



Alameda-Contra Costa Transit District

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Alameda County  
Environmental Health

June 16, 2010

Mr. Stephen Plunkett  
Alameda County Health Division  
Division of Environmental Protection  
Department of Environmental Health  
1131 Harbor Bay Parkway, Second Floor  
Alameda, CA 94502

Dear Mr. Plunkett:

Subject: Groundwater Monitoring Report – May 2010  
AC Transit, 1100 Seminary Ave., Oakland


AC Transit hereby submits the enclosed semi-annual groundwater monitoring report for the AC Transit facility located at 1100 Seminary Avenue in Oakland. The report was prepared by our consultant, Cameron-Cole, and contains the results of groundwater monitoring performed on May 14, 2010, from six on-site monitoring wells.

Sampling results indicate that diesel was present in the sample collected from monitoring well MW-2 at a concentration of 12,700 ppb. Gasoline was detected in the three wells at concentrations of 1,830 ppb (MW-1), 26,300 ppb (MW-2) and 254 ppb (MW-3). Chemical concentrations in excess of Maximum Contaminant Levels (MCLs) were measured in wells MW-1, MW-2 and MW-3 for benzene and in well MW-2 for ethyl benzene.

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.

If you have any questions or comments regarding the enclosed report, please call me at (510) 577-8869.

Sincerely,

  
Suzanne Chaewsky, P.E.  
Environmental Engineer

enclosure

**GROUNDWATER MONITORING REPORT  
FOR THE AC TRANSIT FACILITY  
LOCATED AT 1100 SEMINARY AVENUE,  
OAKLAND, CALIFORNIA**

**June 2010**

**Prepared For:**

Ms. Sue Chaewsky  
AC Transit  
10626 International Boulevard  
Oakland, California 94603



**Prepared By:**

Cameron-Cole  
50 Hegenberger Loop  
Oakland, California 94621



Project No: 2036

**GROUNDWATER MONITORING REPORT  
FOR THE AC TRANSIT FACILITY  
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OAKLAND, CALIFORNIA**

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Ms. Sue Chaewsky  
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10626 International Boulevard  
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50 Hegenberger Loop  
Oakland, California 94621



A handwritten signature in black ink, appearing to read 'Dennis Baker', written over a horizontal line.

for: Written By  
Dennis Baker  
Environmental Scientist

A handwritten signature in black ink, appearing to read 'Brad Wright', written over a horizontal line.

Approved By  
Brad Wright, PG, CHG  
Principle Hydrogeologist



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## **INTRODUCTION**

This report presents the results of the May 2010 sampling event for the AC Transit facility located at 1100 Seminary Avenue, Oakland, California (Figure 1). Cameron-Cole performed groundwater sampling of monitor wells MW-1 through MW-3 and MW-9 through MW-11, in accordance with directives from the Alameda County Health Care Services Agency (ACHCS).

## **OBJECTIVES AND SCOPE OF WORK**

Work performed during semi-annual monitoring included measuring depth to water and presence of free phase hydrocarbons in the monitor wells and collecting groundwater samples. Field parameters collected during sampling included pH, temperature, and electric conductivity. Groundwater samples were collected for laboratory analysis using United States Environmental Protection Agency (USEPA) Method 8015 Modified with silica gel cleanup for total petroleum hydrocarbons (TPH) as diesel, and USEPA Method 8260B for gasoline and benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl tertiary butyl ether (MTBE).

Chain-of-custody documents and certified analytical reports are presented in Appendix A. Field data sheets are included in Appendix B.

### **Groundwater Elevations and Flow Direction**

Prior to purging and sample collection, all six site monitor wells were measured for free phase hydrocarbon layers and depth to groundwater. Depth to groundwater measurements shown in Table 1 were used to construct the groundwater elevation contours shown in Figure 2. As shown, groundwater flow is to the west at a gradient of 0.006 feet/foot.

### **Groundwater Sampling Activities**

The monitor wells were purged a minimum of three casing volumes using a centrifugal pump, and samples were collected using disposable polyethylene bailers. During well purging, field parameters for pH, electrical conductivity, and temperature were monitored using calibrated field meters.

Groundwater samples were transferred to appropriate laboratory supplied and preserved containers and placed in an ice-filled cooler for shipment under chain-of-custody to a State of California certified laboratory. A trip blank was submitted for analysis by EPA Method 8260B.

### **Groundwater Analytical Results**

Table 2 presents May 2010 and historic analytical results of groundwater testing. Concentrations of benzene above the State of California maximum contaminant level (MCL) of 1.0 microgram per liter (ug/l) were detected in monitor wells MW-1, MW-2, and MW-3. Ethylbenzene was detected above the MCL of 300 ug/l in monitor well MW-2. TPH-gasoline and diesel was detected above the reporting limit in monitor wells MW-1, MW-2, and MW-3. No analytes were detected in the trip blanks or method blanks. A lab control spike and lab control spike duplicate passed the USEPA's criteria for acceptance.

### **SUMMARY OF RESULTS**

- Groundwater flow direction is towards the west at a gradient of 0.006 feet/foot.
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1 (15.4 ug/l), MW-2 (7,500 ug/l), and MW-3 (36.8 ug/l), and ethylbenzene in well MW-2 (779 ug/l).
- Gasoline was found to be present in groundwater samples taken from wells MW-1 (1,830 ug/l), MW-2 (26,300 ug/l), and MW-3 (254 ug/l).
- Diesel was found to be present in the groundwater sample taken from MW-2 at a concentration of 12,700 ug/l.

### **PROJECTED WORK AND RECOMMENDATIONS**

Semiannual groundwater monitoring of wells MW-1 through MW-3 and MW-9 through MW-11 is scheduled for November 2010.

## Figures

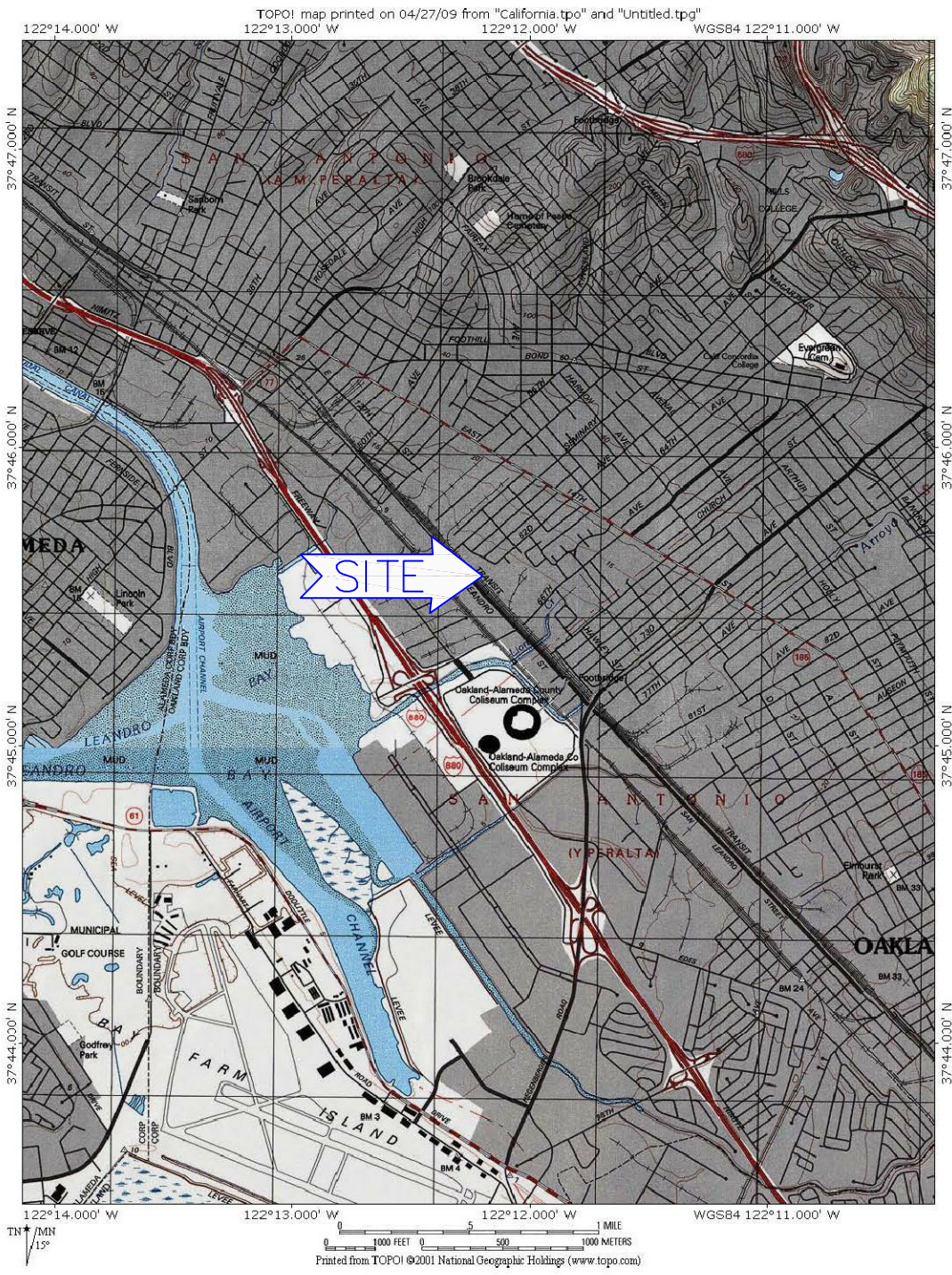


FIGURE 1

SITE LOCATION MAP  
 AC TRANSIT – SEMINARY  
 OAKLAND, CALIFORNIA

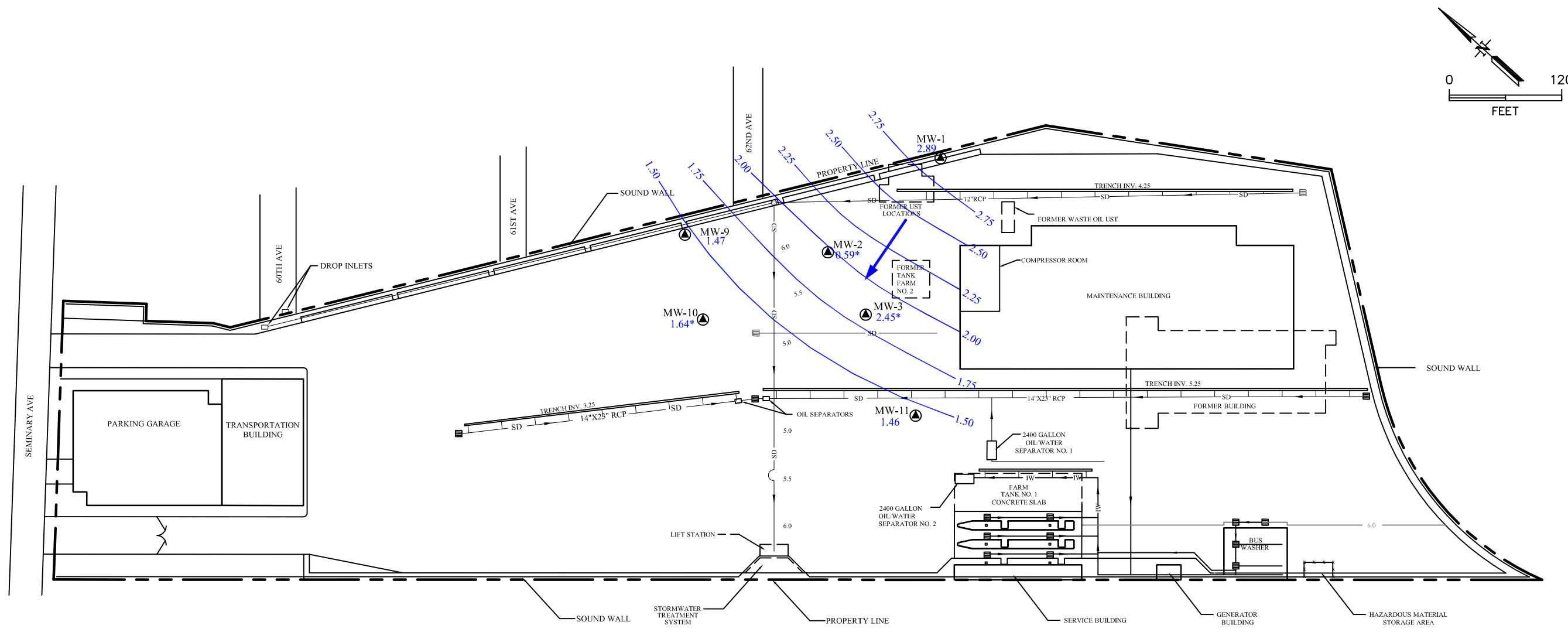
SCALE:	DATE:
AS NOTED	4-28-09



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2036-001A





LEGEND

- 1.75 — GROUNDWATER ELEVATION CONTOUR
- 1.46 GROUNDWATER ELEVATION (FT. MSL)
- \* VALUE NOT USED IN CONTOURING
- ← REPORTED GROUNDWATER FLOW
- ▲ EXISTING MONITORING WELL
- ⊙ MANHOLE
- ▤ CATCH BASIN
- SD — SURFACE DRAINAGE TRENCH
- SD — STORM DRAIN PIPELINE
- IW — INDUSTRIAL WASTE PIPELINE

BY	DATE
DRAWN SPS	6/10/10
CHECKED	
APPROVED	
APPROVED	
APPROVED	


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**FIGURE 2**  
**AC TRANSIT - OAKLAND, CALIFORNIA**  
 1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP  
 MAY 14, 2010  
 SCALE: 1" = 120'  
 DWG. NO.: 2036-010A

## Tables

**TABLE 1**  
**GROUNDWATER LEVEL MEASUREMENTS**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	Top of Casing Elevation (ft- msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness** (ft-msl)
MW-1	1/7/1999	6.25	None	5.13	1.12	
	2/7/2000		None	3.75	2.5	
	5/25/2000		None	3.69	2.56	
	8/22/2000		None	4.79	1.46	
	11/20/2000		None	4.92	1.33	
	3/1/2001		None	2.75	3.50	
	5/14/2001		None	3.67	2.58	
	7/26/2001		None	4.73	1.52	
	10/16/2001		None	5.35	0.90	
	2/21/2002		None	3.30	2.95	
	5/29/2002		None	3.70	2.55	
	9/17/2002		None	4.85	1.40	
	11/14/2002		None	4.59	1.66	
	2/5/2003		None	3.37	2.88	
	5/14/2003		None	3.17	3.08	
	8/22/2003		None	4.52	1.73	
	11/20/2003		None	4.61	1.64	
	2/9/2004		None	3.05	3.20	
	5/25/2004		None	3.22	3.03	
	8/16/2004		None	4.65	1.60	
	11/18/2004		None	3.81	2.44	
	2/22/2005		None	2.62	3.63	
	5/5/2005		None	3.44	2.81	
	10/9/2005***		None	4.75	1.50	
	5/28/2006***		None	3.50	2.75	
	11/13/2006***		None	4.00	2.25	
	5/27/2007***		None	3.61	2.64	
	11/10/2007***		None	3.30	2.95	
	5/24/2008***		None	3.76	2.49	
	3/26/2009		None	3.08	3.17	
	6/12/2009		None	3.70	2.55	
	11/23/2009		None	3.94	2.31	
	<b>5/14/2010</b>		<b>None</b>	<b>3.36</b>	<b>2.89</b>	
MW-2	1/7/1999	5.53	2.27	6.91	-1.38	0.44
	6/8/1999		2.23	5.83	-0.3	1.48
	6/9/1999		0	3.9	1.63	1.63
	6/10/1999		0	3.9	1.63	1.63
	6/15/1999		0.42	3.92	1.61	1.95
	7/8/1999		0.2	4.3	1.23	1.39
	2/7/2000		Sheen	3.8	1.73	
	5/25/2000		0.12	3.23	2.3	2.40
	8/22/2000		0.23	4.45	1.08	1.10
	11/20/2000		0.23	4.70	0.83	0.85
	3/1/2001		0.13	2.75	2.78	2.79
	5/14/2001		Sheen	3.30	2.23	
	7/26/2001		None	3.27	2.26	
	10/16/2001		0.02	5.25	0.28	0.28
	2/21/2002		0.01	3.32	2.21	2.21
	5/29/2002		0.02	2.98	2.55	2.55
	9/17/2002		None	4.83	0.70	
	11/14/2002		None	5.43	0.10	
	2/5/2003		None	3.85	1.68	
	5/14/2003		None	2.94	2.59	
	8/22/2003		None	4.20	1.33	
	11/20/2003		None	4.68	0.85	
	2/9/2004		None	2.94	2.59	
	5/25/2004		None	2.90	2.63	
	8/16/2004		None	4.30	1.23	
	11/18/2004		None	4.67	0.86	
	2/22/2005		None	5.48	0.05	
	5/5/2005		None	3.02	2.51	
	10/9/2005***		0.083	6.91	-1.38	-1.37
	5/28/2006***		0.1	3.45	2.08	2.09
	11/13/2006***		None	2.60	2.93	
	5/27/2007***		None	3.30	2.23	
	11/10/2007***		None	3.10	2.43	
5/24/2008***	None	3.36	2.17			
3/26/2009	None	2.82	2.71			
6/12/2009	None	3.65	1.88			
11/23/2009	None	5.57	-0.04			
<b>5/14/2010</b>	<b>None</b>	<b>4.94</b>	<b>0.59</b>			

**TABLE 1  
GROUNDWATER LEVEL MEASUREMENTS  
AC Transit Facility  
1100 Seminary Avenue, Oakland, California**

Well	Date	Top of Casing Elevation (ft- msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness** (ft-msl)
MW-3	1/7/1999	4.76	None	4.11	0.65	
	2/7/2000		None	3.1	1.66	
	5/25/2000		None	2.41	2.35	
	8/22/2000		None	3.45	1.31	
	11/20/2000		None	3.42	1.34	
	3/1/2001		None	2.00	2.76	
	5/14/2001		None	2.64	2.12	
	7/26/2001		None	3.17	1.59	
	10/16/2001		None	3.97	0.79	
	2/21/2002		None	2.20	2.56	
	5/29/2002		None	2.52	2.24	
	9/17/2002		None	3.65	1.11	
	11/14/2002		None	3.47	1.29	
	2/5/2003		None	2.19	2.57	
	5/14/2003		None	2.12	2.64	
	8/22/2003		None	3.25	1.51	
	11/20/2003		None	3.40	1.36	
	2/9/2004		None	2.06	2.70	
	5/25/2004		None	2.10	2.66	
	8/16/2004		None	3.36	1.40	
	11/18/2004		None	2.68	2.08	
	2/22/2005		None	1.90	2.86	
	5/5/2005		None	2.38	2.38	
	10/9/2005***		None	3.36	1.40	
	5/28/2006***		None	2.32	2.44	
	11/13/2006***		None	3.00	1.76	
	5/27/2007***		None	2.45	2.31	
	11/10/2007***		None	2.70	2.06	
	5/24/2008***		None	2.65	2.11	
	3/26/2009		None	2.18	2.58	
6/12/2009	None	2.61	2.15			
11/23/2009	None	2.92	1.84			
	<b>5/14/2010</b>		<b>None</b>	<b>2.31</b>	<b>2.45</b>	
MW-9	2/7/2000	5.8	None	4.37	1.43	
	5/25/2000		None	4.95	0.85	
	8/22/2000		None	5.18	0.62	
	11/20/2000		None	4.70	1.10	
	3/1/2001		None	3.03	2.77	
	5/14/2001		None	4.56	1.24	
	7/26/2001		None	5.17	0.63	
	10/16/2001		None	5.19	0.61	
	2/21/2002		None	4.79	1.01	
	5/29/2002		None	4.07	1.73	
	9/17/2002		None	4.94	0.86	
	11/14/2002		None	4.87	0.93	
	2/5/2003		None	3.88	1.92	
	5/14/2003		None	3.77	2.03	
	8/22/2003		None	4.73	1.07	
	11/20/2003		None	4.46	1.34	
	2/9/2004		None	3.23	2.57	
	5/25/2004		None	3.53	2.27	
	8/16/2004		None	4.20	1.60	
	11/18/2004		None	3.91	1.89	
	2/22/2005		None	2.75	3.05	
	5/5/2005		None	3.21	2.59	
	10/9/2005***		None	4.45	1.35	
	5/28/2006***		None	3.33	2.47	
	11/13/2006***		None	4.35	1.45	
	5/27/2007***		None	3.75	2.05	
	11/10/2007***		None	4.25	1.55	
	5/24/2008***		None	4.05	1.75	
	3/26/2009		None	3.31	2.49	
	6/12/2009		None	4.04	1.76	
11/23/2009	None	4.27	1.53			
	<b>5/14/2010</b>		<b>None</b>	<b>4.33</b>	<b>1.47</b>	

**TABLE 1**  
**GROUNDWATER LEVEL MEASUREMENTS**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	Top of Casing Elevation (ft- msl)*	Product Thickness (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness** (ft-msl)		
MW-10	2/7/2000	4.65	None	3.19	1.46			
	5/25/2000		None	3.11	1.54			
	8/22/2000		None	4.35	0.30			
	11/20/2000		None	4.18	0.47			
	3/1/2001		None	3.14	1.51			
	5/14/2001		None	3.27	1.38			
	7/26/2001		None	3.95	0.70			
	10/16/2001		None	4.57	0.08			
	2/21/2002		None	3.29	1.36			
	5/29/2002		None	3.30	1.35			
	9/17/2002		None	4.11	0.54			
	11/14/2002		None	3.86	0.79			
	2/5/2003		None	3.36	1.29			
	5/14/2003		None	3.23	1.42			
	8/22/2003		None	4.52	0.13			
	11/20/2003		None	3.56	1.09			
	2/9/2004		None	2.51	2.14			
	5/25/2004		None	2.90	1.75			
	8/16/2004		None	3.90	0.75			
	11/18/2004		None	2.52	2.13			
	2/22/2005		None	2.66	1.99			
	5/5/2005		None	3.18	1.47			
	10/9/2005***		None	3.88	0.77			
	5/28/2006***		None	2.78	1.87			
	11/13/2006***		None	3.70	0.95			
	5/27/2007***		None	3.15	1.50			
	11/10/2007***		None	3.20	1.45			
	5/24/2008***		None	3.20	1.45			
	3/26/2009		None	2.51	2.14			
	6/12/2009		None	3.38	1.27			
	11/23/2009		None	3.74	0.91			
			<b>5/14/2010</b>		<b>None</b>	<b>3.01</b>	<b>1.64</b>	
	MW-11		2/7/2000	4.19	None	4.97	-0.78	
5/25/2000		None	7.58		-3.39			
8/22/2000		None	3.01		1.18			
11/20/2000		None	2.88		1.31			
3/1/2001		None	1.91		2.28			
5/14/2001		None	4.49		-0.3			
7/26/2001		None	2.95		1.24			
10/16/2001		None	3.35		0.84			
2/21/2002		None	1.85		2.34			
5/29/2002		None	2.36		1.83			
9/17/2002		None	3.11		1.08			
11/14/2002		None	2.55		1.64			
2/5/2003		None	2.75		1.44			
5/14/2003		None	1.98		2.21			
8/22/2003		None	2.86		1.33			
11/20/2003		None	2.73		1.46			
2/9/2004		None	2.60		1.59			
5/25/2004		None	2.06		2.13			
8/16/2004		None	2.91		1.28			
11/18/2004		None	2.75		1.44			
2/22/2005		None	3.06		1.13			
5/5/2005		None	2.89		1.3			
10/9/2005***		None	3.04		1.15			
5/28/2006***		None	1.30		2.89			
11/13/2006***		None	2.30		1.89			
5/27/2007***		None	2.20		1.99			
11/10/2007***		None	1.60		2.59			
5/24/2008***		None	2.31		1.88			
3/26/2009		None	2.01		2.18			
6/12/2009		None	2.30		1.89			
11/23/2009		None	2.58		1.61			
		<b>5/14/2010</b>			<b>None</b>	<b>2.73</b>	<b>1.46</b>	

Notes:

\* ft-msl: feet-mean sea level

\*\* used 0.8 specific gravity of product

DTW: Depth to Water

\*\*\* Essel Technology Services, Inc. data.

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ug/l)**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl		MTBE
							Benzene	Xylenes	
		MCL (ug/l)			1.0	150	300	1,750	13
MW-1	1/7/1999	<100	470	NA	17.0	2	31.0	18	<50
	2/7/2000	390	<60	1,300	13.0	<10	<10	<10	<20
	5/25/2000	<50	<50	1,000	12.0	<1.0	<1.0	<1.0	<2.0
	8/22/2000	<50	<50	600	6.3	<1.0	2.3	<1.0	<2.0
	11/20/2000	<50	<50	630	2.8	<1.0	1.1	<1.0	<2.0
	3/1/2001	<50	<50	900	29.0	1.2	16.0	6	<2.0
	5/14/2001	<50	<50	540	4.1	<1.0	3.1	<1.0	<2.0
	7/26/2001	190	<50	500	<1.0	<1.0	<1.0	<1.0	<2.0
	10/16/2001	<50	<50	650	16.0	1.1	4.6	1.6	<2.0
	2/21/2002	560	<50	550	21	1.0	19	15	<2.0
	5/29/2002	130	<50	510	<1.0	<1.0	<1.0	<1.0	<2.0
	9/17/2002	140	<50	330	<1.0	<1.0	<1.0	<1.0	<2.0
	11/14/2002	150	570	NA	4.8	0.57	2.7	1.1	<1.0
	2/5/2003	250	210	NA	16.0	<0.5	0.93	<1.0	<1.0
	5/14/2003	220	<50	NA	9.9	<0.5	1.6	<1.0	<1.0
	8/22/2003	150	770	NA	<0.5	<1.0	<1.0	<1.0	<1.0
	11/20/2003	300	320	NA	3.0	<0.5	0.56	<1.0	<1.0
	2/9/2004	210	370	NA	<0.5	0.50	0.52	<1.0	<1.0
	5/26/2004	470	<50	NA	5.0	<0.5	7.2	1.9	<1.0
	8/16/2004	75	<50	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	11/18/2004	207	200	NA	6.8	<0.5	2.80	1.0	<0.5
	2/22/2005	325	170	NA	17.3	<0.5	3.80	5.0	<0.5
	5/5/2005	512	670	NA	47.2	1.2	42.4	18.9	<0.5
	10/9/2005*	2,800	840	NA	200.0	5.0	85.0	26.0	<5.0
	5/29/2006*	1,900	580	NA	33.0	4.3	23.0	16.0	<5.0
	11/13/2006*	<50	230	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	5/27/2007*	1,400	4,700	NA	46.0	5.5	7.4	8.8	<15
	11/10/2007*	<50	1,900	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	5/25/2008*	1,200	550	NA	3.9	5.4	2.2	1.5	<5.0
	3/26/2009	1,510	167	NA	32.4	<5.0	40.4	<10	<5.0
6/12/2009	1,640	170	NA	20.9	<5.0	35.6	<10	<5.0	
11/23/2009	1,520	<98	NA	12.6	<2.5	25.0	<5.0	<2.5	
<b>5/14/2010</b>	<b>1,830</b>	<b>&lt;98</b>	<b>NA</b>	<b>15.4</b>	<b>&lt;3.3</b>	<b>24.7</b>	<b>7.7</b>	<b>&lt;3.3</b>	

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ug/l)**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl		MTBE
							Benzene	Xylenes	
		MCL (ug/l)			1.0	150	300	1,750	13
<b>MW-2</b>	6/8/1999	11,000	434,000	117,000	1,000,000	<100,000	260,000	<300,000	<5,000,000
	2/7/2000	51,000	160,000	<5000	19,000	<500	920	<500	<1000
	5/25/2000	<1200	<50000	65,000	11,000	<500	670	530	<1000
	8/22/2000	<2500	<2500	150,000	23,000	<500	1,100	1,100	<1000
	11/20/2000	<1200	<25000	430,000	18,000	<500	840	610	<1000
	3/3/2001	<500	<25000	610,000	14,000	<830	<830	<830	<1700
	5/14/2001	<1000	280,000	51,000	19,000	240	1,100	1,200	<330
	7/26/2001	54,000	590,000	<25000	19,000	<500	1,300	1,500	<1000
	10/16/2001	43,000	560,000	<25000	18,000	280	1,100	1,300	<100
	2/21/2002	46,000	180,000	<12000	18,000	<500	950	1,500	<1000
	5/29/2002	49,000	130,000	<5000	17,000	350	970	1,700	<500
	9/17/2002	60,000	<25000	470,000	21,000	<500	1,600	2,700	<1000
	11/14/2002	36,000	490,000	NA	14,000	280	970	2,200	<400
	2/5/2003	47,000	28,000	NA	15,000	360	1,200	2,100	<100
	5/14/2003	39,000	200,000	NA	13,000	370	1,000	2,000	<100
	8/22/2003	43,000	480,000	NA	22,000	490	1,500	2,100	<400
	11/20/2003	59,000	320,000	NA	22,000	<100	1,700	3,200	<200
	2/9/2004	19,000	55,000	NA	5,400	160	800	1,800	<100
	5/26/2004	60,000	520,000	NA	22,000	410	1,700	2,800	<250
	8/16/2004	63,000	42,000	NA	20,000	520	1,600	2,400	<250
	11/18/2004	38,200	126,000	NA	21,900	430	1,400	3,700	<2.5
	2/22/2005	55,200	42,000	NA	26,400	389	2,020	3,430	<50
	5/5/2005	38,600	18,300	NA	8,060	177	1,200	2,310	<50
	10/9/2005*	42,000	12,000	NA	19,000	<250	1,300	1,800	<250
	5/29/2006*	20,000	170,000	NA	5,900	88	190	660	<170
	11/13/2006*	3,000	7,200	NA	560	13	46	140	<80
	5/27/2007*	6,900	45,000	NA	1,800	28	110	270	<130
	11/10/2007*	19,000	14,000	NA	5,800	79	360	660	<500
	5/25/2008*	33,000	5,900	NA	9,100	170	700	880	<250
	3/26/2009	36,900	169,000	NA	15,000	229	841	854	<200
6/12/2009	40,200	15,300	NA	16,800	<200	1,340	1,340	<200	
11/23/2009	45,200	35,600	NA	18,200	<400	1,160	1,010	<400	
<b>5/14/2010</b>	<b>26,300</b>	<b>12,700</b>	<b>NA</b>	<b>7,500</b>	<b>&lt;170</b>	<b>779</b>	<b>631</b>	<b>&lt;170</b>	

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ug/l)**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl		MTBE
							Benzene	Xylenes	
		MCL (ug/l)			1.0	150	300	1,750	13
<b>MW-3</b>	1/7/1999	199	2,680	NA	450	<10	250	190	<500
	2/7/2000	2,000	<150	3,100	26	<2	5	2	<4
	5/25/2000	<50	<50	1,000	35	<1.0	6	4	<2.0
	8/22/2000	<50	<50	2,400	240	<10	<10	<10	<20
	11/20/2000	<50	<50	2,400	<25	<25	<25	<25	<50
	3/1/2001	<50	<50	1,200	100	<5.0	8.3	<5.0	<10
	5/14/2001	<50	<50	860	8.4	<1.0	1.2	<1.0	<2.0
	7/26/2001	1,200	<50	790	140	<5.0	12	<5.0	<10
	10/16/2001	1,000	<50	1,600	5.1	<1.0	4.3	<1.0	<2.0
	2/21/2002	1,700	<50	990	200	<10	29.0	12	<20
	5/29/2002	630	<50	840	68	<1.0	4.2	3.3	<2.0
	9/17/2002	<50	<50	1,100	4.1	<1.0	1.8	1.0	<2.0
	11/14/2002	2,800	460	NA	200	1.1	28	9.0	<2.0
	2/5/2003	720	270	NA	55	<0.5	20	7.1	<1.0
	5/14/2003	540	130	NA	18	<0.5	3.6	1.0	<1.0
	8/22/2003	400	540	NA	2.7	<1.0	1.6	<1.0	<1.0
	11/20/2003	240	520	NA	8.8	<0.5	2.2	<1.0	<1.0
	2/9/2004	700	700	NA	5.6	<0.5	3.8	1.3	<1.0
	5/26/2004	700	<100	NA	83.0	<0.5	11.0	1.7	<1.0
	8/16/2004	440	<500	NA	6.0	<0.5	1.6	<1.0	<1.0
	11/18/2004	728	230	NA	44.8	1.1	14.9	8.4	<0.5
	2/22/2005	3,480	390	NA	1130	1.9	174	89.4	<0.5
	5/5/2005	2,920	670	NA	1,360	2.8	199	100	<0.5
	10/9/2005*	8,400	1,400	NA	4,500	<100	330	<100	<100
	5/29/2006*	340	330	NA	6.2	1.3	<0.5	1.1	<5.0
	11/13/2006*	410	170	NA	2.7	2.1	1.2	1.0	<5.0
	5/27/2007*	600	620	NA	15	<0.5	15	4.7	<10
11/10/2007*	330	600	NA	16	0.8	7.6	1.4	<5.0	
5/25/2008*	810	1,300	NA	84	1.1	21	5.4	<5.0	
3/26/2009	1,160	380	NA	19.0	<1.0	19.2	3.7	<1.0	
6/12/2009	694	2,610	NA	168.0	<2.0	17.4	4.4	<2.0	
11/23/2009	999	<95	NA	78.0	<1.0	23.6	3.5	<1.0	
<b>5/14/2010</b>	<b>254</b>	<b>&lt;490</b>	<b>NA</b>	<b>36.8</b>	<b>&lt;1.0</b>	<b>7.9</b>	<b>&lt;2.0</b>	<b>&lt;1.0</b>	



**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ug/l)**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl		MTBE
							Benzene	Xylenes	
		MCL (ug/l)			1.0	150	300	1,750	13
<b>MW-9</b>	2/7/2000	<50	<50	240	<1	<1	<1	<1	<2
	5/25/2000	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0
	8/22/2000	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0
	20-Nov-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0
	3/1/2001	<50	<50	150	<1.0	<1.0	<1.0	<1.0	<2.0
	5/14/2001	<50	<50	110	<1.0	<1.0	<1.0	<1.0	<2.0
	7/26/2001	<50	<50	71	<1.0	<1.0	<1.0	<1.0	<2.0
	10/16/2001	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0
	2/21/2002	<50	<50	89	<1.0	<1.0	<1.0	<1.0	<2.0
	5/29/2002	<50	<50	95	<1.0	<1.0	<1.0	<1.0	<2.0
	9/17/2002	<50	<50	96	<1.0	<1.0	<1.0	<1.0	<2.0
	11/14/2002	<50	82	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	2/5/2003	<50	82	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	5/14/2003	<50	140	NA	<0.5	<0.5	<0.5	<1.0	1.3
	8/22/2003	<50	220	NA	<0.5	<1.0	<1.0	<1.0	<1.0
	11/20/2003	<50	80	NA	<0.5	<0.5	<0.5	<1.0	1.8
	2/9/2004	<50	65	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	5/26/2004	<50	<250	NA	<0.5	<0.5	<0.5	<1.5	<1.0
	8/16/2004	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	1.3
	11/18/2004	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	2.8
	2/22/2005	<50	<0.5	NA	<0.5	<0.5	<0.5	<1.0	1.5
	5/5/2005	<50	190	NA	1.1	<0.5	<0.5	<1.0	1.6
	10/9/2005*	<50	87	NA	2.8	<0.5	<0.5	<0.5	1.2
	5/29/2006*	<50	1,100	NA	<0.5	<0.5	<0.5	<0.5	<0.5
	11/13/2006*	<50	56	NA	<0.5	<0.5	<0.5	<0.5	<0.5
	5/27/2007*	<50	170	NA	<0.5	<0.5	<0.5	<0.5	<0.5
11/10/2007*	<50	1,300	NA	<0.5	<0.5	<0.5	<0.5	<0.5	
5/25/2008*	<50	250	NA	<0.5	<0.5	<0.5	<0.5	<0.5	
3/26/2009	<50	<990	NA	<1.0	<1.0	<1.0	<2.0	1.2	
6/12/2009	<50	<94	NA	<1.0	<1.0	<1.0	<2.0	2.1	
<b>11/23/2009</b>	<b>&lt;50</b>	<b>&lt;190</b>	<b>NA</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;2.0</b>	<b>&lt;1.0</b>	
<b>5/14/2010</b>	<b>&lt;50</b>	<b>&lt;96</b>	<b>NA</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;2.0</b>	<b>1.6</b>	

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ug/l)**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl		MTBE
							Benzene	Xylenes	
		MCL (ug/l)			1.0	150	300	1,750	13
<b>MW-10</b>	2/7/2000	<50	<50	470	<1	<1	<1	<1	<2
	5/25/2000	<50	<50	220	<1.0	<1.0	<1.0	<1.0	<2.0
	8/22/2000	<50	<50	140	<1.0	<1.0	<1.0	<1.0	<2.0
	11/20/2000	<50	<50	300	<1.0	<1.0	<1.0	<1.0	<2.0
	3/1/2001	<50	<50	250	<1.0	<1.0	<1.0	<1.0	<2.0
	5/14/2001	<50	<50	74	<1.0	<1.0	<1.0	<1.0	<2.0
	7/26/2001	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0
	10/16/2001	<50	<50	190	<1.0	<1.0	<1.0	<1.0	<2.0
	2/21/2002	<50	<50	190	<1.0	<1.0	<1.0	<1.0	<2.0
	5/29/2002	<50	<50	110	<1.0	<1.0	<1.0	<1.0	<2.0
	9/17/2002	<50	<50	170	<1.0	<1.0	<1.0	<1.0	<2.0
	11/14/2002	<50	270	NA	<0.5	<0.5	<0.5	<1.0	1.5
	2/5/2003	<50	160	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	5/14/2003	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	8/22/2003	<50	320	NA	<0.5	<1.0	<1.0	<1.0	<1.0
	11/20/2003	<50	300	NA	<0.5	<0.5	<0.5	<1.0	1.7
	2/9/2004	<50	250	NA	<0.5	<0.5	<0.5	<1.0	1.1
	5/26/2004	<500	<50	NA	<0.5	<0.5	<0.5	<1.5	<1.0
	8/16/2004	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	11/18/2004	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	0.9
	2/22/2005	<50	<50	NA	1.0	<0.5	<0.5	<1.0	0.9
	5/5/2005	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	<0.5
	10/9/2005*	<50	<50	NA	0.92	<0.5	<0.5	<0.5	0.66
	5/29/2006*	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5
	11/13/2006*	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5
	5/27/2007*	<50	550	NA	<0.5	<0.5	<0.5	<0.5	<0.5
	11/10/2007*	<50	130	NA	<0.5	<0.5	<0.5	<0.5	<0.5
5/25/2008*	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	
3/26/2009	<50	<100	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
6/12/2009	<50	<94	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
11/23/2009	<50	<95	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
<b>5/14/2010</b>	<b>&lt;50</b>	<b>&lt;96</b>	<b>NA</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;2.0</b>	<b>&lt;1.0</b>	

**TABLE 2**  
**ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ug/l)**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl		MTBE
							Benzene	Xylenes	
		MCL (ug/l)			1.0	150	300	1,750	13
<b>MW-11</b>	2/7/2000	<50	<50	400	<1	<1	<1	<1	25
	5/25/2000	<50	<50	200	<1.0	<1.0	<1.0	<1.0	16
	8/22/2000	<50	<50	170	<1.0	<1.0	<1.0	<1.0	9.3
	11/20/2000	<50	<50	190	<1.0	<1.0	<1.0	<1.0	7.5
	3/1/2001	<50	<50	250	<1.0	<1.0	<1.0	<1.0	15.0
	5/14/2001	<50	<50	160	<1.0	<1.0	<1.0	<1.0	14.0
	7/26/2001	<50	<50	220	5.9	<1.0	<1.0	2.7	20.0
	10/16/2001	<50	<50	170	<1.0	<1.0	<1.0	<1.0	12.0
	2/21/2002	<50	<50	170	<1.0	<1.0	<1.0	<1.0	2.2
	5/29/2002	<50	<50	290	<1.0	<1.0	<1.0	<1.0	2.3
	9/17/2002	<50	<500	1,900	<1.0	<1.0	<1.0	<1.0	3.8
	11/14/2002	<50	740	NA	0.88	<0.5	<0.5	1.2	5.3
	2/5/2003	<50	410	NA	<0.5	<0.5	<0.5	<1.0	3.4
	5/14/2003	<50	<50	NA	<0.5	<0.5	<0.5	<1.0	2.5
	8/22/2003	<50	540	NA	<0.5	<1.0	<1.0	<1.0	2.2
	11/20/2003	<50	290	NA	<0.5	<0.5	<0.5	<1.0	1.8
	2/9/2004	<50	270	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	5/26/2004	<50	<50	NA	<0.5	<0.5	<0.5	<1.5	<1.0
	8/16/2004	<50	100	NA	<0.5	<0.5	<0.5	<1.0	<1.0
	11/18/2004	70	<50	NA	3.3	<0.5	0.80	1.7	0.7
	2/22/2005	114	<5.0	NA	<0.5	<0.5	2.20	3.9	<0.5
	5/5/2005	<50	<50	NA	<0.5	0.60	<0.5	<1.0	<0.5
	10/9/2005*	<50	82	NA	3.0	<0.5	<0.5	0.57	0.83
5/29/2006*	<50	150	NA	2.9	<0.5	<0.5	<0.5	<0.5	
11/13/2006*	<50	150	NA	<0.5	<0.5	<0.5	<0.5	<0.5	
5/27/2007*	<50	330	NA	1.8	<0.5	<0.5	<0.5	<0.5	
11/10/2007*	110	890	NA	19	<0.5	2.5	4.0	<0.5	
5/25/2008*	300	790	NA	52	1.5	9.5	11	<10	
3/26/2009	<50	<95	NA	<1.0	<1.0	<1.0	<2.0	4.1	
6/12/2009	<50	<95	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
11/23/2009	<50	<95	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
<b>5/14/2010</b>	<b>&lt;50</b>	<b>&lt;97</b>	<b>NA</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;2.0</b>	<b>&lt;1.0</b>	

Notes:

ug/l: micrograms per liter

TPH-G: total petroleum hydrocarbons as gasoline

TPH-D: total petroleum hydrocarbons as diesel

TPH: total petroleum hydrocarbons as motor oil or unknown hydrocarbon

MCL: Maximum Contaminant Level

MTBE: Methyl-tert,butylether

NA: Not Analyzed

\* Essel Technology Services, Inc. data.

**APPENDIX A**

**CERTIFIED ANALYTICAL REPORTS**

**CHAIN-OF-CUSTODY DOCUMENTS**



## Technical Report for

**Cameron-Cole**

T0600102158-AC Transit Seminary, Oakland, CA

02-10005-002036-002

Accutest Job Number: C11050

Sampling Date: 05/14/10

### Report to:

Cameron-Cole  
50 Hegenberger Loop  
Oakland, CA 94621  
dmetz@cameron-cole.com; ssurani@cameron-cole.com;  
dbaker@cameron-cole.com  
ATTN: Shaun Surani

Total number of pages in report: **36**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

**Laurie Glantz-Murphy**  
Laboratory Director

Client Service contact: Anne Kathain 408-588-0200

Certifications: CA (08258CA) DoD/ISO/IEC 17025:2005 (L2242)

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Test results relate only to samples analyzed.

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## Sample Summary

Cameron-Cole

**Job No:** C11050

T0600102158-AC Transit Seminary, Oakland, CA  
 Project No: 02-10005-002036-002

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C11050-1	05/14/10	09:00 DB	05/14/10	AQ	Trip Blank Water	TB-01
C11050-2	05/14/10	09:30 DB	05/14/10	AQ	Ground Water	MW-2
C11050-3	05/14/10	10:10 DB	05/14/10	AQ	Ground Water	MW-1
C11050-4	05/14/10	10:55 DB	05/14/10	AQ	Ground Water	MW-3
C11050-5	05/14/10	11:30 DB	05/14/10	AQ	Ground Water	MW-10
C11050-6	05/14/10	12:10 DB	05/14/10	AQ	Ground Water	MW-9
C11050-7	05/14/10	12:45 DB	05/14/10	AQ	Ground Water	MW-11

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Cameron-Cole

**Job No** C11050

**Site:** T0600102158-AC Transit Seminary, Oakland, CA

**Report Date** 5/27/2010 7:50:38 PM

6 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 05/14/2010 and were received at Accutest on 05/14/2010 properly preserved, at 3.6 Deg. C and intact. These Samples received an Accutest job number of C11050. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

<b>Matrix</b> AQ	<b>Batch ID:</b> VM488
------------------	------------------------

- Sample(s) C11050-6MS, C11050-6MSD were used as the QC samples indicated.

<b>Matrix</b> AQ	<b>Batch ID:</b> VM491
------------------	------------------------

- Sample(s) C11052-3MS, C11052-3MSD were used as the QC samples indicated.

### Extractables by GC By Method SW846 8015B M

<b>Matrix</b> AQ	<b>Batch ID:</b> OP2143
------------------	-------------------------

- Sample(s) C11050-7MS, C11050-7MSD were used as the QC samples indicated.

Accutest Laboratories Northern California (ALNCA) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALNCA and as stated on the COC. ALNCA certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALNCA Quality Manual except as noted above. This report is to be used in its entirety. ALNCA is not responsible for any assumptions of data quality if partial data packages are used





## Sample Results

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## Report of Analysis

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## Report of Analysis

3.1  
3

<b>Client Sample ID:</b> TB-01		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-1		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Trip Blank Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M14953.D	1	05/21/10	XB	n/a	n/a	VM488
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

### Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		60-130%
2037-26-5	Toluene-D8	102%		60-130%
460-00-4	4-Bromofluorobenzene	98%		60-130%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

32  
3

<b>Client Sample ID:</b> MW-2	
<b>Lab Sample ID:</b> C11050-2	<b>Date Sampled:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 05/14/10
<b>Method:</b> SW846 8260B	<b>Percent Solids:</b> n/a
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M14966.D	166.7	05/21/10	XB	n/a	n/a	VM488
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

**Purgeable Aromatics, MTBE**

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	7500	170	ug/l	
108-88-3	Toluene	ND	170	ug/l	
100-41-4	Ethylbenzene	779	170	ug/l	
1330-20-7	Xylene (total)	631	330	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	170	ug/l	
	TPH-GRO (C6-C10)	26300	8300	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		60-130%
2037-26-5	Toluene-D8	103%		60-130%
460-00-4	4-Bromofluorobenzene	100%		60-130%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

32  
3

<b>Client Sample ID:</b> MW-2		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-2		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8015B M SW846 3510C		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG14216.D	20	05/18/10	MT	05/17/10	OP2143	GGG438
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1030 ml	1.0 ml
Run #2		

### TPH Extractable w/ Silica Gel Cleanup

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	12.7	1.9	mg/l	
	TPH (Motor Oil)	ND	3.9	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	73%		45-140%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

33

<b>Client Sample ID:</b> MW-1	
<b>Lab Sample ID:</b> C11050-3	<b>Date Sampled:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 05/14/10
<b>Method:</b> SW846 8260B	<b>Percent Solids:</b> n/a
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M14967.D	3.33	05/21/10	XB	n/a	n/a	VM488
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

### Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	15.4	3.3	ug/l	
108-88-3	Toluene	ND	3.3	ug/l	
100-41-4	Ethylbenzene	24.7	3.3	ug/l	
1330-20-7	Xylene (total)	7.7	6.7	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	3.3	ug/l	
	TPH-GRO (C6-C10)	1830	170	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		60-130%
2037-26-5	Toluene-D8	103%		60-130%
460-00-4	4-Bromofluorobenzene	100%		60-130%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis



<b>Client Sample ID:</b> MW-1		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-3		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8015B M SW846 3510C		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG14197.D	1	05/18/10	MT	05/17/10	OP2143	GGG438
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

### TPH Extractable w/ Silica Gel Cleanup

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel) <sup>a</sup>	ND	0.098	mg/l	
	TPH (Motor Oil)	ND	0.20	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	68%		45-140%

(a) 0.3mg/l. Not a typical Diesel pattern. Value due higher boiling gasoline compounds in the Diesel range (C10-C16).

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-3		
<b>Lab Sample ID:</b> C11050-4		<b>Date Sampled:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Date Received:</b> 05/14/10
<b>Method:</b> SW846 8260B		<b>Percent Solids:</b> n/a
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M15066.D	1	05/24/10	XB	n/a	n/a	VM491
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

## Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	36.8	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	7.9	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
	TPH-GRO (C6-C10)	254	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		60-130%
2037-26-5	Toluene-D8	99%		60-130%
460-00-4	4-Bromofluorobenzene	100%		60-130%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

34  
3

<b>Client Sample ID:</b> MW-3		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-4		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8015B M SW846 3510C		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG14280.D	5	05/20/10	MT	05/18/10	OP2143	GGG440
Run #2							

	Initial Volume	Final Volume
Run #1	1030 ml	1.0 ml
Run #2		

### TPH Extractable w/ Silica Gel Cleanup

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.49	mg/l	
	TPH (Motor Oil) <sup>a</sup>	3.26	0.97	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	71%		45-140%

(a) Petroleum hydrocarbon pattern elutes primarily between C18 and C40.

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound



## Report of Analysis

3.5  
3

<b>Client Sample ID:</b> MW-10		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-5		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8260B		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M14955.D	1	05/21/10	XB	n/a	n/a	VM488
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

**Purgeable Aromatics, MTBE**

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		60-130%
2037-26-5	Toluene-D8	103%		60-130%
460-00-4	4-Bromofluorobenzene	98%		60-130%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-10		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-5		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8015B M SW846 3510C		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG14249.D	1	05/19/10	MT	05/18/10	OP2143	GGG439
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

**TPH Extractable w/ Silica Gel Cleanup**

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.096	mg/l	
	TPH (Motor Oil)	ND	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	82%		45-140%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-9	
<b>Lab Sample ID:</b> C11050-6	<b>Date Sampled:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 05/14/10
<b>Method:</b> SW846 8260B	<b>Percent Solids:</b> n/a
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M14954.D	1	05/21/10	XB	n/a	n/a	VM488
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

**Purgeable Aromatics, MTBE**

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	1.6	1.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		60-130%
2037-26-5	Toluene-D8	101%		60-130%
460-00-4	4-Bromofluorobenzene	99%		60-130%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MW-9		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-6		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8015B M SW846 3510C		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG14250.D	1	05/19/10	MT	05/18/10	OP2143	GGG439
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	1.0 ml
Run #2		

### TPH Extractable w/ Silica Gel Cleanup

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.096	mg/l	
	TPH (Motor Oil) <sup>a</sup>	0.241	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	79%		45-140%

(a) Petroleum hydrocarbon pattern elutes primarily between C18 and C40.

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

37  
3

<b>Client Sample ID:</b> MW-11	
<b>Lab Sample ID:</b> C11050-7	<b>Date Sampled:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water	<b>Date Received:</b> 05/14/10
<b>Method:</b> SW846 8260B	<b>Percent Solids:</b> n/a
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M15053.D	1	05/24/10	XB	n/a	n/a	VM491
Run #2							

Run #	Purge Volume
Run #1	10.0 ml
Run #2	

**Purgeable Aromatics, MTBE**

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		60-130%
2037-26-5	Toluene-D8	101%		60-130%
460-00-4	4-Bromofluorobenzene	98%		60-130%

ND = Not detected  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

37  
3

<b>Client Sample ID:</b> MW-11		<b>Date Sampled:</b> 05/14/10
<b>Lab Sample ID:</b> C11050-7		<b>Date Received:</b> 05/14/10
<b>Matrix:</b> AQ - Ground Water		<b>Percent Solids:</b> n/a
<b>Method:</b> SW846 8015B M SW846 3510C		
<b>Project:</b> T0600102158-AC Transit Seminary, Oakland, CA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GG14251.D	1	05/19/10	MT	05/18/10	OP2143	GGG439
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1030 ml	1.0 ml
Run #2		

### TPH Extractable w/ Silica Gel Cleanup

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.097	mg/l	
	TPH (Motor Oil)	ND	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	77%		45-140%

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody











## GC/MS Volatiles

5

### QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM488-MB2	M14951.D	1	05/21/10	XB	n/a	n/a	VM488

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-1, C11050-2, C11050-3, C11050-5, C11050-6

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Result	Limits
1868-53-7	Dibromofluoromethane	100%	60-130%
2037-26-5	Toluene-D8	102%	60-130%
460-00-4	4-Bromofluorobenzene	100%	60-130%

## Method Blank Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM491-MB	M15049.D	1	05/24/10	XB	n/a	n/a	VM491

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-4, C11050-7

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Results	Limits
1868-53-7	Dibromofluoromethane	99%	60-130%
2037-26-5	Toluene-D8	102%	60-130%
460-00-4	4-Bromofluorobenzene	101%	60-130%

## Method Blank Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM488-MB	M14937.D	1	05/21/10	XB	n/a	n/a	VM488

The QC reported here applies to the following samples:

Method: SW846 8260B

VM488-BS

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	ND	1.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
1330-20-7	Xylene (total)	ND	2.0	ug/l	
	TPH-GRO (C6-C10)	ND	50	ug/l	

CAS No.	Surrogate Recoveries	Results	Limits
1868-53-7	Dibromofluoromethane	101%	60-130%
2037-26-5	Toluene-D8	104%	60-130%
460-00-4	4-Bromofluorobenzene	98%	60-130%

# Blank Spike Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM488-BS	M14949.D	1	05/21/10	XB	n/a	n/a	VM488

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-1, C11050-2, C11050-3, C11050-5, C11050-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	19.5	98	60-130
100-41-4	Ethylbenzene	20	21.1	106	60-130
1634-04-4	Methyl Tert Butyl Ether	20	20.4	102	60-130
108-88-3	Toluene	20	20.6	103	60-130
1330-20-7	Xylene (total)	60	62.6	104	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	60-130%
2037-26-5	Toluene-D8	102%	60-130%
460-00-4	4-Bromofluorobenzene	103%	60-130%

# Blank Spike Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM488-BS	M14950.D	1	05/21/10	XB	n/a	n/a	VM488

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-1, C11050-2, C11050-3, C11050-5, C11050-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	125	136	109	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	60-130%
2037-26-5	Toluene-D8	103%	60-130%
460-00-4	4-Bromofluorobenzene	99%	60-130%

5.2.2  
5



# Blank Spike Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM491-BS	M15047.D	1	05/24/10	XB	n/a	n/a	VM491

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-4, C11050-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	20	20.2	101	60-130
100-41-4	Ethylbenzene	20	20.2	101	60-130
1634-04-4	Methyl Tert Butyl Ether	20	20.8	104	60-130
108-88-3	Toluene	20	20.2	101	60-130
1330-20-7	Xylene (total)	60	60.5	101	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	60-130%
2037-26-5	Toluene-D8	96%	60-130%
460-00-4	4-Bromofluorobenzene	101%	60-130%

# Blank Spike Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM491-BS	M15048.D	1	05/24/10	XB	n/a	n/a	VM491

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-4, C11050-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	125	131	105	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	98%	60-130%
2037-26-5	Toluene-D8	101%	60-130%
460-00-4	4-Bromofluorobenzene	100%	60-130%

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C11050-6MS	M14969.D	1	05/22/10	XB	n/a	n/a	VM488
C11050-6MSD	M14970.D	1	05/22/10	XB	n/a	n/a	VM488
C11050-6	M14954.D	1	05/21/10	XB	n/a	n/a	VM488

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-1, C11050-2, C11050-3, C11050-5, C11050-6

CAS No.	Compound	C11050-6 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	19.6	98	20.1	101	3	60-130/25
100-41-4	Ethylbenzene	ND	20	21.1	106	21.1	106	0	60-130/25
1634-04-4	Methyl Tert Butyl Ether	1.6	20	20.2	93	20.3	94	0	60-130/25
108-88-3	Toluene	ND	20	20.2	101	20.3	102	0	60-130/25
1330-20-7	Xylene (total)	ND	60	62.3	104	62.8	105	1	60-130/25

CAS No.	Surrogate Recoveries	MS	MSD	C11050-6	Limits
1868-53-7	Dibromofluoromethane	101%	100%	100%	60-130%
2037-26-5	Toluene-D8	101%	101%	101%	60-130%
460-00-4	4-Bromofluorobenzene	102%	101%	99%	60-130%

5.3.1  
5

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C11052-3MS	M15067.D	1	05/24/10	XB	n/a	n/a	VM491
C11052-3MSD	M15068.D	1	05/24/10	XB	n/a	n/a	VM491
C11052-3	M15057.D	1	05/24/10	XB	n/a	n/a	VM491

The QC reported here applies to the following samples:

Method: SW846 8260B

C11050-4, C11050-7

CAS No.	Compound	C11052-3 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	20.3	102	18.6	93	9	60-130/25
100-41-4	Ethylbenzene	ND	20	21.7	109	18.9	95	14	60-130/25
1634-04-4	Methyl Tert Butyl Ether	ND	20	19.9	100	19.0	95	5	60-130/25
108-88-3	Toluene	ND	20	20.6	103	18.4	92	11	60-130/25
1330-20-7	Xylene (total)	ND	60	62.5	104	54.4	91	14	60-130/25

CAS No.	Surrogate Recoveries	MS	MSD	C11052-3	Limits
1868-53-7	Dibromofluoromethane	103%	101%	101%	60-130%
2037-26-5	Toluene-D8	100%	98%	101%	60-130%
460-00-4	4-Bromofluorobenzene	104%	100%	99%	60-130%

5.3.2  
5



## GC Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Method Blank Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2143-MB	GG14189.D	1	05/18/10	MT	05/17/10	OP2143	GGG438

The QC reported here applies to the following samples:

Method: SW846 8015B M

C11050-2, C11050-3, C11050-4, C11050-5, C11050-6, C11050-7

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.10	mg/l	
	TPH (Motor Oil)	ND	0.20	mg/l	

CAS No.	Surrogate Recoveries	Limits
630-01-3	Hexacosane	74% 45-140%

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2143-BS	GG14190.D	1	05/18/10	MT	05/17/10	OP2143	GGG438
OP2143-BSD	GG14191.D	1	05/18/10	MT	05/17/10	OP2143	GGG438

The QC reported here applies to the following samples:

Method: SW846 8015B M

C11050-2, C11050-3, C11050-4, C11050-5, C11050-6, C11050-7

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Diesel)	1	0.821	82	0.805	81	2	45-140/30
	TPH (Motor Oil)	1	0.685	69	0.716	72	4	45-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
630-01-3	Hexacosane	71%	76%	45-140%

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** C11050  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2143-MS	GG14252.D	1	05/19/10	MT	05/18/10	OP2143	GGG439
OP2143-MSD	GG14253.D	1	05/19/10	MT	05/18/10	OP2143	GGG439
C11050-7	GG14251.D	1	05/19/10	MT	05/18/10	OP2143	GGG439

The QC reported here applies to the following samples:

Method: SW846 8015B M

C11050-2, C11050-3, C11050-4, C11050-5, C11050-6, C11050-7

CAS No.	Compound	C11050-7 mg/l	Spike Q	mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Diesel)	ND	2	1.67	84	1.54	77	8		45-140/25
	TPH (Motor Oil)	ND	2	1.37	69	1.33	67	3		45-140/25

CAS No.	Surrogate Recoveries	MS	MSD	C11050-7	Limits
630-01-3	Hexacosane	75%	71%	77%	45-140%

6.3.1

6



**APPENDIX B**  
**SAMPLING EVENT DATA**

# HYDRODATA

PROJECT: AC Transit - Seminary

EVENT: 2Q2010

SAMPLER: Dennis Baker

NO.	WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
1	MW-1	5/14/2010	0841	3.36	SWL	
2	MW-2	5/14/2010	0833	4.94	SWL	
3	MW-3	5/14/2010	0823	2.31	SWL	
4	MW-9	5/14/2010	0846	4.33	SWL	
5	MW-10	5/14/2010	0815	3.01	SWL	
6	MW-11	5/14/2010	0827	2.73	SWL	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

**CODES:**

- SWL - Static Water Level
- OIL - Oil Level
- OWI - Oil/Water Interface
- MTD - Measured Total Depth

**CAMERON-COLE**  
**SAMPLING EVENT DATA SHEET**

WELL OR LOCATION MW-1

PROJECT <u>AC Transit - Seminary</u>		EVENT <u>2Q2010</u>	SAMPLER <u>Dennis Baker</u>	DATE <u>5/14/2010</u>
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<p>Intake depth <u>14</u></p> <p>SWL <u>3.37</u> (if above screen)</p> <p>SWL _____ (if in screen)</p> <p>Measured TD <u>15.30</u></p>	Well type <u>MW</u> (MW, EW, PZ, etc.)	ACTION	TIME	PUMP RATE (gpm)	DTW	
	Diameter <u>2"</u>	Start Pump / Begin  Stop Sampled Final IWL	<u>10:02</u>	<u>1.2</u>	<u>3.37</u>	
	<u>0.165 gal/ft. casing</u>					
	=TOP					
	=BOP					
	=TD (as built)					
<b>PURGE CALCULATION</b>						
$0.165 \text{ gal/ft.} \times \frac{11.93 \text{ ft.}}{\text{SWL to TD}} = \frac{1.97 \text{ gals.}}{\text{one volume}} \times 3 = \frac{5.91 \text{ gals.}}{\text{purge volume - 3 casings}}$						
2" = 0.165 gal/ft.      4" = 0.65 gal/ft.      6" = 1.47 gal/ft.						

Equipment Used / Sampling Method / Description of Event:  Centrifugal pump used to purge; disposable bailer used to sample.	Actual gallons purged <u>6</u> Actual volumes purged <u>3.05</u> Well Yield ⊕ <u>MY</u> COC # _____
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Additional Comments:	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:30%;">Sample I.D.</th> <th style="width:30%;">Analysis</th> <th style="width:40%;">Lab</th> </tr> </thead> <tbody> <tr> <td><u>MW-1</u></td> <td>BTEX, MTBE, TPH-g by 8260B</td> <td>Accutest</td> </tr> <tr> <td align="center"><u>↓</u></td> <td>TPH-d/mo by 8015M with Silica Gel Cleanup</td> <td align="center"><u>↓</u></td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Sample I.D.	Analysis	Lab	<u>MW-1</u>	BTEX, MTBE, TPH-g by 8260B	Accutest	<u>↓</u>	TPH-d/mo by 8015M with Silica Gel Cleanup	<u>↓</u>									
Sample I.D.	Analysis	Lab																	
<u>MW-1</u>	BTEX, MTBE, TPH-g by 8260B	Accutest																	
<u>↓</u>	TPH-d/mo by 8015M with Silica Gel Cleanup	<u>↓</u>																	

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>1.5</u>	<u>18.2</u>	<u>1475</u>	<u>6.91</u>	<u>24.21</u>	
<u>3.0</u>	<u>18.5</u>	<u>1503</u>	<u>6.86</u>	<u>9.58</u>	
<u>5.0</u>	<u>18.6</u>	<u>1532</u>	<u>6.82</u>	<u>10.12</u>	

\*Take measurement at approximately each casing volume purged. ⊕

HY-Minimal W.L. drop    MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump    LY - Able to purge 3 volumes by returning later or next day.    VLY - Minimal recharge - unable to purge 3 volumes.

**CAMERON-COLE**  
**SAMPLING EVENT DATA SHEET**

WELL OR LOCATION MW-2

PROJECT <u>AC Transit - Seminary</u>		EVENT <u>2Q2010</u>		SAMPLER <u>Dennis Baker</u>		DATE <u>5/14/2010</u>	
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	Well type <u>MW</u> (MW, EW, PZ, etc.)	ACTION	TIME	PUMP RATE (gpm)	DTW
	Diameter <u>2"</u>	Start Pump / Begin	<u>0919</u>	<u>1.4</u>	
	<u>0.165</u> gal/ft. casing				
	Intake depth <u>20</u>				
	SWL <u>3.42</u> (if above screen)	Stop	<u>0926</u>		
	SWL _____ (if in screen)	Sampled	<u>0930</u>		
Measured TD <u>23.30</u>	Final IWL				

<b>PURGE CALCULATION</b>			
<u>0.165</u> gal/ft. * <u>19.88</u> ft. =	<u>3.28</u> gals. X 3	=	<u>9.84</u> gals.
	SWL to TD one volume		purge volume - 3 casings
2" = 0.165 gal/ft.	4" = 0.65 gal/ft.	6" = 1.47 gal/ft.	

Equipment Used / Sampling Method / Description of Event:  Centrifugal pump used to purge; disposable bailer used to sample.	Actual gallons purged <u>10</u> Actual volumes purged <u>3.05</u> Well Yield ⊕ <u>MY</u> COC # _____
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Additional Comments:  <u>Trip Blank TB-01 collected @ 0900</u>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample I.D.</th> <th>Analysis</th> <th>Lab</th> </tr> </thead> <tbody> <tr> <td><u>MW-2</u></td> <td>BTEX, MTBE, TPH-g by 8260B</td> <td>Accutest</td> </tr> <tr> <td align="center"><u>↓</u></td> <td>TPH-d/mo by 8015M with Silica Gel Cleanup</td> <td align="center"><u>↓</u></td> </tr> <tr> <td><u>TB-01</u></td> <td>BTEX, MTBE, TPH-g by 8260B</td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Sample I.D.	Analysis	Lab	<u>MW-2</u>	BTEX, MTBE, TPH-g by 8260B	Accutest	<u>↓</u>	TPH-d/mo by 8015M with Silica Gel Cleanup	<u>↓</u>	<u>TB-01</u>	BTEX, MTBE, TPH-g by 8260B							
Sample I.D.	Analysis	Lab																	
<u>MW-2</u>	BTEX, MTBE, TPH-g by 8260B	Accutest																	
<u>↓</u>	TPH-d/mo by 8015M with Silica Gel Cleanup	<u>↓</u>																	
<u>TB-01</u>	BTEX, MTBE, TPH-g by 8260B																		

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>3</u>	<u>18.4</u>	<u>2460</u>	<u>6.59</u>	<u>119.5</u>	
<u>6</u>	<u>18.9</u>	<u>2480</u>	<u>6.60</u>	<u>35.59</u>	
<u>9</u>	<u>19.1</u>	<u>2500</u>	<u>6.61</u>	<u>17.15</u>	
4.					
5.					

*Take measurement at approximately each casing volume purged. ⊕	HY - Minimal W.L. drop	MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump	LY - Able to purge 3 volumes by returing later or next day.	VLY - Minimal recharge - unable to purge 3 volumes.
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**CAMERON-COLE**  
**SAMPLING EVENT DATA SHEET**

WELL OR LOCATION MW-3

PROJECT <u>AC Transit - Seminary</u>		EVENT <u>2Q2010</u>	SAMPLER <u>Dennis Baker</u>	DATE <u>5/14/2010</u>
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	Well type <u>MW</u> (MW, EW, PZ, etc.)	<b>ACTION</b>	<b>TIME</b>	<b>PUMP RATE (gpm)</b>	<b>DTW</b>
	Diameter <u>2"</u>	Start Pump / Begin	<u>1045</u>	<u>1.14</u>	<u>2.32</u>
	<u>0.165 gal/ft. casing</u>				
		Stop	<u>1052</u>		
		Sampled	<u>1055</u>		
	Final IWL				<u>9.01</u>

<b>PURGE CALCULATION</b>			
<u>0.165</u> gal/ft.	* <u>14.68</u> ft.	= <u>2.42</u> gals. X 3	= <u>7.27</u> gals.
	SWL to TD	one volume	purge volume - 3 casings
2" = 0.165 gal/ft.	4" = 0.65 gal/ft.	6" = 1.47 gal/ft.	

Equipment Used / Sampling Method / Description of Event:  Centrifugal pump used to purge; disposable bailer used to sample.	Actual gallons purged <u>8</u>  Actual volumes purged <u>3.31</u>  Well Yield ⊕ <u>MY</u>  COC # _____
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Additional Comments:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:30%;">Sample I.D.</th> <th style="width:30%;">Analysis</th> <th style="width:40%;">Lab</th> </tr> <tr> <td><u>MW-3</u></td> <td>BTEX, MTBE, TPH-g by 8260B</td> <td>Accutest</td> </tr> <tr> <td style="text-align: center;"><u>↓</u></td> <td>TPH-d/mo by 8015M with Silica Gel Cleanup</td> <td style="text-align: center;"><u>↓</u></td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Sample I.D.	Analysis	Lab	<u>MW-3</u>	BTEX, MTBE, TPH-g by 8260B	Accutest	<u>↓</u>	TPH-d/mo by 8015M with Silica Gel Cleanup	<u>↓</u>						
Sample I.D.	Analysis	Lab														
<u>MW-3</u>	BTEX, MTBE, TPH-g by 8260B	Accutest														
<u>↓</u>	TPH-d/mo by 8015M with Silica Gel Cleanup	<u>↓</u>														

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>2</u>	<u>20.5</u>	<u>340</u>	<u>7.50</u>	<u>46.13</u>	
<u>4.5</u>	<u>19.7</u>	<u>325</u>	<u>7.47</u>	<u>25.12</u>	
<u>7</u>	<u>20.3</u>	<u>335</u>	<u>7.45</u>	<u>36.49</u>	

\*Take measurement at approximately each casing volume purged. ⊕

HY-Minimal W.L. drop    PZ - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump    LY - Able to purge 3 volumes by returning later or next day.    VLY - Minimal recharge - unable to purge 3 volumes.

**CAMERON-COLE**  
**SAMPLING EVENT DATA SHEET**

WELL OR LOCATION mw-9

PROJECT AC Transit - Seminary      EVENT 2Q2010      SAMPLER Dennis Baker      DATE 5/14/2010

	Well type <u>MW</u> (MW, EW, PZ, etc.)	<b>ACTION</b>	<b>TIME</b>	<b>PUMP RATE</b> (gpm)	<b>DTW</b>
	Diameter <u>2"</u>	Start Pump / Begin	<u>1159</u>	<u>1.33</u>	<u>3.98</u>
	<u>0.165 gal/ft. casing</u>				
		Stop	<u>1205</u>	↓	<u>13.37</u>
		Sampled	<u>1210</u>		
	Final IWL				
<b>PURGE CALCULATION</b>					
$0.165 \text{ gal/ft.} * \frac{15.72 \text{ ft.}}{\text{SWL to TD}} = \frac{2.59 \text{ gals.}}{\text{one volume}} * 3 = \frac{7.78 \text{ gals.}}{\text{purge volume - 3 casings}}$					
2" = 0.165 gal/ft.      4" = 0.65 gal/ft.      6" = 1.47 gal/ft.					

Equipment Used / Sampling Method / Description of Event:  Centrifugal pump used to purge; disposable bailer used to sample.	Actual gallons purged <u>8</u> Actual volumes purged <u>3.09</u> Well Yield ⊕ <u>MY</u> COC # _____
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Additional Comments:	Sample I.D.	Analysis	Lab
	<u>MW-9</u>	BTEX, MTBE, TPH-g by 8260B	Accutest
	↓	TPH-d/mo by 8015M with Silica Gel Cleanup	↓

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>2</u>	<u>20.5</u>	<u>1460</u>	<u>7.39</u>	<u>15.24</u>	
<u>4</u>	<u>20.6</u>	<u>1395</u>	<u>7.36</u>	<u>7.91</u>	
<u>7.5</u>	<u>20.3</u>	<u>1395</u>	<u>7.31</u>	<u>5.90</u>	

\*Take measurement at approximately each casing volume purged. ⊕  
 HY - Minimal W.L. drop    MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump    LY - Able to purge 3 volumes by returning later or next day.    VLY - Minimal recharge - unable to purge 3 volumes.

**CAMERON-COLE**  
**SAMPLING EVENT DATA SHEET**

WELL OR LOCATION MW-10

PROJECT AC Transit - Seminary      EVENT 2Q2010      SAMPLER Dennis Baker      DATE 5/14/2010

<p>Intake depth <u>10</u></p> <p>SWL <u>2.90</u> (if above screen)</p> <p>SWL _____ (if in screen)</p> <p>Measured TD <u>11.40</u></p>	Well type <u>MW</u> (MW, EW, PZ, etc.)	<b>ACTION</b>	<b>TIME</b>	<b>PUMP RATE (gpm)</b>	<b>DTW</b>
	Diameter <u>2"</u>	Start Pump / Begin	<u>11:21</u>	<u>1.2</u>	<u>2.90</u>
	<u>0.165 gal/ft. casing</u>				
	=TOP	Stop	<u>11:27</u>		
	=BOP	Sampled	<u>11:30</u>		
	=TD (as built)	Final IWL			<u>8.18</u>

**PURGE CALCULATION**

0.165 gal/ft. \* 8.5 ft. = 1.40 gals. X 3 = 4.21 gals.  
SWL to TD                      one volume                      purge volume - 3 casings

2" = 0.165 gal/ft.      4" = 0.65 gal/ft.      6" = 1.47 gal/ft.

Equipment Used / Sampling Method / Description of Event:

Centrifugal pump used to purge;  
disposable bailer used to sample.

Actual gallons purged	<u>5</u>
Actual volumes purged	<u>3.57</u>
Well Yield ⊕	<u>MY</u>
COC #	_____

Additional Comments:

Sample I.D.	Analysis	Lab
<u>MW-10</u>	BTEX, MTBE, TPH-g by 8260B	Accutest
↓	TPH-d/mo by 8015M with Silica Gel Cleanup	↓

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>1</u>	<u>20.8</u>	<u>3850</u>	<u>6.95</u>	<u>8.78</u>	
<u>2.5</u>	<u>20.8</u>	<u>3840</u>	<u>6.89</u>	<u>15.63</u>	
<u>4</u>	<u>20.6</u>	<u>3870</u>	<u>6.88</u>	<u>41.72</u>	
4.					
5.					

\*Take measurement at approximately each casing volume purged. ⊕

HY-Minimal W.L. drop      MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump      LY - Able to purge 3 volumes by returning later or next day.      VLY - Minimal recharge - unable to purge 3 volumes.

**CAMERON-COLE**  
**SAMPLING EVENT DATA SHEET**

WELL OR LOCATION MW-11

PROJECT <u>AC Transit - Seminary</u>		EVENT <u>2Q2010</u>		SAMPLER <u>Dennis Baker</u>		DATE <u>5/14/2010</u>	
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	Well type <u>MW</u> (MW, EW, PZ, etc.)	<b>ACTION</b>	<b>TIME</b>	<b>PUMP RATE (gpm)</b>	<b>DTW</b>
	Diameter <u>2"</u>	Start Pump / Begin	<u>1234</u>	<u>1.0</u>	<u>2.66</u>
	<u>0.165 gal/ft. casing</u>				
	=TOP	Stop	<u>1240</u>	↓	<u>11.63</u>
	=BOP	Sampled	<u>1245</u>		
	=TD (as built)	Final IWL			

<b>PURGE CALCULATION</b>			
0.165 gal/ft.	* <u>10.84</u> ft.	= <u>1.79</u> gals.	X 3 = <u>5.37</u> gals.
	SWL to TD	one volume	purge volume - 3 casings
2" = 0.165 gal/ft.	4" = 0.65 gal/ft.	6" = 1.47 gal/ft.	

Equipment Used / Sampling Method / Description of Event:  Centrifugal pump used to purge; disposable bailer used to sample.	Actual gallons purged <u>6</u> Actual volumes purged <u>3.35</u> Well Yield ⊕ <u>24.</u> COC # _____
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Sample I.D.	Analysis	Lab																	
	BTEX, MTBE, TPH-g by 8260B	Accutest																	
	TPH-d/mo by 8015M with Silica Gel Cleanup																		

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
1. <u>2</u>	<u>22.5</u>	<u>1374</u>	<u>7.13</u>	<u>3.97</u>	
2. <u>4</u>	<u>22.1</u>	<u>1401</u>	<u>7.10</u>	<u>9.73</u>	
3. <u>5</u>	<u>22.3</u>	<u>1413</u>	<u>7.08</u>	<u>6.12</u>	
4.					
5.					

\*Take measurement at approximately each casing volume purged. ⊕  
 HY-Minimal W.L. drop    MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate or cycling pump    LY - Able to purge 3 volumes by returning later or next day.    VLY - Minimal recharge - unable to purge 3 volumes.