RO-204

Atlantic Richfield Company
(a BP affiliated company)

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

January 20, 2005

Re: Fourth Quarter 2004 Groundwater Monitoring Report
ARCO Service Station #4494
566 Hegenberger Road
Oakland, California
URS Project #38486721

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

Submitted by:

Paul Supple
Environmental Business Manager

**URS**

January 20, 2005

Mr. Robert Schultz
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

**Re: Fourth Quarter 2004 Groundwater Monitoring Report**
**ARCO Service Station #4494**
**566 Hegenberger Road**
**Oakland, California**
**URS Project #38486721**

Dear Mr. Schultz:

On behalf of Atlantic Richfield Company (RM), a BP affiliated company, URS Corporation (URS) is submitting the *Fourth Quarter 2004 Groundwater Monitoring Report* for ARCO Service Station #4494, located at 566 Hegenberger Road, Oakland, California.

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

Sincerely,

**URS CORPORATION**

Scott Robinson
Project Manager

R. Horwath
Robert Horwath, R.G.
Portfolio Manager

REGISTERED GEOLOGIST
ROBERT M. HORWATH
NO. 5925
4/05
STATE OF CALIFORNIA

Enclosure: Fourth Quarter 2004 Groundwater Monitoring Report

cc: Mr. Paul Supple, RM, electronic copy uploaded to ENFOS

URS Corporation
1333 Broadway, Suite 800
Oakland, CA 94612-1924
Tel: 510.893.3600
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**REPORT**

# FOURTH QUARTER 2004 GROUNDWATER MONITORING REPORT

ARCO SERVICE STATION #4494
566 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

*Prepared for*
RM

January 20, 2005

URS
URS Corporation
1333 Broadway, Suite 800
Oakland, California 94612

38486721

Date: January 20, 2005

Quarter: 4Q 04

## RM QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 4494 Address: 566 Hegenberger Road, Oakland, California

RM Environmental Business Manager: Paul Supple

Consulting Co./Contact Person: URS Corporation / Scott Robinson

Consultant Project No.: 384863721

Primary Agency/Regulatory ID No. Alameda County Environmental Health (ACEH)/STID #3854

**WORK PERFORMED THIS QUARTER (Fourth – 2004):**

1. Performed fourth quarter 2004 monitoring event on December 22, 2004.
2. Prepared and submitted Third Quarter 2004 Groundwater Monitoring Report.

**WORK PROPOSED FOR NEXT QUARTER (First – 2005):**

1. Prepare and submit this Fourth Quarter Groundwater Monitoring Report.
2. Perform first quarter 2005 groundwater monitoring event.
3. Prepare and submit First Quarter 2005 Groundwater Monitoring Report.

**SITE SUMMARY:**

| | |
|---|---|
| Current Phase of Project: | GW monitoring/sampling |
| Frequency of Groundwater Sampling: | Quarterly: MW-1, MW-7.<br>Semi-annually (1st and 3rd Quarter): MW-3 to MW-6, and RW-1 |
| Frequency of Groundwater Monitoring: | Quarterly |
| Is Free Product (FP) Present On–Site: | No |
| Bulk Soil Removed to Date: | 1,550 cubic yards |
| Current Remediation Techniques: | None |
| Approximate Depth to Groundwater: | 5.73 (MW-6) to 9.06 (MW-3) feet |
| Groundwater Gradient (direction): | Northwest |
| Groundwater Gradient (magnitude): | 0.02 feet per foot |

**DISCUSSION:**

Well MW-1 dewatered at 26 gallons. Gasoline range organics (GRO) and benzene were not detected at or above the laboratory reporting limit in either of the two wells sampled this quarter. Methyl tert-butyl ether (MTBE) was detected at or above the laboratory reporting limit in both wells at concentrations of 2.7 µg/L (MW-7) and 74 µg/L (MW-1). Tert-butyl alcohol (TBA) was detected at or above the laboratory reporting limit in MW-7 at a concentration of 34 µg/L. No other fuel additives were detected at or above their respective laboratory reporting limits.

**ATTACHMENTS:**

- Figure 1 – Groundwater Elevation Contour and Analytical Summary Map – December 22, 2004
- Table 1 – Groundwater Elevation and Analytical Data
- Table 2 – Groundwater Flow Direction and Gradient
- Table 3 – Fuel Additive Analytical Data
- Attachment A – Field Procedures and Field Data Sheets
- Attachment B – Laboratory Procedures, Certified Analytical Reports, and Chain-of-Custody Records
- Attachment C – Historical Groundwater Data
- Attachment D – Error Check Reports and EDF/Geowell Submittal Confirmations
- Attachment E – Joint Monitoring Data

COLISEUM WAY

Canal

C-1

HEGENBERGER ROAD

MW-3
2.52
94
<0.50
84

BW-C
NA
NS
NS
NS

BW-D
NA
61
2.1
5.4

BW-A
NA
NS
NS
NS

MW-2
2.10
<50
<0.50
39

BW-B
NA
NS
NS
NS

MW-1
4.08
<500
<5.0
57

MW-5
4.31
<50
<0.50
67

MW-4
2.56
<50
<0.50
20

MW-7
2.61
<50
<0.50
2.7
Q

MW-1
4.92
<500
<5
74
Q

MW-3
2.56
NS
NS
NS
SA(1,3)

MW-4
5.38
NS
NS
NS
SA(1,3)

MW-5
4.45
NS
NS
NS
SA(1,3)

RW-1
4.74
NS
NS
NS
SA(1,3)

MW-6
4.68
NS
NS
NS
SA(1,3)

MW-2
(destroyed
12/92)

planter
driveway
sidewalk
driveway
SD-1
SD-2
USTs
dispensers
building
Shell-branded
Service Station
*540 Hegenberger*
Jack in the Box
dispensers
carwash
Remediation
compound
storage
Former
W/O UST
ARCO Service
Station #4494
*566 Hegenberger*
EDES AVE
sidewalk
driveway
dispenser
islands
canopy
approximate ARCO property line
Burger
King
AM/PM
Mini-Mart
ARCO property line
Laborers' International
Union
Days Inn
ENTERPRISE
WAY

2.50
3.00
3.50
4.00
4.50
0.05
0.02

## EXPLANATION

- Shell monitoring well
- Tank backfill well
- Well used for groundwater extraction
- ARCO monitoring well
- ARCO recovery well
- Canal sampling location

| | |
|---|---|
| Well | Well designation |
| ELEV | Groundwater elevation |
| GRO<br>Benzene<br>MTBE | Concentration of GRO, Benzene and MTBE in groundwater (µg/L) |
| Q or A | Sampling period |
| SA(1,3) | Sampled semi-annually, 1st & 3rd quarters |
| < | Not detected at or above laboratory reporting limits |
| NS | Not sampled |
| Q | Sampled quarterly |
| 0.02 | Approximate groundwater flow direction and gradient (ft/ft) |
| 3.00 | Groundwater elevation contour (ft/MSL) (dashed where estimated) |

NOTES: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES.
SITE DIMESIONS AND FACILITY LOCATIONS NOT VERIFIED.

NORTH

0 20 40 80

Scale (ft)

| | | | |
|---|---|---|---|
| URS | Project No. 38487181<br>ARCO Service Station #4494<br>566 Hegenberger Road<br>Oakland, California | GROUNDWATER ELEVATION CONTOUR AND ANALYTICAL SUMMARY MAP<br>Fourth Quarter 2004 (December 22, 2004) | FIGURE<br>1 |

Jan 25, 2005 - 1:20pm
X:\x_env_waste\BP GEM\Sites\Scott Robinson Paul Supple\4494\Monitoring\Qtr. 4, 2004\Drawings\4494-4Q04-GW.dwg

## Table 1

## Groundwater Elevation and Analytical Data

ARCO Service Station #4494
566 Hegenberger Rd., Oakland, CA

| Well No. | Date | P/ NP | Footnotes/ Comments | TOC (ft MSL) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (ft bgs) | GWE (ft MSL) | GRO/ TPH-g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) | DO (mg/L) | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 6/20/2000 | -- | a | 106.1 | 13.00 | -- | 7.02 | 99.08 | <1,000 | <10 | <10 | <10 | <20 | 14000/15000 | --- | --- |
| | 9/28/2000 | -- | a | 106.1 | 13.00 | -- | 7.07 | 99.03 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 13000/18800 | --- | --- |
| | 12/17/2000 | -- | | 106.1 | 13.00 | -- | 6.95 | 99.15 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 10,600 | --- | --- |
| | 3/28/2001 | -- | | 106.1 | 13.00 | -- | 6.88 | 99.22 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | 16,900 | --- | --- |
| | 6/21/2001 | -- | | 106.1 | 13.00 | -- | 7.18 | 98.92 | <1,000 | <10 | <10 | <10 | <10 | 3,400 | --- | --- |
| | 9/23/2001 | -- | a | 106.1 | 13.00 | -- | 7.11 | 98.99 | <1,000 | <10 | <10 | <10 | <10 | 2200/1800 | --- | --- |
| | 12/31/2001 | -- | | 106.1 | 13.00 | -- | 6.91 | 99.19 | <5,000 | <50 | <50 | <50 | <50 | 14,000 | --- | --- |
| | 3/14/2002 | -- | | 106.1 | 13.00 | -- | 6.85 | 99.25 | <5,000 | <50 | <50 | <50 | <50 | 6,200 | --- | --- |
| | 4/17/2002 | -- | | 106.1 | 13.00 | -- | 5.89 | 100.21 | <5,000 | <50 | <50 | <50 | <50 | 4,500 | --- | --- |
| | 8/8/2002 | -- | a, b | 106.1 | 13.00 | -- | 7.19 | 98.91 | 230 | <2.0 | <2.0 | <2.0 | <2.0 | 660/440 | 4.5 | 7.8 |
| | 12/12/2002 | -- | a, d | 106.1 | 13.00 | -- | 7.28 | 98.82 | 630 | <5.0 | <5.0 | <5.0 | <5.0 | 1300/830 | 1.9 | 7.6 |
| | 3/20/2003 | -- | e | 106.1 | 13.00 | -- | 6.91 | 99.19 | 1,100 | <5.0 | <5.0 | <5.0 | <5.0 | 780 | 2.2 | 8.5 |
| | 6/23/2003 | -- | | 106.1 | 13.00 | -- | 7.61 | 98.49 | 530 | <5.0 | <5.0 | <5.0 | <5.0 | 260 | 1.2 | 7.6 |
| | 9/22/2003 | -- | | 11.36 | 13.00 | -- | 7.78 | 3.58 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 17 | 3.5 | 7.7 |
| | 12/03/2003 | P | | 11.36 | 13.00 | -- | 7.90 | 3.46 | 410 | 2.6 | 9.8 | <2.5 | 11 | 260 | 2.1 | 6.9 |
| | 03/18/2004 | P | | 11.36 | 13.00 | -- | 6.68 | 4.68 | <250 | <2.5 | <2.5 | <2.5 | <2.5 | 130 | 2.4 | 7.0 |
| | 05/25/2004 | P | | 11.36 | 13.00 | -- | 7.55 | 3.81 | <250 | <2.5 | <2.5 | <2.5 | <2.5 | 120 | 1.3 | 7.0 |
| | 09/22/2004 | P | | 11.36 | 13.00 | -- | 6.78 | 4.58 | 150 | 1.5 | <1.0 | <1.0 | <1.0 | 140 | 3.8 | 7.12 |
| | **12/22/2004** | **P** | | **11.36** | **13.00** | **--** | **6.44** | **4.92** | **<500** | **<5.0** | **<5.0** | **<5.0** | **<5.0** | **74** | **1.7** | **6.8** |
| MW-3 | 6/20/2000 | -- | a | 106.29 | 7.00 | 17.70 | 9.18 | 97.11 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 27/27 | --- | --- |
| | 9/28/2000 | -- | a | 106.29 | 7.00 | 17.70 | 9.33 | 96.96 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 4.3/<2.0 | --- | --- |
| | 12/17/2000 | -- | | 106.29 | 7.00 | 17.70 | 9.31 | 96.98 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/28/2001 | -- | | 106.29 | 7.00 | 17.70 | 9.23 | 97.06 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 7.42 | --- | --- |
| | 6/21/2001 | -- | | 106.29 | 7.00 | 17.70 | 9.58 | 96.71 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 9/23/2001 | -- | | 106.29 | 7.00 | 17.70 | 9.76 | 96.53 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 12/31/2001 | -- | | 106.29 | 7.00 | 17.70 | 8.78 | 97.51 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/14/2002 | -- | | 106.29 | 7.00 | 17.70 | 9.25 | 97.04 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 4.0 | --- | --- |
| | 4/17/2002 | -- | | 106.29 | 7.00 | 17.70 | 8.44 | 97.85 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 8/8/2002 | -- | | 106.29 | 7.00 | 17.70 | 9.63 | 96.66 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 2.6 | 7.9 |
| | 12/12/2002 | -- | d | 106.29 | 7.00 | 17.70 | 9.51 | 96.78 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 3.0 | 6.8 |
| | 3/20/2003 | -- | e | 106.29 | 7.00 | 17.70 | 9.40 | 96.89 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.1 | 1.2 | 7.0 |
| | 6/23/2003 | -- | | 106.29 | 7.00 | 17.70 | 9.36 | 96.93 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.2 | 0.9 | 8.2 |

## Table 1

### Groundwater Elevation and Analytical Data

ARCO Service Station #4494

566 Hegenberger Rd., Oakland, CA

| Well No. | Date | P/ NP | Footnotes/ Comments | TOC (ft MSL) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (ft bgs) | GWE (ft MSL) | GRO/ TPH-g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) | DO (mg/L) | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-3 | 9/22/2003 | -- | | 11.62 | 7.00 | 17.70 | 9.48 | 2.14 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.9 | 1.4 | 7.9 |
| | 12/03/2003 | -- | g | 11.62 | 7.00 | -- | 9.44 | 2.18 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 03/18/2004 | NP | | 11.62 | 7.00 | -- | 8.76 | 2.86 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.6 | 0.8 | 7.3 |
| | 05/25/2004 | -- | g | 11.62 | 7.00 | -- | 9.55 | 2.07 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 09/22/2004 | NP | | 11.62 | 7.00 | -- | 9.44 | 2.18 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.7 | -- | -- |
| | **12/22/2004** | **NP** | | **11.62** | **7.00** | **--** | **9.06** | **2.56** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |
| MW-4 | 6/20/2000 | -- | | 107.4 | 7.00 | -- | 8.49 | 98.91 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <10 | --- | --- |
| | 9/28/2000 | -- | | 107.4 | 7.00 | -- | 8.70 | 98.70 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <2.5 | --- | --- |
| | 12/17/2000 | -- | | 107.4 | 7.00 | -- | 8.53 | 98.87 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/28/2001 | -- | | 107.4 | 7.00 | -- | 8.59 | 98.81 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 6/21/2001 | -- | | 107.4 | 7.00 | -- | 8.79 | 98.61 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 9/23/2001 | -- | | 107.4 | 7.00 | -- | 8.67 | 98.73 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 12/31/2001 | -- | | 107.4 | 7.00 | -- | 8.03 | 99.37 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/14/2002 | -- | | 107.4 | 7.00 | -- | 8.48 | 98.92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 4/17/2002 | -- | | 107.4 | 7.00 | -- | 7.79 | 99.61 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 5.6 | --- | --- |
| | 8/8/2002 | -- | | 107.4 | 7.00 | -- | 8.90 | 98.50 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 4.5 | 8.0 |
| | 12/12/2002 | -- | d | 107.4 | 7.00 | -- | 9.07 | 98.33 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 5.6 | 6.2 |
| | 3/20/2003 | -- | e | 107.4 | 7.00 | -- | 8.85 | 98.55 | <50 | <0.50 | <0.50 | <0.50 | 0.50 | <0.50 | 4.8 | 7.8 |
| | 6/23/2003 | -- | | 107.4 | 7.00 | -- | 9.26 | 98.14 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.3 | 7.5 |
| | 9/22/2003 | -- | | 13.18 | 7.00 | -- | 9.22 | 3.96 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 7.4 | 8.0 |
| | 12/03/2003 | -- | g | 13.18 | 7.00 | -- | 9.48 | 3.70 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 03/18/2004 | NP | | 13.18 | 7.00 | -- | 8.32 | 4.86 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.5 | 8.4 |
| | 05/25/2004 | -- | g | 13.18 | 7.00 | -- | 9.03 | 4.15 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 09/22/2004 | NP | | 13.18 | 7.00 | -- | 8.62 | 4.56 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.7 | -- |
| | **12/22/2004** | **NP** | | **13.18** | **7.00** | **--** | **7.80** | **5.38** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |
| MW-5 | 6/20/2000 | -- | | 105.19 | 8.00 | -- | 7.65 | 97.54 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <10 | --- | --- |
| | 9/28/2000 | -- | | 105.19 | 8.00 | -- | 6.82 | 98.37 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <2.5 | --- | --- |
| | 12/17/2000 | -- | | 105.19 | 8.00 | -- | 6.50 | 98.69 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/28/2001 | -- | | 105.19 | 8.00 | -- | 6.34 | 98.85 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 6/21/2001 | -- | | 105.19 | 8.00 | -- | 7.88 | 97.31 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 9/23/2001 | -- | | 105.19 | 8.00 | -- | 6.98 | 98.21 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 12/31/2001 | -- | | 105.19 | 8.00 | -- | 5.01 | 100.18 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/14/2002 | -- | | 105.19 | 8.00 | -- | 5.93 | 99.26 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |

## Table 1

### Groundwater Elevation and Analytical Data

ARCO Service Station #4494

566 Hegenberger Rd., Oakland, CA

| Well No. | Date | P/ NP | Footnotes/ Comments | TOC (ft MSL) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (ft bgs) | GWE (ft MSL) | GRO/ TPH-g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) | DO (mg/L) | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-5 | 4/17/2002 | -- | | 105.19 | 8.00 | -- | 5.37 | 99.82 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 8.5 | --- | --- |
| | 8/8/2002 | -- | b | 105.19 | 8.00 | -- | 6.85 | 98.34 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 0.7 | 7.3 |
| | 12/12/2002 | -- | d | 105.19 | 8.00 | -- | 6.53 | 98.66 | <50 | 2.2 | 4.7 | 1.3 | 6.8 | <2.5 | 1.3 | 7.0 |
| | 3/20/2003 | -- | e | 105.19 | 8.00 | -- | 6.40 | 98.79 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.7 | 7.1 |
| | 6/23/2003 | -- | | 105.19 | 8.00 | -- | 6.72 | 98.47 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | 7.2 |
| | 9/22/2003 | -- | f | 10.63 | 8.00 | -- | 6.76 | 3.87 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 | 7.2 |
| | 12/03/2003 | -- | g | 10.63 | 8.00 | -- | 6.56 | 4.07 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 03/18/2004 | P | | 10.63 | 8.00 | -- | 5.98 | 4.65 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.7 | 7.3 |
| | 05/25/2004 | -- | g | 10.63 | 8.00 | -- | 6.77 | 3.86 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 09/22/2004 | P | | 10.63 | 8.00 | -- | 6.90 | 3.73 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.0 | 7.17 |
| | **12/22/2004** | **NP** | | **10.63** | **8.00** | **--** | **6.18** | **4.45** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |
| MW-6 | 6/20/2000 | -- | | 105.07 | 8.00 | -- | 6.24 | 98.83 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <10 | --- | --- |
| | 9/28/2000 | -- | | 105.07 | 8.00 | -- | 6.45 | 98.62 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <2.5 | --- | --- |
| | 12/17/2000 | -- | | 105.07 | 8.00 | -- | 6.26 | 98.81 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/28/2001 | -- | | 105.07 | 8.00 | -- | 6.10 | 98.97 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 6/21/2001 | -- | | 105.07 | 8.00 | -- | 7.68 | 97.39 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 9/23/2001 | -- | | 105.07 | 8.00 | -- | 6.72 | 98.35 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 12/23/2001 | -- | | 105.07 | 8.00 | -- | 4.68 | 100.39 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/14/2002 | -- | | 105.07 | 8.00 | -- | 5.55 | 99.52 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 4/17/2002 | -- | | 105.07 | 8.00 | -- | 4.96 | 100.11 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 7.0 | --- | --- |
| | 8/8/2002 | -- | | 105.07 | 8.00 | -- | 6.46 | 98.61 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 0.7 | 7.3 |
| | 12/12/2002 | -- | d | 105.07 | 8.00 | -- | 6.18 | 98.89 | 65 | 3.3 | 8.4 | 2.7 | 14 | <2.5 | 1.1 | 6.9 |
| | 3/20/2003 | -- | e | 105.07 | 8.00 | -- | 6.18 | 98.89 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | 7.0 |
| | 6/23/2003 | -- | | 105.07 | 8.00 | -- | 6.15 | 98.92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.0 | 7.1 |
| | 9/22/2003 | -- | f | 10.41 | 8.00 | -- | 6.43 | 3.98 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.5 | 7.0 |
| | 12/03/2003 | -- | g | 10.41 | 8.00 | -- | 6.12 | 4.29 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 03/18/2004 | P | | 10.41 | 8.00 | -- | 5.40 | 5.01 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.9 | 7.2 |
| | 05/25/2004 | -- | g | 10.41 | 8.00 | -- | 6.30 | 4.11 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 09/22/2004 | P | | 10.41 | 8.00 | -- | 6.43 | 3.98 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.3 | 7.01 |
| | **12/22/2004** | **NP** | | **10.41** | **8.00** | **--** | **5.73** | **4.68** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |
| MW-7 | 6/20/2000 | -- | a | 105.52 | 9.00 | -- | 8.65 | 96.87 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 13/13 | --- | --- |
| | 9/28/2000 | -- | a | 105.52 | 9.00 | -- | 8.75 | 96.77 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | 136/261 | --- | --- |
| | 12/17/2000 | -- | | 105.52 | 9.00 | -- | 8.62 | 96.90 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 27.1 | --- | --- |

## Table 1

### Groundwater Elevation and Analytical Data

ARCO Service Station #4494
566 Hegenberger Rd., Oakland, CA

| Well No. | Date | P/ NP | Footnotes/ Comments | TOC (ft MSL) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (ft bgs) | GWE (ft MSL) | GRO/ TPH-g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) | DO (mg/L) | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-7 | 3/28/2001 | -- | | 105.52 | 9.00 | -- | 8.66 | 96.86 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 51.5 | --- | --- |
| | 6/21/2001 | -- | | 105.52 | 9.00 | -- | 8.84 | 96.68 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 53 | --- | --- |
| | 9/23/2001 | -- | a | 105.52 | 9.00 | -- | 8.75 | 96.77 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 35/21 | --- | --- |
| | 12/23/2001 | -- | | 105.52 | 9.00 | -- | 7.79 | 97.73 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 440 | --- | --- |
| | 3/14/2002 | -- | | 105.52 | 9.00 | -- | 8.30 | 97.22 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 18 | --- | --- |
| | 4/17/2002 | -- | | 105.52 | 9.00 | -- | 7.43 | 98.09 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 67 | --- | --- |
| | 8/8/2002 | -- | a, b | 105.52 | 9.00 | -- | 8.61 | 96.91 | 55 | <0.5 | <0.5 | <0.5 | <0.5 | 130/100 | 1.1 | 7.1 |
| | 12/12/2002 | -- | a, d, h | 105.52 | 9.00 | -- | 8.55 | --- | 75 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 160/130 | 1.2 | 7.0 |
| | 3/20/2003 | -- | e | 105.52 | 9.00 | -- | 8.38 | --- | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 32 | 2.2 | 7.2 |
| | 6/23/2003 | -- | | 105.52 | 9.00 | -- | 8.37 | --- | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 14 | 0.8 | 7.1 |
| | 9/22/2003 | -- | f | 10.51 | 9.00 | -- | 8.95 | 1.56 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.3 | 2.2 | 7.2 |
| | 12/03/2003 | P | | 10.51 | 9.00 | -- | 8.86 | 1.65 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.2 | 0.1 | 7.2 |
| | 03/18/2004 | P | | 10.51 | 9.00 | -- | 8.03 | 2.48 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.0 | 1.0 | 7.2 |
| | 05/25/2004 | P | | 10.51 | 9.00 | -- | 8.37 | 2.14 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.1 | 0.7 | 7.1 |
| | 09/22/2004 | P | | 10.51 | 9.00 | -- | 8.90 | 1.61 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.3 | 0.9 | 7.27 |
| | **12/22/2004** | **P** | | **10.51** | **9.00** | **--** | **7.90** | **2.61** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **2.7** | **2.8** | **7.2** |
| RW-1 | 6/20/2000 | -- | | --- | -- | -- | 8.21 | --- | <50 | <0.5 | 1.1 | <0.5 | <1.0 | <10 | --- | --- |
| | 9/28/2000 | -- | | --- | -- | -- | 8.28 | --- | <50 | <0.5 | <0.5 | <0.5 | <1.0 | <2.5 | --- | --- |
| | 12/17/2000 | -- | | --- | -- | -- | 8.29 | --- | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 3/28/2001 | -- | | --- | -- | -- | 8.16 | --- | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 6/21/2001 | -- | | --- | -- | -- | 9.37 | --- | 160 | 5.1 | <0.5 | 1.1 | 3.2 | <2.5 | --- | --- |
| | 9/23/2001 | -- | | --- | -- | -- | 8.75 | --- | 57 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | --- | --- |
| | 12/31/2001 | -- | | --- | -- | -- | 6.80 | --- | 520 | 3.1 | <0.5 | 6.4 | 4.7 | <2.5 | --- | --- |
| | 3/14/2002 | -- | | --- | -- | -- | 7.86 | --- | 240 | 3.7 | <0.5 | 0.7 | 2.8 | <2.5 | --- | --- |
| | 4/17/2002 | -- | | --- | -- | -- | 7.13 | --- | <50 | <0.5 | 1.6 | <0.5 | 0.72 | <2.5 | --- | --- |
| | 8/8/2002 | -- | a, c | --- | -- | -- | 8.48 | --- | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 3.7/<0.5 | 1.1 | 7.0 |
| | 12/12/2002 | -- | | --- | -- | -- | 8.63 | --- | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 1.9 | 6.9 |
| | 3/20/2003 | -- | e | --- | -- | -- | 8.08 | --- | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.9 | 7.3 |
| | 6/23/2003 | -- | | --- | -- | -- | 8.28 | --- | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | 7.3 |
| | 9/22/2003 | -- | f | 11.97 | -- | -- | 8.42 | 3.55 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.8 | 7.1 |
| | 12/03/2003 | -- | g | 11.97 | -- | -- | 8.05 | 3.92 | -- | -- | -- | -- | -- | -- | -- | -- |
| | 03/18/2004 | P | | 11.97 | -- | -- | 7.18 | 4.79 | 50 | 0.54 | <0.50 | <0.50 | <0.50 | <0.50 | 0.9 | 7.1 |
| | 05/25/2004 | -- | g | 11.97 | -- | -- | 8.32 | 3.65 | -- | -- | -- | -- | -- | -- | -- | -- |

## Table 1

### Groundwater Elevation and Analytical Data

ARCO Service Station #4494

566 Hegenberger Rd., Oakland, CA

| Well No. | Date | P/ NP | Footnotes/ Comments | TOC (ft MSL) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (ft bgs) | GWE (ft MSL) | GRO/ TPH-g (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-benzene (µg/L) | Total Xylenes (µg/L) | MTBE (µg/L) | DO (mg/L) | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW-1 | 09/22/2004 | P | | 11.97 | -- | -- | 8.42 | 3.55 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.0 | 6.7 |
| | **12/22/2004** | **NP** | | **11.97** | **--** | **--** | **7.23** | **4.74** | **--** | **--** | **--** | **--** | **--** | **--** | **--** | **--** |

## Table 1

### Groundwater Elevation and Analytical Data

ARCO Service Station #4494
566 Hegenberger Rd., Oakland, CA

ABBREVIATIONS AND SYMBOLS:
DTW = Depth to water
ft bgs = Feet below ground surface
GRO = Gasoline range organics
GWE = Groundwater elevation
mg/L = Milligrams per liter
MSL = Mean sea level
MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B prior to 3/20/03 unless otherwise noted.
TPH = Total petroleum hydrocarbons analyzed by EPA Method 8015M prior to 3/20/03.
TOC = Top of casing
ug/L = Micrograms per liter
--- = Not calculated, surveyed, available, applicable, analyzed.
< = Not detected at or above specifed laboratory reporting limit.

FOOTNOTES:
a = MTBE confirmation analyzed by EPA Method 8260
b = Hydrocarbon pattern is present in the requested fuel quantitation range for TPHg/GRO but does not resemble the pattern of the requested fuel.
c = This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose.
d = Analyzed by EPA Method 8215B/8021B for TPHg/GRO.
e = TPH-g, BTEX, and MTBE analyzed by EPA method 8260B beginning on 2003 samlping event (03/20/03)
f = Top of casing elvations were re-surveyed on July 18, 2003 by URS Corporation of Pleasant Hill, CA
g = Wells MW-3, MW-4, MW-5, MW-6 and RW-1 are sampled semi-annually in the 1st and 3rd quarters.
h = Top of casing was found shattered on December 12, 2002. Top of Casing (TOC) unknown.

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

Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. Total petroleum hydrocarbons as gasoline (TPHg) has been changed to gasoline range organics (GRO). The resulting data may be impacted by the potential of non-TPHg analytes within the requested fuel range resulting in a higher concentration being reported.

Beginning in the second quarter 2004, the carbon range for GRO has been changed from C6-C10 to C4-C12.

The values for pH and DO were obtained through field measurements.

## Table 2

### Fuel Additives Analytical Data

ARCO Service Station #4494

566 Hegenberger Rd., Oakland, CA

| Well Number | Date Sampled | Ethanol (µg/L) | TBA (µg/L) | MTBE (µg/L) | DIPE (µg/L) | ETBE (µg/L) | TAME (µg/L) | 1,2-DCA (µg/L) | EDB (µg/L) | Footnotes/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 3/20/2003 | <1,000 | 640 | 780 | <5.0 | <5.0 | <5.0 | --- | --- | |
| | 6/23/2003 | <1,000 | <200 | 260 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | |
| | 9/22/2003 | <100 | 250 | 17 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 12/03/2003 | <500 | <100 | 260 | <2.5 | <2.5 | <2.5 | -- | -- | |
| | 03/18/2004 | <500 | <100 | 130 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | |
| | 05/25/2004 | <500 | <100 | 120 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | |
| | 09/22/2004 | <200 | <40 | 140 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | |
| | **12/22/2004** | **<1,000** | **<200** | **74** | **<5.0** | **<5.0** | **<5.0** | **<5.0** | **<5.0** | |
| MW-3 | 3/20/2003 | <100 | <20 | 601 | <0.50 | <0.50 | 1.1 | --- | --- | |
| | 6/23/2003 | <100 | <20 | 5.2 | <0.50 | <0.50 | 0.75 | <0.50 | <0.50 | |
| | 9/22/2003 | <100 | <20 | 3.9 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 03/18/2004 | <100 | <20 | 4.6 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 09/22/2004 | <100 | <20 | 4.7 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| MW-4 | 3/20/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 6/23/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 9/22/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 03/18/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 09/22/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| MW-5 | 3/20/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 6/23/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 9/22/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 03/18/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 09/22/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| MW-6 | 3/20/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 6/23/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 9/22/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 03/18/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 09/22/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| MW-7 | 3/20/2003 | <100 | <20 | 21 | <0.50 | <0.50 | 0.62 | --- | --- | |
| | 6/23/2003 | <100 | 170 | 14 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 9/22/2003 | <100 | 170 | 5.3 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 12/03/2003 | <100 | 85 | 4.2 | <0.50 | <0.50 | <0.50 | -- | -- | |

## Table 2

### Fuel Additives Analytical Data

ARCO Service Station #4494

566 Hegenberger Rd., Oakland, CA

| Well Number | Date Sampled | Ethanol (µg/L) | TBA (µg/L) | MTBE (µg/L) | DIPE (µg/L) | ETBE (µg/L) | TAME (µg/L) | 1,2-DCA (µg/L) | EDB (µg/L) | Footnotes/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| MW-7 | 03/18/2004 | <100 | <20 | 3.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | a |
| | 05/25/2004 | <100 | 43 | 4.1 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 09/22/2004 | <100 | <20 | 2.3 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | **12/22/2004** | **<100** | **34** | **2.7** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | **<0.50** | |
| RW-1 | 3/20/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 6/23/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 9/22/2003 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | --- | --- | |
| | 03/18/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |
| | 09/22/2004 | <100 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | |

## Table 2

### Fuel Additives Analytical Data

ARCO Service Station #4494
566 Hegenberger Rd., Oakland, CA

ABBREVIATIONS AND SYMBOLS:
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
EDB = 1,2-Dibromoethane
ETBE = Ethyl tert butyl ether
MTBE = Methyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
µg/L = micrograms per liter
< = Not detected at or above the laboratory reporting limit
--- = Not analyzed, sampled, available

FOOTNOTES:
a = The continuing calibration verification was outside of client contractual acceptance limits. However, it was within method acceptance limits and should be useful for its intended purpose.

NOTES:
All fuel oxygenate compounds were analyzed using EPA Method 8260B.

## Table 3

### Groundwater Gradient Data

ARCO Service Station #4494
566 Hegenberger Rd., Oakland, CA

| Date Sampled | Approximate Flow Direction | Approximate Hydraulic Gradient |
|---|---|---|
| 6/20/2000 | North-Northeast | 0.015 |
| 9/28/2000 | North | 0.018 |
| 12/17/2000 | North-Northwest | 0.013 |
| 3/28/2001 | Northwest | 0.011 |
| 6/21/2001 | North | 0.017 |
| 9/23/2001 | North | 0.02 |
| 12/31/2001 | North-Northwest | 0.023 |
| 3/14/2002 | North-Northwest | 0.017 |
| 4/14/2002 | Northwest | 0.007 |
| 8/8/2002 | North-Northwest | 0.022 |
| 12/12/2002 | North-Northwest | 0.017 |
| 3/20/2003 | North-Northwest | 0.016 |
| 6/23/2003 | Northwest | 0.014 |
| 9/22/2003 | Northwest | 0.017 |
| 12/3/2003 | Northwest | 0.013 |
| 3/18/2004 | North-Northwest | 0.011 |
| 5/25/2004 | North-Northwest | 0.011 |
| 9/22/2004 | North-Northwest | 0.017 |
| **12/22/2004** | **Northwest** | **0.020** |

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

# 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 # 041222-MD2 Date 12/22/04 Client 4494

Site 566 Higuera Berger Rd., 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 | |
|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 4 | | | | | 6.44 | 22.86 | | |
| MW-3 | 4 | | | | | 9.06 | 17.88 | | |
| MW-4 | 4 | | | | | 7.80 | 16.62 | | |
| MW-5 | 2 | | | | | 6.18 | 16.95 | | |
| MW-6 | 2 | | | | | 5.73 | 18.05 | | |
| MW-7 | 4 | | | | | 7.90 | 13.43 | | |
| RW-1 | 2 | | | | | 7.23 | 11.29 | | |
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# ARCO / BP WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 041222-MW2 | Station # 4494 |
| Sampler: MW | Date: 12/22/04 |
| Well I.D.: MW-1 | Well Diameter: 2 3 (4) 6 8 ___ |
| Total Well Depth: 22.86 | Depth to Water: 6.44 |
| 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 / Positive Air Displacement / (Electric Submersible) / Extraction Pump / Other: ___

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

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

10.7 (1 Case Volume (Gals.)) X 3 (Specified Volumes) = 32.1 (Calculated Volume) Gals.

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| 1109 | 70.3 | 7.5 | 11.28 | 11 | clear |
| 1111 | 69.6 | 7.0 | 16.67 | 22 | clear |
| | drill | dewatered @ | | 26 | DTW = 19.96 |
| 1130 | 69.2 | 6.8 | 21.13 | - | clear |
| | | | | | DTW = 19.21 @ Site Departure |

Did well dewater? (Yes) ~~No~~ Gallons actually evacuated: 26

Sampling Time: 1130 Sampling Date: 12/22/04

Sample I.D.: MW-1 Laboratory: Pace (Sequoia) Other ___

Analyzed for: GRO BTEX MTBE DRO Other: See Scope

| | | | | | |
|---|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | (Post-purge): | 1.7 | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | | mV |

# ARCO / BP WELL MONITORING DATA SHEET

| | |
|---|---|
| BTS #: 04122-MW2 | Station # 4494 |
| Sampler: MM | Date: 12/22/04 |
| Well I.D.: MW-7 | Well Diameter: 2 3 (4) 6 8 ___ |
| Total Well Depth: 13.43 | Depth to Water: 7.90 |
| 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 | radius$^2$ * 0.163 |

Purge Method: Bailer / Disposable Bailer / Positive Air Displacement / (Electric Submersible) / Extraction Pump / Other: ___

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

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

3.6 (1 Case Volume (Gals.)) X 3 (Specified Volumes) = 10.8 (Calculated Volume) Gals.

| Time | Temp (°F) | pH | Conductivity (mS or (µS)) | Gals. Removed | Observations |
|---|---|---|---|---|---|
| 1047 | 64.2 | 7.4 | 3862 | 4 | cloudy, amber color |
| 1048 | 66.2 | 7.1 | 5428 | 8 | cloudy, Amber color |
| 1050 | 68.2 | 7.1 | 12.17 (mS) | 11 | cl |
| 1051 | 68.3 | 7.2 | 12.69 (mS) | 13 | cloudy, Amber color |
| | | | | | |

Did well dewater? Yes (No) Gallons actually evacuated: 13

Sampling Time: 1100 Sampling Date: 12/22/04

Sample I.D.: MW-7 Laboratory: Pace (Sequoia) Other ___

Analyzed for: GRO BTEX MTBE DRO Other: See Sheet

| | | | | | |
|---|---|---|---|---|---|
| D.O. (if req'd): | Pre-purge: | mg/L | Post-purge: | 2.8 | mg/L |
| O.R.P. (if req'd): | Pre-purge: | mV | Post-purge: | | mV |

# Chain of Custody Record

**Project Name:** ARCO 4494 Analytical for QMR sampling

**BP BU/AR Region/Enfos Segment:** BP > Americas > West Coast > Retail > WCBU > CA > Central > 4494 > HistoricalBL

**State or Lead Regulatory Agency:** Alameda County Environmental Health Agency

**Requested Due Date (mm/dd/yy):** 14 DAY TAT

| | | | |
|---|---|---|---|
| On-site Time: | 1000 | Temp: | 53 |
| Off-site Time: | 1140 | Temp: | 55 |
| Sky Conditions: | clear | | |
| Meteorological Events: | | | |
| Wind Speed: | | Direction: | |

| | | |
|---|---|---|
| Lab Name: Sequoia | BP/AR Facility No.: 4494 | Consultant/Contractor: URS |
| Address: 885 Jarvis Drive | BP/AR Facility Address: 566 Hegenberger Rd., Oakland, CA 94621 | Address: 1333 Broadway, Suite 800 |
| Morgan Hill, CA 95037 | Site Lat/Long: 37.745046 / -122.195 | Oakland, CA 94612 |
| Lab PM: Lisa Race | California Global ID No.: T0600100104 | Consultant/Contractor Project No.: 38486573 |
| Tele/Fax: 408.782.8156 / 408.782.6308 | Enfos Project No.: G09JZ-0201 | Consultant/Contractor PM: Scott Robinson |
| BP/AR PM Contact: Paul Supple | Provision or RCOP: Provision | Tele/Fax: 510.874.3280 / 510.874.3268 |
| Address: P.O. Box 6549 | Phase/WBS: 04 - Mon/Remed by Natural Attenuation | Report Type & QC Level: Level 1 with EDF |
| Moraga, CA 94570 | Sub Phase/Task: 03 - Analytical | E-mail EDD To: Donna_Cosper@urscorp.com |
| Tele/Fax: 925.299.8891 / 925.299.8872 | Cost Element: 05 - Subcontracted Costs | Invoice to: Atlantic Richfield Company |

| Lab Bottle Order No: | | | | Matrix | | | | | Preservative | | | | | | Requested Analysis | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item No. | Sample Description | Time | Date | Soil/Solid | Water/Liquid | Air | Laboratory No. | No. of Containers | Unpreserved | $H_2SO_4$ | $HNO_3$ | HCl | Methanol | | GRO/BTEX (8260) | MTBE, TAME, ETBE, DIPE, TBA (8260) | EDB, 1,2-DCA (8260) | Ethanol (8260) | | | | | | | | Sample Point Lat/Long and Comments |
| 1 | MW-1 | 1130 | 12/22/04 | | X | | | 3 | | | | X | | | X | X | X | X | | | | | | | | |
| 2 | MW-7 | 1100 | 12/22/04 | | X | | | 3 | | | | X | | | X | X | X | X | | | | | | | | |
| 3 | TB-4494-122204-1 | | 12/22/04 | | X | | | 2 | | | | | | | | | | | | | | | | | | ON HOLD |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
|---|---|---|---|---|---|---|
| Sampler's Name: John DeJesus | | | | | | |
| Sampler's Company: Blaine Tech Services | | | | | | |
| Shipment Date: | | | | | | |
| Shipment Method: | | | | | | |
| Shipment Tracking No: | | | | | | |

**Special Instructions:**

Custody Seals In Place Yes ___ No ___ Temp Blank Yes ___ No ___ Cooler Temperature on Receipt ___ °F/C Trip Blank Yes ___ No ___

# 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:

94/94

Station #

566 Arroyo Grande Rd., Oakland

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

39

added equip. rinse water 1

any other adjustments

**TOTAL GALS. RECOVERED** 40

loaded onto BTS vehicle # 59

| BTS event # | time | date |
|---|---|---|
| 04122-MW2 | 1140 | 12/22/04 |

signature

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

| REC'D AT | time | date |
|---|---|---|
| BTS | 1600 | 12/22/04 |

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 RM 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

11 January, 2005

Scott Robinson
URS Corporation [Arco]
1333 Broadway, Suite 800
Oakland, CA 94612

RE: ARCO #4494, Oakland, CA
Work Order: MNL0673

Enclosed are the results of analyses for samples received by the laboratory on 12/23/04 18:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Race
Senior Project Manager

CA ELAP Certificate #1210

Sequoia Analytical

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Morgan Hill, CA 95037
(408) 776-9600
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| | | |
|---|---|---|
| URS Corporation [Arco] | Project:ARCO #4494, Oakland, CA | MNL0673 |
| 1333 Broadway, Suite 800 | Project Number:G09JZ-0201 | **Reported:** |
| Oakland CA, 94612 | Project Manager:Scott Robinson | 01/11/05 13:31 |

**ANALYTICAL REPORT FOR SAMPLES**

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| MW-1 | MNL0673-01 | Water | 12/22/04 11:30 | 12/23/04 18:10 |
| MW-7 | MNL0673-02 | Water | 12/22/04 11:00 | 12/23/04 18:10 |
| TB-4494-12232004 | MNL0673-03 | Water | 12/22/04 00:00 | 12/23/04 18:10 |

The carbon range for the TPH-GRO has been changed from C6-C10 to C4-C12. The carbon range for TPH-DRO has been changed from C10-C28 to C10-C36. EPA 8015B has been modified to better meet the requirements of California regulatory agencies.

These samples were received with intact custody seals.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.*

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| | | |
|---|---|---|
| URS Corporation [Arco] | Project: ARCO #4494, Oakland, CA | MNL0673 |
| 1333 Broadway, Suite 800 | Project Number: G09JZ-0201 | **Reported:** |
| Oakland CA, 94612 | Project Manager: Scott Robinson | 01/11/05 13:31 |

## Volatile Organic Compounds by EPA Method 8260B

### Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-1 (MNL0673-01) Water Sampled: 12/22/04 11:30 Received: 12/23/04 18:10** | | | | | | | | | |
| tert-Amyl methyl ether | ND | 5.0 | ug/l | 10 | 5A03007 | 01/03/05 | 01/04/05 | EPA 8260B | |
| Benzene | ND | 5.0 | " | " | " | " | " | " | |
| tert-Butyl alcohol | ND | 200 | " | " | " | " | " | " | |
| Di-isopropyl ether | ND | 5.0 | " | " | " | " | " | " | |
| 1,2-Dibromoethane (EDB) | ND | 5.0 | " | " | " | " | " | " | |
| 1,2-Dichloroethane | ND | 5.0 | " | " | " | " | " | " | |
| Ethanol | ND | 1000 | " | " | " | " | " | " | |
| Ethyl tert-butyl ether | ND | 5.0 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 5.0 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **74** | 5.0 | " | " | " | " | " | " | |
| Toluene | ND | 5.0 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 5.0 | " | " | " | " | " | " | |
| Gasoline Range Organics (C4-C12) | ND | 500 | " | " | " | " | " | " | |
| *Surrogate: 1,2-Dichloroethane-d4* | | *100 %* | *78-129* | | " | " | " | " | |
| **MW-7 (MNL0673-02) Water Sampled: 12/22/04 11:00 Received: 12/23/04 18:10** | | | | | | | | | |
| tert-Amyl methyl ether | ND | 0.50 | ug/l | 1 | 5A03007 | 01/03/05 | 01/04/05 | EPA 8260B | |
| Benzene | ND | 0.50 | " | " | " | " | " | " | |
| **tert-Butyl alcohol** | **34** | 20 | " | " | " | " | " | " | |
| Di-isopropyl ether | ND | 0.50 | " | " | " | " | " | " | |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | " | " | " | " | " | " | |
| 1,2-Dichloroethane | ND | 0.50 | " | " | " | " | " | " | |
| Ethanol | ND | 100 | " | " | " | " | " | " | |
| Ethyl tert-butyl ether | ND | 0.50 | " | " | " | " | " | " | |
| Ethylbenzene | ND | 0.50 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **2.7** | 0.50 | " | " | " | " | " | " | |
| Toluene | ND | 0.50 | " | " | " | " | " | " | |
| Xylenes (total) | ND | 0.50 | " | " | " | " | " | " | |
| Gasoline Range Organics (C4-C12) | ND | 50 | " | " | " | " | " | " | |
| *Surrogate: 1,2-Dichloroethane-d4* | | *96 %* | *78-129* | | " | " | " | " | |



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| | | |
|---|---|---|
| URS Corporation [Arco] | Project:ARCO #4494, Oakland, CA | MNL0673 |
| 1333 Broadway, Suite 800 | Project Number:G09JZ-0201 | **Reported:** |
| Oakland CA, 94612 | Project Manager:Scott Robinson | 01/11/05 13:31 |

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

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 5A03007 - EPA 5030B P/T / EPA 8260B** | | | | | | | | | | |
| **Blank (5A03007-BLK1)** | | | | Prepared & Analyzed: 01/03/05 | | | | | | |
| tert-Amyl methyl ether | ND | 0.50 | ug/l | | | | | | | |
| Benzene | ND | 0.50 | " | | | | | | | |
| tert-Butyl alcohol | ND | 20 | " | | | | | | | |
| Di-isopropyl ether | ND | 0.50 | " | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | " | | | | | | | |
| 1,2-Dichloroethane | ND | 0.50 | " | | | | | | | |
| Ethanol | ND | 100 | " | | | | | | | IC |
| Ethyl tert-butyl ether | ND | 0.50 | " | | | | | | | |
| Ethylbenzene | ND | 0.50 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 0.50 | " | | | | | | | |
| Toluene | ND | 0.50 | " | | | | | | | |
| Xylenes (total) | ND | 0.50 | " | | | | | | | |
| Gasoline Range Organics (C4-C12) | ND | 50 | " | | | | | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *4.89* | | " | *5.00* | | *98* | *78-129* | | | |
| **Laboratory Control Sample (5A03007-BS1)** | | | | Prepared & Analyzed: 01/03/05 | | | | | | |
| tert-Amyl methyl ether | 10.4 | 0.50 | ug/l | 10.0 | | 104 | 82-140 | | | |
| Benzene | 9.59 | 0.50 | " | 10.0 | | 96 | 69-124 | | | |
| tert-Butyl alcohol | 50.9 | 20 | " | 50.0 | | 102 | 56-131 | | | |
| Di-isopropyl ether | 10.1 | 0.50 | " | 10.0 | | 101 | 76-130 | | | |
| 1,2-Dibromoethane (EDB) | 10.6 | 0.50 | " | 10.0 | | 106 | 77-132 | | | |
| 1,2-Dichloroethane | 10.4 | 0.50 | " | 10.0 | | 104 | 77-136 | | | |
| Ethanol | 154 | 100 | " | 200 | | 77 | 31-143 | | | IC |
| Ethyl tert-butyl ether | 9.97 | 0.50 | " | 10.0 | | 100 | 81-121 | | | |
| Ethylbenzene | 10.5 | 0.50 | " | 10.0 | | 105 | 84-132 | | | |
| Methyl tert-butyl ether | 10.7 | 0.50 | " | 10.0 | | 107 | 63-137 | | | |
| Toluene | 10.3 | 0.50 | " | 10.0 | | 103 | 78-129 | | | |
| Xylenes (total) | 31.2 | 0.50 | " | 30.0 | | 104 | 83-137 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *4.66* | | " | *5.00* | | *93* | *78-129* | | | |



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| | | |
|---|---|---|
| URS Corporation [Arco] | Project:ARCO #4494, Oakland, CA | MNL0673 |
| 1333 Broadway, Suite 800 | Project Number:G09JZ-0201 | **Reported:** |
| Oakland CA, 94612 | Project Manager:Scott Robinson | 01/11/05 13:31 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

## Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 5A03007 - EPA 5030B P/T / EPA 8260B** | | | | | | | | | | |
| **Laboratory Control Sample (5A03007-BS2)** | | | | Prepared & Analyzed: 01/03/05 | | | | | | |
| Benzene | 5.37 | 0.50 | ug/l | 6.40 | | 84 | 69-124 | | | |
| Ethylbenzene | 7.96 | 0.50 | " | 7.52 | | 106 | 84-132 | | | |
| Methyl tert-butyl ether | 9.58 | 0.50 | " | 9.92 | | 97 | 63-137 | | | |
| Toluene | 31.8 | 0.50 | " | 31.9 | | 100 | 78-129 | | | |
| Xylenes (total) | 38.3 | 0.50 | " | 36.6 | | 105 | 83-137 | | | |
| Gasoline Range Organics (C4-C12) | 400 | 50 | " | 440 | | 91 | 70-124 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *4.98* | | " | *5.00* | | *100* | *78-129* | | | |
| **Laboratory Control Sample Dup (5A03007-BSD1)** | | | | Prepared & Analyzed: 01/03/05 | | | | | | |
| tert-Amyl methyl ether | 10.7 | 0.50 | ug/l | 10.0 | | 107 | 82-140 | 3 | 20 | |
| Benzene | 10.4 | 0.50 | " | 10.0 | | 104 | 69-124 | 8 | 20 | |
| tert-Butyl alcohol | 52.0 | 20 | " | 50.0 | | 104 | 56-131 | 2 | 20 | |
| Di-isopropyl ether | 10.3 | 0.50 | " | 10.0 | | 103 | 76-130 | 2 | 20 | |
| 1,2-Dibromoethane (EDB) | 11.6 | 0.50 | " | 10.0 | | 116 | 77-132 | 9 | 20 | |
| 1,2-Dichloroethane | 10.6 | 0.50 | " | 10.0 | | 106 | 77-136 | 2 | 20 | |
| Ethanol | 187 | 100 | " | 200 | | 94 | 31-143 | 19 | 20 | |
| Ethyl tert-butyl ether | 9.92 | 0.50 | " | 10.0 | | 99 | 81-121 | 0.5 | 20 | |
| Ethylbenzene | 10.8 | 0.50 | " | 10.0 | | 108 | 84-132 | 3 | 20 | |
| Methyl tert-butyl ether | 10.5 | 0.50 | " | 10.0 | | 105 | 63-137 | 2 | 20 | |
| Toluene | 11.2 | 0.50 | " | 10.0 | | 112 | 78-129 | 8 | 20 | |
| Xylenes (total) | 32.9 | 0.50 | " | 30.0 | | 110 | 83-137 | 5 | 20 | |
| *Surrogate: 1,2-Dichloroethane-d4* | *4.63* | | " | *5.00* | | *93* | *78-129* | | | |
| **Matrix Spike (5A03007-MS1)** | **Source: MNL0673-01** | | | Prepared & Analyzed: 01/03/05 | | | | | | |
| Benzene | 55.4 | 5.0 | ug/l | 64.0 | ND | 87 | 69-124 | | | |
| Ethylbenzene | 83.7 | 5.0 | " | 75.2 | ND | 111 | 84-132 | | | |
| Methyl tert-butyl ether | 161 | 5.0 | " | 99.2 | 74 | 88 | 63-137 | | | |
| Toluene | 361 | 5.0 | " | 319 | ND | 113 | 78-129 | | | |
| Xylenes (total) | 418 | 5.0 | " | 366 | ND | 114 | 83-137 | | | |
| Gasoline Range Organics (C4-C12) | 4380 | 500 | " | 4400 | 170 | 96 | 70-124 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | *4.49* | | " | *5.00* | | *90* | *78-129* | | | |



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| | | |
|---|---|---|
| URS Corporation [Arco] | Project: ARCO #4494, Oakland, CA | MNL0673 |
| 1333 Broadway, Suite 800 | Project Number: G09JZ-0201 | **Reported:** |
| Oakland CA, 94612 | Project Manager: Scott Robinson | 01/11/05 13:31 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

## Sequoia Analytical - Morgan Hill

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 5A03007 - EPA 5030B P/T / EPA 8260B** | | | | | | | | | | |
| **Matrix Spike Dup (5A03007-MSD1)** | **Source: MNL0673-01** | | | Prepared & Analyzed: 01/03/05 | | | | | | |
| Benzene | 54.3 | 5.0 | ug/l | 64.0 | ND | 85 | 69-124 | 2 | 20 | |
| Ethylbenzene | 82.6 | 5.0 | " | 75.2 | ND | 110 | 84-132 | 1 | 20 | |
| Methyl tert-butyl ether | 158 | 5.0 | " | 99.2 | 74 | 85 | 63-137 | 2 | 20 | |
| Toluene | 363 | 5.0 | " | 319 | ND | 114 | 78-129 | 0.6 | 20 | |
| Xylenes (total) | 416 | 5.0 | " | 366 | ND | 114 | 83-137 | 0.5 | 20 | |
| Gasoline Range Organics (C4-C12) | 4350 | 500 | " | 4400 | 170 | 95 | 70-124 | 0.7 | 20 | |
| *Surrogate: 1,2-Dichloroethane-d4* | *4.28* | | *"* | *5.00* | | *86* | *78-129* | | | |



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| | | |
|---|---|---|
| URS Corporation [Arco] | Project:ARCO #4494, Oakland, CA | MNL0673 |
| 1333 Broadway, Suite 800 | Project Number:G09JZ-0201 | **Reported:** |
| Oakland CA, 94612 | Project Manager:Scott Robinson | 01/11/05 13:31 |

**Notes and Definitions**

| | |
|---|---|
| IC | Calib. verif. is within method limits but outside contract limits |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.*

# Chain of Custody Record

Page 1 of 1

**Project Name:** ARCO 4494 Analytical for QMR sampling

**BP BU/AR Region/Enfos Segment:** BP > Americas > West Coast > Retail > WCBU > CA > Central > 4494 > HistoricalBL

**State or Lead Regulatory Agency:** Alameda County Environmental Health Agency

**Requested Due Date (mm/dd/yy):** 12/29/04 TAT

| | | | |
|---|---|---|---|
| On-site Time: | 1000 | Temp: | 55 |
| Off-site Time: | 1140 | Temp: | 55 |
| Sky Conditions: | clear | | |
| Meteorological Events: | | | |
| Wind Speed: | | Direction: | |

| | | |
|---|---|---|
| Lab Name: Sequoia | BP/AR Facility No.: 4494 | Consultant/Contractor: URS |
| Address: 885 Jarvis Drive | BP/AR Facility Address: 566 Hegenberger Rd., Oakland, CA 94621 | Address: 1333 Broadway, Suite 800 |
| Morgan Hill, CA 95037 | Site Lat/Long: 37.745046 / -122.195 | Oakland, CA 94612 |
| Lab PM: Lisa Race | California Global ID No.: T0600100104 | Consultant/Contractor Project No.: 38486573 |
| Tele/Fax: 408.782.8156 / 408.782.6308 | Enfos Project No.: G09JZ-0201 | Consultant/Contractor PM: Scott Robinson |
| BP/AR PM Contact: Paul Supple | Provision or RCOP: Provision | Tele/Fax: 510.874.3280 / 510.874.3268 |
| Address: P.O. Box 6549 | Phase/WBS: 04 - Mon/Remed by Natural Attenuation | Report Type & QC Level: Level 1 with EDF |
| Moraga, CA 94570 | Sub Phase/Task: 03 - Analytical | E-mail EDD To: Donna_Cosper@urscorp.com |
| Tele/Fax: 925.299.8891 / 925.299.8872 | Cost Element: 05 - Subcontracted Costs | Invoice to: Atlantic Richfield Company |

Lab Bottle Order No:

| Item No. | Sample Description | Time | Date | Matrix: Soil/Solid | Matrix: Water/Liquid | Matrix: Air | Laboratory No. | No. of Containers | Preservative: Unpreserved | Preservative: $H_2SO_4$ | Preservative: $HNO_3$ | Preservative: HCl | Preservative: Methanol | Requested Analysis: GRO/BTEX (8260) | Requested Analysis: MTBE, TAME, ETBE, DIPE, TBA (8260) | Requested Analysis: EDB, 1,2-DCA (8260) | Requested Analysis: Ethanol (8260) | Sample Point Lat/Long and Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-1 | 1130 | 12/22/04 | | X | | 01 | 3 | | | | X | | X | X | X | X | |
| 2 | MW-7 | 1100 | 12/22/04 | | X | | 02 | 3 | | | | X | | X | X | X | X | |
| 3 | TB-4494-12272004 | | 12/22/04 | | X | | 03 | 2 | | | | | | | | | | ON HOLD |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |

MNL-0473

| | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
|---|---|---|---|---|---|---|
| Sampler's Name: John DeJoy | | | | | | |
| Sampler's Company: Blaine Tech Services | | 12/23 | 1840 | | 12/23/04 | 1000 |
| Shipment Date: | | | | | 12/23/04 | 1810 |
| Shipment Method: | | | | | | |
| Shipment Tracking No: | | | | | | |

Special Instructions:

Seals In Place Yes No Temp Blank Yes No Cooler Temperature on Receipt °F/C Trip Blank Yes No

# SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: ARCO 4444
REC. BY (PRINT): JD
WORKORDER: 0512673

DATE REC'D AT LAB: 12/23/04
TIME REC'D AT LAB: 1840
DATE LOGGED IN: 12-27-04

For Regulatory Purposes?
DRINKING WATER YES / (NO)
WASTE WATER YES / (NO)

(For clients requiring preservation checks at receipt, document here ↓)

| CIRCLE THE APPROPRIATE RESPONSE | LAB SAMPLE # | DASH # | CLIENT ID | CONTAINER DESCRIPTION | PRESERVATIVE | pH | SAMPLE MATRIX | DATE SAMPLED | REMARKS: CONDITION (ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| 1. Custody Seal(s) (Present / Absent) (Intact / Broken*) | 01 | | MW-1 | VOA (3) | HCl | — | W | 12/23/04 | |
| 2. Chain-of-Custody (Present / Absent*) | 02 | | ↓ -7 | ↓ (2) | ↓ | ↓ | ↓ | ↓ | |
| 3. Traffic Reports or Packing List: (Present / Absent) | 03 | | TRIPBLK-122304 | | | | | | |
| 4. Airbill: (Airbill / Sticker) (Present / Absent) | | | | | | | | | |
| 5. Airbill #: | | | | | | | | | |
| 6. Sample Labels: (Present / Absent) | | | | | | | | | |
| 7. Sample IDs: (Listed / Not Listed on Chain-of-Custody) | | | | | | | | | |
| 8. Sample Condition: (Intact / Broken* / Leaking*) | | | | | | | | | |
| 9. Does information on chain-of-custody, traffic reports and sample labels agree? (Yes / No*) | | | | | | | | | |
| 10. Sample received within hold time? (Yes / No*) | | | | | | | | | |
| 11. Adequate sample volume received? (Yes / No*) | | | | | | | | | |
| 12. Proper Preservatives used? (Yes / No*) | | | | | | | | | |
| 13. Trip Blank / Temp Blank Received? (circle which, if yes) (Yes / No*) | | | | | | | | | |
| 14. Temp Rec. at Lab: 3.4 Is temp 4 +/-2°C? (Yes / No**) | | | | | | | | | |

(Acceptance range for samples requiring thermal pres.)

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

12/23/04

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

# ATTACHMENT C
# HISTORICAL GROUNDWATER DATA

Table 2
Liquid Surface Elevation Data

ARCO Service Station 4494
568 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth to Water (feet, TOC) | Depth to Liquid (feet, TOC) | SPH Thickness (feet) | Liquid Surface Elevation (feet, MSL) |
|---|---|---|---|---|---|---|
| MW-1 | 06/06/90 | 105.31 | 6.65 | 6.65 | 0.00 | 98.66 |
| | 08/16/90 | | 7.00 | 7.00 | 0.00 | 98.31 |
| | 08/21/90 | | 7.05 | 7.05 | 0.00 | 98.26 |
| | 09/07/90 | | 7.24 | 7.24 | 0.00 | 98.07 |
| | 11/20/90 | | 7.46 | 7.46 | 0.00 | 97.85 |
| | 11/29/90 | | 7.40 | 7.40 | 0.00 | 97.91 |
| | 12/19/90 | | 6.99 | 6.99 | 0.00 | 98.32 |
| | 01/29/91 | | 7.23 | 7.23 | 0.00 | 98.08 |
| | 02/27/91 | | 7.45 | 7.45 | 0.00 | 97.86 |
| | 03/07/91 | | 6.96 | 6.96 | 0.00 | 98.35 |
| | 03/26/91 | | 6.02 | 6.02 | 0.00 | 99.29 |
| | 05/02/91 | | 7.04 | 7.04 | 0.00 | 98.27 |
| | 06/27/91 | | 6.71 | 6.71 | 0.00 | 98.60 |
| | 07/24/91 | | 6.91 | 6.91 | 0.00 | 98.40 |
| | 08/22/91 | | 6.85 | 6.85 | 0.00 | 98.46 |
| | 09/30/91 | | 7.04 | 7.04 | 0.00 | 98.27 |
| | 10/17/91 | | 7.22 | 7.22 | 0.00 | 98.09 |
| | 11/21/91 | | 7.17 | 7.17 | 0.00 | 98.14 |
| | 12/18/91 | | 7.46 | 7.46 | 0.00 | 97.85 |
| | 01/19/92 | | 7.44 | 7.44 | 0.00 | 97.87 |
| | 02/20/92 | | 6.25 | 6.25 | 0.00 | 99.06 |
| | 03/20/92 | | 6.40 | 6.40 | 0.00 | 98.91 |
| | 04/20/92 | | 6.88 | 6.88 | 0.00 | 98.43 |
| | 05/19/92 | | 7.10 | 7.10 | 0.00 | 98.21 |
| | 06/08/92 | | 7.22 | 7.22 | 0.00 | 98.09 |
| | 07/15/92 | 106.10 | 7.92 | 7.92 | 0.00 | 97.39 |
| | 08/05/92 | | 7.29 | 7.29 | 0.00 | 98.81 |
| | 10/29/92 | | 7.34 | 7.34 | 0.00 | 98.76 |
| | 11/23/92 | | 8.15 | 8.15 | 0.00 | 97.95 |
| | 08/16/93 | | 7.23 | 7.23 | 0.00 | 98.87 |
| | 11/17/93 | | 7.51 | 7.51 | 0.00 | 98.59 |
| | 02/21/94 | | 6.56 | 6.56 | 0.00 | 99.54 |
| | 05/11/94 | | 6.57 | 6.57 | 0.00 | 99.53 |
| | 08/12/94 | | 7.12 | 7.12 | 0.00 | 98.98 |
| | 11/17/94 | | 6.85 | 6.85 | 0.00 | 99.28 |
| | 02/22/95 | | 7.35 | 7.35 | 0.00 | 98.75 |
| | 05/24/95 | | 7.07 | 7.07 | 0.00 | 99.03 |
| | 08/23/95 | | 7.10 | 7.10 | 0.00 | 99.00 |
| | 11/17/95 | | 7.72 | 7.72 | 0.00 | 98.38 |
| MW-2 | 06/06/90 | 105.78 | 9.92* | 9.00 | 0.92 | 95.66 |
| | 08/16/90 | | NM | NM | 0.17 | NM |
| | 08/21/90 | | NM | NM | 0.17 | NM |
| | 09/07/90 | | 9.34* | 9.17 | 0.17 | 96.44 |
| | 11/20/90 | | 9.20* | 9.2 | Sheen | 96.58 |
| | 11/29/90 | | 9.92* | 9.92 | Sheen | 95.86 |
| | 12/19/90 | | 8.95 | 8.95 | 0.00 | 96.83 |
| | 01/29/91 | | 9.01 | 9.01 | Sheen | 96.77 |
| | 02/27/91 | | 9.14 | 9.14 | Sheen | 96.64 |
| | 03/07/91 | | 8.94 | 8.94 | Sheen | 96.84 |
| | 03/26/91 | | 8.11 | 8.11 | Sheen | 97.67 |
| | 05/02/91 | | 8.72 | 8.72 | 0 | 97.06 |

Table 2 (continued)
Liquid Surface Elevation Data

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth to Water (feet, TOC) | Depth to Liquid (feet, TOC) | SPH Thickness (feet) | Liquid Surface Elevation (feet, MSL) |
|---|---|---|---|---|---|---|
| MW-2 | 05/27/91 | | 9.20 | 9.2 | Sheen | 96.58 |
| (cont.) | 07/24/91 | | 9.25 | 9.25 | 0.00 | 96.53 |
| | 08/22/91 | | 9.20 | 9.20 | 0.00 | 96.58 |
| | 09/30/91 | | 9.31 | 9.31 | Sheen | 96.47 |
| | 10/17/91 | | 9.39 | 9.39 | Sheen | 96.39 |
| | 11/21/91 | | 9.20 | 9.2 | 0 | 96.58 |
| | 12/18/91 | | 9.23 | 9.23 | Sheen | 96.55 |
| | 01/19/92 | | 9.96** | 9.96 | Skimmer | 95.82 |
| | 02/20/92 | | 9.13** | 9.13 | Skimmer | 96.65 |
| | 03/20/92 | | 9.31** | 9.31 | Skimmer | 96.47 |
| | 04/20/92 | | 9.69 | 9.69 | Skimmer | 96.09 |
| | 05/19/92 | | 9.92 | 9.92 | Skimmer | 95.86 |
| | 06/08/92 | | 9.84 | 9.84 | Skimmer | 95.94 |
| | 07/15/92 | | 10.19 | 10.19 | Skimmer | 95.59 |
| | 08/06/92 | 106.57 | 10.05 | 10.05 | Skimmer | 96.52 |
| | 10/29/92 | | 10.00 | 10.00 | Skimmer | 96.57 |
| | 11/23/92 | | 9.88 | 9.87 | 0.01 | 96.69 |
| | 12/06/92 | | ---------- | Well Destroyed | ---------- | |
| MW-3 | 08/16/90 | 105.51 | 8.87 | 8.87 | 0.00 | 96.64 |
| | 08/21/90 | | 8.85 | 8.85 | 0.00 | 96.66 |
| | 09/07/90 | | 8.98 | 8.98 | 0.00 | 96.53 |
| | 11/20/90 | | 9.10 | 9.10 | 0.00 | 96.41 |
| | 11/29/90 | | 9.06 | 9.06 | 0.00 | 96.45 |
| | 12/19/90 | | 8.67 | 8.67 | 0.00 | 96.84 |
| | 01/29/91 | | 8.96 | 8.96 | 0.00 | 96.55 |
| | 02/27/91 | | 8.71 | 8.71 | 0.00 | 96.80 |
| | 03/07/91 | | 8.49 | 8.49 | 0.00 | 97.02 |
| | 03/28/91 | | 7.85 | 7.85 | 0.00 | 97.66 |
| | 05/02/91 | | 8.62 | 8.62 | 0.00 | 96.89 |
| | 05/27/91 | | 8.94 | 8.94 | 0.00 | 96.57 |
| | 07/24/91 | | 8.96 | 8.96 | 0.00 | 96.55 |
| | 08/22/91 | | 8.92 | 8.92 | 0.00 | 96.59 |
| | 09/30/91 | | 9.04 | 9.04 | 0.00 | 96.47 |
| | 10/17/91 | | 9.12 | 9.12 | 0.00 | 96.39 |
| | 11/21/91 | | 8.92 | 8.92 | 0.00 | 96.59 |
| | 12/18/91 | | 8.97 | 8.97 | 0.00 | 96.54 |
| | 01/19/92 | | 8.69 | 8.69 | 0.00 | 96.82 |
| | 02/20/92 | | 7.78 | 7.78 | 0.00 | 97.73 |
| | 03/20/92 | | 8.15 | 8.15 | 0.00 | 97.36 |
| | 04/20/92 | | 8.57 | 8.57 | 0.00 | 96.94 |
| | 05/19/92 | | 8.76 | 8.76 | 0.00 | 96.75 |
| | 06/08/92 | | 8.74 | 8.74 | 0.00 | 96.77 |
| | 07/15/92 | | 9.12 | 9.12 | 0.00 | 96.39 |
| | 08/06/92 | 106.29 | 8.95 | 8.95 | 0.00 | 97.34 |
| | 10/29/92 | | 8.78 | 8.78 | 0.00 | 97.51 |
| | 11/23/92 | | 8.91 | 8.91 | 0.00 | 96.38 |
| | 08/16/93 | | 8.62 | 8.62 | 0.00 | 97.67 |
| | 11/17/93 | | 8.72 | 8.72 | 0.00 | 97.57 |
| | 02/21/94 | | 7.91 | 7.91 | 0.00 | 98.38 |
| | 05/11/94 | | 8.09 | 8.09 | 0.00 | 98.20 |

Table 2 (continued)
Liquid Surface Elevation Data

ARCO Service Station 4494
668 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth to Water (feet, TOC) | Depth to Liquid (feet, TOC) | SPH Thickness (feet) | Liquid Surface Elevation (feet, MSL) |
|---|---|---|---|---|---|---|
| MW-3 | 08/12/94 | | 8.78 | 8.78 | 0.00 | 97.51 |
| (cont.) | 11/17/94 | | 8.45 | 8.45 | 0.00 | 97.84 |
| | 02/22/95 | | 8.95 | 8.95 | 0.00 | 97.34 |
| | 05/24/95 | | 8.57 | 8.57 | 0.00 | 97.62 |
| | 08/23/95 | | 9.17 | 9.17 | 0.00 | 97.12 |
| | 11/17/95 | | 9.39 | 9.39 | 0.00 | 96.90 |
| MW-4 | 08/16/90 | 106.61 | 8.16 | 8.16 | 0.00 | 98.45 |
| | 08/21/90 | | 8.22 | 8.22 | 0.00 | 98.39 |
| | 09/07/90 | | 8.39 | 8.39 | 0.00 | 98.22 |
| | 11/20/90 | | 8.57 | 8.57 | 0.00 | 98.04 |
| | 11/29/90 | | 8.53 | 8.53 | 0.00 | 98.08 |
| | 12/19/90 | | 8.13 | 8.13 | 0.00 | 98.48 |
| | 01/29/91 | | 8.66 | 8.66 | 0.00 | 97.95 |
| | 02/27/91 | | 8.44 | 8.44 | 0.00 | 98.17 |
| | 03/07/91 | | 8.18 | 8.18 | 0.00 | 98.43 |
| | 03/26/91 | | 7.56 | 7.56 | 0.00 | 99.05 |
| | 05/02/91 | | 8.25 | 8.25 | 0.00 | 98.36 |
| | 06/27/91 | | 7.75 | 7.75 | 0.00 | 98.86 |
| | 07/24/91 | | 8.12 | 8.12 | 0.00 | 98.49 |
| | 08/22/91 | | 7.96 | 7.96 | 0.00 | 98.63 |
| | 09/30/91 | | 8.26 | 8.26 | 0.00 | 98.35 |
| | 10/17/91 | | 8.42 | 8.42 | 0.00 | 98.19 |
| | 11/21/91 | | 8.65 | 8.65 | 0.00 | 97.96 |
| | 12/18/91 | | 8.77 | 8.77 | 0.00 | 97.84 |
| | 01/19/92 | | 8.42 | 8.42 | 0.00 | 98.19 |
| | 02/20/92 | | 7.60 | 7.60 | 0.00 | 99.01 |
| | 03/20/92 | | 7.61 | 7.61 | 0.00 | 99.00 |
| | 04/20/92 | | 8.15 | 8.15 | 0.00 | 98.46 |
| | 05/19/92 | | 8.14 | 8.14 | 0.00 | 98.47 |
| | 06/08/92 | | 8.40 | 8.40 | 0.00 | 98.21 |
| | 07/15/92 | | 8.72 | 8.72 | 0.00 | 97.89 |
| | 08/06/92 | 107.40 | 8.52 | 8.52 | 0.00 | 98.88 |
| | 10/29/92 | | 8.63 | 8.63 | 0.00 | 98.77 |
| | 11/23/92 | | 8.75 | 8.75 | 0.00 | 98.65 |
| | 08/16/93 | | 8.69 | 8.69 | 0.00 | 98.71 |
| | 11/17/93 | | 9.11 | 9.11 | 0.00 | 98.29 |
| | 02/21/94 | | 8.16 | 8.16 | 0.00 | 99.24 |
| | 05/11/94 | | 8.29 | 8.29 | 0.00 | 99.11 |
| | 08/12/94 | | 8.75 | 8.75 | 0.00 | 98.65 |
| | 11/17/94 | | 8.40 | 8.40 | 0.00 | 99.00 |
| | 02/22/95 | | 8.72 | 8.72 | 0.00 | 98.68 |
| | 05/24/95 | | 8.63 | 8.63 | 0.00 | 98.77 |
| | 08/23/95 | | 8.50 | 8.50 | 0.00 | 100.90 |
| | 11/17/95 | | 9.15 | 9.15 | 0.00 | 98.25 |
| MW-5 | 08/06/92 | 105.19 | 7.19 | 7.19 | 0.00 | 98.00 |
| | 10/29/92 | | 6.99 | 6.99 | 0.00 | 98.20 |
| | 11/23/92 | | 6.90 | 6.90 | 0.00 | 98.29 |
| | 08/16/93 | | 7.06 | 7.06 | 0.00 | 98.13 |
| | 11/17/93 | | 6.91 | 6.91 | 0.00 | 98.28 |
| | 02/21/94 | | 5.52 | 5.52 | 0.00 | 99.67 |
| | 05/11/94 | | 6.18 | 6.18 | 0.00 | 99.01 |
| | 08/12/94 | | 6.81 | 6.81 | 0.00 | 98.38 |
| | 11/17/94 | | 5.38 | 5.38 | 0.00 | 99.81 |
| | 02/22/95 | | 6.25 | 6.25 | 0.00 | 98.94 |

Table 2 (continued)
Liquid Surface Elevation Data

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth to Water (feet, TOC) | Depth to Liquid (feet, TOC) | SPH Thickness (feet) | Liquid Surface Elevation (feet, MSL) |
|---|---|---|---|---|---|---|
| | 05/24/95 | | 6.30 | 6.30 | 0.00 | 98.89 |
| MW-5 | 08/23/95 | | 6.90 | 6.90 | 0.00 | 98.29 |
| (cont.) | 11/17/95 | | 7.02 | 7.02 | 0.00 | 98.17 |
| | 08/06/92 | 105.07 | 7.01 | 7.01 | 0.00 | 98.06 |
| MW-6 | 10/29/92 | | 6.70 | 6.70 | 0.00 | 98.37 |
| | 11/23/92 | | 6.75 | 6.75 | 0.00 | 98.32 |
| | 08/16/93 | | 6.71 | 6.71 | 0.00 | 98.36 |
| | 11/17/93 | | 6.67 | 6.67 | 0.00 | 98.40 |
| | 02/21/94 | | 5.31 | 5.31 | 0.00 | 99.76 |
| | 05/11/94 | | 5.98 | 5.98 | 0.00 | 99.09 |
| | 08/12/94 | | 6.60 | 6.60 | 0.00 | 98.47 |
| | 11/17/94 | | 6.09 | 6.09 | 0.00 | 99.98 |
| | 02/22/95 | | 5.85 | 5.85 | 0.00 | 99.22 |
| | 05/24/95 | | 5.92 | 5.92 | 0.00 | 99.15 |
| | 08/23/95 | | 6.50 | 6.50 | 0.00 | 98.57 |
| | 11/17/95 | | 6.75 | 6.75 | 0.00 | 98.32 |
| | 08/06/92 | 105.52 | 8.28 | 8.28 | 0.00 | 97.24 |
| | 10/29/92 | | 8.62 | 8.62 | 0.00 | 96.90 |
| | 11/23/92 | | 8.21 | 8.21 | 0.00 | 97.31 |
| | 08/16/93 | | 8.11 | 8.11 | 0.00 | 97.41 |
| | 11/17/93 | | 8.11 | 8.11 | 0.00 | 97.41 |
| | 02/21/94 | | 7.34 | 7.34 | 0.00 | 98.18 |
| | 05/11/94 | | 7.45 | 7.45 | 0.00 | 98.07 |
| | 08/12/94 | | 8.13 | 8.13 | 0.00 | 97.39 |
| | 11/17/94 | | 7.90 | 7.90 | 0.00 | 97.62 |
| | 02/22/95 | | 8.40 | 8.40 | 0.00 | 97.12 |
| | 05/24/95 | | 8.29 | 8.29 | 0.00 | 97.23 |
| | 08/23/95 | | 8.60 | 8.60 | 0.00 | 96.92 |
| | 11/17/95 | | 8.73 | 8.73 | 0.00 | 96.79 |
| | 08/16/93 | NM | Well Dry | | | |
| RW-1 | 11/17/93 | | Well Dry | | | |
| | 02/21/94 | | 7.69 | 7.69 | 0.00 | NM |
| | 05/11/94 | | 7.96 | 7.96 | 0.00 | NM |
| | 08/12/94 | | 7.58 | 7.58 | 0.00 | NM |
| | 11/17/94 | | 7.66 | 7.66 | 0.00 | NM |
| | 02/22/95 | | 8.00 | 8.00 | 0.00 | NM |
| | 05/24/95 | | 8.10 | 8.10 | 0.00 | NM |
| | 08/23/95 | | 8.67 | 8.67 | 0.00 | NM |
| | 11/17/95 | | 9.15 | 9.15 | 0.00 | NM |

MSL = Mean sea level
TOC = Top of casing
* = Separate-phase hydrocarbons present in well.
** = Skimmer installed (12/24/91).
NM = Not measured

Table 3
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Total Oil and Grease)

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Sampled | TPPH as Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Xylenes (ppb) | TEPH as Diesel (ppb) | Total Oil and Grease (ppm) |
|---|---|---|---|---|---|---|---|---|
| MW-1 | 06/19/90 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <5000 |
| | 08/16/90 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 09/07/90 | N/A | N/A | N/A | N/A | N/A | N/A | <5000 |
| | 11/29/90 | <50 | <0.50 | 0.7 | <0.50 | <0.50 | N/A | N/A |
| | 03/07/91 | <50 | <0.30 | <0.30 | <0.30 | <0.30 | N/A | N/A |
| | 06/27/91 | <50 | <0.30 | <0.30 | <0.30 | <0.30 | N/A | N/A |
| | 09/30/91 | <50 | <0.30 | <0.30 | <0.30 | <0.30 | N/A | N/A |
| | 12/18/91 | <50 | <0.30 | <0.30 | <0.30 | <0.30 | N/A | N/A |
| | 03/20/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 06/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 10/29/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/16/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 05/11/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/12/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/95 | Well Sampled Annually | | | | | | |
| | 05/24/95 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/23/95 | Well Sampled Annually | | | | | | |
| | 11/17/95 | Well Sampled Annually | | | | | | |
| MW-2 | 06/19/90 | 0.92 foot of Separate-Phase Hydrocarbons | | | | | | |
| | 08/16/90 | 0.17 foot of Separate-Phase Hydrocarbons | | | | | | |
| | 09/07/90 | Separate-Phase Hydrocarbons | | | | | | |
| | 11/29/90 | Separate-Phase Hydrocarbons | | | | | | |
| | 03/07/91 | Separate-Phase Hydrocarbons | | | | | | |
| | 06/27/91 | Separate-Phase Hydrocarbons | | | | | | |
| | 09/30/91 | Separate-Phase Hydrocarbons | | | | | | |
| | 12/18/91 | Separate-Phase Hydrocarbons | | | | | | |
| | 03/20/92 | 48,000 | 2,000 | 530 | 2,300 | 7,000 | N/A | N/A |
| | 06/08/92 | 43,000 | 2,900 | 940 | 240 | 5,100 | N/A | N/A |
| | 08/08/92 | 76,000 | 2,500 | 6,700 | 2,900 | 16,000 | N/A | N/A |
| | 10/29/92 | NS | NS | NS | NS | NS | NS | NS |
| | 12/08/92 | Well Destroyed | | | | | | |
| MW-3 | 06/19/90 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/16/90 | N/A | N/A | N/A | N/A | N/A | N/A | <5,000 |
| | 09/07/90 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 11/29/90 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 03/07/91 | <50 | <30 | <30 | <30 | <30 | N/A | N/A |
| | 06/27/91 | <30 | <30 | <30 | <30 | <30 | N/A | N/A |
| | 09/30/91 | <30 | <30 | <30 | <30 | <30 | N/A | N/A |
| | 12/18/91 | <30 | <30 | <30 | <30 | <30 | N/A | N/A |
| | 03/20/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 06/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 10/29/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/16/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Total Oil and Grease)

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Sampled | TPPH as Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Xylenes (ppb) | TEPH as Diesel (ppb) | Total Oil and Grease (ppm) |
|---|---|---|---|---|---|---|---|---|
| MW-3 | 02/22/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| (cont.) | 05/11/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/12/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/95 | Well Sampled Annually | | | | | | |
| | 05/24/95 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/23/95 | Well Sampled Annually | | | | | | |
| | 11/17/95 | Well Sampled Annually | | | | | | |
| MW-4 | 08/16/90 | <20 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 09/07/90 | N/A | N/A | N/A | N/A | N/A | N/A | <5,000 |
| | 11/29/90 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 03/07/91 | <50 | <0.30 | <0.30 | <0.30 | <0.30 | N/A | N/A |
| | 06/27/91 | <50 | 0.75 | 1.1 | <0.30 | 1.6 | N/A | N/A |
| | 09/30/91 | <50 | <0.30 | <0.30 | <0.30 | <0.30 | N/A | N/A |
| | 12/16/91 | <50 | 0.53 | 1.2 | <0.30 | 0.68 | N/A | N/A |
| | 03/20/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 06/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 10/29/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/16/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 05/11/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/12/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/95 | Well Sampled Annually | | | | | | |
| | 05/24/95 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/23/95 | Well Sampled Annually | | | | | | |
| | 11/17/95 | Well Sampled Annually | | | | | | |
| MW-5 | 08/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 10/29/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/16/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 05/11/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/12/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/95 | Well Sampled Annually | | | | | | |
| | 05/24/95 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/23/95 | Well Sampled Annually | | | | | | |
| | 11/17/95 | Well Sampled Annually | | | | | | |
| MW-6 | 08/08/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 10/29/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/16/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 05/11/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/12/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/95 | Well Sampled Annually | | | | | | |

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Total Oil and Grease)

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Sampled | TPPH as Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Xylenes (ppb) | TEPH as Diesel (ppb) | Total Oil and Grease (ppm) |
|---|---|---|---|---|---|---|---|---|
| MW-6 | 05/24/95 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| (cont.) | 08/23/95 | Well Sampled Annually | | | | | | |
| | 11/17/95 | Well Sampled Annually | | | | | | |
| MW-7 | 08/06/92 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 10/29/92 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 06/16/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/93 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 05/11/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 08/12/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 11/17/94 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | N/A | N/A |
| | 02/22/95 | Well Sampled Annually | | | | | | |
| | 05/24/95 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | N/A | N/A |
| | 08/23/95 | Well Sampled Annually | | | | | | |
| | 11/17/95 | Well Sampled Annually | | | | | | |
| RW-1 | 06/16/93 | NS | NS | NS | NS | NS | NS | NS |
| | 11/17/93 | NS | NS | NS | NS | NS | NS | NS |
| | 02/22/94 | 280 | 2,100 | 19 | 40 | 66 | N/A | N/A |
| | 05/11/94 | 3,300 | 32 | 28 | 87 | 310 | N/A | N/A |
| | 08/12/94 | 4,600 | 42 | 59 | 190 | 400 | N/A | N/A |
| | 11/17/94 | 1,400 | 56 | 21 | 28 | 210 | N/A | N/A |
| | 02/22/95 | 8,100 | 140 | <10 | 550 | 560 | N/A | N/A |
| | 05/24/95 | 940 | 53 | 0.75 | 11 | 1.4 | N/A | N/A |
| | 08/23/95 | 620 | 2.1 | 2.3 | 0.67 | 0.67 | N/A | N/A |
| | 11/17/95 | 1,100 | 7.6 | 21 | 46 | 180 | N/A | N/A |

ppb = Parts per billion
ppm = Parts per million
N/A = Not applicable
NS = Not sampled

Table 4
Groundwater Analytical Data
Total Methl t-Butyl Ether

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

| Well Number | Date Sampled | Methyl t-Butyl Ether (ppb) |
|---|---|---|
| MW-1 | 08/23/95 | NS |
| MW-2 | 08/23/95 | NS |
| MW-3 | 08/23/95 | NS |
| MW-4 | 08/23/95 | NS |
| MW-5 | 08/23/95 | NS |
| MW-6 | 08/23/95 | NS |
| MW-7 | 08/23/95 | NS |
| RW-1 | 08/23/95 | 13 |

ppb = Parts per billion
NS = Not sampled
See certified analytical report for detection limit.

# ATTACHMENT D

# ERROR CHECK REPORTS AND EDF/GEOWELL SUBMITTAL CONFIRMATIONS

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**SUCCESSFUL GEO_WELL CHECK - NO ERRORS**

| | |
|---|---|
| ORGANIZATION NAME: | URS Corporation-Oakland Office |
| USER NAME: | URSCORP-OAKLAND |
| DATE CHECKED: | 1/14/2005 3:55:11 PM |

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| | |
|---|---|
| **Submittal Title:** | **4Q 2004 QMR Geowell ARCO Site 4494** |
| **Submittal Date/Time:** | **1/14/2005 3:56:08 PM** |
| **Confirmation Number:** | **8837162613** |

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CONTACT SITE ADMINISTRATOR.

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| | |
|---|---|
| ORGANIZATION NAME: | URS Corporation-Oakland Office |
| USER NAME: | URSCORP-OAKLAND |
| DATE CHECKED: | 1/14/2005 3:57:09 PM |
| GLOBAL ID: | T0600100104 |
| FILE UPLOADED: | ARCO#4494-EDF-MNL0673.zip |

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When you complete the submittal process, you will be given a confirmation number for your submittal.

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**ARCO # 04494**
566 HEGENBERGER RD
OAKLAND, CA 94621

**Regional Board - Case #: 01-0112**
SAN FRANCISCO BAY RWQCB (REGION 2) - **(BG)**

**Local Agency (lead agency) - Case #: 3854**
ALAMEDA COUNTY LOP - **(AG)**

## SAMPLE DETECTIONS REPORT

| | |
|---|---|
| # FIELD POINTS SAMPLED | 2 |
| # FIELD POINTS WITH DETECTIONS | 2 |
| # FIELD POINTS WITH WATER SAMPLE DETECTIONS ABOVE MCL | 0 |
| SAMPLE MATRIX TYPES | WATER |

## METHOD QA/QC REPORT

| | |
|---|---|
| METHODS USED | 8260FA |
| TESTED FOR REQUIRED ANALYTES? | N |
| MISSING PARAMETERS NOT TESTED: | |
| - 8260FA REQUIRES DBFM TO BE TESTED | |
| - 8260FA REQUIRES BR4FBZ TO BE TESTED | |
| - 8260FA REQUIRES BZMED8 TO BE TESTED | |
| LAB NOTE DATA QUALIFIERS | Y |

## QA/QC FOR 8021/8260 SERIES SAMPLES

| | |
|---|---|
| TECHNICAL HOLDING TIME VIOLATIONS | 0 |
| METHOD HOLDING TIME VIOLATIONS | 0 |
| LAB BLANK DETECTIONS ABOVE REPORTING DETECTION LIMIT | 0 |
| LAB BLANK DETECTIONS | 0 |
| DO ALL BATCHES WITH THE 8021/8260 SERIES INCLUDE THE FOLLOWING? | |
| - LAB METHOD BLANK | Y |
| - MATRIX SPIKE | Y |
| - MATRIX SPIKE DUPLICATE | Y |

| | |
|---|---|
| - BLANK SPIKE | Y |
| - SURROGATE SPIKE | Y |

**WATER SAMPLES FOR 8021/8260 SERIES**

| | |
|---|---|
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135% | Y |
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30% | Y |
| SURROGATE SPIKES % RECOVERY BETWEEN 85-115% | Y |
| BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130% | Y |

**SOIL SAMPLES FOR 8021/8260 SERIES**

| | |
|---|---|
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135% | n/a |
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30% | n/a |
| SURROGATE SPIKES % RECOVERY BETWEEN 70-125% | n/a |
| BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130% | n/a |

**FIELD QC SAMPLES**

| SAMPLE | COLLECTED | DETECTIONS > REPDL |
|---|---|---|
| QCTB SAMPLES | N | 0 |
| QCEB SAMPLES | N | 0 |
| QCAB SAMPLES | N | 0 |

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# Electronic Submittal Information

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**Confirmation Number:** 1843670606
**Date/Time of Submittal:** 1/14/2005 3:57:48 PM
**Facility Global ID:** T0600100104
**Facility Name:** ARCO # 04494
**Submittal Title:** 4Q 2004 QMR EDF ARCO Site 4494
**Submittal Type:** GW Monitoring Report

**Click here to view the detections report for this upload.**

**ARCO # 04494**
566 HEGENBERGER RD
OAKLAND, CA 94621

**Regional Board - Case #: 01-0112**
SAN FRANCISCO BAY RWQCB (REGION 2) - **(BG)**
**Local Agency (lead agency) - Case #: 3854**
ALAMEDA COUNTY LOP - **(AG)**

| CONF # | TITLE | QUARTER |
|---|---|---|
| 1843670606 | 4Q 2004 QMR EDF ARCO Site 4494 | Q4 2004 |

| SUBMITTED BY | SUBMIT DATE | STATUS |
|---|---|---|
| Srijesh Thapa | 1/14/2005 | PENDING REVIEW |

## SAMPLE DETECTIONS REPORT

| | |
|---|---|
| # FIELD POINTS SAMPLED | 2 |
| # FIELD POINTS WITH DETECTIONS | 2 |
| # FIELD POINTS WITH WATER SAMPLE DETECTIONS ABOVE MCL | 0 |
| SAMPLE MATRIX TYPES | WATER |

## METHOD QA/QC REPORT

| | |
|---|---|
| METHODS USED | 8260FA |
| TESTED FOR REQUIRED ANALYTES? | N |
| MISSING PARAMETERS NOT TESTED: | |
| - 8260FA REQUIRES DBFM TO BE TESTED | |
| - 8260FA REQUIRES BR4FBZ TO BE TESTED | |
| - 8260FA REQUIRES BZMED8 TO BE TESTED | |
| LAB NOTE DATA QUALIFIERS | Y |

## QA/QC FOR 8021/8260 SERIES SAMPLES

| | |
|---|---|
| TECHNICAL HOLDING TIME VIOLATIONS | 0 |
| METHOD HOLDING TIME VIOLATIONS | 0 |
| LAB BLANK DETECTIONS ABOVE REPORTING DETECTION LIMIT | 0 |
| LAB BLANK DETECTIONS | 0 |
| DO ALL BATCHES WITH THE 8021/8260 SERIES INCLUDE THE FOLLOWING? | |
| - LAB METHOD BLANK | Y |
| - MATRIX SPIKE | Y |
| - MATRIX SPIKE DUPLICATE | Y |
| - BLANK SPIKE | Y |
| - SURROGATE SPIKE | Y |

## WATER SAMPLES FOR 8021/8260 SERIES

| | |
|---|---|
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135% | Y |

| | |
|---|---|
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30% | Y |
| SURROGATE SPIKES % RECOVERY BETWEEN 85-115% | Y |
| BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130% | Y |

**SOIL SAMPLES FOR 8021/8260 SERIES**

| | |
|---|---|
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135% | n/a |
| MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) RPD LESS THAN 30% | n/a |
| SURROGATE SPIKES % RECOVERY BETWEEN 70-125% | n/a |
| BLANK SPIKE / BLANK SPIKE DUPLICATES % RECOVERY BETWEEN 70-130% | n/a |

**FIELD QC SAMPLES**

| SAMPLE | COLLECTED | DETECTIONS > REPDL |
|---|---|---|
| QCTB SAMPLES | N | 0 |
| QCEB SAMPLES | N | 0 |
| QCAB SAMPLES | N | 0 |

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# ATTACHMENT E

# JOINT MONITORING DATA

# WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 (a) | 08/26/1998 | 2,700 | 28 | 55 | 59 | 39 | 33,000 | NA | NA | NA | NA | NA | NA | 10.54 | 7.91 | 2.63 | 1.8 |
| MW-1 (b) | 08/26/1998 | <1,000 | 22 | <10 | <10 | <10 | 17,000 | NA | NA | NA | NA | NA | NA | 10.54 | 7.91 | 2.63 | 2.2 |
| MW-1 | 12/28/1998 | <5,000 | <50.0 | <50.0 | <50.0 | <50.0 | 153,000 | 33,000 | NA | NA | NA | NA | NA | 10.54 | 8.75 | 1.79 | 1.9 |
| MW-1 | 03/29/1999 | <2,000 | <20.0 | <20.0 | <20.0 | <20.0 | 693,000 | NA | NA | NA | NA | NA | NA | 10.54 | 8.32 | 2.22 | 2.0 |
| MW-1 | 06/22/1999 | 20,000 | <200 | <200 | <200 | <200 | 150,000 | NA | NA | NA | NA | NA | NA | 10.54 | 9.05 | 1.49 | 1.7 |
| MW-1 | 09/30/1999 | <2,500 | <25.0 | <25.0 | <25.0 | <25.0 | 30,900 | NA | NA | NA | NA | NA | NA | 10.54 | 8.35 | 2.19 | 2.6 |
| MW-1 | 11/19/1999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10.54 | 9.58 | 0.96 | NA |
| MW-1 | 11/24/1999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10.54 | 9.65 | 0.89 | NA |
| MW-1 | 12/02/1999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10.54 | 9.55 | 0.99 | NA |
| MW-1 | 12/10/1999 | <50.0 | 29.7 | <20.0 | <20.0 | <20.0 | 76,300 | NA | NA | NA | NA | NA | NA | 10.54 | 8.86 | 1.68 | 1.2 |
| MW-1 | 03/02/2000 | <2,500 | <25.0 | <25.0 | <25.0 | <25.0 | 27,600 | NA | NA | NA | NA | NA | NA | 10.54 | 8.83 | 1.71 | 3.2 |
| MW-1 | 06/08/2000 | <2,000 | <20.0 | <20.0 | <20.0 | <20.0 | 59,000 | 67,600 | NA | NA | NA | NA | NA | 10.54 | 7.78 | 2.76 | 1.9 |
| MW-1 | 09/05/2000 | <10,000 | 411 | <100 | <100 | <100 | 71,100 | 115,000e | NA | NA | NA | NA | NA | 10.54 | 7.84 | 2.70 | NA |
| MW-1 | 12/15/2000 | 35,600 | 1,310 | <50.0 | <50.0 | <50.0 | 136,000 | f | NA | NA | NA | NA | NA | 10.54 | 7.65 | 2.89 | NA |
| MW-1 | 03/09/2001 | <10,000 | 1,390 | <100 | <100 | <100 | 89,600 | 164,000 | NA | NA | NA | NA | NA | 10.54 | 6.44 | 4.10 | NA |
| MW-1 | 06/27/2001 | <5,000 | <50 | <50 | <50 | <50 | NA | 19,000 | NA | NA | NA | NA | NA | 10.54 | 8.46 | 2.08 | NA |
| MW-1 | 09/19/2001 | <5,000 | <50 | <50 | <50 | <50 | NA | 52,000 | NA | NA | NA | NA | NA | 10.54 | 8.10 | 2.44 | NA |
| MW-1 | 12/31/2001 | <5,000 | <25 | <25 | <25 | <25 | NA | 17,000 | NA | NA | NA | NA | NA | 10.54 | 7.31 | 3.23 | NA |
| MW-1 | 03/14/2002 | <20,000 | <200 | <200 | <200 | <200 | NA | 60,000 | NA | NA | NA | NA | NA | 10.54 | 7.68 | 2.86 | NA |
| MW-1 | 06/25/2002 | <5,000 | <50 | <50 | <50 | <50 | NA | 34,000 | NA | NA | NA | NA | NA | 10.54 | 8.40 | 2.14 | NA |
| MW-1 | 09/19/2002 | <2,500 | <25 | <25 | <25 | <25 | NA | 18,000 | NA | NA | NA | NA | NA | 10.52 | 8.58 | 1.94 | NA |
| MW-1 | 12/12/2002 | <5,000 | <50 | <50 | <50 | <50 | NA | 30,000 | NA | NA | NA | NA | NA | 10.52 | 8.41 | 2.11 | NA |
| MW-1 | 01/02/2003 | NA | <0.50 | <0.50 | <0.50 | <1.0 | NA | NA | NA | NA | NA | NA | NA | 10.52 | 7.45 | 3.07 | NA |
| MW-1 | 03/20/2003 g | 3,800 | <25 | <25 | <25 | <25 | 5,500 | NA | NA | NA | NA | NA | NA | 10.52 | 8.21 | 2.31 | NA |
| MW-1 | 06/23/2003 | <10,000 | <100 | <100 | <100 | <200 | NA | 35,000 | NA | NA | NA | NA | NA | 10.52 | 9.02 | 1.50 | NA |
| MW-1 | 09/22/2003 | <5,000 | <50 | <50 | <50 | <100 | NA | 15,000 | NA | NA | NA | NA | NA | 10.52 | 15.74 | -5.22 | NA |
| MW-1 | 12/03/2003 | <1,300 | <13 | <13 | <13 | <25 | NA | 3,600 | NA | NA | NA | NA | NA | 10.52 | 18.35 h | NA | NA |
| MW-1 | 03/18/2004 | <250 | <2.5 | <2.5 | <2.5 | <5.0 | NA | 570 | NA | NA | NA | NA | NA | 10.52 | 7.32 | 3.20 | NA |

## WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 05/25/2004 | <250 | <2.5 | <2.5 | <2.5 | <5.0 | NA | 250 | NA | NA | NA | NA | NA | 10.52 | 6.80 | 3.72 | NA |
| MW-1 | 09/22/2004 | <2,000 | <20 | <20 | <20 | <40 | NA | 170 | <80 | <80 | <80 | 20,000 | <2,000 | 10.52 | 6.55 | 3.97 | NA |
| **MW-1** | **12/22/2004** | **<500** | **<5.0** | **<5.0** | **<5.0** | **<10** | **NA** | **57** | **NA** | **NA** | **NA** | **NA** | **NA** | **10.52** | **6.44** | **4.08** | **NA** |
| MW-2 (a) | 08/26/1998 | <250 | 3.2 | <2.5 | <2.5 | <2.5 | 4,000 | NA | NA | NA | NA | NA | NA | 9.21 | 7.18 | 2.03 | 2.4 |
| MW-2 (b) | 08/26/1998 | <250 | 3.1 | <2.5 | <2.5 | <2.5 | 4,800 | NA | NA | NA | NA | NA | NA | 9.21 | 7.18 | 2.03 | 2.7 |
| MW-2 (D)(b) | 08/26/1998 | <250 | 4.8 | <2.5 | <2.5 | 6.0 | 3,300 | NA | NA | NA | NA | NA | NA | 9.21 | 7.18 | 2.03 | 2.7 |
| MW-2 | 12/28/1998 | <50.0 | <0.500 | <0.500 | <0.500 | <0.500 | 28.8 | NA | NA | NA | NA | NA | NA | 9.21 | 7.34 | 1.87 | 2.1 |
| MW-2 | 03/29/1999 | 235 | <0.500 | <0.500 | <0.500 | 3.4 | 101 | NA | NA | NA | NA | NA | NA | 9.21 | 6.85 | 2.36 | 2.0 |
| MW-2 | 06/22/1999 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <2.5 | NA | NA | NA | NA | NA | NA | 9.21 | 7.10 | 2.11 | 1.9 |
| MW-2 | 09/30/1999 | <50.0 | <0.500 | <0.500 | <0.500 | <0.500 | 1,700 | NA | NA | NA | NA | NA | NA | 9.21 | 8.06 | 1.15 | 1.0 |
| MW-2 | 12/10/1999 | <50.0 | <0.500 | <0.500 | <0.500 | <0.500 | <2.50 | NA | NA | NA | NA | NA | NA | 9.21 | 8.61 | 0.60 | 1.4 |
| MW-2 | 03/02/2000 | <500 | 11.5 | <5.00 | <5.00 | <5.00 | 5,280 | NA | NA | NA | NA | NA | NA | 9.21 | 6.33 | 2.88 | 0.4 |
| MW-2 | 06/08/2000 | <50.0 | 0.670 | <0.500 | <0.500 | <0.500 | 3,160 | NA | NA | NA | NA | NA | NA | 9.21 | 6.87 | 2.34 | 1.6 |
| MW-2 | 09/05/2000 | <1,000 | <10.0 | <10.0 | <10.0 | <10.0 | 9,600 | NA | NA | NA | NA | NA | NA | 9.21 | 6.79 | 2.42 | NA |
| MW-2 | 12/15/2000 | <200 | <2.00 | <2.00 | <2.00 | <2.00 | 6,320 | NA | NA | NA | NA | NA | NA | 9.21 | 6.76 | 2.45 | NA |
| MW-2 | 03/09/2001 | <500 | <5.00 | <5.00 | <5.00 | <5.00 | 17,200 | NA | NA | NA | NA | NA | NA | 9.21 | 6.28 | 2.93 | NA |
| MW-2 | 06/27/2001 | <100 | 1.4 | <1.0 | <1.0 | <2.0 | NA | 470 | NA | NA | NA | NA | NA | 9.21 | 7.12 | 2.09 | NA |
| MW-2 | 09/19/2001 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | 330 | NA | NA | NA | NA | NA | 9.21 | 7.17 | 2.04 | NA |
| MW-2 | 12/31/2001 | <100 | <1.0 | <1.0 | <1.0 | <1.0 | NA | 420 | NA | NA | NA | NA | NA | 9.21 | 6.24 | 2.97 | NA |
| MW-2 | 03/14/2002 | <250 | 4.5 | 3.3 | <2.5 | <2.5 | NA | 1,600 | NA | NA | NA | NA | NA | 9.21 | 6.72 | 2.49 | NA |
| MW-2 | 06/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | 110 | NA | NA | NA | NA | NA | 9.21 | 7.23 | 1.98 | NA |
| MW-2 | 09/19/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | 90 | NA | NA | NA | NA | NA | 9.19 | 7.48 | 1.71 | NA |
| MW-2 | 12/12/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | 170 | NA | NA | NA | NA | NA | 9.19 | 7.33 | 1.86 | NA |
| MW-2 | 03/20/2003 g | 56 | <0.50 | <0.50 | <0.50 | <0.50 | 58 | NA | NA | NA | NA | NA | NA | 9.19 | 7.65 | 1.54 | NA |
| MW-2 | 06/23/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 44 | NA | NA | NA | NA | NA | 9.19 | 8.72 | 0.47 | NA |
| MW-2 | 09/22/2003 | <250 | <2.5 | <2.5 | <2.5 | <5.0 | NA | 37 | NA | NA | NA | NA | NA | 9.19 | 8.84 | 0.35 | NA |
| MW-2 | 12/03/2003 | <250 | <2.5 | <2.5 | <2.5 | <5.0 | NA | 99 | NA | NA | NA | NA | NA | 9.19 | 8.95 | 0.24 | NA |

## WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-2 | 03/18/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 24 | NA | NA | NA | NA | NA | 9.19 | 7.19 | 2.00 | NA |
| MW-2 | 05/25/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 53 | NA | NA | NA | NA | NA | 9.19 | 8.40 | 0.79 | NA |
| MW-2 | 09/22/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 24 | <2.0 | <2.0 | <2.0 | 100 | <50 | 9.19 | 7.08 | 2.11 | NA |
| **MW-2** | **12/22/2004** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **NA** | **39** | **NA** | **NA** | **NA** | **NA** | **NA** | **9.19** | **7.09** | **2.10** | **NA** |
| MW-3 (a) | 08/26/1998 | 2,300 | 180 | 330 | <0.50 | 420 | 44,000 | NA | NA | NA | NA | NA | NA | 9.45 | 6.52 | 2.93 | 1.8 |
| MW-3 (b) | 08/26/1998 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 52,000 | 75,000 | NA | NA | NA | NA | NA | 9.45 | 6.52 | 2.93 | 2.3 |
| MW-3 | 12/28/1998 | <5,00 | 139 | <50.0 | <50.0 | <50.0 | 15,100 | NA | NA | NA | NA | NA | NA | 9.45 | 6.73 | 2.72 | 1.7 |
| MW-3 | 03/29/1999 | 52,500 | 5,500 | 6,900 | 1,360 | 6,250 | 508,000 | 630,000 (c) | NA | NA | NA | NA | NA | 9.45 | 6.21 | 3.24 | 2.1 |
| MW-3 | 06/22/1999 | 58,000 | 6,600 | 9,850 | 1,640 | 6,950 | 677,000 | 653,000 | NA | NA | NA | NA | NA | 9.45 | 7.00 | 2.45 | 1.3 |
| MW-3 | 09/30/1999 | 4,360 | 121 | 122 | 36.1 | 647 | 33,700 | 35,600 | NA | NA | NA | NA | NA | 9.45 | 6.84 | 2.61 | 0.6 |
| MW-3 | 11/19/1999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9.45 | 7.93 | 1.52 | NA |
| MW-3 | 11/24/1999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9.45 | 8.25 | 1.20 | NA |
| MW-3 | 12/02/1999 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9.45 | 7.55 | 1.90 | NA |
| MW-3 | 12/10/1999 | 4,220 | 973 | 26.3 | 273 | 584 | 88,200 | NA | NA | NA | NA | NA | NA | 9.45 | 7.28 | 2.17 | 2.5 |
| MW-3 | 03/02/2000 | 65,300 | 5,210 | 10,300 | 2,650 | 15,100 | 56,800 | 59,800e | NA | NA | NA | NA | NA | 9.45 | 5.87 | 3.58 | d |
| MW-3 | 06/08/2000 | 72,700 | 3,570 | 10,200 | 2,100 | 13,400 | 44,400 | NA | NA | NA | NA | NA | NA | 9.45 | 5.32 | 4.13 | 1.1 |
| MW-3 | 09/05/2000 | 26,100 | 959 | 2,910 | 1,090 | 5,640 | 24,000 | NA | NA | NA | NA | NA | NA | 9.45 | 5.60 | 3.85 | NA |
| MW-3 | 12/15/2000 | 5,190 | 438 | 8.39 | 483 | 530 | 19,100 | 11,800f | NA | NA | NA | NA | NA | 9.45 | 6.27 | 3.18 | NA |
| MW-3 | 03/09/2001 | 5,880 | 472 | 42.2 | 392 | 1,290 | 41,800 | NA | NA | NA | NA | NA | NA | 9.45 | 5.71 | 3.74 | NA |
| MW-3 | 06/27/2001 | 9,100 | 330 | 79 | 140 | 1,600 | NA | 31,000 | NA | NA | NA | NA | NA | 9.45 | 6.88 | 2.57 | NA |
| MW-3 | 09/19/2001 | 790 | 14 | 18 | 17 | 67 | NA | 8,100 | NA | NA | NA | NA | NA | 9.45 | 6.70 | 2.75 | NA |
| MW-3 | 12/31/2001 | <5,000 | 220 | <50 | 86 | <50 | NA | 22,000 | NA | NA | NA | NA | NA | 9.45 | 5.92 | 3.53 | NA |
| MW-3 | 03/14/2002 | <2,500 | <25 | <25 | <25 | <25 | NA | 12,000 | NA | NA | NA | NA | NA | 9.45 | 6.25 | 3.20 | NA |
| MW-3 | 06/25/2002 | <10,000 | 160 | <100 | <100 | <100 | NA | 42,000 | NA | NA | NA | NA | NA | 9.45 | 6.65 | 2.80 | NA |
| MW-3 | 09/19/2002 | <10,000 | 650 | <100 | 280 | 360 | NA | 84,000 | NA | NA | NA | NA | NA | 9.45 | 6.51 | 2.94 | NA |
| MW-3 | 12/12/2002 | <10,000 | 170 | <100 | <100 | <100 | NA | 45,000 | NA | NA | NA | NA | NA | 9.45 | 6.97 | 2.48 | NA |
| MW-3 | 01/02/2003 | NA | 59 | <5.0 | 5.3 | <10 | NA | NA | NA | NA | NA | NA | NA | 9.45 | 5.90 | 3.55 | NA |

## WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-3 | 03/20/2003 g | 5,100 | <50 | <50 | <50 | <50 | 4,400 | NA | NA | NA | NA | NA | NA | 9.45 | 6.87 | 2.58 | NA |
| MW-3 | 06/23/2003 | <5,000 | <50 | <50 | <50 | <100 | NA | 8,100 | NA | NA | NA | NA | NA | 9.45 | 13.80 | -4.35 | NA |
| MW-3 | 09/22/2003 | <250 | <2.5 | 4.6 | <2.5 | <5.0 | NA | 470 | NA | NA | NA | NA | NA | 9.45 | 6.31 | 3.14 | NA |
| MW-3 | 12/03/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 180 | NA | NA | NA | NA | NA | 9.45 | 14.77 h | NA | NA |
| MW-3 | 03/18/2004 | <1,000 | 14 | <10 | <10 | <20 | NA | 2,500 | NA | NA | NA | NA | NA | 9.45 | 6.07 | 3.38 | NA |
| MW-3 | 05/25/2004 | 3,900 | <10 | 66 | 23 | 470 | NA | 140 | NA | NA | NA | NA | NA | 9.45 | 14.63 | -5.18 | NA |
| MW-3 | 09/22/2004 | <10,000 | 830 | <100 | 290 | 450 | NA | 28,000 | <400 | <400 | <400 | 13,000 | <10,000 | 9.45 | 4.86 | 4.59 | NA |
| **MW-3** | **12/22/2004** | **94** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **NA** | **84** | **NA** | **NA** | **NA** | **NA** | **NA** | **9.45** | **6.93** | **2.52** | **NA** |
| MW-4 | 09/25/2000 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9.88 | 7.64 | 2.24 | NA |
| MW-4 | 12/15/2000 | <50.0 | <0.500 | <0.500 | <0.500 | <0.500 | <2.50 | NA | NA | NA | NA | NA | NA | 9.88 | 7.55 | 2.33 | NA |
| MW-4 | 03/09/2001 | <50.0 | <0.500 | 0.730 | <0.500 | 0.529 | 3.16 | NA | NA | NA | NA | NA | NA | 9.88 | 7.04 | 2.84 | NA |
| MW-4 | 06/27/2001 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 7.76 | 2.12 | NA |
| MW-4 | 09/19/2001 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 7.69 | 2.19 | NA |
| MW-4 | 12/31/2001 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 7.08 | 2.80 | NA |
| MW-4 | 03/14/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 7.57 | 2.31 | NA |
| MW-4 | 06/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 8.50 | 1.38 | NA |
| MW-4 | 09/19/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 8.22 | 1.66 | NA |
| MW-4 | 12/12/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 8.08 | 1.80 | NA |
| MW-4 | 03/20/2003 g | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | NA | NA | NA | NA | NA | NA | 9.88 | 7.92 | 1.96 | NA |
| MW-4 | 06/23/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | <5.0 | NA | NA | NA | NA | NA | 9.88 | 8.18 | 1.70 | NA |
| MW-4 | 09/22/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 16 | NA | NA | NA | NA | NA | 9.88 | 8.28 | 1.60 | NA |
| MW-4 | 12/03/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 15 | NA | NA | NA | NA | NA | 9.88 | 8.44 | 1.44 | NA |
| MW-4 | 03/18/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 15 | NA | NA | NA | NA | NA | 9.88 | 7.52 | 2.36 | NA |
| MW-4 | 05/25/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 20 | NA | NA | NA | NA | NA | 9.88 | 8.30 | 1.58 | NA |
| MW-4 | 09/22/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 20 | <2.0 | <2.0 | <2.0 | <5.0 | <50 | 9.88 | 7.72 | 2.16 | NA |
| **MW-4** | **12/22/2004** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **NA** | **20** | **NA** | **NA** | **NA** | **NA** | **NA** | **9.88** | **7.32** | **2.56** | **NA** |

## WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-5 | 06/18/2002 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 8.36 | NA | NA |
| MW-5 | 06/25/2002 | <10,000 | <100 | <100 | <100 | <100 | NA | 60,000 | NA | NA | NA | NA | NA | NA | 8.30 | NA | NA |
| MW-5 | 09/19/2002 | <2,000 | <20 | <20 | <20 | <20 | NA | 7,200 | NA | NA | NA | NA | NA | 10.03 | 8.44 | 1.59 | NA |
| MW-5 | 12/12/2002 | <5,000 | <50 | <50 | <50 | <50 | NA | 33,000 | NA | NA | NA | NA | NA | 10.03 | 8.49 | 1.54 | NA |
| MW-5 | 03/20/2003 g | 12,000 | <50 | <50 | <50 | <50 | 15,000 | NA | NA | NA | NA | NA | NA | 10.03 | 8.23 | 1.80 | NA |
| MW-5 | 06/23/2003 | <1,000 | <10 | <10 | <10 | <20 | NA | 1,700 | NA | NA | NA | NA | NA | 10.03 | 16.70 | -6.67 | NA |
| MW-5 | 09/22/2003 | <2,500 | <25 | <25 | <25 | <50 | NA | 4,400 | NA | NA | NA | NA | NA | 10.03 | 16.70 | -6.67 | NA |
| MW-5 | 12/03/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 70 | NA | NA | NA | NA | NA | 10.03 | 16.79 | -6.76 | NA |
| MW-5 | 03/18/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 43 | NA | NA | NA | NA | NA | 10.03 | 16.78 | -6.75 | NA |
| MW-5 | 05/25/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 30 | NA | NA | NA | NA | NA | 10.03 | 13.02 | -2.99 | NA |
| MW-5 | 09/22/2004 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 20 | <2.0 | <2.0 | <2.0 | 83 | <50 | 10.03 | 5.91 | 4.12 | NA |
| **MW-5** | **12/22/2004** | **<50** | **<0.50** | **<0.50** | **<0.50** | **<1.0** | **NA** | **67** | **NA** | **NA** | **NA** | **NA** | **NA** | **10.03** | **5.72** | **4.31** | **NA** |
| C-1 | 09/19/2001 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | NA | 1.44 | NA | NA |
| C-1 | 03/29/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | NA | 2.59 | NA | NA |
| C-1 | 06/25/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | NA | 3.72 | NA | NA |
| C-1 | 09/19/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | NA | 3.08 | NA | NA |
| C-1 | 12/12/2002 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | NA | <5.0 | NA | NA | NA | NA | NA | NA | 0.64 | NA | NA |
| C-1 | 03/20/2003 g | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <5.0 | NA | NA | NA | NA | NA | NA | NA | 4.61 | NA | NA |
| SD-1 | 09/19/2001 | Unable to sample | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-1 | 03/29/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-1 | 06/25/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-1 | 09/19/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-1 | 12/12/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-1 | 03/20/2003 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-2 | 09/19/2001 | Unable to sample | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

## WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SD-2 | 03/29/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-2 | 06/25/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-2 | 09/19/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-2 | 12/12/2002 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SD-2 | 03/20/2003 | Dry | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BW-A | 06/22/1999 | 318 | <0.50 | <0.50 | 0.590 | 1.48 | 4,470 | NA | NA | NA | NA | NA | NA | NA | 4.71 | NA | 1.1 |
| BW-A | 06/25/2002 | <500 | <5.0 | <5.0 | <5.0 | 18 | NA | 3,100 | NA | NA | NA | NA | NA | NA | 5.14 | NA | NA |
| BW-A | 09/19/2002 | <200 | <2.0 | <2.0 | <2.0 | <2.0 | NA | <20 | NA | NA | NA | NA | NA | NA | 7.19 | NA | NA |
| BW-A | 12/12/2002 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | NA | 2,900 | NA | NA | NA | NA | NA | NA | 6.40 | NA | NA |
| BW-A | 03/20/2003 g | <2,500 | <25 | <25 | <25 | <25 | <250 | NA | NA | NA | NA | NA | NA | NA | 5.36 | NA | NA |
| BW-A | 06/23/2003 | <1,000 | <10 | <10 | <10 | <20 | NA | <100 | NA | NA | NA | NA | NA | NA | 10.27 | NA | NA |
| BW-B | 06/22/1999 | <250 | <2.5 | <2.5 | <2.5 | <2.5 | 8,600 | NA | NA | NA | NA | NA | NA | NA | 5.90 | NA | 1.2 |
| BW-B | 06/27/2001 | <5,000 | <50 | <50 | <50 | <50 | NA | 40,000 | NA | NA | NA | NA | NA | NA | 5.83 | NA | NA |
| BW-B | 12/31/2001 | <2,000 | <20 | <20 | <20 | <20 | NA | 9,200 | NA | NA | NA | NA | NA | NA | 4.19 | NA | NA |
| BW-B | 03/14/2002 | <2,000 | <20 | <20 | <20 | <20 | NA | 9,400 | NA | NA | NA | NA | NA | NA | 5.24 | NA | NA |
| BW-B | 06/25/2002 | <2,000 | <20 | <20 | <20 | <20 | NA | 6,600 | NA | NA | NA | NA | NA | NA | 6.19 | NA | NA |
| BW-B | 09/19/2002 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | NA | <50 | NA | NA | NA | NA | NA | NA | 8.46 | NA | NA |
| BW-B | 12/12/2002 | <500 | <5.0 | <5.0 | <5.0 | <5.0 | NA | 1,700 | NA | NA | NA | NA | NA | NA | 7.46 | NA | NA |
| BW-B | 03/20/2003 g | 170 | <1.0 | <1.0 | <1.0 | <1.0 | 190 | NA | NA | NA | NA | NA | NA | NA | 6.23 | NA | NA |
| BW-B | 06/23/2003 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | NA | 43 | NA | NA | NA | NA | NA | NA | 9.95 | NA | NA |
| BW-C | 06/22/1999 | <50 | <0.50 | <0.50 | <0.50 | 0.98 | 11,000 | NA | NA | NA | NA | NA | NA | NA | 5.91 | NA | 1.6 |
| BW-C | 06/25/2002 | <5,000 | <50 | <50 | <50 | <50 | NA | 20,000 | NA | NA | NA | NA | NA | NA | 6.49 | NA | NA |
| BW-C | 09/19/2002 | <1,000 | <10 | <10 | <10 | <10 | NA | 400 | NA | NA | NA | NA | NA | NA | 8.52 | NA | NA |
| BW-C | 12/12/2002 | <2,000 | <20 | <20 | <20 | <20 | NA | 8,000 | NA | NA | NA | NA | NA | NA | 7.57 | NA | NA |
| BW-C | 03/20/2003 g | 270 | <1.0 | <1.0 | <1.0 | <1.0 | 250 | NA | NA | NA | NA | NA | NA | NA | 6.48 | NA | NA |

# WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BW-C | 06/23/2003 | <1,000 | <10 | <10 | <10 | <20 | NA | 170 | NA | NA | NA | NA | NA | NA | 11.48 | NA | NA |
| BW-D | 06/22/1999 | <50.0 | <0.500 | <0.500 | <0.500 | <0.500 | 2,190 | NA | NA | NA | NA | NA | NA | NA | 4.78 | NA | 1.4 |
| BW-D | 06/25/2002 | Well inaccessible | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| BW-D | 07/02/2002 | <1,000 | 23 | <10 | <10 | <10 | NA | <100 | NA | NA | NA | NA | NA | NA | 6.36 | NA | NA |
| BW-D | 09/19/2002 | <250 | <2.5 | <2.5 | <2.5 | <2.5 | NA | <25 | NA | NA | NA | NA | NA | NA | 7.25 | NA | NA |
| BW-D | 12/12/2002 | <5,000 | <50 | <50 | <50 | <50 | NA | 16,000 | NA | NA | NA | NA | NA | NA | 6.21 | NA | NA |
| BW-D | 03/20/2003 g | 71 | <0.50 | <0.50 | <0.50 | <0.50 | 55 | NA | NA | NA | NA | NA | NA | NA | 5.23 | NA | NA |
| BW-D | 06/23/2003 | <1,000 | <10 | <10 | <10 | <20 | NA | <100 | NA | NA | NA | NA | NA | NA | 10.25 | NA | NA |
| BW-D | 09/22/2003 | <100 | <1.0 | <1.0 | <1.0 | <2.0 | NA | 120 | NA | NA | NA | NA | NA | NA | 10.18 | NA | NA |
| BW-D | 12/03/2003 | <1,300 | 110 | <13 | <13 | 29 | NA | 560 | NA | NA | NA | NA | NA | NA | 10.20 | NA | NA |
| BW-D | 03/18/2004 | <50 | 0.67 | <0.50 | <0.50 | <1.0 | NA | 12 | NA | NA | NA | NA | NA | NA | 3.42 | NA | NA |
| BW-D | 05/25/2004 | <50 | 1.4 | 0.96 | <0.50 | <1.0 | NA | 1.7 | NA | NA | NA | NA | NA | NA | 8.83 | NA | NA |
| BW-D | 09/22/2004 | <100 | 6.9 | <1.0 | 2.1 | 4.2 | NA | 210 | NA | NA | NA | NA | NA | NA | 2.75 | NA | NA |
| **BW-D** | **12/22/2004** | **61** | **2.1** | **2.9** | **<0.50** | **3.6** | **NA** | **5.4** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3.67** | **NA** | **NA** |

## WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to June 27, 2001, analyzed by EPA Method 8015.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to June 27, 2001, analyzed by EPA Method 8020.

MTBE = Methyl tertiary butyl ether

DIPE = Di-isopropyl ether, analyzed by EPA Method 8260B

ETBE = Ethyl tertiary butyl ether, analyzed by EPA Method 8260B

TAME = Tertiary amyl methyl ether, analyzed by EPA Method 8260B

TBA = Tertiary butyl alcohol, analyzed by EPA Method 8260B

TOC = Top of Casing Elevation

GW = Groundwater

DO = Dissolved Oxygen

ppm = Parts per million

ug/L = Parts per billion

MSL = Mean sea level

ft. = Feet

<n = Below detection limit

(D) = Duplicate sample

NA = Not applicable

# WELL CONCENTRATIONS
## Shell-branded Service Station
## 540 Hegenberger Road
## Oakland, CA

| Well ID | Date | TPPH (ug/L) | B (ug/L) | T (ug/L) | E (ug/L) | X (ug/L) | MTBE 8020 (ug/L) | MTBE 8260 (ug/L) | DIPE (ug/L) | ETBE (ug/L) | TAME (ug/L) | TBA (ug/L) | Ethanol (ug/L) | TOC (MSL) | Depth to Water (ft.) | GW Elevation (MSL) | DO Reading (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Notes:

a = Pre-purge

b = Post purge

c = Lab confirmed MTBE by mistake. MTBE value at MW-1 should have been confirmed instead.

d = DO reading not taken.

e = Sample was analyzed outside of the EPA recommended holding time.

f = The second highest MTBE hit was mistakenly confirmed. MTBE for MW-1 should have been confirmed.

g = On March 20, 2003, all analyses run by EPA Method 8015/8020.

h = Depth to top of pump; pump prevented depth to water measurement.

Ethanol analyzed by EPA Method 8260B.

Site surveyed September 21, 2000 by Virgil Chavez Land Surveying of Vallejo, CA.

C-1 is a canal sample location.

SD-1 and SD-2 are storm drains.

Wells MW-1 through MW-5 surveyed January 24 and June 19, 2002 by Virgil Chavez Land Surveying of Vallejo, CA.