

Ms. Dilan Roe, P.E.  
 Hazardous Materials Specialist  
 Alameda County Environmental Health  
 1131 Harbor Bay Parkway  
 Alameda, California 94502

**RECEIVED**

**8:32 am, Oct 31, 2012**  
**Alameda County**  
**Environmental Health**

ARCADIS U.S., Inc.  
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 San Francisco  
 California 94104  
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[www.arcadis-us.com](http://www.arcadis-us.com)

**ENVIRONMENT**

Subject:

**Second Quarter and Third Quarter 2012**  
**Semi-Annual Groundwater Monitoring Report**  
 Former Atlantic Richfield Company Station No. 4931  
 731 West MacArthur Boulevard  
 Oakland, California 94609

Date:  
 October 23, 2012

Dear Ms. Roe:

ARCADIS U.S., Inc (ARCADIS) has prepared this report on behalf of BP Remediation Management, a BP affiliated company, for the former BP service station listed below.

<u>BP Facility No.</u>	<u>ACEH Site No.</u>	<u>Location</u>
4931	RO0000076	731 West MacArthur Blvd. Oakland, California

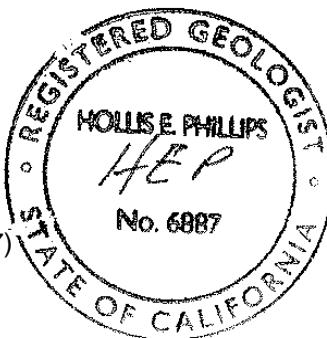
I declare, to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct. If you have any questions or comments regarding the content of this report, please contact Hollis Phillips by telephone at 415.432.6903 or by e-mail at [hollis.phillips@arcadis-us.com](mailto:hollis.phillips@arcadis-us.com).

Sincerely,

ARCADIS U.S., Inc.



Hollis E. Phillips, P.G. (No. 6887)  
 Principal Geologist



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Ms. Dilan Roe  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
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Subject:

**Second Quarter and Third Quarter 2012  
Semi-Annual Groundwater Monitoring Report**  
Former Atlantic Richfield Company Station #4931  
731 West MacArthur Boulevard  
Oakland, California  
ACEH Case #RO0000076

ENVIRONMENT

Date:  
October 23, 2012

Dear Ms. Roe:

ARCADIS U.S., Inc. (ARCADIS) has prepared this semi-annual groundwater monitoring report to document the results of groundwater monitoring and sampling at the former BP service station No. 4931, located at 731 West MacArthur Boulevard in Oakland, California (the Site; Figure 1).

Contact:  
Hollis Phillips

Phone:  
415.432.6903

Email:  
[hollis.phillips@arcadis-us.com](mailto:hollis.phillips@arcadis-us.com)

Our ref:  
GP09BPNA.C110.N0000

## 1. Summary

A summary of the work performed at the Site during this reporting period and the proposed work for the next reporting period is provided below.

### Work Performed – Reporting Period (July to September 2012)

- Performed semi-annual groundwater monitoring and sampling on August 24 and August 31, 2012 in accordance with the Alameda County Environmental Health Services Agency (ACEH).

### Work Proposed – Reporting Period (October to December 2012)

- Submit the *Second Quarter and Third Quarter 2012, Semi-Annual Groundwater Monitoring Report*, contained herein.
- Obtain an encroachment permit through the City of Oakland in order to access and sample monitoring wells A-11 and A-12.

## 2. Background

The Site is a former BP service station and is currently operated as a Beacon gasoline station (Figures 1 and 2). Improvements to the Site include four 10,000-gallon double-wall fiberglass gasoline underground storage tanks (USTs) installed on April 8, 1992. Product lines were excavated, removed, inspected, and replaced on October 2, 2002. Soil boring and well construction details are summarized in Table 1. Previous investigation information and site history are summarized in Appendix A.

## 3. Groundwater Monitoring/Sampling Activities and Results

Historical and current groundwater monitoring and sampling results are summarized in Table 2. Current groundwater monitoring and sampling data are graphically presented on Figures 3 and 4. A rose diagram illustrating historical groundwater flow directions and gradients is provided on Figure 5.

Before groundwater samples were collected, depth to groundwater was measured to within 0.01 foot below top of casing in wells A-2 through A-5, A-7 through A-10, and AR-1 through AR-3 using a water level indicator. Monitoring wells A-11 and A-12 could not be gauged due to their locations in the street and the need for traffic control. Monitoring well A-13 could not be gauged due to the well currently being paved over.

Monitoring wells A-4, A-8, and A-10 were sampled on August 24, 2012 and A-2, A-3, and A-7 were sampled on August 31, 2012 by Broadbent & Associates, Inc. (Broadbent). Monitoring wells A-5 and A-9 could not be sampled due to insufficient water in these wells. Field activities conducted by Broadbent were reviewed and certified by a Broadbent California Professional Geologist. Groundwater sampling data packages and laboratory analytical reports for the current monitoring period are included in Appendices B and C, respectively.

Collected groundwater samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (TestAmerica), a California-certified laboratory located in Pleasanton, California. Collected groundwater samples from A-2, A-3, A-7, and A-10 were analyzed for fuel additive methyl tert-butyl ether (MTBE) by USEPA Method 8260. Collected groundwater samples from A-4 and A-8 were analyzed for the following:

- Gasoline range organics (C6-C12) (GRO) using United States Environmental Protection Agency (USEPA) Method 8260B Modified;

- Benzene, toluene, ethylbenzene, and xylenes (BTEX), ethylene dibromide (EDB), and 1,2-Dichloroethane (1,2-DCA) using USEPA Method 8260; and
- Fuel additives MTBE, tert-amyl-methyl ether (TAME), diisopropyl ether (DIPE), Ethanol, and Ethyl t-butyl ether (ETBE) by USEPA Method 8260.

#### 4. Discussion

- As shown on Figure 3, groundwater flow direction during the reporting period was to the west at an approximate gradient of 0.01 foot per foot (ft/ft). Historical data indicate the groundwater flow direction is predominantly toward the west as shown on Figure 5.
- GRO was detected in both wells sampled at concentrations of 720 micrograms per liter ( $\mu\text{g/L}$ ) (A-4) and 3,700  $\mu\text{g/L}$  (A-8). These detections are consistent with historical analytical results.
- Benzene was detected in one well sampled at 1,800  $\mu\text{g/L}$  in monitoring well A-8.
- MTBE was detected in four of the six wells sampled ranging in concentrations from 1.8  $\mu\text{g/L}$  (A-10) to 64  $\mu\text{g/L}$  (A-8).
- TBA was detected in both wells sampled at concentrations of 220  $\mu\text{g/L}$  (A-8) and 370  $\mu\text{g/L}$  (A-4). These detections are consistent with historical analytical results.
- TAME was detected in one well sampled at 33  $\mu\text{g/L}$  (A-8).
- Toluene, ethylbenzene, xylenes, DIPE, ETBE, and Ethanol were not detected in the two wells sampled and analyzed for these constituents.

#### 5. Recommendations

Based on the observed groundwater concentration trends, ARCADIS recommends the following:

- Continue groundwater monitoring on a semi-annual basis during the first and third quarters of 2013.

If you have any questions or comments regarding the contents of this report, please contact Hollis Phillips by telephone (415.432.6903) or by e-mail (hollis.phillips@arcadis-us.com).

Sincerely,

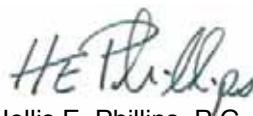
ARCADIS U.S., Inc.

Prepared by:



Jamey Peterson  
Staff Geologist

Approved by:



Hollis E. Phillips, P.G. (CA 6887)  
Principal Geologist/Project Manager



Enclosures:

Table 1      Soil Boring and Well Construction Details  
Table 2      Historical and Current Groundwater Monitoring and Analytical Data

Figure 1      Site Location Map  
Figure 2      Site Plan  
Figure 3      Groundwater Elevation Contour Map – August 24, 2012  
Figure 4      Analytical Summary Map – August 24 and 31, 2012  
Figure 5      Groundwater Flow Direction Rose Diagram

Appendix A    Previous Investigations and Site History Summary  
Appendix B    Groundwater Sampling Data Package  
Appendix C    Certified Laboratory Analytical Report

Copies:

Ms. Dilan Roe, Alameda County Environmental Health (Submitted via ACEH ftp site)  
Mr. Nick Goyal, Owner, electronic copy e-mailed ([nick@vintnersdist.com](mailto:nick@vintnersdist.com))  
Electronic copy uploaded to GeoTracker

**ARCADIS**

**Tables**

**Table 1**  
**Soil Boring and Well Construction Details**  
Former Atlantic-Richfield Oil Company Station No. 4931  
731 West MacArthur Boulevard, Oakland, California

Well I.D.	Drill Date	Well		Screen		Screen Length (feet)	Comments
		Depth (feet bgs)	Diameter (inches)	Top (feet bgs)	Bottom (feet bgs)		
<b>Monitoring Wells</b>							
A-2	--	--	--	--	--	--	
A-3	--	--	--	--	--	--	
A-4	--	--	--	--	--	--	
A-5	--	--	--	--	--	--	
A-6	--	--	--	--	--	--	
A-7	--	--	--	--	--	--	
A-8	--	--	--	--	--	--	
A-9	12/15/87	40	6	5	40	35	
A-10	12/15/87	30	3	5	30	25	
A-11	12/16/87	30	3	5	30	25	
A-12	12/16/87	30	3	5	30	25	
A-13	06/15/92	30	3	10	30	20	
AR-1	06/15/92	30	6	10	30	20	
AR-2	06/15/92	30	6	8	28	20	
AR-3	06/16/92	30	4	10	30	20	
<b>Soil Vapor Extraction Well</b>							
AV-1	01/17/92	16	2	5	15	10	

**Notes**

Wells are constructed of poly-vinyl-chloride (PVC).

bgs = Below ground surface

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
AR-1	12/26/2000		54.72	9.95	--	44.77	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	3/20/2001		54.72	8.34	--	46.38	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	6/12/2001		54.72	10.17	--	44.55	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	9/23/2001		54.72	10.72	--	44.00	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	12/31/2001		54.72	5.91	--	48.81	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	3/21/2002		54.72	7.00	--	47.72	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	4/17/2002		54.72	8.33	--	46.39	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/12/2002		54.72	10.18	--	44.54	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	12/6/2002		54.72	10.21	--	44.51	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	1/30/2003		54.72	8.22	--	46.50	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	5/28/2003		54.72	9.62	--	45.10	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/6/2003		54.72	10.47	--	44.25	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	11/14/2003		54.72	10.40	--	44.32	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	2/2/2004		59.52	7.96	--	51.56	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	5/4/2004		59.52	10.17	--	49.35	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	9/2/2004		59.52	10.28	--	49.24	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	11/10/2004		59.52	9.15	--	50.37	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	2/2/2005		59.52	7.80	--	51.72	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	5/9/2005		59.52	7.03	--	52.49	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/11/2005		59.52	9.82	--	49.70	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	11/18/2005		59.52	9.83	--	49.69	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	2/15/2006		59.52	7.78	--	51.74	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	5/30/2006		59.52	8.65	--	50.87	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/11/2006		59.52	9.69	--	49.83	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	11/1/2006		59.52	10.07	--	49.45	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	2/7/2007		59.52	9.33	--	50.19	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	5/9/2007		59.52	8.45	--	51.07	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/7/2007		59.52	10.12	--	49.40	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	11/14/2007		59.52	9.31	--	50.21	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	2/28/2008		59.52	7.05	--	52.47	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/13/2008		59.52	10.20	--	49.32	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	11/19/2008		59.52	9.73	--	49.79	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	2/10/2009		59.52	8.61	--	50.91	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	5/7/2009		59.52	8.17	--	51.35	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	9/3/2009		59.52	10.19	--	49.33	--	--	--	--	--	--	--	--	--	--	--	--	
AR-1	8/24/2012		59.52	9.65	--	49.87	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	6/21/2000		55.48	6.85	--	48.63	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	--	--	--	--	
A-2	9/20/2000		55.48	10.45	--	45.03	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-2	12/26/2000		55.48	6.27	--	49.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-2	3/20/2001		55.48	4.57	--	50.91	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-2	6/12/2001		55.48	9.27	--	46.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-2	9/23/2001		55.48	10.75	--	44.73	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-2	12/31/2001		55.48	4.13	--	51.35	<50	<0.5	<0.5	1	3.2	<2.5	--	--	--	--	--	--	
A-2	3/21/2002		55.48	3.26	--	52.22	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-2	4/17/2002		55.48	3.72	--	51.76	<50	<0.5	<0.5	<0.5	3.1	--	--	--	--	--	--	--	
A-2	8/12/2002		55.48	9.95	--	45.53	<10	<0.10	<0.10	<0.10	<0.10	<0.50	--	--	--	--	3.1		
A-2	12/6/2002		55.48	10.01	--	45.47	<50	<0.50	<0.50	<0.50	<0.50	6	--	--	--	--	3.1		
A-2	1/30/2003		55.48	5.08	--	50.40	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<40	2.6	
A-2	5/28/2003		55.48	4.82	--	50.66	<50	<0.50	<0.50	<0.50	<0.50	1.1	<20	<0.50	<0.50	<0.50	<100	5.7	
A-2	8/6/2003		55.48	9.73	--	45.75	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	2.3	

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Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPe (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-2	11/14/2003		55.48	9.36	--	46.12	--	--	--	--	--	--	<20	<0.50	<0.50	<0.50	<100	3.1	
A-2	2/2/2004		60.65	4.45	--	56.20	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	5/4/2004		60.65	6.79	--	53.86	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	9/2/2004		60.65	10.51	--	50.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	3.1	
A-2	11/10/2004		60.65	6.10	--	54.55	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	2/2/2005		60.65	4.00	--	56.65	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	5/9/2005		60.65	4.35	--	56.30	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/11/2005		60.65	9.08	--	51.57	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	3.2	
A-2	11/18/2005		60.65	8.53	--	52.12	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	2/15/2006		60.65	3.89	--	56.76	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	5/30/2006		60.65	4.45	--	56.20	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/11/2006		60.65	9.03	--	51.62	160	<0.50	<0.50	<0.50	<0.50	3.6	<20	<0.50	<0.50	<0.50	<300	0.16	
A-2	11/1/2006		60.65	9.98	--	50.67	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	2/7/2007		60.65	7.51	--	53.14	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	5/9/2007		60.65	4.57	--	56.08	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/7/2007		60.65	9.67	--	50.98	<50	<0.50	<0.50	<0.50	<0.50	3.4	<20	<0.50	<0.50	<0.50	<300	2.18	
A-2	11/14/2007		60.65	7.84	--	52.81	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	2/28/2008		60.65	3.30	--	57.35	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	5/23/2008		60.65	8.80	--	51.85	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/13/2008		60.65	10.20	--	50.45	<50	<0.50	<0.50	<0.50	<0.50	19	<10	<0.50	<0.50	<0.50	<300	0.87	
A-2	11/19/2008		60.65	9.20	--	51.45	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	2/10/2009		60.65	7.83	--	52.82	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	5/7/2009		60.65	4.40	--	56.25	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	9/3/2009		60.65	10.07	--	50.58	<50	<0.50	<0.50	<0.50	<0.50	12	<10	<0.50	<0.50	<0.50	<300	1.03	
A-2	3/23/2010		60.65	3.67	--	56.98	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/16/2010		60.65	9.40	--	51.25	<50	<0.50	<0.50	<0.50	<1.0	6.1	<4.0	<0.50	<0.50	<0.50	<100	--	
A-2	3/18/2011		60.65	2.89	--	57.76	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/18/2011		60.65	7.63	--	53.02	--	--	--	--	0.74	--	--	--	--	--	--	--	
A-2	2/29/2012		60.65	8.42	--	52.23	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/24/2012		60.65	10.54	--	50.11	--	--	--	--	--	--	--	--	--	--	--	--	
A-2	8/31/2012		60.65	10.70	--	49.95	--	--	--	--	9.6	--	--	--	--	--	--	--	
AR-2	3/20/2001		54.77	3.13	--	51.64	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	6/12/2001		54.77	4.51	--	50.26	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	9/23/2001		54.77	6.05	--	48.72	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	12/31/2001		54.77	2.79	--	51.98	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	3/21/2002		54.77	7.75	--	47.02	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	4/17/2002		54.77	2.24	--	52.53	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/12/2002		54.77	4.93	--	49.84	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	12/6/2002		54.77	6.09	--	48.68	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	1/30/2003		54.77	3.89	--	50.88	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	5/28/2003		54.77	3.33	--	51.44	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/6/2003		54.77	5.05	--	49.72	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	11/14/2003		54.77	6.01	--	48.76	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	2/2/2004		59.18	3.88	--	55.30	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	5/4/2004		59.18	6.01	--	53.17	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	9/2/2004		59.18	5.65	--	53.53	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	11/10/2004		59.18	5.48	--	53.70	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	2/2/2005		59.18	2.62	--	56.56	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	5/9/2005		59.18	2.84	--	56.34	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/11/2005		59.18	4.33	--	54.85	--	--	--	--	--	--	--	--	--	--	--	--	

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
AR-2	11/18/2005		59.18	5.34	--	53.84	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	2/15/2006		59.18	2.49	--	56.69	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	5/30/2006		59.18	3.02	--	56.16	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/11/2006		59.18	4.32	--	54.86	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	11/1/2006		59.18	5.25	--	53.93	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	2/7/2007		59.18	4.64	--	54.54	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	5/9/2007		59.18	3.15	--	56.03	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/7/2007		59.18	4.55	--	54.63	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	11/14/2007		59.18	5.03	--	54.15	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	2/28/2008		59.18	1.82	--	57.36	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/13/2008		59.18	5.05	--	54.13	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	11/19/2008		59.18	5.49	--	53.69	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	2/10/2009		59.18	5.10	--	54.08	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	5/7/2009		59.18	2.90	--	56.28	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	9/3/2009		59.18	5.99	--	53.19	--	--	--	--	--	--	--	--	--	--	--	--	
AR-2	8/24/2012		59.18	4.55	--	54.63	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	6/21/2000		54.66	9.48	--	45.18	<50	<0.5	<0.5	<0.5	<1.0	46	--	--	--	--	--	--	
A-3	9/20/2000		54.66	10.24	--	44.42	<50	<0.5	<0.5	<0.5	<0.5	89.6	--	--	--	--	--	--	
A-3	12/26/2000		54.66	9.58	--	45.08	<50	<0.5	<0.5	<0.5	<0.5	7.11	--	--	--	--	--	--	
A-3	3/20/2001		54.66	6.34	--	48.32	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	6/12/2001		54.66	9.76	--	44.90	<50	<0.5	<0.5	<0.5	<0.5	86	--	--	--	--	--	--	
A-3	9/23/2001		54.66	10.55	--	44.11	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	12/31/2001		54.66	3.70	--	50.96	<50	<0.5	<0.5	<0.5	1	60	--	--	--	--	--	--	
A-3	3/21/2002		54.66	5.75	--	48.91	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	4/17/2002		54.66	7.27	--	47.39	<50	<0.5	<0.5	<0.5	<0.5	45	--	--	--	--	--	--	
A-3	8/12/2002		54.66	9.71	--	44.95	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	12/6/2002		54.66	9.55	--	45.11	<500	<5.0	<5.0	<5.0	<5.0	150	--	--	--	--	--	2.4	
A-3	1/30/2003		54.66	6.05	--	48.61	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	5/28/2003		54.66	8.06	--	46.60	74	<0.50	<0.50	<0.50	<0.50	43	<20	<0.50	<0.50	24	<100	1.5	
A-3	8/6/2003		54.66	9.91	--	44.75	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	11/14/2003		54.66	9.52	--	45.14	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	2/2/2004		59.32	5.63	--	53.69	<50	<0.50	<0.50	<0.50	<0.50	13	<20	<0.50	<0.50	4.6	<100	1.2	
A-3	5/4/2004		59.32	8.14	--	51.18	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	9/2/2004		59.32	10.10	--	49.22	<250	<2.5	<2.5	<2.5	<2.5	62	<100	<2.5	<2.5	15	<500	1.3	
A-3	11/10/2004		59.32	7.89	--	51.43	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	2/2/2005		59.32	5.00	--	54.32	<50	<0.50	<0.50	<0.50	<0.50	6.8	<20	<0.50	<0.50	2.4	<100	1.9	
A-3	5/9/2005		59.32	5.96	--	53.36	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	8/11/2005		59.32	9.28	--	50.04	<50	<0.50	<0.50	<0.50	<0.50	39	<20	<0.50	<0.50	4.2	<100	1.8	
A-3	11/18/2005		59.32	8.61	--	50.71	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	2/15/2006		59.32	4.36	--	54.96	<50	<0.50	<0.50	<0.50	<0.50	2.2	<20	<0.50	<0.50	0.58	<300	3.6	
A-3	5/30/2006		59.32	6.28	--	53.04	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	8/11/2006		59.32	9.27	--	50.05	<50	<0.50	<0.50	<0.50	<0.50	4.1	<20	<0.50	<0.50	<0.50	<300	2.10	
A-3	11/1/2006		59.32	9.52	--	49.80	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	2/7/2007		59.32	7.90	--	51.42	<50	<0.50	<0.50	<0.50	<0.50	0.58	<20	<0.50	<0.50	<0.50	<300	1.74	
A-3	5/9/2007		59.32	6.55	--	52.77	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	8/7/2007		59.32	9.57	--	49.75	<50	<0.50	<0.50	<0.50	<0.50	3.9	<20	<0.50	<0.50	<0.50	<300	0.95	
A-3	11/14/2007		59.32	8.00	--	51.32	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	2/28/2008		59.32	3.75	--	55.57	<50	<0.50	<0.50	<0.50	<0.50	0.58	<10	<0.50	<0.50	<0.50	<300	6.16	
A-3	5/23/2008		59.32	9.10	--	50.22	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	8/13/2008		59.32	9.80	--	49.52	<50	<0.50	<0.50	<0.50	<0.50	0.55	<10	<0.50	<0.50	<0.50	<300	0.69	

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**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-3	11/19/2008		59.32	8.31	--	51.01	--	--	--	--	--	--	--	--	--	--	--	--	
A-3	2/10/2009		59.32	7.30	--	52.02	<50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	0.90		
A-3	5/7/2009		59.32	6.10	--	53.22	--	--	--	--	--	--	--	--	--	--	--		
A-3	9/3/2009		59.32	9.50	--	49.82	<50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	1.01		
A-3	3/23/2010		59.32	4.45	--	54.87	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<100	--		
A-3	8/16/2010		59.32	9.45	--	49.87	<50	<0.50	<0.50	<0.50	<1.0	0.72	<4.0	<0.50	<0.50	<100	--		
A-3	3/18/2011		59.32	4.00	--	55.32	--	--	--	--	<0.50	--	--	--	--	--	--		
A-3	8/18/2011		59.32	8.62	--	50.70	--	--	--	--	<0.50	--	--	--	--	--	--		
A-3	2/29/2012		59.32	7.22	--	52.10	--	--	--	--	<0.50	--	--	--	--	--	--		
A-3	8/24/2012		59.32	9.31	--	50.01	--	--	--	--	--	--	--	--	--	--	--		
A-3	8/31/2012		59.32	9.41	--	49.91	--	--	--	--	<0.50	--	--	--	--	--	--		
AR-3	12/26/2000		54.19	9.70	--	44.49	--	--	--	--	--	--	--	--	--	--	--		
AR-3	9/23/2001		54.19	10.43	--	43.76	--	--	--	--	--	--	--	--	--	--	--		
AR-3	12/31/2001		54.19	5.18	--	49.01	--	--	--	--	--	--	--	--	--	--	--		
AR-3	3/21/2002		54.19	6.78	--	47.41	--	--	--	--	--	--	--	--	--	--	--		
AR-3	4/17/2002		54.19	8.06	--	46.13	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/12/2002		54.19	9.94	--	44.25	--	--	--	--	--	--	--	--	--	--	--		
AR-3	12/6/2002		54.19	9.99	--	44.20	--	--	--	--	--	--	--	--	--	--	--		
AR-3	1/30/2003		54.19	7.96	--	46.23	--	--	--	--	--	--	--	--	--	--	--		
AR-3	5/28/2003		54.19	8.94	--	45.25	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/6/2003		54.19	9.94	--	44.25	--	--	--	--	--	--	--	--	--	--	--		
AR-3	11/14/2003		54.19	10.03	--	44.16	--	--	--	--	--	--	--	--	--	--	--		
AR-3	2/2/2004		59.10	6.90	--	52.20	--	--	--	--	--	--	--	--	--	--	--		
AR-3	5/4/2004		59.10	9.12	--	49.98	--	--	--	--	--	--	--	--	--	--	--		
AR-3	9/2/2004		59.10	10.15	--	48.95	--	--	--	--	--	--	--	--	--	--	--		
AR-3	11/10/2004		59.10	8.79	--	50.31	--	--	--	--	--	--	--	--	--	--	--		
AR-3	2/2/2005		59.10	7.30	--	51.80	--	--	--	--	--	--	--	--	--	--	--		
AR-3	5/9/2005		59.10	7.71	--	51.39	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/11/2005		59.10	9.54	--	49.56	--	--	--	--	--	--	--	--	--	--	--		
AR-3	11/18/2005		59.10	9.43	--	49.67	--	--	--	--	--	--	--	--	--	--	--		
AR-3	2/15/2006		59.10	7.50	--	51.60	--	--	--	--	--	--	--	--	--	--	--		
AR-3	5/30/2006		59.10	8.82	--	50.28	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/11/2006		59.10	9.38	--	49.72	--	--	--	--	--	--	--	--	--	--	--		
AR-3	11/1/2006		59.10	9.75	--	49.35	--	--	--	--	--	--	--	--	--	--	--		
AR-3	2/7/2007		59.10	9.00	--	50.10	--	--	--	--	--	--	--	--	--	--	--		
AR-3	5/9/2007		59.10	8.12	--	50.98	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/7/2007		59.10	9.75	--	49.35	--	--	--	--	--	--	--	--	--	--	--		
AR-3	11/14/2007		59.10	8.91	--	50.19	--	--	--	--	--	--	--	--	--	--	--		
AR-3	2/28/2008		59.10	6.73	--	52.37	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/13/2008		59.10	9.85	--	49.25	--	--	--	--	--	--	--	--	--	--	--		
AR-3	11/19/2008		59.10	9.35	--	49.75	--	--	--	--	--	--	--	--	--	--	--		
AR-3	2/10/2009		59.10	8.29	--	50.81	--	--	--	--	--	--	--	--	--	--	--		
AR-3	5/7/2009		59.10	7.83	--	51.27	--	--	--	--	--	--	--	--	--	--	--		
AR-3	9/3/2009		59.10	9.80	--	49.30	--	--	--	--	--	--	--	--	--	--	--		
AR-3	8/24/2012		59.10	9.10	--	50.00	--	--	--	--	--	--	--	--	--	--	--		
A-4	6/21/2000		54.73	9.49	--	45.24	2,100	110	2.1	11	5.9	2,000	--	--	--	--	--	--	
A-4	9/20/2000		54.73	10.33	--	44.40	1,540	127	<5.0	9.07	7.42	1,940	--	--	--	--	--	--	
A-4	12/26/2000		54.73	9.34	--	45.39	1,550	42.7	<5.0	11	10.9	1,210	--	--	--	--	--	--	
A-4	3/20/2001		54.73	7.56	--	47.17	913	40.9	<5.0	15.5	14.6	<25	--	--	--	--	--	--	

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A-4	6/12/2001		54.73	9.83	--	44.90	2,000	230	<20	21	<20	4,700	--	--	--	--	--	--	
A-4	9/23/2001		54.73	10.54	--	44.19	1,600	35	<10	<10	<10	3,000	--	--	--	--	--	--	
A-4	12/31/2001		54.73	5.42	--	49.31	<500	<5.0	<5.0	<5.0	<5.0	880	--	--	--	--	--	--	
A-4	3/21/2002		54.73	6.18	--	48.55	<5,000	<50	<50	<50	<50	1,400	--	--	--	--	--	--	
A-4	4/17/2002		54.73	7.34	--	47.39	1,300	79	31	17	55	2,200	--	--	--	--	--	--	
A-4	8/12/2002		54.73	9.56	--	45.17	2,400	120	<5.0	<5.0	<5.0	2,100	--	--	--	--	--	2	
A-4	12/6/2002		54.73	10.02	--	44.71	2,200	110	10	42	56	2,000	--	--	--	--	--	--	
A-4	1/30/2003		54.73	7.55	--	47.18	6,000	180	<50	85	<50	2,100	<2,000	<50	<50	530	<4,000	1.8	
A-4	5/28/2003		54.73	8.94	--	45.79	6,000	120	<50	<50	<50	2,500	<2,000	<50	<50	590	<10,000	1.5	
A-4	8/6/2003		54.73	10.03	--	44.70	5,800	100	<25	<25	33	2,500	<1,000	<25	<25	560	<5,000	1.5	
A-4	11/14/2003		54.73	10.37	--	44.36	1,000	17	<5.0	<5.0	<5.0	310	320	<5.0	<5.0	76	<1,000	1.6	
A-4	2/2/2004		59.59	6.70	--	52.89	3,600	46	<25	<25	<25	1,500	<1,000	<25	<25	350	<5,000	1.0	
A-4	5/4/2004		59.59	9.12	--	50.47	<5,000	<50	<50	<50	<50	2,300	<2,000	<50	<50	510	<10,000	6.4	
A-4	9/2/2004		59.59	9.95	--	49.64	3,000	<25	<25	<25	<25	1,200	1,200	<25	<25	280	<5,000	9.1	
A-4	11/10/2004		59.59	8.68	--	50.91	1,800	16	<10	<10	<10	1,100	910	<10	<10	270	<2,000	2.0	
A-4	2/2/2005		59.59	6.92	--	52.67	3,300	120	<10	66	11	1,700	2,100	<10	<10	430	<2,000	1.5	
A-4	5/9/2005		59.59	7.21	--	52.38	<5,000	140	<50	62	<50	1,800	2,000	<50	<50	460	<10,000	1.64	
A-4	8/11/2005		59.59	9.71	--	49.88	1,700	51	<10	<10	<10	1,200	2,400	<10	<10	310	<2,000	--	
A-4	11/18/2005		59.59	9.45	--	50.14	1,300	23	<2.5	7.2	11	310	1,400	<2.5	<2.5	98	<500	1.4	
A-4	2/15/2006		59.59	7.12	--	52.47	2,200	46	<2.5	29	7.0	910	2,700	<2.5	<2.5	270	<1,500	0.9	
A-4	5/30/2006		59.59	7.95	--	51.64	3,300	95	<10	55	<10	1,200	3,000	<10	<10	340	<6,000	1.76	
A-4	8/11/2006		59.59	9.50	--	50.09	350	93	<10	<10	<10	1,200	3,200	<10	<10	350	<6,000	1.4	
A-4	11/1/2006		59.59	9.93	--	49.66	1,300	<10	<10	<10	<10	360	1,700	<10	<10	95	<6,000	4.56	
A-4	2/7/2007		59.59	8.82	--	50.77	4,900	85	<10	40	<10	1,500	3,000	<10	<10	460	<6,000	0.72	
A-4	5/9/2007		59.59	7.56	--	52.03	1,700	19	<10	<10	<10	340	2,200	<10	<10	91	<6,000	3.00	
A-4	8/7/2007		59.59	9.80	--	49.79	2,700	69	<5.0	<5.0	<5.0	510	1,800	<5.0	<5.0	140	<3,000	1.04	
A-4	11/14/2007		59.59	8.65	--	50.94	500	4.9	<0.50	<0.50	<0.50	280	600	<0.50	<0.50	90	<300	1.27	
A-4	2/28/2008		59.59	6.15	--	53.44	850	17	<0.50	4.4	1.4	350	1,600	<0.50	<0.50	73	<300	1.76	
A-4	5/23/2008		59.59	9.40	--	50.19	1,900	75	<20	<20	<20	1,000	2,500	<20	<20	270	<12,000	1.28	
A-4	8/13/2008		59.59	9.92	--	49.67	3,100	47	<10	<10	<10	530	3,200	<10	<10	190	<6,000	0.89	
A-4	11/19/2008		59.59	9.19	--	50.40	1,800	70	<10	21	<10	430	2,000	<10	<10	140	<6,000	0.83	
A-4	2/10/2009		59.59	7.68	--	51.91	1,900	33	<10	14	<10	400	2,300	<10	<10	120	<6,000	0.87	
A-4	5/7/2009		59.59	7.31	--	52.28	<50	<0.50	<0.50	<0.50	<0.50	9.9	11	<0.50	<0.50	2.0	<300	2.40	
A-4	9/3/2009		59.59	10.02	--	49.57	3,800	49	<10	<10	<10	360	3,200	<10	<10	120	<6,000	0.79	
A-4	3/23/2010		59.59	6.62	--	52.97	1,000	17	<0.50	5.0	1.3	150	1,600	<0.50	<0.50	45	<100	--	
A-4	8/16/2010		59.59	9.85	--	49.74	1,600	18	0.50	0.56	<1.0	160	3,400	<0.50	<0.50	47	<100	--	
A-4	3/18/2011		59.59	5.34	--	54.25	490	9.9	<0.50	1.9	<1.0	66	1,400	<0.50	<0.50	18	<250	--	
A-4	8/18/2011		59.59	9.08	--	50.51	650	1.9	<0.50	<0.50	<1.0	53	1,400	<0.50	<0.50	15	<250	--	
A-4	2/29/2012		59.59	6.70	--	52.89	1,300	12	<0.50	4.2	1.1	140	2,200	<0.50	<0.50	38	<250	--	
A-4	8/24/2012		59.59	9.95	--	49.64	720	<0.50	<0.50	<1.0	5.7	370	<0.50	<0.50	<0.50	<250	--		
A-5	6/21/2000		54.17	9.29	--	44.88	980	<0.5	<0.5	<0.5	<1.0	2,000	--	--	--	--	--		
A-5	9/20/2000		54.17	10.23	--	43.94	--	--	--	--	--	--	--	--	--	--	--		
A-5	12/26/2000		54.17	9.65	--	44.52	525	<0.5	<0.5	<0.5	<0.5	1,200	--	--	--	--	--		
A-5	3/20/2001		54.17	8.05	--	46.12	--	--	--	--	--	--	--	--	--	--	--		
A-5	6/12/2001		54.17	9.81	--	44.36	830	<5.0	<5.0	<5.0	<5.0	3,200	--	--	--	--	--		
A-5	9/23/2001		54.17	10.42	--	43.75	--	--	--	--	--	--	--	--	--	--	--		
A-5	12/31/2001		54.17	6.03	--	48.14	320	<0.5	<0.5	<0.5	<0.5	60	--	--	--	--	--		
A-5	3/21/2002		54.17	6.71	--	47.46	--	--	--	--	--	--	--	--	--	--	--		
A-5	4/17/2002		54.17	8.01	--	46.16	1,600	<10	<10	<10	<10	3,200	--	--	--	--	--		
A-5	8/12/2002		54.17	9.87	--	44.30	--	--	--	--	--	--	--	--	--	--	--		

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-5	12/6/2002		54.17	9.66	--	44.51	310	<0.50	<0.50	<0.50	<0.50	330	--	--	--	--	--	1.9	
A-5	1/30/2003		54.17	7.67	--	46.50	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	5/28/2003		54.17	8.56	--	45.61	<5,000	<50	<50	<50	<50	1,500	<2,000	<50	<50	620	<10,000	1.6	
A-5	8/6/2003		54.17	9.58	--	44.59	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	11/14/2003		54.17	9.81	--	44.36	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	2/2/2004		58.78	7.43	--	51.35	390	<2.5	9.2	<2.5	2.6	140	170	<2.5	<2.5	54	<500	1.0	
A-5	5/4/2004		58.78	9.98	--	48.80	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	9/2/2004		58.78	9.65	--	49.13	<250	<2.5	<2.5	<2.5	66	150	<2.5	<2.5	29	<500	1.1		
A-5	11/10/2004		58.78	8.48	--	50.30	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	2/2/2005		58.78	7.10	--	51.68	68	<0.50	<0.50	<0.50	<0.50	17	840	<0.50	<0.50	7.6	<100	1.0	
A-5	5/9/2005		58.78	7.20	--	51.58	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	8/11/2005		58.78	9.21	--	49.57	<50	<0.50	<0.50	<0.50	<0.50	6.8	530	<0.50	<0.50	7.1	<100	1.3	
A-5	11/18/2005		58.78	9.10	--	49.68	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	2/15/2006		58.78	7.16	--	51.62	<50	<0.50	<0.50	<0.50	<0.50	5.1	460	<0.50	<0.50	4.2	<300	1.2	
A-5	5/30/2006		58.78	7.87	--	50.91	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	8/11/2006		58.78	8.90	--	49.88	920	<0.50	<0.50	<0.50	<0.50	12	1,100	<0.50	<0.50	5.0	<300	1.4	
A-5	11/1/2006		58.78	9.30	--	49.48	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	2/7/2007		58.78	8.50	--	50.28	60	<0.50	<0.50	<0.50	<0.50	1.5	600	<0.50	<0.50	<0.50	<300	0.73	
A-5	5/9/2007		58.78	7.60	--	51.18	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	8/7/2007		58.78	9.30	--	49.48	<50	<0.50	<0.50	<0.50	<0.50	0.81	79	<0.50	<0.50	<0.50	<300	0.41	
A-5	11/14/2007		58.78	8.48	--	50.30	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	2/28/2008		58.78	6.21	--	52.57	<50	<0.50	<0.50	<0.50	<0.50	0.97	230	<0.50	<0.50	<0.50	<300	2.24	
A-5	5/23/2008		58.78	8.97	--	49.81	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	8/13/2008		58.78	9.42	--	49.36	<50	<0.50	<0.50	<0.50	<0.50	0.69	33	<0.50	<0.50	<0.50	<300	0.62	
A-5	11/19/2008		58.78	8.91	--	49.87	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	2/10/2009		58.78	7.80	--	50.98	<50	<0.50	<0.50	<0.50	<0.50	1.6	18	<0.50	<0.50	0.59	<300	0.85	
A-5	5/7/2009		58.78	7.37	--	51.41	--	--	--	--	--	--	--	--	--	--	--	--	
A-5	9/3/2009		58.78	9.33	--	49.45	<50	<0.50	<0.50	<0.50	<0.50	20	<10	<0.50	<0.50	9.1	<300	0.91	
A-5	3/23/2010		58.78	6.84	--	51.94	<50	<0.50	<0.50	<0.50	<1.0	<0.50	33	<0.50	<0.50	<0.50	<100	--	
A-5	8/16/2010		58.78	8.85	--	49.93	<50	<0.50	<0.50	<0.50	<1.0	7.9	35	<0.50	<0.50	3.1	<100	--	
A-5	3/18/2011		58.78	5.45	--	53.33	<50	--	--	--	--	<0.50	--	--	--	--	--	--	
A-5	8/18/2011		58.78	8.37	--	50.41	<50	--	--	--	--	0.81	--	--	--	--	--	--	
A-5	2/29/2012		58.78	8.12	--	50.66	<50	--	--	--	--	<0.50	--	--	--	--	--	--	
A-5	8/24/2012		58.78	9.15	--	49.63	--	--	--	--	--	--	--	--	--	--	--	--	
A-6	6/21/2000		55.17	8.67	--	46.50	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	--	--	--	--	
A-6	9/20/2000		55.17	9.34	--	45.83	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-6	12/26/2000		55.17	8.65	--	46.52	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-6	3/20/2001		55.17	6.84	--	48.33	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-6	6/12/2001		55.17	8.93	--	46.24	<50	<0.5	<0.5	<0.5	7	--	--	--	--	--	--	--	
A-6	9/23/2001		55.17	9.74	--	45.43	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-6	12/31/2001		55.17	4.81	--	50.36	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--	--	--	--	--	
A-6	3/21/2002		55.17	5.44	--	49.73	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-6	4/17/2002		55.17	6.95	--	48.22	<50	<0.5	<0.5	<0.5	<0.5	3.1	--	--	--	--	--	--	
A-6	8/12/2002		55.17	8.90	--	46.27	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	4.3	
A-7	6/21/2000		54.71	8.58	--	46.13	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	--	--	--	--	
A-7	9/20/2000		54.71	9.19	--	45.52	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	12/26/2000		54.71	8.50	--	46.21	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	3/20/2001		54.71	6.75	--	47.96	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	6/12/2001		54.71	8.80	--	45.91	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	

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**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-7	9/23/2001		54.71	9.59	--	45.12	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	12/31/2001		54.71	4.78	--	49.93	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	3/21/2002		54.71	5.35	--	49.36	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	4/17/2002		54.71	6.88	--	47.83	<50	<0.5	<0.5	<0.5	<0.5	2.5	--	--	--	--	--	--	
A-7	8/12/2002		54.71	8.77	--	45.94	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	12/6/2002		54.71	9.07	--	45.64	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	1/30/2003		54.71	6.65	--	48.06	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/28/2003		54.71	7.63	--	47.08	<50	<0.50	<0.50	<0.50	<0.50	3.8	<20	<0.50	<0.50	0.94	<100	2.3	
A-7	8/6/2003		54.71	8.90	--	45.81	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	11/14/2003		54.71	9.08	--	45.63	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	2/2/2004		59.75	5.96	--	53.79	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/4/2004		59.75	8.21	--	51.54	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	9/2/2004		59.75	9.02	--	50.73	<50	<0.50	<0.50	<0.50	<0.50	8.9	<20	<0.50	<0.50	3.0	<100	3.0	
A-7	11/10/2004		59.75	7.50	--	52.25	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	2/2/2005		59.75	6.10	--	53.65	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/9/2005		59.75	6.48	--	53.27	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/11/2005		59.75	8.45	--	51.30	<50	<0.50	<0.50	<0.50	<0.50	18	<20	<0.50	<0.50	4.4	<100	1.6	
A-7	11/18/2005		59.75	8.65	--	51.10	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	2/15/2006		59.75	6.51	--	53.24	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/30/2006		59.75	7.13	--	52.62	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/11/2006		59.75	8.46	--	51.29	<50	<0.50	<0.50	<0.50	<0.50	3.6	<20	<0.50	<0.50	0.91	<300	1.7	
A-7	11/1/2006		59.75	8.99	--	50.76	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	2/7/2007		59.75	8.12	--	51.63	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/9/2007		59.75	7.04	--	52.71	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/7/2007		59.75	9.10	--	50.65	<50	<0.50	<0.50	<0.50	<0.50	2.7	<20	<0.50	<0.50	<0.50	<300	1.34	
A-7	11/14/2007		59.75	8.00	--	51.75	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	2/28/2008		59.75	5.81	--	53.94	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/23/2008		59.75	8.74	--	51.01	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/13/2008		59.75	9.27	--	50.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	1.05	
A-7	11/19/2008		59.75	8.67	--	51.08	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	2/10/2009		59.75	7.47	--	52.28	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	5/7/2009		59.75	6.88	--	52.87	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	9/3/2009		59.75	9.25	--	50.50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	0.93	
A-7	3/23/2010		59.75	6.33	--	53.42	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/16/2010		59.75	9.13	--	50.62	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	--	
A-7	3/18/2011		59.75	5.20	--	54.55	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/18/2011		59.75	8.54	--	51.21	--	--	--	--	--	<0.50	--	--	--	--	--	--	
A-7	2/29/2012		59.75	8.00	--	51.75	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/24/2012		59.75	9.06	--	50.69	--	--	--	--	--	--	--	--	--	--	--	--	
A-7	8/31/2012		59.75	9.04	--	50.71	--	--	--	--	--	<0.50	--	--	--	--	--	--	
A-8	6/21/2000		53.77	9.07	--	44.70	810	<0.5	<0.5	<0.5	810	1,500	--	--	--	--	--	--	
A-8	9/20/2000		53.77	9.72	--	44.05	10,800	2,680	46	439	370	4,410	--	--	--	--	--	--	
A-8	12/26/2000		53.77	9.20	--	44.57	7,700	1,440	<50	202	106	2,230	--	--	--	--	--	--	
A-8	3/20/2001		53.77	7.51	--	46.26	<5,000	1,280	<50	53.9	<50	2,880	--	--	--	--	--	--	
A-8	6/12/2001		53.77	9.53	--	44.24	5,600	1,700	<50	61	54	2,900	--	--	--	--	--	--	
A-8	9/23/2001		53.77	10.08	--	43.69	10,000	3,500	<50	110	64	6,500	--	--	--	--	--	--	
A-8	12/31/2001		53.77	4.34	--	49.43	4,300	610	<10	60	24	520	--	--	--	--	--	--	
A-8	3/21/2002		53.77	6.67	--	47.10	6,600	1,400	<50	130	<50	2,700	--	--	--	--	--	--	
A-8	4/17/2002		53.77	7.72	--	46.05	3,800	540	<10	<10	12	3,100	--	--	--	--	--	--	
A-8	8/12/2002		53.77	9.64	--	44.13	9,400	1,800	<20	35	28	4,200	--	--	--	--	--	1	

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-8	12/6/2002		53.77	9.62	--	44.15	5,300	1,100	11	<10	2,200	--	--	--	--	--	1.4		
A-8	1/30/2003		53.77	7.49	--	46.28	<10,000	1,100	<100	<100	2,200	<4,000	<100	<100	900	<8,000	1.5		
A-8	5/28/2003		53.77	9.17	--	44.60	7,700	1,700	<50	<50	2,100	<2,000	<50	<50	1,100	<10,000	1		
A-8	8/6/2003		53.77	9.67	--	44.10	13,000	2,400	<50	<50	3,000	<2,000	<50	<50	1,200	<10,000	0.9		
A-8	11/14/2003		53.77	9.80	--	43.97	3,100	570	<5.0	<5.0	850	<200	<5.0	<5.0	320	<1,000	2.3		
A-8	2/2/2004		58.70	7.10	--	51.60	3,900	300	<25	<25	1,100	<1,000	<25	<25	380	<5,000	1.1		
A-8	5/4/2004		58.70	9.44	--	49.26	<5,000	490	<50	<50	1,600	<2,000	<50	<50	440	<10,000	1.0		
A-8	9/2/2004		58.70	9.67	--	49.03	<2,500	30	<25	<25	680	<1,000	<25	<25	170	<5,000	1.0		
A-8	11/10/2004		58.70	8.15	--	50.55	580	61	<2.5	<2.5	290	<100	<2.5	<2.5	66	<500	1.5		
A-8	2/2/2005		58.70	6.53	--	52.17	5,000	890	<25	<25	1,900	<1,000	<25	<25	510	<5,000	1.0		
A-8	5/9/2005		58.70	6.31	--	52.39	69	0.90	<0.50	<0.50	66	<20	<0.50	<0.50	2.9	<100	4.1		
A-8	8/11/2005		58.70	9.15	--	49.55	1,400	1,300	<12	<12	1,100	<500	<12	<12	310	<2,500	0.7		
A-8	11/18/2005		58.70	8.89	--	49.81	1,200	420	<5.0	<5.0	340	<200	<5.0	<5.0	120	<1,000	0.7		
A-8	2/15/2006		58.70	6.34	--	52.36	3,200	970	<10	<10	1,100	880	<10	<10	330	<6,000	0.9		
A-8	5/30/2006		58.70	7.53	--	51.17	510	210	<2.5	<2.5	140	<100	<2.5	<2.5	43	<1,500	2.6		
A-8	8/11/2006		58.70	8.90	--	49.80	1,300	500	<5.0	<5.0	290	<200	<5.0	<5.0	92	<3,000	0.7		
A-8	11/1/2006		58.70	9.15	--	49.55	4,800	790	6.6	<5.0	910	1,200	<5.0	<5.0	250	<3,000	1.72		
A-8	2/7/2007		58.70	8.48	--	50.22	7,600	2,300	<25	<25	1,200	<1,000	<25	<25	330	<15,000	1.25		
A-8	5/9/2007		58.70	7.25	--	51.45	750	180	<2.5	<2.5	55	<100	<2.5	<2.5	16	<1,500	1.75		
A-8	8/7/2007		58.70	9.17	--	49.53	2,100	700	4.0	<2.5	430	140	<2.5	<2.5	160	<1,500	0.77		
A-8	11/14/2007		58.70	7.77	--	50.93	990	300	2.5	0.68	100	28	<0.50	<0.50	44	<300	1.01		
A-8	2/28/2008		58.70	5.14	--	53.56	2,100	670	<5.0	<5.0	220	230	<5.0	<5.0	72	<3,000	1.67		
A-8	8/13/2008		58.70	9.48	--	49.22	3,100	970	<25	<25	250	<500	<25	<25	86	<15,000	0.84		
A-8	11/19/2008		58.70	8.87	--	49.83	3,800	1,000	<20	<20	230	<400	<20	<20	100	<12,000	0.89		
A-8	2/10/2009		58.70	7.11	--	51.59	3,600	1,300	<25	<25	320	<500	<25	<25	120	<15,000	0.89		
A-8	5/7/2009		58.70	6.47	--	52.23	270	65	<1.0	<1.0	12	20	<1.0	<1.0	3.3	<600	0.97		
A-8	9/3/2009		58.70	9.47	--	49.23	3,200	1,400	<25	<25	100	<500	<25	<25	52	<15,000	0.87		
A-8	3/23/2010		58.70	6.12	--	52.58	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	--	
A-8	8/16/2010		58.70	9.27	--	49.43	4,300	1,600	12	5.3	6.1	110	<4.0	<0.50	<0.50	41	<100	--	
A-8	3/18/2011		58.70	5.01	--	53.69	2,000	620	4.7	0.96	1.4	87	220	<0.50	<0.50	43	<250	--	
A-8	8/18/2011		58.70	8.76	--	49.94	3,300	1,500	13	5.4	<10	120	<40	<5.0	<5.0	57	<2,500	--	
A-8	2/29/2012		58.70	8.19	--	50.51	3,400	1,700	10	3.4	3.9	160	460	<0.50	<0.50	71	<250	--	
A-8	8/24/2012		58.70	9.44	--	49.26	3,700	1,800	<25	<25	<50	64	220	<25	<25	33	<13,000	--	
A-9	6/21/2000		53.04	8.56	--	44.48	<50	<0.5	<0.5	<0.5	<1.0	5	--	--	--	--	--	--	
A-9	9/20/2000		53.04	9.05	--	43.99	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	12/26/2000		53.04	8.49	--	44.55	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	3/20/2001		53.04	6.95	--	46.09	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	6/12/2001		53.04	8.67	--	44.37	<50	<0.5	<0.5	<0.5	4.8	--	--	--	--	--	--	--	
A-9	9/23/2001		53.04	9.21	--	43.83	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	12/31/2001		53.04	4.57	--	48.47	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	3/21/2002		53.04	5.60	--	47.44	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	4/17/2002		53.04	6.89	--	46.15	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-9	8/12/2002		53.04	8.71	--	44.33	<50	<0.50	<0.50	<0.50	<2.5	--	--	--	--	--	--	4	
A-9	12/6/2002		53.04	8.77	--	44.27	<50	<0.50	<0.50	<0.50	<2.0	--	--	--	--	--	--	1.1	
A-9	1/30/2003		53.04	6.88	--	46.16	<50	<0.50	<0.50	<0.50	1.1	<20	<0.50	<0.50	<0.50	<40	0.9		
A-9	5/28/2003		53.04	9.75	--	43.29	<50	<0.50	<0.50	<0.50	0.74	<20	<0.50	<0.50	<0.50	<100	1.9		
A-9	8/6/2003		53.04	9.00	--	44.04	<50	<0.50	<0.50	<0.50	1.8	<20	<0.50	<0.50	<0.50	<100	2.2		
A-9	11/14/2003		53.04	8.82	--	44.22	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	2/2/2004		57.73	7.10	--	50.63	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	5/4/2004		57.73	8.12	--	49.61	--	--	--	--	--	--	--	--	--	--	--	--	

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**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPe (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-9	9/2/2004		57.73	8.78	--	48.95	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	6.6	
A-9	11/10/2004		57.73	7.88	--	49.85	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	2/2/2005		57.73	6.40	--	51.33	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	5/9/2005		57.73	6.82	--	50.91	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/11/2005		57.73	8.37	--	49.36	<50	<0.50	<0.50	<0.50	<0.50	1.5	<20	<0.50	<0.50	<0.50	<100	1.8	
A-9	11/18/2005		57.73	8.24	--	49.49	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	2/15/2006		57.73	6.38	--	51.35	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	5/30/2006		57.73	7.17	--	50.56	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/11/2006		57.73	8.20	--	49.53	<50	<0.50	<0.50	<0.50	<0.50	1.6	<20	<0.50	<0.50	<0.50	<300	1.02	
A-9	11/1/2006		57.73	8.90	--	48.83	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	2/7/2007		57.73	7.83	--	49.90	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	5/9/2007		57.73	6.92	--	50.81	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/7/2007		57.73	8.58	--	49.15	<50	<0.50	<0.50	<0.50	<0.50	0.64	<20	<0.50	<0.50	<0.50	<300	1.81	
A-9	11/14/2007		57.73	7.77	--	49.96	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	2/28/2008		57.73	5.61	--	52.12	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/13/2008		57.73	8.65	--	49.08	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	0.55	
A-9	11/19/2008		57.73	8.49	--	49.24	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	2/10/2009		57.73	7.07	--	50.66	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	5/7/2009		57.73	6.65	--	51.08	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	9/3/2009		57.73	8.56	--	49.17	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	0.89	
A-9	3/23/2010		57.73	5.98	--	51.75	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/16/2010		57.73	8.32	--	49.41	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	--	
A-9	3/18/2011		57.73	4.40	--	53.33	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/18/2011		57.73	7.94	--	49.79	--	--	--	--	--	<0.50	--	--	--	--	--	--	
A-9	2/29/2012		57.73	7.48	--	50.25	--	--	--	--	--	--	--	--	--	--	--	--	
A-9	8/24/2012		57.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(Dry)
A-10	6/21/2000		54.26	10.47	--	43.79	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	9/20/2000		54.26	10.76	--	43.50	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	11/14/2003		54.26	10.37	--	43.89	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	2/2/2004		59.39	7.97	--	51.42	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	5/4/2004		59.39	8.69	--	50.70	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	9/2/2004		59.39	10.55	--	48.84	<500	<5.0	<5.0	<5.0	<5.0	270	<200	<5.0	<5.0	44	<1,000	0.8	
A-10	11/10/2004		59.39	9.16	--	50.23	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	2/2/2005		59.39	7.90	--	51.49	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	5/9/2005		59.39	8.21	--	51.18	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/11/2005		59.39	10.02	--	49.37	69	<0.50	<0.50	<0.50	<0.50	97	<20	<0.50	<0.50	14	<100	0.9	
A-10	11/18/2005		59.39	9.86	--	49.53	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	2/15/2006		59.39	7.53	--	51.86	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	5/30/2006		59.39	8.82	--	50.57	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/11/2006		59.39	9.88	--	49.51	<50	<0.50	<0.50	<0.50	<0.50	46	<20	<0.50	<0.50	7.3	<300	1.3	
A-10	11/1/2006		59.39	10.28	--	49.11	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	2/7/2007		59.39	9.50	--	49.89	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	5/9/2007		59.39	8.67	--	50.72	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/7/2007		59.39	10.25	--	49.14	<50	<0.50	<0.50	<0.50	<0.50	8.9	<20	<0.50	<0.50	<0.50	<300	0.59	
A-10	11/14/2007		59.39	9.48	--	49.91	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	2/28/2008		59.39	7.23	--	52.16	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	5/23/2008		59.39	9.94	--	49.45	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/13/2008		59.39	10.30	--	49.09	<50	<0.50	<0.50	<0.50	<0.50	28	<10	<0.50	<0.50	6.9	<300	0.74	
A-10	11/19/2008		59.39	9.90	--	49.49	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	2/10/2009		59.39	8.74	--	50.65	--	--	--	--	--	--	--	--	--	--	--	--	

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Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-10	5/7/2009		59.39	8.23	--	51.16	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	3/23/2010		59.39	7.65	--	51.74	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/16/2010		59.39	10.05	--	49.34	<50	<0.50	<0.50	<0.50	<1.0	3.9	<4.0	<0.50	<0.50	<0.50	<100	--	
A-10	3/18/2011		59.39	6.52	--	52.87	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/18/2011		59.39	9.58	--	49.81	--	--	--	--	--	2.1	--	--	--	--	--	--	
A-10	2/29/2012		59.39	9.02	--	50.37	--	--	--	--	--	--	--	--	--	--	--	--	
A-10	8/24/2012		59.39	10.03	--	49.36	--	--	--	--	--	1.8	--	--	--	--	--	--	
A-11	6/21/2000		53.74	9.54	--	44.20	<50	<0.5	<0.5	<0.5	<1.0	4	--	--	--	--	--	--	
A-11	9/20/2000		53.74	10.62	--	43.12	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	12/26/2000		53.74	10.03	--	43.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-11	3/20/2001		53.74	8.49	--	45.25	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	6/12/2001		53.74	10.21	--	43.53	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-11	9/23/2001		53.74	10.77	--	42.97	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	12/31/2001		53.74	6.06	--	47.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-11	3/21/2002		53.74	7.14	--	46.60	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	4/17/2002		53.74	8.41	--	45.33	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	
A-11	8/12/2002		53.74	10.25	--	43.49	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	12/6/2002		53.74	10.43	--	43.31	<50	<0.50	<0.50	<0.50	<0.50	<2.0	--	--	--	--	2.4	--	
A-11	1/30/2003		53.74	8.42	--	45.32	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/28/2003		53.74	9.30	--	44.44	<50	<0.50	<0.50	<0.50	<0.50	0.53	<20	<0.50	<0.50	<0.50	<100	1.8	
A-11	8/6/2003		53.74	10.28	--	43.46	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	11/14/2003		53.74	10.40	--	43.34	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	2/2/2004		59.16	7.95	--	51.21	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/4/2004		59.16	8.72	--	50.44	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	9/2/2004		59.16	10.44	--	48.72	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	2.6	
A-11	11/10/2004		59.16	9.20	--	49.96	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	2/2/2005		59.16	7.95	--	51.21	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/9/2005		59.16	8.07	--	51.09	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	8/11/2005		59.16	9.87	--	49.29	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	3.8	
A-11	11/18/2005		59.16	8.88	--	50.28	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	2/15/2006		59.16	7.90	--	51.26	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/30/2006		59.16	8.78	--	50.38	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	8/11/2006		59.16	10.33	--	48.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<300	3.8	
A-11	11/1/2006		59.16	10.10	--	49.06	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	2/7/2007		59.16	9.35	--	49.81	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/9/2007		59.16	8.48	--	50.68	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	8/7/2007		59.16	10.10	--	49.06	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<300	2.67	
A-11	11/14/2007		59.16	9.31	--	49.85	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	2/28/2008		59.16	7.12	--	52.04	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/23/2008		59.16	9.77	--	49.39	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	8/13/2008		59.16	10.08	--	49.08	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	0.89	
A-11	11/19/2008		59.16	9.75	--	49.41	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	2/10/2009		59.16	8.67	--	50.49	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	5/7/2009		59.16	8.20	--	50.96	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	9/3/2009		59.16	10.15	--	49.01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	0.98	
A-11	3/23/2010		59.16	7.70	--	51.46	--	--	--	--	--	--	--	--	--	--	--	--	
A-11	8/16/2010		59.16	9.90	--	49.26	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	--	
A-11	8/24/2012		59.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(INA)	

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-12	6/21/2000		52.05	9.28	--	42.77	<50	<0.5	<0.5	<0.5	<1.0	18	--	--	--	--	--	--	
A-12	9/20/2000		52.05	9.55	--	42.50	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	12/26/2000		52.05	9.05	--	43.00	<50	<0.5	<0.5	<0.5	<0.5	17.3	--	--	--	--	--	--	
A-12	3/20/2001		52.05	7.92	--	44.13	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	6/12/2001		52.05	9.26	--	42.79	<50	<0.5	<0.5	<0.5	<0.5	25	--	--	--	--	--	--	
A-12	9/23/2001		52.05	9.68	--	42.37	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	12/31/2001		52.05	5.74	--	46.31	<50	<0.5	<0.5	<0.5	<0.5	9.5	--	--	--	--	--	--	
A-12	3/21/2002		52.05	6.64	--	45.41	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	4/17/2002		52.05	7.68	--	44.37	<50	<0.5	<0.5	<0.5	<0.5	29	--	--	--	--	--	--	
A-12	8/12/2002		52.05	9.30	--	42.75	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	12/6/2002		52.05	9.38	--	42.67	<50	<0.50	<0.50	<0.50	<0.50	13	--	--	--	--	--	2.3	
A-12	1/30/2003		52.05	7.87	--	44.18	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	5/28/2003		52.05	8.51	--	43.54	50	<0.50	<0.50	<0.50	<0.50	10	<20	<0.50	<0.50	2.5	<100	1.4	
A-12	8/6/2003		52.05	9.28	--	42.77	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	11/14/2003		52.05	9.37	--	42.68	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	2/2/2004		57.06	7.90	--	49.16	<50	<0.50	<0.50	<0.50	<0.50	0.91	<20	<0.50	<0.50	<0.50	<100	1.0	
A-12	5/4/2004		57.06	8.74	--	48.32	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	9/2/2004		57.06	9.41	--	47.65	<50	<0.50	<0.50	<0.50	<0.50	6.2	<20	<0.50	<0.50	1.7	<100	1.1	
A-12	11/10/2004		57.06	8.32	--	48.74	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	2/2/2005		57.06	7.45	--	49.61	<50	<0.50	<0.50	<0.50	<0.50	8.3	<20	<0.50	<0.50	2.2	<100	1.4	
A-12	5/9/2005		57.06	7.57	--	49.49	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	8/11/2005		57.06	9.05	--	48.01	<50	<0.50	<0.50	<0.50	<0.50	5.4	<20	<0.50	<0.50	1.1	<100	0.9	
A-12	11/18/2005		57.06	8.90	--	48.16	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	2/15/2006		57.06	7.47	--	49.59	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	5/30/2006		57.06	8.21	--	48.85	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	8/11/2006		57.06	8.85	--	48.21	<50	<0.50	<0.50	<0.50	<0.50	7.4	<20	<0.50	<0.50	2.5	<300	1.8	
A-12	11/1/2006		57.06	9.17	--	47.89	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	2/7/2007		57.06	8.58	--	48.48	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	5/9/2007		57.06	7.93	--	49.13	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	8/7/2007		57.06	9.20	--	47.86	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<300	1.49	
A-12	11/14/2007		57.06	8.52	--	48.54	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	2/28/2008		57.06	7.04	--	50.02	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	5/23/2008		57.06	9.00	--	48.06	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	8/13/2008		57.06	9.38	--	47.68	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	1.03	
A-12	11/19/2008		57.06	9.01	--	48.05	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	2/10/2009		57.06	8.10	--	48.96	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	5/7/2009		57.06	7.80	--	49.26	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	9/3/2009		57.06	9.40	--	47.66	<50	<0.50	<0.50	<0.50	<0.50	3.6	<10	<0.50	<0.50	1.0	<300	0.98	
A-12	3/23/2010		57.06	7.68	--	49.38	--	--	--	--	--	--	--	--	--	--	--	--	
A-12	8/16/2010		57.06	9.30	--	47.76	<50	<0.50	<0.50	<0.50	<1.0	3.6	<4.0	<0.50	<0.50	0.85	<100	--	
A-12	8/24/2012		57.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(INA)	

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	DPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	DO (mg/l)	Notes
A-13	3/21/2002		55.11	6.70	--	48.41	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	4/17/2002		55.11	7.95	--	47.16	<50	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	--	--	
A-13	8/12/2002		55.11	10.11	--	45.00	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	12/6/2002		55.11	10.26	--	44.85	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	1/30/2003		55.11	7.81	--	47.30	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/28/2003		55.11	9.06	--	46.05	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	1.9	
A-13	8/6/2003		55.11	10.22	--	44.89	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	11/14/2003		55.11	10.27	--	44.84	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	2/2/2004		60.26	7.92	--	52.34	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/4/2004		60.26	10.06	--	50.20	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	9/2/2004		60.26	10.34	--	49.92	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	2.0	
A-13	11/10/2004		60.26	8.95	--	51.31	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	2/2/2005		60.26	7.28	--	52.98	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/9/2005		60.26	7.85	--	52.41	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	8/11/2005		60.26	9.70	--	50.56	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	11/18/2005		60.26	9.27	--	50.99	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	2/15/2006		60.26	7.24	--	53.02	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/30/2006		60.26	8.38	--	51.88	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	8/11/2006		60.26	9.55	--	50.71	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	11/1/2006		60.26	9.98	--	50.28	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	2/7/2007		60.26	9.07	--	51.19	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/9/2007		60.26	8.15	--	52.11	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	8/7/2007		60.26	10.05	--	50.21	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	11/14/2007		60.26	9.20	--	51.06	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	2/28/2008		60.26	6.82	--	53.44	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/23/2008		60.26	9.67	--	50.59	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	8/13/2008		60.26	10.17	--	50.09	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	11/19/2008		60.26	9.63	--	50.63	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	2/10/2009		60.26	8.48	--	51.78	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	5/7/2009		60.26	7.97	--	52.29	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	9/3/2009		60.26	10.14	--	50.12	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	3/23/2010		60.26	7.29	--	52.97	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	8/16/2010		60.26	9.92	--	50.34	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	3/18/2011		60.26	6.33	--	53.93	--	--	--	--	--	--	--	--	--	--	--	--	
A-13	8/24/2012		60.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(Well has been paved over)	

**Table 2**  
**Historical and Current Groundwater Monitoring and Analytical Data**  
**CA-04931**  
**731 W MacArthur Blvd, Oakland, CA 94609**

Well ID	Date	Type	TOC (ft msl)	DTW (ft)	Measured LNAPL Thickness (ft)	GW Elev (ft msl)	GRO ( $\mu\text{g/L}$ )	B ( $\mu\text{g/L}$ )	T ( $\mu\text{g/L}$ )	E ( $\mu\text{g/L}$ )	X ( $\mu\text{g/L}$ )	MTBE ( $\mu\text{g/L}$ )	TBA ( $\mu\text{g/L}$ )	DIPE ( $\mu\text{g/L}$ )	ETBE ( $\mu\text{g/L}$ )	TAME ( $\mu\text{g/L}$ )	Ethanol ( $\mu\text{g/L}$ )	DO (mg/l)	Notes
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**Notes:**

-- = Not analyzed/applicable/measured/available

< = Not detected at or above laboratory reporting limit

DO = Dissolved oxygen

DTW = Depth to water in ft bgs

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 = Not purged prior to sampling

P = Purged prior to sampling

TOC = Top of casing measured in ft

TPH-g = Total petroleum hydrocarbons as gasoline

$\mu\text{g/L}$  = Micrograms per liter

BTEX = Benzene, toluene, ethylbenzene and xylenes

a = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel for GRO/TPH-g.

b = The concentration indicated for this analyte (MTBE) was an estimated value above the calibration range of the instrument.

c = This sample was analyzed beyond the EPA recommended holding time. The results may still be useful for their intended purpose.

d = ORC sock in well.

e = Well inaccessible; well paved over.

f = Sheen in well.

g = Well surveyed to NAVD 88 datum on January 28, 2004.

h = Possible low bias due to CCV falling outside acceptance criteria for GRO.

i = Hydrocarbon result partly due to individual peak(s) in quantitative range for GRO.

j = Well inaccessible.

k = Sample taken from VOA vial with air bubble > 6mm diameter.

l = Incorrect TOC utilized in 2nd and 3rd Quarter 2009 Ground-Water Monitoring Report.

Top and bottom of screen measurements for wells A-2 through A-5 were estimated from the EMCON sampling sheet.

Beginning in the first quarter 2003 (1/30/2003), groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates. Prior to 1/30/03, TPH-g was analyzed using EPA Method 8015B modified and MTBE by 8021B unless otherwise noted.

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-TPHg analytes within the requested fuel range resulting in a higher concentration being reported.

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

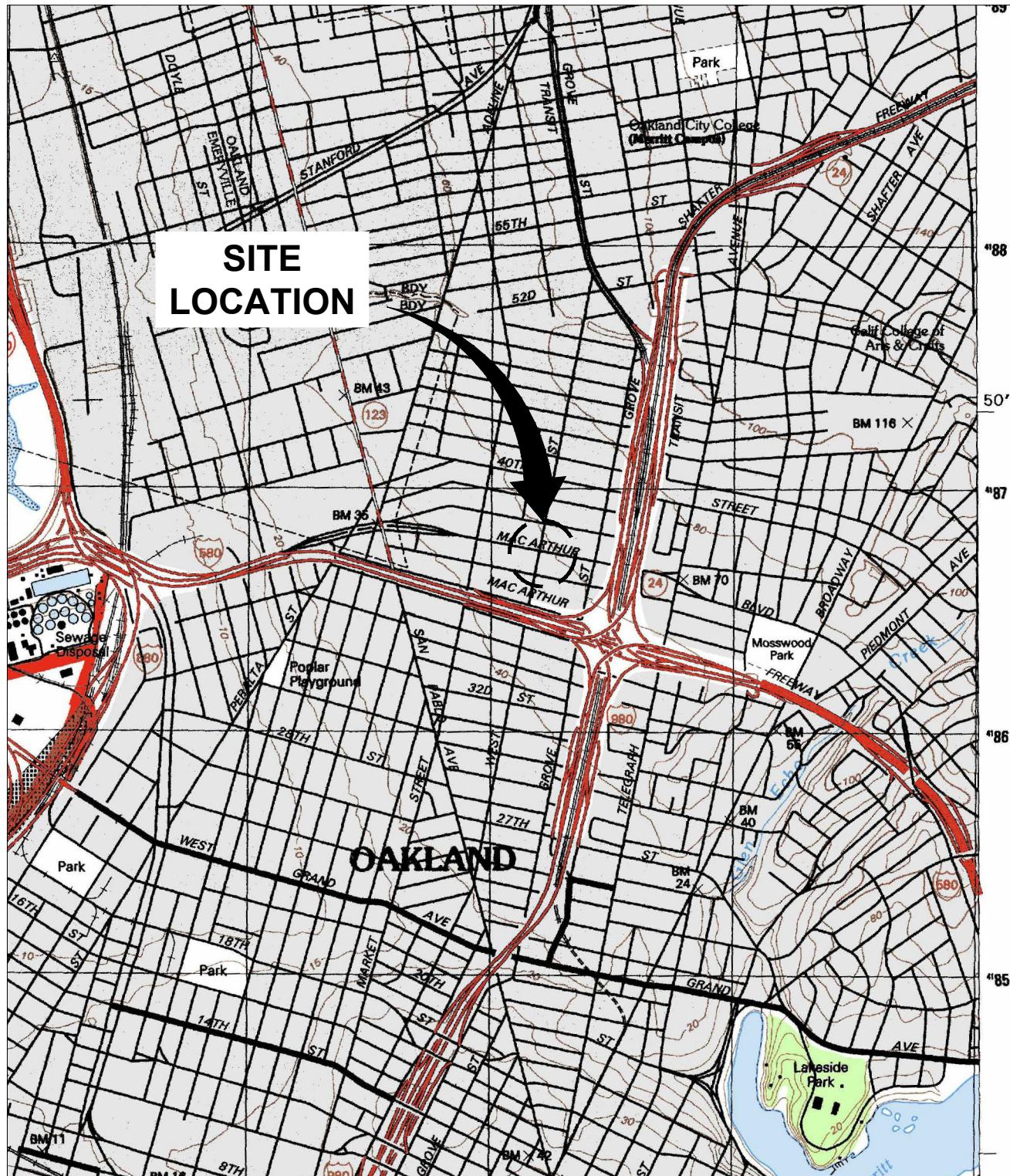
Values for DO and pH were obtained through field measurements.

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.

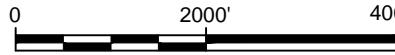
Note: The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

**ARCADIS**

**Figures**



REFERENCE: BASE MAP USGS 7.5 MIN. TOPO. QUAD., OAKLAND WEST, CALIFORNIA, 1993.

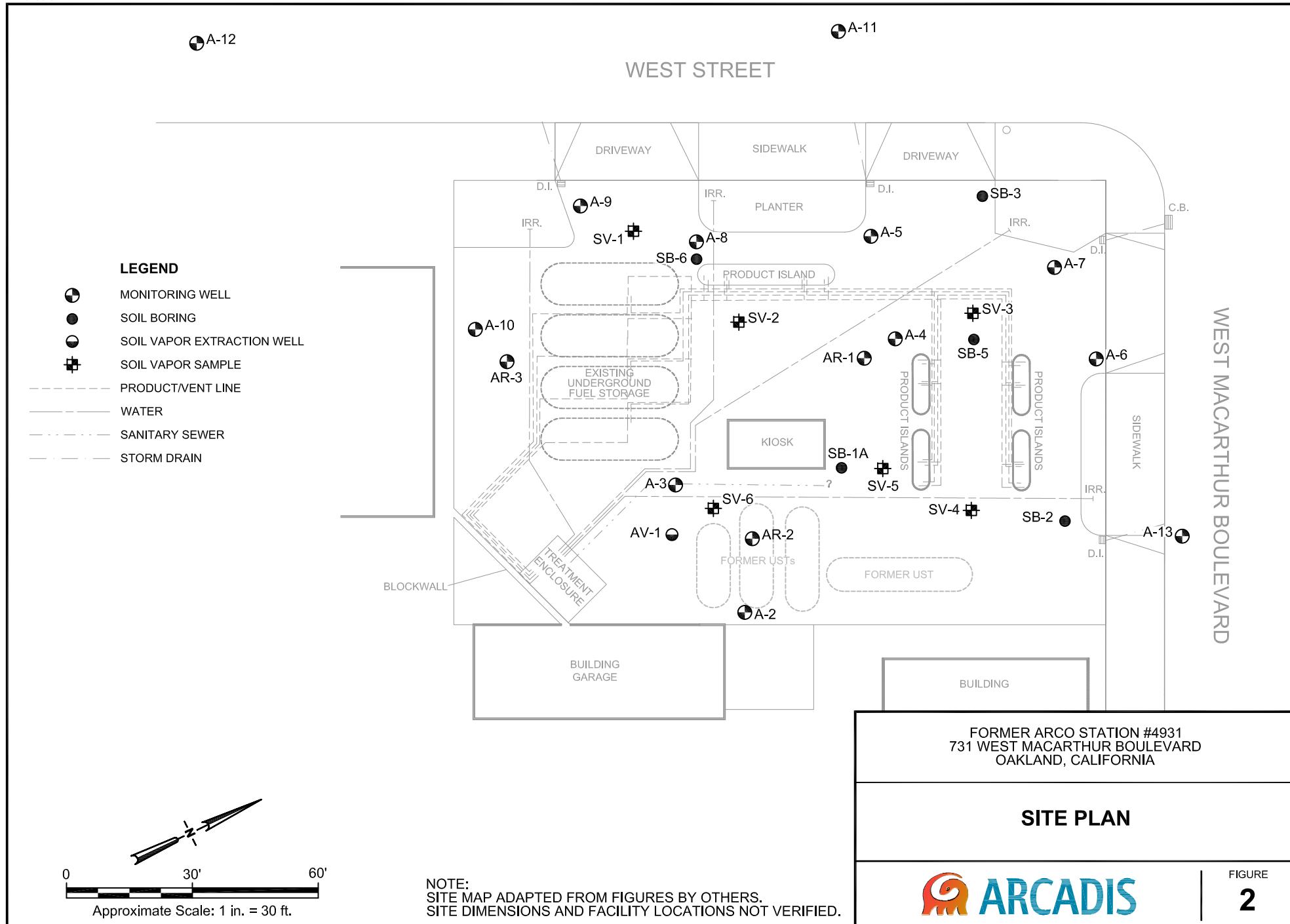


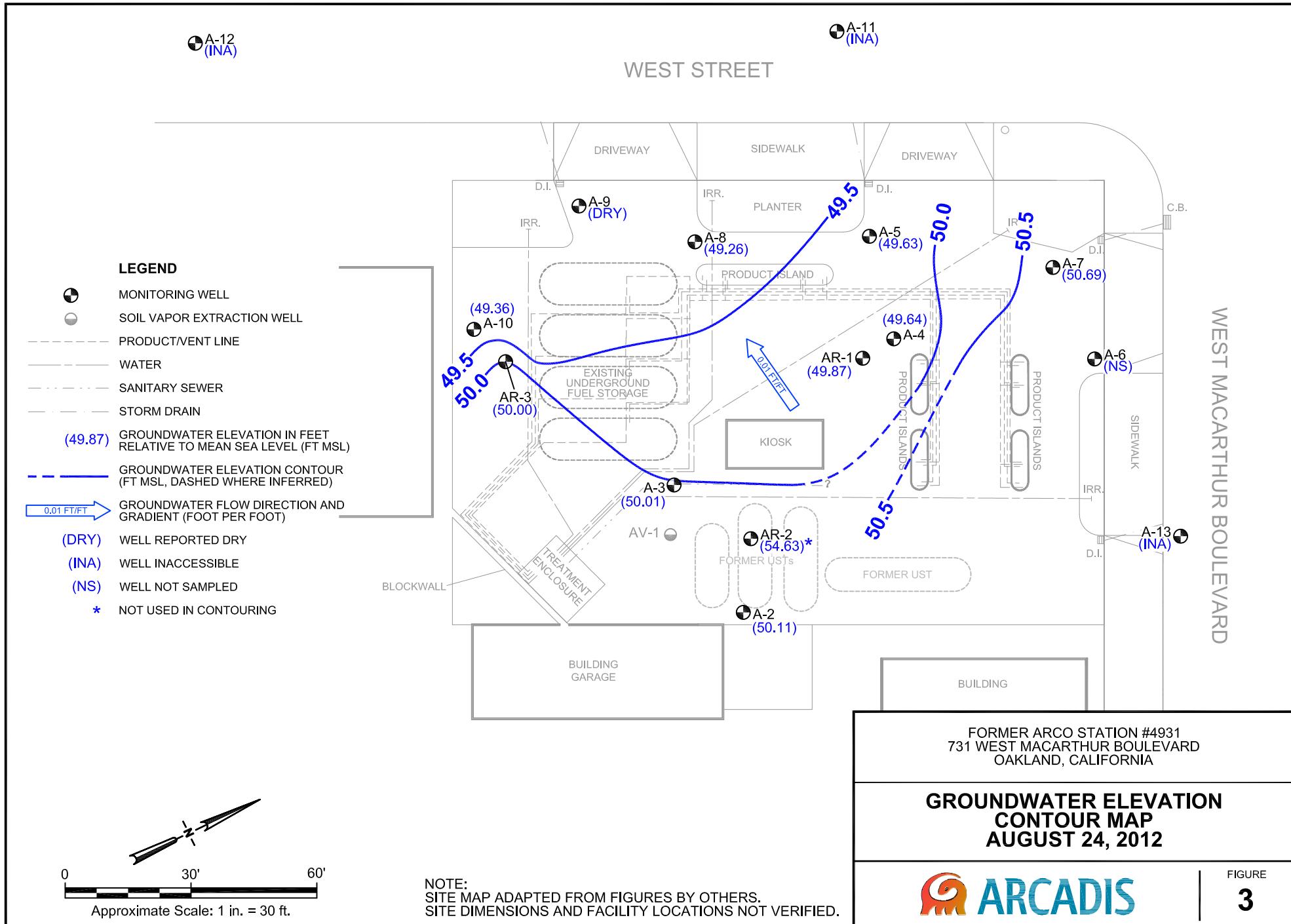
FORMER ARCO STATION #4931  
731 WEST MACARTHUR BOULEVARD  
OAKLAND, CALIFORNIA

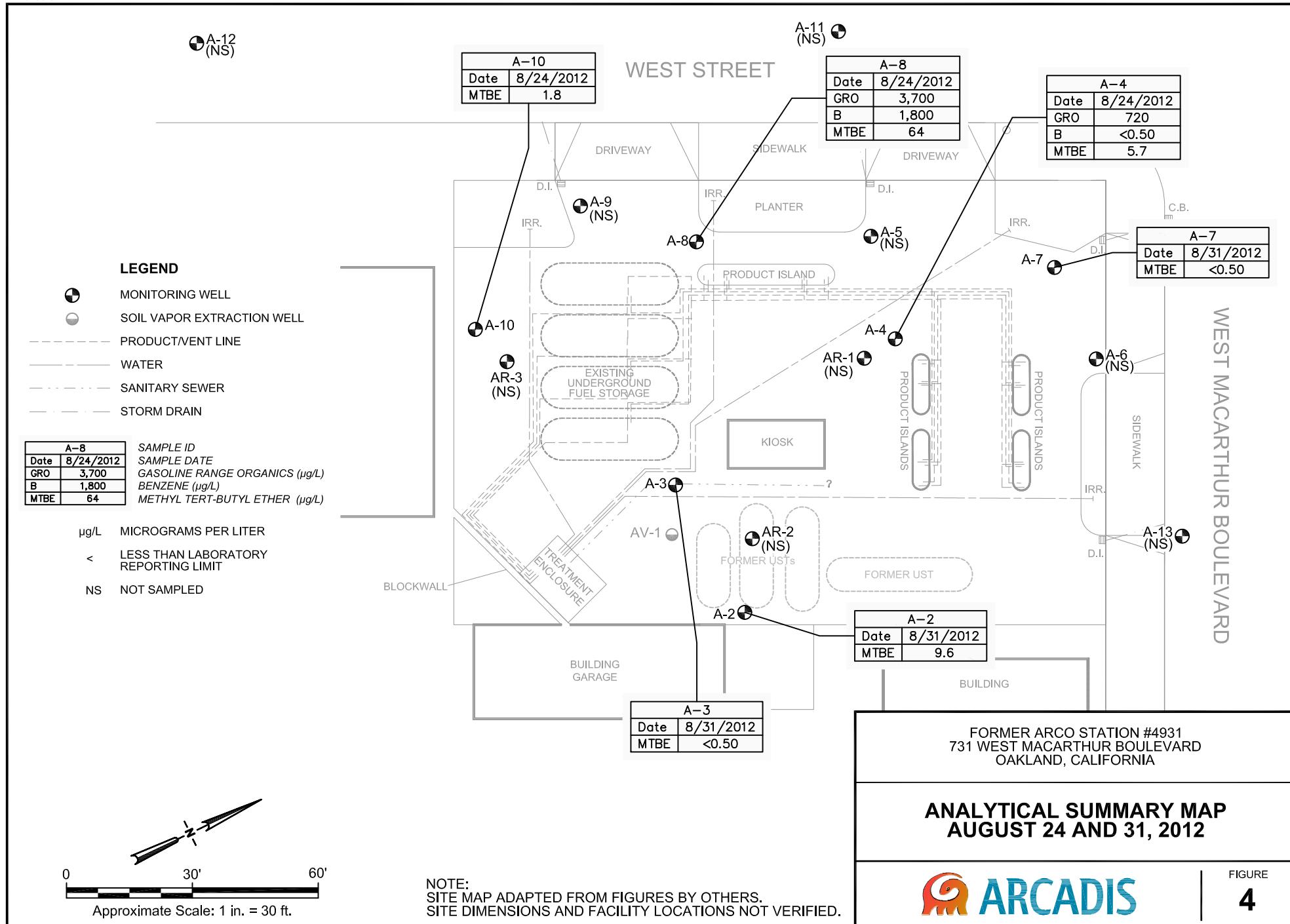
### SITE LOCATION MAP

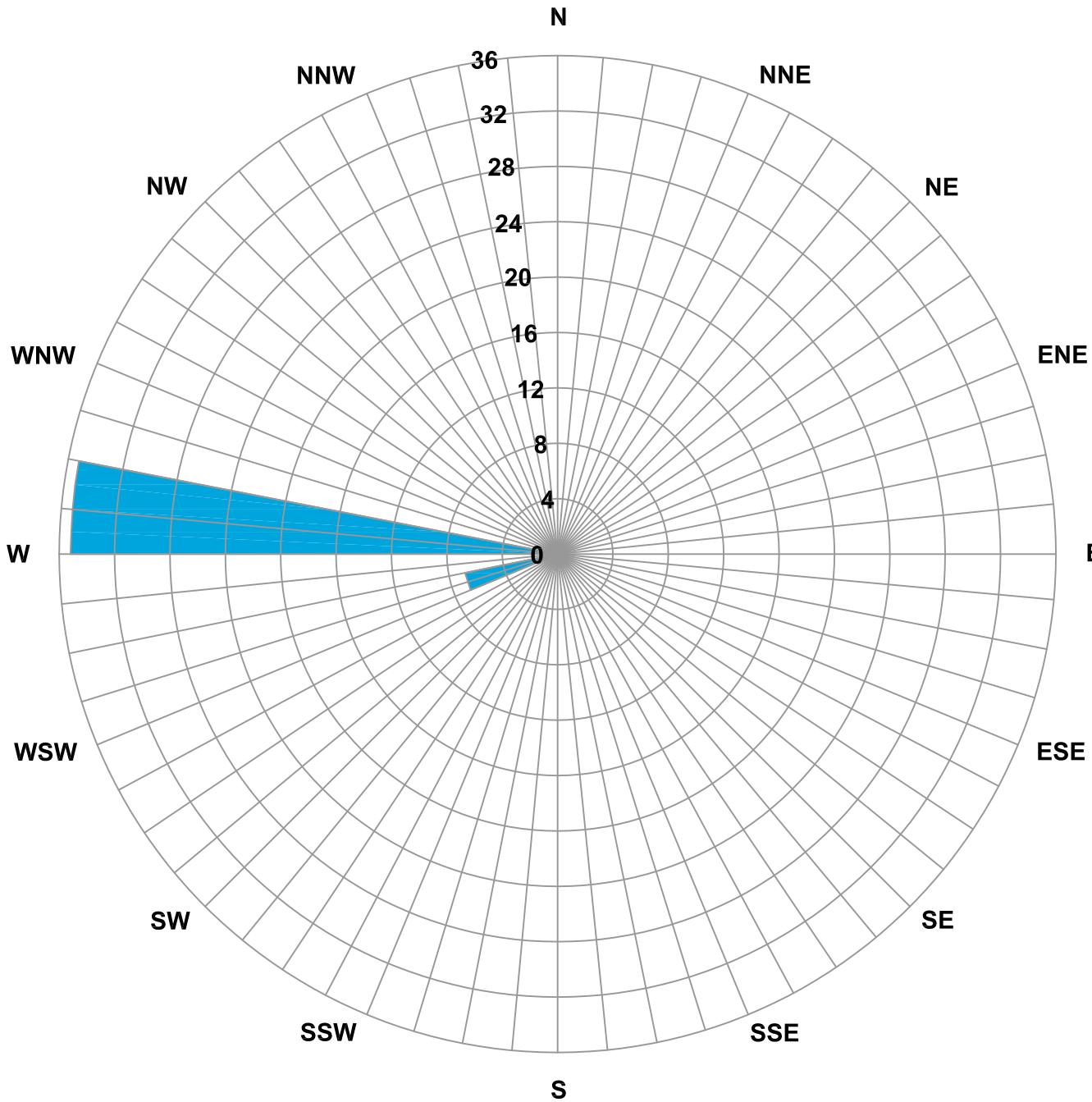


FIGURE  
1









**LEGEND**

CONCENTRIC CIRCLES REPRESENT 44 MONITORING EVENTS CONDUCTED BETWEEN THE SECOND QUARTER 2000 THROUGH THE THIRD QUARTER 2012.

GROUNDWATER FLOW DIRECTION

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

**GROUNDWATER FLOW DIRECTION ROSE DIAGRAM**

**ARCADIS**

**Appendix A**

Previous Investigations and Site  
History Summary

The Site is located at 731 West MacArthur Boulevard in Oakland, California. It is an active Beacon-branded gasoline station. Improvements to the Site include four 10,000 gallon double-wall fiberglass gasoline underground storage tanks (USTs) installed on April 8, 1992. Product lines were excavated, removed, inspected, and replaced October 2, 2002. The majority of the Site surface is paved with concrete and asphalt.

Former Atlantic-Richfield Oil Co. Station No. 4931

The Site is bound by West MacArthur Boulevard to the north-northeast, West Street to the west-northwest and single-family residential dwellings to the south-southwest and east-southeast. Interstate 580 is located approximately 620 feet south-southwest of the Site.

A super unleaded product leak was reported to have occurred in November 1982 at the Site, however the quantity of product released is unknown (Gettler-Ryan, 4/3/1989). Wells A-1 through A-4 are known to have been installed prior to December 1982; however exact dates and consultants responsible are unknown. Wells A-5 through A-8 were installed by Groundwater Technology, Inc. (GTI) in March 1983. Wells A-9 through A-12 were installed by Pacific Environmental Group, Inc. (PEG) in December 1987. Soil samples were reportedly collected from borings A-9 through A-12 at five-foot intervals for logging purposes, but were not analyzed. Well A-9 was advanced to 45 ft below ground surface (bgs) and constructed with six-inch diameter PVC casing. Wells A-10 through A-12 were advanced to 30.5 ft bgs and constructed with three-inch diameter PVC casing and 0.020 inch slotted screen (PEG, 1/20/1988). GeoStrategies, Inc. (GSI) reported in their 15 May 1991 *Remedial Action Plan* that well A-1 was destroyed during underground storage tank (UST) replacement activities in August 1983. Additional information pertaining to the 1983 UST replacement activities was not available.

In late 1987, PEG conducted a water-supply well search within a 0.5 mile radius of the Site, as reported in their 20 January 1988 *Soil and Groundwater Investigation Report*. The Department of Water Resources (DWR) reported three historical wells within 0.5 miles of the Site. Two wells were identified approximately 1,300 feet northwest of the site. One was of an unknown depth and use, drilled in 1928. The second was drilled in 1926 to a depth of either 575 or 420 feet. The well was abandoned in 1956. The third well was identified approximately 2,400 feet west (downgradient) of the Site. It was drilled in 1927 to 97 ft bgs for industrial use.

In April 1991, GSI performed a hybrid step-drawdown/constant-rate aquifer test utilizing well A-9. The test consisted of four pumping steps followed by a recovery step. Transmissivity was calculated as 1,092 to 2,668 gallons per day per foot (gpd/ft) using Jacob's method, and 996 to 2,502 gpd/ft using the Neuman method. Storativity was calculated to be  $1.18 \cdot 10^{-2}$  to  $4.24 \cdot 10^{-3}$ , which was reportedly indicative of a heterogeneous environment. According to GSI, "Specific yield [sic – capacity?] values ranged from  $1.74 \cdot 10^{-2}$  to  $9.65 \cdot 10^{-3}$ ," suggesting unconfined to semi-confined subsurface conditions (GSI, 7/10/1991). In GSI's *Remedial Action Plan*, dated 15 May 1991, approximately 30 years of pumping on well A-9 was modeled, which suggested that hydrodynamic control of the hydrocarbon plume within the groundwater was achievable at the Site. A groundwater extraction treatment system was proposed within the same report, designed to pump from well A-9 and treat groundwater onsite using carbon vessels.

Former Atlantic-Richfield Oil Co. Station No. 4931

In January 1992, GSI observed the advancement of one vapor extraction well (AV-1). AV-1 was installed to a depth of 15 ft bgs and screened from 5 ft bgs to total depth. Three Vapor Extraction Monitoring Points (VEMPs) were also installed at this time. The VEMPs were 0.75- inch diameter metal pipe driven to a depth of eight ft bgs, then withdrawn six to eight inches. The VEMPs were located at approximately four foot intervals linearly east of well AV-1. GSI conducted a four-hour vapor extraction test on 20 January 1992 on well AV-1, utilizing an internal combustion engine to create vacuum and combust vapors. Vacuum pressure in well AV-1 was sustained between 158.0 to 169.3 inches of water, while manometers were used to measure pressure changes at the VEMPs. No measurable influence was recorded at the three VEMPs, indicating less than a four-foot radius of influence for well AV-1. GSI subsequently concluded that vapor extraction was not likely to be a feasible remedial option at the Site (GSI, 5/21/1992).

Between 18 November 1991 and 8 April 1992, Roux Associates (RA) observed the UST removal and replacement installation activities. Paradiso Construction Company (Paradiso) removed one 12,000 gallon single-walled fiberglass tank, two 8,000 gallon single-walled steel tanks, and one 6,000 single-walled steel tank on 19 November 1991. It was reported that according to the ACEH and RA personnel, the former tanks appeared to be in good condition, with no holes or obvious leaks. Two preexisting four-inch tank observation wells near tank T1 were also removed at this time. Black oil staining was observed on the inside of the tank observation well casing, as well as on the surface of the exposed groundwater near where the wells were located. A vacuum truck was utilized on 21 November 1991 to remove approximately 2,800 gallons of oil/groundwater mixture from the tank cavity. Due to

reported soil staining and hydrocarbon odors, the tank cavity was over-excavated on 21 November 1991. The south end of the tank cavity (former tanks T2, T3, and T4) was excavated to approximately 14 ft bgs, while the north end (former tank T1) was excavated to approximately 12 ft bgs. Further over-excavation along the north and west side-walls of the tank cavity occurred between 20 December 1991 and 13 February 1992. The former tank cavity was backfilled on 27 February 1992 with two to four feet of pea gravel and road base aggregate to near the surface. Product lines associated with the former UST complex were excavated and removed on 1 and 2 December 1991. Select locations along the former product line trenches were overexcavated on 20 December 1991. The current UST pit excavation was initiated on 9 March 1992. Four double-walled 10,000 gallon fiberglass tanks were installed at 14 ft bgs on 8 April 1992. One 12-inch diameter slotted PVC conductor casing was installed to 13 ft bgs in the new UST cavity (RA, 7/20/1992).

On 15 and 16 June 1992 GSI observed the advancement of one soil boring offsite (A-13) and three soil borings onsite (AR-1, AR-2, and AR-3). Monitoring well A-13 was installed to a depth of 30 ft bgs and constructed with three-inch diameter Schedule 40 PVC casing and screened from 10 to 30 ft bgs with 0.020-inch machine slotted casing. Recovery wells AR-1 and AR-3 were installed to a depth of 30 ft bgs and constructed with six-inch diameter Schedule 40 PVC casing and screened from 10 to 30 ft bgs with 0.020-inch slotted carbon steel casing. Recovery well AR-2 was installed to a depth of 28 ft bgs and constructed with six-inch diameter Schedule 40 PVC casing and screened from 8 to 28 ft bgs with 0.020-inch slotted carbon steel casing. Also during second quarter 1992, a passive product skimmer was installed in well A-8 (GSI, 11/13/1992).

In late 1992, GSI oversaw the installation of an interim groundwater extraction remediation system (GWETS). The system began operation on 10 November 1992, utilizing two pumps in each of wells A-9, AR-1, AR-2, and AR-3, removing hydrocarbon impacted groundwater and free product (FP) from the subsurface. Collected FP was contained in 55-gallon drums. Groundwater was passed through a centrifugal separator, particulate filter, three in-series 1,500 pound activated carbon vessels, and ultimately discharged into the sanitary sewer system (GSI, 2/22/1994). In their *Recovery System Evaluation Report, First Quarter 1994*, dated 27 June 1994, GSI reports that the GWETS wells A-9, AR-1, AR-2, and AR-3 contain only one pump each for groundwater, and a product pump has been installed in well A-8. The GWETS was shutdown on 5 July 1995 for the following reasons cited by Pacific Environment Group, Inc. (PEG) in their *Quarterly Report – Second Quarter 1995, Remedial System Performance Evaluation*, dated 29 September 1995: 1). Since

Former Atlantic-Richfield Oil Co. Station No. 4931

system startup only 2.74 pounds (0.45 gallons) total petroleum hydrocarbons in the gasoline range (TPHg) and 0.46 pounds (0.06 gallons) of benzene had been removed; and 2). Downgradient wells A-11 and A-12 had remained non-detect for TPHg and benzene since groundwater monitoring began in 1988, indicating that the plume had stabilized and downgradient migration was minimal. At shutdown, the system had removed and treated approximately 4,643,696 gallons of groundwater. As of 31 December 1995, 23 pounds (3.75 gallons) of FP have been removed from the Site (PEG, 3/15/1996).

After the GWETS had been shutdown and pumps removed from the remediation wells, PEG initiated an in-situ bioremediation enhancement program. On 17 November 1995, eight oxygen releasing compound (ORC) socks were installed in well A-9. ORC is a magnesium peroxide powder, which slowly releases oxygen when hydrated (PEG, 3/15/1996).

On 2 October 2002, URS Corporation (URS) observed product line upgrade activities at the Site. The product lines were excavated, removed, inspected, and replaced. URS reported no observable cracks or deterioration of the former product lines. Soil samples were collected and analyzed from the product line trenches as well as from beneath the former dispenser islands. Two locations required minor over-excavation due to observed soil staining and hydrocarbon odors. The new product lines were replaced within the same trenches (URS, 1/21/2003).

Quarterly groundwater monitoring at the Site was initiated in the First Quarter 1989 by Gettler- Ryan, Inc. The site is currently monitored on a semiannual basis by Broadbent & Associates, Inc. (BAI) during the first and third calendar quarters.

Former Atlantic-Richfield Oil Co. Station No. 4931

**ARCADIS**

**Appendix B**

Groundwater Sampling Data  
Package



## DAILY REPORT

Page 1 of 1Project: Arcadis 4931 Project No.: 09-88-624Field Representative(s): Alex Martinez Day: Friday Date: 8/24/12Time Onsite: From: 0615 To: 1115; From: \_\_\_\_\_ To: \_\_\_\_\_; From: \_\_\_\_\_ To: \_\_\_\_\_ Signed HASP     Safety Glasses     Hard Hat     Steel Toe Boots     Safety Vest UST Emergency System Shut-off Switches Located     Proper Gloves Proper Level of Barricading     Other PPE (describe) \_\_\_\_\_Weather: Overcast / SunnyEquipment In Use: Peristaltic pump, water quality meter, interface probeVisitors: None

TIME:	WORK DESCRIPTION:
0615	Arrived onsite and conducted safety tailgate. Conducted site walk
0640	Set up @ A-4/AR-1
0730	Set up @ A-8
0805	Set up @ A-9. Well is dry, but there is an abundance <sup>of</sup> vegetation growth at the bottom (see picture)
0820	Set up @ AR-3/A-10
0900	Set up @ A-5
0915	Set up @ A-7
0940	Peristaltic pump malfunctioned and no longer working. Went offsite to purchase twine for Gailing
1015	Due to limited space in water holding tank, the first 3 wells (A-2, 3 & 7) will be sampled on another day. Will finish the day by gaging the final <sup>three</sup> four wells.
1115	Completed fieldwork/offsite

Signature: Alex Martinez



## DAILY REPORT

Page 1 of 1

Project: Aradis 4931 Project No.: 09-88-624

Project No.: 09-88-624

Field Representative(s): Alex Martinez Day: Friday Date: 8/31/12

Day: Friday Date: 8/31/12

Time Onsite: From: 0645 To: 0915; From: \_\_\_\_\_ To: \_\_\_\_\_; From: \_\_\_\_\_ To:

To: \_\_\_\_\_ ; From: \_\_\_\_\_ To:

- Signed HASP     Safety Glasses     Hard Hat     Steel Toe Boots     Safety Vest  
 UST Emergency System Shut-off Switches Located     Proper Gloves  
 Proper Level of Barricading     Other PPE (describe)

Weather: Overcast

Equipment In Use: Peristaltic pump, water quality meter, water level meter.

Visitors: None

TIME:

## WORK DESCRIPTION:

0645 Arrived onsite to finish sampling wells

0750 Set up @ A-7

0730 Set up @ A-3

0805 Set up @ A-2. There are several obstructions in A-2. There is an abundance of vegetation @ about 10' feet bgs. The same problem is seen in A-9 as well.

0915 Completed fieldwork and offsite.

Signature: Alex Morris



## **GROUNDWATER MONITORING SITE SHEET**

Page 1 of 1

Project: Arcadis 4931

Project No.: 09-88-624 Date: 8/24/12

Field Representative: Alex Martinez

Elevation: \_\_\_\_\_

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

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

\* 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: Alex Wash

Revision: 1/24/2012



## **GROUNDWATER MONITORING SITE SHEET**

Page 1 of 1

Project: Arendis 4931

Project No.: 09-88-624

Date: 8/31/12

Field Representative: Alex Martinez

Elevation:

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

W. L. Indicator ID #:

**Oil/Water Interface ID #:**

*(List #s of all equip used.)*

\* 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:

Revision: 1/24/2012





## GROUNDWATER SAMPLING DATA SHEET

Page 2 of 7

Project: Arcadis 4931

Project No.: 09-88-624

Date: 8/31/12

Field Representative: A.M.

Start Time: 0748

End Time: 0805 Total Time (minutes): 17

Well ID: A-3 Start Time: 0748 End Time: 0805 Total Time (minutes): 17

PURGE EQUIPMENT	<input type="checkbox"/> Disp. Bailer	<input type="checkbox"/> 120V Pump	<input checked="" type="checkbox"/> Flow Cell					
<input checked="" type="checkbox"/> Disp. Tubing	<input type="checkbox"/> 12V Pump	<input checked="" type="checkbox"/> Peristaltic Pump	Other/ID#:					
WELL HEAD INTEGRITY (cap. lock. vault. etc.)		Comments: _____						
Good	Improvement Needed	(circle one)						
PURGING/SAMPLING METHOD		Predetermined Well Volume	<input checked="" type="checkbox"/> 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) _____"   (_____ ft)					
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:		(ft)						
Pump Depth (if pump used):								
LOW-FLOW								
Previous Low-Flow Purge Rate: _____ (lpm)								
Total Well Depth (a): <u>16.30</u> (ft)								
Initial Depth to Water (b): <u>9.41</u> (ft)								
Pump In-take Depth = b + (a-b)/2: <u>12.85</u> (ft)								
Maximum Allowable Drawdown = (a-b)/8: <u>0.86</u> (ft)								
Low-Flow Purge Rate: <u>0.25</u> (Lpm)*								
Comments: _____								
<small>*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.</small>								
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
0750	0.0	19.32	7.16	0.443	2.73	141	0.0	
0752	0.5	20.64	6.94	0.428	2.18	142	0.0	
0754	1.0	21.02	6.02	0.424	2.09	135	0.0	
0756	1.5	21.21	7.05	0.422	2.06	132	0.0	
Previous Stabilized Parameters								
PURGE COMPLETION RECORD		<input checked="" type="checkbox"/> Low Flow & Parameters Stable			<input type="checkbox"/> 3 Casing Volumes & Parameters Stable		<input type="checkbox"/> 5 Casing Volumes	
					<input type="checkbox"/> Other:			
SAMPLE COLLECTION RECORD						GEOCHEMICAL PARAMETERS		
Depth to Water at Sampling: <u>9.91</u> (ft)						Parameter	Time	Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing						DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other: _____						Ferrous Iron (mg/L)		
Sample ID: <u>A-3</u> Sample Collection Time: <u>0800</u> (24:00)						Redox Potential (mV)		
Containers (#): <u>6</u> VOA ( <input checked="" type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber						Alkalinity (mg/L)		
<input type="checkbox"/> Other: _____			<input type="checkbox"/> Other: _____			Other:		
<input type="checkbox"/> Other: _____			<input type="checkbox"/> Other: _____			Other:		

Signature: Alex Morris

Revision: 8/19/11





## GROUNDWATER SAMPLING DATA SHEET

Page 4 of 7

Project: Arcadis 4931

Project No.: 09-88-624

Date: 8/24/12

Field Representative: AM

End Time: \_\_\_\_\_ Total Time (minutes): \_\_\_\_\_

Well ID: A-5 Start Time: 10:00

End Time: \_\_\_\_\_ Total Time (minutes): \_\_\_\_\_

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

WEIJ 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				LOW-FLOW	
Casing Diameter   Unit Volume (gal/ft) (circle one)				Previous Low-Flow Purge Rate: _____ (lpm)	
1"   (0.04)	1.25"   (0.08)	2"   (0.17)	3"   (0.38)	Other:	9.50 (lpm)
4"   (0.66)	6"   (1.50)	8"   (2.60)	12"   (5.81)	_____   (_____)	9.15 (lpm)
Total Well Depth (a): _____ (ft)			a	Total Well Depth (a):	9.32 (lpm)
Initial Depth to Water (b): _____ (ft)			b	Initial Depth to Water (b):	0.04 (lpm)
Water Column Height (WCH) = (a - b): _____ (ft)				Pump In-take Depth = b + (a-b)/2:	
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)				Maximum Allowable Drawdown = (a-b)/8:	
Three Casing Volumes = WCV x 3: _____ (gal)				Low-Flow Purge Rate: _____ (Lpm)	
Five Casing Volumes = WCV x 5: _____ (gal)				Comments: <u>Insufficient Water; no sample</u>	
Pump Depth (if pump used): _____ (ft)				*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

### Previous Stabilized Parameters

### SAMPLE COLLECTION RECORD

~~Depth to Water at Sampling: \_\_\_\_\_ (ft)~~  
Sample Collected Via:  Disp. Bailer  Dedicated Pump Tubing  
 Disp. Pump Tubing  Other: \_\_\_\_\_  
Sample ID: \_\_\_\_\_ Sample Collection Time: \_\_\_\_\_ (24:00)  
Containers (#):  VOA ( preserved or  unpreserved)  Liter Amber  
 Other: \_\_\_\_\_  Other: \_\_\_\_\_  
 Other: \_\_\_\_\_  Other: \_\_\_\_\_

## GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: Alex Madsen

Revision: 8/19/11





## GROUNDWATER SAMPLING DATA SHEET

Page 6 of 7

Project: Arcadis 4931

Project No.: 09-88-624

Date: 8/24/12

Field Representative: AM

End Time: 0756 Total Time (minutes): 14

Well ID: A-8 Start Time: 0742

End Time: 0756 Total Time (minutes): 14

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

**WELL HEAD INTEGRITY** (cap. lock. vault. etc.)      Comments: \_\_\_\_\_

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)					
16.35 (lpm)					
Total Well Depth (a):					
9.44 (ft)					
Initial Depth to Water (b):					
12.89 (ft)					
Pump In-take Depth = b + (a-b)/2:					
0.86 (ft)					
Maximum Allowable Drawdown = (a-b)/8:					
0.25 (Lpm)					
Low-Flow Purge Rate:					
Comments: _____					
<small>*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.</small>					

## GROUNDWATER STABILIZATION PARAMETER RECORD

### Previous Stabilized Parameters

**PURGE COMPLETION RECORD**

 Low Flow & Parameters Stable

### 3 Casing Volumes & Parameters Stable

### 5 Casing Volumes

**Other:**

**SAMPLE COLLECTION RECORD**

Depth to Water at Sampling: 0.20 (ft)

Sample Collected Via: Disp. Bailer Dedicated Pump Tubing

Disp. Pump Tubing      Other:

Sample ID: A-8 Sample Collection Time: 0754 (24:00)

Containers (#): 6 VOA ( X preserved or \_\_\_ unpreserved) \_\_\_ Liter Amber

Other: \_\_\_\_\_       Other: \_\_\_\_\_  
 Other: \_\_\_\_\_       Other: \_\_\_\_\_

## GEOCHEMICAL PARAMETERS

Depth to Water at Sampling: <u>10.20</u> (ft)	Parameter	Time	Measurement
Sample Collected Via: <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing	DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing Other:	Ferrous Iron (mg/L)		
Sample ID: <u>A-8</u> Sample Collection Time: <u>0754</u> (24:00)	Redox Potential (mV)		
Containers (#): <u>6</u> VOA ( <input checked="" type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber	Alkalinity (mg/L)		
<input type="checkbox"/> Other: _____	Other:		
<input type="checkbox"/> Other: _____	Other:		
<input type="checkbox"/> Other: _____	Other:		

Signature: Alex Martin

Revision: 8/19/11



**ARCADIS**

**Appendix C**

Certified Laboratory Analytical  
Report

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pleasanton

1220 Quarry Lane

Pleasanton, CA 94566

Tel: (925)484-1919

TestAmerica Job ID: 720-44244-1

Client Project/Site: BP #4931, Oakland

For:

ARCADIS U.S., Inc.

100 Montgomery Street

Suite 300

San Francisco, California 94104

Attn: Hollis Phillips

Authorized for release by:

9/10/2012 11:43:57 AM

Dimple Sharma

Project Manager I

dimple.sharma@testamericainc.com

### LINKS

Review your project  
results through

TotalAccess

Have a Question?

Ask  
The  
Expert

Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

### 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)

## Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

### Job ID: 720-44244-1

Laboratory: TestAmerica Pleasanton

#### Narrative

##### Job Narrative 720-44244-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/29/2012 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.6° C.

Except:

COC lists sample ID- TB-4931-08242012- not received by lab.

#### GC/MS VOA

No analytical or quality issues were noted.

## Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

### Client Sample ID: A-4

### Lab Sample ID: 720-44244-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	5.7		0.50		ug/L	1		8260B/CA_LUFT	Total/NA
Gasoline Range Organics (GRO) -C6-C12	720		50		ug/L	1		MS 8260B/CA_LUFT	Total/NA
TBA	370		4.0		ug/L	1		MS 8260B/CA_LUFT	Total/NA
								8260B/CA_LUFT	

### Client Sample ID: A-8

### Lab Sample ID: 720-44244-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	64		25		ug/L	50		8260B/CA_LUFT	Total/NA
Benzene	1800		25		ug/L	50		MS 8260B/CA_LUFT	Total/NA
Gasoline Range Organics (GRO) -C6-C12	3700		2500		ug/L	50		MS 8260B/CA_LUFT	Total/NA
TBA	220		200		ug/L	50		MS 8260B/CA_LUFT	Total/NA
TAME	33		25		ug/L	50		MS 8260B/CA_LUFT	Total/NA
								MS	

### Client Sample ID: A-10

### Lab Sample ID: 720-44244-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	1.8		0.50		ug/L	1		8260B/CA_LUFT	Total/NA
								MS	

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Client Sample ID: A-4

Date Collected: 08/24/12 07:21  
Date Received: 08/29/12 09:15

**Lab Sample ID: 720-44244-1**

Matrix: Water

### Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	5.7		0.50		ug/L		08/30/12 13:58		1
Benzene	ND		0.50		ug/L		08/30/12 13:58		1
EDB	ND		0.50		ug/L		08/30/12 13:58		1
1,2-DCA	ND		0.50		ug/L		08/30/12 13:58		1
Ethylbenzene	ND		0.50		ug/L		08/30/12 13:58		1
Toluene	ND		0.50		ug/L		08/30/12 13:58		1
Xylenes, Total	ND		1.0		ug/L		08/30/12 13:58		1
<b>Gasoline Range Organics (GRO)</b>	<b>720</b>		50		ug/L		08/30/12 13:58		1
<b>-C6-C12</b>									
TBA	370		4.0		ug/L		08/30/12 13:58		1
Ethanol	ND		250		ug/L		08/31/12 16:38		1
DIPE	ND		0.50		ug/L		08/30/12 13:58		1
TAME	ND		0.50		ug/L		08/30/12 13:58		1
Ethyl t-butyl ether	ND		0.50		ug/L		08/30/12 13:58		1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
4-Bromofluorobenzene	109		67 - 130				08/30/12 13:58		1
4-Bromofluorobenzene	106		67 - 130				08/31/12 16:38		1
1,2-Dichloroethane-d4 (Surr)	97		75 - 138				08/30/12 13:58		1
1,2-Dichloroethane-d4 (Surr)	109		75 - 138				08/31/12 16:38		1
Toluene-d8 (Surr)	101		70 - 130				08/30/12 13:58		1
Toluene-d8 (Surr)	102		70 - 130				08/31/12 16:38		1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

**Client Sample ID: A-8**

**Lab Sample ID: 720-44244-2**

**Matrix: Water**

Date Collected: 08/24/12 07:54  
Date Received: 08/29/12 09:15

**Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	64		25		ug/L			08/30/12 14:27	50
Benzene	1800		25		ug/L			08/30/12 14:27	50
EDB	ND		25		ug/L			08/30/12 14:27	50
1,2-DCA	ND		25		ug/L			08/30/12 14:27	50
Ethylbenzene	ND		25		ug/L			08/30/12 14:27	50
Toluene	ND		25		ug/L			08/30/12 14:27	50
Xylenes, Total	ND		50		ug/L			08/30/12 14:27	50
<b>Gasoline Range Organics (GRO) -C6-C12</b>	<b>3700</b>		2500		ug/L			08/30/12 14:27	50
TBA	220		200		ug/L			08/30/12 14:27	50
Ethanol	ND		13000		ug/L			08/31/12 17:09	50
DIPE	ND		25		ug/L			08/30/12 14:27	50
<b>TAME</b>	<b>33</b>		25		ug/L			08/30/12 14:27	50
Ethyl t-butyl ether	ND		25		ug/L			08/30/12 14:27	50
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
4-Bromofluorobenzene	99		67 - 130				08/30/12 14:27	50	
4-Bromofluorobenzene	100		67 - 130				08/31/12 17:09	50	
1,2-Dichloroethane-d4 (Surr)	93		75 - 138				08/30/12 14:27	50	
1,2-Dichloroethane-d4 (Surr)	103		75 - 138				08/31/12 17:09	50	
Toluene-d8 (Surr)	96		70 - 130				08/30/12 14:27	50	
Toluene-d8 (Surr)	97		70 - 130				08/31/12 17:09	50	

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Client Sample ID: A-10

Date Collected: 08/24/12 08:45  
Date Received: 08/29/12 09:15

Lab Sample ID: 720-44244-3

Matrix: Water

### Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	1.8		0.50		ug/L			08/30/12 17:20	1
<hr/>									
<b>Surrogate</b>									
4-Bromofluorobenzene	99		67 - 130				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 138					08/30/12 17:20	1
Toluene-d8 (Surr)	99		70 - 130					08/30/12 17:20	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

Lab Sample ID: MB 720-120038/4

Matrix: Water

Analysis Batch: 120038

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
MTBE	ND		0.50		ug/L			08/30/12 08:39	1
Benzene	ND		0.50		ug/L			08/30/12 08:39	1
EDB	ND		0.50		ug/L			08/30/12 08:39	1
1,2-DCA	ND		0.50		ug/L			08/30/12 08:39	1
Ethylbenzene	ND		0.50		ug/L			08/30/12 08:39	1
Toluene	ND		0.50		ug/L			08/30/12 08:39	1
Xylenes, Total	ND		1.0		ug/L			08/30/12 08:39	1
Gasoline Range Organics (GRO)	ND		50		ug/L			08/30/12 08:39	1
-C6-C12									
TBA	ND		4.0		ug/L			08/30/12 08:39	1
DIPE	ND		0.50		ug/L			08/30/12 08:39	1
TAME	ND		0.50		ug/L			08/30/12 08:39	1
Ethyl t-butyl ether	ND		0.50		ug/L			08/30/12 08:39	1
<hr/>									
Surrogate	MB		Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene	95		67 - 130					08/30/12 08:39	1
1,2-Dichloroethane-d4 (Surr)	94		75 - 138					08/30/12 08:39	1
Toluene-d8 (Surr)	96		70 - 130					08/30/12 08:39	1

Lab Sample ID: LCS 720-120038/5

Matrix: Water

Analysis Batch: 120038

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

Analyte	Spike		Result	LCS Qualifier	Unit	D	%Rec	Limits	
	Added								
MTBE	25.0		25.4		ug/L		102	62 - 130	
Benzene	25.0		26.6		ug/L		107	79 - 130	
EDB	25.0		26.1		ug/L		105	70 - 130	
1,2-DCA	25.0		24.8		ug/L		99	61 - 132	
Ethylbenzene	25.0		26.6		ug/L		106	80 - 120	
Toluene	25.0		27.0		ug/L		108	78 - 120	
m-Xylene & p-Xylene	50.0		54.5		ug/L		109	70 - 142	
o-Xylene	25.0		27.4		ug/L		110	70 - 130	
TBA	500		472		ug/L		94	70 - 130	
DIPE	25.0		26.5		ug/L		106	69 - 134	
TAME	25.0		26.6		ug/L		106	79 - 130	
Ethyl t-butyl ether	25.0		25.3		ug/L		101	70 - 130	
<hr/>									
Surrogate	LCS		Result	LCS Qualifier	Unit	D	%Rec	Limits	
	%Recovery	Qualifier							
4-Bromofluorobenzene	98		67 - 130						
1,2-Dichloroethane-d4 (Surr)	90		75 - 138						
Toluene-d8 (Surr)	98		70 - 130						

Lab Sample ID: LCS 720-120038/7

Matrix: Water

Analysis Batch: 120038

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

Analyte	Spike		Result	LCS Qualifier	Unit	D	%Rec	Limits	
	Added								
Gasoline Range Organics (GRO)	500		546		ug/L		109	58 - 120	
-C6-C12									

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCS 720-120038/7

Matrix: Water

Analysis Batch: 120038

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

Surrogate	LCS	LCS	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	99				67 - 130
1,2-Dichloroethane-d4 (Surr)	93				75 - 138
Toluene-d8 (Surr)	99				70 - 130

Lab Sample ID: LCSD 720-120038/6

Matrix: Water

Analysis Batch: 120038

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

Analyte	Spike		LCSD	LCSD	Unit	D	%Rec	Limits	RPD	RPD	Limit
	Added	Result	Qualifier								
MTBE	25.0	25.1		ug/L	100			62 - 130	1		20
Benzene	25.0	26.8		ug/L	107			79 - 130	1		20
EDB	25.0	25.9		ug/L	103			70 - 130	1		20
1,2-DCA	25.0	24.4		ug/L	98			61 - 132	2		20
Ethylbenzene	25.0	26.9		ug/L	107			80 - 120	1		20
Toluene	25.0	27.3		ug/L	109			78 - 120	1		20
m-Xylene & p-Xylene	50.0	54.7		ug/L	109			70 - 142	0		20
o-Xylene	25.0	27.3		ug/L	109			70 - 130	0		20
TBA	500	482		ug/L	96			70 - 130	2		20
DIPPE	25.0	26.9		ug/L	108			69 - 134	1		20
TAME	25.0	26.1		ug/L	105			79 - 130	2		20
Ethyl t-butyl ether	25.0	25.2		ug/L	101			70 - 130	1		20

Surrogate	LCSD	LCSD	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	98				67 - 130
1,2-Dichloroethane-d4 (Surr)	87				75 - 138
Toluene-d8 (Surr)	98				70 - 130

Lab Sample ID: LCSD 720-120038/8

Matrix: Water

Analysis Batch: 120038

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

Analyte	Spike		LCSD	LCSD	Unit	D	%Rec	Limits	RPD	RPD	Limit
	Added	Result	Qualifier								
Gasoline Range Organics (GRO) -C6-C12	500	490		ug/L	98			58 - 120	11		20

Surrogate	LCSD	LCSD	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	98				67 - 130
1,2-Dichloroethane-d4 (Surr)	92				75 - 138
Toluene-d8 (Surr)	100				70 - 130

Lab Sample ID: MB 720-120039/4

Matrix: Water

Analysis Batch: 120039

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L			08/30/12 08:40	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene	96		67 - 130		08/30/12 08:40	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID:** MB 720-120039/4

**Matrix:** Water

**Analysis Batch:** 120039

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

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			100		75 - 138		08/30/12 08:40	1
Toluene-d8 (Surr)			98		70 - 130		08/30/12 08:40	1

**Lab Sample ID:** LCS 720-120039/5

**Matrix:** Water

**Analysis Batch:** 120039

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

Analyst	MB	MB	Spike	LCS	LCS	%Rec.			
Surrogate	%Recovery	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Methyl tert-butyl ether			25.0	26.9		ug/L		108	62 - 130
4-Bromofluorobenzene	99			67 - 130					
1,2-Dichloroethane-d4 (Surr)	96			75 - 138					
Toluene-d8 (Surr)	100			70 - 130					

**Lab Sample ID:** LCSD 720-120039/6

**Matrix:** Water

**Analysis Batch:** 120039

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

Analyst	MB	MB	Spike	LCSD	LCSD	%Rec.	RPD				
Surrogate	%Recovery	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Methyl tert-butyl ether			25.0	26.8		ug/L		107	62 - 130	1	20
4-Bromofluorobenzene	101			67 - 130							
1,2-Dichloroethane-d4 (Surr)	98			75 - 138							
Toluene-d8 (Surr)	101			70 - 130							

**Lab Sample ID:** MB 720-120110/4

**Matrix:** Water

**Analysis Batch:** 120110

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

Analyst	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier									
MTBE		ND			0.50		ug/L		08/31/12 08:27		1
Benzene		ND			0.50		ug/L		08/31/12 08:27		1
EDB		ND			0.50		ug/L		08/31/12 08:27		1
1,2-DCA		ND			0.50		ug/L		08/31/12 08:27		1
Ethylbenzene		ND			0.50		ug/L		08/31/12 08:27		1
Toluene		ND			0.50		ug/L		08/31/12 08:27		1
Xylenes, Total		ND			1.0		ug/L		08/31/12 08:27		1
Gasoline Range Organics (GRO)		ND			50		ug/L		08/31/12 08:27		1
-C6-C12		ND									
TBA		ND			4.0		ug/L		08/31/12 08:27		1
Ethanol		ND			250		ug/L		08/31/12 08:27		1
DIPE		ND			0.50		ug/L		08/31/12 08:27		1
TAME		ND			0.50		ug/L		08/31/12 08:27		1
Ethyl t-butyl ether		ND			0.50		ug/L		08/31/12 08:27		1
Surrogate		MB	MB	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene				96		67 - 130			08/31/12 08:27		1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID:** MB 720-120110/4

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

**Matrix:** Water

**Analysis Batch:** 120110

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)			100		75 - 138		08/31/12 08:27	1
Toluene-d8 (Surr)			96		70 - 130		08/31/12 08:27	1

**Lab Sample ID:** LCS 720-120110/5

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

**Matrix:** Water

**Analysis Batch:** 120110

Analyte	MB	MB	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
			Added	Result	Qualifier				
MTBE			25.0	25.9		ug/L		104	62 - 130
Benzene			25.0	25.0		ug/L		100	79 - 130
EDB			25.0	27.0		ug/L		108	70 - 130
1,2-DCA			25.0	25.9		ug/L		104	61 - 132
Ethylbenzene			25.0	25.4		ug/L		101	80 - 120
Toluene			25.0	25.0		ug/L		100	78 - 120
m-Xylene & p-Xylene			50.0	50.9		ug/L		102	70 - 142
o-Xylene			25.0	26.1		ug/L		104	70 - 130
TBA			500	517		ug/L		103	70 - 130
Ethanol			500	560		ug/L		112	31 - 216
DIPE			25.0	25.5		ug/L		102	69 - 134
TAME			25.0	26.8		ug/L		107	79 - 130
Ethyl t-butyl ether			25.0	25.2		ug/L		101	70 - 130

Surrogate	MB	MB	Spike	LCS	LCS	%Recovery	Unit	D	%Rec.
			Added	Result	Qualifier	Limits			Limits
4-Bromofluorobenzene			101			67 - 130			
1,2-Dichloroethane-d4 (Surr)			95			75 - 138			
Toluene-d8 (Surr)			100			70 - 130			

**Lab Sample ID:** LCS 720-120110/7

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

**Matrix:** Water

**Analysis Batch:** 120110

Analyte	MB	MB	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
			Added	Result	Qualifier				
Gasoline Range Organics (GRO)			500	489		ug/L		98	58 - 120
-C6-C12									

Surrogate	MB	MB	Spike	LCS	LCS	%Recovery	Unit	D	%Rec.
			Added	Result	Qualifier	Limits			Limits
4-Bromofluorobenzene			99			67 - 130			
1,2-Dichloroethane-d4 (Surr)			98			75 - 138			
Toluene-d8 (Surr)			100			70 - 130			

**Lab Sample ID:** LCSD 720-120110/6

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

**Matrix:** Water

**Analysis Batch:** 120110

Analyte	MB	MB	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	Limit
			Added	Result	Qualifier						
MTBE			25.0	25.4		ug/L		102	62 - 130	2	20
Benzene			25.0	25.3		ug/L		101	79 - 130	1	20
EDB			25.0	26.5		ug/L		106	70 - 130	2	20
1,2-DCA			25.0	25.9		ug/L		104	61 - 132	0	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID: LCSD 720-120110/6**

**Matrix: Water**

**Analysis Batch: 120110**

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

Analyte	Spike Added	LCSD		Unit	D	%Rec.		RPD	RPD Limit
		Result	Qualifier			%Rec.	Limits		
Ethylbenzene	25.0	25.5		ug/L	102	80 - 120		0	20
Toluene	25.0	25.2		ug/L	101	78 - 120		0	20
m-Xylene & p-Xylene	50.0	51.0		ug/L	102	70 - 142		0	20
o-Xylene	25.0	26.0		ug/L	104	70 - 130		0	20
TBA	500	520		ug/L	104	70 - 130		1	20
Ethanol	500	551		ug/L	110	31 - 216		2	30
DIPE	25.0	25.4		ug/L	102	69 - 134		0	20
TAME	25.0	26.5		ug/L	106	79 - 130		1	20
Ethyl t-butyl ether	25.0	25.4		ug/L	101	70 - 130		0	20

**LCSD    LCSD**

Surrogate	%Recovery	LCSD		Limits
		Qualifier		
4-Bromofluorobenzene	100			67 - 130
1,2-Dichloroethane-d4 (Surr)	93			75 - 138
Toluene-d8 (Surr)	100			70 - 130

**Lab Sample ID: LCSD 720-120110/8**

**Matrix: Water**

**Analysis Batch: 120110**

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

Analyte	Spike Added	LCSD		Unit	D	%Rec.		RPD	RPD Limit
		Result	Qualifier			%Rec.	Limits		
Gasoline Range Organics (GRO) -C6-C12	500	486		ug/L	97	58 - 120		1	20

**LCSD    LCSD**

Surrogate	%Recovery	LCSD		Limits
		Qualifier		
4-Bromofluorobenzene	100			67 - 130
1,2-Dichloroethane-d4 (Surr)	100			75 - 138
Toluene-d8 (Surr)	100			70 - 130

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

## GC/MS VOA

### Analysis Batch: 120038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-44244-1	A-4	Total/NA	Water	8260B/CA_LUFT MS	5
720-44244-2	A-8	Total/NA	Water	8260B/CA_LUFT MS	6
LCS 720-120038/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	7
LCS 720-120038/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	8
LCSD 720-120038/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	9
LCSD 720-120038/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	10
MB 720-120038/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	11

### Analysis Batch: 120039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-44244-3	A-10	Total/NA	Water	8260B/CA_LUFT MS	12
LCS 720-120039/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	13
LCSD 720-120039/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	14
MB 720-120039/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	15

### Analysis Batch: 120110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-44244-1	A-4	Total/NA	Water	8260B/CA_LUFT MS	16
720-44244-2	A-8	Total/NA	Water	8260B/CA_LUFT MS	17
LCS 720-120110/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	18
LCS 720-120110/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	19
LCSD 720-120110/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	20
LCSD 720-120110/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	21
MB 720-120110/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	22

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

### Client Sample ID: A-4

Date Collected: 08/24/12 07:21  
Date Received: 08/29/12 09:15

Lab Sample ID: 720-44244-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	120038	08/30/12 13:58	AC	TAL SF
Total/NA	Analysis	8260B/CA_LUFTMS		1	120110	08/31/12 16:38	AC	TAL SF

### Client Sample ID: A-8

Date Collected: 08/24/12 07:54  
Date Received: 08/29/12 09:15

Lab Sample ID: 720-44244-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		50	120038	08/30/12 14:27	AC	TAL SF
Total/NA	Analysis	8260B/CA_LUFTMS		50	120110	08/31/12 17:09	AC	TAL SF

### Client Sample ID: A-10

Date Collected: 08/24/12 08:45  
Date Received: 08/29/12 09:15

Lab Sample ID: 720-44244-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	120039	08/30/12 17:20	DH	TAL SF

#### Laboratory References:

TAL SF = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

## Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

### Laboratory: TestAmerica Pleasanton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-14

## Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

Method	Method Description	Protocol	Laboratory
8260B/CA_LUFTM S	8260B / CA LUFT MS	SW846	TAL SF

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SF = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

## Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44244-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-44244-1	A-4	Water	08/24/12 07:21	08/29/12 09:15
720-44244-2	A-8	Water	08/24/12 07:54	08/29/12 09:15
720-44244-3	A-10	Water	08/24/12 08:45	08/29/12 09:15

San Francisco

1220 Quarry Lane

Pleasanton, CA 94566

phone 925.484.1919 fax 925.600.3002

746-21605

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

720.44244

## Chain of Custody Record

140469

TestAmerica Laboratories, Inc.

010/2012

Client Contact		Project Manager: Kristene Tidwell Tel/Fax: 707-455-7290 / 707-445-7295			Site Contact: Lab Contact: Dimple Sharma		Date:	COC No: of COCs		
Broadbent & Associates, Inc. 875 Cotting Lane, Suite G Vacaville, CA 95688 Phone: 707-455-7290 Fax: 707-445-7295 Project Name: Arcadis 4931 Site: 731 W. Macarthur Blvd., Oakland, CA PO # GP09BPNA.C110		Analysis Turnaround Time Calendar (C) or Work Days (W) TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day					Carrier:	Job No.		
		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample GRO (8260B) BTX/N5 FO + EDB, 1,2-DCA (8260) Ethanol (8260) MTBE (8260B)		SDG No.	
									Sample Specific Notes:	
1 2 3	am - A-2	8/24/2012	-	GRAB	AQ		X			
	am - A-3	8/24/2012	-	GRAB	AQ		X			
	A-4	8/24/2012	0721	GRAB	AQ	6	X X X			
	am - A-5	8/24/2012	-	GRAB	AQ		X	X		
	A-7	8/24/2012	-	GRAB	AQ			X		
	A-8	8/24/2012	0754	GRAB	AQ	6	X X X			
	am - A-9	8/24/2012		GRAB	AQ			X		
	A-10	8/24/2012	0846	GRAB	AQ	6		X		
	am - A-12	8/24/2012	-	GRAB	AQ			X		
	TB-4931-08242012	8/24/2012	--	--	AQ	1				On Hold
	Preservation Used: 1= Ice, 2= HCl; 3= H <sub>2</sub> SO <sub>4</sub> ; 4=HNO <sub>3</sub> ; 5=NaOH; 6= Other						Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)			
	<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements & Comments: SGC - Silica Gel Cleanup - am										
Relinquished by: <u>Alex Martinez</u>		Company: <u>Broadbent &amp; Associates</u>		Date/Time: <u>8/24/12 / 13:30</u>		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by:		Company:		
Relinquished by:		Company:		Date/Time:		Received by: <u>D. Sodhi</u>		Company: TA (		

VuBanh

TAI

8/24/12 17:00

PM

8/24/12 9:45

5.66

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San Francisco

1220 Quarry Lane

Pleasanton, CA 94566

phone 925.484.1919 fax 925.600.3002

## 720-44244 Chain of Custody Record

Copy of  
COC  
from  
SMA

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

140469

TestAmerica Laboratories, Inc.

9/10/2012

Client Contact		Project Manager: Kristene Tidwell			Site Contact:		Date:		COC No:			
Broadbent & Associates, Inc.		Tel/Fax: 707-455-7290 / 707-445-7295			Lab Contact: Dimple Sharma		Carrier:		of COCs			
875 Cotting Lane, Suite G	Vacaville, CA 95688	Analysis Turnaround Time							Job No.			
Phone: 707-455-7290	Fax: 707-445-7295	Calendar ( C ) or Work Days ( W )							SDG No.			
Project Name: Arcadis 4931	Site: 731 W. Macarthur Blvd., Oakland, CA	TAT if different from Below										
P O # GP09BPNA.C110		<input type="checkbox"/>	2 weeks	<input type="checkbox"/>	1 week	<input type="checkbox"/>	2 days	<input type="checkbox"/>	1 day			
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	GRO (8260B)	BTEX/FO + EDR, 1,2-DCA (8260)	Ethanol (8260)	MTBE (8260B)	Sample Specific Notes:
am - A2	8/24/2012	-	GRAB	AQ				X				
am - A3	8/24/2012	-	GRAB	AQ					X			
A-4	8/24/2012	0721	GRAB	AQ	6		X X X					
am - A5	8/24/2012	-	GRAB	AQ			X		X			
-A7	8/24/2012	-	GRAB	AQ					X			
A-8	8/24/2012	0754	GRAB	AQ	6		X X X					
am - A9	8/24/2012	-	GRAB	AQ					X			
A-10	8/24/2012	0846	GRAB	AQ	6				X			
am - A12	8/24/2012	-	GRAB	AQ					X			
TB-4931-08242012	8/24/2012	---	---	AQ	1							On Hold
<i>No Re Calcd TB</i>												
Preservation Used: 1= Ice, 2= HCl; 3= H <sub>2</sub> SO <sub>4</sub> ; 4= HNO <sub>3</sub> ; 5= NaOH; 6= Other												
Possible Hazard Identification												
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Return To Client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
Special Instructions/QC Requirements & Comments: SCC = Silica Gel Cleanup - am												
Relinquished by: <i>Alex Martinez</i>	Company: <i>Broadbent &amp; Associates</i>	Date/Time: <i>8/24/12 13:30</i>	Received by: <i>TA 1</i>	Company: <i>TA 1</i>	Date/Time: <i>8/25/12 0945</i>							
Relinquished by: <i>Vu Banh</i>	Company: <i>TA 1</i>	Date/Time: <i>8/28/12 17:00</i>	Received by: <i>TA 1</i>	Company: <i>TA 1</i>	Date/Time: <i>8/29/12 0915</i>							
Relinquished by: <i>J. S. Svalbe</i>	Company: <i>TA 1</i>	Date/Time: <i>8/29/12 0915</i>	Received by: <i>TA 1</i>	Company: <i>TA 1</i>	Date/Time: <i>8/29/12 0915</i>							

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5.6C

720-44244

PROJECT RECEIPT CHECKLIST

Job #: \_\_\_\_\_

**Section 1-Receipt**

Cooler Received/Opened On Date/Time: TS 8/25/12 0945

Delivered by  Client  TA-Courier  DHL  Fed Ex  UPS  Other

Tracking Number(s): 800975625645

1. Are Custody Seals on Cooler? INTACT...BROKEN...NONE
2. Are custody seals Intact/Signed/Dated correctly? YES...NO....N/A
3. Are COC papers inside the cooler? YES...NO....N/A
4. Is Sampler's Name on COC? YES...NO...N/A
5. Are all signatures on COC? YES...NO....N/A
6. Does COC or sample appearance indicate "product" or otherwise hazardous matrix? If yes, hold for EH&S YES...NO...N/A
7. Number of coolers: 1
8. Cooler temperature(s) in °C: 21
9. IR Thermometer ID No.: 52 Correction Factor (CF): -0.1 °C
10. Did you receive samples with Signature/Date/Time/Temperature on COC? YES...NO....N/A
11. If samples outside of temperature was ice present? YES...NO....N/A
12. Are any Short Holds or Rushes indicated on COC? SHORT HOLD RUSH
13. Turn-Around-Time? SAME DAY 24-HOUR 48-HOUR 72-HOUR STANDARD

I certify that I received the cooler(s) and answered questions 1-13: TS Initials

8/25/12 Date

NCM # (if written)

**Section 2 - Cooler Breakdown**

14. Are Custody Seals on Sample Containers? INTACT...BROKEN...NONE
15. Are Custody seals Intact/Signed/Dated correctly? YES...NO....N/A
16. Number of containers in cooler: 18
17. Do # of containers in cooler and # of containers on COC agree? YES...NO....N/A
18. Did all containers arrive in good condition? YES...NO....N/A
19. Do container labels agree with COC? YES...NO....N/A
20. Were VOA vials received? YES...NO....N/A
21. Is there headspace present in any VOA Vial? YES...NO....N/A
22. Were Encores or Terracores received? YES...NO....N/A
23. Were Trip Blanks received in this cooler? YES...NO....N/A

I certify that I unloaded the cooler and answered questions 14-23:

Initials

Date

NCM # (if written)

**Section 3 - Labeling**

I certify that I labeled the container(s) from this cooler(s):

Initials

Date

NCM # (if written)

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 720-44244-1

**Login Number: 44244**

**List Source: TestAmerica Pleasanton**

**List Number: 1**

**Creator: Apostol, Anita**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are 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.	False	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received 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	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pleasanton

1220 Quarry Lane

Pleasanton, CA 94566

Tel: (925)484-1919

TestAmerica Job ID: 720-44304-1

Client Project/Site: BP #4931, Oakland

For:

ARCADIS U.S., Inc.

100 Montgomery Street

Suite 300

San Francisco, California 94104

Attn: Hollis Phillips

Authorized for release by:

9/10/2012 1:28:04 PM

Dimple Sharma

Project Manager I

dimple.sharma@testamericainc.com

### LINKS

Review your project  
results through

TotalAccess

Have a Question?

Ask  
The  
Expert

Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

### 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)

## Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

### Job ID: 720-44304-1

Laboratory: TestAmerica Pleasanton

#### Narrative

##### Job Narrative 720-44304-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/31/2012 2:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9° C.

#### GC/MS VOA

No analytical or quality issues were noted.

## Detection Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

### Client Sample ID: A-2

### Lab Sample ID: 720-44304-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	9.6		0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA

### Client Sample ID: A-3

### Lab Sample ID: 720-44304-2

No Detections

### Client Sample ID: A-7

### Lab Sample ID: 720-44304-3

No Detections

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

## Client Sample ID: A-2

Date Collected: 08/31/12 08:29  
Date Received: 08/31/12 14:00

Lab Sample ID: 720-44304-1

Matrix: Water

### Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	9.6		0.50		ug/L			09/04/12 12:29	1
<hr/>									
<b>Surrogate</b>									
4-Bromofluorobenzene	99		67 - 130				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 138					09/04/12 12:29	1
Toluene-d8 (Surr)	100		70 - 130					09/04/12 12:29	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

## Client Sample ID: A-3

Date Collected: 08/31/12 08:00  
Date Received: 08/31/12 14:00

Lab Sample ID: 720-44304-2

Matrix: Water

### Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			09/04/12 13:57	1
<hr/>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		67 - 130					09/04/12 13:57	1
1,2-Dichloroethane-d4 (Surr)	105		75 - 138					09/04/12 13:57	1
Toluene-d8 (Surr)	100		70 - 130					09/04/12 13:57	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

**Client Sample ID: A-7**

Date Collected: 08/31/12 07:23

Date Received: 08/31/12 14:00

**Lab Sample ID: 720-44304-3**

Matrix: Water

**Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			09/04/12 14:26	1
<hr/>									
<b>Surrogate</b>									
4-Bromofluorobenzene	99		67 - 130				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		75 - 138					09/04/12 14:26	1
Toluene-d8 (Surr)	100		70 - 130					09/04/12 14:26	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

**Lab Sample ID:** MB 720-120209/5

**Matrix:** Water

**Analysis Batch:** 120209

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L			09/04/12 09:04	1
<b>Surrogate</b>									
4-Bromofluorobenzene	94		67 - 130				Prepared	09/04/12 09:04	1
1,2-Dichloroethane-d4 (Surr)	99		75 - 138					09/04/12 09:04	1
Toluene-d8 (Surr)	98		70 - 130					09/04/12 09:04	1

**Lab Sample ID:** LCS 720-120209/6

**Matrix:** Water

**Analysis Batch:** 120209

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

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
	Added	Result						
Methyl tert-butyl ether	25.0	26.0	ug/L			104	62 - 130	
<b>Surrogate</b>								
4-Bromofluorobenzene	102		67 - 130					
1,2-Dichloroethane-d4 (Surr)	96		75 - 138					
Toluene-d8 (Surr)	102		70 - 130					

**Lab Sample ID:** LCSD 720-120209/7

**Matrix:** Water

**Analysis Batch:** 120209

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

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.
	Added	Result						
Methyl tert-butyl ether	25.0	25.9	ug/L			104	62 - 130	
<b>Surrogate</b>								
4-Bromofluorobenzene	102		67 - 130					
1,2-Dichloroethane-d4 (Surr)	98		75 - 138					
Toluene-d8 (Surr)	102		70 - 130					

**Lab Sample ID:** 720-44304-1 MS

**Matrix:** Water

**Analysis Batch:** 120209

**Client Sample ID:** A-2  
**Prep Type:** Total/NA

Analyte	Sample		Spike	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.
	Result	Qualifier							
Methyl tert-butyl ether	9.6		25.0	37.3		ug/L		111	60 - 138
<b>Surrogate</b>									
4-Bromofluorobenzene	103		67 - 130						
1,2-Dichloroethane-d4 (Surr)	101		75 - 138						
Toluene-d8 (Surr)	104		70 - 130						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: 720-44304-1 MSD

Matrix: Water

Analysis Batch: 120209

Client Sample ID: A-2  
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	Limits	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier			%Rec				
Methyl tert-butyl ether	9.6		25.0	38.1		ug/L		114	60 - 138	2	20	
<b>Surrogate</b>												
4-Bromofluorobenzene	104			67 - 130								
1,2-Dichloroethane-d4 (Surr)	102			75 - 138								
Toluene-d8 (Surr)	103			70 - 130								

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

## GC/MS VOA

### Analysis Batch: 120209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-44304-1	A-2	Total/NA	Water	8260B/CA_LUFT MS	5
720-44304-1 MS	A-2	Total/NA	Water	8260B/CA_LUFT MS	6
720-44304-1 MSD	A-2	Total/NA	Water	8260B/CA_LUFT MS	7
720-44304-2	A-3	Total/NA	Water	8260B/CA_LUFT MS	8
720-44304-3	A-7	Total/NA	Water	8260B/CA_LUFT MS	9
LCS 720-120209/6	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	10
LCSD 720-120209/7	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	11
MB 720-120209/5	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	12

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

### Client Sample ID: A-2

Date Collected: 08/31/12 08:29  
Date Received: 08/31/12 14:00

Lab Sample ID: 720-44304-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	120209	09/04/12 12:29	AC	TAL SF

### Client Sample ID: A-3

Date Collected: 08/31/12 08:00  
Date Received: 08/31/12 14:00

Lab Sample ID: 720-44304-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	120209	09/04/12 13:57	AC	TAL SF

### Client Sample ID: A-7

Date Collected: 08/31/12 07:23  
Date Received: 08/31/12 14:00

Lab Sample ID: 720-44304-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	120209	09/04/12 14:26	AC	TAL SF

#### Laboratory References:

TAL SF = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

## Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

### Laboratory: TestAmerica Pleasanton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-14

## Method Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

Method	Method Description	Protocol	Laboratory
8260B/CA_LUFTM S	8260B / CA LUFT MS	SW846	TAL SF

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SF = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

## Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: BP #4931, Oakland

TestAmerica Job ID: 720-44304-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-44304-1	A-2	Water	08/31/12 08:29	08/31/12 14:00
720-44304-2	A-3	Water	08/31/12 08:00	08/31/12 14:00
720-44304-3	A-7	Water	08/31/12 07:23	08/31/12 14:00

San Francisco

1220 Quarry Lane

Pleasanton, CA 94566

phone 925.484.1919 fax 925.600.3002

720-44304

## Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

140513

TestAmerica Laboratories, Inc.

0/10/2010

Client Contact		Project Manager: Kristene Tidwell			Site Contact:			Date:		COC No:	
Broadbent & Associates, Inc. 875 Cotting Lane, Suite G Vacaville, CA 95688 Phone: 707-455-7290 Fax: 707-445-7295 Project Name: Arcadis 4931 Site: 731 W. Macarthur Blvd., Oakland, CA P O # GP09BPNA.C110		Tel/Fax: 707-455-7290 / 707-445-7295 Analysis Turnaround Time Calendar ( C ) or Work Days ( W )			Lab Contact: Dimple Sharma			Carrier:		of COCs	
										Job No.	
										SDG No.	
										Sample Specific Notes:	
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	GRO (8260B)	BTEX/5 FO + EDB, 1,2-DCA (8260)	Ethanol (8260)	MTBE (8260B)
A-2		8/31/2012	0829	GRAB	AQ	6			X		
A-3		8/31/2012	0800	GRAB	AQ	6			X		
A-7		8/31/2012	0723	GRAB	AQ	6			X		
TB-4931-08312012		8/31/2012	--	--	AQ	82					
On Hold											
Preservation Used: 1= Ice, 2= HCl; 3= H <sub>2</sub> SO <sub>4</sub> ; 4=HNO <sub>3</sub> ; 5=NaOH; 6= Other											
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>						Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements & Comments: SGC = Silica Gel Cleanup											
Relinquished by: <i>Alex Martinez</i>		Company: Broadbent & Associates		Date/Time: 8/31/12 1400		Received by: <i>Jason Miller</i>		Company: <i>John Doe</i>		Date/Time: 8-31-12 1400 5.9°	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 720-44304-1

**Login Number: 44304**

**List Source: TestAmerica Pleasanton**

**List Number: 1**

**Creator: Apostol, Anita**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are 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	
There are no discrepancies between the containers received 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	

STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_REPORT FILE

## SUCCESS

Your GEO\_REPORT file has been successfully submitted!

Submittal Type: GEO\_REPORT  
Report Title: Second Quarter and Third Quarter 2012 Semi-Annual Groundwater Monitoring Report 102312  
Report Type: Monitoring Report - Semi-Annually  
Report Date: 10/23/2012  
Facility Global ID: T0600100110  
Facility Name: ARCO #04931  
File Name: RO0000076\_GWM\_R\_2Q3Q12\_2012-1023.pdf  
Organization Name: ARCADIS  
Username: ARCADISBP  
IP Address: 216.207.98.101  
Submittal Date/Time: 10/23/2012 10:57:06 AM  
Confirmation Number: 8286651551

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