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ARCADIS U.S., Inc. 100 Montgomery Street

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Mr. Mark Detterman Senior Hazardous Materials Specialist, PG, CEG Alameda County Environmental Health 1131 Harbor Bay Parkway Alameda, California 94502

ENVIRONMENT

April 16, 2015

Hollis Phillips

415.432.6903

hollis.phillips@arcadis-

GP09BPNA.C110.N0000

Date:

Contact:

Phone:

us.com

Our ref

Subject:

Fourth Quarter 2014 and First Quarter 2015 Semi-Annual Groundwater Monitoring Report

Former Atlantic Richfield Company Station No. 4931 731 West MacArthur Boulevard Oakland, California 94609

Dear Mr. Detterman:

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

ARCO Facility No.

ACEH Site No.

RO0000076

RO0000076

T31 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.

Sincerely,

ARCADIS U.S., Inc.

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

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HOUSE PHILIPS OF NO. 6887



Mr. Mark Detterman Senior Hazardous Materials Specialist, PG, CEG Alameda County Environmental Health 1131 Harbor Bay Parkway Alameda, CA 94502 100 Montgomery Street Suite 300 San Francisco California 94104 Tel 415 374 2744 Fax 415 374 2745

ARCADIS U.S., Inc.

www.arcadis-us.com

ENVIRONMENT

Subject:

Fourth Quarter 2014 and First Quarter 2015 Semi-Annual Groundwater Monitoring Report

Former Atlantic Richfield Company Station No. 4931 731 West MacArthur Boulevard Oakland, California ACEH Case #RO0000076

Date:

4/16/2015

Contact:

Hollis Phillips

Phone:

415.432.6903

Email:

hollis.phillips@arcadisus.com

Our ref:

GP09BPNA.C110.N0000

Dear Mr. Detterman:

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 ARCO service station No. 4931, located at 731 West MacArthur Boulevard in Oakland, California (the Site; Figure 1).

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 (October 2014 to March 2015)

- Submitted the Second and Third Quarter 2014 Semi-Annual Groundwater Monitoring Report, dated October 31, 2014, to Alameda County Environmental Health (ACEH).
- Performed semi-annual groundwater monitoring and sampling on February 27, 2015 including wells AR-1, AR-2, and AR-3 as requested in the ACEH directive letter dated October 13, 2014 (ACEH 2014).
- Prepared and submitted a Work Plan for Additional Site Investigation, including a focused Site Conceptual Model (SCM) dated December 22, 2014, to ACEH per the requests in their directive letter dated October 13, 2014.

Work Proposed - Reporting Period (April 2015 to September 2015)

- Submit the Fourth Quarter 2014 and First Quarter 2015 Semi-Annual Groundwater Monitoring Report, contained herein.
- Advance one soil boring west and downgradient of groundwater monitoring well A-8 to collect soil samples and a grab groundwater sample. Additionally, install and sample two soil vapor probes located along the eastern portion of the Site adjacent to the upgradient residential property at 725 West MacArthur Boulevard and incorporate the technical comments provided by ACEH on February 11, 2015 into the work plan (ACEH 2015).
- Submit the Additional Site Investigation Report, including an updated sensitive receptor survey, by June 5, 2015 to ACEH per the requests in their directive letter dated February 11, 2015.

2. Background

The Site is a former ARCO service station and is currently operated as a Westco Gasoline-branded retail fuel dispensing facility (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 groundwater monitoring wells A-2 through A-5, A-7 through A-12, AR-1, and AR-3 using a water level indicator. The total well depth at A-9 could not be accurately gauged due to the obstruction from roots within the well. Groundwater monitoring wells AR-2, A-6 and A-13 could not be gauged due to the wells currently being paved over.

Groundwater monitoring wells A-3, A-4, A-5, A-8, AR-1, and AR-3 were sampled on February 27, 2015 by Broadbent & Associates, Inc. (BAI). Monitoring wells A-2, A-7, A-10, A-11 and A-12 were not sampled in accordance to the sampling schedule. Field activities conducted by BAI were reviewed and certified by a BAI California Professional Geologist. The groundwater sampling data package and laboratory analytical report 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 monitoring wells A-3, A-4, A-5, A-8, AR-1, and AR-3 were analyzed for the following:

• Fuel additive methyl tert-butyl ether (MTBE) by USEPA Method 8260.

Collected groundwater samples from monitoring wells A-4, A-5, A-8, AR-1, and AR-3 were additionally analyzed for the following:

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

Collected groundwater samples from monitoring wells A-4, A-8, AR-1, and AR-3 were additionally analyzed for the following:

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX), ethylene dibromide (EDB), and 1,2-dichloroethane (1,2-DCA) using USEPA Method 8260B; and
- Tert-amyl-methyl ether (TAME), tert-butyl alcohol (TBA), di-isopropyl ether (DIPE), ethanol, and ethyl t-butyl ether (ETBE) by USEPA Method 8260B.

4. Discussion

As shown on Figure 3, groundwater flow direction during the reporting period was
to the southwest at an approximate gradient of 0.02 foot per foot (ft/ft). Historical
data indicates the groundwater flow direction is predominantly toward the west as
shown on Figure 5.

 GRO was detected in three of five wells sampled at concentrations ranging from 370 micrograms per liter (μg/L) (A-8) to 660 μg/L (AR-1). GRO was not detected above the laboratory reporting limit of 50 μg/L at the other two wells sampled (A-3 and AR-3).

- Benzene was detected in two of four wells sampled at concentrations of 2 μg/L (AR-1) and 70 μg/L (A-8). Benzene was not detected above the laboratory reporting limit of 0.50 μg/L at the other two wells sampled (A-3 and A-5).
- Total Xylenes was only detected in one of four wells sampled at a concentration of 1.1 μg/L (AR-1). Total xylenes was not detected above the laboratory reporting limit of 1.0 μg/L at the other wells sampled (A-4, A-8, and AR-3).
- MTBE was detected in four of six wells sampled at concentrations ranging from 2.0 μg/L (A-5) to 25 μg/L (AR-1). MTBE was not detected above the laboratory reporting limit of 0.50 μg/L at the other two wells sampled (A-3 and AR-3).
- TAME was detected in two of four wells sampled at concentrations of 4.8 μg/L (A-8) and 7.3 μg/L (AR-1). TAME was not detected above the laboratory reporting limit of 0.50 μg/L at the other wells sampled (A-3 and A-4).
- TBA was detected in three of four wells sampled at concentrations ranging from 61 μg/L (A-8) and 910 μg/L (AR-1). TBA was not detected above the laboratory reporting limit of 20 μg/L at the other well sampled (AR-3).
- Toluene, ethylbenzene, DIPE, ETBE, Ethanol, EDB, and 1,2-DCA were not detected in the four wells (A-4, A-8, AR-1 and AR-3) sampled and analyzed for these constituents.

5. Recommendations

The Additional Site Investigation Report, including an updated sensitive receptor survey, will be submitted by June 5, 2015 to ACEH per the requests in their directive letter dated February 11, 2015. Following completion of the site assessment activities ARCADIS recommends that the Site be reevaluated for low-risk case closure according to the LTC Policy.

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,

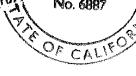
ARCADIS U.S., Inc.

Prepared by:

Approved by:

B

Jamey Peterson Staff Geologist Hollis E. Phillips, P.G. (CA 688 Principal Geologist/Project Ma



Enclosures:	
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Table 1	Soil Boring and Well Construction Details
-	

Figure 1	Site Location Map
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Figure 2 Site Plan

Figure 3 Groundwater Elevation Contour Map – February 27, 2015

Figure 4	Analytical Summary Map – February 27, 2015
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

References:

ACEH, 2014. Request for Data Gap Work Plan and Focused Site Conceptual Model; Fuel Leak Case No. R00000076 and GeoTracker Glocabl ID T0600100110, ARCO #04931, 731 W. Macarthur Blvd., Oakland, CA 94609. October 13.

ACEH, 2015. Conditional Work Plan Approval; Fuel Leak Case No. R00000076 and GeoTracker Glocabl ID T0600100110, ARCO #04931, 731 W. Macarthur Blvd., Oakland, CA 94609. February 11.

Copies:

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



Tables

Table 1 Soil Boring and Well Construction Details

Former Atlantic-Richfield Oil Company Station No. 4931 731 West MacArthur Boulevard, Oakland, California

		We	ell	Scr	een	Screen
Well	Drill	Depth	Diameter	Тор	Bottom	Length
I.D.	Date	(feet bgs)	(inches)	(feet bgs)	(feet bgs)	(feet)
Monitoring	g Wells					
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
Soil Vapoi	r Extraction	Well			-	
AV-1	01/17/92	16	2	5	15	10

Notes

-- = Soil Boring Log and Well Construction Details are not available

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

bgs = Below ground surface

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					Measured LNAPL																	
			тос	DTW	Thickness	GW Elev	GRO	DRO	В	Т	Е	х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes
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 A-2	9/23/2001 12/31/2001		55.48 55.48	10.75 4.13		44.73 51.35	<50 <50		<0.5 <0.5	<0.5 <0.5	<0.5	<0.5 3.2	<2.5 <2.5	-					-			
A-2 A-2	3/21/2002		55.48	3.26		52.22	<50 <50		<0.5	<0.5	1 <0.5	<0.5	<2.5									
A-2 A-2	4/17/2002		55.48	3.72		51.76	<50 <50		<0.5	<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	í
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	< 0.50	< 0.50	2.3	i
A-2	11/14/2003		55.48	9.36		46.12																
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	< 0.50	< 0.50	3.1	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	<0.50	<0.50	3.2	
A-2	11/18/2005		60.65	8.53		52.12						-					-		-			-
A-2 A-2	2/15/2006 5/30/2006		60.65 60.65	3.89 4.45		56.76 56.20																
A-2 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	<0.50	<0.50	0.16	
A-2	11/1/2006		60.65	9.98	-	50.67																
A-2	2/7/2007		60.65	7.51	-	53.14										-						í
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	< 0.50	< 0.50	2.18	i
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	< 0.50	< 0.50	0.87	
A-2	11/19/2008		60.65	9.20		51.45																<u> </u>
A-2	2/10/2009		60.65	7.83		52.82	-							-		-						J
A-2	5/7/2009		60.65	4.40		56.25																i
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	<0.50	<0.50	1.03	
A-2 A-2	3/23/2010		60.65 60.65	3.67 9.40		56.98	 -EO		<0.50	<0.50	 -0.50		 6.1	<4.0	<0.50	<0.50	 -0.50	 <100	<0.50	<0.50		
A-2 A-2	8/16/2010 3/18/2011		60.65	2.89		51.25 57.76	<50 		<0.50	<0.50	<0.50	<1.0	6.1	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50		
A-2 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									
A-2	2/8/2013		60.65	4.51		56.14	-							-		-			-			
A-2	8/7/2013		60.65	10.07		50.58							12								1.50	·
A-2	2/13/2014		60.65	5.34	-	55.31								-		-						(NSP)
A-2	8/28/2014		60.65	12.11		48.54							8.9								1.33	
A-2	2/27/2015		60.65	4.41		56.24	-		-			-		-		-						(NSP)

					Measured LNAPL																	
		_	TOC	DTW	Thickness	GW Elev	GRO	DRO	В	T	E	X	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID A-3	Date 6/21/2000	Туре	(ft msl) 54.66	(ft btoc) 9.48	(ft) 	(ft msl) 45.18	(μ g/L) <50	(µg/L)	(μg/L) <0.5	(μg/L) <0.5	(μg/L) <0.5	(μg/L) <1.0	(μ g/L) 46	(μg/L) 	(μg/L)	(µg/L)	(μg/L)	(μg/L) 	(µg/L)	(μg/L) 	(mg/L)	Notes
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										-						ļ
A-3	11/14/2003		54.66	9.52		45.14																ļ
A-3	2/2/2004		59.32	5.63		53.69 51.18	<50		<0.50	<0.50	<0.50	<0.50	13	<20	<0.50	<0.50	4.6	<100	<0.50	<0.50	1.2	
A-3 A-3	5/4/2004		59.32	8.14																		
A-3	9/2/2004 11/10/2004		59.32 59.32	10.10 7.89	-	49.22 51.43	<250		<2.5	<2.5	<2.5	<2.5	62	<100	<2.5	<2.5	15	<500	<2.5 	<2.5	1.3	
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	<0.50	<0.50	1.9	ł
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	<0.50	<0.50	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	<0.50	<0.50	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	< 0.50	< 0.50	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	< 0.50	< 0.50	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	< 0.50	<0.50	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	<0.50	<0.50	6.16	
A-3	5/23/2008		59.32	9.10		50.22																ļ
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	<0.50	<0.50	0.69	
A-3	11/19/2008		59.32 59.32	8.31		51.01 52.02						<0.50				<0.50				<0.50	0.90	1
A-3 A-3	2/10/2009			7.30			<50 		<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	0.90	
A-3 A-3	5/7/2009 9/3/2009		59.32 59.32	6.10 9.50		53.22 49.82	<50		<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	1.01	
A-3	3/23/2010		59.32	4.45		54.87	<50 <50		<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	1.01	
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	<0.50	<100	<0.50	<0.50		
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									
A-3	2/8/2013		59.32	6.33		52.99	-						< 0.50									
A-3	8/7/2013		59.32	9.45		49.87	-					-	< 0.50								2.25	
A-3	2/13/2014		59.32	5.89		53.43	-						<0.50								7.72	
A-3	8/28/2014		59.32	9.61		49.71	-						<0.50								2.90	
A-3	2/27/2015		59.32	6.63		52.69	-						<0.50								5.23	
·								·					·			·						

					Measured																	
					LNAPL																	
			TOC	DTW	Thickness	GW Elev	GRO	DRO	В	Т	E	Х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Туре	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes
	6/21/2000		54.73	9.49		45.24	2,100		110	2.1	11	5.9	2,000						-			
	9/20/2000		54.73	10.33		44.40	1,540		127	<5.0	9.07	7.42	1,940									
	12/26/2000		54.73	9.34		45.39	1,550		42.7	<5.0	11	10.9	1,210									
	3/20/2001		54.73	7.56		47.17	913		40.9	<5.0	15.5	14.6	<25									
	6/12/2001		54.73	9.83		44.90	2,000	-	230	<20	21	<20	4,700		-							
	9/23/2001		54.73 54.73	10.54 5.42		44.19 49.31	1,600		35	<10	<10	<10	3,000									
	12/31/2001 3/21/2002		54.73	6.18		49.51	<500 <5,000		<5.0 <50	<5.0 <50	<5.0 <50	<5.0 <50	880 1,400									
	4/17/2002		54.73	7.34		47.39	1,300		79	31	17	<50 55	2,200					-	-	-		
	8/12/2002	-	54.73	9.56		45.17	2,400		120	<5.0	<5.0	<5.0	2,100						-		2	
	12/6/2002		54.73	10.02		44.71	2,200		110	10	42	56	2,000	-		-		-				
	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	
	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	- 1	54.73	10.03	-	44.70	5,800		100	<25	<25	33	2,500	<1,000	<25	<25	560	<5,000	<25	<25	1.5	
	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	<25	<25	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	<50	<50	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	<25	<25	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	<10	<10	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	<10	<10	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	<50	<50	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	<10	<10		
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	<2.5	<2.5	1.4	
	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	<2.5	<2.5	0.9	
	5/30/2006		59.59	7.95		51.64	3,300		95	<10	55	<10	1,200	3,000	<10	<10	340	<6,000	<10	<10	1.76	
	8/11/2006		59.59	9.50		50.09	350		93	<10	<10	<10	1,200	3,200	<10	<10	350	<6,000	<10	<10	1.4	
	11/1/2006		59.59	9.93		49.66	1,300		<10	<10	<10	<10	360	1,700	<10	<10	95	<6,000		<10	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	<10	<10	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	<10	<10	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	<5.0	<5.0	1.04	
	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	<0.50	<0.50	1.27	
	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	<0.50	<0.50	1.76	
	5/23/2008		59.59	9.40		50.19	1,900		75	<20	<20	<20	1,000	2,500	<20	<20	270	<12,000	<20	<20	1.28	
	8/13/2008 11/19/2008		59.59 59.59	9.92 9.19		49.67 50.40	3,100 1,800		47 70	<10 <10	<10 21	<10 <10	530 430	3,200 2,000	<10 <10	<10 <10	190 140	<6,000 <6,000	<10 <10	<10 <10	0.89	
	2/10/2009		59.59	7.68		50.40	1,800		33	<10	14	<10	400	2,000	<10	<10	120	<6,000	<10	<10	0.83	
A-4 A-4	5/7/2009		59.59	7.00		52.28	<50		<0.50	<0.50	<0.50	<0.50	9.9	2,300	<0.50	<0.50	2.0	<300	<0.50	<0.50	2.40	
A-4 A-4	9/3/2009	+	59.59	10.02		49.57	3,800		49	<0.50	<10.50	<10.50	360	3,200	<10	<0.50	120	<6,000	<0.50	<10	0.79	
	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	<0.50	<0.50	0.79	
	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	<0.50	<0.50		
	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	<0.50	<0.50		
	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	<0.50	<0.50		
	2/29/2012		59.59	6.70		52.89	1,300		1.3	<0.50	4.2	1.1	140	2,200	<0.50	<0.50	38	<250	<0.50	<0.50		
	8/24/2012	- 1	59.59	9.95		49.64	720		<0.50	<0.50	< 0.50	<1.0	5.7	370	<0.50	<0.50	<0.50	<250	<0.50	<0.50		
A-4	2/8/2013		59.59	7.05		52.54	890		5.0	<0.50	1.6	<1.0		1,600	<0.50	<0.50	19	<250	<0.50	< 0.50		
A-4	8/7/2013		59.59	9.26		50.33	1,500		2.7	<0.50	<0.50	<1.0	56	1,600	<0.50	<0.50	16	<250	<0.50	<0.50	1.53	
	2/13/2014		59.59	6.86		52.73	<50		< 0.50	<0.50	<0.50	<1.0	<0.50	<10	<0.50	<0.50	<0.50	<250	<0.50	< 0.50	3.77	
	8/28/2014		59.59	9.65		49.94	1,900		<5.0	<5.0	<5.0	<10	41	1,600	<5.0	<5.0	11	<5,000	<5.0	<5.0	3.36	
A-4	2/27/2015		59.59	7.87		51.72	470		< 0.50	< 0.50	< 0.50	<1.0	2.2	220	< 0.50	< 0.50	< 0.50	<500	<0.50	< 0.50	3.62	

					Measured LNAPL																	
Well ID	Date	Туре	TOC (ft msl)	DTW (ft btoc)	Thickness (ft)	GW Elev (ft msl)	GRO (µg/L)	DRO (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)	EDB (µg/L)	1,2-DCA (μg/L)	DO (mg/L)	Notes
A-5	6/21/2000		54.17	9.29		44.88	980		<0.5	<0.5	<0.5	<1.0	2,000						-			
A-5 A-5	9/20/2000		54.17 54.17	10.23 9.65		43.94 44.52	 525		<0.5	<0.5	<0.5	<0.5	1,200									
A-5	3/20/2001		54.17	8.05		46.12			<0.5	<0.5	<0.5	<0.5	1,200									
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 A-5	4/17/2002		54.17 54.17	8.01 9.87		46.16 44.30	1,600		<10	<10	<10	<10	3,200									
A-5 A-5	8/12/2002 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	<2.5	<2.5	1.0	
A-5	5/4/2004		58.78	9.98	-	48.80																
A-5 A-5	9/2/2004 11/10/2004		58.78 58.78	9.65 8.48		49.13 50.30	<250		<2.5	<2.5	<2.5	<2.5	66	150	<2.5	<2.5	29	<500	<2.5	<2.5	1.1	
A-5 A-5	2/2/2005		58.78	7.10		50.30	68		<0.50	<0.50	<0.50	<0.50	17	840	<0.50	<0.50	7.6	<100	<0.50	<0.50	1.0	
A-5	5/9/2005		58.78	7.10		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	<0.50	<0.50	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	<0.50	<0.50	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	<0.50	<0.50	1.4	
A-5 A-5	11/1/2006 2/7/2007		58.78 58.78	9.30 8.50	-	49.48 50.28	60		<0.50	<0.50	<0.50	<0.50	1.5	600	<0.50	<0.50	<0.50	<300	<0.50	<0.50	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	<0.50	<0.50	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	<0.50	<0.50	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	<0.50	<0.50	0.62	
A-5 A-5	11/19/2008 2/10/2009		58.78 58.78	8.91 7.80		49.87 50.98	 <50		<0.50	<0.50	<0.50	<0.50	1.6	 18	 <0.50	<0.50	0.59	<300	<0.50	<0.50	0.85	
A-5	5/7/2009		58.78	7.37		51.41			<0.50						<0.50		0.59		<0.50		0.65	
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	<0.50	<0.50	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	< 0.50	<0.50		
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	<0.50	<0.50		
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 A-5	2/29/2012 8/24/2012		58.78 58.78	8.12 9.15		50.66 49.63	<50 						<0.50									
A-5 A-5	2/8/2013		58.78	7.65		49.63 51.13	<2,500						240						-			
A-5	8/7/2013		58.78	9.02	-	49.76	<50					-	13						-		2.16	
A-5	2/13/2014		58.78	6.55		52.23	<50						<0.50	-							1.34	
A-5	8/28/2014		58.78	9.06		49.72	<50		-		-	-	3.7	-		-			-		0.27	
A-5	2/27/2015		58.78	7.14		51.64	<50					-	2.0	-					-		4.02	<u> </u>
	0/04/000-					10.50																
A-6	6/21/2000		55.17	8.67	-	46.50	<50		<0.5	<0.5	<0.5	<1.0	<3.0	-		-			-		-	
A-6 A-6	9/20/2000 12/26/2000		55.17 55.17	9.34 8.65		45.83 46.52	<50 <50		<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<2.5 <2.5									
A-6	3/20/2001		55.17	6.84		48.33	<50 <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	<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	(INIA: Doyled area)
A-6	12/6/2002		55.17																			(INA; Paved over)

Value Date Type (t ms) (t ht hoc) (t ms) (ugh) (ugh)	6/2: 9/20 12/2 3/20 6/12 9/2: 12/3	6/21/2000 9/20/2000 12/26/2000	Туре		DTW	T1.1.1																	
A7 621/2000 64.71 8.58 — 46.13 450 — 6.5 40.5 40.5 40.5 4.0 — 20.0 —	6/2 ⁻ 9/20 12/2 3/20 6/12 9/23	6/21/2000 9/20/2000 12/26/2000	Туре	(ft msl)		Inickness	GW Elev	GRO	DRO	В	Т	E	Х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
A-7 9202000 54.71 9.19 - 46.52 - - - - - - - - -	9/20 12/2 3/20 6/12 9/23 12/3	9/20/2000							(µg/L)						(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	., .	(µg/L)	(mg/L)	Notes
A-7 12/26/2000 54/11 6.50 46/21	12/2 3/20 6/12 9/23 12/3	2/26/2000																					
A7 3/202001 54/11 6.75	3/20 6/12 9/23 12/3																						
A-7 81/22/001 64.71 8.80 45.91 <50 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	6/12 9/23 12/3																		1				
A-7	9/23																						
A-7	12/3																						
A-7 32/10002 54.71 5.35 443.8																							
A-7																							
A-7 8/12/2002 54.71 8.77 45.94																							
A.7 12/6/20/2 54.71 9.07 46.64																							
A-7																							
A-7 8/28/2003 54.71 7.83 - 47.08 < <50 - < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 <0.50 < <0.50 < <0.50 <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50 < <0.50																							
A.7 8.8/2003 5.471 8.90 - 45.81 -																						2.3	
A7 11/14/2003 54.71 9.08																							
A-7 2/2/2004 59.75 5.96 - 53.79 -																							
A-7 5/4/2004 59.75 8.21																							
A-7 9/2/2004 59.75 9.02 - 50.73 <50																							
A-7 11/10/2004 59.75 7.50 - 52.25 -																					<0.50	3.0	
A-7																							
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 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <td></td>																							
A-7 11/18/2005 59.75 8.65 - 51.10 -																					<0.50	1.6	
A-7 2/15/2006 59.75 6.51																							
A-7 5/30/2006 59.75 7.13 - 52.62 -																							
A-7 8/11/2006 59.75 8.46																							
A-7 11/1/2006 59.75 8.99 50.76								<50		< 0.50	< 0.50	< 0.50	< 0.50	3.6	<20	< 0.50	< 0.50	0.91	<300	< 0.50	0.54	1.7	
A-7 2/7/2007 59.75 8.12																							
A-7 5/9/2007 59.75 7.04 52.71															-								
A-7 8/7/2007 59.75 9.10 50.65 <50																							
A-7 11/14/2007 59.75 8.00 51.75										< 0.50	< 0.50		< 0.50							< 0.50	< 0.50	1.34	
A-7 5/23/2008 59.75 8.74 51.01																							
A-7 5/23/2008 59.75 8.74 51.01	2/28	2/28/2008		59.75	5.81		53.94						-										
A-7 11/19/2008 59.75 8.67 51.08																							
A-7 11/19/2008 59.75 8.67 51.08	8/13	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	< 0.50	< 0.50	1.05	
A-7 2/10/2009 59.75 7.47 52.28																							
A-7 5/7/2009 59.75 6.88 52.87				59.75	7.47		52.28																
				59.75	6.88		52.87																
								<50		<0.50	< 0.50	<0.50	<0.50	<0.50	<10	< 0.50	< 0.50	< 0.50	<300	< 0.50	<0.50	0.93	
A-7 3/23/2010 59.75 6.33 53.42	3/23	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 <0.50 <0.50 <1.0 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.5	8/16	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	< 0.50	< 0.50		
A-7 3/18/2011 59.75 5.20 54.55	3/18	3/18/2011		59.75	5.20		54.55																
A-7 8/18/2011 59.75 8.54 51.21 <0.50	8/18	8/18/2011		59.75	8.54		51.21							<0.50									
A-7 2/29/2012 59.75 8.00 51.75	2/29	2/29/2012		59.75	8.00		51.75																
A-7 8/24/2012 59.75 9.06 50.69	8/2	8/24/2012		59.75	9.06		50.69	-															
A-7 8/31/2012 59.75 9.04 50.71 <0.50	8/3	8/31/2012		59.75	9.04		50.71	-		-			-	<0.50	-	-				-			
A-7 2/8/2013 59.75 7.44 52.31	2/8	2/8/2013		59.75	7.44		52.31						-		-								(NSP)
A-7 8/7/2013 59.75 8.96 50.79 <0.50	8/7	8/7/2013		59.75	8.96		50.79	-						<0.50								2.07	
A-7 2/13/2014 59.75 6.58 53.17	2/13	2/13/2014		59.75	6.58		53.17	-		-			-		-								(NSP)
A-7 8/28/2014 59.75 9.15 50.60 <50	8/28	8/28/2014		59.75	9.15		50.60							<0.50								0.22	
A-7 2/27/2015 59.75 6.81 52.94	2/2	2/27/2015		59.75	6.81		52.94																(NSP)
	212																						

					Measured LNAPL																	
			тос	DTW	Thickness	GW Elev	GRO	DRO	В	Т	E	х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes
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 A-8	8/12/2002 12/6/2002		53.77 53.77	9.64 9.62		44.13 44.15	9,400 5,300		1,800	<20 11	35	28 <10	4,200 2,200						-		1.4	
A-8	1/30/2002		53.77	7.49		46.28	<10,000		1,100 1,100	<100	11 <100	<100	2,200	<4,000	<100	<100	900	<8,000			1.4	
A-8	5/28/2003		53.77	9.17		44.60	7,700		1,700	<50	<50	<50		<2,000		<50		<10,000			1.5	
A-8	8/6/2003		53.77	9.17		44.60	13,000		2,400	<50	<50 <50	<50 <50	2,100 3,000	<2,000	<50 <50	<50 <50	1,100 1,200	<10,000	<50	<50	0.9	
A-8	11/14/2003		53.77	9.80		43.97	3,100		570	<5.0	<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	<25	1,100	<1,000	<25	<25	380	<5,000	<25	<25	1.1	
A-8	5/4/2004		58.70	9.44		49.26	<5,000		490	<50	<50	<50	1,600	<2,000	<50	<50	440	<10,000	<50	<50	1.0	
A-8	9/2/2004		58.70	9.67		49.03	<2,500		30	<25	<25	<25	680	<1,000	<25	<25	170	<5,000	<25	<25	1.0	
A-8	11/10/2004		58.70	8.15		50.55	580		61	<2.5	<2.5	<2.5	290	<100	<2.5	<2.5	66	<500	<2.5	<2.5	1.5	
A-8	2/2/2005		58.70	6.53		52.17	5,000		890	<25	<25	<25	1,900	<1,000	<25	<25	510	<5,000	<25	<25	1.0	
A-8	5/9/2005		58.70	6.31		52.39	69		0.90	< 0.50	< 0.50	< 0.50	66	<20	< 0.50	< 0.50	2.9	<100	< 0.50	< 0.50	4.1	
A-8	8/11/2005		58.70	9.15	-	49.55	1,400		1,300	<12	<12	<12	1,100	<500	<12	<12	310	<2,500	<12	<12	0.7	
A-8	11/18/2005		58.70	8.89	-	49.81	1,200		420	<5.0	<5.0	<5.0	340	<200	<5.0	<5.0	120	<1,000	<5.0	<5.0	0.7	
A-8	2/15/2006		58.70	6.34		52.36	3,200		970	<10	<10	<10	1,100	880	<10	<10	330	<6,000	<10	<10	0.9	
A-8	5/30/2006		58.70	7.53	-	51.17	510	-	210	<2.5	<2.5	<2.5	140	<100	<2.5	<2.5	43	<1,500	<2.5	<2.5	2.6	
A-8	8/11/2006		58.70	8.90		49.80	1,300		500	<5.0	<5.0	<5.0	290	<200	<5.0	<5.0	92	<3,000	<5.0	<5.0	0.7	
A-8	11/1/2006		58.70	9.15		49.55	4,800		790	6.6	<5.0	<5.0	910	1,200	<5.0	<5.0	250	<3,000	<5.0	<5.0	1.72	
A-8	2/7/2007		58.70	8.48		50.22	7,600		2,300	<25	<25	<25	1,200	<1,000	<25	<25	330	<15,000	<25	<25	1.25	
A-8	5/9/2007		58.70	7.25	-	51.45	750		180	<2.5	<2.5	<2.5	55	<100	<2.5	<2.5	16	<1,500	<2.5	<2.5	1.75	
A-8	8/7/2007		58.70	9.17	-	49.53	2,100		700	4.0	<2.5	<2.5	430	140	<2.5	<2.5	160	<1,500	<2.5	<2.5	0.77	
A-8	11/14/2007		58.70	7.77	-	50.93	990		300	2.5	0.68	0.96	100	28	<0.50	<0.50	44	<300	<0.50	<0.50	1.01	
A-8	2/28/2008		58.70	5.14		53.56	2,100		670	<5.0	<5.0	<5.0	220	230	<5.0	<5.0	72	<3,000	<5.0	<5.0	1.67	
A-8 A-8	8/13/2008		58.70	9.48		49.22	3,100		970	<25	<25	<25	250	<500	<25	<25	86	<15,000	<25	<25	0.84	
A-8 A-8	11/19/2008 2/10/2009		58.70 58.70	8.87 7.11		49.83 51.59	3,800 3,600		1,000	<20 <25	<20 <25	<20 <25	230 320	<400 <500	<20 <25	<20 <25	100 120	<12,000 <15,000	<20 <25	<20 <25	0.89	
A-8	5/7/2009		58.70	6.47		52.23	270		65	<1.0	<1.0	<1.0	12	20	<1.0	<1.0	3.3	<600	<1.0	<1.0	0.89	
A-8	9/3/2009		58.70	9.47	-	49.23	3,200		1,400	<25	<25	<25	100	<500	<25	<25	52	<15,000	<25	<25	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	<0.50	<0.50		
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	<0.50	<0.50		
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	<0.50	< 0.50		
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	<5.0	<5.0		
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	< 0.50	< 0.50		
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	<25	<25		
A-8	2/8/2013		58.70	7.35		51.35	<50	-	6.0	<0.50	<0.50	<1.0		<4.0	<0.50	< 0.50	0.92	<250	< 0.50	< 0.50		
A-8	8/7/2013		58.70	9.20		49.50	1,400		940	5.5	1.6	1.5	27	67	< 0.50	< 0.50	14	<250	< 0.50	<0.50	2.20	
A-8	2/13/2014		58.70	6.51	-	52.19	190		4.4	<0.50	<0.50	<1.0	0.85	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	1.33	
A-8	8/28/2014		58.70	9.35		49.35	1,000		130	<5.0	<5.0	<10	15	210	<5.0	<5.0	5.3	<5,000	<5.0	<5.0	0.43	<u> </u>
A-8	2/27/2015		58.70	6.99		51.71	370	-	70	< 0.50	<0.50	<1.0	7.5	61	<0.50	< 0.50	4.8	<500	< 0.50	<0.50	3.11	

A-9 9 9 1 A-9 1 A-	Date 6/21/2000 9/20/2000 12/26/2000 3/20/2001 9/23/2001 9/23/2001 3/21/2002	Туре	TOC (ft msl) 53.04 53.04 53.04	DTW (ft btoc) 8.56 9.05	LNAPL Thickness (ft)	GW Elev	GRO	DRO														
A-9 (6/21/2000 9/20/2000 12/26/2000 3/20/2001 6/12/2001 9/23/2001 12/31/2001	Туре	(ft msl) 53.04 53.04 53.04	(ft btoc) 8.56	(ft)		GRO			-	_	v	MEDE	TD 4	DIDE	FTDF	TABET	F45	FDD	40004		
A-9 (6/21/2000 9/20/2000 12/26/2000 3/20/2001 6/12/2001 9/23/2001 12/31/2001	Туре	53.04 53.04 53.04	8.56			(µg/L)	(µg/L)	B (µg/L)	T (ua/L)	E (µg/L)	X (μg/L)	MTBE (µg/L)	TBA (ug/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	EDB (µg/L)	1,2-DCA (ug/L)	DO (mg/L)	Notes
A-9 9 9 1 A-9 1 A-	9/20/2000 12/26/2000 3/20/2001 6/12/2001 9/23/2001 12/31/2001		53.04 53.04			44.48	(μ g/L) <50	(μg/L) 	(μg/L) <0.5	(μg/L) <0.5	(μg/L) <0.5	(μ g/L) <1.0	(μ g/L) 5	(μg/L) 	(μg/L) 	(μg/L) 	(μg/L) 	(µg/L)	(μg/L) 	(μg/L) 	(IIIg/L)	Notes
A-9 1 A-9 ; A-9 ; A-9 ; A-9 ; A-9 1 A-9 ; A-9 ; A-9 ; A-9 ; A-9 ;	12/26/2000 3/20/2001 6/12/2001 9/23/2001 12/31/2001		53.04			43.99	<50		<0.5	<0.5	<0.5	<0.5	<2.5									
A-9 (1 A-9 1 A-9 1 A-9	6/12/2001 9/23/2001 12/31/2001		50.04	8.49		44.55	<50		<0.5	<0.5	<0.5	<0.5	<2.5						-			
A-9 1 A-9 1 A-9 3 A-9 4	9/23/2001 12/31/2001		53.04	6.95		46.09	<50		<0.5	<0.5	<0.5	<0.5	<2.5									
A-9 1 A-9 3 A-9 4 A-9 4	12/31/2001		53.04	8.67		44.37	<50		<0.5	<0.5	<0.5	<0.5	4.8									
A-9 : A-9 : A-9 :			53.04	9.21		43.83	<50		<0.5	<0.5	<0.5	< 0.5	<2.5									
A-9 A	3/21/2002		53.04	4.57		48.47	<50	-	<0.5	<0.5	<0.5	<0.5	<2.5				-		-			
A-9			53.04	5.60	-	47.44	<50		<0.5	<0.5	<0.5	<0.5	<2.5						-	-		
	4/17/2002		53.04	6.89		46.15	<50		<0.5	<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	<0.50	<2.5								4	
	12/6/2002		53.04	8.77		44.27	<50		< 0.50	<0.50	<0.50	<0.50	<2.0								1.1	
	1/30/2003		53.04	6.88		46.16	<50		<0.50	<0.50	<0.50	<0.50	1.1	<20	<0.50	<0.50	<0.50	<40	-		0.9	
	5/28/2003		53.04	9.75		43.29	<50		<0.50	<0.50	<0.50	<0.50	0.74	<20	<0.50	<0.50	<0.50	<100			1.9	
	8/6/2003		53.04 53.04	9.00	-	44.04 44.22	<50		<0.50	<0.50	<0.50	<0.50	1.8	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	2.2	
	11/14/2003 2/2/2004		57.73	8.82 7.10	-	50.63	-		-										-			
	5/4/2004		57.73	8.12		49.61																
	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	<0.50	<0.50	6.6	
	11/10/2004		57.73	7.88		49.85			<0.50				<0.50			<0.50	<0.50	<100	<0.50			
	2/2/2005		57.73	6.40		51.33	-								-							
	5/9/2005		57.73	6.82		50.91																
	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	< 0.50	<0.50	1.8	
	11/18/2005		57.73	8.24		49.49																
	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	i	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	< 0.50	< 0.50	1.02	
A-9	11/1/2006	i	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	-	-	-			-	-				-		-			
	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	< 0.50	<0.50	1.81	
	11/14/2007		57.73	7.77		49.96																
	2/28/2008		57.73	5.61		52.12	-															
	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	<0.50	< 0.50	0.55	
	11/19/2008		57.73	8.49		49.24	-		-			-										
	2/10/2009		57.73	7.07	-	50.66			-													
	5/7/2009 9/3/2009		57.73 57.73	6.65 8.56		51.08 49.17	 <50		<0.50	<0.50	<0.50	<0.50	<0.50	 <10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	0.89	
	3/23/2010		57.73	5.98		49.17 51.75	<50		<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	0.89	
	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	<0.50	<0.50		
	3/18/2011		57.73	4.40		53.33																
	8/18/2011	+	57.73	7.94		49.79	-						<0.50			-						
	2/29/2012		57.73	7.48		50.25																
	8/24/2012	t	57.73																-			(Dry)
	2/8/2013		57.73	6.63		51.10	-		-			-		-								(NSP)
	8/7/2013	i	57.73	8.08		49.65	-					-										(NS - Obstruction in well)
	2/13/2014		57.73	5.62		52.11																(NSP)
	8/28/2014	- t	57.73																			(No measured water; NS)
-	2/27/2015		57.73	6.08		51.65	-															(NS - Obstruction in well)
N-9	2,2112013		31.13	0.00		31.03						Ī	-				-		-			(140 · Obstruction in Well)

			TOC	DTW	Measured LNAPL Thickness	GW Elev	GRO	DRO	В	Т	E	х	MTBE	ТВА	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes
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	<5.0	<5.0	8.0	
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	<0.50	<0.50	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	<0.50	<0.50	1.3	
A-10	11/1/2006		59.39	10.28	-	49.11							-			-	-					
A-10 A-10	2/7/2007 5/9/2007		59.39	9.50		49.89	-							-		-			-			
A-10 A-10			59.39	8.67	-	50.72															0.50	
A-10 A-10	8/7/2007 11/14/2007		59.39 59.39	10.25 9.48		49.14 49.91	<50 		<0.50	<0.50	<0.50	<0.50	8.9	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	0.59	
A-10 A-10	2/28/2008		59.39	7.23		52.16																
A-10 A-10	5/23/2008		59.39	9.94		49.45																
A-10 A-10	8/13/2008		59.39	10.30		49.45	<50		<0.50	<0.50	<0.50	<0.50	28	<10	<0.50	<0.50	6.9	<300	<0.50	<0.50	0.74	
A-10	11/19/2008		59.39	9.90		49.49																
A-10 A-10	2/10/2009		59.39	8.74		50.65										-						
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	<0.50	<0.50		
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-10	2/8/2013		59.39	8.30		51.09																(NSP)
A-10	8/7/2013		59.39	9.95		49.44	-						20								1.63	(1.0.)
A-10	2/13/2014		59.39	7.40		51.99																(NSP)
A-10	8/28/2014		59.39	9.93		49.46							6.1								0.76	ν. τοι)
A-10	2/27/2015		59.39	8.09		51.30																(NSP)
									 	1		 			1			-			+	(/

					Measured LNAPL																	
Wall ID	Doto	Tuna	TOC	DTW (ft btoo)	Thickness	GW Elev	GRO	DRO	B	T (110/1)	E (µg/L)	X (μq/L)	MTBE (µg/L)	TBA	DIPE (µg/L)	ETBE (µg/L)	TAME	Ethanol	EDB (µg/L)	1,2-DCA	DO (ma/l.)	Notes
Well ID A-11	Date 6/21/2000	Туре	(ft msl) 53.74	(ft btoc) 9.54	(ft) 	(ft msl) 44.20	(μ g/L) <50	(µg/L)	(μg/L) <0.5	(μg/L) <0.5	(μg/L) <0.5	(μ g/L) <1.0	(μg/L) 4	(μg/L) 	(μg/L) 	(μg/L) 	(µg/L)	(μg/L) 	(μg/L) 	(µg/L)	(mg/L)	Notes
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	1
A-11	1/30/2003		53.74	8.42	-	45.32	-	-				-	-									1
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																1
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	<0.50	<0.50	2.6	1
A-11	11/10/2004		59.16	9.20	-	49.96																ļ
A-11	2/2/2005		59.16	7.95	-	51.21																1
A-11	5/9/2005		59.16	8.07	-	51.09								-								ļ
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	<0.50	<0.50	3.8	1
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	<0.50	<0.50	3.8	
A-11	11/1/2006		59.16	10.10		49.06								-								
A-11	2/7/2007		59.16 59.16	9.35	-	49.81																
A-11 A-11	5/9/2007 8/7/2007		59.16	8.48 10.10	-	50.68 49.06	 <50		<0.50	<0.50	<0.50	<0.50	<0.50	 <20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	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 A-11	5/23/2008	1	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	<0.50	<0.50	0.89	
A-11	11/19/2008	l	59.16	9.75	-	49.41																
A-11	2/10/2009	l -	59.16	8.67	-	50.49																
A-11	5/7/2009	l	59.16	8.20	-	50.96																<u> </u>
A-11	9/3/2009	l -	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	<0.50	<0.50	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	<0.50	<0.50		
A-11	8/24/2012		59.16				-															(INA)
A-11	2/8/2013		59.16	8.47		50.69	<50		< 0.50	< 0.50	<0.50	<1.0	<0.50	<4.0	< 0.50	<0.50	< 0.50	<250	< 0.50	<0.50		` '
A-11	8/7/2013		59.16	9.66		49.50	-															(NSP)
A-11	2/13/2014		59.16		-																	(INA)
A-11	8/28/2014		59.16		-		-															(No measured water; NS)
A-11	2/27/2015		59.16	7.92		51.24								-								(NSP)
												•										

					Measured LNAPL																	
			TOC	DTW	Thickness	GW Elev	GRO	DRO	В	Т	E	Х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(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	1	42.37	-		-		-	-	-									1
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	i
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	< 0.50	< 0.50	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	< 0.50	< 0.50	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	< 0.50	< 0.50	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	< 0.50	< 0.50	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	< 0.50	< 0.50	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	< 0.50	< 0.50	1.49	
A-12	11/14/2007		57.06	8.52	-	48.54	-															i
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	< 0.50	< 0.50	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	< 0.50	< 0.50	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	< 0.50	< 0.50		
A-12	8/24/2012		57.06		-																	
A-12	2/8/2013		57.06	8.38	-	48.68	<50		< 0.50	< 0.50	< 0.50	<1.0	3.3	<4.0	< 0.50	< 0.50	1.2	<250	< 0.50	< 0.50		
A-12	8/7/2013		57.06	9.37		47.69			-			-	2.0								1.85	
A-12	2/13/2014		57.06		-																	(NSP)
A-12	8/28/2014		57.06	9.30	-	47.76	<50		< 0.50	<0.50	< 0.50	<1.0	1.9	<20	< 0.50	< 0.50	< 0.50	<500	<0.50	< 0.50	0.78	
A-12	2/27/2015		57.06	8.09		48.97																(NSP)
	i																					· /

					Measured LNAPL																	
			TOC	DTW	Thickness	GW Elev	GRO	DRO	В	T	E	Х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(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	<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	< 0.50	< 0.50	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										-	-								(INA; Paved over)
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					Measured LNAPL																	
			тос	DTW	Thickness	GW Elev	GRO	DRO	В	Т	E	Х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(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 AR-1	3/21/2002 4/17/2002		54.72 54.72	7.00 8.33	-	47.72 46.39																Γ
AR-1	8/12/2002		54.72	10.18		46.39	-															Γ
AR-1	12/6/2002		54.72	10.18		44.54			-		-											
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 AR-1	2/28/2008		59.52	7.05		52.47	-					-		-								
AR-1	8/13/2008 11/19/2008		59.52 59.52	10.20 9.73		49.32 49.79	-							-								
AR-1	2/10/2009		59.52 59.52	9.73 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			-				-		-		-					
AR-1	2/8/2013		59.52	8.44	-	51.08																
AR-1	8/7/2013		59.52	10.08	-	49.44																
AR-1	2/13/2014		59.52	7.39		52.13						-										(NSP)
AR-1	8/28/2014		59.52	9.88		49.64	-							-					-			(NSP)
AR-1	2/27/2015		59.52	6.95	-	52.57	660		2.0	<0.50	< 0.50	1.1	25	910	< 0.50	< 0.50	7.3	<500	< 0.50	<0.50	3.76	· · · · · · · · · · · · · · · · · · ·
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					Measured LNAPL																	
			TOC	DTW	Thickness	GW Elev	GRO	DRO	В	Т	E	х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Type	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes											
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 AR-2	5/28/2003 8/6/2003		54.77 54.77	3.33 5.05		51.44 49.72																
AR-2	11/14/2003		54.77	6.01		49.72			-				-			-						
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		53.17																
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	-															
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																
AR-2	2/8/2013		59.18																			(INA; Paved over)

					Measured LNAPL																	
			тос	DTW	Thickness	GW Elev	GRO	DRO	В	т	Е	х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Туре	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes
AR-3	12/26/2000	Турс	54.19	9.70		44.49	(Mg/L)	(µg/=/	(µg/L)	(µg/L)	(μg/L)	(μg/ L)	(μg/L) 	(µg/L)	(Mg/L)	(Mg/L)	(µg/L)	(µg/=/	(μg/L)	(µg/=/	(IIIg/L)	140103
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 AR-3	11/19/2008		59.10	9.35		49.75								-								
	2/10/2009		59.10 59.10	8.29	-	50.81	-					-	-			-			-			
AR-3	5/7/2009			7.83	-	51.27						-		-					-			
AR-3 AR-3	9/3/2009 8/24/2012		59.10 59.10	9.80 9.10		49.30 50.00																
AR-3	2/8/2013		59.10	7.62		51.48						-		-					-			
AR-3	8/7/2013		59.10	9.47		49.63						-										
AR-3	2/13/2014		59.10									-			1		1		-			(NSP)
AR-3	8/28/2014		59.10	7.00 9.45		52.10 49.65								-								(NSP)
AR-3	2/27/2015		59.10	7.60		51.50	<50	-	<0.50	<0.50	<0.50	<1.0	<0.50	<20	<0.50	<0.50	<0.50	<500	<0.50	<0.50	3.80	(INSP)
AN-3	2/2//2013		33.10	7.00		51.50	\30		₹0.50	<0.00	₹0.50	<1.0	CO.50	\2 0	<0.50	<0.50	<0.50	<500	CO.50	₹0.50	3.00	

Table 2 Historical and Current Groundwater Monitoring and Analytical Data CA-04931

731 West Macarthur Blvd, Oakland, CA 94609

					Measured																	
					LNAPL																	
			TOC	DTW	Thickness	GW Elev	GRO	DRO	В	T	E	х	MTBE	TBA	DIPE	ETBE	TAME	Ethanol	EDB	1,2-DCA	DO	
Well ID	Date	Туре	(ft msl)	(ft btoc)	(ft)	(ft msl)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	Notes											

Notes:

-- = Not analyzed/applicable/measured/available

< = Not detected at or above laboratory reporting limit

ft = Feet

ft btoc = Feet below top of casing

ft msl = Feet above mean sea level

μg/L = Micrograms per liter

mg/L = Milligrams per liter

TOC = Top of casing measured in ft msl

DTW = Depth to water in ft btoc

LNAPL = Light non-aqueous phase liquid

GW Elev = Groundwater elevation measured in ft msl

GRO = Gasoline range organics

TPH-g = Total petroleum hydrocarbons as gasoline

DRO = Diesel range organics

B = Benzene

T = Toluene

E = Ethylbenzene

X = Total Xylenes

MTBE = Methyl tert butyl ether

TBA = Tert-butyl alcohol

DIPE = Di-isopropyl ether

ETBE = Ethyl tert-butyl ether
TAME = Tert-amyl methyl ether

EDB = 1,2-Dibromoethane

1,2-DCA = 1,2-Dichloroethane

DO = Dissolved oxygen

INA = Well inaccessible during monitoring event.

NS = Well not sampled

NSP = Well not sampled in accordance with groundwater sampling schedule

Dry = Well dry during monitoring event

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 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 August 2009 was provided to ARCADIS U.S., Inc. (ARCADIS) by Atlantic Richfield Company and their previous consultants. ARCADIS has not verified the accuracy of this information.



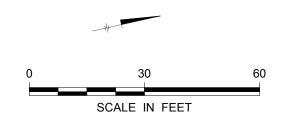
Figures

LEGEND:

- **★** SUB-SLAB SOIL VAPOR SAMPLING LOCATION
- **☞** SOIL VAPOR SAMPLE LOCATION
- SOIL BORING
- GROUNDWATER MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- PRODUCT/VENT LINE
- WATER

WEST MACARTHUR BOULEVARD

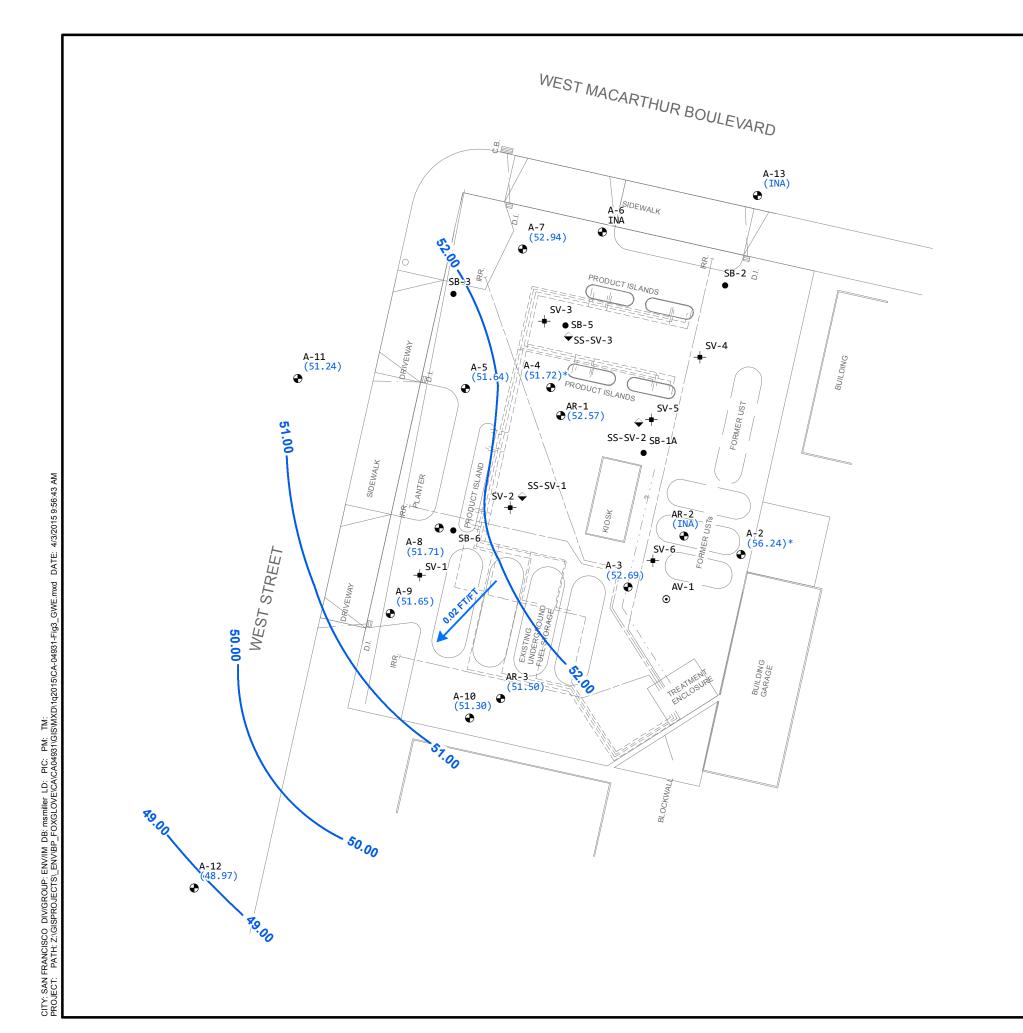
- SANITARY SEWER
 - STORM DRAIN



FORMER ARCO No. 4931 731 WEST MACARTHUR BOULEVARD OAKLAND, CALIFORNIA

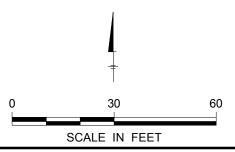
SITE PLAN





LEGEND:

- GROUNDWATER MONITORING WELL
- SOIL BORING
- SOIL VAPOR EXTRACTION WELL
- SOIL VAPOR SAMPLE LOCATION
- SUB-SLAB SOIL VAPOR SAMPLING LOCATION
- (52.57) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- 50.00 GROUNDWATER ELEVATION CONTOUR LINE (DASHED WHERE INFERRED)
- 0.02 FT/FT GROUNDWATER FLOW DIRECTION (FOOT PER FOOT)
 - (INA) WELL INACCESSIBLE
 - (NM) NOT MEASURED DUE TO OBSTRUCTION IN WELL
 - * NOT USED IN CONTOURING



FORMER ARCO No. 4931 731 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA FOURTH QUARTER 2014 AND FIRST QUARTER 2015 SEMI-ANNUAL GROUNDWATER MONITORING REPORT

> GROUNDWATER ELEVATION CONTOUR MAP FEBRUARY 27, 2015



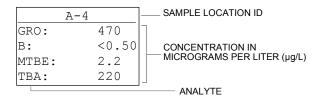
FIGURE

3

WEST MACARTHUR BOULEVARD A-13 (INA) A-6 SIDEWALK (INA) A-7 (NSP) SB-2 2 SB-3 SV-3 ● SB-5 ♦SS-SV-3 A-11 (NSP) MTBE: <50 NA TBA: 220 B: MTBE: TB: SS-SV-2 SV-5 2.0 NA SB-1A 370 70 7.5 61 GRO: GRO: B: MTBE: TBA: 2.0 25 910 SS-SV-1 MTBE: TBA: ŚV-2 **→ SB-6**□ (INA) A-2 (NSP) WEST STREET SV-6 SV-1 AV-1 A-9 (NS) \odot AR-3 GRO: B: MTBE: TBA: <50 <0.50 <0.50 <20 → A-10 (NSP) A-12 (NSP) **◆**

LEGEND:

- GROUNDWATER MONITORING WELL
- SOIL BORING
- SOIL VAPOR EXTRACTION WELL
- ♦ SOIL VAPOR SAMPLE LOCATION
- → SUB-SLAB SOIL VAPOR SAMPLING LOCATION



GRO GASOLINE RANGE ORGANICS (C6-C12)

B BENZENE

MTBE METHYL TERTIARY-BUTYL ETHER

TBA TERTIARY-BUTYL ALCOHOL

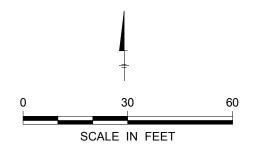
NOT DETECTED AT OR ABOVE STATED LABORATORY REPORTING LIMIT

NA NOT ANALYZED

NS NOT SAMPLED

NSP NOT SAMPLED IN ACCORDANCE WITH GROUNDWATER SAMPLING SCHEDULE

INA WELL INACCESSIBLE



FORMER ARCO No. 4931
731 WEST MACARTHUR BOULEVARD,
OAKLAND, CALIFORNIA
FOURTH QUARTER 2014 AND FIRST QUARTER 2015
SEMI-ANNUAL GROUNDWATER MONITORING REPORT

ANALYTICAL SUMMARY MAP FEBRUARY 27, 2015



FIGURE 4

ROSE DIAGRAM

ARCADIS

FIGURE

5

TM: M. MISAKIAN LAYOUT: 5 SAVED: CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS LD:-- PIC: S. GLENN PM: S. DAVIS G: ENVCAD/Emeryville/ACT/GP09BPNA/C110N00001/Q2015/DWG/GP09BPNAC110R0seDia.dwg L

GROUNDWATER FLOW DIRECTION



Appendix A

Previous Investigations and Site History Summary

Appendix A
Previous Investigation
and Site History
Summary

Former Atlantic-Richfield Oil Co. Station No. 4931

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.

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 sixinch 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 of 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.

Appendix A
Previous Investigation
and Site History
Summary

Former Atlantic-Richfield Oil Co. Station No. 4931

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 · 10-2 to 4.24 · 10-3, which was reportedly indicative of a heterogeneous environment. According to GSI, "Specific yield [sic – capacity?] values ranged from 1.74 · 10-2 to 9.65 · 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.

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

Appendix A
Previous Investigation
and Site History
Summary

Former Atlantic-Richfield Oil Co. Station No. 4931

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

Appendix A
Previous Investigation
and Site History
Summary

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.



Appendix B

Groundwater Sampling Data Package



Gauging Data

 Date
 02/27/2015

 Project_Number
 09-88-624

Location 731 W. Macarthur Boulevard,, Oakland, CA

Sampler Alex Martinez

Well	Date/Time	Well Depth (ft)	Depth To Water (ft)	Depth to LNAPL (ft)	Remarks
A-10	02/27/2015 07:27	29.59	8.09		
A-11	02/27/2015 08:47	29.79	7.92		
A-12	02/27/2015 08:45	29.78	8.09		
A-13	02/27/2015 07:35	-	-		Paved over; see picture
A-2	02/27/2015 07:04	19.49	4.41		
A-3	02/27/2015 07:00	16.29	6.63		
A-4	02/27/2015 07:41	29.05	7.87		
A-5	02/27/2015 07:34	23.80	7.14		
A-7	02/27/2015 07:10	26.32	6.81		
A-8	02/27/2015 07:30	16.30	6.99		
A-9	02/27/2015 07:16	8.10	6.08		Shallower bottom than indicated on GEM. Vegetation growth may still be present.
AR-1	02/27/2015 07:24	19.37	6.95		
AR-2	02/27/2015 07:04	-	-		Well paved over; see picture.
AR-3	02/27/2015 07:22	28.90	7.60		

Signature:

Methods





A-3

Date	02/27/2015	Well Head Integrity Okay	Pump Inlet Depth	
Project_Number	09-88-624	Well Head	(ft)	
	731 W. Macarthur	Comments	Well Diameter (in)	
Location	Boulevard,, Oakland,		Initial DTW (ft)	
	CA		Well Depth (ft)	
Weather Conditions	Sunny			
Waste Container	Tank			
Waste Location	Off site			
Sampler	Alex Martinez			

Field Parameters

Time	Purge Volume (L)	DTW (ft)	DO (mg/L)	Temp (C)	pН	Conductivity (uS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
08:59	1.0		5.23	16.45	6.54	453	2	5.7	

Sampling Summary

Sample ID	A-3	Purge Rate (LPM)	<u>-</u>
Sample Collection Date	02/27/2015	VOA Preserved #	3
Sample Collection Time	09:05	VOA Un-preserved #	
DTW at Sampling (ft)	6.63	Liter Amber #	
Sampled using	Hydrasleeve	Plastic Bottles #	
		Other	
		Remarks	

Signature:





Δ_4

Date	02/27/2015	Well Head Integrity Okay	Pump Inlet Depth	
Project_Number	09-88-624	Well Head	(ft)	
	731 W. Macarthur	Comments	Well Diameter (in)	
Location	Boulevard,, Oakland,		Initial DTW (ft)	
	CA		Well Depth (ft)	
Weather Conditions	Sunny		. ()	
Waste Container	Tank			
Waste Location	Off site			
Sampler	Alex Martinez			

Field Parameters

Time	Purge Volume (L)	DTW (ft)	DO (mg/L)	Temp (C)	pН	Conductivity (uS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
10:45	1.0		3.62	17.72	6.52	1110	-141	53.0	

Sampling Summary

Sample ID	<u>A-4</u>	Purge Rate (LPM)	-
Sample Collection Date	02/27/2015	VOA Preserved #	3
Sample Collection Time	10:35	VOA Un-preserved #	
DTW at Sampling (ft)	7.87	Liter Amber #	
Sampled using	Hydrasleeve	Plastic Bottles #	
		Other	
		Remarks	

Signature:





A-5

Date	02/27/2015	Well Head Integrity Okay	Pump Inlet Depth	
Project_Number	09-88-624	Well Head	(ft)	
	731 W. Macarthur	Comments	Well Diameter (in)	
Location	Boulevard,, Oakland,		Initial DTW (ft)	
	CA		Well Depth (ft)	
Weather Conditions	Cloudy			
Waste Container	Tank			
Waste Location	Off site			
Sampler	Alex Martinez			

Field Parameters

Time	Purge Volume (L)	DTW (ft)	DO (mg/L)	Temp (C)	рН	Conductivity (uS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
10:09	1.0		4.02	17.17	6.37	744	-103	0.0	Light hydrocarbon odor

Sampling Summary

Sample ID	A-5	Purge Rate (LPM)	<u>-</u>
Sample Collection Date	02/27/2015	VOA Preserved #	3
Sample Collection Time	10:10	VOA Un-preserved #	
DTW at Sampling (ft)	7.14	Liter Amber #	
Sampled using	Hydrasleeve	Plastic Bottles #	
		Other	
		Remarks	

Signature:

aquablue



A-8

Date	02/27/2015	Well Head Integrity Okay	Pump Inlet Depth	
Project_Number	09-88-624	Well Head	(ft)	
Location	731 W. Macarthur Boulevard,, Oakland,	Comments	Well Diameter (in) Initial DTW (ft)	
Location	CA		Well Depth (ft)	
Weather Conditions	Cloudy		· · · · · ·	
Waste Container	Tank			
Waste Location	Off site			
Sampler	Alex Martinez			

Field Parameters

Time	Purge Volume (L)	DTW (ft)	DO (mg/L)	Temp (C)	рН	Conductivity (uS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
09:48	1.0		3.11	17.74	6.65	878	-102	0.0	

Sampling Summary

• y			
Sample ID	A-8	Purge Rate (LPM)	-
Sample Collection Date	02/27/2015	VOA Preserved #	3
Sample Collection Time	09:45	VOA Un-preserved #	
DTW at Sampling (ft)	6.99	Liter Amber #	
Sampled using	Hydrasleeve	Plastic Bottles #	
		Other	
		Remarks	

Signature:





AR-1

Date	02/27/2015	Well Head Integrity Okay	Pump Inlet Depth	
Project_Number	09-88-624	Well Head	(ft)	
Location	731 W. Macarthur Boulevard,, Oakland,	Comments	Well Diameter (in) Initial DTW (ft)	
Location	CA		Well Depth (ft)	
Weather Conditions	Cloudy		· · · · · ·	
Waste Container	Tank			
Waste Location	Off site			
Sampler	Alex Martinez			

Field Parameters

Time	Purge Volume (L)	DTW (ft)	DO (mg/L)	Temp (C)	pН	Conductivity (uS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
10:22	1.0		3.76	16.78	6.48	976	-121	0.0	

Sampling Summary

AR-1	Purge Rate (LPM)	<u>-</u>
02/27/2015	VOA Preserved #	3
10:20	VOA Un-preserved #	
6.95	Liter Amber #	
Hydrasleeve	Plastic Bottles #	
	Other	
	Remarks	
	02/27/2015 10:20 6.95	02/27/2015 VOA Preserved # 10:20 VOA Un-preserved # 6.95 Liter Amber # Hydrasleeve Plastic Bottles # Other

Signature: (Med





AR-3

Date	02/27/2015	Well Head Integrity Okay	Pump Inlet Depth	
Project_Number	09-88-624	Well Head	(ft)	
	731 W. Macarthur	Comments	Well Diameter (in)	
Location	Boulevard,, Oakland,		Initial DTW (ft)	
	CA		Well Depth (ft)	
Weather Conditions	Sunny		. ()	
Waste Container	Tank			
Waste Location	Off site			
Sampler	Alex Martinez			

Field Parameters

Time	Purge Volume (L)	DTW (ft)	DO (mg/L)	Temp (C)	pН	Conductivity (uS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
09:30	1.0		3.80	16.81	7.03	412	-92	293	Water was a red/rusty color

Sampling Summary

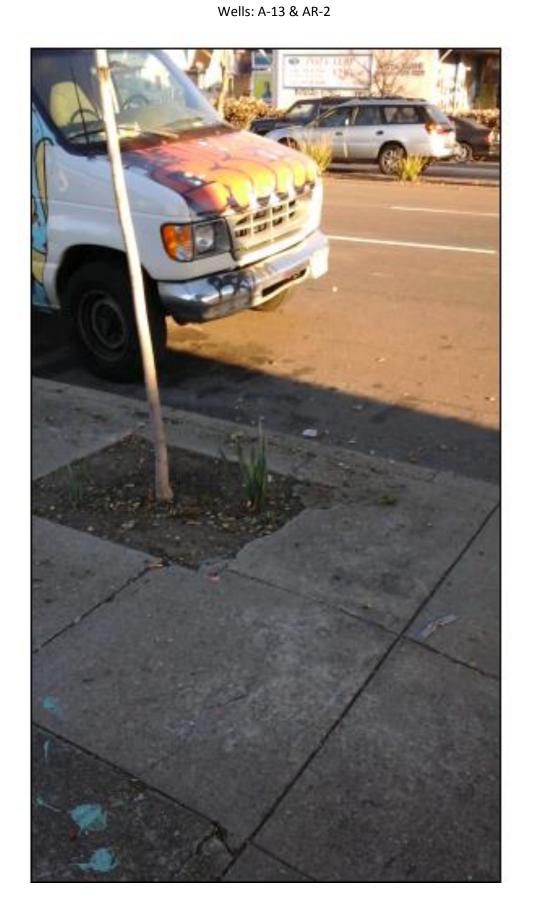
Sample ID	AR-3	Purge Rate (LPM)	<u>-</u>
Sample Collection Date	02/27/2015	VOA Preserved #	3
Sample Collection Time	09:25	VOA Un-preserved #	
DTW at Sampling (ft)	7.60	Liter Amber #	
Sampled using	Hydrasleeve	Plastic Bottles #	
		Other	
		Remarks	

Signature:

Methods



4931
731 W. Macarthur Boulevard, Oakland, CA







Appendix C

Certified Laboratory Analytical Report



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: 720-63235-1

Client Project/Site: Arcadis 4931, Oakland

For:

Broadbent & Associates, Inc. 4820 Business Center Drive #110 Fairfield, California 94534

Attn: James Ramos



Authorized for release by: 3/6/2015 9:05:39 AM

Dimple Sharma, Senior Project Manager (925)484-1919

dimple.sharma@testamericainc.com

·····LINKS ·······

Review your project results through

Total Access

Have a Question?



Visit us at: 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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10

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14

Definitions/Glossary

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Toxicity Equivalent Quotient (Dioxin)

TestAmerica Job ID: 720-63235-1

Glossary

TEQ

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
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

4

3

A

5

6

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10

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12

13

Case Narrative

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Job ID: 720-63235-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative 720-63235-1

Comments

No additional comments.

Receipt

The samples were received on 2/27/2015 12:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.0° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

3

4

6

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8

9

11

40

14

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-2

Lab Sample ID: 720-63235-3

Lab Sample ID: 720-63235-4

Lab Sample ID: 720-63235-5

Lab Sample ID: 720-63235-6

Lab Sample ID: 720-63235-1

Client Sample ID: A-3

No Detections.

Client Sample ID: A-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	2.2		0.50		ug/L	1	_	8260B/CA_LUFT MS	Total/NA
Gasoline Range Organics (GRO) -C6-C12	470		50		ug/L	1		8260B/CA_LUFT MS	Total/NA
TBA	220		20		ug/L	1		8260B/CA_LUFT MS	Total/NA

Client Sample ID: A-5

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Methyl tert-butyl ether	2.0	0.50	ug/L		8260B/CA_LUFT	Total/NA
					MS	

Client Sample ID: A-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	7.5		0.50		ug/L	1	_	8260B/CA_LUFT MS	Total/NA
Benzene	70		0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA
Gasoline Range Organics (GRO) -C6-C12	370		50		ug/L	1		8260B/CA_LUFT MS	Total/NA
TBA	61		20		ug/L	1		8260B/CA_LUFT MS	Total/NA
TAME	4.8		0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA

Client Sample ID: AR-1

Analyte	Result Qualifie	er RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	25	0.50		ug/L	1	_	8260B/CA_LUFT MS	Total/NA
Benzene	2.0	0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA
Xylenes, Total	1.1	1.0		ug/L	1		8260B/CA_LUFT MS	Total/NA
Gasoline Range Organics (GRO) -C6-C12	660	50		ug/L	1		8260B/CA_LUFT MS	Total/NA
TBA	910	20		ug/L	1		8260B/CA_LUFT MS	Total/NA
TAME	7.3	0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA

Client Sample ID: AR-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Client Sample ID: A-3

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-1

Matrix: Water

Date Collected: 02/27/15 09:05

Date Received: 02/27/15 12:25

Matrix:

Method: 8260B/CA_LUFTMS - 826	0B / CA LUFT	MS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			03/03/15 13:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		67 - 130			_		03/03/15 13:30	1
1,2-Dichloroethane-d4 (Surr)	93		72 - 130					03/03/15 13:30	1

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-2

Matrix: Water

Client Sample ID: A-4

Date Collected: 02/27/15 10:35 Date Received: 02/27/15 12:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	2.2		0.50		ug/L			03/03/15 23:52	1
Benzene	ND		0.50		ug/L			03/03/15 23:52	1
EDB	ND		0.50		ug/L			03/03/15 23:52	1
1,2-DCA	ND		0.50		ug/L			03/03/15 23:52	1
Ethylbenzene	ND		0.50		ug/L			03/03/15 23:52	1
Toluene	ND		0.50		ug/L			03/03/15 23:52	1
Xylenes, Total	ND		1.0		ug/L			03/03/15 23:52	1
Gasoline Range Organics (GRO) -C6-C12	470		50		ug/L			03/03/15 23:52	1
ТВА	220		20		ug/L			03/03/15 23:52	1
Ethanol	ND		500		ug/L			03/03/15 23:52	1
DIPE	ND		0.50		ug/L			03/03/15 23:52	1
TAME	ND		0.50		ug/L			03/03/15 23:52	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/03/15 23:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		67 - 130			-		03/03/15 23:52	1
1,2-Dichloroethane-d4 (Surr)	91		72 - 130					03/03/15 23:52	1
Toluene-d8 (Surr)	100		70 - 130					03/03/15 23:52	1

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-3

Matrix: Water

Client Sample ID: A-5

Date Collected: 02/27/15 10:10

Date Received: 02/27/15 12:25

Method: 8260B/CA_LUFTMS - 8	3260B / CA LUF1	ΓMS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	2.0		0.50		ug/L			03/03/15 13:58	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/03/15 13:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		67 - 130			-		03/03/15 13:58	1
1,2-Dichloroethane-d4 (Surr)	96		72 - 130					03/03/15 13:58	1
Toluene-d8 (Surr)	100		70 - 130					03/03/15 13:58	1

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-4

Matrix: Water

Client Sample ID: A-8

Date Collected: 02/27/15 09:45 Date Received: 02/27/15 12:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	7.5		0.50		ug/L			03/04/15 00:20	1
Benzene	70		0.50		ug/L			03/04/15 00:20	1
EDB	ND		0.50		ug/L			03/04/15 00:20	1
1,2-DCA	ND		0.50		ug/L			03/04/15 00:20	1
Ethylbenzene	ND		0.50		ug/L			03/04/15 00:20	1
Toluene	ND		0.50		ug/L			03/04/15 00:20	1
Xylenes, Total	ND		1.0		ug/L			03/04/15 00:20	1
Gasoline Range Organics (GRO) -C6-C12	370		50		ug/L			03/04/15 00:20	1
ТВА	61		20		ug/L			03/04/15 00:20	1
Ethanol	ND		500		ug/L			03/04/15 00:20	1
DIPE	ND		0.50		ug/L			03/04/15 00:20	1
TAME	4.8		0.50		ug/L			03/04/15 00:20	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/04/15 00:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		67 - 130			=		03/04/15 00:20	1
1,2-Dichloroethane-d4 (Surr)	94		72 - 130					03/04/15 00:20	1
Toluene-d8 (Surr)	102		70 - 130					03/04/15 00:20	1

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-5

Matrix: Water

Client Sample ID: AR-1

Date Collected: 02/27/15 10:20 Date Received: 02/27/15 12:25

Method: 8260B/CA_LUFTMS - 82	260B / CA LUFT	MS							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	25		0.50		ug/L			02/28/15 01:25	1
Benzene	2.0		0.50		ug/L			02/28/15 01:25	1
EDB	ND		0.50		ug/L			02/28/15 01:25	1
1,2-DCA	ND		0.50		ug/L			02/28/15 01:25	1
Ethylbenzene	ND		0.50		ug/L			02/28/15 01:25	1
Toluene	ND		0.50		ug/L			02/28/15 01:25	1
Xylenes, Total	1.1		1.0		ug/L			02/28/15 01:25	1
Gasoline Range Organics (GRO)	660		50		ug/L			02/28/15 01:25	1
-C6-C12									
TBA	910		20		ug/L			02/28/15 01:25	1
Ethanol	ND		500		ug/L			02/28/15 01:25	1
DIPE	ND		0.50		ug/L			02/28/15 01:25	1
TAME	7.3		0.50		ug/L			02/28/15 01:25	1
Ethyl t-butyl ether	ND		0.50		ug/L			02/28/15 01:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		67 - 130			=		02/28/15 01:25	1
1,2-Dichloroethane-d4 (Surr)	102		72 - 130					02/28/15 01:25	1
Toluene-d8 (Surr)	100		70 - 130					02/28/15 01:25	1

TestAmerica Pleasanton

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Lab Sample ID: 720-63235-6

Matrix: Water

Client Sample ID: AR-3 Date Collected: 02/27/15 09:25

Date Received: 02/27/15 12:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	ND		0.50		ug/L			02/28/15 01:56	1
Benzene	ND		0.50		ug/L			02/28/15 01:56	1
EDB	ND		0.50		ug/L			02/28/15 01:56	1
1,2-DCA	ND		0.50		ug/L			02/28/15 01:56	1
Ethylbenzene	ND		0.50		ug/L			02/28/15 01:56	1
Toluene	ND		0.50		ug/L			02/28/15 01:56	1
Xylenes, Total	ND		1.0		ug/L			02/28/15 01:56	1
Gasoline Range Organics (GRO)	ND		50		ug/L			02/28/15 01:56	1
-C6-C12									
TBA	ND		20		ug/L			02/28/15 01:56	1
Ethanol	ND		500		ug/L			02/28/15 01:56	1
DIPE	ND		0.50		ug/L			02/28/15 01:56	1
TAME	ND		0.50		ug/L			02/28/15 01:56	1
Ethyl t-butyl ether	ND		0.50		ug/L			02/28/15 01:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		67 - 130			-		02/28/15 01:56	1
1,2-Dichloroethane-d4 (Surr)	104		72 - 130					02/28/15 01:56	1
Toluene-d8 (Surr)	100		70 ₋ 130					02/28/15 01:56	1

Surrogate Summary

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Matrix: Water Prep Type: Total/NA

				_	ate Recovery (Acceptance Limits)
		BFB	12DCE	TOL	
Lab Sample ID	Client Sample ID	(67-130)	(72-130)	(70-130)	
720-63235-1	A-3	95	93	100	
720-63235-2	A-4	104	91	100	
720-63235-3	A-5	95	96	100	
720-63235-4	A-8	99	94	102	
720-63235-5	AR-1	104	102	100	
720-63235-6	AR-3	101	104	100	
LCS 720-176738/6	Lab Control Sample	101	98	103	
LCS 720-176738/8	Lab Control Sample	106	106	101	
LCS 720-176882/6	Lab Control Sample	95	93	102	
LCS 720-176934/5	Lab Control Sample	95	92	101	
LCS 720-176934/8	Lab Control Sample	94	92	100	
LCSD 720-176738/7	Lab Control Sample Dup	101	100	102	
LCSD 720-176738/9	Lab Control Sample Dup	101	102	101	
LCSD 720-176882/7	Lab Control Sample Dup	94	93	103	
LCSD 720-176934/6	Lab Control Sample Dup	93	92	101	
LCSD 720-176934/9	Lab Control Sample Dup	93	90	101	
MB 720-176738/5	Method Blank	104	104	101	
MB 720-176882/5	Method Blank	94	92	101	
MB 720-176934/4	Method Blank	95	94	101	
Surrogate Legend					

Surrogate Legend

BFB = 4-Bromofluorobenzene

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

TestAmerica Job ID: 720-63235-1

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Lab Sample ID: MB 720-176738/5

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Client Sample ID: Method Blank

Prep Type: Total/NA

Matrix: water
Analysis Batch: 176738

-	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	ND		0.50		ug/L			02/27/15 16:12	1
Benzene	ND		0.50		ug/L			02/27/15 16:12	1
EDB	ND		0.50		ug/L			02/27/15 16:12	1
1,2-DCA	ND		0.50		ug/L			02/27/15 16:12	1
Ethylbenzene	ND		0.50		ug/L			02/27/15 16:12	1
Toluene	ND		0.50		ug/L			02/27/15 16:12	1
Xylenes, Total	ND		1.0		ug/L			02/27/15 16:12	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			02/27/15 16:12	1
TBA	ND		20		ug/L			02/27/15 16:12	1
Ethanol	ND		500		ug/L			02/27/15 16:12	1
DIPE	ND		0.50		ug/L			02/27/15 16:12	1
TAME	ND		0.50		ug/L			02/27/15 16:12	1
Ethyl t-butyl ether	ND		0.50		ug/L			02/27/15 16:12	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		67 - 130		02/27/15 16:12	1
1,2-Dichloroethane-d4 (Surr)	104		72 - 130		02/27/15 16:12	1
Toluene-d8 (Surr)	101		70 - 130		02/27/15 16:12	1

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

Matrix: Water

Analysis Batch: 176738

Lab Sample ID: LCS 720-176738/6

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
MTBE	25.0	26.4		ug/L		106	62 - 130
Benzene	25.0	25.3		ug/L		101	79 _ 130
EDB	25.0	26.6		ug/L		106	70 - 130
1,2-DCA	25.0	25.6		ug/L		102	61 - 132
Ethylbenzene	25.0	25.2		ug/L		101	80 _ 120
Toluene	25.0	24.2		ug/L		97	78 _ 120
TBA	250	253		ug/L		101	70 - 130
Ethanol	1250	1470		ug/L		118	31 - 216
DIPE	25.0	27.4		ug/L		109	69 - 134
TAME	25.0	28.5		ug/L		114	79 - 130
Ethyl t-butyl ether	25.0	27.3		ug/L		109	70 - 130

LCS LCS

Surrogate	%Recovery Q	ualifier	Limits
4-Bromofluorobenzene	101		67 - 130
1,2-Dichloroethane-d4 (Surr)	98		72 - 130
Toluene-d8 (Surr)	103		70 - 130

Client Sample ID: Lab Control Sample

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Prep Type: Total/NA

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCS 720-176738/8

Matrix: Water

Analysis Batch: 176738

	Opino		LUU				/01100.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)	500	493		ug/L		99	58 - 120	
00.040								

100 100

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-C6-C12

LCS	LCS	
%Recovery	Qualifier	Limits
106		67 - 130
106		72 - 130
101		70 - 130
	%Recovery 106 106	106

Lab Sample ID: LCSD 720-176738/7 Client Sample ID: Lab Control Sample Dup **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 176738

Allalysis Datell. 170730									
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
MTBE	25.0	26.4		ug/L		106	62 - 130	0	20
Benzene	25.0	25.3		ug/L		101	79 - 130	0	20
EDB	25.0	26.3		ug/L		105	70 - 130	1	20
1,2-DCA	25.0	25.2		ug/L		101	61 - 132	1	20
Ethylbenzene	25.0	25.3		ug/L		101	80 - 120	0	20
Toluene	25.0	24.9		ug/L		100	78 - 120	3	20
TBA	250	257		ug/L		103	70 - 130	2	20
Ethanol	1250	1450		ug/L		116	31 - 216	1	30
DIPE	25.0	27.2		ug/L		109	69 - 134	1	20
TAME	25.0	28.3		ug/L		113	79 - 130	1	20
Ethyl t-butyl ether	25.0	26.9		ug/L		108	70 - 130	1	20

LCSD LCSD

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene	101	67 - 130
1,2-Dichloroethane-d4 (Surr)	100	72 - 130
Toluene-d8 (Surr)	102	70 - 130

Lab Sample ID: LCSD 720-176738/9

Matrix: Water

Analysis Batch: 176738

	Spike	e LCSD	LCSD			%Rec.		RPD
Analyte	Adde	d Result	Qualifier Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)	500	488	ug/L		98	58 - 120	1	20

-C6-C12

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	101		67 - 130
1,2-Dichloroethane-d4 (Surr)	102		72 - 130
Toluene-d8 (Surr)	101		70 - 130

TestAmerica Pleasanton

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

TestAmerica Job ID: 720-63235-1

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Lab Sample ID: MB 720-176882/5

Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Client Sample ID: Method Blank

Prep Type: Total/NA

Analysis Batch: 176882

MB	MB	

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			03/03/15 08:45	1
	МВ	МВ							
Curronata	9/ Bassyany	Ouglifier	Limita				Dronorod	Analyzad	Dil Ess

	МВ	МВ					
Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		67 - 130	_		03/03/15 08:45	1
1,2-Dichloroethane-d4 (Surr)	92		72 - 130			03/03/15 08:45	1
Toluene-d8 (Surr)	101		70 - 130			03/03/15 08:45	1

Lab Sample ID: LCS 720-176882/6 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 176882

	Бріке	LUS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methyl tert-butyl ether	25.0	26.3	-	ug/L		105	62 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	95		67 - 130
1,2-Dichloroethane-d4 (Surr)	93		72 - 130
Toluene-d8 (Surr)	102		70 - 130

Lab Sample ID: LCSD 720-176882/7 **Client Sample ID: Lab Control Sample Dup Matrix: Water** Prep Type: Total/NA

Analysis Batch: 176882

	Spike	LCSD	LCSD				%Rec.		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Methyl tert-butyl ether	25.0	25.8		ua/L		103	62 _ 130	2	20	

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	94		67 - 130
1,2-Dichloroethane-d4 (Surr)	93		72 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: MB 720-176934/4 **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA

Analysis Batch: 176934

MB	ME

	IVID	IVID							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	ND		0.50		ug/L			03/03/15 18:17	1
Benzene	ND		0.50		ug/L			03/03/15 18:17	1
EDB	ND		0.50		ug/L			03/03/15 18:17	1
1,2-DCA	ND		0.50		ug/L			03/03/15 18:17	1
Ethylbenzene	ND		0.50		ug/L			03/03/15 18:17	1
Toluene	ND		0.50		ug/L			03/03/15 18:17	1
Xylenes, Total	ND		1.0		ug/L			03/03/15 18:17	1
Gasoline Range Organics (GRO)	ND		50		ug/L			03/03/15 18:17	1
-C6-C12	ND		22		- //			00/00/45 40 47	
TBA	ND		20		ug/L			03/03/15 18:17	1
Ethanol	ND		500		ug/L			03/03/15 18:17	1

TestAmerica Pleasanton

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: MB 720-176934/4

Matrix: Water

Analysis Batch: 176934

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

	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIPE	ND		0.50		ug/L			03/03/15 18:17	1
TAME	ND		0.50		ug/L			03/03/15 18:17	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/03/15 18:17	1

MB MB Dil Fac Surrogate %Recovery Qualifier Limits Prepared Analyzed 4-Bromofluorobenzene 95 67 - 130 03/03/15 18:17 1,2-Dichloroethane-d4 (Surr) 94 72 - 130 03/03/15 18:17 Toluene-d8 (Surr) 101 70 - 130 03/03/15 18:17

Lab Sample ID: LCS 720-176934/5

Matrix: Water

Analysis Batch: 176934

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

-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
MTBE	25.0	25.7		ug/L		103	62 - 130	
Benzene	25.0	25.1		ug/L		100	79 - 130	
EDB	25.0	28.5		ug/L		114	70 - 130	
1,2-DCA	25.0	24.0		ug/L		96	61 - 132	
Ethylbenzene	25.0	25.1		ug/L		100	80 - 120	
Toluene	25.0	24.7		ug/L		99	78 - 120	
TBA	250	257		ug/L		103	70 - 130	
Ethanol	1250	1380		ug/L		110	31 _ 216	
DIPE	25.0	23.0		ug/L		92	69 - 134	
TAME	25.0	27.1		ug/L		108	79 _ 130	
Ethyl t-butyl ether	25.0	25.1		ug/L		100	70 - 130	

	LCS LCS	5
Surrogate	%Recovery Qua	alifier Limits
4-Bromofluorobenzene	95	67 - 130
1,2-Dichloroethane-d4 (Surr)	92	72 - 130
Toluene-d8 (Surr)	101	70 - 130

Lab Sample ID: LCS 720-176934/8

Matrix: Water

-C6-C12

Analysis Batch: 176934

D: LCS 720-176934/8	Client Sample ID: Lab Control Sample
	Prep Type: Total/NA
L 470004	

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits 500 488 98 58 - 120 ug/L Gasoline Range Organics (GRO)

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	94		67 - 130
1,2-Dichloroethane-d4 (Surr)	92		72 - 130
Toluene-d8 (Surr)	100		70 - 130

TestAmerica Pleasanton

3/6/2015

TestAmerica Job ID: 720-63235-1

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCSD 720-176934/6 Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Matrix: Water

Analysis Batch: 176934

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
MTBE	25.0	25.4		ug/L		101	62 - 130	1	20
Benzene	25.0	24.7		ug/L		99	79 - 130	1	20
EDB	25.0	28.3		ug/L		113	70 - 130	1	20
1,2-DCA	25.0	23.7		ug/L		95	61 - 132	1	20
Ethylbenzene	25.0	25.1		ug/L		100	80 - 120	0	20
Toluene	25.0	24.6		ug/L		98	78 - 120	0	20
TBA	250	254		ug/L		101	70 - 130	1	20
Ethanol	1250	1360		ug/L		109	31 - 216	1	30
DIPE	25.0	22.6		ug/L		91	69 - 134	1	20
TAME	25.0	27.0		ug/L		108	79 - 130	0	20
Ethyl t-butyl ether	25.0	25.0		ug/L		100	70 - 130	0	20

LCSD LCSD %Recovery Qualifier Limits Surrogate 4-Bromofluorobenzene 93 67 - 130 72 - 130 92 1,2-Dichloroethane-d4 (Surr) Toluene-d8 (Surr) 101 70 - 130

Lab Sample ID: LCSD 720-176934/9

Matrix: Water

Analysis Batch: 176934

	S	oike	LCSD	LCSD				%Rec.		RPD
Analyte	Ac	ded	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)		500	503		ug/L		101	58 - 120	3	20
-C6-C12										

	LCSD LCS	D
Surrogate	%Recovery Qua	lifier Limits
4-Bromofluorobenzene	93	67 - 130
1,2-Dichloroethane-d4 (Surr)	90	72 - 130
Toluene-d8 (Surr)	101	70 - 130

QC Association Summary

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

GC/MS VOA

Analysis Batch: 176738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-63235-5	AR-1	Total/NA	Water	8260B/CA_LUFT	
				MS	
720-63235-6	AR-3	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCS 720-176738/6	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCS 720-176738/8	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCSD 720-176738/7	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCSD 720-176738/9	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT	
				MS	
MB 720-176738/5	Method Blank	Total/NA	Water	8260B/CA_LUFT	
				MS	

Analysis Batch: 176882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-63235-1	A-3	Total/NA	Water	8260B/CA_LUFT	
				MS	
720-63235-3	A-5	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCS 720-176882/6	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCSD 720-176882/7	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT	
				MS	
MB 720-176882/5	Method Blank	Total/NA	Water	8260B/CA_LUFT	
				MS	

Analysis Batch: 176934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-63235-2	A-4	Total/NA	Water	8260B/CA_LUFT	
				MS	
720-63235-4	A-8	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCS 720-176934/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCS 720-176934/8	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCSD 720-176934/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT	
				MS	
LCSD 720-176934/9	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT	
				MS	
MB 720-176934/4	Method Blank	Total/NA	Water	8260B/CA_LUFT	
				MS	

TestAmerica Pleasanton

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Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Lab Sample ID: 720-63235-1

Matrix: Water

Matrix: Water

Matrix: Water

Matrix: Water

Date Collected: 02/27/15 09:05 Date Received: 02/27/15 12:25

Client Sample ID: A-3

Batch Dilution Batch Batch Prepared **Prep Type** Type Method Run Factor Number or Analyzed Analyst Lab Total/NA 8260B/CA LUFTMS 176882 03/03/15 13:30 PDR TAL PLS Analysis

Lab Sample ID: 720-63235-2

Client Sample ID: A-4 Date Collected: 02/27/15 10:35 **Matrix: Water**

Date Received: 02/27/15 12:25

Batch Batch Dilution Batch Prepared Method Type Run Factor Number or Analyzed **Prep Type** Analyst Lab Total/NA 8260B/CA_LUFTMS 176934 PDR TAL PLS Analysis 03/03/15 23:52

Client Sample ID: A-5 Lab Sample ID: 720-63235-3

Date Collected: 02/27/15 10:10 Date Received: 02/27/15 12:25

Batch Batch Dilution Batch Prepared Prep Type Туре Method Factor Number or Analyzed Run Analyst 176882 Total/NA Analysis 8260B/CA LUFTMS 03/03/15 13:58 PDR TAL PLS

Lab Sample ID: 720-63235-4 Client Sample ID: A-8

Date Collected: 02/27/15 09:45 Date Received: 02/27/15 12:25

Batch Dilution Batch Prepared Туре Method Factor Number or Analyzed Run Analyst Lab

Prep Type Total/NA Analysis 8260B/CA_LUFTMS 176934 03/04/15 00:20 PDR TAL PLS

Client Sample ID: AR-1 Lab Sample ID: 720-63235-5

Date Collected: 02/27/15 10:20 Date Received: 02/27/15 12:25

Dilution Batch Batch Batch Prepared Prep Type Type Method Run Factor Number or Analyzed Analyst Lab

Analysis 8260B/CA LUFTMS 02/28/15 01:25 TAL PLS Total/NA 176738 ASC

Client Sample ID: AR-3 Lab Sample ID: 720-63235-6

Date Collected: 02/27/15 09:25 Matrix: Water Date Received: 02/27/15 12:25

Batch Batch Dilution Batch Prepared **Prep Type** Type Method Run Factor Number or Analyzed Analyst Lab Total/NA 8260B/CA_LUFTMS 176738 ASC TAL PLS Analysis 02/28/15 01:56

Laboratory References:

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

Certification Summary

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

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	01-31-16

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Method Summary

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

Method Description 8260B / CA LUFT MS TestAmerica Job ID: 720-63235-1

TAL PLS

Protocol	Laboratory

SW846

S

Method

Protocol References:

8260B/CA_LUFTM

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

Laboratory References:

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

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Sample Summary

Client: Broadbent & Associates, Inc. Project/Site: Arcadis 4931, Oakland

TestAmerica Job ID: 720-63235-1

	01: 10 1 15		0 11 / 1	
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-63235-1	A-3	Water	02/27/15 09:05	02/27/15 12:25
720-63235-2	A-4	Water	02/27/15 10:35	02/27/15 12:25
720-63235-3	A-5	Water	02/27/15 10:10	02/27/15 12:25
720-63235-4	A-8	Water	02/27/15 09:45	02/27/15 12:25
720-63235-5	AR-1	Water	02/27/15 10:20	02/27/15 12:25
720-63235-6	AR-3	Water	02/27/15 09:25	02/27/15 12:25

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Pleasanton, CA 94566

1220 Quarry Lane

720-63235

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING TO THE LEADER IN ENVIRONMENTAL TESTING THE LEADER IN THE LEADER

phone 925.484.1919 fax 925.600.3002																				TestAmerica Laboratories, Inc. !
Client Contact	Client Contact Project Manager: James Ramos		Site Contact/Sampler: Alex Martinez Date					Date:								COC No:				
CHEM Contact	1 Toject Ma	iager. vain	LS KRIMOS								Ť									of COCs
Broadbent & Associates, Inc.	Tel/Fax: 70%	7-455-7290	/ 707-863-90)46		Lab	Cont	act:	Dimp	e Sharma	Ca	rrier	<u> </u>		,					
4820 Business Center Drive, Suite 110		Analysis Tu	rnaround 7	ime			3						-							Job No.
Fairfield, CA 94534	-1		rk Days (W)				28	3			1									
Phone: 707-455-7290		T if different fr	om Below 🐧	tarche	L L		중 장				1									
Fax: 707-863-9046		2	weeks				& MTBE by 8260 EDB & 1.2-DCA									-				SDG No.
Project Name: Arcadis 4931		1	week				3 3		:			1								
731 W. Macarthur Blvd., Oakland, CA		2	days			اف	<u> </u>	l e												
P O # GP09BPNA.C110		1	day				Š 8	28	8260	8260								ŀ		
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Milered S.	GRO, BTEX & MITBE by 8260 5 Fuels Oxys, EDB & 1.2-DCA by 8260	Ethanol by 8260	GRO by 8	MTBE by										Sample Specific Notes:
A-3	2/27/2015	0905	GRAB	AQ	3	Π		T		Х										
A-4	2/27/2015	1035	GRAB	AQ	3	H	x x	x									1			-
A-5	2/27/2015	1010	GRAB	AQ	3	Ħ	\top		х	х	\top	+					\top			
A-8	2/27/2015	0945	GRAB	AQ	3		хх	x			\top	1					Ť			
AR-1	2/27/2015	1020	GRAB	AQ	3		хх	x			\top							 	+-	
-AR2	2/27/2015		CRAB	AQ-	_3_	H	x x	- x	+		\top								T	
AR-3	2/27/2015	0925	GRAB	AQ	3	П	хх	x			1									
TB-4931-02272015			_	AQ	2	T													1	On Hold
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						H	_	\top	П		\top	T	\dashv		П	-	720	-632	35 C	hain of Custody
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=Na	OU. 6- Otho	<u> </u>		1		Ч	+	+			+	+	\vdash \vdash	+						-
Possible Hazard Identification	aOD; 0- OHE	<u> </u>				ا-	Samo	le C)ispos	al (A fee	may	be a	ssess	ed if	samo	les an	e reta	ined I	onae	er than 1 month)
Non-Hazard Flammable Skin Irritant	Paison	$_{R}$	Unknown							Client			sposa		-			hive F	_	Months
Special Instructions:	1015011		Chatown					7 (0)	<i>ш,,,</i> , с	0.00112			оросс	.,, <u>.</u>			70	,,,,,,,	- -	,,,,,,,,,
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Relinquished by: Uley World	Company.	aci bev	*	Date/Ti	1/15	122		1	<u>تال</u>	zin	ألسأ	U	Comp	W	£,	<u>A_</u>	~			Date/Time: 2-27-15 /225
Relinquished by:	Company:			Date/Ti	me.	F	Receiv	ved b	ıy.				Comp	any.						Date/Time:
Relinquished by:	Company:			Date/Ti		-	Receiv						l							1

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 720-63235-1

Login Number: 63235 List Source: TestAmerica Pleasanton

List Number: 1

Creator: Gonzales, Justinn

oreator. Gonzales, Justimi		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	
s 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	
Containers requiring zero headspace have no headspace or bubble is 6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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GeoTracker ESI Page 1 of 1

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_REPORT FILE

SUCCESS

Your GEO_REPORT file has been successfully submitted!

GEO_REPORT **Submittal Type:**

Fourth Quarter 2014 and First Quarter 2015 Semi-Annual Groundwater Monitoring **Report Title:**

Report 041715

Report Type: Monitoring Report - Semi-Annually

Report Date: 4/17/2015 Facility Global ID: T0600100110 Facility Name: ARCO #04931

File Name: RO0000076_GWM_R_4Q1Q15_2015-0416.pdf

Organization Name: ARCADIS <u>Username:</u> **ARCADISBP** IP Address: 72.37.248.37

Submittal 4/17/2015 10:22:10 AM Date/Time:

Confirmation

6693534195 Number:

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