | 8.55 | 0.10 | " | 7.94 | ND | 108 | 60-140 | 4.06 | 25 | |
| Ethylbenzene | 2.01 | 0.10 | " | 1.84 | ND | 109 | 60-140 | 3.03 | 25 | |
| Xylenes (total) | 9.87 | 0.10 | " | 9.22 | ND | 107 | 60-140 | 3.19 | 25 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *2.83* | | " | *2.00* | | *142* | *60-140* | | | *QM-07* |

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| 500 12th Street, Suite 100 | Project Number: ARCO #4931, Oakland, CA | **Reported:** |
| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

## Total Purgeable Hydrocarbons (C6-C10) by EPA 8015B modified, BTEXM by EPA 8021B - Quality Control

## Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 2H20039 - EPA 5030B [P/T]** | | | | | | | | | | |
| **Blank (2H20039-BLK1)** | | | | Prepared & Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | ND | 50 | ug/l | | | | | | | |
| Benzene | ND | 0.50 | " | | | | | | | |
| Toluene | ND | 0.50 | " | | | | | | | |
| Ethylbenzene | ND | 0.50 | " | | | | | | | |
| Xylenes (total) | ND | 0.50 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 2.5 | " | | | | | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *11.2* | | " | *10.0* | | *112* | *70-130* | | | |
| **LCS (2H20039-BS1)** | | | | Prepared & Analyzed: 08/20/02 | | | | | | |
| Benzene | 10.2 | 0.50 | ug/l | 10.0 | | 102 | 70-130 | | | |
| Toluene | 10.4 | 0.50 | " | 10.0 | | 104 | 70-130 | | | |
| Ethylbenzene | 10.4 | 0.50 | " | 10.0 | | 104 | 70-130 | | | |
| Xylenes (total) | 31.1 | 0.50 | " | 30.0 | | 104 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *11.0* | | " | *10.0* | | *110* | *70-130* | | | |
| **LCS (2H20039-BS2)** | | | | Prepared & Analyzed: 08/20/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 261 | 50 | ug/l | 250 | | 104 | 70-130 | | | |
| *Surrogate: a,a,a-Trifluorotoluene* | *12.2* | | " | *10.0* | | *122* | *70-130* | | | |
| **LCS Dup (2H20039-BSD1)** | | | | Prepared: 08/20/02 Analyzed: 08/21/02 | | | | | | |
| Benzene | 10.7 | 0.50 | ug/l | 10.0 | | 107 | 70-130 | 4.78 | 25 | |
| Toluene | 11.0 | 0.50 | " | 10.0 | | 110 | 70-130 | 5.61 | 25 | |
| Ethylbenzene | 10.9 | 0.50 | " | 10.0 | | 109 | 70-130 | 4.69 | 25 | |
| Xylenes (total) | 32.4 | 0.50 | " | 30.0 | | 108 | 70-130 | 4.09 | 25 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *10.9* | | " | *10.0* | | *109* | *70-130* | | | |
| **LCS Dup (2H20039-BSD2)** | | | | Prepared: 08/20/02 Analyzed: 08/21/02 | | | | | | |
| Gasoline Range Organics (C6-C10) | 208 | 50 | ug/l | 250 | | 83.2 | 70-130 | 22.6 | 25 | |
| *Surrogate: a,a,a-Trifluorotoluene* | *11.8* | | " | *10.0* | | *118* | *70-130* | | | |

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www.sequoialabs.com

| | | |
|---|---|---|
| URS Corporation | Project: ARCO #4931, Oakland, Ca | |
| 500 12th Street, Suite 100 | Project Number: ARCO #4931, Oakland, CA | **Reported:** |
| Oakland CA, 94607 | Project Manager: Scott Robinson | 08/23/02 14:19 |

**Notes and Definitions**

| | |
|---|---|
| HC-12 | Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel. |
| QM-07 | The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery. |
| S-02 | The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample. |
| 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

MLH0322

Project Name

BP BU/GEM CO Portfolio:

BP Laboratory Contract Number:

Date: 8/12/02

Requested Due Date (mm/dd/yy) Standard

| | |
|---|---|
| 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: 731 W. MACARTHUR BLVD, OAKLAND, CA | Address: 529 12th St., Ste. 200 |
| Lab Address: 885 Jarvis Dr. | Site ID No. ARCO 4931 | Oakland, CA 94609-4014 |
| Morgan Hill, CA 95037 | Site Lat/Long: | e-mail EDD: syed_rehan@urscorp.com |
| | ~~California Global ID #:~~ T0600100107 | Consultant/Contractor Project No.: 25-00004931.01 00427 |
| Lab PM: Latonya Pelt | ~~BP/GEM PM Contact:~~ PAUL SUPPLE | Consultant Tele/Fax: 510-874-3280/510-874-3268 |
| Tele/Fax: 408-776-9600 / 408-782-6308 | Address: | Consultant/Contractor PM: Scott Robinson |
| Report Type & QC Level: Send EDF Reports | | Invoice to: Consultant/Contractor or ~~BP/GEM~~ (Circle one) |
| BP/GEM Account No.: | Tele/Fax: | BP/GEM Work Release No: |

Lab Bottle Order No:

| Item No. | Sample Description | Time | Matrix: Soil/Solid | Water/Liquid | Sediments | Air | Laboratory No. | No. of containers | Preservatives: Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | Requested Analysis: TPH-G / BTEX (8015 / 8021) | TPH-D (8015) | MTBE (8021) | MTBE, TAME, ETBE, DIPE, TBA (8260) | 1,2-DCA & EDB (8260) | Sample Point Lat/Long and Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A-2 | 1250 | | X | | | 61 | 3 | | | | X | X | | X | | | |
| 2 | A-4 | 1400 | | X | | | 62 | 3 | | | | X | X | | X | | | |
| 3 | A-6 | 1225 | | X | | | 63 | 3 | | | | X | X | | X | | | |
| 4 | A-8 | 1335 | | X | | | 64 | 3 | | | | X | X | | X | | | |
| 5 | A-9 | 1335 | | X | | | 65 | 3 | | | | X | X | | X | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

| | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
|---|---|---|---|---|---|---|
| Sampler's Name: Bruce Acord | | | | | | |
| Sampler's Company: Blaine Tech | | 8/12/02 | 1429 | | 8/13/02 | 1429 |
| Shipment Date: | | 8/13/02 | 1945 | | 8/13/02 | 1945 |
| Shipment Method: | | | | | | |
| Shipment Tracking No: | | | | | | |

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 4 °F/C Trip Blank Yes ~~No~~

Distribution: White Copy - Laboratory / Yellow Copy - BP/GEM / Pink Copy - Consultant/Contractor

BP COC Rev. : 2/5/02

# ATTACHMENT C
# HISTORIC GROUNDWATER DATA

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

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

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

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

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

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

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

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

| Well Number | Date Gauged/ Sampled | Well Elevation (feet, MSL) | Depth to Water (feet, TOB) | Groundwater Elevation (feet, MSL) | TPH Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | MTBE 8021B* (ppb) | MTBE 8260 (ppb) | Dissolved Oxygen (ppm) | Purged/ Not Purged (P/NP) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-5 | 07/29/98 | 54.17 | 9.89 | 44.28 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-5 | 10/09/98 | 54.17 | 11.02 | 43.15 | 690 | <5 | <5 | <5 | <5 | 710 | NA | 1.0 | NP |
| A-5 | 02/19/99 | 54.17 | 6.82 | 47.35 | <2,000 | <20 | <20 | <20 | <20 | 2,300 | NA | 0.6 | NP |
| A-5 | 06/02/99 | 54.17 | 10.82 | 43.35 | 1,500 | <0.5 | 2.3 | <0.5 | <0.5 | 2,400 | NA | 2.81 | NP |
| A-5 | 08/26/99 | 54.17 | 10.65 | 43.52 | Not Sampled: Well Sampled Semiannually | | | | | | | 0.49 | |
| A-5 | 10/26/99 | 54.17 | 10.35 | 43.82 | 380 | <0.5 | <0.5 | <0.5 | <1 | 440 | NA | 1.55 | NP |
| A-5 | 02/25/00 | 54.17 | 6.89 | 47.28 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-6 | 03/26/96 | 55.17 | 7.15 | 48.02 | 52 | 2.7 | <0.5 | 1.1 | 2.0 | NA | NA | NM | |
| A-6 | 05/22/96 | 55.17 | 7.35 | 47.82 | <50 | 2.4 | <0.5 | 0.88 | 1.7 | NA | NA | NM | |
| A-6 | 08/22/96 | 55.17 | 10.12 | 45.05 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | NA | NM | |
| A-6 | 12/19/96 | 55.17 | 7.43 | 47.74 | <50 | 1.7 | <0.5 | 0.78 | 1.5 | <2.5 | NA | NM | |
| A-6 | 04/01/97 | 55.17 | 9.97 | 45.20 | <50 | 4.7 | <0.5 | 1.9 | 3.2 | <2.5 | NA | NM | |
| A-6 | 05/27/97 | 55.17 | 9.66 | 45.51 | <50 | 0.69 | <0.5 | <0.5 | <0.5 | <2.5 | NA | NM | |
| A-6 | 08/12/97 | 55.17 | 10.43 | 44.74 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | NA | NM | |
| A-6 | 11/14/97 | 55.17 | 9.76 | 45.41 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | <1.0 | |
| A-6 | 03/18/98 | 55.17 | 7.00 | 48.17 | <50 | 6.2 | 0.5 | 2.3 | 2.6 | <3 | NA | 3.0 | |
| A-6 | 05/19/98 | 55.17 | 8.27 | 46.90 | <50 | <0.5 | <0.5 | 1.3 | 4.7 | <3 | NA | 2.16 | P |
| A-6 | 07/29/98 | 55.17 | 8.96 | 46.21 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 0.8 | NP |
| A-6 | 10/09/98 | 55.17 | 10.23 | 44.94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 1.0 | NP |
| A-6 | 02/19/99 | 55.17 | 5.79 | 49.38 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 5 | NA | 0.4 | NP |
| A-6 | 06/02/99 | 55.17 | 9.71 | 45.46 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 2.00 | NP |
| A-6 | 08/26/99 | 55.17 | 9.79 | 45.38 | <50 | <0.5 | <0.5 | <0.5 | 0.7 | <3 | NA | 0.66 | NP |
| A-6 | 10/26/99 | 55.17 | 9.70 | 45.47 | <50 | <0.5 | <0.5 | <0.5 | <1 | <3 | NA | 1.66 | NP |
| A-6 | 02/25/00 | 55.17 | 5.68 | 49.49 | <50 | <0.5 | <0.5 | <0.5 | <1 | <3 | NA | 1.22 | NP |
| A-7 | 03/26/96 | 54.71 | 6.90 | 47.81 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-7 | 05/22/96 | 54.71 | 8.27 | 46.44 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NM | |
| A-7 | 08/22/96 | 54.71 | 9.80 | 44.91 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-7 | 12/19/96 | 54.71 | 7.19 | 47.52 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 04/01/97 | 54.71 | 9.63 | 45.08 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 05/27/97 | 54.71 | 9.34 | 45.37 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | NA | NM | |

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

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

| Well Number | Date Gauged/ Sampled | Well Elevation (feet, MSL) | Depth to Water (feet, TOB) | Groundwater Elevation (feet, MSL) | TPH Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | MTBE 8021B* (ppb) | MTBE 8260 (ppb) | Dissolved Oxygen (ppm) | Purged/ Not Purged (P/NP) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-7 | 08/12/97 | 54.71 | 10.10 | 44.61 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 11/14/97 | 54.71 | 9.35 | 45.36 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 03/18/98 | 54.71 | 6.75 | 47.96 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 05/19/98 | 54.71 | 8.85 | 45.86 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 1.82 | P |
| A-7 | 07/29/98 | 54.71 | 8.84 | 45.87 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 10/09/98 | 54.71 | 10.05 | 44.66 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-7 | 02/19/99 | 54.71 | 5.57 | 49.14 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 4.7 | NP |
| A-7 | 06/02/99 | 54.71 | 9.56 | 45.15 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 2.17 | NP |
| A-7 | 08/26/99 | 54.71 | 9.66 | 45.05 | Not Sampled: Well Sampled Annually | | | | | | | 0.49 | |
| A-7 | 10/26/99 | 54.71 | 9.54 | 45.17 | Not Sampled: Well Sampled Annually | | | | | | | 1.26 | |
| A-7 | 02/25/00 | 54.71 | 5.60 | 49.11 | Not Sampled: Well Sampled Annually | | | | | | | | |
| A-8 | 03/26/96 | 53.77 | 7.10 | 46.67 | 48,000 | 2,600 | <100 | 650 | 1,100 | NA | NA | NM | |
| A-8 | 05/22/96 | 53.77 | 7.20 | 46.57 | 14,000 | 2,800 | 160 | 320 | 190 | NA | NA | NM | |
| A-8 | 08/22/96 | 53.77 | 11.57 | 42.20 | 8,000 | 1,000 | 76 | 150 | 96 | 4,300 | NA | NM | |
| A-8 | 12/19/96 | 53.77 | 8.04 | 45.73 | 12,000 | 450 | 110 | 210 | 230 | <500 | NA | NM | |
| A-8 | 04/01/97 | 53.77 | 9.98 | 43.79 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-8 | 05/27/97 | 53.77 | 11.45 | 42.32 | 11,000 | 1,600 | 100 | 220 | 210 | 2,300 | NA | NM | |
| A-8 | 08/12/97 | 53.77 | 11.59 | 42.18 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-8 | 11/14/97 | 53.77 | 9.85 | 43.92 | 26,000 | 2,300 | <200 | 400 | 400 | 4,100 | NA | 2.2 | |
| A-8 | 03/18/98 | 53.77 | 7.80 | 45.97 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-8 | 05/19/98 | 53.77 | 8.78 | 44.99 | 88,000 | 4,200 | 150 | 640 | 600 | 6,700 | NA | 1.36 | P |
| A-8 | 07/29/98 | 53.77 | 9.59 | 44.18 | 46,000 | 4,900 | 160 | 620 | 580 | 13,000 | NA | 0.5 | NP |
| A-8 | 10/09/98 | 53.77 | 11.23 | 42.54 | 130,000 | 3,700 | 110 | 500 | 770 | 7,300 | NA | 1.0 | NP |
| A-8 | 02/19/99 | 53.77 | 6.51 | 47.26 | <1,000 | 39 | <10 | <10 | <10 | 840 | NA | 0.2 | NP |
| A-8 | 06/02/99 | 53.77 | 10.68 | 43.09 | 8,500 | 1,300 | 32 | 180 | 110 | 6,700 | NA | 1.31 | NP |
| A-8 | 08/26/99 | 53.77 | 10.43 | 43.34 | 6,200 | 870 | 17 | 64 | 60 | 3,700 | NA | 0.69 | NP |
| A-8 | 10/26/99 | 53.77 | 10.23 | 43.54 | 15,000 | 2,800 | 140 | 370 | 360 | 480 | NA | 0.62 | NP |
| A-8 | 02/25/00 | 53.77 | 5.93 | 47.84 | 2,600 | 330 | 6.6 | 18 | 26 | 1,100 | NA | 1.43 | NP |
| A-9 | 03/26/96 | 53.04 | 7.05 | 45.99 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NM | |
| A-9 | 05/22/96 | 53.04 | 7.20 | 45.84 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NM | |

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

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

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

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

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

| Well Number | Date Gauged/ Sampled | Well Elevation (feet, MSL) | Depth to Water (feet, TOB) | Groundwater Elevation (feet, MSL) | TPH Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | MTBE 8021B* (ppb) | MTBE 8260 (ppb) | Dissolved Oxygen (ppm) | Purged/ Not Purged (P/NP) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-11 | 08/12/97 | 53.74 | 11.07 | 42.67 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-11 | 11/14/97 | 53.74 | 10.58 | 43.16 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 1.6 | |
| A-11 | 03/18/98 | 53.74 | 8.14 | 45.60 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-11 | 05/19/98 | 53.74 | 9.40 | 44.34 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 1.13 | P |
| A-11 | 07/29/98 | 53.74 | 10.32 | 43.42 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-11 | 10/09/98 | 53.74 | 10.91 | 42.83 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 2.0 | NP |
| A-11 | 02/19/99 | 53.74 | 6.77 | 46.97 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 1.8 | NP |
| A-11 | 06/02/99 | 53.74 | 10.95 | 42.79 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 6 | NA | 1.38 | NP |
| A-11 | 08/26/99 | 53.74 | 11.05 | 42.69 | Not Sampled: Well Sampled Semiannually | | | | | | | 0.49 | |
| A-11 | 10/26/99 | 53.74 | 10.81 | 42.93 | <50 | <0.5 | <0.5 | <0.5 | <1 | 4 | NA | 1.27 | NP |
| A-11 | 02/25/00 | 53.74 | 6.70 | 47.04 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 03/26/96 | 52.05 | 7.83 | 44.22 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 05/22/96 | 52.05 | 7.80 | 44.25 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NM | |
| A-12 | 08/22/96 | 52.05 | 9.97 | 42.08 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 12/19/96 | 52.05 | 8.18 | 43.87 | 85 | <0.5 | <0.5 | <0.5 | <0.5 | 170 | NA | NM | |
| A-12 | 04/01/97 | 52.05 | 10.30 | 41.75 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 05/27/97 | 52.05 | 10.05 | 42.00 | 50 | 12 | <0.5 | <0.5 | <0.5 | 96 | NA | NM | |
| A-12 | 08/12/97 | 52.05 | 10.46 | 41.59 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 11/14/97 | 52.05 | 9.70 | 42.35 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 75 | NA | 7.0 | |
| A-12 | 03/18/98 | 52.05 | 8.15 | 43.90 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 05/19/98 | 52.05 | 9.15 | 42.90 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 29 | NA | 1.47 | P |
| A-12 | 07/29/98 | 52.05 | 9.38 | 42.67 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-12 | 10/09/98 | 52.05 | 10.21 | 41.84 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 7 | NA | 2.0 | NP |
| A-12 | 02/19/99 | 52.05 | 6.96 | 45.09 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <3 | NA | 5.2 | NP |
| A-12 | 06/02/99 | 52.05 | 10.25 | 41.80 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 7 | NA | 1.38 | NP |
| A-12 | 08/26/99 | 52.05 | 9.91 | 42.14 | Not Sampled: Well Sampled Semiannually | | | | | | | 0.51 | |
| A-12 | 10/26/99 | 52.05 | 9.73 | 42.32 | <50 | <0.5 | <0.5 | <0.5 | <1 | 12 | NA | 1.09 | NP |
| A-12 | 02/25/00 | 52.05 | 6.97 | 45.08 | Not Sampled: Well Sampled Semiannually | | | | | | | | |
| A-13 | 03/26/96 | 55.11 | | | Well Inaccessible | | | | | | | | |
| A-13 | 05/22/96 | 55.11 | | | Well Inaccessible | | | | | | | | |

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

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

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

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

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

| Well Number | Date Gauged/ Sampled | Well Elevation (feet, MSL) | Depth to Water (feet, TOB) | Groundwater Elevation (feet, MSL) | TPH Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | MTBE 8021B* (ppb) | MTBE 8260 (ppb) | Dissolved Oxygen (ppm) | Purged/ Not Purged (P/NP) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR-1 | 02/25/00 | 54.72 | 7.15 | 47.57 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 03/26/96 | 54.77 | 4.93 | 49.84 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NM | |
| AR-2 | 05/22/96 | 54.77 | 5.65 | 49.12 | NS | NS | NS | NS | NS | NS | NS | NM | |
| AR-2 | 08/22/96 | 54.77 | 7.27 | 47.50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 200 | NA | NM | |
| AR-2 | 12/19/96 | 54.77 | 7.78 | 46.99 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 04/01/97 | 54.77 | 6.80 | 47.97 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 05/27/97 | 54.77 | 6.32 | 48.45 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 08/12/97 | 54.77 | 7.43 | 47.34 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 11/14/97 | 54.77 | 8.95 | 45.82 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 03/18/98 | 54.77 | NM | NM | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 05/19/98 | 54.77 | NM | NM | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 07/29/98 | 54.77 | 4.47 | 50.30 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 10/09/98 | 54.77 | 6.90 | 47.87 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 02/19/99 | 54.77 | 3.80 | 50.97 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 06/02/99 | 54.77 | 4.61 | 50.16 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-2 | 08/26/99 | 54.77 | 5.22 | 49.55 | Not Sampled: Well Removed from Sampling Program | | | | | | | 0.44 | |
| AR-2 | 10/26/99 | 54.77 | 3.20 | 51.57 | Not Sampled: Well Removed from Sampling Program | | | | | | | 1.79 | |
| AR-2 | 02/25/00 | 54.77 | 2.33 | 52.44 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 03/26/96 | 54.19 | 7.95 | 46.24 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | NA | NA | NM | |
| AR-3 | 05/22/96 | 54.19 | 8.30 | 45.89 | NS | NS | NS | NS | NS | NS | NS | NM | |
| AR-3 | 08/22/96 | 54.19 | 10.84 | 43.35 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 12/19/96 | 54.19 | 8.56 | 45.63 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 04/01/97 | 54.19 | 11.24 | 42.95 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 05/27/97 | 54.19 | 10.67 | 43.52 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 08/12/97 | 54.19 | 11.10 | 43.09 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 11/14/97 | 54.19 | 10.60 | 43.59 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 03/18/98 | 54.19 | NM | NM | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 05/19/98 | 54.19 | NM | NM | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 07/29/98 | 54.19 | 9.95 | 44.24 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 10/09/98 | 54.19 | 11.20 | 42.99 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |

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

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

| Well Number | Date Gauged/ Sampled | Well Elevation (feet, MSL) | Depth to Water (feet, TOB) | Groundwater Elevation (feet, MSL) | TPH Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | MTBE 8021B* (ppb) | MTBE 8260 (ppb) | Dissolved Oxygen (ppm) | Purged/ Not Purged (P/NP) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR-3 | 02/19/99 | 54.19 | 6.98 | 47.21 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 06/02/99 | 54.19 | 10.80 | 43.39 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 08/26/99 | 54.19 | 10.69 | 43.50 | Not Sampled: Well Removed from Sampling Program | | | | | | | 0.40 | |
| AR-3 | 10/26/99 | 54.19 | NM | NM | Not Sampled: Well Removed from Sampling Program | | | | | | | | |
| AR-3 | 02/25/00 | 54.19 | 7.21 | 46.98 | Not Sampled: Well Removed from Sampling Program | | | | | | | | |

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

## Table 2
## Groundwater Flow Direction and Gradient

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

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

# ATTACHMENT D

# EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

## Error Summary Log

*01/08/03*

EDF 1.2i All files present in deliverable.

| | |
|---|---|
| Laboratory: | Sequoia Analytical Laboratories, Inc., Morgan Hill, CA |
| Project Name: | ARCO #4931, Oakland, Ca |
| Work Order Number: | MLH0322 |
| Global ID: | T0600100107 |
| Lab Report Number: | MLH0322082320021419 |

# Report Summary

| Labreport | Sampid | Labsampid | Mtrx | QC | Anmcode | Exmcode | Logdate | Extdate | Anadate | Lablotctl | Run Sub |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MLH03220823200 21419 | A-2 | MLH032201 | AA | CS | SW8020F | SW5030B | 08/12/02 | 08/19/02 | 08/20/02 | 2H20026 | 2 |
| MLH03220823200 21419 | A-2 | MLH032201 | W | CS | SW8020F | SW5030B | 08/12/02 | 08/19/02 | 08/20/02 | 2H19015 | 1 |
| MLH03220823200 21419 | A-4 | MLH032202 | W | CS | SW8020F | SW5030B | 08/12/02 | 08/19/02 | 08/20/02 | 2H19015 | 1 |
| MLH03220823200 21419 | A-6 | MLH032203 | W | CS | SW8020F | SW5030B | 08/12/02 | 08/19/02 | 08/20/02 | 2H19015 | 1 |
| MLH03220823200 21419 | A-8 | MLH032204 | W | CS | SW8020F | SW5030B | 08/12/02 | 08/20/02 | 08/21/02 | 2H20039 | 1 |
| MLH03220823200 21419 | A-9 | MLH032205 | W | CS | SW8020F | SW5030B | 08/12/02 | 08/19/02 | 08/20/02 | 2H19014 | 1 |
| | | MLH024701 | W | NC | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H19014 | 1 |
| | | 2H19014BS1 | WQ | BS1 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H19014 | 1 |
| | | 2H19014BS2 | WQ | BS2 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H19014 | 1 |
| | | 2H19014BLK1 | WQ | LB1 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H19014 | 1 |
| | | 2H19014MS1 | W | MS1 | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H19014 | 1 |
| | | 2H19014MSD1 | W | SD1 | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H19014 | 1 |
| | | 2H19015BS1 | WQ | BS1 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H19015 | 1 |
| | | 2H19015BS2 | WQ | BS2 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H19015 | 1 |
| | | 2H19015BLK1 | WQ | LB1 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H19015 | 1 |
| | | 2H19015MS1 | W | MS1 | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H19015 | 1 |
| | | 2H19015MSD1 | W | SD1 | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H19015 | 1 |
| | | 2H20026BS1 | AQ | BS1 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H20026 | 1 |
| | | 2H20026BS2 | AQ | BS2 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H20026 | 1 |
| | | 2H20026BLK1 | AQ | LB1 | SW8020F | SW5030B | / / | 08/19/02 | 08/19/02 | 2H20026 | 1 |
| | | 2H20026MS1 | AA | MS1 | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H20026 | 1 |
| | | 2H20026MSD1 | AA | SD1 | SW8020F | SW5030B | / / | 08/19/02 | 08/20/02 | 2H20026 | 1 |
| | | 2H20039BSD1 | WQ | BD1 | SW8020F | SW5030B | / / | 08/20/02 | 08/21/02 | 2H20039 | 1 |
| | | 2H20039BSD2 | WQ | BD2 | SW8020F | SW5030B | / / | 08/20/02 | 08/21/02 | 2H20039 | 1 |
| | | 2H20039BS1 | WQ | BS1 | SW8020F | SW5030B | / / | 08/20/02 | 08/20/02 | 2H20039 | 1 |
| | | 2H20039BS2 | WQ | BS2 | SW8020F | SW5030B | / / | 08/20/02 | 08/20/02 | 2H20039 | 1 |
| | | 2H20039BLK1 | WQ | LB1 | SW8020F | SW5030B | / / | 08/20/02 | 08/20/02 | 2H20039 | 1 |

# EDFSAMP: Error Summary Log

*01/08/03*

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

# EDFTEST: Error Summary Log

*01/08/03*

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

# EDFRES: Error Summary Log

*01/08/03*

| Error type | Labsampid | Qccode | Matrix | Anmcode | Pvccode | Anadate | Run number | Parlabel |
|---|---|---|---|---|---|---|---|---|
| Warning: extra parameter | 2H20026MS1 | MS1 | AA | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20026MS1 | MS1 | AA | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H20026MSD1 | SD1 | AA | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20026MSD1 | SD1 | AA | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH032201 | CS | AA | SW8020F | PR | 08/20/02 | 2 | AAATFBZME |
| Warning: extra parameter | MLH032201 | CS | AA | SW8020F | PR | 08/20/02 | 2 | GROC6C10 |
| Warning: extra parameter | MLH032201 | CS | AA | SW8020F | PR | 08/20/02 | 2 | MTBE |
| Warning: extra parameter | 2H20026BLK1 | LB1 | AQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20026BLK1 | LB1 | AQ | SW8020F | PR | 08/19/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H20026BLK1 | LB1 | AQ | SW8020F | PR | 08/19/02 | 1 | MTBE |
| Warning: extra parameter | 2H20026BS1 | BS1 | AQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning. extra parameter | 2H20026BS2 | BS2 | AQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20026BS2 | BS2 | AQ | SW8020F | PR | 08/19/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19014MS1 | MS1 | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19014MS1 | MS1 | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19014MSD1 | SD1 | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19014MSD1 | SD1 | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19015MS1 | MS1 | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19015MS1 | MS1 | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19015MSD1 | SD1 | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19015MSD1 | SD1 | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH024701 | NC | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | MLH024701 | NC | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH032201 | CS | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | MLH032201 | CS | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |

| Error type | Labsampid | Qccode | Matrix | Anmcode | Pvccode | Anadate | Run number | Parlabel |
|---|---|---|---|---|---|---|---|---|
| Warning: extra parameter | MLH032201 | CS | W | SW8020F | PR | 08/20/02 | 1 | MTBE |
| Warning: extra parameter | MLH032202 | CS | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | MLH032202 | CS | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH032202 | CS | W | SW8020F | PR | 08/20/02 | 1 | MTBE |
| Warning: extra parameter | MLH032203 | CS | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | MLH032203 | CS | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH032203 | CS | W | SW8020F | PR | 08/20/02 | 1 | MTBE |
| Warning: extra parameter | MLH032204 | CS | W | SW8020F | PR | 08/21/02 | 1 | AAATFBZME |
| Warning: extra parameter | MLH032204 | CS | W | SW8020F | PR | 08/21/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH032204 | CS | W | SW8020F | PR | 08/21/02 | 1 | MTBE |
| Warning: extra parameter | MLH032205 | CS | W | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | MLH032205 | CS | W | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | MLH032205 | CS | W | SW8020F | PR | 08/20/02 | 1 | MTBE |
| Warning: extra parameter | 2H19014BLK1 | LB1 | WQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19014BLK1 | LB1 | WQ | SW8020F | PR | 08/19/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19014BLK1 | LB1 | WQ | SW8020F | PR | 08/19/02 | 1 | MTBE |
| Warning: extra parameter | 2H19014BS1 | BS1 | WQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19014BS2 | BS2 | WQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19014BS2 | BS2 | WQ | SW8020F | PR | 08/19/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19015BLK1 | LB1 | WQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19015BLK1 | LB1 | WQ | SW8020F | PR | 08/19/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H19015BLK1 | LB1 | WQ | SW8020F | PR | 08/19/02 | 1 | MTBE |
| Warning: extra parameter | 2H19015BS1 | BS1 | WQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19015BS2 | BS2 | WQ | SW8020F | PR | 08/19/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H19015BS2 | BS2 | WQ | SW8020F | PR | 08/19/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H20039BLK1 | LB1 | WQ | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20039BLK1 | LB1 | WQ | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H20039BLK1 | LB1 | WQ | SW8020F | PR | 08/20/02 | 1 | MTBE |
| Warning: extra parameter | 2H20039BS1 | BS1 | WQ | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |

| Error type | Labsampid | Qccode | Matrix | Anmcode | Pvccode | Anadate | Run number | Parlabel |
|---|---|---|---|---|---|---|---|---|
| Warning: extra parameter | 2H20039BS2 | BS2 | WQ | SW8020F | PR | 08/20/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20039BS2 | BS2 | WQ | SW8020F | PR | 08/20/02 | 1 | GROC6C10 |
| Warning: extra parameter | 2H20039BSD1 | BD1 | WQ | SW8020F | PR | 08/21/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20039BSD2 | BD2 | WQ | SW8020F | PR | 08/21/02 | 1 | AAATFBZME |
| Warning: extra parameter | 2H20039BSD2 | BD2 | WQ | SW8020F | PR | 08/21/02 | 1 | GROC6C10 |

# EDFQC: Error Summary Log

*01/08/03*

| Error type | Lablotctl | Anmcode | Parlabel | Qccode | Labqcid |
|---|---|---|---|---|---|
| There are no errors in this data files | | | | | |

# EDFCL: Error Summary Log

*01/08/03*

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

# AB2886 Electronic Delivery

Main Menu | View/Add Facilities | Upload EDD | Check EDD

Your EDF file has been succcessfully uploaded!

**Confirmation Number:** 5192844152
**Date/Time of Submittal:** 1/8/2003 11:25:49 AM
**Facility Global ID:** T0600100110
**Facility Name:** ARCO
**Submittal Title:** EDCC Report for # 4931
**Submittal Type:** GW Monitoring Report

Logged in as URSCORP-OAKLAND (CONTRACTOR)

CONTACT SITE ADMINISTRATOR.

# AB2886 Electronic Delivery



## UPLOADING A GEO_WELL FILE

**Processing is complete. No errors were found!**
**Your file has been successfully submitted!**

| | |
|---|---|
| **Submittal Title:** | **Geowell # 4931** |
| **Submittal Date/Time:** | **1/8/2003 11:27:00 AM** |
| **Confirmation Number:** | **7597080826** |

**Back to Main Menu**

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CONTACT SITE ADMINISTRATOR.