AC Transit

Alameda Contra Costa Transit District

Suzanne Patton, P.E.
Environmental Engineer
(510) 577-8869
July 9, 2003

2016

Alameda County
JUL 11 2003
Environmental Health

~~Mr. Barney Chan~~ Amir
Alameda County Health Division
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502

Dear Mr. Chan:

Subject: Quarterly Groundwater Monitoring Report
AC Transit, 1100 Seminary Avenue, Oakland, CA

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the May 2003 sampling event at the 1100 Seminary Avenue, Oakland, facility. Analytical results of grab water samples showed parameter concentrations consistent with past quarterly monitoring events. The free phase product in well MW-2 has not been observed to be present since the second quarter of 2002.

Groundwater sampling of monitoring wells MW-1 through MW-3 and MW-9 through MW-11 was performed by Cameron-Cole in accordance with directives from your office. Groundwater samples were collected from the six on-site monitoring wells and analyzed for total petroleum hydrocarbons (TPH) as gasoline and diesel using EPA Method 8015, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl-tert butyl ether (MTBE) using EPA Method 8260B and nitrate and sulfate using Standard Methods 300.0A. Field parameters collected during sampling included pH, temperature, electrical conductivity, dissolved oxygen, ferrous iron and oxidation reduction potential. In addition, monitoring well MW-2 is being purged dry monthly and during each quarterly sampling event.

If you have any questions regarding this report or other matters pertaining to this site, please call me at (510) 577-8869.

Sincerely,

Suzanne Patton

Suzanne Patton, P.E.
Environmental Engineer

enclosure

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

June 2003

Ms. Suzanne Patton
AC Transit
10626 E. 14th Street
Oakland, California 94603

Prepared By:
Cameron-Cole
101 W. Atlantic, Building 90
Alameda, California 94501

Project No: 2016

CAMERON-COLE

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

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CAMERON-COLE

Written By
Emily Waters
Environmental Scientist I

Approved By
Brad Wright, RG, CHG
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STATE OF CALIFORNIA
REGISTERED GEOLOGIST
BRADLEY D. WRIGHT
REGISTERED GEOLOGIST

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INTRODUCTION

This report presents the results of the May 2003 sampling event for the AC Transit facility located at 1100 Seminary Avenue, Oakland, California (Site) (Figure 1). Groundwater sampling of monitor wells MW-1 through MW-3 and MW-9 through MW-11 was performed by Cameron-Cole, in accordance with directives from the Alameda County Health Care Services Agency (ACHCS).

OBJECTIVES AND SCOPE OF WORK

Work performed during quarterly sampling included measuring depth to water and presence of free phase hydrocarbons in the monitor wells and collecting water samples. Field parameters collected during sampling included pH, temperature, electric conductivity, dissolved oxygen (DO), ferrous iron (Fe^{2+}) and oxygen reduction potential (ORP). Groundwater samples were collected for laboratory analysis using United States Environmental Protection Agency (USEPA) Method 8015 for total petroleum hydrocarbons (TPH) gasoline/diesel, USEPA Method 8260B for benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl-tert butyl ether (MTBE) and methods of chemical analysis for water and waste (MCAWW) 300.0A for nitrate and sulfate.

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 inspected and measured for presence of free phase hydrocarbons and depth to groundwater. Measurements of depths to groundwater are presented on Table 1 and were used to construct the groundwater elevation contours shown in Figure 2. As shown, groundwater flow is to the west at a gradient of 0.0057 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, DO, ORP, Fe^{2+} and temperature were monitored using calibrated field meters.

In addition, MW-2 is now being purged of ten casing volumes monthly and during all quarterly sampling events to expedite the removal of free phase hydrocarbons from the vicinity of the well. Field data sheets the over-purge events are included in Appendix B.

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.

Groundwater Analytical Results

Table 2 presents groundwater historic and second quarter 2003 analytical results. Concentrations of benzene above the State of California maximum contaminant level (MCL) of 1.0 part per billion (ppb) were detected in monitor wells MW-1, MW-2 and MW-3. Toluene was detected above the MCL of 150 ppb in monitor well MW-2. Ethylbenzene was detected above the MCL of 700 ppb in monitor well MW-2. Total xylenes were detected above the MCL of 1,750 ppb in MW-2. TPH-Gas was detected above the reporting limit in monitor wells MW-2 and MW-3. TPH-Diesel was detected above the reporting limit in monitor wells MW-1, MW-2, MW-4 and MW-9. 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 0.0057 feet/foot.

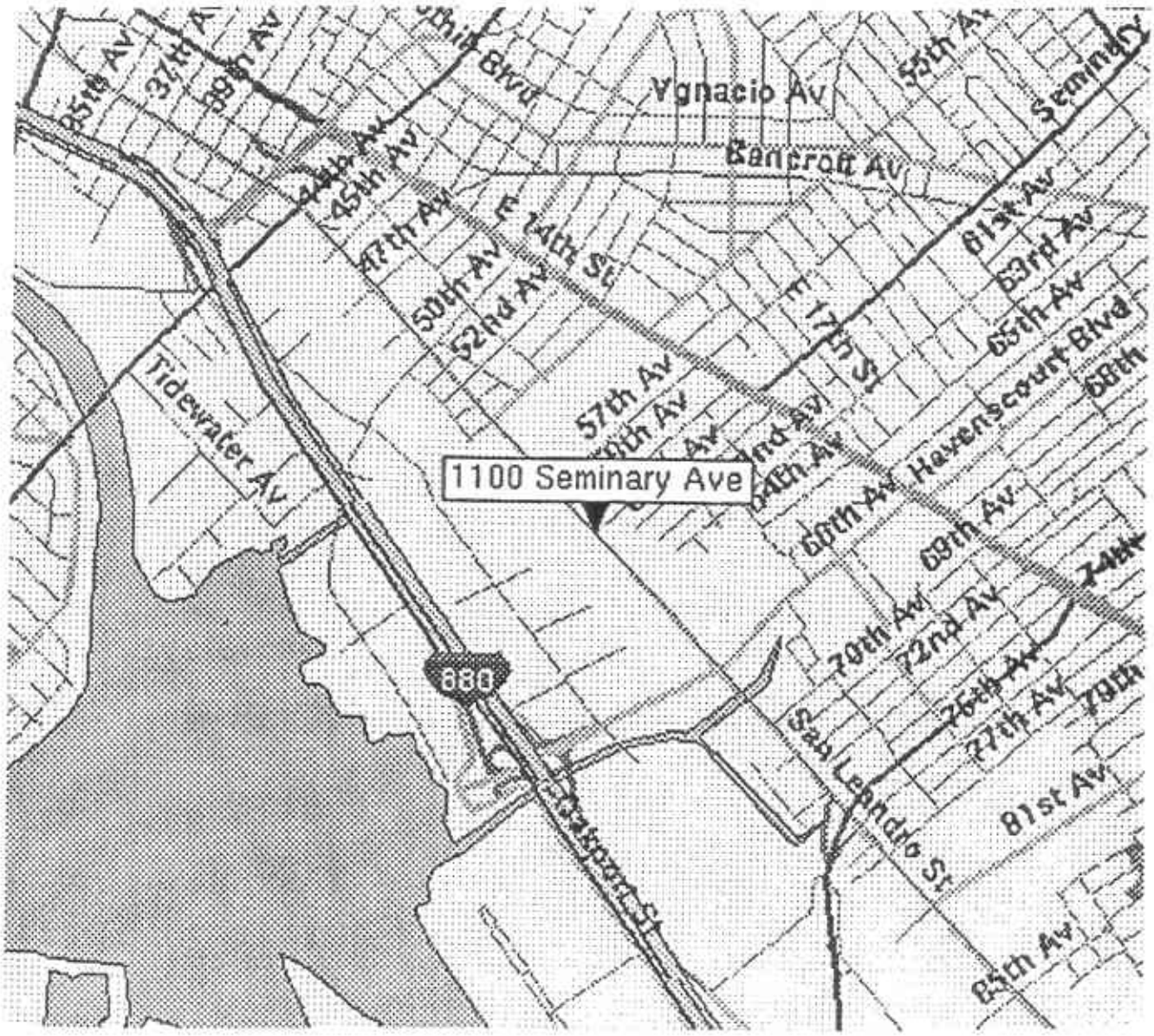
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1, MW-2 and MW-3, toluene in well MW-2, ethylbenzene in well MW-2 and xylenes in well MW-2.

- The free phase product level previously measured in well MW-2 has not been detected since the second quarter 2002.

PROJECTED WORK AND RECOMMENDATIONS

- Quarterly groundwater monitoring is scheduled for August 2003.

- Continued monthly over purges of MW-2.



CAMERON-COLE

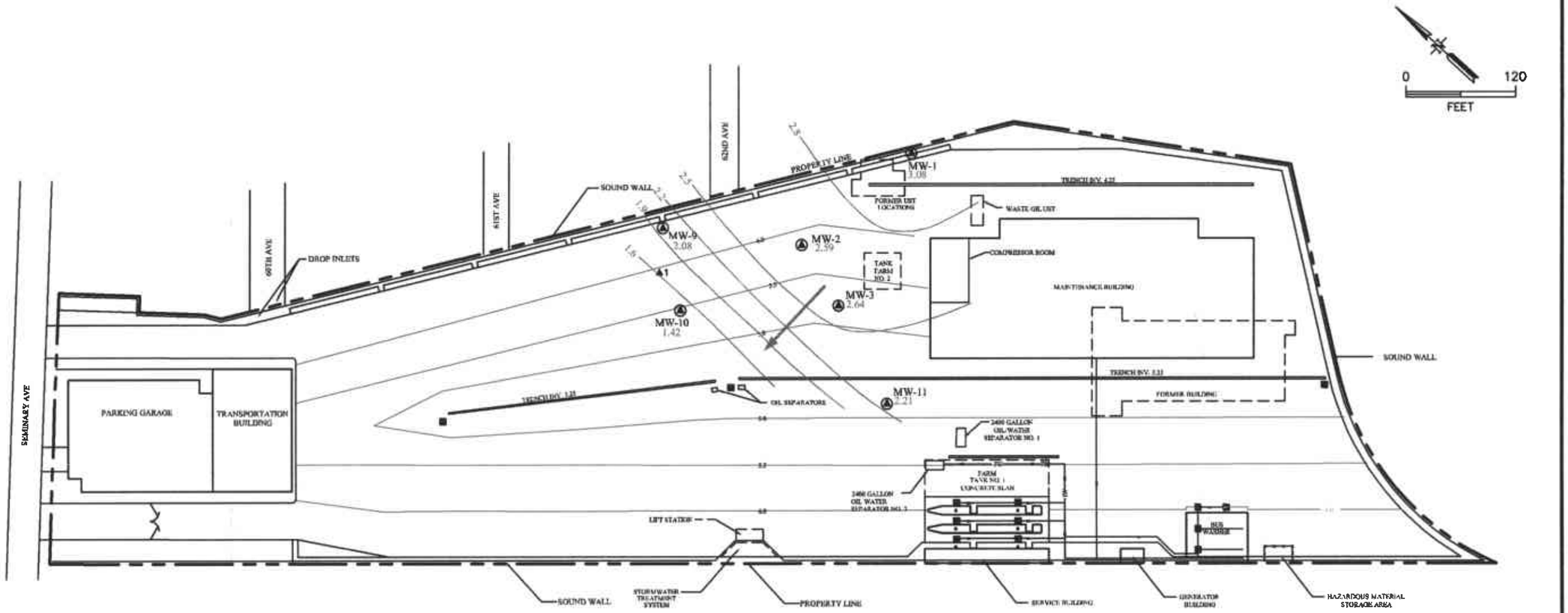
AC TRANSIT - OAKLAND, CALIFORNIA

FIGURE 1
SITE LOCATION MAP
1100 SEMINARY ROAD

SCALE:	DATE:
NO SCALE	3/22/00

North

LOCMAP



LEGEND

1.0 — GROUNDWATER ELEVATION CONTOUR	EXISTING MONITORING WELL
1.42 GROUNDWATER ELEVATION (FT. MSL)	MANHOLE
REPORTED GROUNDWATER FLOW	CATCH BASIN
6.0 — CONTOUR	
IW — INDUSTRIAL WASTE PIPELINE	
SURFACE DRAINAGE TRENCH	

	BY	DATE
DRAWN	CJJ	6-06-03
CHECKED		
APPROVED		
APPROVED		
APPROVED		

CAMERON-COLE

FIGURE 2

AC TRANSIT - OAKLAND, CALIFORNIA

1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP
MAY 14, 2003

SCALE: 1" = 120'

DWG. NO.: 2011-07

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**
MW-1	7-Jan-99	6.25	None	5.13	1.12	
	7-Feb-00		None	3.75	2.5	
	25-May-00		None	3.69	2.56	
	22-Aug-00		None	4.79	1.46	
	20-Nov-00		None	4.92	1.33	
	1-Mar-01		None	2.75	3.50	
	14-May-01		None	3.67	2.58	
	26-Jul-01		None	4.73	1.52	
	16-Oct-01		None	5.35	0.90	
	21-Feb-02		None	3.30	2.95	
	29-May-02		None	3.70	2.55	
	17-Sep-02		None	4.85	1.40	
	14-Nov-02		None	4.59	1.66	
	5-Feb-03		None	3.37	2.88	
	14-May-03		**None**	**3.17**	**3.08**	
MW-2	7-Jan-99	5.53	2.27	6.91	-1.38	0.44
	8-Jun-99		2.23	5.83	-0.3	1.48
	9-Jun-99		0	3.9	1.63	1.63
	10-Jun-99		0	3.9	1.63	1.63
	15-Jun-99		0.42	3.92	1.61	1.95
	8-Jul-99		0.2	4.3	1.23	1.39
	7-Feb-00		Sheen	3.8	1.73	
	25-May-00		0.12	3.23	2.3	2.40
	22-Aug-00		0.23	4.45	1.08	1.10
	20-Nov-00		0.23	4.70	0.83	0.85
	1-Mar-01		0.13	2.75	2.78	2.79
	14-May-01		Sheen	3.30	2.23	
	26-Jul-01		None	3.27	2.26	
	16-Oct-01		0.02	5.25	0.28	0.28
	21-Feb-02		0.01	3.32	2.21	2.21
	29-May-02		0.02	2.98	2.55	2.55
	17-Sep-02		None	4.83	0.70	
	14-Nov-02		None	5.43	0.10	
	5-Feb-03		None	3.85	1.68	
	14-May-03		**None**	**2.94**	**2.59**	
MW-3	7-Jan-99	4.76	None	4.11	0.65	
	7-Feb-00		None	3.1	1.66	
	25-May-00		None	2.41	2.35	
	22-Aug-00		None	3.45	1.31	
	20-Nov-00		None	3.42	1.34	
	1-Mar-01		None	2.00	2.76	
	14-May-01		None	2.64	2.12	
	26-Jul-01		None	3.17	1.59	
	16-Oct-01		None	3.97	0.79	
	21-Feb-02		None	2.20	2.56	
	29-May-02		None	2.52	2.24	
	17-Sep-02		None	3.65	1.11	
	14-Nov-02		None	3.47	1.29	
	5-Feb-03		None	2.19	2.57	
	14-May-03		**None**	**2.12**	**2.64**	

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**
MW-9	7-Feb-00	5.8	None	4.37	1.43	
	25-May-00		None	4.95	0.85	
	22-Aug-00		None	5.18	0.62	
	20-Nov-00		None	4.70	1.10	
	1-Mar-01		None	3.03	2.77	
	14-May-01		None	4.56	1.24	
	26-Jul-01		None	5.17	0.63	
	16-Oct-01		None	5.19	0.61	
	21-Feb-02		None	4.79	1.01	
	29-May-02		None	4.07	1.73	
	17-Sep-02		None	4.94	0.86	
	14-Nov-02		None	4.87	0.93	
	5-Feb-03		None	3.88	1.92	
	14-May-03		**None**	**3.77**	**2.03**	
MW-10	7-Feb-00	4.65	None	3.19	1.46	
	25-May-00		None	3.11	1.54	
	22-Aug-00		None	4.35	0.30	
	20-Nov-00		None	4.18	0.47	
	1-Mar-01		None	3.14	1.51	
	14-May-01		None	3.27	1.38	
	26-Jul-01		None	3.95	0.70	
	16-Oct-01		None	4.57	0.08	
	21-Feb-02		None	3.29	1.36	
	29-May-02		None	3.30	1.35	
	17-Sep-02		None	4.11	0.54	
	14-Nov-02		None	3.86	0.79	
	5-Feb-03		None	3.36	1.29	
	14-May-03		**None**	**3.23**	**1.42**	
MW-11	7-Feb-00	4.19	None	4.97	-0.78	
	25-May-00		None	7.58	-3.39	
	22-Aug-00		None	3.01	1.18	
	20-Nov-00		None	2.88	1.31	
	1-Mar-01		None	1.91	2.28	
	14-May-01		None	4.49	-0.3	
	26-Jul-01		None	2.95	1.24	
	16-Oct-01		None	3.35	0.84	
	21-Feb-02		None	1.85	2.34	
	29-May-02		None	2.36	1.83	
	17-Sep-02		None	3.11	1.08	
	14-Nov-02		None	2.55	1.64	
	5-Feb-03		None	2.75	1.44	
	14-May-03		**None**	**1.98**	**2.21**	

Notes:

* ft-msl: feet-mean sea level
** used 0.8 specific gravity of product
DTW: Depth to Water

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	700	1,750	13				
MW-1	7-Jan-99	<100	470	NA	17.0	2	31.0	18	<50	150	3,400	360	53
	7-Feb-00	390	<60	1,300	13.0	<10	<10	<10	<20	<50	1,200	1,220	11,800
	25-May-00	<50	<50	1,000	12.0	<1.0	<1.0	<1.0	<2.0	140	1,500	1,950	1,380
	22-Aug-00	<50	<50	600	6.3	<1.0	2.3	<1.0	<2.0	75	2,100	6,850	2,350
	20-Nov-00	<50	<50	630	2.8	<1.0	1.1	<1.0	<2.0	<50	4,500	11,210	1,170
	1-Mar-01	<50	<50	900	29.0	1.2	16.0	6	<2.0	<50	2,800	6,020	2,920
	14-May-01	<50	<50	540	4.1	<1.0	3.1	<1.0	<2.0	<50	2,500	13,970	1,870
	26-Jul-01	190	<50	500	<1.0	<1.0	<1.0	<1.0	<2.0	75	3,700	8,480	1,950
	16-Oct-01	<50	<50	650	16.0	1.1	4.6	1.6	<2.0	<50	3,600	9,480	2,560
	21-Feb-02	560	<50	550	21	1.0	19	15	<2.0	<50	3,000	5,890	2,200
	29-May-02	130	<50	510	<1.0	<1.0	<1.0	<1.0	<2.0	<50	2,300	6,820	1,300
	17-Sep-02	140	<50	330	<1.0	<1.0	<1.0	<1.0	<2.0	<50	5,200	5,840	>3300
	14-Nov-02	150	570	NA	4.8	0.57	2.7	1.1	<1.0	<200	12,000	4,720	>3300
	5-Feb-03	250	210	NA	16.0	<0.5	0.93	<1.0	<1.0	<200	6,500	5,630	>3300
	14-May-03	**220**	**<50**	**NA**	**9.9**	**<0.5**	**1.6**	**<1.0**	**<1.0**	**<200**	**5,200**	**3,280**	**2,750**
MW-2	8-Jun-99	11,000	434,000	117,000	1,000,000	<100,000	260,000	<300,000	<5,000,000	NA	NA	NA	NA
	7-Feb-00	51,000	160,000	<5000	19,000	<500	920	<500	<1000	51	<1000	6,660	7,300
	25-May-00	<1200	<50000	65,000	11,000	<500	670	530	<1000	330	<1000	5,670	0
	22-Aug-00	<2500	<2500	150,000	23,000	<500	1,100	1,100	<1000	370	<1000	4,530	3,680
	20-Nov-00	<1200	<25000	430,000	18,000	<500	840	610	<1000	<250	<500	1,700	3,300
	3-Mar-01	<500	<25000	610,000	14,000	<830	<830	<830	<1700	<250	<5000	7,880	3,300
	14-May-01	<1000	280,000	51,000	19,000	240	1,100	1,200	<330	<50	<1000	3,330	>3300
	26-Jul-01	54,000	590,000	<25000	19,000	<500	1,300	1,500	<1000	<50	<1000	9,960	>3300
	16-Oct-01	43,000	560,000	<25000	18,000	280	1,100	1,300	<100	<50	1,500	17,630	>3300
	21-Feb-02	46,000	180,000	<12000	18,000	<500	950	1,500	<1000	<100	<2000	3,650	>3300
	29-May-02	49,000	130,000	<5000	17,000	350	970	1,700	<500	<50	1,000	2,220	>3300
	17-Sep-02	60,000	<25000	470,000	21,000	<500	1,600	2,700	<1000	<50	<1000	4,270	>3300
	14-Nov-02	36,000	490,000	NA	14,000	280	970	2,200	<400	<200	<500	6,050	>3300
	5-Feb-03	47,000	28,000	NA	15,000	360	1,200	2,100	<100	<200	<500	6,940	>3300
	14-May-03	**39,000**	**200,000**	**NA**	**13,000**	**370**	**1,000**	**2,000**	**<100**	**<200**	**<500**	**2,140**	**<3300**

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	700	1,750	13				
MW-3	7-Jan-99	199	2,680	NA	450	<10	250	190	<500	170	3,300	880	0
	7-Feb-00	2,000	<150	3,100	26	<2	5	2	<4	<50	47,300	6,480	17,800
	25-May-00	<50	<50	1,000	35	<1.0	6	4	<2.0	<50	21,700	4,640	600
	22-Aug-00	<50	<50	2,400	240	<10	<10	<10	<20	<50	19,300	3,970	20
	20-Nov-00	<50	<50	2,400	<25	<25	<25	<25	<50	<50	26,500	4,120	20
	1-Mar-01	<50	<50	1,200	100	<5.0	8.3	<5.0	<10	<50	27,000	1,510	50
	14-May-01	<50	<50	860	8.4	<1.0	1.2	<1.0	<2.0	<50	21,100	9,800	0
	26-Jul-01	1,200	<50	790	140	<5.0	12	<5.0	<10	<50	18,700	8,650	80
	16-Oct-01	1,000	<50	1,600	5.1	<1.0	4.3	<1.0	<2.0	<50	29,800	11,360	640
	21-Feb-02	1,700	<50	990	200	<10	29.0	12	<20	<50	20,500	5,730	0
	29-May-02	630	<50	840	68	<1.0	4.2	3.3	<2.0	<50	14,300	5,870	1,070
	17-Sep-02	<50	<50	1,100	4.1	<1.0	1.8	1.0	<2.0	<50	17,000	6,820	2,820
	14-Nov-02	2,800	460	NA	200	1.1	28	9.0	<2.0	<200	19,000	9,780	1,210
	5-Feb-03	720	270	NA	55	<0.5	20	7.1	<1.0	<200	22,000	8,320	>3300
	14-May-03	**540**	**130**	**NA**	**18**	**<0.5**	**3.6**	**1.0**	**<1.0**	**<200**	**19,000**	**8,460**	**1,980**
MW-9	7-Feb-00	<50	<50	240	<1	<1	<1	<1	<2	230	183,000	6,940	9,000
	25-May-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0	250	172,000	6,020	1,200
	22-Aug-00	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	280	157,000	7,250	0
	20-Nov-00	<50	<50	130	<1.0	<1.0	<1.0	<1.0	<2.0	340	147,000	9,690	0
	1-Mar-01	<50	<50	150	<1.0	<1.0	<1.0	<1.0	<2.0	230	116,000	4,210	0
	14-May-01	<50	<50	110	<1.0	<1.0	<1.0	<1.0	<2.0	100	140,000	8,290	0
	26-Jul-01	<50	<50	71	<1.0	<1.0	<1.0	<1.0	<2.0	130	143,000	7,560	0
	16-Oct-01	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	89	141,000	967	50
	21-Feb-02	<50	<50	89	<1.0	<1.0	<1.0	<1.0	<2.0	94	137,000	3,500	70
	29-May-02	<50	<50	95	<1.0	<1.0	<1.0	<1.0	<2.0	94	141,000	4,590	90
	17-Sep-02	<50	<50	96	<1.0	<1.0	<1.0	<1.0	<2.0	100	143,000	3,860	2,130
	14-Nov-02	<50	82	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	130,000	10,120	670
	5-Feb-03	<50	82	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	140,000	8,630	2,870
	14-May-03	**<50**	**140**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**1.3**	**<200**	**130,000**	**8,760**	**2,570**

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	700	1,750	13				
MW-10	7-Feb-00	<50	<50	470	<1	<1	<1	<1	<2	53	114,000	1,200	55,000
	25-May-00	<50	<50	220	<1.0	<1.0	<1.0	<1.0	<2.0	480	136,000	1,940	0
	22-Aug-00	<50	<50	140	<1.0	<1.0	<1.0	<1.0	<2.0	69	126,000	4,350	0
	20-Nov-00	<50	<50	300	<1.0	<1.0	<1.0	<1.0	<2.0	<50	76,200	3,790	0
	1-Mar-01	<50	<50	250	<1.0	<1.0	<1.0	<1.0	<2.0	<250	106,000	7,440	0
	14-May-01	<50	<50	74	<1.0	<1.0	<1.0	<1.0	<2.0	<50	135,000	6,790	0
	26-Jul-01	<50	<50	120	<1.0	<1.0	<1.0	<1.0	<2.0	<50	125,000	9,680	1,970
	16-Oct-01	<50	<50	190	<1.0	<1.0	<1.0	<1.0	<2.0	<50	90,100	28,000	570
	21-Feb-02	<50	<50	190	<1.0	<1.0	<1.0	<1.0	<2.0	<50	77,700	4,280	0
	29-May-02	<50	<50	110	<1.0	<1.0	<1.0	<1.0	<2.0	<50	126,000	7,230	270
	17-Sep-02	<50	<50	170	<1.0	<1.0	<1.0	<1.0	<2.0	<50	107,000	4,230	>3300
	14-Nov-02	<50	270	NA	<0.5	<0.5	<0.5	<1.0	1.5	<200	64,000	1,680	1,400
	5-Feb-03	<50	160	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	110,000	5,260	>3300
	14-May-03	**<50**	**<50**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**<1.0**	**<200**	**93,000**	**2,990**	**1,720**

TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

Well	Date	TPH-G	TPH-D	TPH	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Nitrate	Sulfate	DO	Fe
	MCL (ppb)				1.0	150	700	1,750	13				
MW-11	7-Feb-00	<50	<50	400	<1	<1	<1	<1	25	800	167,000	7,300	16,200
	25-May-00	<50	<50	200	<1.0	<1.0	<1.0	<1.0	16	480	207,000	6,540	0
	22-Aug-00	<50	<50	170	<1.0	<1.0	<1.0	<1.0	9.3	610	168,000	4,640	20
	20-Nov-00	<50	<50	190	<1.0	<1.0	<1.0	<1.0	7.5	550	143,000	2,380	0
	1-Mar-01	<50	<50	250	<1.0	<1.0	<1.0	<1.0	15.0	170	80,300	5,860	0
	14-May-01	<50	<50	160	<1.0	<1.0	<1.0	<1.0	14.0	230	103,000	6,060	2,910
	26-Jul-01	<50	<50	220	5.9	<1.0	<1.0	2.7	20.0	180	71,300	7,360	>3300
	16-Oct-01	<50	<50	170	<1.0	<1.0	<1.0	<1.0	12.0	190	101,000	8,810	>3300
	21-Feb-02	<50	<50	170	<1.0	<1.0	<1.0	<1.0	2.2	110	75,600	4,280	0
	29-May-02	<50	<50	290	<1.0	<1.0	<1.0	<1.0	2.3	140	98,700	8,350	0
	17-Sep-02	<50	<500	1,900	<1.0	<1.0	<1.0	<1.0	3.8	54	141,000	6,260	90
	14-Nov-02	<50	740	NA	0.88	<0.5	<0.5	1.2	5.3	<200	120,000	8,380	0
	5-Feb-03	<50	410	NA	<0.5	<0.5	<0.5	<1.0	3.4	<200	8,800	9,590	0
	14-May-03	**<50**	**<50**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**2.5**	**<200**	**91,000**	**1,560**	**1,960**

Notes:
ppb: parts per billion
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
DO: Dissolved Oxygen
Fe: Ferrous Iron
NA: Not Analyzed

APPENDIX A

CERTIFIED ANALYTICAL REPORTS

CHAIN-OF-CUSTODY DOCUMENTS

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

RECEIVED MAY 30 2003

May 22, 2003

Brad Wright
Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501

Order:	34428	**Date Collected:**	5/14/2003
Project Name:	AC Transit Sem.	**Date Received:**	5/15/2003
Project Number:	2014	**P.O. Number:**	2014
Project Notes:			

On May 15, 2003, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Liquid	BTEX+MTBE by EPA 8260B	EPA 8260B
	EDD	EDD
	Fuel Scan	EPA 8015 MOD. (Extractable)
		EPA 8015 MOD. (Purgeable)
	Nitrate as N	EPA 300.0
	PDF	PDF
	Sulfate by IC	EPA 300.0

Chemical analysis of these samples has been completed. Summaries of the data are contained on the following pages. USEPA protocols for sample storage and preservation were followed.

Entech Analytical Labs, Inc. is certified by the State of California (#2346). If you have any questions regarding procedures or results, please call me at 408-588-0200.

Sincerely,

Patti Sandrock
QA/QC Manager

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501
Attn: Brad Wright

Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-001 **Client Sample ID:** MW-9
Sample Time: 11:15 AM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Nitrate as N	ND	1	0.2	0.2	mg/L	5/15/2003	WIC030515	EPA 300.0
Sulfate	130	10	0.5	5	mg/L	5/15/2003	WIC030515	EPA 300.0

Order ID: 34428 **Lab Sample ID:** 34428-002 **Client Sample ID:** MW-3
Sample Time: 12:10 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Nitrate as N	ND	1	0.2	0.2	mg/L	5/15/2003	WIC030515	EPA 300.0
Sulfate	19	1	0.5	0.5	mg/L	5/15/2003	WIC030515	EPA 300.0

Order ID: 34428 **Lab Sample ID:** 34428-003 **Client Sample ID:** MW-10
Sample Time: 12:35 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Nitrate as N	ND	10	0.2	2	mg/L	5/15/2003	WIC030515	EPA 300.0
Sulfate	93	10	0.5	5	mg/L	5/15/2003	WIC030515	EPA 300.0

Order ID: 34428 **Lab Sample ID:** 34428-004 **Client Sample ID:** MW-11
Sample Time: 12:40 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Nitrate as N	ND	1	0.2	0.2	mg/L	5/15/2003	WIC030515	EPA 300.0
Sulfate	91	1	0.5	0.5	mg/L	5/15/2003	WIC030515	EPA 300.0

Order ID: 34428 **Lab Sample ID:** 34428-005 **Client Sample ID:** MW-1
Sample Time: 1:15 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Nitrate as N	ND	10	0.2	2	mg/L	5/15/2003	WIC030515	EPA 300.0
Sulfate	5.2	1	0.5	0.5	mg/L	5/15/2003	WIC030515	EPA 300.0

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501
Attn: Brad Wright

Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-006 **Client Sample ID:** MW-2

Sample Time: 2:05 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Nitrate as N	ND	10	0.2	2	mg/L	5/15/2003	WIC030515	EPA 300.0
Sulfate	ND	10	0.5	5	mg/L	5/15/2003	WIC030515	EPA 300.0

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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Attn: Brad Wright

Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-001 **Client Sample ID:** MW-9

Sample Time: 11:15 AM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	1.3		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.5	73 - 151
Dibromofluoromethane	108.5	57 - 156
Toluene-d8	102.4	77 - 150

Order ID: 34428 **Lab Sample ID:** 34428-002 **Client Sample ID:** MW-3

Sample Time: 12:10 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Benzene	18		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Ethyl Benzene	3.6		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Xylenes, Total	1.0		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	104.4	73 - 151
Dibromofluoromethane	105.2	57 - 156
Toluene-d8	100.2	77 - 150

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Patti Sandrock, QA/QC Manager

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Alameda, CA 94501
Attn: Brad Wright

Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-003 **Client Sample ID:** MW-10

Sample Time: 12:35 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101.0	73 - 151
Dibromofluoromethane	106.3	57 - 156
Toluene-d8	102.0	77 - 150

Order ID: 34428 **Lab Sample ID:** 34428-004 **Client Sample ID:** MW-11

Sample Time: 12:40 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	2.5		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.2	73 - 151
Dibromofluoromethane	108.4	57 - 156
Toluene-d8	101.5	77 - 150

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-005 **Client Sample ID:** MW-1

Sample Time: 1:15 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Benzene	9.9		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Ethyl Benzene	1.6		1	0.5	0.5	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.3	73 - 151
Dibromofluoromethane	103.4	57 - 156
Toluene-d8	102.4	77 - 150

Order ID: 34428 **Lab Sample ID:** 34428-006 **Client Sample ID:** MW-2

Sample Time: 2:05 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		100	1	100	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Benzene	13000		100	0.5	50	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Toluene	370		100	0.5	50	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Ethyl Benzene	1000		100	0.5	50	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B
Xylenes, Total	2000		100	1	100	µg/L	N/A	5/16/2003	WMS210075	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	104.1	73 - 151
Dibromofluoromethane	107.4	57 - 156
Toluene-d8	101.3	77 - 150

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501
Attn: Brad Wright

Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-001 **Client Sample ID:** MW-9
Sample Time: 11:15 AM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	N/A	5/16/2003	WGC42832B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	91.1	65 - 135

Order ID: 34428 **Lab Sample ID:** 34428-002 **Client Sample ID:** MW-3
Sample Time: 12:10 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	540	x	1	50	50	µg/L	N/A	5/16/2003	WGC42832B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	113.8	65 - 135

Comment: Possible aged gasoline.

Order ID: 34428 **Lab Sample ID:** 34428-003 **Client Sample ID:** MW-10
Sample Time: 12:35 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	N/A	5/16/2003	WGC42832B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.2	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Patti Sandrock, QA/QC Manager

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Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501
Attn: Brad Wright

Date: 5/22/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-004 **Client Sample ID:** MW-11
Sample Time: 12:40 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	N/A	5/16/2003	WGC42832B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.2	65 - 135

Order ID: 34428 **Lab Sample ID:** 34428-005 **Client Sample ID:** MW-1
Sample Time: 1:15 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	220	x	1	50	50	µg/L	N/A	5/16/2003	WGC42832B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	110.5	65 - 135

Comment: Possible aged gasoline.

Order ID: 34428 **Lab Sample ID:** 34428-006 **Client Sample ID:** MW-2
Sample Time: 2:05 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	39000		500	50	25000	µg/L	N/A	5/16/2003	WGC42832B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	89.7	65 - 135

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

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Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501
Attn: Brad Wright

Date: 5/23/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-001 **Client Sample ID:** MW-9
Sample Time: 11:15 AM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	140	x	1	50	50	µg/L	5/15/2003	5/16/2003	DW4358A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	102.0	21 - 142

Comment: Reported TPH as Diesel value is a result of an overlapping heavy end hydrocarbon (C11-C40) into the Diesel quantitation range C9-C26).

Order ID: 34428 **Lab Sample ID:** 34428-002 **Client Sample ID:** MW-3
Sample Time: 12:10 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	130	x	2	50	100	µg/L	5/15/2003	5/19/2003	DW4358A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	107.0	21 - 142

Comment: Not a TPH as Diesel pattern. Possible aged gasoline range compounds (GRO C5-C12) in the TPH as Diesel range (C9-C26).

Order ID: 34428 **Lab Sample ID:** 34428-003 **Client Sample ID:** MW-10
Sample Time: 12:35 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	50	50	µg/L	5/15/2003	5/19/2003	DW4358A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	119.0	21 - 142

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

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101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501
Attn: Brad Wright

Date: 5/23/03
Date Received: 5/15/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Amir Mostazov

Certified Analytical Report

Order ID: 34428 **Lab Sample ID:** 34428-004 **Client Sample ID:** MW-11
Sample Time: 12:40 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		1	50	50	µg/L	5/15/2003	5/19/2003	DW4358A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	109.0	21 - 142

Order ID: 34428 **Lab Sample ID:** 34428-005 **Client Sample ID:** MW-1
Sample Time: 1:15 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	ND		2	50	100	µg/L	5/15/2003	5/19/2003	DW4358A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	120.0	21 - 142

Order ID: 34428 **Lab Sample ID:** 34428-006 **Client Sample ID:** MW-2
Sample Time: 2:05 PM **Sample Date:** 5/14/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	200000		500	50	25000	µg/L	5/15/2003	5/17/2003	DW4358A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	NR	21 - 142

Comment: NR = Not Reportable. Surrogate recovery not reportable due to dilution.

DF = Dilution Factor ND = Not Detected DLR = Detection Limit Reported PQL = Practical Quantitation Limit

Analysis performed by Entech Analytical Labs, Inc. (CA ELAP #2346)

Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

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STANDARD LAB QUALIFIERS (FLAGS)

All Entech lab reports now reference standard lab qualifiers. These qualifiers are noted in the adjacent column to the analytical result and are adapted from the U.S. EPA CLP program. The current qualifier list is as follows:

Qualifier (Flag)	Description
U	Compound was analyzed for but not detected
J	Estimated value for tentatively identified compounds or if result is below PQL but above MDL
N	Presumptive evidence of a compound (for Tentatively Identified Compounds)
B	Analyte is found in the associated Method Blank
E	Compounds whose concentrations exceed the upper level of the calibration range
D	Multiple dilutions reported for analysis; discrepancies between analytes may be due to dilution
X	Results within quantitation range; chromatographic pattern not typical of fuel
Y	PQL is reported below MDL but verified against a standard analyzed at the client requested reporting limit of 0.5 ppb
C	Reported results affected by contaminated reagent materials. See narrative for futher explanation

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Quality Control Results Summary

QC Batch #: DW4358A
Matrix: Liquid
Units: µg/L
Date Analyzed: 5/15/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: TPH as Diesel											
TPH as Diesel	EPA 8015 M	ND		1000		968.71	LCS	96.9			51.7 - 126.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	o-Terphenyl		115.0			21 - 142					
Test: TPH as Diesel											
TPH as Diesel	EPA 8015 M	ND		1000		1014.66	LCSD	101.5	4.63	25.00	51.7 - 126.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	o-Terphenyl		113.0			21 - 142					

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Quality Control Results Summary

QC Batch #: WGC42832B
Matrix: Liquid
Units: µg/L
Date Analyzed: 5/16/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		234.2	LCS	93.7			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			91.8			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		230.	LCSD	92.0	1.81	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			91.3			65 - 135					

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Quality Control Results Summary

QC Batch #: WIC030515 **Units:** mg/L
Matrix: Liquid **Date Analyzed:** 5/15/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: Nitrate as N											
Nitrate as N	EPA 300.0	ND		2.26		2.073	LCS	91.7			80.0 - 120.0
Test: sulfate											
Sulfate	EPA 300.0	ND		15		13.596	LCS	90.6			80.0 - 120.0
Test: Nitrate as N											
Nitrate as N	EPA 300.0	ND		2.26		2.083	LCSD	92.2	0.48	20.00	80.0 - 120.0
Test: sulfate											
Sulfate	EPA 300.0	ND		15		13.686	LCSD	91.2	0.66	20.00	80.0 - 120.0

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Quality Control Results Summary

QC Batch #: WMS210075 **Units:** µg/L

Matrix: Liquid **Date Analyzed:** 5/16/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: BTEX+MTBE by EPA 8260B											
Benzene	EPA 8260B	ND		20		20.1134	LCS	100.6			67.6 - 131.8
Methyl-t-butyl Ether	EPA 8260B	ND		20		19.303	LCS	96.5			54.0 - 130.5
Toluene	EPA 8260B	ND		20		19.8051	LCS	99.0			81.9 - 110.5

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	104.7	73 - 151
Dibromofluoromethane	99.4	57 - 156
Toluene-d8	101.4	77 - 150

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: BTEX+MTBE by EPA 8260B											
Benzene	EPA 8260B	ND		20		20.1345	LCSD	100.7	0.10	25.00	67.6 - 131.8
Methyl-t-butyl Ether	EPA 8260B	ND		20		20.2778	LCSD	101.4	4.93	25.00	54.0 - 130.5
Toluene	EPA 8260B	ND		20		19.8055	LCSD	99.0	0.00	25.00	81.9 - 110.5

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	105.1	73 - 151
Dibromofluoromethane	105.3	57 - 156
Toluene-d8	101.3	77 - 150

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Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: 510-769-3563	Purchase Order No.:	Send Invoice to (If Different) / Phone
Company Name: Cameron-Cole	Fax No.: 510-337-3994	Project Number: 2014	Company
Mailing Address: 101 W. Atlantic Bldg 90		Project Name: AC TRANSIT	Billing Address (If Different)
City: Alameda / State: Ca / Zip: 94501		Project Location: Seminary	City: / State / Zip

Sampler: AM

Date: 5/14/03

Turn Around Time: Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ Standard ☑

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix H_2O	Composite	Grab	Containers	Preservative HCl	Volatile Organics by GCMS: Freon 113 ☐ 624 ☐ 8260B ☐	Fuel Oxygenates by 8260B ☐ 8240 ☐	MTBE by 8260B ☐	Pesticides-8081 ☐	PCBs - 8082 ☐	Halogenated or Aromatic Volatiles: F113 ☐ 8021 ☐ 601/8010 ☐	TPH as Gas/BTEX ☐ 602/8020 ☐	TPH as Gas/BTEX/MTBE ☐	Base/Neutral/Acid Organics 8270 ☐	8270-SIMS ☐	Fuel Scan	Diesel ☐	w/ Silgel Standard Cleanup ☐ w/ Silgel Column Cleanup ☐	8260 BTEX/MTBE	8015 GRO	TRPH ☐ Oil & Grease ☐	8015 DRO	Nitrate/Sulfate	THM (502.2)	Metals - Circle Below Total ☐ Dissolved ☐	Remarks
TB-01		5/14/03	0830	X			2	X												X								
MW-9	34428-001		1115				3	X												X								
							3	X													X							
							2															[redacted]	X					
							1															[redacted]		X				
MW-3	002		1210				3	X												X								
							3	X													X							
							2																X					
							1																	X				
MW-10	003		1235				3	X												X								
							3	X													X							
							2																X					

Relinquished by:	Received by:	Date:	Time:
[signature]	SAS MIKE	51503	0730
WORLD COURIER	[signature]	51503	

Special Instructions or Comments

1 of 3

EDD REQUESTED
PDF REQUESTED

☐ NPDES Detection Limits

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

Entech Analytical Labs, Inc.

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Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: 510-769-3562	Purchase Order No.:	Send Invoice to (If Different): / Phone:
Company Name: Cameron-Cole LLC.	Fax No.: 510-337-3994	Project Number: 2014	Company:
Mailing Address: 101 W. Atlantic Ave.		Project Name: AC Transit	Billing Address (If Different):
City: Alameda	State: Ca / Zip: 94501	Project Location: Seminary	City: / State: / Zip:

Sampler: A.M

Date: 5/14/03

Turn Around Time: Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ Standard ☑

Order ID:

Analysis columns:
1. Volatile Organics by GCMS: 624 ☐ 8240 ☐ 8260B ☐ Freon 113 ☐
2. Fuel Oxygenates by 8260B ☐ MTBE by 8260B ☐
3. Pesticides-8081 ☐ PCBs - 8082 ☐
4. Halogenated or Aromatic Volatiles: 601/8010 ☐ 602/8020 ☐ F113 ☐ 8021 ☐
5. TPH as Gas/BTEX ☐ TPH as Gas/BTEX/MTBE ☐
6. Base/Neutral/Acid Organics 8270 ☐ 8270-SIMS ☐
7. Fuel Scan
8. Diesel ☐ w/ Si-gel Standard Cleanup ☐ w/ Si-gel Column Cleanup ☐
9. 8260 BTEX/MTBE
10. 8015 GRO
11. TRPH ☐ Oil & Grease ☐
12. 8015 DRO
13. Nitrate/Sulfate
14. THM (502.2)
15. Metals - Circle Below: Total ☐ Dissolved ☐
16. (blank)
17. (blank)

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix H_2O	Composite	Grab	Containers	Preservative HCl	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Remarks
MW-10	34428-003	5/14/03	1235	X			1														X					
MW-11	004	↓	1240	↓			3	X									X									
↓			↓				3	X										X								
							2													X						
							1														X					
MW-1	005		1315				3	X									X									
↓			↓				3	X										X								
							2													X						
							1														X					
MW-2	006		1405				3	X									X									
↓			↓				3	X										X								
		↓	↓	↓			2													X						

Relinquished by:	Received by:	Date:	Time:
A. M[illegible]	SGS MIKE	51503	0730
WORLD COURIER	[illegible signature]	51503	

Special Instructions or Comments ☐ NPDES Detection Limits

2 of 3

* EDD REQUESTED (PDF)

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

Entech Analytical Labs, Inc.

3334 Victor Court (408) 588-0200
Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: 510-769-3563	Purchase Order No.:	Send Invoice to (if Different)	Phone
Company Name: Cameron-Cole	Fax No.: 510-337-3959	Project Number: 2014	Company
Mailing Address: 101 W. Atlantic Ave.		Project Name: AC TRANSIT	Billing Address (if Different)
City: Alameda	State: Ca	Zip: 94501	Project Location: SEMINARY	City:	State	Zip

Sampler: AM

Date: 5/14/03

Turn Around Time: Same Day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ Standard ☑

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix (W, S, etc.)	Composite	Grab	Containers	Preservative
MW-2	34428-006	5/14/03	1405	W			1	

Preservative / Analysis Requested:

- Volatile Organics by GCMS: 8240 ☐ Freon 113 ☐ 8260B ☐ Fuel Oxygenates by 8260B ☐ MTBE by 8260B ☐
- Pesticides-8081 ☐ PCBs - 8082 ☐
- Halogenated or Aromatic Volatiles: 601/8010 ☐ F113 ☐ 8021 ☐ 602/8020 ☐
- TPH as Gas/BTEX ☐ TPH as Gas/BTEX/MTBE ☐
- Base/Neutral/Acid Organics 8270 ☐ 8270-SIMS ☐
- Fuel Scan Diesel ☐ w/ Si-gel Standard Cleanup ☐ w/ Si-gel Column Cleanup ☐ ✓ Nitrate Sulfate
- TRPH ☐ Oil & Grease ☐
- THM (502.2)
- Metals - Circle Below Total ☐ Dissolved ☐

Remarks

Relinquished by:	Received by:	Date:	Time:
[signature]	SAS MIKE	5/15/03	0730
Relinquished by: WORLD COURIER	Received by: [signature]	Date: 5/15/03	Time:
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

3 of 3

☐ NPDES Detection Limits

Metals: Al, As, Sb, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Si, Ag, Na, Se, Sr, Tl, Sn, Ti, V, Zn, W : CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

APPENDIX B

SAMPLING EVENT DATA

DEPTH TO WATER

DATE: 5/14/03

PROJECT AC Transit Seminary EVENT Quarterly TECHNICIAN_AM_____

NO.	WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
1	MW-1	5/14/2003	0900	3.17	*	
2	MW-2	5/14/2003	0906	2.94	**	double checked
3	MW-3	5/14/2003	0914	2.12	*	
4	MW-9	5/14/2003	0923	3.77	*	
5	MW-10	5/14/2003	0929	3.23	*	
6	MW-11	5/14/2003	0939	1.98	*	double checked
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

CODES: *SWL - Static Water Level

**OWI - Oil/Water Interface

Well ID: MW-1

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 15.35
Depth to Water (ft) before purging: 3.23

Project Number: 2014
Sample Date: 5/14/03
Sample ID: MW-1

Development Method:
NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1256	6.64	1146	25.9	4.26	1.5	0.25
1302	6.69	1130	25.8	4.28	3.0	↓
1308	6.73	1201	25.8	4.28	4.5	↓
				Total Volume = 6.0		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
12.12(.165) = 2.0 (3) = 6.0
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:
✓ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260 8015 CHLORO Nitrate/Sulfate _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe): Disp bailer used to sample
Cent pump used to purge

Decontamination Performed:
Washed+rinsed sounder meters

Start: 1250
Stop: 1314
Sample: 1315

Fe: 2.75 mg/L
DO: 3.28 mg/L
ORP: -50 mV

Comments / Calculations:

Name: [signature] Date: 5/14/03

Well ID: MW-2

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 2.94

Project Number: 2014
Sample Date: 5/14/03
Sample ID: MW-2

Development Method:
_____ **Bailer:** _____ Teflon _____ Stainless Steel _____ PVC _____ ABS Plastic

NA **Pump:** _____ Dedicated Submersible Pump _____ Bladder Pump
_____ Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1334	6.66	2870	28.9	5.30	3	0.25
1346	6.72	2750	28.9	5.86	6	↓
1358	6.74	2800	29.0	7.21	9	↓
				Total Volume = 10.50		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
(20.57)(.165) = 3.39(3) = 10.18
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:
✓ **Bailer:** _____ Teflon _____ Stainless Steel _____ PVC _____ ABS Plastic

_____ **Pump:** _____ Dedicated Submersible Pump _____ Bladder Pump
_____ Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260 8015 chloro Nitrate/Sulfate _____

Sample Appearance
_____ OVA Reading (ppm)
_____ Suspended Solids (describe):

- Cent pump used to purge
- disp. bailer used to sample

Decontamination Performed:
Washed+rinsed sounder meters

Start: 1322
Stop: 1404
Sample: 1405

Fe: 3.30 mg/L
DO: 2.14 mg/L
ORP: -65 mV

Comments / Calculations:

Name: A. Mw

Date: 5/14/03

Well ID: MW-3

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 16.81
Depth to Water (ft) before purging: 2.10

Project Number: 2014
Sample Date: 5/14/03
Sample ID: MW-3

Development Method:
NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1139	7.18	699	23.8	6.98	2.0	0.21
1148	7.24	693	23.9	8.24	4.0	↓
1158	7.22	720	24.0	10.01	6.0	↓
				Total Volume = 8.0		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
14.71 (.165) = 2.43 (3) = 7.28
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:
✓ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260 8015 GRO/DRO Nitrate/Sulfate _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe): peristaltic pump used to purge
disp. bailer used to sample

Decontamination Performed:
Washed+rinsed under meters

Start: 1130
Stop: 1208

Sample: 1213

Fe: 198 mg/L
DO: 8.46 mg/L
ORP: -40 mV

Comments / Calculations:

Name: AMM Date: 5/14/03

Well ID: MW-9

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 19.50
Depth to Water (ft) before purging: 3.75

Project Number: 2014
Sample Date: 5/14/03
Sample ID: MW-9

Development Method:

NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1048	7.47	1496	23.6	5.36	2.0	0.25
1056	7.43	1531	23.6	5.58	4.0	↓
1104	7.45	1502	23.6	5.58	6.0	↓
				Total Volume = 8.0		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
(15.75)(.165) = 2.598 = 7.80
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:

✓ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260 8015 GRO/DRO Nitrate/Sulfate _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

* cent. pump used to purge
* disp. bailer used to sample

Decontamination Performed:
Washed/rinsed
w/water meters

Start: 1040
Stop: 1112
Sample: 1115

Fe: 2.57 mg/L
DO: 8.76 mg/L
ORP: -10 mV

Comments / Calculations:
Trip Blank (TB-9) collected @ 0830

Name: A. Mm

Date: 5/14/03

Well ID: MW-10

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 11.40
Depth to Water (ft) before purging: 2.88

Project Number: 2014
Sample Date: 5/14/03
Sample ID: MW-10

Development Method:
NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1219	6.76	3370	21.9	5.89	1.2	0.25
1224	6.81	3290	26.8	5.92	2.4	↓
1229	6.80	3330	26.8	5.95	3.6	↓
				Total Volume = 4.5		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
8.52(.165) = 1.41 (3) = 4.21
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:
✓ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260 8015 GRO/DRO Nitrate/Sulfate _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

* Cent pump used to purge.
• Disp. bailer used to sample

Decontamination Performed:
Washed/rinsed sounder meters

Start: 1214
Stop: 1232
Sample: 1235

Fe: 1.72
DO: 2.99
ORP: -20mV

Comments / Calculations:

Name: A. Mm Date: 5/14/03

Well ID: MW-11

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 13.50
Depth to Water (ft) before purging: 1.99

Project Number: 2014
Sample Date: 5/14/03
Sample ID: MW-11

Development Method:
NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1038	7.02	1145	20.8	5.39	1.5	0.04
1116	7.06	1098	20.8	7.86	3.0	↓
1154	7.09	1112	20.8	10.54	4.5	↓
				Total Volume = 6.0		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
(11.51)(.165) = 1.89 (3) = 5.69
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 3 well casing volumes were removed prior to sampling.

Sample Collection Method:
✓ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8260 8015 Carbons Nitrate/Sulfate _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

* per. pump used to purge.
* disp. bailer used to sample.

Decontamination Performed:
Washed/rinsed sounder meters

Start: 1000
Stop: 1210

Sample: 1240

Fe: 1.90 mg/L
DO: 1.56 mg/L
ORP: 60 mV

Comments / Calculations:

Name: A. Mm. Date: 5/14/03

Well ID: MW-2 overpurge

Project Name: NC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 3.11

Project Number: 2616
Sample Date: 4/17/03
Sample ID:

Development Method:

_____**Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

NA **Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
Start @ 0953						0.23
Stop @ 1220						↓
		Total Gallons Purged = 34.0				

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
(20.40)(.165) = 3.37 (10) = 33.7 gallons
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 10 well casing volumes were removed prior to sampling.

Sample Collection Method:

_____**Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

NA **Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: NA _____ _____ _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
Washed/rinsed sampler

Comments / Calculations:

Name: A M Date: 4/17/03

Project Name: AC SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 2.94

Project Number: 2014
Sample Date: 5/14/03
Sample ID: ~~MW-2~~

Well ID: MW-2
Overpurge

Development Method:

NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
Start: 1408				33.90 gal		0.30
Stop: 1528				-10.50 from purge		
				23.40		
				Total Volume = 24.0		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
20.57(.165) = 3.39 (10) = 33.90
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 7 well casing volumes were removed prior to sampling.

Sample Collection Method:

NA **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

Pump: _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: _____ _____ _____ _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:

Comments / Calculations:

Name: A. [signature] Date: 5/14/03

Well ID: MW-2
overpurge

Project Name: AC Transit
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 3.43

Project Number: 2016
Sample Date: 6/5/03
Sample ID: _____

Development Method:
_____ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

NA **Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
Start. 0945						
Stop: 1210						
		Total Volume purged: 34 gallons				

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
(20.08)(.165) = 3.31(10) = 33.10
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least 10 well casing volumes were removed prior to sampling.

Sample Collection Method:
_____ **Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic

_____ **Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: _____ _____ _____ _____

Sample Appearance
_____OVA Reading (ppm)
_____Suspended Solids (describe):

Decontamination Performed:
- Washed & rinsed sounder
- Oil/water sounder used

Comments / Calculations:
- .01 ft. of product

Name: _____ Date: 6/5/03