



Alameda-Contra Costa Transit District

June 30, 2011

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

Dear Mr. Detterman:

Subject: Groundwater Monitoring Report – Second Quarter 2011  
AC Transit, 1100 Seminary Ave., Oakland

AC Transit hereby submits the enclosed 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 25, 2011, from six monitoring wells.

Sampling results indicated total petroleum hydrocarbons (TPH) as gasoline was measured in monitoring wells MW-1 at 1,570 µg/l, MW-2 at 24,000 µg/l, and MW-3 at 724 µg/l. TPH as diesel was measured in monitoring wells MW-1 at 158 µg/l and MW-2 at 4,640 µg/l. Benzene was detected above the Maximum Contaminant Level (MCL) of 1 µg/l in MW-2 at 6,840 µg/l and MW-3 at 56.9 µg/l.

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.  
Manager, Safety and Environmental Engineering

Enclosure

**RECEIVED**

8:29 am, Jul 12, 2011

Alameda County  
Environmental Health

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

**July 2011**

**Prepared For:**

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



**Prepared By:**

Cameron-Cole  
50 Hegenberger Loop  
Oakland, California 94621



Project No: 2036

SEMI-ANNUAL GROUNDWATER MONITORING REPORT  
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## **INTRODUCTION**

This report presents the results of the semi-annual 2011 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 on May 25, 2011, 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 the 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, electric conductivity, and turbidity. 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 motor oil, 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, the six site monitor wells were measured for free phase hydrocarbon layers and depth to groundwater. No free phase hydrocarbon layers were found in these wells. 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 0.003 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, turbidity, 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 2011 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-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 0.003 feet/foot.
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-2 (6,840 ug/l) and MW-3 (56.9 ug/l), and ethylbenzene in well MW-2 (877 ug/l).
- Gasoline was found to be present in groundwater samples taken from wells MW-1 (1,570 ug/l), MW-2 (24,000 ug/l), and MW-3 (724 ug/l).

- Diesel was found to be present in the groundwater sample taken from MW-1 (158 ug/l) and MW-2 (4,640 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 2011.

## Figures

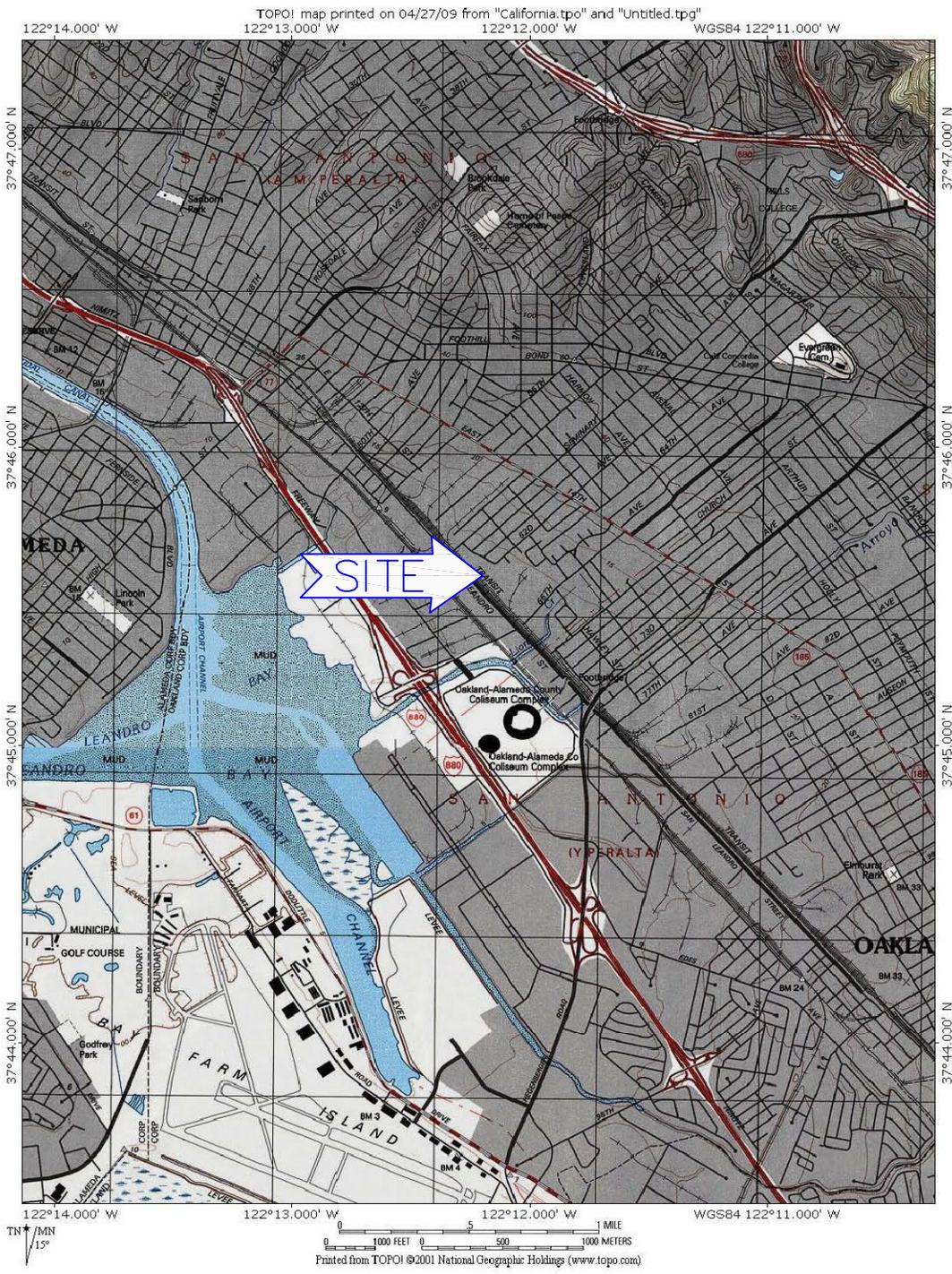


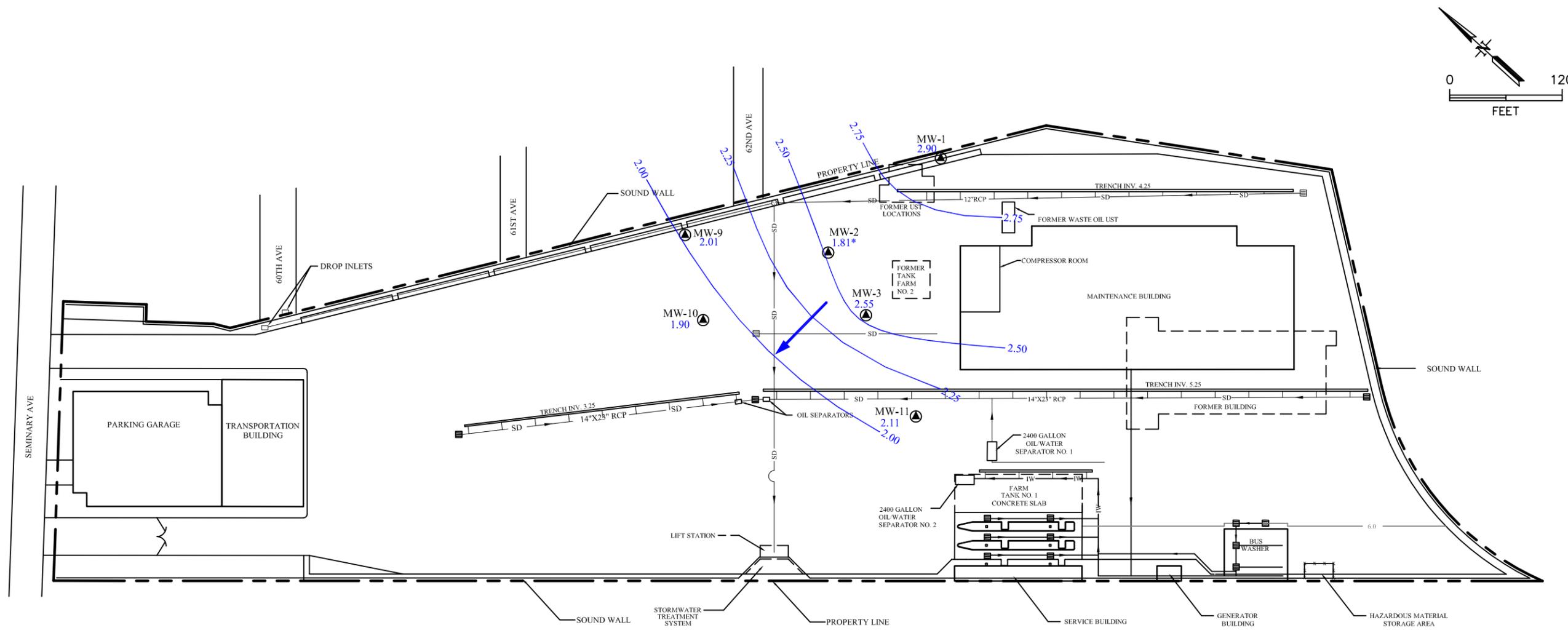
FIGURE 1  
 SITE LOCATION MAP  
 AC TRANSIT – SEMINARY  
 OAKLAND, CALIFORNIA

SCALE: AS NOTED      DATE: 4-28-09



**Cameron-Cole**  
 101 WEST ATLANTIC AVENUE, BUILDING 90  
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2036-001A



LEGEND

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

BY	DATE
DRAWN SPS	06/30/11
CHECKED	
APPROVED	
APPROVED	
APPROVED	


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**FIGURE 2**  
**AC TRANSIT - OAKLAND, CALIFORNIA**  
**1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP**  
**MAY 25, 2011**

SCALE: 1" = 120'	DWG. NO.: 2036-018A
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## 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			
	5/14/2010		None	3.36	2.89			
	11/29/2010		None	3.66	2.59			
			<b>5/25/2011</b>		<b>None</b>	<b>3.35</b>	<b>2.90</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					
5/14/2010	None	4.94	0.59					
12/1/2010	Sheen	3.77	1.76					
	<b>5/25/2011</b>		<b>None</b>	<b>3.72</b>	<b>1.81</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	
	5/14/2010		None	2.31	2.45	
11/29/2010	None	2.55	2.21			
	<b>5/11/2011</b>		<b>None</b>	<b>2.21</b>	<b>2.55</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			
5/14/2010	None	4.33	1.47			
11/29/2010	None	3.49	2.31			
	<b>5/25/2011</b>		<b>None</b>	<b>3.79</b>	<b>2.01</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	
	5/14/2010		None	3.01	1.64	
	11/29/2010		None	3.23	1.42	
	<b>5/25/2011</b>		<b>None</b>	<b>2.75</b>	<b>1.90</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			
5/14/2010	None	2.73	1.46			
11/29/2010	None	2.56	1.63			
<b>5/25/2011</b>	<b>None</b>	<b>2.08</b>	<b>2.11</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
<b>MW-1</b>	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	
5/14/2010	1,830	<98	NA	15.4	<3.3	24.7	7.7	<3.3	
11/29/2010	328	143	NA	2.2	<1.0	1.3	<2.0	<1.0	
5/25/2011	<b>1,570</b>	<b>158</b>	NA	<5.0	<5.0	<b>7.9</b>	<10	<5.0	

**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		
							Benzene	Xylenes	MTBE
		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
5/14/2010	26,300	12,700	NA	7,500	<170	779	631	<170	
12/1/2010	18,600	16,700	NA	7,730	<200	582	483	<200	
5/25/2011		<b>24,000</b>	<b>4,640</b>	NA	<b>6,840</b>	<200	<b>877</b>	<b>704</b>	<200

**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)					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	
5/14/2010	254	490	NA	36.8	<1.0	7.9	<2.0	<1.0	
11/29/2010	312	<96	NA	37.9	<1.0	9.4	<2.0	<1.0	
5/25/2011	<b>724</b>	<290	NA	<b>56.9</b>	<1.0	<b>25.1</b>	<b>2.9</b>	<1.0	

**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)					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
	11/23/2009	<50	<190	NA	<1.0	<1.0	<1.0	<2.0	<1.0
5/14/2010	<50	<96	NA	<1.0	<1.0	<1.0	<2.0	1.6	
11/29/2010	<50	<96	NA	<1.0	<1.0	<1.0	<2.0	1.6	
5/25/2011	<50	<94	NA	<1.0	<1.0	<1.0	<2.0	<b>2.9</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	
5/14/2010	<50	<96	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
11/29/2010	<50	<97	NA	<1.0	<1.0	<1.0	<2.0	1.0	
5/25/2011	<50	<95	NA	<1.0	<1.0	<1.0	<2.0	<1.0	

**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)					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	
5/14/2010	<50	<97	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
11/30/2010	<50	<98	NA	<1.0	<1.0	<1.0	<2.0	<1.0	
5/25/2011	<50	<97	NA	<1.0	<1.0	<1.0	<2.0	<1.0	

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**

**2036-002**

**Accutest Job Number: C16238**

**Sampling Date: 05/25/11**

**Report to:**

**Cameron-Cole**  
**50 Hegenberger Loop**  
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**Total number of pages in report: 35**



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.

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Certifications: CA (08258CA) AZ (AZ0762) 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:** C16238

T0600102158-AC Transit Seminary, Oakland, CA  
 Project No: 2036-002

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
C16238-1	05/25/11	07:15 DB	05/25/11	AQ	Trip Blank Water	TB-01
C16238-2	05/25/11	07:45 DB	05/25/11	AQ	Ground Water	MW-2
C16238-3	05/25/11	08:15 DB	05/25/11	AQ	Ground Water	MW-1
C16238-4	05/25/11	08:50 DB	05/25/11	AQ	Ground Water	MW-9
C16238-5	05/25/11	09:25 DB	05/25/11	AQ	Ground Water	MW-10
C16238-6	05/25/11	09:55 DB	05/25/11	AQ	Ground Water	MW-3
C16238-7	05/25/11	10:25 DB	05/25/11	AQ	Ground Water	MW-11

**SAMPLE DELIVERY GROUP CASE NARRATIVE**

**Client:** Cameron-Cole

**Job No** C16238

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

**Report Date** 6/2/2011 6:24:56 PM

6 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 05/25/2011 and were received at Accutest on 05/25/2011 properly preserved, at 2.8 Deg. C and intact. These Samples received an Accutest job number of C16238. 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> VQ69
-------------------	-----------------------

- Sample(s) C16215-2MS, C16215-2MSD were used as the QC samples indicated.

<b>Matrix:</b> AQ	<b>Batch ID:</b> VR90
-------------------	-----------------------

- Sample(s) C16192-1MS, C16192-1MSD were used as the QC samples indicated.

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

<b>Matrix:</b> AQ	<b>Batch ID:</b> OP3950
-------------------	-------------------------

- Sample(s) C16238-7MS, C16238-7MSD 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  
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<b>Client Sample ID:</b> TB-01		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-1		<b>Date Received:</b> 05/25/11
<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	Q1982.D	1	05/26/11	BD	n/a	n/a	VQ69
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	121%		60-130%
2037-26-5	Toluene-D8	96%		60-130%
460-00-4	4-Bromofluorobenzene	123%		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

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3

<b>Client Sample ID:</b> MW-2		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-2		<b>Date Received:</b> 05/25/11
<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	Q1999.D	200	05/26/11	BD	n/a	n/a	VQ69
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	6840	200	ug/l	
108-88-3	Toluene	ND	200	ug/l	
100-41-4	Ethylbenzene	877	200	ug/l	
1330-20-7	Xylene (total)	704	400	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	200	ug/l	
	TPH-GRO (C6-C10)	24000	10000	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		60-130%
2037-26-5	Toluene-D8	103%		60-130%
460-00-4	4-Bromofluorobenzene	127%		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-2		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-2		<b>Date Received:</b> 05/25/11
<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	HH13301.D	5	05/27/11	JH	05/26/11	OP3950	GHH485
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) <sup>a</sup>	4.64	0.48	mg/l	
	TPH (Motor Oil)	ND	0.96	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	78%		45-140%

(a) Diesel mixed with higher boiling gasoline compounds.

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> 05/25/11
<b>Lab Sample ID:</b> C16238-3		<b>Date Received:</b> 05/25/11
<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	R2521.D	5	05/27/11	BD	n/a	n/a	VR90
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	5.0	ug/l	
108-88-3	Toluene	ND	5.0	ug/l	
100-41-4	Ethylbenzene	7.9	5.0	ug/l	
1330-20-7	Xylene (total)	ND	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	ug/l	
	TPH-GRO (C6-C10)	1570	250	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		60-130%
2037-26-5	Toluene-D8	103%		60-130%
460-00-4	4-Bromofluorobenzene	97%		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> 05/25/11
<b>Lab Sample ID:</b> C16238-3		<b>Date Received:</b> 05/25/11
<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	GG25398.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
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) <sup>a</sup>	0.158	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	63%		45-140%

(a) Higher boiling gasoline compounds in Diesel range.

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> 05/25/11
<b>Lab Sample ID:</b> C16238-4		<b>Date Received:</b> 05/25/11
<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	Q1995.D	1	05/26/11	BD	n/a	n/a	VQ69
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	2.9	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	101%		60-130%
2037-26-5	Toluene-D8	100%		60-130%
460-00-4	4-Bromofluorobenzene	102%		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

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3

<b>Client Sample ID:</b> MW-9		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-4		<b>Date Received:</b> 05/25/11
<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	GG25399.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

### TPH Extractable w/ Silica Gel Cleanup

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.094	mg/l	
	TPH (Motor Oil)	1.89	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	57%		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-10		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-5		<b>Date Received:</b> 05/25/11
<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	Q1996.D	1	05/26/11	BD	n/a	n/a	VQ69
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	103%		60-130%
460-00-4	4-Bromofluorobenzene	103%		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> 05/25/11
<b>Lab Sample ID:</b> C16238-5		<b>Date Received:</b> 05/25/11
<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	GG25400.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

**TPH Extractable w/ Silica Gel Cleanup**

CAS No.	Compound	Result	RL	Units	Q
	TPH (Diesel)	ND	0.095	mg/l	
	TPH (Motor Oil)	ND	0.19	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	68%		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-3		
<b>Lab Sample ID:</b> C16238-6		<b>Date Sampled:</b> 05/25/11
<b>Matrix:</b> AQ - Ground Water		<b>Date Received:</b> 05/25/11
<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	Q1997.D	1	05/26/11	BD	n/a	n/a	VQ69
Run #2	R2520.D	2	05/27/11	BD	n/a	n/a	VR90

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

### Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	Units	Q
71-43-2	Benzene	56.9	1.0	ug/l	
108-88-3	Toluene	ND	1.0	ug/l	
100-41-4	Ethylbenzene	25.1	1.0	ug/l	
1330-20-7	Xylene (total)	2.9	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/l	
	TPH-GRO (C6-C10)	724 <sup>a</sup>	100	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%	87%	60-130%
2037-26-5	Toluene-D8	100%	101%	60-130%
460-00-4	4-Bromofluorobenzene	115%	98%	60-130%

(a) Result is from Run# 2

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>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-6		<b>Date Received:</b> 05/25/11
<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	HH13305.D	3	05/27/11	JH	05/26/11	OP3950	GHH485
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	0.29	mg/l	
	TPH (Motor Oil)	3.53	0.58	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	68%		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-11		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-7		<b>Date Received:</b> 05/25/11
<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	Q1998.D	1	05/26/11	BD	n/a	n/a	VQ69
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	104%		60-130%
2037-26-5	Toluene-D8	85%		60-130%
460-00-4	4-Bromofluorobenzene	105%		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-11		<b>Date Sampled:</b> 05/25/11
<b>Lab Sample ID:</b> C16238-7		<b>Date Received:</b> 05/25/11
<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	GG25402.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
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	70%		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

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### 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:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ69-MB	Q1981.D	1	05/26/11	BD	n/a	n/a	VQ69

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-1, C16238-2, C16238-4, C16238-5, C16238-6, C16238-7

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	107%	60-130%
2037-26-5	Toluene-D8	91%	60-130%
460-00-4	4-Bromofluorobenzene	95%	60-130%

# Method Blank Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR90-MB	R2501.D	1	05/27/11	BD	n/a	n/a	VR90

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-3, C16238-6

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	Results	Limits
1868-53-7	Dibromofluoromethane	88%	60-130%
2037-26-5	Toluene-D8	107%	60-130%
460-00-4	4-Bromofluorobenzene	99%	60-130%

5.1.2  
5

# Blank Spike Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ69-BS1	Q1980.D	1	05/26/11	BD	n/a	n/a	VQ69

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-1, C16238-2, C16238-4, C16238-5, C16238-6, C16238-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	125	117	94	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	60-130%
2037-26-5	Toluene-D8	85%	60-130%
460-00-4	4-Bromofluorobenzene	99%	60-130%

# Blank Spike Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR90-BS1	R2500.D	1	05/27/11	BD	n/a	n/a	VR90

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-3, C16238-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
	TPH-GRO (C6-C10)	125	132	106	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	60-130%
2037-26-5	Toluene-D8	108%	60-130%
460-00-4	4-Bromofluorobenzene	100%	60-130%

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ69-BS	Q1977.D	1	05/26/11	BD	n/a	n/a	VQ69
VQ69-BSD	Q1979.D	1	05/26/11	BD	n/a	n/a	VQ69

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-1, C16238-2, C16238-4, C16238-5, C16238-6, C16238-7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	24.0	120	22.7	114	6	60-130/30
100-41-4	Ethylbenzene	20	23.5	118	22.9	115	3	60-130/30
1634-04-4	Methyl Tert Butyl Ether	20	24.5	123	22.3	112	9	60-130/30
108-88-3	Toluene	20	22.7	114	18.8	94	19	60-130/30
1330-20-7	Xylene (total)	60	69.3	116	67.1	112	3	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	103%	105%	60-130%
2037-26-5	Toluene-D8	102%	88%	60-130%
460-00-4	4-Bromofluorobenzene	101%	99%	60-130%

5.3.1  
5

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR90-BS	R2497.D	1	05/27/11	BD	n/a	n/a	VR90
VR90-BSD	R2499.D	1	05/27/11	BD	n/a	n/a	VR90

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-3, C16238-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	19.2	96	17.1	86	12	60-130/30
100-41-4	Ethylbenzene	20	21.2	106	18.8	94	12	60-130/30
1634-04-4	Methyl Tert Butyl Ether	20	15.5	78	14.0	70	10	60-130/30
108-88-3	Toluene	20	20.1	101	18.1	91	10	60-130/30
1330-20-7	Xylene (total)	60	60.7	101	54.5	91	11	60-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	88%	89%	60-130%
2037-26-5	Toluene-D8	106%	104%	60-130%
460-00-4	4-Bromofluorobenzene	100%	99%	60-130%

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C16215-2MS	Q1992.D	1	05/26/11	BD	n/a	n/a	VQ69
C16215-2MSD	Q1993.D	1	05/26/11	BD	n/a	n/a	VQ69
C16215-2	Q1984.D	1	05/26/11	BD	n/a	n/a	VQ69

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-1, C16238-2, C16238-4, C16238-5, C16238-6, C16238-7

CAS No.	Compound	C16215-2 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	22.8	114	23.1	116	1	60-130/25
100-41-4	Ethylbenzene	ND	20	25.7	129	22.8	114	12	60-130/25
1634-04-4	Methyl Tert Butyl Ether	5.6	20	27.6	110	30.5	125	10	60-130/25
108-88-3	Toluene	ND	20	22.9	115	20.7	104	10	60-130/25
1330-20-7	Xylene (total)	ND	60	67.4	112	65.2	109	3	60-130/25

CAS No.	Surrogate Recoveries	MS	MSD	C16215-2	Limits
1868-53-7	Dibromofluoromethane	107%	108%	104%	60-130%
2037-26-5	Toluene-D8	109%	102%	100%	60-130%
460-00-4	4-Bromofluorobenzene	117%	102%	103%	60-130%

5.4.1  
5

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C16192-1MS	R2509.D	1	05/27/11	BD	n/a	n/a	VR90
C16192-1MSD	R2510.D	1	05/27/11	BD	n/a	n/a	VR90
C16192-1	R2505.D	1	05/27/11	BD	n/a	n/a	VR90

The QC reported here applies to the following samples:

Method: SW846 8260B

C16238-3, C16238-6

CAS No.	Compound	C16192-1 ug/l	Spike Q ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	20	20.2	101	19.6	98	3	60-130/25
100-41-4	Ethylbenzene	ND	20	19.0	95	18.5	93	3	60-130/25
1634-04-4	Methyl Tert Butyl Ether	ND	20	16.2	81	16.0	80	1	60-130/25
108-88-3	Toluene	ND	20	17.8	89	17.5	88	2	60-130/25
1330-20-7	Xylene (total)	ND	60	38.5	64	37.7	63	2	60-130/25

CAS No.	Surrogate Recoveries	MS	MSD	C16192-1	Limits
1868-53-7	Dibromofluoromethane	90%	89%	90%	60-130%
2037-26-5	Toluene-D8	95%	95%	93%	60-130%
460-00-4	4-Bromofluorobenzene	98%	99%	95%	60-130%

5.4.2  
5

## GC Semi-volatiles

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### 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:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3950-MB	GG25394.D	1	05/26/11	JH	05/26/11	OP3950	GGG694

The QC reported here applies to the following samples:

Method: SW846 8015B M

C16238-2, C16238-3, C16238-4, C16238-5, C16238-6, C16238-7

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	66% 45-140%

# Blank Spike/Blank Spike Duplicate Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3950-BS	GG25395.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
OP3950-BSD	GG25396.D	1	05/27/11	JH	05/26/11	OP3950	GGG694

The QC reported here applies to the following samples:

Method: SW846 8015B M

C16238-2, C16238-3, C16238-4, C16238-5, C16238-6, C16238-7

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (Diesel)	1	0.593	59	0.569	57	4	45-140/30
	TPH (Motor Oil)	1	0.685	69	0.623	62	9	45-140/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
630-01-3	Hexacosane	68%	61%	45-140%

6.2.1

6

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** C16238  
**Account:** CCCAA Cameron-Cole  
**Project:** T0600102158-AC Transit Seminary, Oakland, CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP3950-MS	GG25411.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
OP3950-MSD	GG25412.D	1	05/27/11	JH	05/26/11	OP3950	GGG694
C16238-7	GG25402.D	1	05/27/11	JH	05/26/11	OP3950	GGG694

The QC reported here applies to the following samples:

Method: SW846 8015B M

C16238-2, C16238-3, C16238-4, C16238-5, C16238-6, C16238-7

CAS No.	Compound	C16238-7 mg/l	Spike Q	mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH (Diesel)	ND	1.89	1.01	54	1.06	56	5	45-140/25	
	TPH (Motor Oil)	ND	1.89	1.17	62	1.28	68	9	45-140/25	

CAS No.	Surrogate Recoveries	MS	MSD	C16238-7	Limits
630-01-3	Hexacosane	61%	64%	70%	45-140%

6.3.1

6





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



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

WELL OR LOCATION mw-1

PROJECT AC Transit - Seminary EVENT 2Q2011 SAMPLER DB DATE 5/25/2011

	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>0807</u>	<u>1.2</u>	<u>3.33</u>
	<u>0.165</u> gal/ft. casing				
		Stop	<u>0812</u>		
		Sampled	<u>0815</u>		<u>3.87</u>
	Final IWL				

**PURGE CALCULATION**

0.165 gal/ft. \* 11.97 ft. = 1.98 gals. X 3 = 5.93 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>3.03</u>
Well Yield ⊕	<u>HY</u>
COC #	

Additional Comments:

Sample I.D.	Analysis	Lab
<u>mw-1</u>	BTEX, MTBE, TPH-g by 8260B	AT
↓	TPH-diesel/motor oil by 8015 Mod with Silica Gel	↓

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>1.5</u>	<u>18.1</u>	<u>1741</u>	<u>6.57</u>	<u>31.17</u>	
<u>3</u>	<u>18.3</u>	<u>1786</u>	<u>6.54</u>	<u>13.36</u>	
<u>5</u>	<u>18.4</u>	<u>1827</u>	<u>6.52</u>	<u>22.03</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-3

PROJECT AC Transit - Seminary EVENT 2Q2011 SAMPLER DB DATE 5/25/2011

	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>0945</u>	<u>1.14</u>	<u>2.21</u>
	<u>0.165 gal/ft. casing</u>				
		Stop	<u>0952</u>		
		Sampled	<u>0955</u>		<u>3.98</u>
	Final IWL				

**PURGE CALCULATION**

0.165 gal/ft. \* 14.79 ft. = 2.44 gals. X 3 = 7.32 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>3.28</u>
Well Yield ⊕	<u>HY</u>
COC #	

Additional Comments:

Sample I.D.	Analysis	Lab
<u>MW-3</u>	BTEX, MTBE, TPH-g by 8260B	AT
↓	TPH-diesel/motor oil by 8015 Mod with Silica Gel	↓

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>2</u>	<u>19.1</u>	<u>239</u>	<u>7.42</u>	<u>142.4</u>	
<u>4</u>	<u>19.6</u>	<u>253</u>	<u>7.01</u>	<u>56.44</u>	
<u>7</u>	<u>19.4</u>	<u>302</u>	<u>6.87</u>	<u>19.75</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 2Q2011 SAMPLER DB DATE 5/25/2011

	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>0918</u>	<u>0.83</u>	<u>2.70</u>
	<u>0.165</u> gal/ft. casing				
	<u>5</u> =TOP				
	<u>12</u> =BOP	Stop	<u>0922</u>	↓	<u>3.21</u>
	<u>12</u> =TD (as built)	Sampled	<u>0925</u>		
	Final IWL				
<b>PURGE CALCULATION</b>					
$0.165 \text{ gal/ft.} * \frac{9.30 \text{ ft.}}{\text{SWL to TD}} = \frac{1.53 \text{ gals.}}{\text{one volume}} * 3 = \frac{4.60 \text{ gals.}}{\text{purge volume - 3 casings}}$					
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 5  
Actual volumes purged 3.27  
Well Yield ⊕ MY  
COC # \_\_\_\_\_

Additional Comments:

Sample I.D.	Analysis	Lab
<u>MW-10</u>	BTEX, MTBE, TPH-g by 8260B	AT
↓	TPH-diesel/motor oil by 8015 Mod with Silica Gel	↓

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>1</u>	<u>20.0</u>	<u>4570</u>	<u>6.67</u>	<u>24.21</u>	
<u>2</u>	<u>19.3</u>	<u>4690</u>	<u>6.70</u>	<u>643.1</u>	
<u>4</u>	<u>19.0</u>	<u>4710</u>	<u>6.77</u>	<u>370.5</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    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 AC Transit - Seminary EVENT 2Q2011 SAMPLER DB DATE 5/25/2011

	Well type <u>MW</u> (MW, EW, PZ, etc.)	<b>ACTION</b>	<b>TIME</b>	<b>PUMP RATE (gpm)</b>	<b>DTW</b>
	Start Pump / Begin	<u>1017</u>			<u>2.07</u>
	Diameter <u>2"</u>				
	<u>0.165</u> gal/ft. casing				
	Stop	<u>1022</u>			
	Sampled	<u>1025</u>			
Final IWL					<u>12.77</u>
<b>PURGE CALCULATION</b>					
$0.165 \text{ gal/ft.} * 11.93 \text{ ft.} = 1.97 \text{ gals.} \times 3 = 5.91 \text{ gals.}$ <small>SWL to TD                      one volume                      purge volume - 3 casings</small>					
<small>2" = 0.165 gal/ft.                      4" = 0.65 gal/ft.                      6" = 1.47 gal/ft.</small>					

Equipment Used / Sampling Method / Description of Event:  
  
Centrifugal pump used to purge;  
disposable bailer used to sample.

Actual gallons purged 6  
Actual volumes purged \_\_\_\_\_  
Well Yield  $\oplus$  LY  
COC # \_\_\_\_\_

Additional Comments:

Sample I.D.	Analysis	Lab
<u>MW-11</u>	BTEX, MTBE, TPH-g by 8260B	AT
↓	TPH-diesel/motor oil by 8015 Mod with Silica Gel	↓

Gallons Purged *	Temp °C	EC (us / cm)	pH	Turbidity (NTU)	Other
<u>1.5</u>	<u>20.4</u>	<u>1621</u>	<u>6.77</u>	<u>20.21</u>	
<u>3</u>	<u>20.1</u>	<u>1618</u>	<u>6.76</u>	<u>17.06</u>	
<u>5</u>	<u>19.8</u>	<u>1742</u>	<u>6.71</u>	<u>12.86</u>	

\*Take measurement at approximately each casing volume purged.  $\oplus$  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.