



**CONESTOGA-ROVERS  
& ASSOCIATES**

5900 Hollis Street, Suite A  
Emeryville, California 94608  
Telephone: (510) 420-0700 Fax: (510) 420-9170  
www.CRAworld.com

**TRANSMITTAL**

DATE: October 18, 2010 REFERENCE NO.: 540188  
PROJECT NAME: 1432 Harrison Street, Oakland  
TO: Mr. Jerry Wickham  
Alameda County Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

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QUANTITY	DESCRIPTION
1	Second 2010 Semi-Annual Groundwater Monitoring Report

As Requested  For Review and Comment  
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**COMMENTS:**

Should you have any questions regarding the content of this document, please contact Robert Foss at (510) 420-3348.

Copy to: Est. of A. Bacharach/Barbara Jean Borsuk  
c/o Mr. Mark Borsuk

Completed by: Robert Foss Signed: Robert Foss  
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With respect to:

*Groundwater Monitoring Report - SECOND 2010 SEMI-ANNUAL*

Dated OCTOBER 18, 2010

Fuel Leak Case No. **RO0000266**

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

*Barbara Jean Borsuk*

Estate of A. Bacharach/Barbara Jean Borsuk

10/24/10  
Date



# SECOND 2010 SEMI-ANNUAL GROUNDWATER MONITORING REPORT

ALLRIGHT PARKING  
1432 HARRISON STREET  
OAKLAND, CALIFORNIA

FUEL LEAK CASE NO. RO0000266

OCTOBER 18, 2010  
REF. NO. 540188 (9)

This report is printed on recycled paper.

**Prepared by:**  
**Conestoga-Rovers**  
**& Associates**

5900 Hollis Street, Suite A  
Emeryville, California  
U.S.A. 94608

Office: 510-420-0700  
Fax: 510-420-9170

web: <http://www.CRAworld.com>

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## 1.0 INTRODUCTION

On behalf of the Estate of A. Bacharach/Barbara Jean Borsuk, Conestoga-Rovers & Associates (CRA) has prepared this *Second 2010 Semi-Annual Groundwater Monitoring Report* for the site located at 1432 Harrison Street in Oakland, California (Figure 1). Presented in this report are the second 2010 semi-annual groundwater monitoring activities/results and activities anticipated for the first 2011 semi-annual event. Work is performed under the regulatory oversight of Alameda County Environmental Health (ACEH).

Figure 2 presents groundwater elevation contours calculated from depth to water measurements, and reported hydrocarbon concentrations from the September 7, 2010 field activities. Table 1 provides well construction details. Table 2 presents recent and historical depth to water measurements, analytical data and light non-aqueous phase liquid (LNAPL, previously referred to as SPH) observations and measurements. Appendix A contains field data sheets of this sampling event. Appendix B contains the CRA's *Standard Field Procedures for Groundwater Monitoring and Sampling*. Appendix C contains the laboratory analytical report of sample results and Appendix D contains benzene concentrations and depth to water time-series graphs.

## 1.1 SITE INFORMATION

<b>Site Address</b>	1432 Harrison Street, Oakland
<b>Site Use</b>	Parking Facility
<b>Client and Contact</b>	The Estate of A. Bacharach/ Barbara Jean Borsuk Contact: Mark Borsuk, Esq.
<b>Consultant and Contact Person</b>	CRA, Robert Foss, P.G.
<b>Lead Agency and Contact Person</b>	ACEH, Jerry Wickham, P.G.

## 2.0 SITE ACTIVITIES AND RESULTS

### 2.1 CURRENT MONITORING/SAMPLING EVENT ACTIVITIES

#### 2.1.1 FIELD ACTIVITIES

CRA coordinated with Muskan Environmental Sampling (MES) to conduct monitoring and sampling activities on September 7, 2010. MES measured depth to water and inspected each well for the presence of separate-phase hydrocarbons (SPH). During well purging prior to sample collection, SPH was observed entering the well casing of MW-2, and accumulated to an approximate thickness of 0.29 feet. Groundwater samples were collected from wells MW-4 and MW-5. Similar to the First Half 2010 event, there was insufficient water available in well MW-1 to measure or to collect a groundwater sample. Groundwater monitoring field data sheets are included in Appendix A and groundwater monitoring data have been uploaded to the GeoTracker database. Field activities were conducted in accordance with CRA's *Standard Field Procedures for Groundwater Monitoring and Sampling*, included as Appendix B.

Prior to sampling, groundwater levels were measured and each well was purged by placing the intake tube of a clean peristaltic pump approximately 1 foot below the initial water level. Depth of groundwater was again measured prior to low-flow purging, during purging, at termination of purging, and immediately prior to sample collection. Temperature, pH, specific conductance, oxygen reduction potential (ORP) and dissolved oxygen (DO) were measured initially and at regular volume intervals. Well purging continued until consecutive pH, specific conductance and temperature measurements were relatively stable. Field measurements, purge volumes and sample collection data were recorded on field sampling data forms, presented in Appendix A.

Groundwater samples were collected from each well using a clean peristaltic pump. The samples were collected in 40-milliliter (mL) glass volatile organic analysis (VOA) vials and 1-liter amber glass containers supplied by McCampbell Analytical, Inc. (McCampbell) of Pittsburg, California. Sample containers were labeled, sealed in a plastic bag, and placed on ice in a chilled cooler. Field water quality measurements, purge volumes, and sample collection data were recorded on field sampling data sheets. The COC used for this monitoring event is provided in Appendix C.

To minimize the potential for cross-contamination, the groundwater monitoring equipment was decontaminated prior to being deployed in the first monitoring well and between successive wells. The probe of the well sounder used for water level measurements was rinsed thoroughly with distilled water prior to its first use and

between subsequent water level measurements. The tubing for the peristaltic pump was discarded after use at each well.

### **2.1.2 SAMPLE ANALYSIS**

Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene and xylenes (BTEX) by modified EPA Method 8015/8021, and methyl tertiary butyl ether (MTBE) by EPA Method 8260. All analyses were performed by McCampbell. The laboratory analytical report is included as Appendix C. Hydrocarbon concentrations are summarized on Figure 2 and presented in Table 2. The analytical data were submitted to the GeoTracker database.

### **2.2 CURRENT MONITORING/SAMPLING EVENT RESULTS**

<b>Groundwater Flow Direction</b>	Northeast
<b>Hydraulic Gradient</b>	0.003
<b>Range of Depth to Water Measurements From Top of Casing</b>	19.43 to 20.78 feet
<b>Presence of Measureable Light Non-Aqueous Phase Liquid (LNAPL)?</b>	Yes

#### **2.2.1 GROUNDWATER FLOW DIRECTION**

Based on depth-to-water measurements from the September 7, 2010 site visit, the calculated flow direction of groundwater beneath the site is toward the north at an approximate gradient of 0.003. This flow direction and gradient are generally consistent with conditions observed during previous monitoring events. Groundwater elevation data are summarized on Figure 2 and presented in Table 2.

#### **2.2.2 HYDROCARBON DISTRIBUTION IN GROUNDWATER**

Hydrocarbon concentrations were detected in wells MW-4 and MW-5, and are assumed to be at saturation levels in well MW-2 based to the presence of LNAPL. TPHg concentrations were detected at 320 micrograms per liter ( $\mu\text{g/L}$ ) in well MW-4 and 35,000  $\mu\text{g/L}$  in well MW-5. Benzene, toluene, ethylbenzene and xylenes were detected



in well MW-4 at concentrations of 11, 0.83 and 2.4 and 2.0 µg/L, respectively. Benzene, toluene, ethylbenzene, and xylenes were detected in well MW-5 at concentrations of 12,000, 160, 970 and 2,900 µg/L, respectively. No MTBE was detected above detection limits of 0.5 µg/L (MW-4) and 25 µg/L (MW-5). Table 2 documents dissolved hydrocarbon concentrations and Appendix D contains benzene concentration trend graphs for wells MW-1 through MW-6. The un-shaded symbols on the graphs represent results below laboratory detection limits.

### **2.3 REDEVELOPMENT OF WELL MW-1**

CRA contracted Gregg Drilling (Gregg) to redevelop well MW-1 on September 24, 2010. Prior to well development, well MW-1 was tagged at a total depth of 20.3 feet. The redevelopment of well MW-1 consisted of the introduction of water ranging from 4 to 8 gallons followed by surging of the well for approximately 15 minutes followed by the bailing to remove water, sands, silts, and clays from the well casing. During well redevelopment activities, sheen was observed in bailed water. The well was surged and bailed for a total of seven well case volumes. At the completion of well redevelopment, well MW-1 was measured with a total depth of 25.6 feet (hard bottom). Well redevelopment notes are included, along with the September 7 field data sheets, in Appendix A.

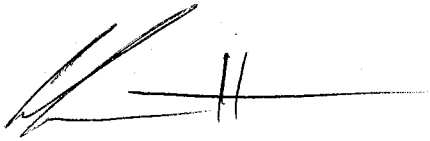
### **2.4 PROPOSED ACTIVITIES FOR THE FIRST 2011 SEMI-ANNUAL GROUNDWATER MONITORING/SAMPLING EVENT**

#### **2.4.1 MONITORING ACTIVITIES**

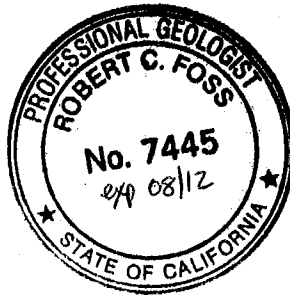
Groundwater monitoring and sampling will occur in March 2011. All wells will be gauged and sampled during the first quarter 2011 event. Upon approval of the Additional Site Characterization Workplan, submitted to ACEH on September 28, 2010, CRA will implement the scope of work that includes the installation of one monitoring well, two soil boring, and four soil vapor probes along Harrison Street. CRA will contract MES to perform monitoring and sampling activities. MES will gauge depth to water and check each well for accumulations of LNAPL. Groundwater samples will be collected from wells not containing LNAPL. Groundwater samples will be analyzed for TPHg and BTEX by Modified EPA Method 8015/8021 and MTBE by EPA Method 8260B. If another laboratory is selected to analyze the next round of samples, TPHg, BTEX, and MTBE would be analyzed using EPA Method 8260. Groundwater monitoring and sampling results will be uploaded to the State's GeoTracker database.

CRA will summarize groundwater monitoring activities and results in the First 2011 *Semi-Annual Groundwater Monitoring Report*.

All of Which is Respectfully Submitted,  
CONESTOGA-ROVERS & ASSOCIATES



Calvin Hee



Robert Foss, P.G.

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## FIGURES





FIGURE  
**1**

H:\SB-2004\OAK188\FIGURES\VICINITY.MAP.A1

**Allright Parking**  
1432 Harrison Street  
Oakland, California



**CONESTOGA-ROVERS  
& ASSOCIATES**

**Vicinity Map**





## TABLES

**WELL CONSTRUCTION DETAILS  
ALLRIGHT PARKING  
1432 HARRISON STREET  
OAKLAND, CALIFORNIA**

<i>Well No.</i>	<i>Installation Date</i>	<i>Total Depth (ft-bgs)</i>	<i>Boring Diameter (inch)</i>	<i>Well Diameter (inch)</i>	<i>Screen Size (inch)</i>	<i>Screened Interval (ft-bgs)</i>	<i>Sand Pack Interval (ft-bgs)</i>	<i>Surface Seal (ft-bgs)</i>	<i>TOC Elevation (ft-msl)</i>
MW-1	1/12/1994	27	12	4	0.020	16-26.5	14.5-27	0-14.5	35.37
MW-2	7/30/1994	26		2	0.010	11-26	9-26	0-9	35.21
MW-3	7/30/1994	25		2	0.010	15-25	13-25	0-13	34.01
MW-4	10/2/1996	25	8	2	0.010	15-25	13-25	0-13	33.75
MW-5	10/2/1996	30	8	2	0.010	14-29	12-30	0-12	34.63
MW-6	10/2/1996	30.5	8	2	0.010	14-29	30-Dec	0-12	35.89
VES-1 (VE)	7/23/1999	30	8	3	0.020	5-20	4.5-20	0-5	--
VES-1 (AS)				1	0.020	28-30	27.5-30	0-27.5	--
VES-2 (VE)	7/22/1999	29.5	8	3	0.020	5-20	4-20	0-4	--
VES-2 (AS)				1	0.020	27.5-29.5	27-29.5	0-27	--
VES-3 (VE)	7/23/1999	30	8	3	0.020	5-20	4-20	0-4	--
VES-3 (AS)				1	0.020	28-30	25-30	0-25	--
VES-4 (VE)	7/23/1999	29	8	3	0.020	5-20	4-20	0-4	--
VES-4 (AS)				1	0.020	27-29	26.5-28.5	0-26.5	--
SV-3	8/31/2009	5.5	3	1/4	probe	4.8-5.3	4.5-5.5	0.5-4.5	--
SV-4	8/31/2009	5.75	3	1/4	probe	4.8-5.3	4.5-5.75	0.5-4.5	--
SV-5	8/31/2009	5.5	3	1/4	probe	4.8-5.3	4.5-5.5	0.5-4.5	--
SV-6	8/31/2009	5.5	3	1/4	probe	4.8-5.3	4.5-5.5	0.5-4.5	--
SV-7	8/31/2009	5.75	3	1/4	probe	4.8-5.3	4.5-5.75	0.5-4.5	--
SV-8	8/31/2009	5.5	3	1/4	probe	4.8-5.3	4.5-5.5	0.5-4.5	--

Notes:

ft-bgs Feet below ground surface  
ft-msl Feet above mean sea level  
-- Not surveyed  
VE Vapor extraction  
AS Air sparge  
SV Soil Vapor Well



GROUNDWATER ELEVATION AND ANALYTICAL DATA  
 ALLRIGHT PARKING  
 1432 HARRISON STREET  
 OAKLAND, CALIFORNIA

Well ID Sample ID TOC (ft amsl)	Date	Depth to Groundwater (ft below TOC)	LNAPL Thickness (feet)	TOC Groundwater Elevation (ft amsl)	TPHg	Benzene	Toluene	Ethylbenzene (µg/L)	Xylenes	MTBE	Notes
<b>Monitoring Well Sample Results:</b>											
MW-1	8/1/1994	--	--	--	170,000	35,000	51,000	2,400	13,000	--	--
34.95	12/21/1994	19.53	--	15.42	180,000	41,000	64,000	3,100	100,000	--	--
	3/13/1995	18.66	--	16.29	150,000	31,000	45,000	2,500	17,000	--	--
	6/27/1995	18.20	--	16.75	71,000	17,000	18,000	1,600	7,700	--	--
	7/7/1995	18.35	--	16.60	71,000	17,000	18,000	1,600	7,700	--	--
	9/28/1995	18.20	--	16.75	110,000	27,000	34,000	1,700	14,000	--	--
	12/20/1995	19.96	--	14.99	120,000	33,000	43,000	2,300	15,000	--	--
	3/26/1996	19.27	--	15.68	140,000	29,000	36,000	1,900	13,000	<200*	d
	6/20/1996	18.64	--	16.31	110,000	30,000	38,000	2,200	13,000	<200*	--
	9/26/1996	19.35	--	15.60	170,000	28,000	40,000	2,200	15,000	ND**	--
	10/28/1996	19.58	--	15.37	--	--	--	--	--	--	--
	12/12/1996	19.68	--	15.27	110,000	36,000	47,000	2,500	16,000	ND*	--
	3/31/1997	18.80	--	16.15	160,000	24,000	39,000	1,900	13,000	ND*	--
	6/27/1997	19.26	--	15.69	130,000	25,000	36,000	2,000	14,000	ND*	--
	9/9/1997	19.70	--	15.25	99,000	22,000	27,000	1,600	13,000	270*	--
	12/18/1997	19.25	--	15.70	160,000	30,000	44,000	2,200	15,000	ND***	--
	3/12/1998	17.52	--	17.43	190,000	20,000	49,000	2,500	18,000	ND***	--
	6/22/1998	18.63	--	16.32	90,000	19,000	40,000	2,100	16,000	--	--
	9/18/1998	18.60	--	16.35	190,000	29,000	48,000	2,400	17,000	--	--
	12/23/1998	19.18	--	15.77	140,000	24,000	44,000	2,000	8,200	--	--
	3/29/1999	18.52	--	16.43	181,000	22,200	40,100	1,844	12,200	--	--
	6/23/1999	18.60	--	16.35	80,000	20,000	33,000	1,600	11,000	--	--
	9/24/1999	19.05	--	15.90	117,000	15,100	20,700	1,550	11,800	--	--
	12/23/1999	19.95	--	15.00	186,000	25,900	39,000	1,990	12,400	--	--
	3/21/2000	18.48	--	16.47	210,000	35,000	42,000	2,200	13,000	<3,000	a
	7/3/2000	18.95	--	16.00	200,000	33,000	46,000	2,200	15,000	<200*	a
	9/7/2000	19.45	Sheen <sup>Field</sup>	15.50	--	--	--	--	--	--	--
	12/5/2000	19.90	--	15.05	220,000	42,000	57,000	2,700	17,000	<200	a
	3/6/2001	18.20	--	16.75	180,000	27,000	39,000	2,000	13,000	<1200* / <20***	a,l
	6/8/2001	20.14	--	14.81	170,000	28,000	40,000	1,900	13,000	<200	a
	8/27/2001	21.19	--	13.76	130,000	24,000	33,000	1,600	11,000	<350	a
	10/25/2001	21.74	--	13.21	160,000	22,000	28,000	1,500	10,000	<350	a
	3/1/2002	21.39	0.41	13.84 <sup>x</sup>	--	--	--	--	--	--	--
	6/10/2002	22.30	--	12.65	210,000	30,000	51,000	3,100	22,000	<1,000*	a
34.96	9/3/2002	21.40	--	13.56	2,500,000	31,000	170,000	29,000	170,000	2,500,000*	a
	12/22/2002	20.50	--	14.46	89,000	2,600	9,300	530	28,000	<1,700	a,m
	1/23/2003	18.57	Sheen <sup>Lab</sup>	16.39	130,000	600	1,600	<100	41,000	<50***	a,b,l
	6/12/2003	19.10	0.07	15.91 <sup>x</sup>	--	--	--	--	--	--	--
	7/23/2003	19.42	0.07	15.59 <sup>x</sup>	--	--	--	--	--	--	--
35.37#	12/22/2003	17.09	0.01	18.29 <sup>x</sup>	--	--	--	--	--	--	--
	3/10/2004	13.82	--	21.55	22,000	190	250	<10	5,100	<100	a,c
	6/16/2004	14.75	--	20.62	2,700	23	160	13	520	<25	a
	9/27/2004	18.02	Sheen <sup>Field</sup>	17.35	27,000	580	2,000	56	6,800	<10***	a,m
	12/22/2004	11.25	--	24.12	250	3.5	18	<0.5	47	<0.5***	a,m
	3/3/2005	14.42	--	20.95	320	5.2	13	3.2	46	<5.0	a
34.96##	6/9/2005	17.80	--	17.16	--	--	--	--	--	--	+
	9/9/2005	18.26	--	16.70	--	--	--	--	--	--	+
	12/20/2005	18.68	--	16.28	--	--	--	--	--	--	+
	3/26/2006	16.96	--	18.00	23,000	270	400	65	4,400	<50	a
	6/23/2006	17.55	--	17.41	30,000	340	680	170	6,900	<500	a,m
	9/7/2006	18.53	--	16.43	34,000	540	630	190	7,000	<500	a
	12/29/2006	19.43	Sheen <sup>Field</sup>	15.53	20,000	550	55	130	4,700	<100* / <0.5***	a,m
	3/21/2007	18.92	Sheen <sup>Field</sup>	16.04	23,000	910	210	140	5,900	<250*	a
	6/7/2007	19.22	Sheen <sup>Field</sup>	15.74	24,000	680	61	190	4,300	<100*	a,b
	9/28/2007	20.19	--	14.77	--	--	--	--	--	--	+
	12/9/2007	20.40	--	14.56	--	--	--	--	--	--	+
	3/3/2008	19.16	Sheen <sup>Lab</sup>	15.80	10,000	510	28	<10	1,700	<2.5***	a,b,m,l

GROUNDWATER ELEVATION AND ANALYTICAL DATA  
 ALLRIGHT PARKING  
 1432 HARRISON STREET  
 OAKLAND, CALIFORNIA

Well ID Sample ID TOC (ft amsl)	Date	Depth to Groundwater (ft below TOC)	LNAPL Thickness (feet)	TOC Groundwater Elevation (ft amsl)	TPHg	Benzene	Toluene	Ethylbenzene (µg/L)	Xylenes	MTBE	Notes
MW-1 cont.	6/4/2008	20.05	--	14.91	--	--	--	--	--	--	--
	9/9/2008	20.40	--	14.56	--	--	--	--	--	--	--
	12/5/2008	20.42	--	14.54	--	--	--	--	--	--	--
	3/2/2009	20.39	--	14.57	--	--	--	--	--	--	--
	9/15/2009	Well Dry	--	--	--	--	--	--	--	--	--
	3/1/2010	Well Dry	--	--	--	--	--	--	--	--	--
	<b>9/7/2010</b>	<b>Well Dry</b>	--	--	--	--	--	--	--	--	--
MW-2 35.18	8/1/1994	--	--	--	130,000	28,000	35,000	3,000	12,000	--	--
	12/21/1994	19.91	--	15.27	200	140,000	200,000	3,500	22,000	--	--
	3/13/1995	19.15	--	16.03	500	9,200	23,000	7,000	36,000	--	--
	6/27/1995	18.74	--	16.44	120,000	23,000	30,000	2,700	13,000	--	--
	7/7/1995	18.80	--	16.38	120,000	23,000	30,000	2,700	13,000	--	--
	9/28/1995	19.30	--	15.88	110,000	23,000	29,000	2,500	11,000	--	--
	12/20/1995	20.24	--	14.94	83,000	980	1,800	2,200	10,000	--	--
	3/26/1996	19.69	--	15.49	150,000	23,000	32,000	2,800	12,000	<200*	d
	6/20/1996	19.20	--	15.98	94,000	15,000	23,000	2,400	12,000	<200*	--
	9/26/1996	19.80	--	15.38	150,000	20,000	29,000	2,800	12,000	ND**	--
	10/28/1996	20.18	--	15.00	--	--	--	--	--	--	--
	12/12/1996	20.17	--	15.01	58,000	3,100	11,000	1,700	8,100	220*	--
	3/31/1997	19.67	--	15.51	38,000	6,000	7,900	690	3,300	ND*	--
	6/27/1997	19.68	--	15.50	62,000	13,000	16,000	1,300	6,000	ND*	--
	9/9/1997	20.20	--	14.98	81,000	16,000	18,000	1,800	8,600	ND***	--
	12/18/1997	19.80	--	15.38	110,000	18,000	26,000	2,200	9,500	ND***	--
	3/12/1998	18.07	--	17.11	120,000	16,000	26,000	2,200	9,400	ND***	--
	6/22/1998	18.29	--	16.89	38,000	9,800	9,500	1,500	6,000	--	--
	9/18/1998	19.09	--	16.09	68,000	12,000	16,000	1,400	5,900	--	--
	12/23/1998	19.67	--	15.51	180,000	16,000	22,000	2,200	8,300	--	--
	3/29/1999	18.97	--	16.21	16,600	1,380	1,920	373	1,840	--	--
	6/23/1999	18.25	--	16.93	41,000	10,000	9,400	1,100	5,000	--	--
	9/24/1999	19.60	--	15.58	40,600	4,880	3,490	1,090	4,560	--	--
	12/23/1999	20.21	--	14.97	61,900	6,710	9,320	1,150	5,360	--	--
	3/21/2000	18.93	--	16.25	98,000	14,000	21,000	1,600	6,900	<1600	a
	7/3/2000	19.38	--	15.80	140,000	18,000	33,000	2,600	11,000	<200*	a
	9/7/2000	19.83	--	15.35	110,000	17,000	21,000	2,200	9,700	<100***	a,l
	12/5/2000	20.30	--	14.88	130,000	19,000	28,000	2,500	11,000	<200	a
	3/6/2001	19.57	--	15.61	32,000	3,400	3,400	580	2,500	<200	a
	6/8/2001	20.59	--	14.59	72,000	9,400	9,200	1,300	5,800	<200	a
	8/27/2001	21.79	--	13.39	110,000	17,000	28,000	2,600	11,000	<950	a
	10/25/2001	22.05	--	13.13	110,000	15,000	18,000	2,000	8,700	<350	a
	3/1/2002	21.80	--	13.38	3,100	370	180	62	330	<5.0*	a
	6/10/2002	22.83	--	12.35	7,800	2,000	1,100	76	570	<100*	a
35.21	9/3/2002	22.03	--	13.18	21,000	2,400	2,900	320	1,400	<500	a
	12/22/2002	22.70	--	12.51	630	48	56	19	82	<5.0	a
	1/23/2003	20.49	--	14.72	1,100	27	32	19	150	<25	a
	6/12/2003	21.03	--	14.18	10,000	2,100	1,600	150	660	<250	a
	7/23/2003	21.40	--	13.81	28,000	4,800	4,800	380	1,700	<500	a
	12/22/2003	19.33	--	15.88	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	3/10/2004	19.33	--	15.88	3,100	460	290	38	240	<50	a
	6/16/2004	19.90	--	15.31	9,100	1,600	1,200	220	830	<400	a
	9/27/2004	22.08	--	13.13	14,000	2,800	490	340	1,600	<350	a
	12/22/2004	21.74	--	13.47	1,100	300	28	22	71	<15	a
	3/3/2005	19.60	--	15.61	340	12	4.4	9.1	28	<10	a
	6/9/2005	18.65	--	16.56	240	22	2.7	6.4	27	<10	a
	9/9/2005	19.27	--	15.94	7,800	1,100	170	380	690	<160	a
	12/20/2005	19.70	--	15.51	150	10	1.9	2.8	10	<5.0	a
	3/26/2006	18.51	--	16.70	2,200	93	19	66	130	<50	a
	6/23/2006	18.47	--	16.74	8,800	1,600	110	500	480	<500	a,m

GROUNDWATER ELEVATION AND ANALYTICAL DATA  
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Well ID Sample ID TOC (ft amsl)	Date	Depth to Groundwater (ft below TOC)	LNAPL Thickness (feet)	TOC Groundwater Elevation (ft amsl)	TPHg	Benzene	Toluene	Ethylbenzene (µg/L)	Xylenes	MTBE	Notes		
												←-----	
MW-2 cont.	9/7/2006	18.97	--	16.24	29,000	4,800	280	940	1,000	<500	a		
	12/29/2006	19.76	--	15.45	4,500	720	54	250	480	75 <sup>a1</sup> / $<0.5^{***}$	a		
	3/21/2007	19.59	--	15.62	34,000	9,100	500	890	2,500	<1,100*	a		
	6/7/2007	19.74	Sheen <sup>Lab</sup>	15.47	46,000	7,100	410	870	2,400	<800*	a,b		
	9/28/2007	20.23	--	14.98	44,000	9,400	630	1,400	3,600	<0.5***	a		
	12/9/2007	20.68	--	14.53	37,000	8,400	550	1,400	4,500	<17***	a,l		
	3/3/2008	20.11	--	15.10	40,000	7,700	490	1,400	4,400	<17***	a,l		
	6/4/2008	20.40	--	14.81	56,000	7,400	600	1,500	4,100	<25***	a,j		
	9/9/2008	20.85	--	14.36	65,000	7,800	510	1,700	4,700	<25***	a,l		
	12/5/2008	←----- Well Inaccessible -----→											
	3/2/2009	←----- Well Inaccessible -----→											
	9/15/2009	21.22	--	13.99	48,000	6,400	600	1,900	2,800	<2.5***	a,l		
	3/1/2010	21.00	0.22	14.39	←----- SPH Observed During Purging -----→								--
	9/7/2010	20.71	0.29	14.73	←----- SPH Observed During Purging -----→								--
	MW-3 33.97	8/1/1994	--	--	--	<50	<0.5	<0.5	<0.5	<2.0	--	--	
12/21/1994		18.82	--	15.15	<50	<0.5	<0.5	<0.5	<0.5	--	--		
3/13/1995		17.86	--	16.11	<50	<0.5	<0.5	<0.5	<0.5	--	e		
7/7/1995		18.25	--	15.72	--	--	--	--	--	--	f,g		
9/28/1995		18.00	--	15.97	--	--	--	--	--	--	h		
12/20/1995		18.74	--	15.23	--	--	--	--	--	--	--		
3/26/1996		18.25	--	15.72	--	--	--	--	--	--	--		
6/20/1996		18.35	--	15.62	--	--	--	--	--	--	--		
9/26/1996		19.12	--	14.85	--	--	--	--	--	--	--		
10/28/1996		19.11	--	14.86	--	--	--	--	--	--	--		
12/12/1996		18.61	--	15.36	--	--	--	--	--	--	--		
3/31/1997		18.35	--	15.62	--	--	--	--	--	--	--		
6/27/1997		18.81	--	15.16	--	--	--	--	--	--	--		
9/9/1997		19.18	--	14.79	--	--	--	--	--	--	--		
12/18/1997		18.64	--	15.33	--	--	--	--	--	--	--		
3/12/1998		17.56	--	16.41	--	--	--	--	--	--	--		
6/22/1998		18.64	--	15.33	--	--	--	--	--	--	--		
9/18/1998		18.33	--	15.64	--	--	--	--	--	--	--		
12/23/1998		18.60	--	15.37	--	--	--	--	--	--	--		
3/29/1999		17.85	--	16.12	--	--	--	--	--	--	--		
6/23/1999		18.67	--	15.30	--	--	--	--	--	--	--		
9/24/1999		18.64	--	15.33	--	--	--	--	--	--	--		
12/23/1999		19.32	--	14.65	--	--	--	--	--	--	--		
3/21/2000		17.89	--	16.08	--	--	--	--	--	--	--		
7/3/2000		18.40	--	15.57	--	--	--	--	--	--	--		
9/7/2000	18.75	--	15.22	--	--	--	--	--	--	--			
34.01	12/5/2000	19.03	--	14.94	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	3/6/2001	18.12	--	15.85	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	6/8/2001	20.02	--	13.95	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	8/27/2001	21.09	--	12.88	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	10/25/2001	21.29	--	12.68	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	3/1/2002	21.14	--	12.83	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	--		
	6/10/2002	21.99	--	11.98	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	--		
	9/3/2002	21.17	--	12.84	--	--	--	--	--	--	--		
	12/22/2002	21.94	--	12.07	--	--	--	--	--	--	--		
	1/23/2003	20.08	--	13.93	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	6/12/2003	20.95	--	13.06	--	--	--	--	--	--	--		
	7/23/2003	21.28	--	12.73	--	--	--	--	--	--	--		
	12/22/2003	19.05	--	14.96	--	--	--	--	--	--	--		
	3/10/2004	18.22	--	15.79	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--		
	6/16/2004	18.82	--	15.19	--	--	--	--	--	--	--		
9/27/2004	21.03	--	12.98	--	--	--	--	--	--	--			
12/22/2004	20.69	--	13.32	--	--	--	--	--	--	--			

GROUNDWATER ELEVATION AND ANALYTICAL DATA  
 ALLRIGHT PARKING  
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Well ID Sample ID TOC (ft amsl)	Date	Depth to Groundwater (ft below TOC)	LNAPL Thickness (feet)	TOC Groundwater Elevation (ft amsl)	TPHg	Benzene	Toluene	Ethylbenzene (µg/L)	Xylenes	MTBE	Notes
MW-3 cont.	3/3/2005	17.94	--	16.07	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/9/2005	18.00	--	16.01	--	--	--	--	--	--	--
	9/9/2005	18.43	--	15.58	--	--	--	--	--	--	--
	12/20/2005	18.18	--	15.83	--	--	--	--	--	--	--
	3/26/2006	17.42	--	16.59	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/23/2006	17.77	--	16.24	--	--	--	--	--	--	--
	9/7/2006	18.20	--	15.81	--	--	--	--	--	--	--
	12/29/2006	18.49	--	15.52	--	--	--	--	--	--	--
	3/21/2007	18.44	--	15.57	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	--
	6/7/2007	18.68	--	15.33	--	--	--	--	--	--	--
	9/28/2007	19.19	--	14.82	--	--	--	--	--	--	--
	12/9/2007	19.31	--	14.70	--	--	--	--	--	--	--
	3/3/2008	18.68	--	15.33	<50	<0.5	<0.5	<0.5	<0.5	<0.5***	--
	6/4/2008	19.11	--	14.90	--	--	--	--	--	--	--
	9/9/2008	19.65	--	14.36	--	--	--	--	--	--	--
	12/5/2008	19.96	--	14.05	--	--	--	--	--	--	--
	3/2/2009	19.19	--	14.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5***	--
	9/15/2009	19.90	--	14.11	--	--	--	--	--	--	--
	3/1/2010	19.20	--	14.81	<50	<0.5	<0.5	<0.5	<0.5	<0.5***	--
	<b>9/7/2010</b>	<b>19.43</b>	--	<b>14.58</b>	--	--	--	--	--	--	--
MW-4 33.75	10/28/1996	19.32	--	14.43	10,000	3,900	420	400	360	<200*	n
	12/12/1996	19.42	--	14.33	11,000	4,200	410	420	260	32*	--
	3/31/1997	18.67	--	15.08	ND	ND	ND	ND	ND	ND*	--
	6/27/1997	19.08	--	14.67	160	49	1.2	ND	5.9	ND*	--
	9/9/1997	19.33	--	14.42	7,400	5,000	410	230	470	33*	--
	12/18/1997	19.17	--	14.58	710	170	8.0	ND	39	ND***	--
	3/12/1998	17.68	--	16.07	1,300	410	21	ND	57	ND***	--
	6/22/1998	17.63	--	16.12	ND	ND	ND	ND	ND	--	--
	9/18/1998	18.58	--	15.17	ND	42	1.6	ND	4.8	--	--
	12/23/1998	19.01	--	14.74	1,900	1,000	76	50	120	--	--
	3/29/1999	18.35	--	15.40	ND	ND	ND	ND	ND	--	--
	6/23/1999	17.58	--	16.17	ND	ND	ND	ND	ND	--	--
	9/24/1999	19.05	--	14.70	9,150	3,270	131	34	537	--	--
	12/23/1999	19.41	--	14.34	12,200	5,360	275	424	592	--	--
	3/21/2000	18.42	--	15.33	45,000	16,000	1,100	1,400	1,900	1400* / <35***	a,l
	7/3/2000	18.82	--	14.93	33,000	10,000	720	840	1,800	<200*	a
	9/7/2000	19.21	--	14.54	26,000	8,800	800	740	1,500	<50***	a,c,l
	12/5/2000	19.60	--	14.15	41,000	11,000	840	930	1,900	<200	a
	3/6/2001	18.24	--	15.51	1,100	400	5.7	<0.5	20	<5.0	a
	6/8/2001	20.91	--	12.84	92	19	<0.5	<0.5	1	<5.0	a
	8/27/2001	21.63	--	12.12	49,000	17,000	1700	1,700	3,200	<260	a
	10/25/2001	21.70	--	12.05	57,000	16,000	1,500	1,600	2,600	<300	a
	3/1/2002	21.53	--	12.22	400	140	2.3	<0.5	12	<5.0*	a
	6/10/2002	22.23	--	11.52	<50	2.5	<0.5	<0.5	<0.5	<5.0*	--
	9/3/2002	21.85	--	11.90	31,000	9,700	300	650	1,100	<1,000	a
	12/22/2002	22.39	--	11.36	35,000	13,000	310	1,100	1,800	<1,500	a
	1/23/2003	20.61	--	13.14	51,000	18,000	430	1,500	2,200	<5.0***	a,l
	6/12/2003	21.20	--	12.55	80	12	<0.5	<0.5	1.0	<10	a
	7/23/2003	21.51	--	12.24	20,000	7,600	100	65	660	<250	a
	12/22/2003	19.60	--	14.15	26,000	9,500	200	380	1,100	<150	a
	3/10/2004	18.81	--	14.94	14,000	4,800	150	320	530	<400	a
	6/16/2004	19.32	--	14.43	2,800	1,100	24	17	100	<50	a
	9/27/2004	21.45	--	12.30	45,000	16,000	260	1,700	2,000	<25***	a
	12/22/2004	21.15	--	12.60	29,000	10,000	160	890	1,200	<5.0***	a,j
	3/3/2005	18.60	--	15.15	18,000	6,400	98	500	610	<600	a
	6/9/2005	18.11	--	15.64	20,000	6,100	110	460	580	<500	a
	9/9/2005	18.65	--	15.10	17,000	6,400	100	470	730	<250	a



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MW-5 cont.	9/7/2006	18.98	--	15.65	8,800	1,900	12	350	220	<260	a,i
	12/29/2006	19.70	--	14.93	15,000	3,400	69	610	700	<450*/<0.5***	a
	3/21/2007	19.57	--	15.06	9,900	2,300	24	360	410	<240*	a
	6/7/2007	19.70	--	14.93	14,000	3,800	40	790	720	<550*	a
	9/28/2007	20.16	--	14.47	26,000	7,200	84	1,100	1,600	<25***	a,l
	12/9/2007	20.56	--	14.07	25,000	7,000	59	1,100	2,000	<17	a,l
	3/3/2008	19.97	--	14.66	30,000	6,200	31	900	1,400	<10***	a,l
	6/4/2008	20.32	--	14.31	7,500	1,600	4.6	25	91	<10***	a,j
	9/9/2008	20.75	--	13.88	54,000	8,900	76	1,300	1,700	<25***	a,l
	12/5/2008	21.08	--	13.55	33,000	9,200	43	1,500	1,800	<5.0***	a,l
	3/2/2009	20.74	--	13.89	34,000	9,700	41	1,100	1,300	<5.0***	a,l
	9/15/2009	21.02	--	13.61	40,000	10,000	280	1,400	2,600	<2.5***	a,l
	3/1/2010	20.55	--	14.08	57,000	16,000	240	1,800	5,000	<10***	a,l
	<b>9/7/2010</b>	<b>20.25</b>	<b>--</b>	<b>14.38</b>	<b>35,000</b>	<b>12,000</b>	<b>160</b>	<b>970</b>	<b>2,900</b>	<b>&lt;25***</b>	<b>a,l</b>
MW-6	10/28/1996	20.02	--	15.87	<50	<0.50	<0.50	<0.50	<0.50	<2.0*	
35.89	12/12/1996	20.18	--	15.71	ND	ND	ND	ND	ND	ND*	n
	3/31/1997	19.81	--	16.08	--	--	--	--	--	--	--
	6/27/1997	19.76	--	16.13	--	--	--	--	--	--	--
	9/9/1997	20.06	--	15.83	ND	ND	ND	ND	ND	ND*	--
	12/18/1997	19.90	--	15.99	ND	ND	ND	ND	ND	--	--
	3/12/1998	18.00	--	17.89	ND	ND	ND	ND	ND	ND*	--
	6/22/1998	18.43	--	17.46	ND	ND	ND	ND	ND	--	--
	9/18/1998	19.10	--	16.79	ND	ND	ND	ND	ND	--	--
	12/23/1998	19.61	--	16.28	ND	ND	ND	ND	ND	--	--
	3/29/1999	18.92	--	16.97	ND	ND	ND	ND	ND	--	--
	6/23/1999	18.41	--	17.48	ND	ND	ND	ND	ND	--	--
	9/24/1999	19.61	--	16.28	ND	ND	ND	ND	ND	--	--
	12/23/1999	20.30	--	15.59	ND	ND	ND	ND	ND	--	--
	3/21/2000	18.97	--	16.92	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	7/3/2000	19.46	--	16.43	59	5.1	2.3	1.1	5.3	<5.0*	--
	9/7/2000	19.95	--	15.94	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	a
	12/5/2000	20.50	--	15.39	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	3/6/2001	19.54	--	16.35	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/8/2001	20.92	--	14.97	<50	<0.5	<0.5	<0.5	<0.5	<5.1	--
	8/27/2001	21.37	--	14.52	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	10/25/2001	21.59	--	14.30	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	3/1/2002	21.33	--	14.56	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	--
	6/10/2002	21.97	--	13.92	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	--
	9/3/2002	21.55	--	14.34	--	--	--	--	--	--	--
	12/22/2002	22.25	--	13.64	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	1/23/2003	20.47	--	15.42	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/12/2003	21.09	--	14.80	--	--	--	--	--	--	--
	7/23/2003	21.42	--	14.47	--	--	--	--	--	--	--
	12/22/2003	19.49	--	16.40	--	--	--	--	--	--	--
	3/10/2004	20.20	--	15.69	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/16/2004	20.73	--	15.16	--	--	--	--	--	--	--
	9/27/2004	22.88	--	13.01	--	--	--	--	--	--	--
	12/22/2004	22.53	--	13.36	--	--	--	--	--	--	--
	3/3/2005	19.87	--	16.02	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/9/2005	18.95	--	16.94	--	--	--	--	--	--	--
	9/9/2005	19.45	--	16.44	--	--	--	--	--	--	--
	12/20/2005	19.90	--	15.99	--	--	--	--	--	--	--
	3/26/2006	18.85	--	17.04	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
	6/23/2006	18.57	--	17.32	--	--	--	--	--	--	--
	9/7/2006	19.13	--	16.76	--	--	--	--	--	--	--
	12/29/2006	19.96	--	15.93	--	--	--	--	--	--	--
	3/21/2007	19.87	--	16.02	<50	<0.5	<0.5	<0.5	<0.5	<5.0*	m

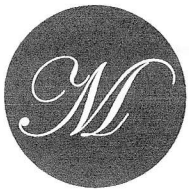






APPENDIX A

FIELD DATA SHEETS



## WELL GAUGING SHEET


Client: Conestoga-Rovers and Associates

PS/ot1

Site

Address: 1432 Harrison Street, Oakland, CA

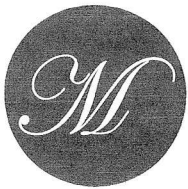
Date: 9/7/2010

Signature: 

Well ID	Time	Depth to SPH	Depth to Water	SPH Thickness	Depth to Bottom	Comments
MW-1	9:20		Dry		20.50	
MW-2	9:25	20.42	20.71	0.29	—	
MW-3	9:00		19.43		23.95	
MW-4	9:10		19.55		24.50	
MW-5	9:15		20.25		27.90	
MW-6	9:05		20.78		28.25	








## MICRO PURGE WELL SAMPLING FORM

Date:	9/7/2010
Client:	Conestoga-Rovers and Associates
Site Address:	1432 Harrison Street, Oakland, CA
Well ID:	MW-4
Well Diameter:	2"
Purging Device:	Peristaltic Pump
Sampling Method:	Peristaltic Pump
Total Well Depth from top of casing:	24.50
Water level at the start of purge from top of casing:	19.56
Approximate depth of water intake on pump from top of casing:	22.0

TIME:	Purged Rate (ml/min)	TEMP (Celsius)	pH	COND. (µS/cm)	ORP (mV)	DO (mg/L)	Drawdown Water Level (ft)	Turbidity (NTU)	Comments
9:35	250	--	--	--	--	--	19.56	=	
9:38	250	21.4	7.05	380	42	2.90	19.57	27.1	
9:41	250	21.7	7.01	370	41	2.00	19.57	24.2	
9:44	250	21.6	7.01	370	38	0.54	19.57	24.0	
9:47	250	21.6	7.01	368	36	0.52	19.57	24.7	
9:50	250	21.6	6.99	367	36	0.52	19.57	24.6	
									total purge volume = 3750ml

Sample ID:	Date:	Time	Container Type	Preservative	Analytes	Method
MW-4	9/7/10	9:51	40 ml VOA	HCl	TPHg, BTEX, MTBE	8015, 8021, 8260

Signature: 



**Cambria QM Well Sampling Protocol**

Client: Borsuk - Oakland

**CAMBRIA**

<b>Address</b>	1432 Harrison Street	<b>Cambria_Project_NO</b>	<del>540 0108</del> 540188
<b>City</b>	Oakland	<b>Cambria Project Manager:</b>	RCF
<b>Cross Street</b>	14th	<b>Sample Month:</b>	C

**General Notes:** Changed to semi-annual gauging/sampling until fieldwork completed per reg approval (3/5/09)

Notify Cambria's project manager immediately if there is a schedule change. Perform field activities according to Cambria's Standard Field Procedures for Groundwater Monitoring & Sampling. Call the project manager from the site if any anomalous conditions are identified and at the completion of field activities. Arrange for submittal of groundwater samples to McCampbell Analytical. Provide the following six field documents within ONE day following completion of field activity. 1. Daily Field Report, 2. GW Monitoring Field Sheet, 3. Well Sampling Form, 4. Signed Cambria QM Well Sampling Protocol, 5. Signed Chain of Custody, 6. Drum Inventory Form;

Site Specific Notes: Site is currently "ALLRIGHT PARKING LOT". Traffic control needed for all six wells. Signs to divert traffic and cones. Store labeled drums away from the traffic onsite. Need an annual encroachment permit and quarterly obstruction permits.

\*Performing Monitoring well inspection and record on well inspection form.

\*If necessary, perform minor repairs on wells charging time and material to the General Well Maintenance task.

Well ID	Sample?				Analytes	Comments
	1Q	2Q	3Q	4Q		
✓ MW-1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TPHg/BTEX by 8015/8021 and MTBE by 8260	Gauge/sample semi-annual
SPH MW-2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TPHg/BTEX by 8015/8021 and MTBE by 8260	Gauge/sample semi-annual
✓ MW-3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TPHg/BTEX by 8015/8021 and MTBE by 8260	Gauge/sample Annually
✓ MW-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TPHg/BTEX by 8015/8021 and MTBE by 8260	Gauge/sample semi-annual
✓ MW-5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TPHg/BTEX by 8015/8021 and MTBE by 8260	Gauge/sample semi-annual

APPENDIX B

STANDARD FIELD PROCEDURES FOR  
GROUNDWATER MONITORING AND SAMPLING



# Conestoga-Rovers & Associates

## STANDARD FIELD PROCEDURES FOR GROUNDWATER MONITORING AND SAMPLING

This document presents standard field methods for groundwater monitoring, purging and sampling, and well development. These procedures are designed to comply with Federal, State and local regulatory guidelines. Conestoga-Rovers and Associate's field procedures are summarized below.

### **Groundwater Elevation Monitoring**

Prior to performing monitoring activities, the historical monitoring and analytical data of each monitoring well shall be reviewed to determine if any of the wells are likely to contain non-aqueous phase liquid (NAPL) and to determine the order in which the wells will be monitored (i.e. cleanest to dirtiest). Groundwater monitoring should not be performed when the potential exists for surface water to enter the well (i.e. flooding during a rainstorm).

Prior to monitoring, each well shall be opened and the well cap removed to allow water levels to stabilize and equilibrate. The condition of the well box and well cap shall be observed and recommended repairs noted. Any surface water that may have entered and flooded the well box should be evacuated prior to removing the well cap. In wells with no history of NAPL, the static water level and total well depth shall be measured to the nearest 0.01 foot with an electronic water level meter. Wells with the highest contaminant concentrations shall be measured last. In wells with a history of NAPL, the NAPL level/thickness and static water level shall be measured to the nearest 0.01 foot using an electronic interface probe. The water level meter and/or interface probe shall be thoroughly cleaned and decontaminated at the beginning of the monitoring event and between each well. Monitoring equipment shall be washed using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water.

### **Groundwater Purging and Sampling**

Prior to groundwater purging and sampling, the historical analytical data of each monitoring well shall be reviewed to determine the order in which the wells should be purged and sampled (i.e. cleanest to dirtiest). No purging or groundwater sampling shall be performed on wells with a measurable thickness of NAPL or floating NAPL globules. If a sheen is observed, the well should be purged and a groundwater sample collected only if no NAPL is present.

Wells shall be purged according to low flow protocol using an aboveground peristaltic pump. Groundwater wells shall be purged at a low flow rate not to exceed 500 milliliters per minute (mL/min) until groundwater parameters of conductivity and/or dissolved oxygen have stabilized to within 10% for three consecutive readings. Temperature, pH, and conductivity shall also be measured and recorded approximately every 3 to 5 minutes. The total volume of groundwater removed shall be recorded along with any other notable physical characteristic such as color and odor. If required, field parameters such as turbidity shall also be measured prior to collection of each groundwater sample.

# Conestoga–Rovers & Associates

Groundwater samples shall be collected after well parameters have stabilized at a low flow rate not to exceed 500 mL/min. Groundwater samples shall be decanted into clean containers supplied by the analytical laboratory. New latex gloves and Teflon lined tubing shall be used for sampling each well.

## **Sample Handling**

Except for samples that will be tested in the field, or that require special handling or preservation, samples shall be stored in coolers chilled to 4° C for shipment to the analytical laboratory. Samples shall be labeled, placed in protective foam sleeves or bubble wrap as needed, stored on crushed ice at or below 4° C, and submitted under chain-of-custody (COC) to the laboratory. The laboratory shall be notified of the sample shipment schedule and arrival time. Samples shall be shipped to the laboratory within a time frame to allow for extraction and analysis to be performed within the standard sample holding times.

Sample labels shall be filled out using indelible ink and must contain the site name; field identification number; the date, time, and location of sample collection; notation of the type of sample; identification of preservatives used; remarks; and the signature of the sampler. Field identification must be sufficient to allow easy cross-reference with the field datasheet.

All samples submitted to the laboratory shall be accompanied by a COC record to ensure adequate documentation. A copy of the COC shall be retained in the project file. Information on the COC shall consist of the project name and number; project location; sample numbers; sampler/recorder's signature; date and time of collection of each sample; sample type; analyses requested; name of person receiving the sample; and date of receipt of sample.

Laboratory-supplied trip blanks shall accompany the samples and be analyzed to check for cross-contamination, if requested by the project manager.

## **Waste Handling and Disposal**

Groundwater extracted during sampling shall be stored onsite in sealed U.S. DOT H17 55-gallon drums and shall be labeled with the contents, date of generation, generator identification, and consultant contact. Extracted groundwater may be disposed offsite by a licensed waste handler or may be treated and discharged via an operating onsite groundwater extraction/treatment system.

APPENDIX C

CERTIFIED ANALYTICAL REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION



**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mccampbell.com E-mail: main@mccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Conestoga-Rovers & Associates  5900 Hollis St, Suite A  Emeryville, CA 94608	Client Project ID: #540188; Borsuk-Oakland	Date Sampled: 09/07/10
		Date Received: 09/07/10
	Client Contact: Bob Foss	Date Reported: 09/13/10
	Client P.O.:	Date Completed: 09/13/10

**WorkOrder: 1009131**

September 13, 2010

Dear Bob:

Enclosed within are:

- 1) The results of the **2** analyzed samples from your project: **#540188; Borsuk-Oakland,**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius  
Laboratory Manager  
McC Campbell Analytical, Inc.



**McC Campbell Analytical, Inc.**



1534 Willow Pass Rd  
 Pittsburg, CA 94565-1701  
 (925) 252-9262

**CHAIN-OF-CUSTODY RECORD**

**WorkOrder: 1009131**

**ClientCode: CETE**

WaterTrax     WriteOn     EDF     Excel     Fax     Email     HardCopy     ThirdParty     J-flag

**Report to:**  
 Bob Foss  
 Conestoga-Rovers & Associates  
 5900 Hollis St, Suite A  
 Emeryville, CA 94608  
 (510) 420-0700    FAX (510) 420-9170

**Email:**    bfoss@croworld.com, chee@croworld.co

**cc:**

**PO:**

**ProjectNo:** #540188; Borsuk-Oakland

**Bill to:**  
 Accounts Payable  
 Conestoga-Rovers & Associates  
 5900 Hollis St, Ste. A  
 Emeryville, CA 94608

**Requested TAT: 5 days**

**Date Received: 09/07/2010**

**Date Printed: 09/07/2010**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1009131-001	MW-4	Water	9/7/2010 9:51	<input type="checkbox"/>	A	B	A										
1009131-002	MW-5	Water	9/7/2010 10:46	<input type="checkbox"/>	A	B											

**Test Legend:**

1	G-MBTEX_W	2	MTBE_W	3	PREFD REPORT	4		5	
6		7		8		9		10	
11		12							

**Prepared by: Maria Venegas**

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
 Hazardous samples will be returned to client or disposed of at client expense.



### Sample Receipt Checklist

Client Name: **Conestoga-Rovers & Associates**

Date and Time Received: **9/7/2010 12:20:00 PM**

Project Name: **#540188; Borsuk-Oakland**

Checklist completed and reviewed by: **Maria Venegas**

WorkOrder N°: **1009131** Matrix Water

Carrier: Client Drop-In

#### Chain of Custody (COC) Information

- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Sample IDs noted by Client on COC? Yes  No
- Date and Time of collection noted by Client on COC? Yes  No
- Sampler's name noted on COC? Yes  No

#### Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes  No  NA
- Shipping container/cooler in good condition? Yes  No
- Samples in proper containers/bottles? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No

#### Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes  No
- Container/Temp Blank temperature Cooler Temp: 5.6°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted
- Sample labels checked for correct preservation? Yes  No
- Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA
- Samples Received on Ice? Yes  No

(Ice Type: WET ICE )

\* NOTE: If the "No" box is checked, see comments below.

-----

Client contacted:

Date contacted:

Contacted by:

Comments:









**QC SUMMARY REPORT FOR SW8021B/8015Bm**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 52940

WorkOrder 1009131

EPA Method SW8021B/8015Bm		Extraction SW5030B							Spiked Sample ID: 1009119-001A			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>f</sup>	ND	60	98.4	99.1	0.741	96.5	100	3.96	70 - 130	20	70 - 130	20
MTBE	ND	10	119	120	0.798	111	117	5.43	70 - 130	20	70 - 130	20
Benzene	ND	10	108	111	2.30	111	108	2.53	70 - 130	20	70 - 130	20
Toluene	ND	10	97.3	98.9	1.62	99.2	96.1	3.16	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	95.9	97.1	1.22	98.3	95.1	3.30	70 - 130	20	70 - 130	20
Xylenes	ND	30	108	109	0.886	110	107	2.92	70 - 130	20	70 - 130	20
%SS:	104	10	105	102	2.40	105	109	3.52	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 52940 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1009131-001A	09/07/10 9:51 AM	09/08/10	09/08/10 7:30 PM	1009131-002A	09/07/10 10:46 AM	09/08/10	09/08/10 2:29 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.



**QC SUMMARY REPORT FOR SW8260B**

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 52944

WorkOrder 1009131

EPA Method SW8260B		Extraction SW5030B							Spiked Sample ID: 1009107-005B			
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Methyl-t-butyl ether (MTBE)	ND	10	118	117	0.407	107	112	4.34	70 - 130	30	70 - 130	30
%SS1:	99	25	99	98	0.755	100	100	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

BATCH 52944 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1009131-001B	09/07/10 9:51 AM	09/08/10	09/08/10 4:58 PM	1009131-002B	09/07/10 10:46 AM	09/08/10	09/08/10 5:36 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

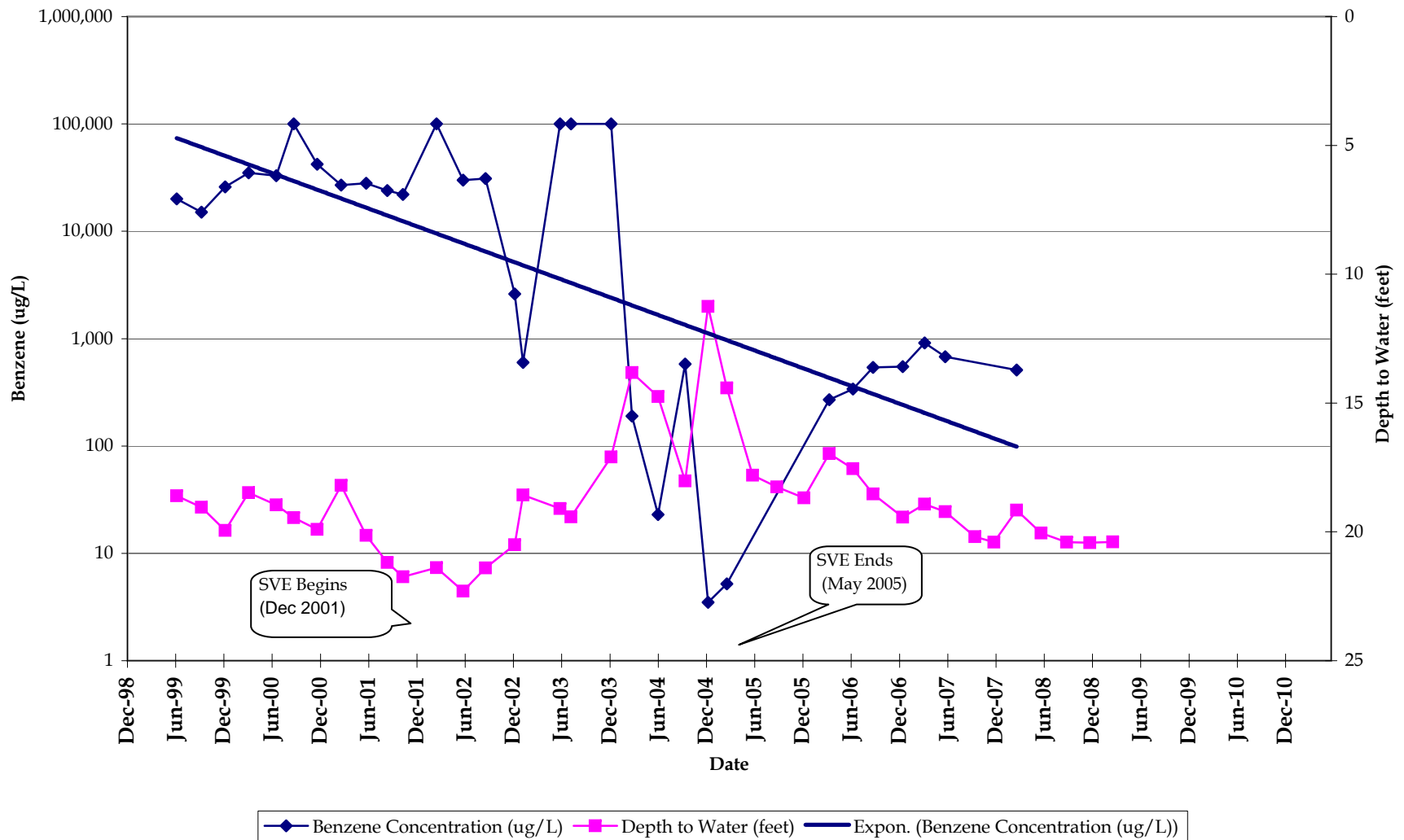
Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

APPENDIX D

BENZENE CONCENTRATION AND  
DEPTH TO WATER VS. TIME-SERIES GRAPHS

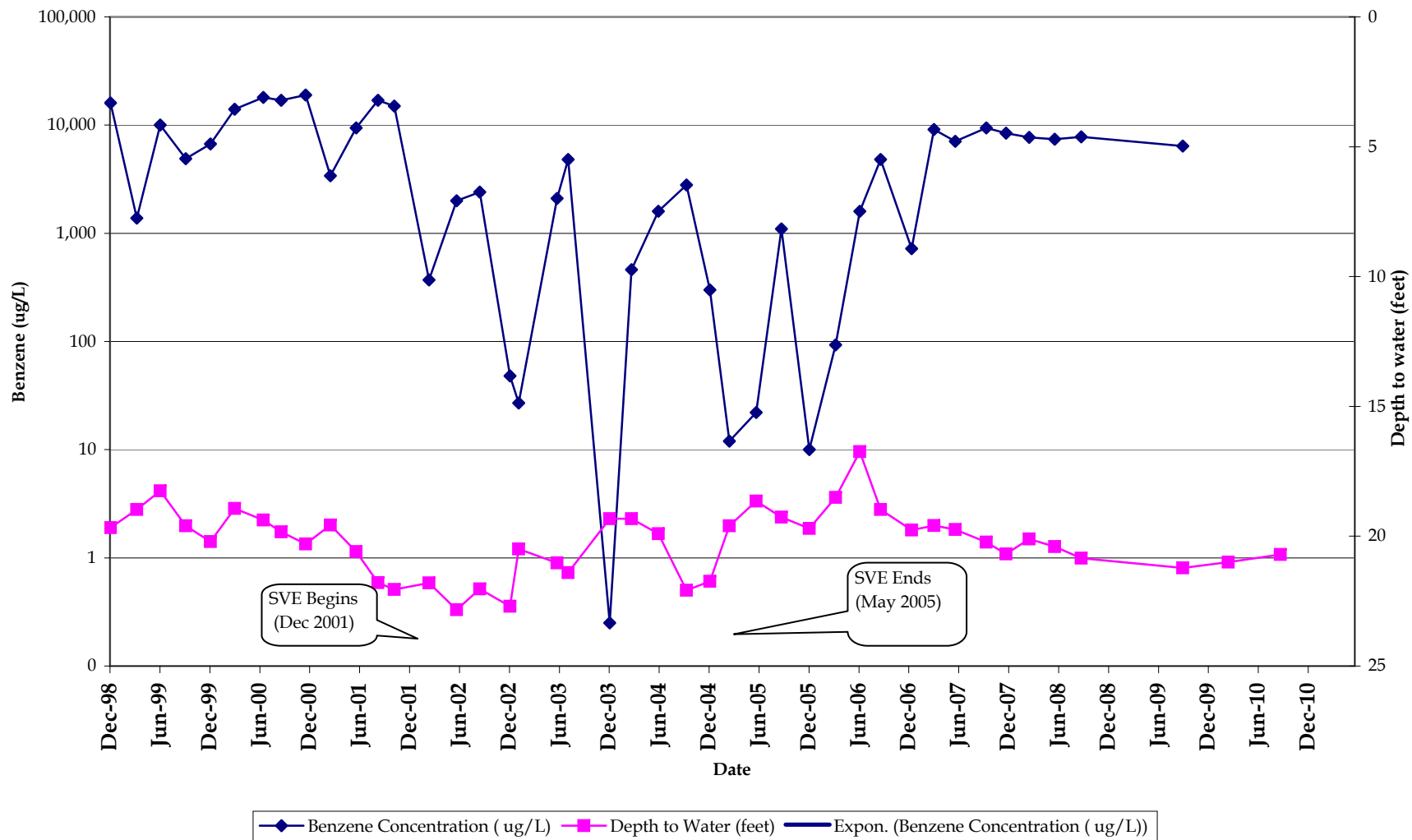
### MW-1: Benzene Concentration and Depth to Water vs. Time

Allright Parking, 1432 Harrison Street, Oakland, California



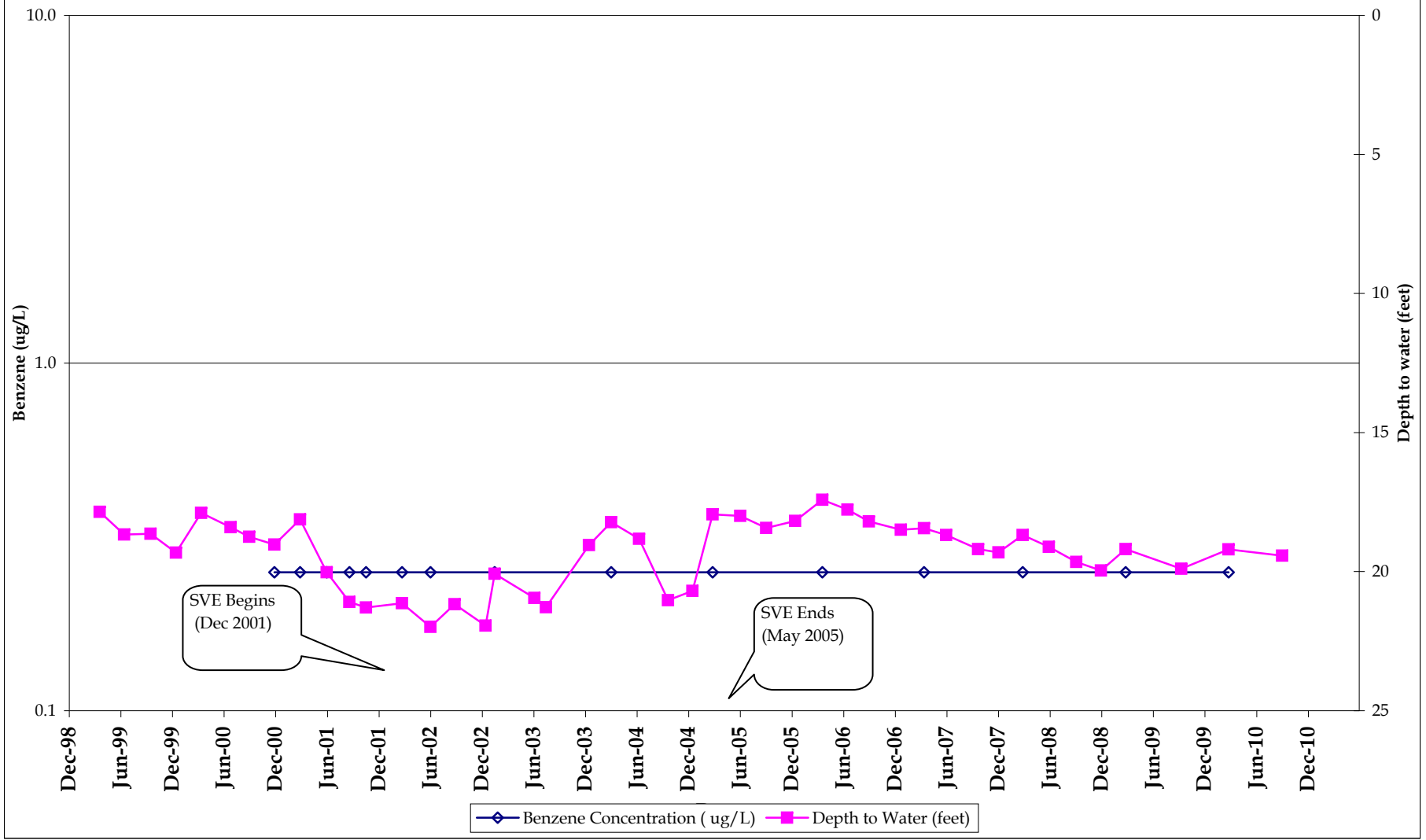
### MW-2: Benzene Concentration and Depth to Water vs. Time

Allright Parking, 1432 Harrison Street, Oakland, California



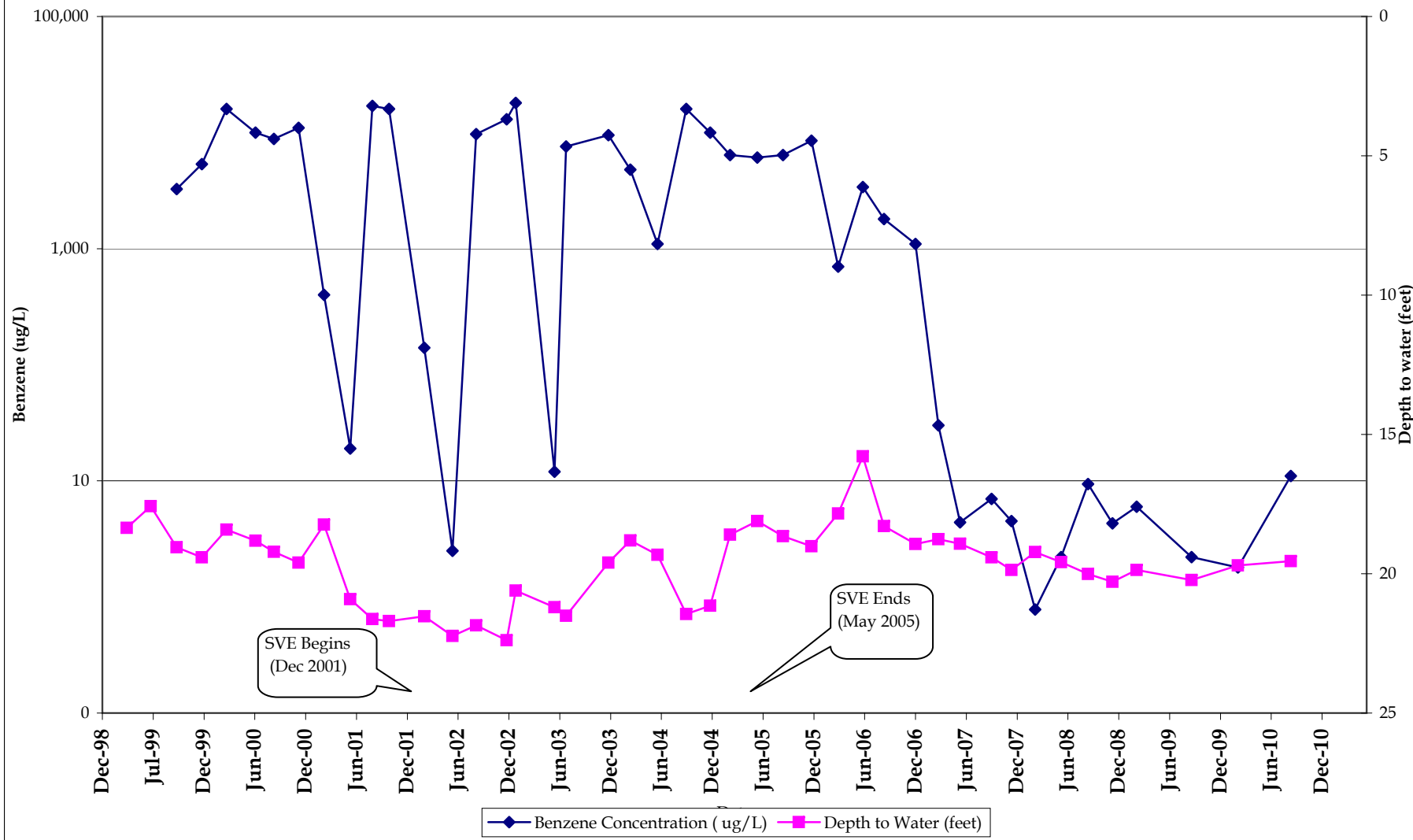
### MW-3: Benzene Concentration and Depth to Water vs. Time

Allright Parking, 1432 Harrison Street, Oakland, California



### MW-4: Benzene Concentration and Depth to Water vs. Time

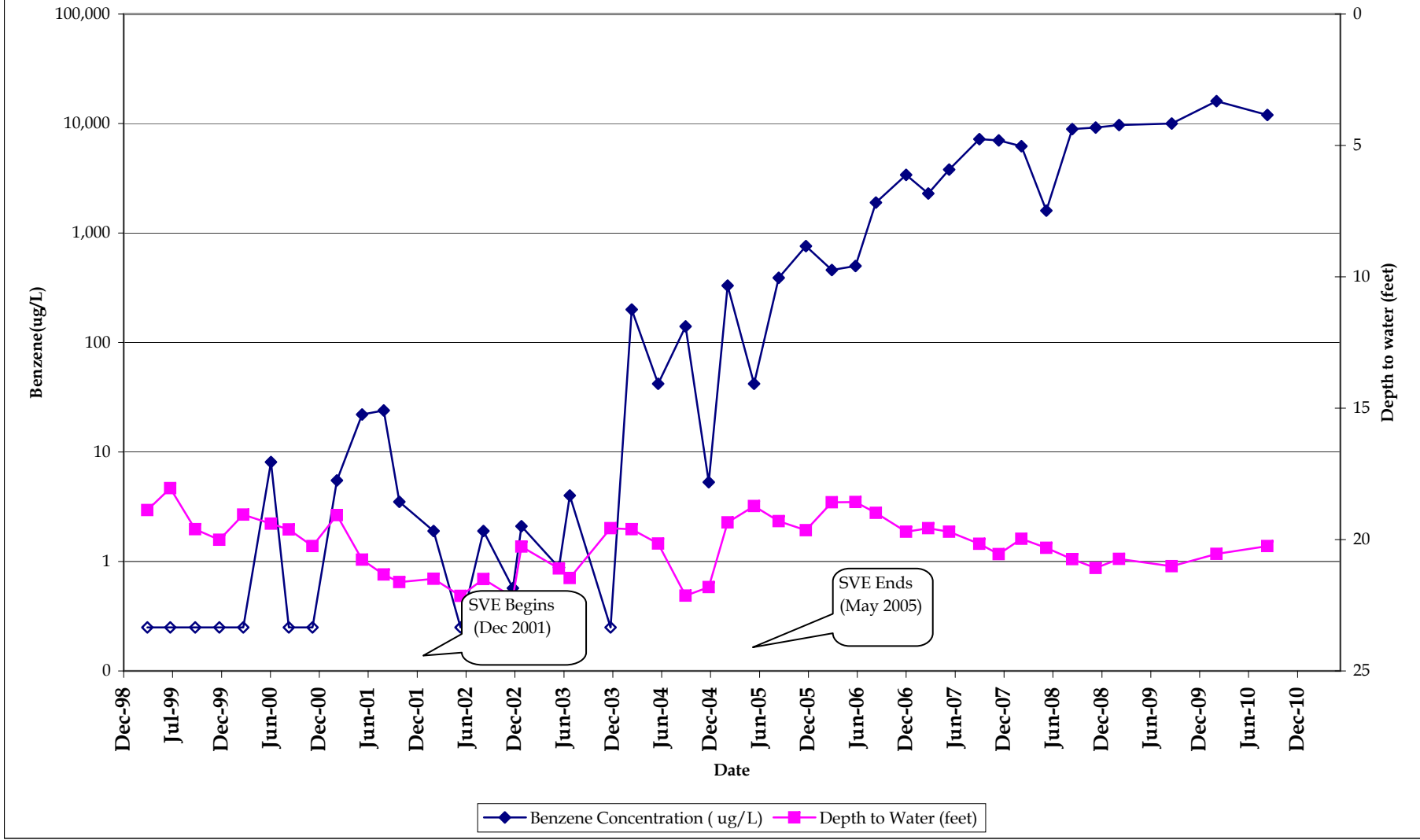
Allright Parking, 1432 Harrison Street, Oakland, California





### MW-5: Benzene Concentration and Depth to Water vs. Time

Allright Parking, 1432 Harrison Street, Oakland, California



### MW-6: Benzene Concentration and Depth to Water vs. Time

Allright Parking, 1432 Harrison Street, Oakland, California

