# Atlantic Richfield Company

**Shannon Couch**
Operations Project Manager

PO Box 1257
San Ramon, CA 94583
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October 26, 2012

**RECEIVED**

2:30 pm, Nov 01, 2012

Alameda County
Environmental Health

Re: Third Quarter 2012 Monitoring Report
Atlantic Richfield Company Station #374
6407 Telegraph Avenue, Oakland, California
ACEH Case #RO0000078

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

Submitted by,

Shannon Couch
Operations Project Manager

Attachment

BROADBENT
875 Cotting Ln., Suite G, Vacaville, CA 95688
[T] 707-455-7290 [F] 707-455-7295
broadbentinc.com



October 26, 2012

Project No. 06-88-602

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn.: Ms. Shannon Couch

Re: Third Quarter 2012 Monitoring Report, Atlantic Richfield Company Station #374,
6407 Telegraph Avenue, Oakland, Alameda County, California
ACEH Case #RO0000078

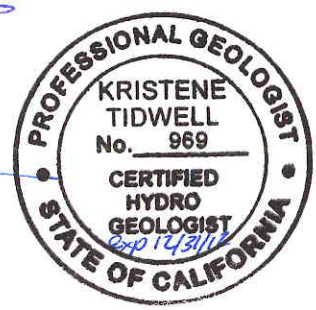
Dear Ms. Couch

Attached is the Third Quarter 2012 Monitoring Report for Atlantic Richfield Company (a BP affiliated company) for Station #374 located at 6407 Telegraph Avenue, Oakland, California (Site). Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (707) 455-7290.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Alexander J. Martinez
Senior Staff Geologist

Kristene Tidwell, P.G., C.H.G.
Senior Geologist




enclosures

cc: Ms. Dilan Roe, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

**THIRD QUARTER 2012**
**MONITORING REPORT**
**ATLANTIC RICHFIELD COMPANY STATION #374**
**OAKLAND, CALIFORNIA**

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *Third Quarter 2012 Monitoring Report* on behalf of Atlantic Richfield Company (ARC, a BP affiliated company) for Station #374 located at 6407 Telegraph Avenue, Oakland, Alameda County, California (the Site). Monitoring activities at the site were performed in accordance with an agency directive issued by the Alameda County Environmental Health (ACEH). Details of work performed, discussion of results, and recommendations are provided below.

| | |
|---|---|
| Facility Name / Address: | Station #374 / 6407 Telegraph Avenue, Oakland, California |
| Client Project Manager / Title: | Ms. Shannon Couch / Operations Project Manager |
| Broadbent Contact: | Ms. Kristene Tidwell, P.G., C.H.G. |
| Broadbent Project No.: | 06-88-602 |
| Primary Regulatory Agency / ID No.: | ACEH / Case #RO0000078 |
| Current phase of project: | Monitoring |
| List of Acronyms / Abbreviations: | See end of report text for list of acronyms/abbreviations used in report. |

**WORK PERFORMED THIS QUARTER (Third Quarter 2012):**

1. Submitted *Second Quarter 2012 Status Report* on July 17, 2012.
2. Broadbent conducted Third Quarter 2012 groundwater monitoring/sampling event on August 9, 2012.
3. Submitted a letter dated September 7, 2012retracting a previous case closure request.

**WORK SCHEDULED FOR NEXT QUARTER (Fourth Quarter 2012):**

1. Submit *Third Quarter 2012 Monitoring Report* (contained herein).
2. No sampling or environmental activities are scheduled at the Site during Fourth Quarter 2012.
3. Submit work plan for additional investigation.
4. Attend Regulatory Meeting on October 9, 2012 to discuss site objectives.

**QUARTERLY MONITORING PLAN SUMMARY:**

| | | |
|---|---|---|
| Groundwater level gauging: | MW-1 through MW-9 | (Semi-Annually, 1Q & 3Q) |
| Groundwater sample collection: | MW-1, MW-2, MW-4, MW-7, MW8, and MW-9 | (Semi-Annually, 1Q & 3Q) |
| | MW-3, MW-5, and MW-6 | (Annually, 3Q) |

**QUARTERLY RESULTS SUMMARY:**

**LNAPL**

| | | |
|---|---|---|
| LNAPL observed this quarter: | No | (yes\no) |
| LNAPL recovered this quarter: | None | (gal) |
| Cumulative LNAPL recovered: | None | (gal) |

**Groundwater Elevation and Gradient:**

| | | |
|---|---|---|
| Depth to groundwater: | 4.65 (MW-6) to 23.10 (MW-5) | (ft below TOC) |
| Gradient direction: | Southwest | (compass direction) |
| Gradient magnitude: | 0.03 | (ft/ft) |
| Average change in elevation: | 0.85 | (ft since last measurement) |

**Laboratory Analytical Data Summary**:

Analytical results are as follows:

- GRO was detected in four wells with a maximum concentration of 3,200 µg/L in well MW-4
- Benzene was detected in three wells with a maximum concentration of 660 µg/L in well MW-4
- MTBE was detected in seven wells with a maximum

concentration of 170 µg/L in well MW-1
- TAME was detected in three wells with a maximum concentration of 2.0 µg/L in well MW-8
- Ethylbenzene was detected in two wells with a maximum concentration of 53 µg/L in well MW-4
- Total Xylenes were detected in two wells with a maximum concentration of 57 µg/L in well MW-4
- Toluene was detected in one well with a concentration of 44 µg/L

## ACTIVITIES CONDUCTED & RESULTS:

Third Quarter 2012 groundwater monitoring was conducted on August 9, 2012 in accordance with the monitoring plan summary presented above. No irregularities were noted during water level gauging. Collected depth to water measurements ranged from 4.65 ft at MW-6 to 23.10 ft at MW-5. Resulting groundwater surface elevations ranged from 148.88 ft at MW-5 to 159.75 ft at MW-7. Groundwater elevations are summarized in Table 1. Water level elevations yielded a potentiometric groundwater gradient to the southwest at approximately 0.03 ft/ft. Historical groundwater gradient direction and magnitude data are summarized in Table 3. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B.

Groundwater samples collected from MW-1 through MW-9 were submitted to Test America Laboratories, Inc. (Test America) of Irvine, California for analysis of GRO, by EPA Method 8015B; BTEX, MTBE, ETBE, TAME, DIPE, TBA, EDB, 1,2-DCA, and Ethanol by EPA Method 8260B. No significant irregularities were encountered during analysis of the samples. Laboratory analytical report and chain of custody record are provided in Appendix C.

Results of this sampling event are included in the laboratory analytical data summary presented above. These results indicate that the highest overall petroleum concentrations are present in well MW-4. However, in this well concentrations of benzene and GRO have decreased since the Third Quarter 2011. Other petroleum hydrocarbons have indicated a slight increase since the First Quarter 2012. The remaining analytes detected this quarter appear to be consistent with previous data. Further discussion of these results is presented below.

## DISCUSSION:

Review of historical groundwater gradient data indicates that the gradient measured during Third Quarter 2012 monitoring is consistent with predominant measurements observed historically at the Site. During Third Quarter 2012, groundwater elevations increased an average of 0.85 feet across the Site relative to measurements collected during Third Quarter 2012.

Review of historical groundwater results indicate that well MW-4 contains the highest residual concentrations of petroleum compounds due its location near the former Underground Storage Tank (UST). Despite the location of well MW-4, data has indicated a decrease in petroleum concentrations since the Third Quarter 2011. GRO and benzene have additionally indicated that a significant decreasing trend in concentration. The concentrations appear to be a non-factor in down gradient wells MW-3, MW-5, and MW-6 as the concentrations of GRO, benzene and MTBE are minimal or not detected. There are five wells up gradient from MW-4 for which the detected concentration levels appear to remain consistent with previous sampling events. Well MW-8, up gradient to well MW-4 reached a historical maximum concentration of MTBE with a detection of 150 µg/L, which is the highest concentration reading since the Fourth Quarter 2010.

Groundwater levels in many Site wells are currently above the top of their respective screen intervals. Ideally, groundwater samples would not be collected from wells where screens are flooded. In general, wells with flooded screens are older wells, where water levels over time may have risen. Additionally, these wells only periodically have flooded screens. For example, well MW-4 is one of the oldest Site wells, and has elevated residual petroleum concentrations. The screen in this well is periodically flooded, with the concentrations noted during events when the screen is not flooded are comparable to those where the screen is flooded. Additionally, data from wells with lower hydrocarbon concentrations is comparable to site wells without flooded screens. For these reasons, the data reported herein appears valid despite the occurrence of flooded screens at the Site.

**RECOMMENDATIONS:**

On July 27, 2011, ARC submitted a *Case Evaluation & Justification For No Further Action* report prepared by Closure Solutions indicating that the site appeared to meet low-risk closure criteria since soil and groundwater investigations have adequately defined residual and dissolved-phase contaminant, and further investigation and active remediation does not appear to be warranted or necessary to protect human health and ecological receptors. Therefore, ARC recommended No Further Action status for the Site. Due to new regulatory guidelines that closure request was retracted in a letter dated September 7, 2012 until future review of Site data occurs. Additionally, a work plan for additional site investigation is currently being prepared.

**LIMITATIONS:**

The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by Calscience and our understanding of ACEH guidelines. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of Atlantic Richfield Company (a BP affiliated company). It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

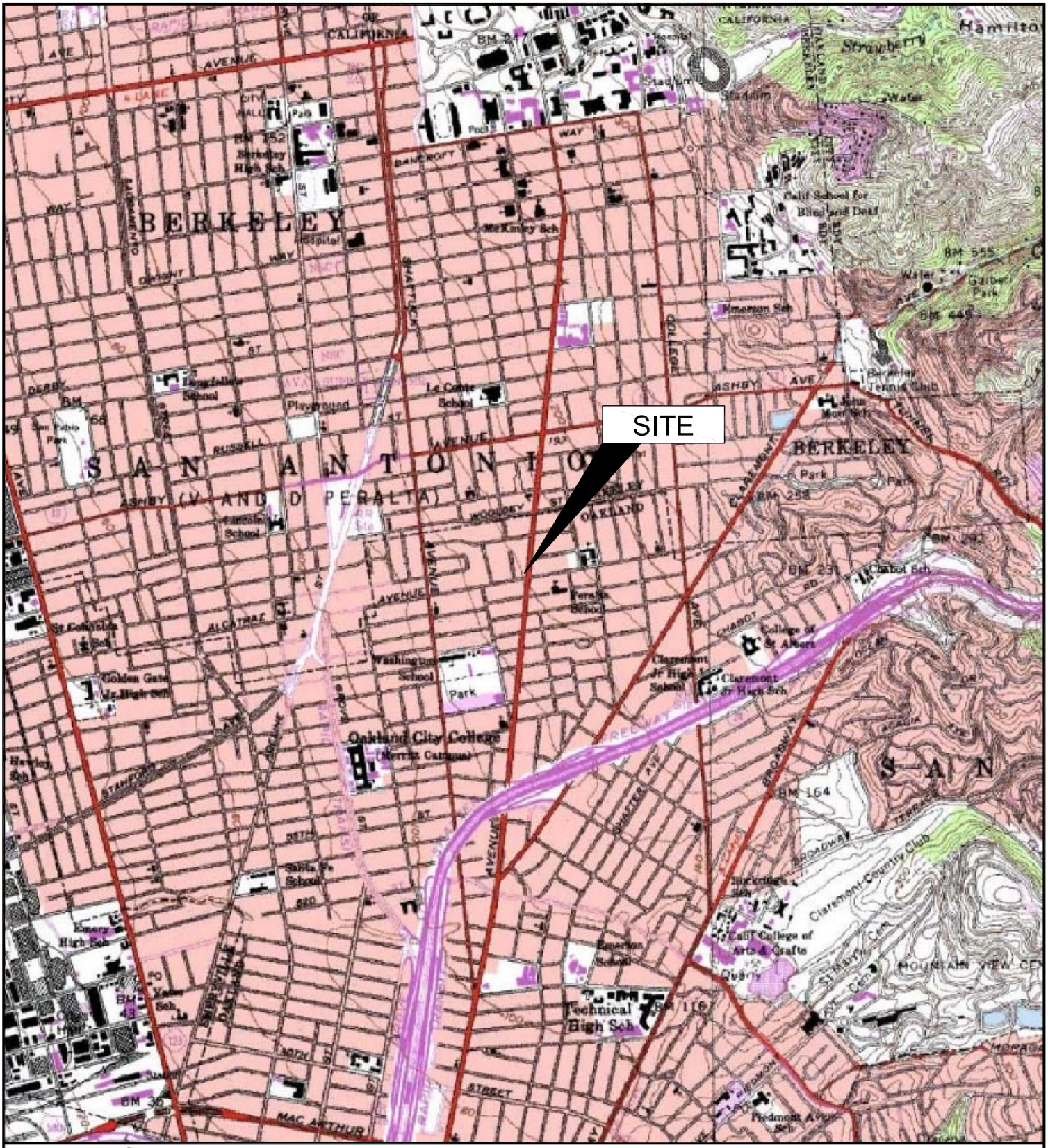
**ATTACHMENTS:**

| | |
|---|---|
| Drawing 1: | Site Location Map |
| Drawing 2: | Groundwater Elevation Contour and Analytical Summary Map |
| Table 1: | Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses |
| Table 2: | Summary of Fuel Additives Analytical Data |
| Table 3: | Historical Groundwater Gradient - Direction and Magnitude |
| Appendix A: | Field Methods |
| Appendix B: | Field Data Sheets and Non-Hazardous Waste Data Form |
| Appendix C: | Laboratory Report and Chain-of-Custody Documentation |
| Appendix D: | GeoTracker Upload Confirmation Receipts |

**LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:**

| | | | |
|---|---|---|---|
| ACEH | Alameda County Environmental Health | gal: | gallons |
| ARC: | Atlantic Richfield Company | GRO: | Gasoline Range Organics (C6-12) |
| BAI: | Broadbent & Associates, Inc. | LNAPL: | Light Non-Aqueous Phase Liquid |
| BTEX: | Benzene, Toluene, Ethylbenzene, Total Xylenes | MTBE: | Methyl Tertiary Butyl Ether |
| 1,2-DCA: | 1,2-Dichloroethane | TAME: | Tert-Amyl Methyl Ether |

| | | | |
|---|---|---|---|
| DIPE: | Di-Isopropyl Ether | TBA: | Tert-Butyl Alcohol |
| EDB: | 1,2-Dibromomethane | TOC: | top of casing |
| ft/ft: | feet per foot | µg/L: | micrograms per liter |
| UST: | Underground Storage Tank | | |

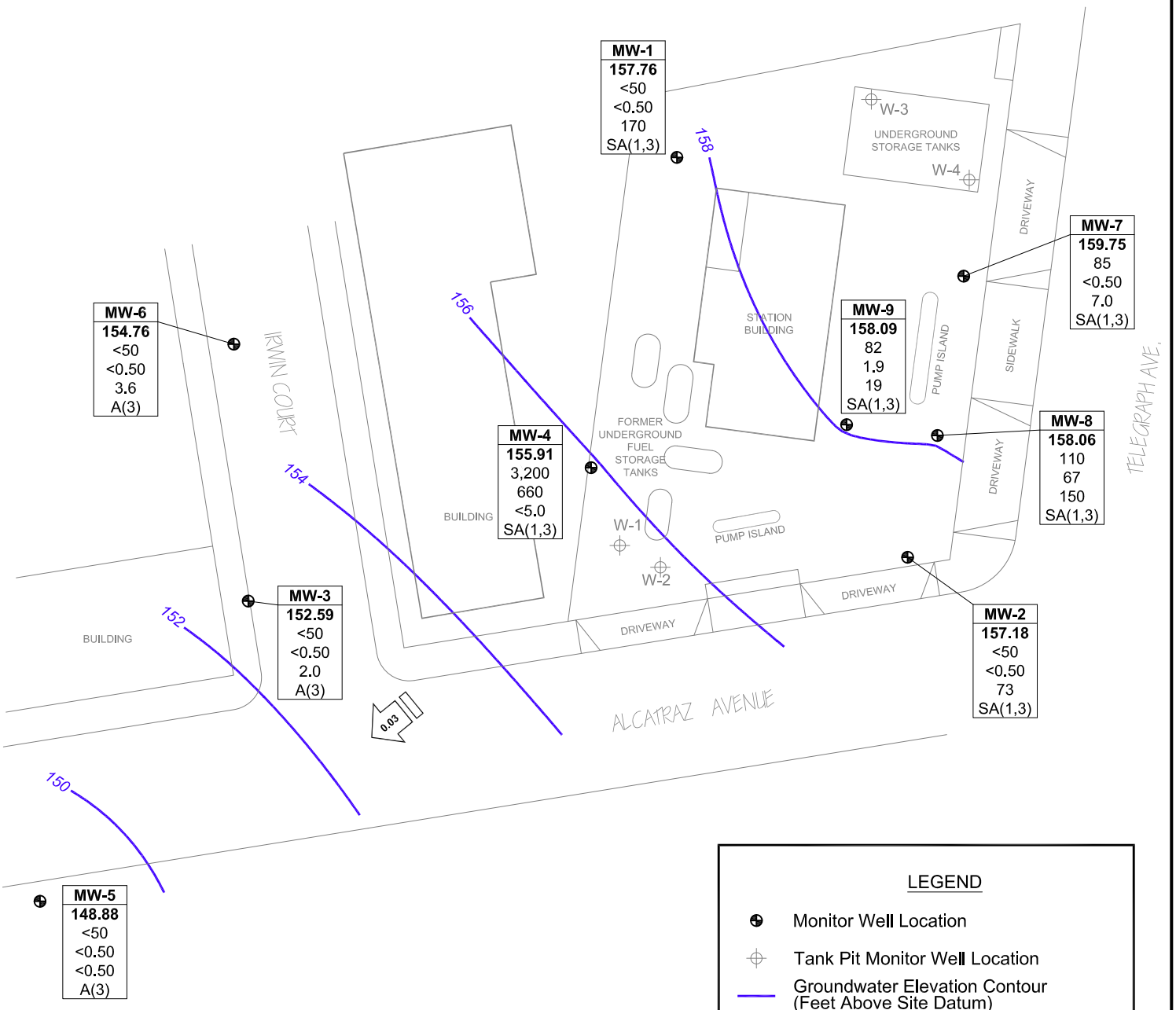



BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 06-88-602 Date: 9/10/2012

Station #374
6407 Telegraph Ave.
Oakland, California

Site Location Map

Drawing
1




LEGEND

- Monitor Well Location
- Tank Pit Monitor Well Location
- Groundwater Elevation Contour (Feet Above Site Datum)
- 0.03 — Groundwater Gradient (ft/ft)
- A(3) — Sampled Annually - Third Quarter
- SA(1,3) — Sampled Semi-Annually - First and Third Quarter

| | |
|---|---|
| WELL | Well Designation |
| ELEV | Groundwater Elevation (ft) |
| GRO<br>BZ<br>MTBE | GRO, Benzene, and MTBE Concentrations (µg/L) |
| A/SA/Q | Sampling Frequency |

* Not Used in Contouring

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

BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 06-88-602 Date: 9/12/2012

Station #374
6407 Telegraph Ave.
Oakland, California

Groundwater Elevation Contours and Analytical Summary Map
August 9, 2012

Drawing
2

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-1** | | | | | | | | | | | | | | | |
| 6/20/2000 | -- | 158.91 | 7.00 | 27.00 | 6.86 | 152.05 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 9/28/2000 | -- | | 7.00 | 27.00 | 7.50 | 151.41 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | | 7.00 | 27.00 | 7.49 | 151.42 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3/23/2001 | -- | | 7.00 | 27.00 | 5.90 | 153.01 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | ***2,710*** | -- | -- | |
| 6/21/2001 | -- | | 7.00 | 27.00 | 7.45 | 151.46 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 9/23/2001 | -- | | 7.00 | 27.00 | 8.46 | 150.45 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | | 7.00 | 27.00 | 5.50 | 153.41 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | | 7.00 | 27.00 | 4.71 | 154.20 | ***<5,000*** | ***<50*** | *<50* | ***<50*** | *<50* | ***2,000*** | -- | -- | |
| 4/17/2002 | -- | | 7.00 | 27.00 | 5.54 | 153.37 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/12/2002 | -- | | 7.00 | 27.00 | 7.77 | 151.14 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | | 7.00 | 27.00 | 7.65 | 151.26 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1/29/2003 | -- | | 7.00 | 27.00 | 5.88 | 153.03 | -- | -- | -- | -- | -- | -- | -- | -- | b |
| 5/23/2003 | -- | | 7.00 | 27.00 | 5.62 | 153.29 | ***<10,000*** | ***<100*** | *<100* | ***<100*** | *<100* | *1,600* | 1.3 | 7.1 | |
| 9/4/2003 | -- | | 7.00 | 27.00 | 7.85 | 151.06 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 11/20/2003 | P | | 7.00 | 27.00 | 8.17 | 150.74 | ***1,600*** | *<10* | <10 | <10 | <10 | *1,500* | 1.7 | 6.7 | |
| 02/02/2004 | P | 164.57 | 7.00 | 27.00 | 6.71 | 157.86 | -- | -- | -- | -- | -- | -- | 1.0 | -- | f |
| 05/14/2004 | P | | 7.00 | 27.00 | 7.08 | 157.49 | ***<2,500*** | *<25* | <25 | <25 | *<25* | *1,200* | 1.4 | 6.6 | |
| 09/02/2004 | P | | 7.00 | 27.00 | 8.12 | 156.45 | ***580*** | *<5.0* | <5.0 | <5.0 | <5.0 | *660* | 3.8 | 6.7 | |
| 11/04/2004 | P | | 7.00 | 27.00 | 7.38 | 157.19 | ***1,700*** | *<10* | <10 | <10 | <10 | *580* | 6.0 | 6.5 | |
| 02/08/2005 | P | | 7.00 | 27.00 | 6.60 | 157.97 | ***<1,000*** | *<10* | <10 | <10 | <10 | *610* | 0.71 | 6.5 | |
| 05/09/2005 | P | | 7.00 | 27.00 | 6.84 | 157.73 | ***540*** | *<5.0* | <5.0 | <5.0 | 5.5 | *620* | 3.12 | 6.6 | e |
| 08/11/2005 | P | | 7.00 | 27.00 | 7.36 | 157.21 | ***540*** | *<2.5* | <2.5 | <2.5 | 4.0 | *390* | 0.8 | 6.6 | |
| 11/18/2005 | P | | 7.00 | 27.00 | 8.02 | 156.55 | ***350*** | *<2.5* | <2.5 | <2.5 | <2.5 | *340* | 2.6 | 6.7 | e |
| 02/16/2006 | P | | 7.00 | 27.00 | 6.44 | 158.13 | ***350*** | *<2.5* | <2.5 | <2.5 | <2.5 | *340* | 1.6 | 6.7 | e |
| 5/30/2006 | P | | 7.00 | 27.00 | 6.87 | 157.70 | ***270*** | *<2.5* | <2.5 | <2.5 | <2.5 | *420* | 4.73 | 6.4 | |
| 8/24/2006 | P | | 7.00 | 27.00 | 7.75 | 156.82 | 95 | *<5.0* | <5.0 | <5.0 | <5.0 | *180* | 0.65 | 6.9 | |
| 11/1/2006 | P | | 7.00 | 27.00 | 8.28 | 156.29 | *120* | *<5.0* | <5.0 | <5.0 | <5.0 | *220* | 1.65 | 7.07 | |
| 2/7/2007 | NP | | 7.00 | 27.00 | 7.40 | 157.17 | *120* | *<5.0* | <5.0 | <5.0 | <5.0 | *190* | 1.88 | 7.45 | e |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-1 Cont.** | | | | | | | | | | | | | | | |
| 5/8/2007 | P | 164.57 | 7.00 | 27.00 | 6.50 | 158.07 | ***<500*** | *<5.0* | <5.0 | <5.0 | <5.0 | *420* | 1.21 | 6.94 | |
| 8/8/2007 | NP | | 7.00 | 27.00 | 8.17 | 156.40 | 82 | <0.50 | <0.50 | <0.50 | <0.50 | *110* | 1.16 | 7.00 | e |
| 11/14/2007 | NP | | 7.00 | 27.00 | 8.01 | 156.56 | *170* | *<2.5* | <2.5 | <2.5 | <2.5 | *210* | 1.92 | 6.49 | |
| 2/22/2008 | P | | 7.00 | 27.00 | 6.00 | 158.57 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *250* | 2.57 | 6.65 | |
| 5/24/2008 | NP | | 7.00 | 27.00 | 7.58 | 156.99 | <50 | *<5.0* | <5.0 | <5.0 | <5.0 | *380* | 2.28 | 6.81 | |
| 8/21/2008 | NP | | 7.00 | 27.00 | 8.60 | 155.97 | <50 | *<2.5* | <2.5 | <2.5 | <2.5 | *170* | 2.16 | 6.98 | |
| 11/19/2008 | NP | | 7.00 | 27.00 | 8.88 | 155.69 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *30* | 2.12 | 7.27 | |
| 2/23/2009 | P | | 7.00 | 27.00 | 6.40 | 158.17 | 78 | *<2.5* | <2.5 | <2.5 | <2.5 | *240* | 2.19 | 6.03 | |
| 5/14/2009 | P | | 7.00 | 27.00 | 6.67 | 157.90 | 53 | <0.50 | <0.50 | <0.50 | <0.50 | *200* | 1.75 | 6.69 | |
| 8/20/2009 | NP | | 7.00 | 27.00 | 8.25 | 156.32 | *150* | *<2.0* | <2.0 | <2.0 | <2.0 | *170* | 2.14 | 6.25 | i (GRO) |
| 2/19/2010 | P | | 7.00 | 27.00 | 6.07 | 158.50 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *170* | 0.92 | 6.66 | |
| 8/10/2010 | NP | | 7.00 | 27.00 | 7.58 | 156.99 | <50 | *<2.5* | <2.5 | <2.5 | <2.5 | *230* | 3.86 | 7.1 | |
| 12/16/2010 | P | 164.45 | 7.00 | 27.00 | 6.64 | 157.81 | <50 | *<2.0* | <2.0 | <2.0 | <2.0 | *140* | 1.20 | 6.86 | j |
| 2/14/2011 | NP | | 7.00 | 27.00 | 7.10 | 157.35 | <50 | *<2.5* | <2.5 | <2.5 | <2.5 | *170* | 1.18 | 6.7 | |
| 5/20/2011 | -- | | 7.00 | 27.00 | 6.38 | 158.07 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/15/2011 | NP | | 7.00 | 27.00 | 7.24 | 157.21 | <50 | *<2.5* | <2.5 | <2.5 | <2.5 | *130* | 2.54 | 6.9 | |
| 2/2/2012 | P | | 7.00 | 27.00 | 7.32 | 157.13 | <50 | <1.0 | <1.0 | <1.0 | <1.0 | *66* | 1.01 | 7.1 | |
| 8/9/2012 | P | | 7.00 | 27.00 | 6.69 | 157.76 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | *170* | 1.65 | 6.99 | |
| **MW-2** | | | | | | | | | | | | | | | |
| 6/20/2000 | -- | 157.92 | 7.00 | 27.00 | 7.67 | 150.25 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 9/28/2000 | -- | | 7.00 | 27.00 | 8.51 | 149.41 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | | 7.00 | 27.00 | 8.14 | 149.78 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3/23/2001 | -- | | 7.00 | 27.00 | 7.21 | 150.71 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 6/21/2001 | -- | | 7.00 | 27.00 | 7.99 | 149.93 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 9/23/2001 | -- | | 7.00 | 27.00 | 8.52 | 149.40 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | | 7.00 | 27.00 | 6.01 | 151.91 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | | 7.00 | 27.00 | 5.95 | 151.97 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | *45* | -- | -- | |
| 4/17/2002 | -- | | 7.00 | 27.00 | 6.45 | 151.47 | -- | -- | -- | -- | -- | -- | -- | -- | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-2 Cont.** | | | | | | | | | | | | | | | |
| 8/12/2002 | -- | 157.92 | 7.00 | 27.00 | 8.08 | 149.84 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | | 7.00 | 27.00 | 8.29 | 149.63 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1/29/2003 | -- | | 7.00 | 27.00 | 7.22 | 150.70 | -- | -- | -- | -- | -- | -- | -- | -- | b |
| 5/23/2003 | -- | | 7.00 | 27.00 | 6.85 | 151.07 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *55* | 1.4 | 7.2 | |
| 9/4/2003 | -- | | 7.00 | 27.00 | 7.94 | 149.98 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 11/20/2003 | -- | | 7.00 | 27.00 | 8.05 | 149.87 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/02/2004 | P | 163.46 | 7.00 | 27.00 | 7.00 | 156.46 | 74 | <0.50 | <0.50 | <0.50 | <0.50 | *37* | 1.1 | 8.9 | f |
| 05/14/2004 | -- | | 7.00 | 27.00 | 7.97 | 155.49 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 09/02/2004 | P | | 7.00 | 27.00 | 8.19 | 155.27 | ***<250*** | *<2.5* | <2.5 | <2.5 | <2.5 | *67* | 2.7 | 6.9 | |
| 11/04/2004 | -- | | 7.00 | 27.00 | 7.54 | 155.92 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/08/2005 | P | | 7.00 | 27.00 | 6.72 | 156.74 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *30* | 0.86 | 6.7 | |
| 05/09/2005 | -- | | 7.00 | 27.00 | 7.16 | 156.30 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 08/11/2005 | P | | 7.00 | 27.00 | 7.85 | 155.61 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *35* | 1.0 | 6.6 | |
| 11/18/2005 | -- | | 7.00 | 27.00 | 8.23 | 155.23 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/16/2006 | P | | 7.00 | 27.00 | 6.82 | 156.64 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *39* | 1.3 | 7.0 | |
| 5/30/2006 | -- | | 7.00 | 27.00 | 7.23 | 156.23 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/24/2006 | P | | 7.00 | 27.00 | 8.00 | 155.46 | 60 | <0.50 | <0.50 | <0.50 | <0.50 | *25* | 0.90 | 6.8 | |
| 11/1/2006 | -- | | 7.00 | 27.00 | 8.38 | 155.08 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/7/2007 | NP | | 7.00 | 27.00 | 7.88 | 155.58 | <50 | 0.50 | <0.50 | <0.50 | <0.50 | *7.2* | 0.94 | 7.39 | |
| 5/8/2007 | -- | | 7.00 | 27.00 | 7.28 | 156.18 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/8/2007 | NP | | 7.00 | 27.00 | 8.38 | 155.08 | 88 | *3.2* | <0.50 | <0.50 | <0.50 | *7.2* | 0.94 | 7.75 | |
| 11/14/2007 | -- | | 7.00 | 27.00 | 8.10 | 155.36 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/22/2008 | P | | 7.00 | 27.00 | 6.75 | 156.71 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *24* | 2.18 | 7.02 | |
| 5/24/2008 | -- | | 7.00 | 27.00 | 7.98 | 155.48 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/21/2008 | NP | | 7.00 | 27.00 | 8.58 | 154.88 | <50 | *2.6* | <0.50 | <0.50 | <0.50 | 4.9 | 2.20 | 7.11 | |
| 11/19/2008 | -- | | 7.00 | 27.00 | 8.66 | 154.80 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/23/2009 | P | | 7.00 | 27.00 | 6.67 | 156.79 | 74 | 1.0 | <0.50 | <0.50 | <0.50 | *24* | 2.25 | 6.16 | |
| 5/14/2009 | -- | | 7.00 | 27.00 | 7.02 | 156.44 | -- | -- | -- | -- | -- | -- | -- | -- | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-2 Cont.** | | | | | | | | | | | | | | | |
| 8/20/2009 | NP | 163.46 | 7.00 | 27.00 | 8.41 | 155.05 | 82 | *2.4* | <0.50 | <0.50 | <0.50 | *8.4* | 2.19 | 6.37 | |
| 2/19/2010 | NP | | 7.00 | 27.00 | 7.36 | 156.10 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *22* | 0.81 | 6.90 | |
| 8/10/2010 | NP | | 7.00 | 27.00 | 7.69 | 155.77 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *23* | 2.40 | 7.67 | |
| 12/16/2010 | P | 163.49 | 7.00 | 27.00 | 7.12 | 156.37 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *17* | 0.69 | 7.06 | j |
| 2/14/2011 | NP | | 7.00 | 27.00 | 7.35 | 156.14 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *11* | 0.87 | 7.0 | |
| 5/20/2011 | -- | | 7.00 | 27.00 | 7.02 | 156.47 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/15/2011 | NP | | 7.00 | 27.00 | 7.62 | 155.87 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 | 1.45 | 7.1 | |
| 2/2/2012 | P | | 7.00 | 27.00 | 7.56 | 155.93 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.8 | 0.85 | 7.3 | |
| 8/9/2012 | P | | 7.00 | 27.00 | 6.31 | 157.18 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | *73* | 1.28 | 7.15 | |
| **MW-3** | | | | | | | | | | | | | | | |
| 6/20/2000 | -- | 153.64 | 7.00 | 27.00 | 6.42 | 147.22 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | *<10* | -- | -- | |
| 9/28/2000 | -- | | 7.00 | 27.00 | 7.31 | 146.33 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | | 7.00 | 27.00 | 6.45 | 147.19 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 3/23/2001 | -- | | 7.00 | 27.00 | 6.01 | 147.63 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 6/21/2001 | -- | | 7.00 | 27.00 | 6.80 | 146.84 | *110* | *5.5* | <0.5 | 5.4 | 4.1 | 2.5 | -- | -- | |
| 9/23/2001 | -- | | 7.00 | 27.00 | 7.32 | 146.32 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | | 7.00 | 27.00 | 4.48 | 149.16 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 4.9 | -- | -- | |
| 3/21/2002 | -- | | 7.00 | 27.00 | 4.36 | 149.28 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 4/17/2002 | -- | | 7.00 | 27.00 | 5.31 | 148.33 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | *8.7* | -- | -- | |
| 8/12/2002 | -- | | 7.00 | 27.00 | 7.00 | 146.64 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | | 7.00 | 27.00 | 7.32 | 146.32 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | *6.2* | 1.4 | 6.7 | |
| 1/29/2003 | -- | | 7.00 | 27.00 | 6.07 | 147.57 | -- | -- | -- | -- | -- | -- | -- | -- | b |
| 5/23/2003 | -- | | 7.00 | 27.00 | 6.45 | 147.19 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | 0.9 | 7.7 | |
| 9/4/2003 | -- | | 7.00 | 27.00 | 6.93 | 146.71 | -- | -- | -- | -- | -- | -- | -- | -- | c |
| 11/20/2003 | -- | | 7.00 | 27.00 | 7.04 | 146.60 | -- | -- | -- | -- | -- | -- | -- | -- | c |
| 02/02/2004 | -- | 159.21 | 7.00 | 27.00 | 5.92 | 153.29 | -- | -- | -- | -- | -- | -- | -- | -- | f |
| 05/14/2004 | -- | | 7.00 | 27.00 | 7.52 | 151.69 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 09/02/2004 | P | | 7.00 | 27.00 | 7.19 | 152.02 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *6.5* | 9.3 | 8.9 | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-3 Cont.** | | | | | | | | | | | | | | | |
| 11/04/2004 | -- | 159.21 | 7.00 | 27.00 | 6.40 | 152.81 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/08/2005 | -- | | 7.00 | 27.00 | 6.01 | 153.20 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 05/09/2005 | -- | | 7.00 | 27.00 | 6.74 | 152.47 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 08/11/2005 | P | | 7.00 | 27.00 | 6.77 | 152.44 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *11* | 1.9 | 6.5 | |
| 11/18/2005 | -- | | 7.00 | 27.00 | 7.83 | 151.38 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/16/2006 | -- | | 7.00 | 27.00 | 7.26 | 151.95 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/30/2006 | -- | | 7.00 | 27.00 | 5.82 | 153.39 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/24/2006 | P | | 7.00 | 27.00 | 7.00 | 152.21 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *7.6* | 1.15 | 6.4 | |
| 11/1/2006 | -- | | 7.00 | 27.00 | 7.50 | 151.71 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/7/2007 | -- | | 7.00 | 27.00 | 6.90 | 152.31 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/8/2007 | -- | | 7.00 | 27.00 | 5.95 | 153.26 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/8/2007 | NP | | 7.00 | 27.00 | 7.47 | 151.74 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | 1.21 | 6.93 | |
| 11/14/2007 | -- | | 7.00 | 27.00 | 7.05 | 152.16 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/22/2008 | -- | | 7.00 | 27.00 | 5.50 | 153.71 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/24/2008 | -- | | 7.00 | 27.00 | 7.03 | 152.18 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/21/2008 | NP | | 7.00 | 27.00 | 7.80 | 151.41 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.1 | 2.11 | 6.84 | |
| 11/19/2008 | -- | | 7.00 | 27.00 | 7.69 | 151.52 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/23/2009 | -- | | 7.00 | 27.00 | 7.28 | 151.93 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/14/2009 | -- | | 7.00 | 27.00 | 6.17 | 153.04 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/20/2009 | NP | | 7.00 | 27.00 | 7.38 | 151.83 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | 2.05 | 7.01 | |
| 2/19/2010 | -- | | 7.00 | 27.00 | 5.31 | 153.90 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/10/2010 | NP | | 7.00 | 27.00 | 7.12 | 152.09 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | 1.27 | 7.33 | |
| 12/16/2010 | -- | | 7.00 | 27.00 | 5.65 | 153.56 | -- | -- | -- | -- | -- | -- | -- | -- | j |
| 2/14/2011 | -- | | 7.00 | 27.00 | 6.20 | 153.01 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/20/2011 | -- | | 7.00 | 27.00 | 5.77 | 153.44 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/15/2011 | P | | 7.00 | 27.00 | 6.41 | 152.80 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | 1.04 | 7.0 | |
| 2/2/2012 | -- | | 7.00 | 27.00 | 6.34 | 152.87 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/9/2012 | P | | 7.00 | 27.00 | 6.62 | 152.59 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | 2.0 | 1.16 | 6.71 | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-4** | | | | | | | | | | | | | | | |
| 6/20/2000 | -- | 156.53 | 7.00 | 27.00 | 7.50 | 149.03 | ***20,000*** | ***5,100*** | ***440*** | ***1,000*** | ***1,700*** | *<250* | -- | -- | c |
| 9/28/2000 | -- | | 7.00 | 27.00 | 8.20 | 148.33 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | | 7.00 | 27.00 | 8.11 | 148.42 | ***4,320*** | ***1,240*** | <20 | 27.2 | ***249*** | *<100* | -- | -- | |
| 3/23/2001 | -- | | 7.00 | 27.00 | 6.69 | 149.84 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 6/21/2001 | -- | | 7.00 | 27.00 | 8.01 | 148.52 | ***2,800*** | ***470*** | 16 | 19 | ***160*** | *130* | -- | -- | |
| 9/23/2001 | -- | | 7.00 | 27.00 | 8.91 | 147.62 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | | 7.00 | 27.00 | 4.42 | 152.11 | ***4,600*** | ***1,500*** | *100* | ***160*** | ***210*** | *160* | -- | -- | |
| 3/21/2002 | -- | | 7.00 | 27.00 | 4.98 | 151.55 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 4/17/2002 | -- | | 7.00 | 27.00 | 6.23 | 150.30 | ***7,100*** | ***2,200*** | *110* | ***290*** | ***450*** | *<250* | -- | -- | |
| 8/12/2002 | -- | | 7.00 | 27.00 | 8.24 | 148.29 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | | 7.00 | 27.00 | 8.42 | 148.11 | ***1,500*** | ***410*** | 6.8 | 20 | *29* | *43* | 1.1 | 6.7 | a |
| 1/29/2003 | -- | | 7.00 | 27.00 | 7.20 | 149.33 | -- | -- | -- | -- | -- | -- | -- | -- | b |
| 5/23/2003 | -- | | 7.00 | 27.00 | 7.18 | 149.35 | ***<5,000*** | ***1,300*** | *89* | ***210*** | ***260*** | *<50* | 1.4 | 6.9 | |
| 9/4/2003 | -- | | 7.00 | 27.00 | 8.15 | 148.38 | -- | -- | -- | -- | -- | -- | -- | -- | c |
| 11/20/2003 | -- | | 7.00 | 27.00 | 8.73 | 147.80 | -- | -- | -- | -- | -- | -- | -- | -- | c |
| 02/02/2004 | P | 163.25 | 7.00 | 27.00 | 6.25 | 157.00 | ***980*** | ***280*** | 21 | 29 | *38* | *29* | 1.4 | 10.6 | c, f, g |
| 05/14/2004 | -- | | 7.00 | 27.00 | 8.38 | 154.87 | -- | -- | -- | -- | -- | -- | -- | -- | g |
| 09/02/2004 | P | | 7.00 | 27.00 | 8.36 | 154.89 | ***260*** | *11* | <1.0 | 5.5 | 14 | *28* | 2.4 | 7.4 | g |
| 11/04/2004 | -- | | 7.00 | 27.00 | 7.71 | 155.54 | -- | -- | -- | -- | -- | -- | -- | -- | c, g |
| 02/08/2005 | P | | 7.00 | 27.00 | 6.27 | 156.98 | ***7,500*** | ***1,700*** | ***320*** | ***480*** | ***920*** | *45* | 0.65 | 6.5 | g |
| 05/09/2005 | -- | | 7.00 | 27.00 | 5.90 | 157.35 | -- | -- | -- | -- | -- | -- | -- | -- | g |
| 08/11/2005 | P | | 7.00 | 27.00 | 7.96 | 155.29 | ***3,100*** | ***1,100*** | *41* | ***160*** | ***110*** | *32* | 0.6 | 6.5 | g |
| 11/18/2005 | -- | | 7.00 | 27.00 | 8.57 | 154.68 | -- | -- | -- | -- | -- | -- | -- | -- | g |
| 02/16/2006 | P | | 7.00 | 27.00 | 6.28 | 156.97 | ***9,400*** | ***1,800*** | *130* | ***600*** | ***420*** | *35* | 0.5 | 6.8 | g |
| 5/30/2006 | -- | 162.47 | 7.00 | 27.00 | 7.02 | 155.45 | -- | -- | -- | -- | -- | -- | -- | -- | g |
| 8/24/2006 | P | | 7.00 | 27.00 | 8.26 | 154.21 | ***3,600*** | ***1,400*** | 21 | ***110*** | *70* | *39* | 1.00 | 6.8 | |
| 11/1/2006 | -- | | 7.00 | 27.00 | 8.67 | 153.80 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/7/2007 | NP | | 7.00 | 27.00 | 8.02 | 154.45 | ***3,100*** | ***570*** | 17 | ***170*** | ***110*** | *67* | 0.95 | 7.07 | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-4 Cont.** | | | | | | | | | | | | | | | |
| 5/8/2007 | -- | 162.47 | 7.00 | 27.00 | 7.03 | 155.44 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/8/2007 | NP | | 7.00 | 27.00 | 8.60 | 153.87 | ***2,900*** | ***630*** | 22 | ***67*** | *57* | *72* | 0.93 | 6.79 | |
| 11/14/2007 | -- | | 7.00 | 27.00 | 8.53 | 153.94 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/22/2008 | P | | 7.00 | 27.00 | 6.25 | 156.22 | ***3,900*** | ***880*** | 39 | ***180*** | *92* | *70* | 2.31 | 6.87 | |
| 5/24/2008 | -- | | 7.00 | 27.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 8/21/2008 | NP | | 7.00 | 27.00 | 8.96 | 153.51 | ***3,700*** | ***1,100*** | 26 | ***85*** | ***130*** | *53* | 2.26 | 6.80 | |
| 11/19/2008 | -- | | 7.00 | 27.00 | 9.20 | 153.27 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/23/2009 | P | | 7.00 | 27.00 | 6.35 | 156.12 | ***3,000*** | ***220*** | 9.1 | 23 | 19 | *39* | 2.21 | 6.51 | |
| 5/14/2009 | -- | | 7.00 | 27.00 | 7.00 | 155.47 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/20/2009 | NP | | 7.00 | 27.00 | 8.05 | 154.42 | ***5,700*** | ***1,100*** | 35 | ***110*** | *100* | *23* | 2.17 | 6.81 | |
| 2/19/2010 | P | | 7.00 | 27.00 | 5.71 | 156.76 | ***12,000*** | ***1,200*** | *120* | ***230*** | ***390*** | <5.0 | 0.81 | 6.70 | i |
| 8/10/2010 | NP | | 7.00 | 27.00 | 7.59 | 154.88 | ***9,700*** | ***1,500*** | *120* | ***400*** | ***400*** | *<20* | 3.81 | 6.8 | |
| 12/16/2010 | P | 162.48 | 7.00 | 27.00 | 6.83 | 155.65 | ***15,000*** | ***1,800*** | *82* | ***270*** | ***210*** | *<25* | 0.49 | 6.81 | j |
| 2/14/2011 | NP | | 7.00 | 27.00 | 7.33 | 155.15 | ***260*** | <0.50 | <0.50 | 2.7 | 11 | *13* | 0.80 | 7.10 | |
| 5/20/2011 | -- | | 7.00 | 27.00 | 6.89 | 155.59 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/15/2011 | P | | 7.00 | 27.00 | 7.59 | 154.89 | ***8,600*** | ***2,100*** | *86* | ***250*** | ***210*** | *<12* | 1.02 | 7.0 | l |
| 2/2/2012 | P | | 7.00 | 27.00 | 7.71 | 154.77 | ***4,600*** | ***1,000*** | 34 | 23 | *33* | *<12* | 0.60 | 7.2 | |
| 8/9/2012 | P | | 7.00 | 27.00 | 6.57 | 155.91 | ***3,200*** | ***660*** | *44* | ***53*** | *57* | <5.0 | 1.09 | 7.05 | |
| **MW-5** | | | | | | | | | | | | | | | |
| 6/20/2000 | -- | 151.33 | 10.00 | 23.00 | 7.84 | 143.49 | <50 | <0.5 | <0.5 | <0.5 | <1.0 | *<10* | -- | -- | |
| 9/28/2000 | -- | | 10.00 | 23.00 | 8.37 | 142.96 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 12/17/2000 | -- | | 10.00 | 23.00 | 8.36 | 142.97 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 3/23/2001 | -- | | 10.00 | 23.00 | 7.55 | 143.78 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 6/21/2001 | -- | | 10.00 | 23.00 | 8.20 | 143.13 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 9/23/2001 | -- | | 10.00 | 23.00 | 8.68 | 142.65 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 12/31/2001 | -- | | 10.00 | 23.00 | 7.57 | 143.76 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 3/21/2002 | -- | | 10.00 | 23.00 | 6.12 | 145.21 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | 3.2 | -- | -- | |
| 4/17/2002 | -- | | 10.00 | 23.00 | 6.61 | 144.72 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-5 Cont.** | | | | | | | | | | | | | | | |
| 8/12/2002 | -- | 151.33 | 10.00 | 23.00 | 8.14 | 143.19 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 4.1 | 7.6 | |
| 12/6/2002 | -- | | 10.00 | 23.00 | 8.65 | 142.68 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | 1.1 | 6.8 | |
| 1/29/2003 | -- | | 10.00 | 23.00 | 7.22 | 144.11 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <0.50 | 1 | 6.6 | b |
| 5/23/2003 | -- | | 10.00 | 23.00 | 7.31 | 144.02 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | 6.6 | |
| 9/4/2003 | -- | | 10.00 | 23.00 | 9.50 | 141.83 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.2 | 6.7 | |
| 11/20/2003 | -- | | 10.00 | 23.00 | 8.31 | 143.02 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/02/2004 | -- | | 10.00 | 23.00 | 6.92 | 144.41 | -- | -- | -- | -- | -- | -- | -- | -- | c, f, h |
| 05/14/2004 | -- | | 10.00 | 23.00 | 8.56 | 142.77 | -- | -- | -- | -- | -- | -- | -- | -- | h |
| 09/02/2004 | P | | 10.00 | 23.00 | 8.79 | 142.54 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.5 | 6.8 | h |
| 11/04/2004 | -- | | 10.00 | 23.00 | 8.33 | 143.00 | -- | -- | -- | -- | -- | -- | -- | -- | c, h |
| 02/08/2005 | -- | | 10.00 | 23.00 | 7.28 | 144.05 | -- | -- | -- | -- | -- | -- | -- | -- | h |
| 05/09/2005 | -- | | 10.00 | 23.00 | 8.19 | 143.14 | -- | -- | -- | -- | -- | -- | -- | -- | h |
| 08/11/2005 | P | | 10.00 | 23.00 | 8.39 | 142.94 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | 6.6 | h |
| 11/18/2005 | -- | | 10.00 | 23.00 | 11.25 | 140.08 | -- | -- | -- | -- | -- | -- | -- | -- | h |
| 02/16/2006 | -- | | 10.00 | 23.00 | 9.22 | 142.11 | -- | -- | -- | -- | -- | -- | -- | -- | h |
| 5/30/2006 | -- | | 10.00 | 23.00 | 7.52 | 143.81 | -- | -- | -- | -- | -- | -- | -- | -- | h |
| 8/24/2006 | P | | 10.00 | 23.00 | 7.95 | 143.38 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.60 | 6.6 | |
| 11/1/2006 | -- | | 10.00 | 23.00 | 8.32 | 143.01 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/7/2007 | -- | | 10.00 | 23.00 | 8.25 | 143.08 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/8/2007 | -- | | 10.00 | 23.00 | 7.60 | 143.73 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/8/2007 | P | | 10.00 | 23.00 | 8.12 | 143.21 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.26 | 7.31 | |
| 11/14/2007 | -- | | 10.00 | 23.00 | 9.10 | 142.23 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/22/2008 | -- | | 10.00 | 23.00 | 7.48 | 143.85 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/24/2008 | -- | | 10.00 | 23.00 | 8.12 | 143.21 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/21/2008 | P | | 10.00 | 23.00 | 8.65 | 142.68 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.14 | 6.54 | |
| 11/19/2008 | -- | | 10.00 | 23.00 | 11.86 | 139.47 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/23/2009 | -- | | 10.00 | 23.00 | 10.20 | 141.13 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/14/2009 | -- | | 10.00 | 23.00 | 9.63 | 141.70 | -- | -- | -- | -- | -- | -- | -- | -- | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-5 Cont.** | | | | | | | | | | | | | | | |
| 8/20/2009 | P | 151.33 | 10.00 | 23.00 | 8.52 | 142.81 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.01 | 6.47 | |
| 2/19/2010 | -- | | 10.00 | 23.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 8/10/2010 | P | | 10.00 | 23.00 | 8.05 | 143.28 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.15 | 7.1 | |
| 12/16/2010 | -- | 156.90 | 10.00 | 23.00 | 8.10 | 148.80 | -- | -- | -- | -- | -- | -- | -- | -- | j |
| 2/14/2011 | -- | | 10.00 | 23.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 5/20/2011 | -- | | 10.00 | 23.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 8/15/2011 | P | | 10.00 | 23.00 | 7.91 | 148.99 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.46 | 7.4 | |
| 2/2/2012 | -- | | 10.00 | 23.00 | 8.08 | 148.82 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/9/2012 | P | | 10.00 | 23.00 | 8.02 | 148.88 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | 1.25 | 6.99 | |
| **MW-6** | | | | | | | | | | | | | | | |
| 6/20/2000 | -- | 153.84 | 5.00 | 15.00 | 4.79 | 149.05 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 9/28/2000 | -- | | 5.00 | 15.00 | 5.39 | 148.45 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | | 5.00 | 15.00 | 4.71 | 149.13 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3/23/2001 | -- | | 5.00 | 15.00 | 4.69 | 149.15 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | -- | -- | |
| 6/21/2001 | -- | | 5.00 | 15.00 | 5.22 | 148.62 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 9/23/2001 | -- | | 5.00 | 15.00 | 5.40 | 148.44 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | | 5.00 | 15.00 | 3.95 | 149.89 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | | 5.00 | 15.00 | 2.94 | 150.90 | <50 | <0.5 | <0.5 | <0.5 | <0.5 | *5.2* | -- | -- | |
| 4/17/2002 | -- | | 5.00 | 15.00 | 5.11 | 148.73 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/12/2002 | -- | | 5.00 | 15.00 | 5.23 | 148.61 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | | 5.00 | 15.00 | 5.29 | 148.55 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1/29/2003 | -- | | 5.00 | 15.00 | 4.79 | 149.05 | -- | -- | -- | -- | -- | -- | -- | -- | b |
| 5/23/2003 | -- | | 5.00 | 15.00 | 4.31 | 149.53 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *9.4* | 1 | 6.7 | |
| 09/04/03 | -- | | 5.00 | 15.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 11/20/2003 | -- | | 5.00 | 15.00 | 6.31 | 147.53 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/02/2004 | -- | 159.41 | 5.00 | 15.00 | 4.78 | 154.63 | -- | -- | -- | -- | -- | -- | -- | -- | f |
| 05/14/2004 | -- | | 5.00 | 15.00 | 6.29 | 153.12 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 09/02/2004 | -- | | 5.00 | 15.00 | 5.79 | 153.62 | -- | -- | -- | -- | -- | -- | -- | -- | d |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-6 Cont.** | | | | | | | | | | | | | | | |
| 11/04/2004 | -- | 159.41 | 5.00 | 15.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 02/08/2005 | -- | | 5.00 | 15.00 | 5.13 | 154.28 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 05/09/2005 | -- | | 5.00 | 15.00 | 4.52 | 154.89 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 08/11/2005 | P | | 5.00 | 15.00 | 5.02 | 154.39 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *7.9* | 2.1 | 6.6 | |
| 11/18/2005 | -- | | 5.00 | 15.00 | 6.31 | 153.10 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 02/16/2006 | -- | | 5.00 | 15.00 | 4.24 | 155.17 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/30/2006 | -- | | 5.00 | 15.00 | 4.45 | 154.96 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/24/2006 | P | | 5.00 | 15.00 | 5.18 | 154.23 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *12* | 3.4 | 6.8 | |
| 11/1/2006 | -- | | 5.00 | 15.00 | 6.05 | 153.36 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/7/2007 | -- | | 5.00 | 15.00 | 5.00 | 154.41 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/8/2007 | -- | | 5.00 | 15.00 | 4.30 | 155.11 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/8/2007 | NP | | 5.00 | 15.00 | 5.51 | 153.90 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.57 | 2.94 | 6.87 | |
| 11/14/2007 | -- | | 5.00 | 15.00 | 5.38 | 154.03 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/22/2008 | -- | | 5.00 | 15.00 | 4.70 | 154.71 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/24/2008 | -- | | 5.00 | 15.00 | 5.25 | 154.16 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/21/2008 | NP | | 5.00 | 15.00 | 6.14 | 153.27 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.9 | 1.99 | 7.13 | |
| 11/19/2008 | -- | | 5.00 | 15.00 | 5.94 | 153.47 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2/23/2009 | -- | | 5.00 | 15.00 | 5.00 | 154.41 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/14/2009 | -- | | 5.00 | 15.00 | 4.60 | 154.81 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/20/2009 | NP | | 5.00 | 15.00 | 5.65 | 153.76 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.0 | 1.98 | 6.81 | |
| 2/19/2010 | -- | | 5.00 | 15.00 | 7.28 | 152.13 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/10/2010 | NP | | 5.00 | 15.00 | 5.02 | 154.39 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.3 | 1.99 | 6.93 | |
| 12/16/2010 | -- | | 5.00 | 15.00 | 4.50 | 154.91 | -- | -- | -- | -- | -- | -- | -- | -- | j |
| 2/14/2011 | -- | | 5.00 | 15.00 | 4.80 | 154.61 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 5/20/2011 | -- | | 5.00 | 15.00 | 4.29 | 155.12 | -- | -- | -- | -- | -- | -- | -- | -- | |
| 8/15/2011 | P | | 5.00 | 15.00 | 4.52 | 154.89 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | 1.55 | 7.1 | |
| 2/2/2012 | -- | | 5.00 | 15.00 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | d |
| 8/9/2012 | P | | 5.00 | 15.00 | 4.65 | 154.76 | <50 | <0.50 | <0.50 | <0.50 | <1.0 | 3.6 | 1.14 | 6.89 | |

**Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | P/NP | TOC (feet) | Top of Screen (ft bgs) | Bottom of Screen (ft bgs) | DTW (feet) | Water Level Elevation (feet) | Concentrations in µg/L | | | | | | DO (mg/L) | pH | Footnote |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | GRO/ TPHg | Benzene | Toluene | Ethyl-Benzene | Total Xylenes | MTBE | | | |
| ESL - DW | | | | | | | 100 | 1.0 | 40 | 30 | 20 | 5.0 | | | |
| ESL - NDW | | | | | | | 210 | 46 | 130 | 43 | 100 | 1,800 | | | |
| **MW-7** | | | | | | | | | | | | | | | |
| 12/16/2010 | P | 164.80 | 5.00 | 20.00 | 6.52 | 158.28 | ***700*** | <0.50 | <0.50 | 15 | *32* | *62* | -- | 7.08 | j |
| 2/14/2011 | NP | | 5.00 | 20.00 | 6.77 | 158.03 | ***7,100*** | ***1,700*** | *98* | ***260*** | ***210*** | *<20* | 1.02 | 6.8 | |
| 5/20/2011 | NP | | 5.00 | 20.00 | 5.84 | 158.96 | ***570*** | <0.50 | <0.50 | *37* | *25* | 4.6 | 1.66 | 6.7 | l (GRO) |
| 8/15/2011 | P | | 5.00 | 20.00 | 6.96 | 157.84 | ***420*** | <1.0 | <1.0 | ***49*** | 6.7 | *14* | 0.58 | 6.9 | |
| 2/2/2012 | P | | 5.00 | 20.00 | 7.15 | 157.65 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *6.2* | 0.45 | 7.5 | |
| 8/9/2012 | P | | 5.00 | 20.00 | 5.05 | 159.75 | 85 | <0.50 | <0.50 | 5.8 | 1.1 | *7.0* | 1.04 | 7.25 | |
| **MW-8** | | | | | | | | | | | | | | | |
| 12/16/2010 | P | 164.14 | 5.00 | 20.00 | 6.85 | 157.29 | ***520*** | *43* | <0.50 | 4.1 | *21* | *150* | 0.46 | 7.12 | j |
| 2/14/2011 | NP | | 5.00 | 20.00 | 7.30 | 156.84 | <50 | *<2.0* | <2.0 | <2.0 | <2.0 | *110* | 1.07 | 6.7 | |
| 5/20/2011 | NP | | 5.00 | 20.00 | 6.88 | 157.26 | <50 | *<2.0* | <2.0 | <2.0 | <2.0 | *88* | 1.35 | 6.5 | |
| 8/15/2011 | P | | 5.00 | 20.00 | 6.00 | 158.14 | <50 | *5.2* | <1.0 | 9.7 | <1.0 | *57* | 0.51 | 6.7 | |
| 2/2/2012 | P | | 5.00 | 20.00 | 7.57 | 156.57 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.9 | 0.68 | 7.1 | |
| 8/9/2012 | P | | 5.00 | 20.00 | 6.08 | 158.06 | *110* | ***67*** | <0.50 | <0.50 | <1.0 | *150* | 1.16 | 6.98 | |
| **MW-9** | | | | | | | | | | | | | | | |
| 12/16/2010 | P | 163.77 | 5.00 | 20.00 | 6.63 | 157.14 | ***330*** | *18* | <0.50 | 11 | *38* | *390* | 0.57 | 6.97 | j |
| 2/14/2011 | NP | | 5.00 | 20.00 | 6.85 | 156.92 | <50 | *<4.0* | <4.0 | <4.0 | <4.0 | *270* | 0.98 | 6.9 | |
| 5/20/2011 | NP | | 5.00 | 20.00 | 6.39 | 157.38 | 66 | *<4.0* | <4.0 | <4.0 | <4.0 | *280* | 1.64 | 6.7 | l (GRO) |
| 8/15/2011 | NP | | 5.00 | 20.00 | 7.09 | 156.68 | <50 | *<2.0* | <2.0 | <2.0 | <2.0 | *120* | 0.88 | 7.1 | |
| 2/2/2012 | P | | 5.00 | 20.00 | 7.18 | 156.59 | <50 | <0.50 | <0.50 | <0.50 | <0.50 | *34* | 0.65 | 7.2 | |
| 8/9/2012 | P | | 5.00 | 20.00 | 5.68 | 158.09 | 82 | *1.9* | <0.50 | <0.50 | <1.0 | *19* | 1.61 | 7.13 | |

Symbols & Abbreviations:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft below TOC
ft bgs = Feet below ground surface
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well was not purged prior to sampling
P = Well was purged prior to sampling
TOC = Top of casing measured in ft
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
BTEX = Benzene, toluene, ethylbenzene and xylenes

ESL - DW = Environmental Screning Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screning Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

Footnotes:
a = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g
b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates
c = Wells gauged with ORC sock in well
d = Well inaccessible
e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range
f = Well resurveyed on 1/27/2004 to NAVD88
g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.
h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable. Historic data prior to 5/30/2006 (change in consultant) not modified
i = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
j = Surveyed 12/9/2010
k = Grab groundwater sample
l = Quantitated against gasoline

Notes:
Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported

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

Values for DO and pH were obtained through field measurements

The DTW's and TOC's for wells MW-5 and MW-6 were taken from Delta Environmental sampling sheets because the well logs were not available

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

**Table 2. Summary of Fuel Additives Analytical Data**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | Concentrations in µg/L | | | | | | | | Footnote |
|---|---|---|---|---|---|---|---|---|---|
| | Ethanol | TBA | MTBE | DIPE | ETBE | TAME | 1,2-DCA | EDB | |
| ESL - DW | NE | 12 | 5.0 | NE | NE | NE | 0.5 | 0.05 | |
| ESL - NDW | NE | 18,000 | 1,800 | NE | NE | NE | 200 | 150 | |
| **MW-1** | | | | | | | | | |
| 3/23/2001 | -- | -- | ***2,710*** | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | -- | ***2,000*** | -- | -- | -- | -- | -- | |
| 5/23/2003 | <20,000 | *<4,000* | *1,600* | <100 | <100 | <100 | -- | -- | |
| 11/20/2003 | <2,000 | *<400* | *1,500* | <10 | <10 | <10 | -- | -- | a |
| 05/14/2004 | <5,000 | *<1,000* | *1,200* | <25 | <25 | <25 | *<25* | *<25* | |
| 09/02/2004 | <1,000 | *<200* | *660* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 11/04/2004 | <2,000 | *<400* | *580* | <10 | <10 | <10 | *<10* | *<10* | |
| 02/08/2005 | <2,000 | *<400* | *610* | <10 | <10 | <10 | *<10* | *<10* | |
| 05/09/2005 | <1,000 | *<200* | *620* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | a |
| 08/11/2005 | <500 | *250* | *390* | <2.5 | <2.5 | 2.6 | *<2.5* | *<2.5* | a |
| 11/18/2005 | <500 | *<100* | *340* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | a |
| 02/16/2006 | <1,500 | *<100* | *340* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 5/30/2006 | <1,500 | *<100* | *420* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | a |
| 8/24/2006 | <3,000 | *<200* | *180* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 11/1/2006 | <3,000 | *<200* | *220* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | a |
| 2/7/2007 | <3,000 | *<200* | *190* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 5/8/2007 | <3,000 | *<200* | *420* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 8/8/2007 | <300 | *<20* | *110* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 11/14/2007 | <1,500 | *<100* | *210* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 2/22/2008 | <300 | <10 | *250* | <0.50 | <0.50 | 1.5 | <0.50 | *<0.50* | |
| 5/24/2008 | <3,000 | *<100* | *380* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 8/21/2008 | <1,500 | *<50* | *170* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 11/19/2008 | <300 | <10 | *30* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/23/2009 | <1,500 | *<50* | *240* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 5/14/2009 | <300 | <10 | *200* | <0.50 | <0.50 | 1.3 | <0.50 | *<0.50* | |
| 8/20/2009 | <1,200 | *<40* | *170* | <2.0 | <2.0 | <2.0 | *<2.0* | *<2.0* | |
| 2/19/2010 | <300 | <10 | *170* | <0.50 | <0.50 | 1.2 | <0.50 | *<0.50* | |
| 8/10/2010 | <1,500 | *<50* | *230* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 12/16/2010 | <1,200 | *<40* | *140* | <2.0 | <2.0 | <2.0 | *<2.0* | *<2.0* | |

**Table 2. Summary of Fuel Additives Analytical Data**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | Concentrations in µg/L | | | | | | | | Footnote |
|---|---|---|---|---|---|---|---|---|---|
| | Ethanol | TBA | MTBE | DIPE | ETBE | TAME | 1,2-DCA | EDB | |
| ESL - DW | NE | 12 | 5.0 | NE | NE | NE | 0.5 | 0.05 | |
| ESL - NDW | NE | 18,000 | 1,800 | NE | NE | NE | 200 | 150 | |
| **MW-1 Cont.** | | | | | | | | | |
| 2/14/2011 | <1,500 | *<50* | *170* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 8/15/2011 | <1,500 | *<50* | *130* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 2/2/2012 | <600 | *<20* | *66* | <1.0 | <1.0 | <1.0 | *<1.0* | *<1.0* | |
| 8/9/2012 | <150 | <10 | *170* | <0.50 | <0.50 | 0.78 | <0.50 | *<0.50* | |
| **MW-2** | | | | | | | | | |
| 3/23/2001 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | -- | *45* | -- | -- | -- | -- | -- | |
| 5/23/2003 | <100 | *<20* | *55* | <0.50 | <0.50 | 0.53 | -- | -- | |
| 02/02/2004 | <100 | *<20* | *37* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 09/02/2004 | <500 | *<100* | *67* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 02/08/2005 | <100 | *<20* | *30* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 08/11/2005 | <100 | *<20* | *35* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | a |
| 02/16/2006 | <300 | *<20* | *39* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/24/2006 | <300 | *<20* | *25* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/7/2007 | <300 | *<20* | *7.2* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/8/2007 | <300 | *<20* | *7.2* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/22/2008 | <300 | <10 | *24* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/21/2008 | <300 | <10 | 4.9 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/23/2009 | <300 | <10 | *24* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/20/2009 | <300 | <10 | *8.4* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/19/2010 | <300 | <10 | *22* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/10/2010 | <300 | <10 | *23* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 12/16/2010 | <300 | <10 | *17* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/14/2011 | <300 | <10 | *11* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/15/2011 | <300 | <10 | 1.7 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/2/2012 | <300 | <10 | 1.8 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | <10 | *73* | <0.50 | <0.50 | 0.61 | <0.50 | *<0.50* | |
| **MW-3** | | | | | | | | | |

**Table 2. Summary of Fuel Additives Analytical Data**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | Concentrations in µg/L | | | | | | | | Footnote |
|---|---|---|---|---|---|---|---|---|---|
| | Ethanol | TBA | MTBE | DIPE | ETBE | TAME | 1,2-DCA | EDB | |
| ESL - DW | NE | 12 | 5.0 | NE | NE | NE | 0.5 | 0.05 | |
| ESL - NDW | NE | 18,000 | 1,800 | NE | NE | NE | 200 | 150 | |
| **MW-3 Cont.** | | | | | | | | | |
| 6/20/2000 | -- | -- | *<10* | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 6/21/2001 | -- | -- | 2.5 | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | -- | 4.9 | -- | -- | -- | -- | -- | |
| 4/17/2002 | -- | -- | *8.7* | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | -- | *6.2* | -- | -- | -- | -- | -- | |
| 5/23/2003 | <100 | *<20* | 1.6 | <0.50 | <0.50 | <0.50 | -- | -- | |
| 09/02/2004 | <100 | *<20* | *6.5* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 08/11/2005 | <100 | *<20* | *11* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | a |
| 8/24/2006 | <300 | *<20* | *7.6* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/8/2007 | <300 | *<20* | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/21/2008 | <300 | <10 | 3.1 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/20/2009 | <300 | <10 | 2.2 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/10/2010 | <300 | <10 | 1.6 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/15/2011 | <300 | <10 | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | <10 | 2.0 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| **MW-4** | | | | | | | | | |
| 6/20/2000 | -- | -- | *<250* | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | -- | *<100* | -- | -- | -- | -- | -- | |
| 6/21/2001 | -- | -- | *130* | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | -- | *160* | -- | -- | -- | -- | -- | |
| 4/17/2002 | -- | -- | *<250* | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | -- | *43* | -- | -- | -- | -- | -- | |
| 5/23/2003 | <10,000 | *<2,000* | *<50* | <50 | <50 | <50 | -- | -- | |
| 02/02/2004 | <500 | *<100* | *29* | <2.5 | <2.5 | 2.6 | *<2.5* | *<2.5* | |
| 09/02/2004 | <200 | *<40* | *28* | <1.0 | <1.0 | <1.0 | *<1.0* | *<1.0* | |
| 02/08/2005 | <5,000 | *<1,000* | *45* | <25 | <25 | <25 | *<25* | *<25* | |
| 08/11/2005 | <2,000 | *<400* | *32* | <10 | <10 | <10 | *<10* | *<10* | |
| 02/16/2006 | <6,000 | *<400* | *35* | <10 | <10 | <10 | *<10* | *<10* | |

**Table 2. Summary of Fuel Additives Analytical Data**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | Concentrations in µg/L | | | | | | | | Footnote |
|---|---|---|---|---|---|---|---|---|---|
| | Ethanol | TBA | MTBE | DIPE | ETBE | TAME | 1,2-DCA | EDB | |
| ESL - DW | NE | 12 | 5.0 | NE | NE | NE | 0.5 | 0.05 | |
| ESL - NDW | NE | 18,000 | 1,800 | NE | NE | NE | 200 | 150 | |
| **MW-4 Cont.** | | | | | | | | | |
| 8/24/2006 | <1,500 | *<100* | *39* | <2.5 | <2.5 | <2.5 | *<2.5* | *<2.5* | |
| 2/7/2007 | <6,000 | *<400* | *67* | <10 | <10 | <10 | *<10* | *<10* | |
| 8/8/2007 | <6,000 | *<400* | *72* | <10 | <10 | <10 | *<10* | *<10* | |
| 2/22/2008 | <6,000 | *<200* | *70* | <10 | <10 | <10 | *<10* | *<10* | |
| 8/21/2008 | <12,000 | *<400* | *53* | <20 | <20 | <20 | *<20* | *<20* | |
| 2/23/2009 | <3,000 | *<100* | *39* | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 8/20/2009 | <12,000 | *<400* | *23* | <20 | <20 | <20 | *<20* | *<20* | |
| 2/19/2010 | <3,000 | *<100* | <5.0 | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| 8/10/2010 | <12,000 | *<400* | *<20* | <20 | <20 | <20 | *<20* | *<20* | |
| 12/16/2010 | <15,000 | *<500* | *<25* | <25 | <25 | <25 | *<25* | *<25* | |
| 2/14/2011 | <300 | <10 | *13* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/15/2011 | <7,500 | *<250* | *<12* | <12 | <12 | <12 | *<12* | *<12* | |
| 2/2/2012 | <7,500 | *<250* | *<12* | <12 | <12 | <12 | *<12* | *<12* | |
| 8/9/2012 | <1,500 | *<100* | <5.0 | <5.0 | <5.0 | <5.0 | *<5.0* | *<5.0* | |
| **MW-5** | | | | | | | | | |
| 6/20/2000 | -- | -- | *<10* | -- | -- | -- | -- | -- | |
| 9/28/2000 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 12/17/2000 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 3/23/2001 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 6/21/2001 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 9/23/2001 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 12/31/2001 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | -- | 3.2 | -- | -- | -- | -- | -- | |
| 4/17/2002 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 8/12/2002 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 12/6/2002 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 1/29/2003 | <40 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | -- | -- | |
| 5/23/2003 | <100 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | -- | -- | |
| 9/4/2003 | <100 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |

**Table 2. Summary of Fuel Additives Analytical Data**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | Concentrations in µg/L | | | | | | | | Footnote |
|---|---|---|---|---|---|---|---|---|---|
| | Ethanol | TBA | MTBE | DIPE | ETBE | TAME | 1,2-DCA | EDB | |
| ESL - DW | NE | 12 | 5.0 | NE | NE | NE | 0.5 | 0.05 | |
| ESL - NDW | NE | 18,000 | 1,800 | NE | NE | NE | 200 | 150 | |
| **MW-5 Cont.** | | | | | | | | | |
| 09/02/2004 | <100 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 08/11/2005 | <100 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/24/2006 | <300 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/8/2007 | <300 | *<20* | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/21/2008 | <300 | <10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/20/2009 | <300 | <10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/10/2010 | <300 | <10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/15/2011 | <300 | <10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | <10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| **MW-6** | | | | | | | | | |
| 3/23/2001 | -- | -- | <2.5 | -- | -- | -- | -- | -- | |
| 3/21/2002 | -- | -- | *5.2* | -- | -- | -- | -- | -- | |
| 5/23/2003 | <100 | *<20* | *9.4* | <0.50 | <0.50 | <0.50 | -- | -- | |
| 08/11/2005 | <100 | *<20* | *7.9* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | a |
| 8/24/2006 | <300 | *<20* | *12* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/8/2007 | <300 | *<20* | 0.57 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/21/2008 | <300 | <10 | 1.9 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/20/2009 | <300 | <10 | 2.0 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/10/2010 | <300 | <10 | 4.3 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/15/2011 | <300 | <10 | 2.2 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | <10 | 3.6 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| **MW-7** | | | | | | | | | |
| 12/16/2010 | <300 | <10 | *62* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 2/14/2011 | <1,2000 | *<400* | *<20* | <20 | <20 | <20 | *<20* | *<20* | |
| 5/20/2011 | <300 | <10 | 4.6 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/15/2011 | <600 | *<20* | *14* | <1.0 | <1.0 | <1.0 | *<1.0* | *<1.0* | |
| 2/2/2012 | <300 | <10 | *6.2* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | <10 | *7.0* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |

**Table 2. Summary of Fuel Additives Analytical Data**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Well ID and Date Monitored | Concentrations in µg/L | | | | | | | | Footnote |
|---|---|---|---|---|---|---|---|---|---|
| | Ethanol | TBA | MTBE | DIPE | ETBE | TAME | 1,2-DCA | EDB | |
| ESL - DW | NE | 12 | 5.0 | NE | NE | NE | 0.5 | 0.05 | |
| ESL - NDW | NE | 18,000 | 1,800 | NE | NE | NE | 200 | 150 | |
| **MW-8** | | | | | | | | | |
| 12/16/2010 | <300 | <10 | *150* | <0.50 | <0.50 | 1.7 | <0.50 | *<0.50* | |
| 2/14/2011 | <1,200 | *<40* | *110* | <2.0 | <2.0 | <2.0 | *<2.0* | *<2.0* | |
| 5/20/2011 | <1,200 | *<40* | *88* | <2.0 | <2.0 | <2.0 | *<2.0* | *<2.0* | |
| 8/15/2011 | <600 | *<20* | *57* | <1.0 | <1.0 | <1.0 | *<1.0* | *<1.0* | |
| 2/2/2012 | <300 | <10 | 3.9 | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | *31* | *150* | <0.50 | <0.50 | 2.0 | <0.50 | *<0.50* | |
| **MW-9** | | | | | | | | | |
| 12/16/2010 | <300 | *40* | *390* | <0.50 | <0.50 | 4.1 | <0.50 | *<0.50* | |
| 2/14/2011 | <2,400 | *<80* | *270* | <4.0 | <4.0 | <4.0 | *<4.0* | *<4.0* | |
| 5/20/2011 | <2,400 | *<80* | *280* | <4.0 | <4.0 | <4.0 | *<4.0* | *<4.0* | |
| 8/15/2011 | <1,200 | *<40* | *120* | <2.0 | <2.0 | <2.0 | *<2.0* | *<2.0* | |
| 2/2/2012 | <300 | <10 | *34* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |
| 8/9/2012 | <150 | <10 | *19* | <0.50 | <0.50 | <0.50 | <0.50 | *<0.50* | |

Symbols & Abbreviations:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above the laboratory reporting limi
1,2-DCA = 1,2-Dichloroethane
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

ESL - DW = Environmental Screning Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screning Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil & Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

Footnotes:
a = The continuing calibration verification for ethanol was outside of client contractual limits, however, it was within method acceptance limits. The data should still be useful for its intended purpose

Notes:
All volatile organic compounds analyzed using EPA Method 8260B

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

**Table 3. Historical Groundwater Gradient - Direction and Magnitude**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Date Measured | Approximate Gradient Direction | Approximate Gradient Magnitude (ft/ft) |
|---|---|---|
| 1/31/1996 | Southwest | 0.04 |
| 4/10/1996 | Southwest | 0.04 |
| 7/16/1996 | Southwest | 0.03 |
| 10/14/1996 | Southwest | 0.03 |
| 3/27/1997 | Southwest | 0.04 |
| 5/27/1997 | Southwest | 0.03 |
| 8/12/1997 | Southwest | 0.04 |
| 11/17/1997 | Southwest | 0.03 |
| 3/16/1998 | Southwest | 0.03 |
| 5/12/1998 | Southwest | 0.04 |
| 7/27/1998 | Southwest | 0.04 |
| 10/15/1998 | Southwest | 0.02 |
| 2/18/1999 | Southwest | 0.05 |
| 5/24/1999 | Southwest | 0.03 |
| 8/27/1999 | Southwest | 0.03 |
| 10/26/1999 | Southwest | 0.03 |
| 2/3/2000 | Southwest | 0.047 |
| 6/20/2000 | Southwest | 0.035 |
| 9/28/2000 | Southwest | 0.034 |
| 12/17/2000 | Southwest | 0.032 |
| 3/23/2001 | Southwest | 0.034 |
| 6/21/2001 | Southwest | 0.032 |
| 9/23/2001 | Southwest | 0.029 |
| 12/31/2001 | Southwest | 0.043 |
| 3/21/2002 | Southwest | 0.038 |
| 4/17/2002 | Southwest | 0.031 |
| 8/12/2002 | Southwest | 0.032 |
| 12/6/2002 | Southwest | 0.020 |
| 1/29/2003 | Southwest | 0.027 |
| 5/23/2003 | Southwest | 0.039 |
| 9/4/2003 | Southwest | 0.033 |
| 11/20/2003 | Southwest | 0.029 |
| 2/2/2004 | Southwest | 0.043 (a) |
| 5/14/2004 | Southwest | 0.037 (a) |
| 9/2/2004 | Southwest | 0.027 (a) |
| 11/4/2004 | Southwest | 0.034 (a) |
| 2/8/2005 | Southwest | 0.061 (a) |
| 5/9/2005 | Southwest | 0.08 (a) |
| 8/11/2005 | Southwest | 0.06 (a) |
| 11/18/2005 | Southwest | 0.07 (a) |
| 2/16/2006 | Southwest | 0.09 (a) |
| 5/30/2006 | Southwest | 0.06 (a) |
| 8/24/2006 | Southwest | 0.03 |
| 11/1/2006 | Southwest | 0.02 |
| 2/7/2007 | Southwest | 0.03 |

**Table 3. Historical Groundwater Gradient - Direction and Magnitude**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

| Date Measured | Approximate Gradient Direction | Approximate Gradient Magnitude (ft/ft) |
|---|---|---|
| 5/8/2007 | Southwest | 0.03 |
| 8/8/2007 | Southwest | 0.03 |
| 11/14/2007 | Southwest | 0.03 |
| 2/22/2008 | Southwest | 0.03 |
| 5/24/2008 | Southwest | 0.03 |
| 8/21/2008 | Southwest | 0.03 |
| 11/19/2008 | Southwest | 0.03 |
| 2/23/2009 | Southwest | 0.04 |
| 5/14/2009 | Southwest | 0.03 |
| 8/20/2009 | Southwest | 0.03 |
| 2/19/2010 | West-Southwest | 0.05 |
| 8/10/2010 | Southwest | 0.03 |
| 12/16/2010 | Southwest | 0.03 |
| 2/14/2011 | Southwest | 0.03 |
| 5/20/2011 | Southwest | 0.03 |
| 8/15/2011 | Southwest | 0.03 |
| 2/2/2012 | Southwest | 0.03 |
| **8/9/2012** | **Southwest** | **0.03** |

Footnotes:
a = Gradients potentially suspect due to error in MW-4 and MW-5 TOC measuring point elevations discovered third quarter 2006

Notes:
The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

# APPENDIX A

FIELD METHODS

**QUALITY ASSURANCE/QUALITY CONTROL**
**FIELD METHODS**

Field methods discussed herein were implemented to provide for accuracy and reliability of field activities, data collection, sample collection, and handling. Discussion of these methods is provided below.

## 1.0 Equipment Calibration

Equipment calibration was performed per equipment manufacturer specifications before use.

## 2.0 Depth to Groundwater and Light Non-Aqueous Phase Liquid Measurement

Depth to groundwater was measured in wells identified for gauging in the scope of work using a decontaminated water level indicator. The depth to water measurement was taken from a cut notch or permanent mark at the top of the well casing to which the well head elevation was originally surveyed.

Once depth to water was measured, an oil/water interface meter or a new disposable bailer was utilized to evaluate the presence and, if present, to measure the "apparent" thickness of light non-aqueous phase liquid (LNAPL) in the well. If LNAPL was present in the well, groundwater purging and sampling were not performed, unless sampling procedures in the scope of work specified collection of samples in the presence of LNAPL. Otherwise, time allowing, LNAPL was bailed from the well using either a new disposable bailer, or the disposal bailer previously used for initial LNAPL assessment. Bailing of LNAPL continued until the thickness of LNAPL (or volume) stabilized in each bailer pulled from the well, or LNAPL was no longer present. After LNAPL thickness either stabilized or was eliminated, periodic depth to water and depth to LNAPL measurements were collected as product came back into the well to evaluate product recovery rate and to aid in further assessment of LNAPL in the subsurface. LNAPL thickness measurements were recorded as "apparent." If a bailer was used for LNAPL thickness measurement, the field sampler noted the bailer entry diameter and chamber diameter to enable correction of thickness measurements. Recovered LNAPL was stored on-site in a labeled steel drum(s) or other appropriate container(s) prior to disposal.

## 3.0 Well Purging and Groundwater Sample Collection

Well purging and groundwater sampling were performed in wells specified in the scope of work after measuring depth to groundwater and evaluating the presence of LNAPL. Purging and sampling were performed using one of the methods detailed below. The method used was noted in the field records. Purge water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal or on-site treatment (in cases where treatment using an on-site system is authorized).

### 3.1 Purging a Predetermined Well Volume

Purging a predetermined well volume is performed per ASTM International (ASTM) D4448-01. This purging method has the objective of removing a predetermined volume of stagnant water from the well prior to sampling. The volume of stagnant water

is defined as either the volume of water contained within the well casing, or the volume within the well casing and sand/gravel in the annulus if natural flow through these is deemed insufficient to keep them flushed out.

This purging method involves removal of a minimum of three stagnant water volumes from the well using a decontaminated pump with new disposable plastic discharge or suction tubing, dedicated well tubing, or using a new disposable or decontaminated reusable bailer. If a new disposable bailer was used for assessment of LNAPL, that bailer may be used for purging. The withdrawal rate used is one that minimizes drawdown while satisfying time constraints.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. Parameters are considered stable when two (2) consecutive readings recorded three (3) minutes apart fall within ranges provided below in Table 1. In the event that the parameters have not stabilized and five (5) well casing volumes have been removed, purging activities will cease and be considered complete. Once the well is purged, a groundwater sample(s) is collected from the well using a new disposable bailer. If a new disposable bailer was used for purging, that bailer may be used to collect the sample(s). A sample is not collected if the well is inadvertently purged dry.

Table 1. Criteria for Defining Stabilization of Water-Quality Indicator Parameters

| Parameter | Stabilization Criterion |
|---|---|
| Temperature | ± 0.2ºC (± 0.36ºF) |
| pH | ± 0.1 standard units |
| Conductivity | ± 3% |
| Dissolved oxygen | ± 10% |
| Oxidation reduction potential | ± 10 mV |
| Turbidity[1] | ± 10% or 1.0 NTU (whichever is greater) |

## 3.2 Low-Flow Purging and Sampling

“Low-Flow”, “Minimal Drawdown”, or "Low-Stress” purging is performed per ASTM D6771-02. It is a method of groundwater removal from within a well’s screened interval that is intended to minimize drawdown and mixing of the water column in the well casing. This is accomplished by pumping the well using a decontaminated pump with new disposable plastic discharge or suction tubing or dedicated well tubing at a low flow rate while evaluating the groundwater elevation during pumping.

[1] As stated in ASTM D6771-02, turbidity is not a chemical parameter and not indicative of when formation-quality water is being purged; however, turbidity may be helpful in evaluating stress on the formation during purging. Turbidity measurements are taken at the same time that stabilization parameter measurements are made, or, at a minimum, once when purging is initiated and again just prior to sample collection, after stabilization parameters have stabilized. To avoid artifacts in sample analysis, turbidity should be as low as possible when samples are collected. If turbidity values are persistently high, the withdrawal rate is lowered until turbidity decreases. If high turbidity persists even after lowering the withdrawal rate, the purging is stopped for a period of time until turbidity settles, and the purging process is then restarted. If this fails to solve the problem, the purging/sampling process for the well is ceased, and well maintenance or redevelopment is considered.

The low flow pumping rate is well specific and is generally established at a volume that is less than or equal to the natural recovery rate of the well. A pump with adjustable flow rate control is positioned with the intake at or near the mid-point of the submerged well screen. The pumping rate used during low-flow purging is low enough to minimize mobilization of particulate matter and drawdown (stress) of the water column. Low-flow purging rates will vary based on the individual well characteristics; however, the purge rate should not exceed 1.0 Liter per minute (L/min) or 0.25 gallon per minute (gal/min). Low-flow purging should begin at a rate of approximately 0.1 L/min (0.03 gal/min)[2], or the lowest rate possible, and be adjusted based on an evaluation of drawdown. Water level measurements should be recorded at approximate one (1) to two (2) minute intervals until the low-flow rate has been established, and drawdown is minimized. As a general rule, drawdown should not exceed 25% of the distance between the top of the water column and the pump in-take.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. The frequency between measurements will be at an interval of one (1) to three (3) minutes; however, if a flow cell is used, the frequency will be determined based on the time required to evacuate one cell volume. Stabilization is defined as three (3) consecutive readings recorded several minutes apart falling within ranges provided in Table 1. Samples will be collected by filling appropriate containers from the pump discharge tubing at a rate not to exceed the established pumping rate.

### 3.3 Minimal Purge, Discrete Depth, and Passive Sampling

Per ASTM D4448-01, sampling techniques that do not rely on purging, or require only minimal purging, may be used if a particular zone within a screened interval is to be sampled or if a well is not capable of yielding sufficient groundwater for purging. To properly use these sampling techniques, a water sample is collected within the screened interval with little or no mixing of the water column within the casing. These techniques include minimal purge sampling which uses a dedicated sampling pump capable of pumping rates of less than 0.1 L/min (0.03 gal/min)[2], discrete depth sampling using a bailer that allows groundwater entry at a controlled depth (e.g. differential pressure bailer), or passive (diffusion) sampling. These techniques are based on certain studies referenced in ASTM D4448-01 that indicate that under certain conditions, natural groundwater flow is laminar and horizontal with little or no mixing within the well screen.

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[2] According to ASTM D4448-01, studies have indicated that at flow rates of 0.1 L/min, low-density polyethylene (LDPE) and plasticized polypropylene tubing materials are prone to sorption. Therefore, TFE-fluorocarbon or other appropriate tubing material is used, particularly when tubing lengths of 50 feet or longer are used.

## 4.0 Decontamination

Reusable groundwater sampling equipment were cleaned using a solution of Alconox or other acceptable detergent, rinsed with tap water, and finally rinsed with distilled water prior to use in each well. Decontamination water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal.

## 5.0 Sample Containers, Labeling, and Storage

Samples were collected in laboratory prepared containers with appropriate preservative (if preservative was required). Samples were properly labeled (site name, sample I.D., sampler initials, date, and time of collection) and stored chilled (refrigerator or ice chest with ice) until delivery to a certified laboratory, under chain of custody procedures.

## 6.0 Chain of Custody Record and Procedure

The field sampler was personally responsible for care and custody of the samples collected until they were properly transferred to another party. To document custody and transfer of samples, a Chain of Custody Record was prepared. The Chain of Custody Record provided identification of the samples corresponding to sample labels and specified analyses to be performed by the laboratory. The original Chain of Custody Record accompanied the shipment, and a copy of the record was stored in the project file. When the samples were transferred, the individuals relinquishing and receiving them signed, dated, and noted the time of transfer on the record.

## 7.0 Field Records

Daily Report and data forms were completed by staff personnel to provide daily record of significant events, observations, and measurements. Field records were signed, dated, and stored in the project file.

**APPENDIX B**

FIELD DATA SHEETS
AND
NON-HAZARDOUS WASTE DATA FORM

BROADBENT

# DAILY REPORT

Page 1 of 1

Project: BP 374 Project No.: 0688-607

Field Representative(s): A. Martinez / J. Ramos Day: Thursday Date: 8/9/12

Time Onsite: From: 0700 To: 1330 ; From: _____ To: _____ ; From: _____ To: _____

x Signed HASP x Safety Glasses x Hard Hat x Steel Toe Boots x Safety Vest

x UST Emergency System Shut-off Switches Located x Proper Gloves

x Proper Level of Barricading x Other PPE (describe) sunblock

Weather: Sunny

Equipment In Use: Water level meter, water quality meter, peristaltic pump Horiba

Visitors: Kristene Tidwell.

| TIME: | WORK DESCRIPTION: |
|---|---|
| 0700 | Arrived onsited and conducted safety tailgate. |
| 0800 | Set up @ MW-1 ; Kristene T. arrives on-site @ 830 - conducted safety meeting |
| 0845 | Set up @ MW-2 |
| 0925 | Set up @ MW-9 |
| 1000 | Set up @ MW-8 ; Kristene T. signs out & leave site |
| 1030 | Set up @ MW-7 |
| 1100 | Set up @ MW-4 |
| 1145 | Set up @ MW-6 |
| 1215 | Set up @ MW-3 |
| 1240 | Set up @ MW-5 |
| 1330 | Completed field work, cleaned up and offsite |

Signature: James Ramos

Revision 1/24/2012

BROADBENT

# GROUNDWATER MONITORING SITE SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR Elevation: _____

Formation recharge rate is historically: High Low *(circle one)*

W. L. Indicator ID #: _____ Oil/Water Interface ID #: _____ *(List #s of all equip used.)*

| WELL ID RECORD | | | | | WELL GAUGING RECORD | | | | | LAB ANALYSES | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well ID | Well Sampling Order | As-Built Well Diameter (inches) | As-Built Well Screen Interval (ft) | Previous Depth to Water (ft) | Time (24:00) | Depth to LNAPL (ft) | Apparent LNAPL Thickness (ft)* | Depth to Water (ft) | Well Total Depth (ft) | | | | | | |
| MW-1 | | | | | 0811 | - | - | 6.69 | 26.77 | | | | | | |
| MW-2 | | | | | 0850 | - | - | 6.31 | 26.55 | | | | | | |
| MW-3 | | | | | 1216 | - | - | 6.62 | 26.80 | | | | | | |
| MW-4 | | | | | 1101 | - | - | 6.57 | 26.97 | | | | | | |
| MW-5 | | | | | 1244 | - | - | 23.10 | 8.02 | | | | | | |
| MW-6 | | | | | 1150 | - | - | 4.65 | 14.65 | | | | | | |
| MW-7 | | | | | 1051 | - | - | 5.05 | 19.80 | | | | | | |
| MW-8 | | | | | 1002 | - | - | 6.08 | 19.40 | | | | | | |
| MW-9 | | | | | 0930 | - | - | 5.68 | 19.35 | | | | | | |

* Device used to measure LNAPL thickness: Bailer Oil/Water Interface Meter *(circle one)*

If bailer used, note bailer dimensions (inches): Entry Diameter _____ Chamber Diameter _____

Signature: James Ramm

Revision: 1/24/2012

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-1 Start Time: 0819 End Time: 840 Total Time (minutes): 21

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

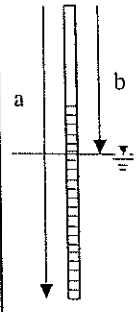
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 26.77 (ft)
Initial Depth to Water (b): 6.69 (ft)
Pump In-take Depth = b + (a-b)/2: 16.73 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.51 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 0823 | 0.0 | 19.75 | 7.35 | 0.898 | 4.25 | 80 | 0.0 | |
| 0825 | 0.5 | 19.37 | 7.06 | 0.788 | 2.67 | 94 | 0.0 | |
| 0827 | 1.0 | 19.29 | 7.02 | 0.775 | 2.01 | 100 | 0.0 | |
| 0829 | 1.5 | 19.28 | 7.00 | 0.770 | 1.79 | 104 | 0.0 | |
| 0831 | 2.0 | 19.27 | 6.99 | 0.767 | 1.65 | 106 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 7.05 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-1 Sample Collection Time: 0835 (24:00)
Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 0831 | ~~5~~ 1.65 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 0831 | 106 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature: James Ram

BRIAGENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-2 Start Time: 0855 End Time: 0915 Total Time (minutes): 17

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

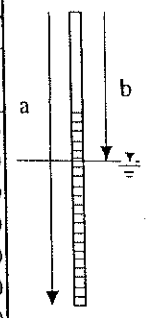
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 26.35 (ft)
Initial Depth to Water (b): 6.31 (ft)
Pump In-take Depth = b + (a-b)/2: 16.33 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.50 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 0900 | 0.0 | 22.76 | 7.20 | 0.617 | 2.49 | 109 | 0.0 | |
| 0902 | 0.5 | 22.81 | 7.15 | 0.615 | 1.66 | 109 | 0.0 | |
| 0904 | 1.0 | 22.83 | 7.14 | 0.613 | 1.37 | 109 | 0.0 | |
| 0906 | 1.5 | 22.86 | 7.15 | 0.613 | 1.28 | 108 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 6.76 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:

Sample ID: MW-2 Sample Collection Time: 0910 (24:00)

Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 0906 | 1.28 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 0906 | 108 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-3 Start Time: 1219 End Time: 1240 Total Time (minutes): 21

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap. lock. vault. etc.) Comments:
(Good) Improvement Needed *(circle one)*

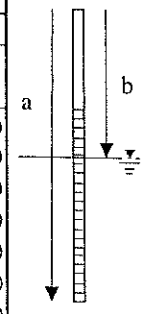
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 26.80 (ft)
Initial Depth to Water (b): 6.62 (ft)
Pump In-take Depth = b + (a-b)/2: 16.71 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.52 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 1221 | 0.0 | 25.28 | 6.82 | 0.668 | 2.44 | -9 | 170 | |
| 1223 | 0.5 | 22.80 | 6.74 | 0.687 | 1.67 | -9 | 117 | |
| 1225 | 1.0 | 22.50 | 6.72 | 0.683 | 1.17 | -13 | 96.1 | |
| 1227 | 1.5 | 22.73 | 6.71 | 0.684 | 1.16 | -14 | 84.7 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 7.12 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:

Sample ID: MW-3 Sample Collection Time: 1232 (24:00)

Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 1227 | 1.16 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 1227 | -14 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-4 Start Time: 1106 End Time: 1130 Total Time (minutes): 24

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap. lock. vault. etc.) Comments:
(Good) Improvement Needed *(circle one)*

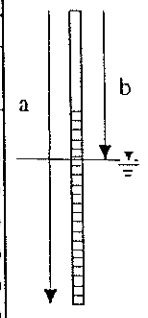
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 26.97 (ft)
Initial Depth to Water (b): 6.57 (ft)
Pump In-take Depth = b + (a-b)/2: 16.77 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.59 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 1108 | 0.0 | 21.92 | 7.13 | 1.01 | 2.28 | -110 | 20.5 | Hydrocarbon odor |
| 1110 | 0.5 | 21.06 | 7.08 | 1.01 | 1.58 | -118 | 1.9 | " |
| 1112 | 1.0 | 20.78 | 7.06 | 1.00 | 1.32 | -125 | 0.0 | " |
| 1114 | 1.5 | 20.79 | 7.05 | 0.999 | 1.15 | -126 | 0.0 | " |
| 1116 | 2.0 | 20.77 | 7.05 | 1.00 | 1.09 | -130 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 7.05 (ft)

Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:

Sample ID: MW-4 Sample Collection Time: 1121 (24:00)

Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 1116 | 1.09 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 1116 | -130 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-5 Start Time: 1245 End Time: 1305 Total Time (minutes): 20

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

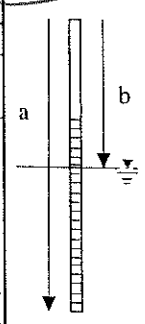
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 23.10 (ft)
Initial Depth to Water (b): 8.02 (ft)
Pump In-take Depth = b + (a-b)/2: 15.56 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.88 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 1249 | 0.0 | 25.59 | 7.17 | 0.589 | 2.16 | 12 | 0.0 | |
| 1251 | 0.5 | 24.17 | 7.05 | 0.573 | 1.48 | 27 | 0.0 | |
| 1253 | 1.0 | 23.91 | 7.02 | 0.568 | 1.20 | 30 | 0.0 | |
| 1255 | 1.5 | 23.67 | 6.99 | 0.563 | 1.25 | 35 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 8.61 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-5 Sample Collection Time: 1256 (24:00)
Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 1255 | 1.25 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 1255 | 35 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-6 Start Time: 1151 End Time: 1210 Total Time (minutes): 19

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

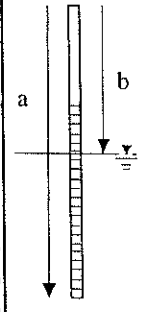
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 14.65 (ft)
Initial Depth to Water (b): 4.65 (ft)
Pump In-take Depth = b + (a-b)/2: 9.65 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.25 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 1153 | 0.0 | 25.16 | 7.24 | 0.570 | 2.86 | -1 | 0.0 | |
| 1155 | 0.5 | 23.38 | 7.00 | 0.579 | 1.64 | 19 | 0.0 | |
| 1157 | 1.0 | 22.59 | 6.91 | 0.572 | 1.14 | 29 | 0.0 | |
| 1159 | 1.5 | 22.50 | 6.89 | 0.569 | 1.14 | 33 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 5.23 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-6 Sample Collection Time: 1203 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 1159 | 1.14 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 1159 | 33 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-7 Start Time: 1035 End Time: 1055 Total Time (minutes): 20

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

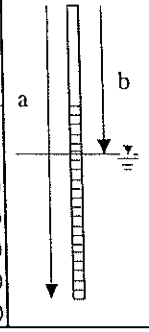
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 19.80 (ft)
Initial Depth to Water (b): 5.05 (ft)
Pump In-take Depth = b + (a-b)/2: 12.42 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.84 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 1037 | 0.0 | 24.78 | 7.27 | 0.780 | 2.83 | 7 | 0.0 | |
| 1039 | 0.5 | 24.37 | 7.26 | 0.784 | 1.66 | -25 | 0.0 | |
| 1041 | 1.0 | 24.32 | 7.25 | 0.785 | 1.29 | -37 | 0.0 | |
| 1043 | 1.5 | 24.30 | 7.25 | 0.782 | 1.15 | -40 | 0.0 | |
| 1045 | 2.0 | 24.32 | 7.25 | 0.781 | 1.04 | -43 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 5.33 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-7 Sample Collection Time: 1050 (24:00)
Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 1045 | 1.04 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 1045 | -43 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

Revision: 8/19/11

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 574 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JR

Well ID: MW-9 Start Time: 1006 End Time: 1026 Total Time (minutes): 20

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap. lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

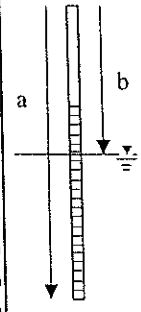
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other: ___" | (___)
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81)

Total Well Depth (a): ___(ft)
Initial Depth to Water (b): ___(ft)
Water Column Height (WCH) = (a - b): ___(ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___(gal)
Three Casing Volumes = WCV x 3: ___(gal)
Five Casing Volumes = WCV x 5: ___(gal)
Pump Depth (if pump used): ___(ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___(lpm)
Total Well Depth (a): 19.40 (ft)
Initial Depth to Water (b): 6.68 (ft)
Pump In-take Depth = b + (a-b)/2: 12.74 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.66 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or mS | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 1008 | 0.0 | 24.17 | 7.15 | 0.619 | 2.61 | 45 | 0.0 | |
| 1010 | 0.5 | 24.04 | 7.03 | 0.616 | 1.82 | 51 | 0.0 | |
| 1012 | 1.0 | 24.07 | 7.00 | 0.613 | 1.48 | 53 | 0.0 | |
| 1014 | 1.5 | 24.10 | 6.99 | 0.612 | 1.30 | 54 | 0.0 | |
| 1016 | 2.0 | 24.17 | 6.98 | 0.612 | 1.16 | 55 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 6.45 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-9 Sample Collection Time: 1020 (24:00)
Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 1016 | 1.16 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 1014 | 55 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

BROADBENT

# GROUNDWATER SAMPLING DATA SHEET



Project: BP 374 Project No.: 06-88-602 Date: 8/9/12

Field Representative: AM/JE

Well ID: MW-9 Start Time: 0934 End Time: 0950 Total Time (minutes): 16

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

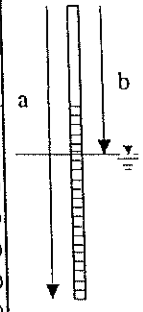
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

## PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ___ (ft)
Initial Depth to Water (b): ___ (ft)
Water Column Height (WCH) = (a - b): ___ (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ___ (gal)
Three Casing Volumes = WCV x 3: ___ (gal)
Five Casing Volumes = WCV x 5: ___ (gal)
Pump Depth (if pump used): ___ (ft)




## LOW-FLOW

Previous Low-Flow Purge Rate: ___ (lpm)
Total Well Depth (a): 19.35 (ft)
Initial Depth to Water (b): 5.68 (ft)
Pump In-take Depth = b + (a-b)/2: 12.51 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.70 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

## GROUNDWATER STABILIZATION PARAMETER RECORD

| Time (24:00) | Cumulative Volume (L) | Temperature °C | pH | Conductivity µS or (mS) | DO mg/L | ORP mV | Turbidity NTU | NOTES Odor, color, sheen or other |
|---|---|---|---|---|---|---|---|---|
| 0936 | 0.0 | 22.92 | 7.23 | 0.726 | 2.75 | 8 | 0.0 | |
| 0938 | 0.5 | 22.78 | 7.15 | 0.726 | 1.92 | -33 | 0.0 | |
| 0940 | 1.0 | 22.70 | 7.13 | 0.727 | 1.61 | -43 | 0.0 | |
| 0942 | 1.5 | 22.64 | 7.13 | 0.727 | 1.61 | -48 | 0.0 | |
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| Previous Stabilized Parameters | | | | | | | | |

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 5.90 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-9 Sample Collection Time: 0946 (24:00)
Containers (#): 6 VOA ( X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

## GEOCHEMICAL PARAMETERS

| Parameter | Time | Measurement |
|---|---|---|
| DO (mg/L) | 0942 | 1.61 |
| Ferrous Iron (mg/L) | | |
| Redox Potential (mV) | 0942 | -48 |
| Alkalinity (mg/L) | | |
| Other: | | |
| Other: | | |

Signature:

Revision: 8/19/11

NO. 689960

# NON-HAZARDOUS WASTE DATA FORM

BESI #

## GENERATOR

Generator's Name and Mailing Address

BP WEST COAST PRODUCTS, LLC
P.O. BOX 80249
RANCHO SANTA MARGARITA, CA 92688

Generator's Site Address (if different than mailing address)

BP 374
6407 Telegraph Ave.
Oakland, CA

Generator's Phone: 949-460-5200

Container type removed from site:

☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck

☐ Other _____

Quantity 4.5 gallons

Container type transported to receiving facility:

☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck

☐ Other _____

Quantity _____ Volume _____

WASTE DESCRIPTION NON-HAZARDOUS WATER

GENERATING PROCESS WELL PURGING / DECON WATER

| COMPONENTS OF WASTE | PPM | % |
|---|---|---|
| 1. WATER | | 99-100% |
| 2. TPH | | <1% |

| COMPONENTS OF WASTE | PPM | % |
|---|---|---|
| 3. | | |
| 4. | | |

Waste Profile _____ PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

| Generator Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| Alex Martinez | Alex Martinez | 9 | 7 | 12 |

The Generator certifies that the waste as described is 100% non-hazardous

## TRANSPORTER

Transporter 1 Company Name: BROADBENT & ASSOCIATES, INC> Phone#: 530-566-1400

| Transporter 1 Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| Alex Martinez | Alex Martinez | 9 | 7 | 12 |

Transporter Acknowledgment of Receipt of Materials

Transporter 2 Company Name _____ Phone# _____

| Transporter 2 Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

Transporter Acknowledgment of Receipt of Materials

## RECEIVING FACILITY

Designated Facility Name and Site Address

INSTRAT, INC.
1105 AIRPORT RD.
RIO VISTA, CA 94571

Phone#: 530-753-1829

| Printed/Typed Name | Signature | Month | Day | Year |
|---|---|---|---|---|
| | | | | |

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

**APPENDIX C**

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-20149-1
Client Project/Site: ARCO 0374, Oakland

For:
Broadbent & Associates, Inc.
875 Cotting Lane
Suite G
Vacaville, California 95688

Attn: Kristene Tidwell

*Authorized for release by:*
*8/26/2012 3:21:23 PM*

Pat Abe
Project Manager I
pat.abe@testamericainc.com

# Table of Contents

# Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 440-20149-1 | MW-1 | Water | 08/09/12 08:35 | 08/10/12 10:00 |
| 440-20149-2 | MW-2 | Water | 08/09/12 09:10 | 08/10/12 10:00 |
| 440-20149-3 | MW-3 | Water | 08/09/12 12:32 | 08/10/12 10:00 |
| 440-20149-4 | MW-4 | Water | 08/09/12 11:21 | 08/10/12 10:00 |
| 440-20149-5 | MW-5 | Water | 08/09/12 12:56 | 08/10/12 10:00 |
| 440-20149-6 | MW-6 | Water | 08/09/12 12:03 | 08/10/12 10:00 |
| 440-20149-7 | MW-7 | Water | 08/09/12 10:50 | 08/10/12 10:00 |
| 440-20149-8 | MW-8 | Water | 08/09/12 10:20 | 08/10/12 10:00 |
| 440-20149-9 | MW-9 | Water | 08/09/12 09:46 | 08/10/12 10:00 |

## Job ID: 440-20149-1

**Laboratory: TestAmerica Irvine**

**Narrative**

**Job Narrative**
**440-20149-1**

**Comments**
No additional comments.

**Receipt**
The samples were received on 8/10/2012 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

**GC/MS VOA**
Method(s) 8260B: Due to the high concentration of Methyl tert-butyl ether (MTBE) in the source sample, the matrix spike / matrix spike duplicate (MS/MSD) calculation does not provide useful spike recovery and precision information for batch 45590. The associated laboratory control sample (LCS) met acceptance criteria.

No other analytical or quality issues were noted.

**GC VOA**
Method(s) 8015B: The Gasoline Range Organics (GRO) concentration reported for the following sample(s) is due to the presence of discrete peaks: MW-8 (440-20149-8).

No other analytical or quality issues were noted.

**VOA Prep**
No analytical or quality issues were noted.

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-1**
**Date Collected: 08/09/12 08:35**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-1**
**Matrix: Water**

### Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 19:00 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 19:00 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **170** | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| **Tert-amyl-methyl ether (TAME)** | **0.78** | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 19:00 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 19:00 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 19:00 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *104* | | *80 - 120* | | *08/15/12 19:00* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* | | *08/15/12 19:00* | *1* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* | | *08/15/12 19:00* | *1* |

### Method: 8015B/5030B - Gasoline Range Organics (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/16/12 03:32 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *90* | | *65 - 140* | | *08/16/12 03:32* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-2**
**Date Collected: 08/09/12 09:10**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-2**
**Matrix: Water**

### Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 20:22 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 20:22 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **73** | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| **Tert-amyl-methyl ether (TAME)** | **0.61** | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 20:22 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 20:22 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 20:22 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *80 - 120* | | *08/15/12 20:22* | *1* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* | | *08/15/12 20:22* | *1* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* | | *08/15/12 20:22* | *1* |

### Method: 8015B/5030B - Gasoline Range Organics (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/14/12 18:30 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *93* | | *65 - 140* | | *08/14/12 18:30* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-3**
**Date Collected: 08/09/12 12:32**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-3**
**Matrix: Water**

**Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 20:49 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 20:49 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **2.0** | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| Tert-amyl-methyl ether (TAME) | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 20:49 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 20:49 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 20:49 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *103* | | *80 - 120* | | *08/15/12 20:49* | *1* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* | | *08/15/12 20:49* | *1* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* | | *08/15/12 20:49* | *1* |

**Method: 8015B/5030B - Gasoline Range Organics (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/14/12 18:58 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *92* | | *65 - 140* | | *08/14/12 18:58* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-4**
**Date Collected: 08/09/12 11:21**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-4**
**Matrix: Water**

**Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| 1,2-Dichloroethane | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| **Benzene** | **660** | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| Ethanol | ND | | 1500 | | ug/L | | | 08/15/12 23:33 | 10 |
| **Ethylbenzene** | **53** | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| Ethyl-t-butyl ether (ETBE) | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| Isopropyl Ether (DIPE) | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| **m,p-Xylene** | **57** | | 10 | | ug/L | | | 08/15/12 23:33 | 10 |
| Methyl-t-Butyl Ether (MTBE) | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| o-Xylene | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| Tert-amyl-methyl ether (TAME) | ND | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| tert-Butyl alcohol (TBA) | ND | | 100 | | ug/L | | | 08/15/12 23:33 | 10 |
| **Toluene** | **44** | | 5.0 | | ug/L | | | 08/15/12 23:33 | 10 |
| **Xylenes, Total** | **57** | | 10 | | ug/L | | | 08/15/12 23:33 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *80 - 120* | | *08/15/12 23:33* | *10* |
| *Dibromofluoromethane (Surr)* | *103* | | *80 - 120* | | *08/15/12 23:33* | *10* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* | | *08/15/12 23:33* | *10* |

**Method: 8015B/5030B - Gasoline Range Organics (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **GRO (C6-C12)** | **3200** | | 1000 | | ug/L | | | 08/16/12 17:44 | 20 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *106* | | *65 - 140* | | *08/16/12 17:44* | *20* |

**Client Sample ID: MW-5**
**Date Collected: 08/09/12 12:56**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-5**
**Matrix: Water**

**Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 21:17 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 21:17 | 1 |
| Methyl-t-Butyl Ether (MTBE) | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| Tert-amyl-methyl ether (TAME) | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 21:17 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 21:17 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 21:17 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *104* | | *80 - 120* | | *08/15/12 21:17* | *1* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* | | *08/15/12 21:17* | *1* |
| *Toluene-d8 (Surr)* | *97* | | *80 - 120* | | *08/15/12 21:17* | *1* |

**Method: 8015B/5030B - Gasoline Range Organics (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/14/12 19:26 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *94* | | *65 - 140* | | *08/14/12 19:26* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-6**
**Date Collected: 08/09/12 12:03**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-6**
**Matrix: Water**

**Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 21:44 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 21:44 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **3.6** | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| Tert-amyl-methyl ether (TAME) | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 21:44 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 21:44 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 21:44 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *100* | | *80 - 120* | | *08/15/12 21:44* | *1* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* | | *08/15/12 21:44* | *1* |
| *Toluene-d8 (Surr)* | *97* | | *80 - 120* | | *08/15/12 21:44* | *1* |

**Method: 8015B/5030B - Gasoline Range Organics (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/14/12 19:54 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *93* | | *65 - 140* | | *08/14/12 19:54* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-7**
**Date Collected: 08/09/12 10:50**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-7**
**Matrix: Water**

**Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 22:11 | 1 |
| **Ethylbenzene** | **5.8** | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| **m,p-Xylene** | **1.1** | | 1.0 | | ug/L | | | 08/15/12 22:11 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **7.0** | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| Tert-amyl-methyl ether (TAME) | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 22:11 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 22:11 | 1 |
| **Xylenes, Total** | **1.1** | | 1.0 | | ug/L | | | 08/15/12 22:11 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *80 - 120* | | *08/15/12 22:11* | *1* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* | | *08/15/12 22:11* | *1* |
| *Toluene-d8 (Surr)* | *97* | | *80 - 120* | | *08/15/12 22:11* | *1* |

**Method: 8015B/5030B - Gasoline Range Organics (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **GRO (C6-C12)** | **85** | | 50 | | ug/L | | | 08/14/12 21:37 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *115* | | *65 - 140* | | *08/14/12 21:37* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-8**
**Date Collected: 08/09/12 10:20**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-8**
**Matrix: Water**

**Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| **Benzene** | **67** | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 22:38 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 22:38 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **150** | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| **Tert-amyl-methyl ether (TAME)** | **2.0** | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| **tert-Butyl alcohol (TBA)** | **31** | | 10 | | ug/L | | | 08/15/12 22:38 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 22:38 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 22:38 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *101* | | *80 - 120* | | *08/15/12 22:38* | *1* |
| *Dibromofluoromethane (Surr)* | *97* | | *80 - 120* | | *08/15/12 22:38* | *1* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* | | *08/15/12 22:38* | *1* |

**Method: 8015B/5030B - Gasoline Range Organics (GC)**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **GRO (C6-C12)** | **110** | | 50 | | ug/L | | | 08/14/12 22:05 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *91* | | *65 - 140* | | *08/14/12 22:05* | *1* |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

**Client Sample ID: MW-9**
**Date Collected: 08/09/12 09:46**
**Date Received: 08/10/12 10:00**

**Lab Sample ID: 440-20149-9**
**Matrix: Water**

### Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| **Benzene** | **1.9** | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 23:06 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 23:06 | 1 |
| **Methyl-t-Butyl Ether (MTBE)** | **19** | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| Tert-amyl-methyl ether (TAME) | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 23:06 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 23:06 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 23:06 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *103* | | *80 - 120* | | *08/15/12 23:06* | *1* |
| *Dibromofluoromethane (Surr)* | *105* | | *80 - 120* | | *08/15/12 23:06* | *1* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* | | *08/15/12 23:06* | *1* |

### Method: 8015B/5030B - Gasoline Range Organics (GC)

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| **GRO (C6-C12)** | **82** | | 50 | | ug/L | | | 08/14/12 22:32 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *65 - 140* | | *08/14/12 22:32* | *1* |

# Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

## Client Sample ID: MW-1

**Lab Sample ID: 440-20149-1**

**Date Collected: 08/09/12 08:35**

**Matrix: Water**

**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 19:00 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45535 | 08/16/12 03:32 | RG | TAL IRV |

## Client Sample ID: MW-2

**Lab Sample ID: 440-20149-2**

**Date Collected: 08/09/12 09:10**

**Matrix: Water**

**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 20:22 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 18:30 | RG | TAL IRV |

## Client Sample ID: MW-3

**Lab Sample ID: 440-20149-3**

**Date Collected: 08/09/12 12:32**

**Matrix: Water**

**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 20:49 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 18:58 | RG | TAL IRV |

## Client Sample ID: MW-4

**Lab Sample ID: 440-20149-4**

**Date Collected: 08/09/12 11:21**

**Matrix: Water**

**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 10 | 10 mL | 10 mL | 45590 | 08/15/12 23:33 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 20 | 10 mL | 10 mL | 45788 | 08/16/12 17:44 | RG | TAL IRV |

## Client Sample ID: MW-5

**Lab Sample ID: 440-20149-5**

**Date Collected: 08/09/12 12:56**

**Matrix: Water**

**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 21:17 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 19:26 | RG | TAL IRV |

## Client Sample ID: MW-6

**Lab Sample ID: 440-20149-6**

**Date Collected: 08/09/12 12:03**

**Matrix: Water**

**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 21:44 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 19:54 | RG | TAL IRV |

# Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

## Client Sample ID: MW-7

**Lab Sample ID: 440-20149-7**

**Date Collected: 08/09/12 10:50**
**Matrix: Water**
**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 22:11 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 21:37 | RG | TAL IRV |

## Client Sample ID: MW-8

**Lab Sample ID: 440-20149-8**

**Date Collected: 08/09/12 10:20**
**Matrix: Water**
**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 22:38 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 22:05 | RG | TAL IRV |

## Client Sample ID: MW-9

**Lab Sample ID: 440-20149-9**

**Date Collected: 08/09/12 09:46**
**Matrix: Water**
**Date Received: 08/10/12 10:00**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260B/5030B | | 1 | 10 mL | 10 mL | 45590 | 08/15/12 23:06 | RM | TAL IRV |
| Total/NA | Analysis | 8015B/5030B | | 1 | 10 mL | 10 mL | 45152 | 08/14/12 22:32 | RG | TAL IRV |

**Laboratory References:**

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

## Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 440-45590/4**
**Matrix: Water**
**Analysis Batch: 45590**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| 1,2-Dichloroethane | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| Benzene | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| Ethanol | ND | | 150 | | ug/L | | | 08/15/12 18:06 | 1 |
| Ethylbenzene | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| Ethyl-t-butyl ether (ETBE) | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| Isopropyl Ether (DIPE) | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| m,p-Xylene | ND | | 1.0 | | ug/L | | | 08/15/12 18:06 | 1 |
| Methyl-t-Butyl Ether (MTBE) | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| o-Xylene | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| Tert-amyl-methyl ether (TAME) | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| tert-Butyl alcohol (TBA) | ND | | 10 | | ug/L | | | 08/15/12 18:06 | 1 |
| Toluene | ND | | 0.50 | | ug/L | | | 08/15/12 18:06 | 1 |
| Xylenes, Total | ND | | 1.0 | | ug/L | | | 08/15/12 18:06 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *104* | | *80 - 120* | | *08/15/12 18:06* | *1* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* | | *08/15/12 18:06* | *1* |
| *Toluene-d8 (Surr)* | *97* | | *80 - 120* | | *08/15/12 18:06* | *1* |

**Lab Sample ID: LCS 440-45590/5**
**Matrix: Water**
**Analysis Batch: 45590**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | | | 25.0 | 25.4 | | ug/L | | 101 | 75 - 125 | | |
| 1,2-Dichloroethane | | | 25.0 | 24.9 | | ug/L | | 100 | 60 - 140 | | |
| Benzene | | | 25.0 | 22.8 | | ug/L | | 91 | 70 - 120 | | |
| Ethanol | | | 250 | 206 | | ug/L | | 83 | 40 - 155 | | |
| Ethylbenzene | | | 25.0 | 26.2 | | ug/L | | 105 | 75 - 125 | | |
| Ethyl-t-butyl ether (ETBE) | | | 25.0 | 22.1 | | ug/L | | 88 | 65 - 135 | | |
| Isopropyl Ether (DIPE) | | | 25.0 | 21.2 | | ug/L | | 85 | 60 - 135 | | |
| m,p-Xylene | | | 50.0 | 51.7 | | ug/L | | 103 | 75 - 125 | | |
| Methyl-t-Butyl Ether (MTBE) | | | 25.0 | 22.0 | | ug/L | | 88 | 60 - 135 | | |
| o-Xylene | | | 25.0 | 26.5 | | ug/L | | 106 | 75 - 125 | | |
| Tert-amyl-methyl ether (TAME) | | | 25.0 | 22.3 | | ug/L | | 89 | 60 - 135 | | |
| tert-Butyl alcohol (TBA) | | | 125 | 124 | | ug/L | | 99 | 70 - 135 | | |
| Toluene | | | 25.0 | 24.3 | | ug/L | | 97 | 70 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *102* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* |

## Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 440-20149-1 MS**
**Matrix: Water**
**Analysis Batch: 45590**

**Client Sample ID: MW-1**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 25.0 | 26.9 | | ug/L | | 107 | 70 - 130 |
| 1,2-Dichloroethane | ND | | 25.0 | 25.0 | | ug/L | | 100 | 60 - 140 |
| Benzene | ND | | 25.0 | 22.6 | | ug/L | | 90 | 65 - 125 |
| Ethanol | ND | | 250 | 197 | | ug/L | | 79 | 40 - 155 |
| Ethylbenzene | ND | | 25.0 | 26.5 | | ug/L | | 106 | 65 - 130 |
| Ethyl-t-butyl ether (ETBE) | ND | | 25.0 | 21.8 | | ug/L | | 87 | 60 - 135 |
| Isopropyl Ether (DIPE) | ND | | 25.0 | 20.6 | | ug/L | | 82 | 60 - 140 |
| m,p-Xylene | ND | | 50.0 | 52.4 | | ug/L | | 105 | 65 - 130 |
| Methyl-t-Butyl Ether (MTBE) | 170 | | 25.0 | 186 | BB | ug/L | | 69 | 55 - 145 |
| o-Xylene | ND | | 25.0 | 27.0 | | ug/L | | 108 | 65 - 125 |
| Tert-amyl-methyl ether (TAME) | 0.78 | | 25.0 | 23.6 | | ug/L | | 91 | 60 - 140 |
| tert-Butyl alcohol (TBA) | ND | | 125 | 134 | | ug/L | | 107 | 65 - 140 |
| Toluene | ND | | 25.0 | 24.5 | | ug/L | | 98 | 70 - 125 |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *103* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *97* | | *80 - 120* |

**Lab Sample ID: 440-20149-1 MSD**
**Matrix: Water**
**Analysis Batch: 45590**

**Client Sample ID: MW-1**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dibromoethane (EDB) | ND | | 25.0 | 26.0 | | ug/L | | 104 | 70 - 130 | 3 | 25 |
| 1,2-Dichloroethane | ND | | 25.0 | 25.5 | | ug/L | | 102 | 60 - 140 | 2 | 20 |
| Benzene | ND | | 25.0 | 23.6 | | ug/L | | 94 | 65 - 125 | 4 | 20 |
| Ethanol | ND | | 250 | 214 | | ug/L | | 86 | 40 - 155 | 8 | 30 |
| Ethylbenzene | ND | | 25.0 | 26.7 | | ug/L | | 107 | 65 - 130 | 1 | 20 |
| Ethyl-t-butyl ether (ETBE) | ND | | 25.0 | 23.0 | | ug/L | | 92 | 60 - 135 | 5 | 25 |
| Isopropyl Ether (DIPE) | ND | | 25.0 | 22.0 | | ug/L | | 88 | 60 - 140 | 6 | 25 |
| m,p-Xylene | ND | | 50.0 | 51.6 | | ug/L | | 103 | 65 - 130 | 1 | 25 |
| Methyl-t-Butyl Ether (MTBE) | 170 | | 25.0 | 191 | BB | ug/L | | 89 | 55 - 145 | 3 | 25 |
| o-Xylene | ND | | 25.0 | 27.1 | | ug/L | | 108 | 65 - 125 | 1 | 20 |
| Tert-amyl-methyl ether (TAME) | 0.78 | | 25.0 | 24.8 | | ug/L | | 96 | 60 - 140 | 5 | 30 |
| tert-Butyl alcohol (TBA) | ND | | 125 | 139 | | ug/L | | 111 | 65 - 140 | 3 | 25 |
| Toluene | ND | | 25.0 | 25.4 | | ug/L | | 101 | 70 - 125 | 4 | 20 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *100* | | *80 - 120* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* |

## Method: 8015B/5030B - Gasoline Range Organics (GC)

**Lab Sample ID: MB 440-45152/12**
**Matrix: Water**
**Analysis Batch: 45152**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/14/12 14:54 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *85* | | *65 - 140* | | *08/14/12 14:54* | *1* |

**Lab Sample ID: LCS 440-45152/11**
**Matrix: Water**
**Analysis Batch: 45152**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | | | 800 | 719 | | ug/L | | 90 | 80 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *81* | | *65 - 140* |

**Lab Sample ID: 440-20147-A-2 MS**
**Matrix: Water**
**Analysis Batch: 45152**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | ND | | 800 | 742 | | ug/L | | 93 | 65 - 140 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *87* | | *65 - 140* |

**Lab Sample ID: 440-20147-A-2 MSD**
**Matrix: Water**
**Analysis Batch: 45152**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | ND | | 800 | 766 | | ug/L | | 96 | 65 - 140 | 3 | 20 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *96* | | *65 - 140* |

**Lab Sample ID: MB 440-45535/4**
**Matrix: Water**
**Analysis Batch: 45535**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/15/12 16:12 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *92* | | *65 - 140* | | *08/15/12 16:12* | *1* |

## Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

**Lab Sample ID: LCS 440-45535/2**
**Matrix: Water**
**Analysis Batch: 45535**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | | | 800 | 794 | | ug/L | | 99 | 80 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *65 - 140* |

**Lab Sample ID: 440-20149-1 MS**
**Matrix: Water**
**Analysis Batch: 45535**

**Client Sample ID: MW-1**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | 81 | | 800 | 815 | | ug/L | | 92 | 65 - 140 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *87* | | *65 - 140* |

**Lab Sample ID: 440-20149-1 MSD**
**Matrix: Water**
**Analysis Batch: 45535**

**Client Sample ID: MW-1**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | 81 | | 800 | 845 | | ug/L | | 96 | 65 - 140 | 4 | 20 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *85* | | *65 - 140* |

**Lab Sample ID: MB 440-45788/6**
**Matrix: Water**
**Analysis Batch: 45788**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C12) | ND | | 50 | | ug/L | | | 08/16/12 14:49 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *92* | | *65 - 140* | | *08/16/12 14:49* | *1* |

**Lab Sample ID: LCS 440-45788/2**
**Matrix: Water**
**Analysis Batch: 45788**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | | | 800 | 767 | | ug/L | | 96 | 80 - 120 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *92* | | *65 - 140* |

## Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

**Lab Sample ID: 440-19827-B-1 MS**
**Matrix: Water**
**Analysis Batch: 45788**

**Client Sample ID: Matrix Spike**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | 100 | | 800 | 738 | | ug/L | | 80 | 65 - 140 | | |

| *Surrogate* | *MS %Recovery* | *MS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *69* | | *65 - 140* |

**Lab Sample ID: 440-19827-B-1 MSD**
**Matrix: Water**
**Analysis Batch: 45788**

**Client Sample ID: Matrix Spike Duplicate**
**Prep Type: Total/NA**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C4-C12) | 100 | | 800 | 762 | | ug/L | | 82 | 65 - 140 | 3 | 20 |

| *Surrogate* | *MSD %Recovery* | *MSD Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *94* | | *65 - 140* |

## GC/MS VOA

### Analysis Batch: 45590

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 440-20149-1 | MW-1 | Total/NA | Water | 8260B/5030B | |
| 440-20149-1 MS | MW-1 | Total/NA | Water | 8260B/5030B | |
| 440-20149-1 MSD | MW-1 | Total/NA | Water | 8260B/5030B | |
| 440-20149-2 | MW-2 | Total/NA | Water | 8260B/5030B | |
| 440-20149-3 | MW-3 | Total/NA | Water | 8260B/5030B | |
| 440-20149-4 | MW-4 | Total/NA | Water | 8260B/5030B | |
| 440-20149-5 | MW-5 | Total/NA | Water | 8260B/5030B | |
| 440-20149-6 | MW-6 | Total/NA | Water | 8260B/5030B | |
| 440-20149-7 | MW-7 | Total/NA | Water | 8260B/5030B | |
| 440-20149-8 | MW-8 | Total/NA | Water | 8260B/5030B | |
| 440-20149-9 | MW-9 | Total/NA | Water | 8260B/5030B | |
| LCS 440-45590/5 | Lab Control Sample | Total/NA | Water | 8260B/5030B | |
| MB 440-45590/4 | Method Blank | Total/NA | Water | 8260B/5030B | |

## GC VOA

### Analysis Batch: 45152

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 440-20147-A-2 MS | Matrix Spike | Total/NA | Water | 8015B/5030B | |
| 440-20147-A-2 MSD | Matrix Spike Duplicate | Total/NA | Water | 8015B/5030B | |
| 440-20149-2 | MW-2 | Total/NA | Water | 8015B/5030B | |
| 440-20149-3 | MW-3 | Total/NA | Water | 8015B/5030B | |
| 440-20149-5 | MW-5 | Total/NA | Water | 8015B/5030B | |
| 440-20149-6 | MW-6 | Total/NA | Water | 8015B/5030B | |
| 440-20149-7 | MW-7 | Total/NA | Water | 8015B/5030B | |
| 440-20149-8 | MW-8 | Total/NA | Water | 8015B/5030B | |
| 440-20149-9 | MW-9 | Total/NA | Water | 8015B/5030B | |
| LCS 440-45152/11 | Lab Control Sample | Total/NA | Water | 8015B/5030B | |
| MB 440-45152/12 | Method Blank | Total/NA | Water | 8015B/5030B | |

### Analysis Batch: 45535

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 440-20149-1 | MW-1 | Total/NA | Water | 8015B/5030B | |
| 440-20149-1 MS | MW-1 | Total/NA | Water | 8015B/5030B | |
| 440-20149-1 MSD | MW-1 | Total/NA | Water | 8015B/5030B | |
| LCS 440-45535/2 | Lab Control Sample | Total/NA | Water | 8015B/5030B | |
| MB 440-45535/4 | Method Blank | Total/NA | Water | 8015B/5030B | |

### Analysis Batch: 45788

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 440-19827-B-1 MS | Matrix Spike | Total/NA | Water | 8015B/5030B | |
| 440-19827-B-1 MSD | Matrix Spike Duplicate | Total/NA | Water | 8015B/5030B | |
| 440-20149-4 | MW-4 | Total/NA | Water | 8015B/5030B | |
| LCS 440-45788/2 | Lab Control Sample | Total/NA | Water | 8015B/5030B | |
| MB 440-45788/6 | Method Blank | Total/NA | Water | 8015B/5030B | |

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

## Qualifiers

### GC/MS VOA

| Qualifier | Qualifier Description |
|---|---|
| BB | Sample > 4X spike concentration |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ☼ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CNF | Contains no Free Liquid |
| DL, RA, RE, IN | Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| EDL | Estimated Detection Limit |
| EPA | United States Environmental Protection Agency |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| ND | Not detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RL | Reporting Limit |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

# Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0374, Oakland

TestAmerica Job ID: 440-20149-1

## Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Arizona | State Program | 9 | AZ0671 | 10-13-12 |
| California | LA Cty Sanitation Districts | 9 | 10256 | 01-31-13 |
| California | NELAC | 9 | 1108CA | 01-31-13 |
| California | State Program | 9 | 2706 | 06-30-14 |
| Guam | State Program | 9 | Cert. No. 12.002r | 01-23-13 |
| Hawaii | State Program | 9 | N/A | 01-31-13 |
| Nevada | State Program | 9 | CA015312007A | 07-31-12 |
| New Mexico | State Program | 6 | N/A | 01-31-12 |
| Northern Mariana Islands | State Program | 9 | MP0002 | 01-31-13 |
| Oregon | NELAC | 10 | 4005 | 09-12-12 |
| USDA | Federal | | P330-09-00080 | 06-06-14 |

440 - 20149

# Laboratory Management Program LaMP Chain of Custody Record

Page ____ of ____

BP Site Node Path: BP 374 | Req Due Date (mm/dd/yy): ____ | Rush TAT: Yes ____ No ____

BP Facility No: 374 | Lab Work Order Number: ____

| | | |
|---|---|---|
| Lab Name: Test America | Facility Address: 6407 Telegraph Avenue | Consultant/Contractor: Broadbent and Associates |
| Lab Address: 17461 Derian Avenue, Suite 100, Irvine, CA 92614 | City, State, ZIP Code: Oakland, CA | Consultant/Contractor Project No: 06-88-602 |
| Lab PM: Pate Abe | Lead Regulatory Agency: ACEH | Address: 875 Cotting Lane, Suite G, Vacaville 95688 |
| Lab Phone: 1-949-261-1022 | California Global ID No.: T0600100106 | Consultant/Contractor PM: Kristene Tidwell |
| Lab Shipping Accnt: Fed-Ex# 1103-6633-7 | Enfos Proposal No: 005TT-002 / WR245690 | Phone: 707-455-7290/707-455-7295 (fax) Email: ktidwell@broadbentinc.com |
| Lab Bottle Order No: 0114301X (LOT #) | Accounting Mode: Provision _x_ OOC-BU ____ OOC-RM ____ | Email EDD To: ktidwell@broadbentinc.com and to lab.enfosdoc@bp.com |
| Other Info: | Stage: Execute (40) Activity: Projecet Spend (80) | Invoice To: BP _x_ Contractor ____ |

BP Project Manager (PM): Shannon Couch

BP PM Phone: 1-925-275-3804

BP PM Email: shannon.couch@bp.com

| Lab No. | Sample Description | Date | Time | Matrix: Soil / Solid | Matrix: Water / Liquid | Matrix: Air / Vapor | Matrix: Is this location a well? | No. Containers / Preservative: Total Number of Container | Unpreserved | H2SO4 | HNO3 | HCl | Methanol | | Requested Analyses: GRO by 8015M | BTEX/5 FO + EDB by 8260 | 1,2-DCA and Ethanol by 8260 | | | | | | | Report Type & QC Level / Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MW-1 | 8-9-12 | 0835 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-2 | | 0910 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-3 | | 1232 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-4 | | 1121 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-5 | | 1256 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-6 | | 1203 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-7 | | 1050 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-8 | | 1026 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | MW-9 | | 0946 | | x | | | 6 | | | | x | | | x | x | x | | | | | | | |
| | TB -374 - 08092012 | — | 1700 | | x | | | 2 | | | | x | | | | | | | | | | | | On Hold |

Standard _x_

Full Data Package ____

**Comments**

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

| | Relinquished By / Affiliation | Date | Time | Accepted By / Affiliation | Date | Time |
|---|---|---|---|---|---|---|
| Sampler's Name: James R / Alex M | | | | | | |
| Sampler's Company: Broadbent | [signature] | 8-9-12 | 1700 | Fed-ex | | |
| Shipment Method: Fed Ex Ship Date: 8-9-12 | Fed-ex | | | [signature] TAT | 8-10-12 | 10:00 |
| Shipment Tracking No: 8005 6803 6460 | | | | | | |

**Special Instructions:**

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 3.3 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

# Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-20149-1

**Login Number: 20149**

**List Source: TestAmerica Irvine**

**List Number: 1**

**Creator: Freitag, Kevin R**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity either was not measured or, if measured, is at or below background | True | |
| The cooler's custody seal, if present, is intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | James R/Alex M |
| There are no discrepancies between the sample IDs on the containers and the COC. | True | |
| Samples are received within Holding Time. | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | N/A | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter. | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

**APPENDIX D**

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

STATE WATER RESOURCES CONTROL BOARD

# GEOTRACKER ESI

UPLOADING A EDF FILE

## SUCCESS

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

| | |
|---|---|
| **Submittal Type:** | **EDF** |
| **Report Title:** | **3Q12 GW Monitoring** |
| **Report Type:** | **Monitoring Report - Semi-Annually** |
| **Facility Global ID:** | **T0600100106** |
| **Facility Name:** | **ARCO #0374** |
| **File Name:** | **440-20149-1_26 Aug 12 1622_EDF.zip** |
| **Organization Name:** | **Broadbent & Associates, Inc.** |
| **Username:** | **BROADBENT-C** |
| **IP Address:** | **67.118.40.90** |
| **Submittal Date/Time:** | **10/15/2012 9:51:02 AM** |
| **Confirmation Number:** | **1477970182** |

VIEW QC REPORT

VIEW DETECTIONS REPORT

STATE WATER RESOURCES CONTROL BOARD

# GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

## SUCCESS

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

| | |
|---|---|
| **Submittal Type:** | **GEO_WELL** |
| **Report Title:** | **3Q12 GEO_WELL 374** |
| **Facility Global ID:** | **T0600100106** |
| **Facility Name:** | **ARCO #0374** |
| **File Name:** | **GEO_WELL.zip** |
| **Organization Name:** | **Broadbent & Associates, Inc.** |
| **Username:** | **BROADBENT-C** |
| **IP Address:** | **67.118.40.90** |
| **Submittal Date/Time:** | **10/15/2012 9:54:17 AM** |
| **Confirmation Number:** | **7398345232** |