AC Transit

Alameda Contra Costa Transit District

√ R0296

Suzanne Patton, P.E.
Environmental Engineer
(510) 577-8869
April 11, 2003

Mr. Barney Chan
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 February 2003 sampling event at the 1100 Seminary Avenue, Oakland, facility. 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

Analytical results of grab water samples showed benzene concentrations above the California maximum contaminant level (MCL) of 1 ppb in wells MW-1, MW-2, and MW-3. Ethylbenzene was detected above the MCL of 700 ppb in well MW-2 at a concentration of 1,200 ppb. Total xylenes were detected above the MCL of 700 ppb in monitoring well MW-2. Unspecified hydrocarbons, thought to be degraded diesel, were detected at concentrations above laboratory reporting limits in all wells.

The free phase product in well MW-2 has not been observed to be present since the second quarter of 2002. 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, P.E.
Environmental Engineer

enclosure

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

March 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
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STATE OF CALIFORNIA
REGISTERED GEOLOGIST
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Exp. 9/04
BRADLEY D. WRIGHT
REGISTERED GEOLOGIST

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INTRODUCTION

This report presents the results of the February 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 northwest at a gradient of 0.0027 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. A trip blank was submitted for analysis by USEPA Method 8260B.

Groundwater Analytical Results

Table 2 presents groundwater historic and first 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-1, MW-2 and MW-3. TPH-Diesel was detected above the reporting limit in all monitor wells. 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 northwest at a gradient of 0.0027 feet/foot.

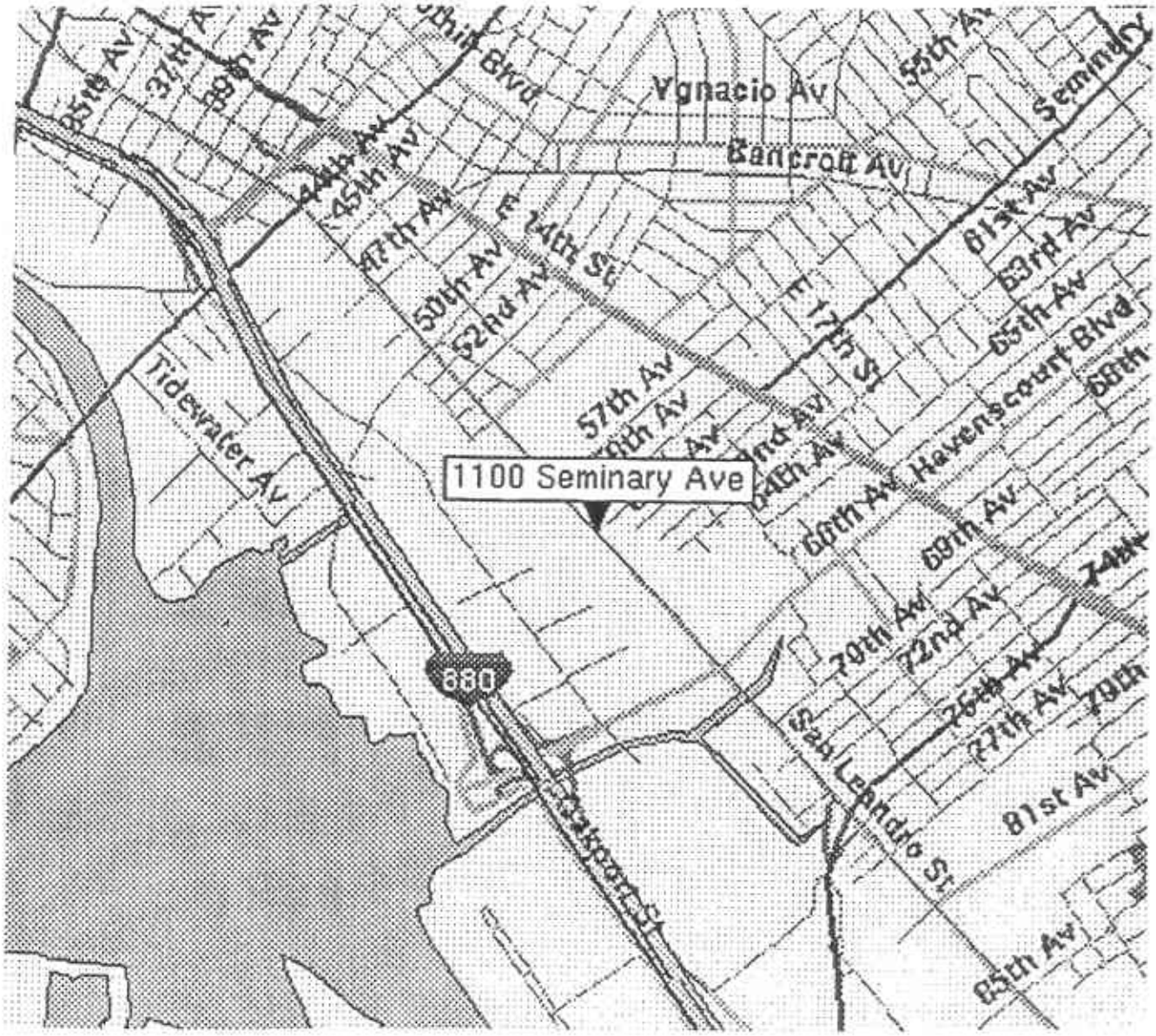
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1, MW-2 and MW-3, toluene in well MW-2, ethylbenzene in well MW-2 and xylenes in well MW-2.

- 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 May 2003.

- Continued monthly over purges of MW-2.



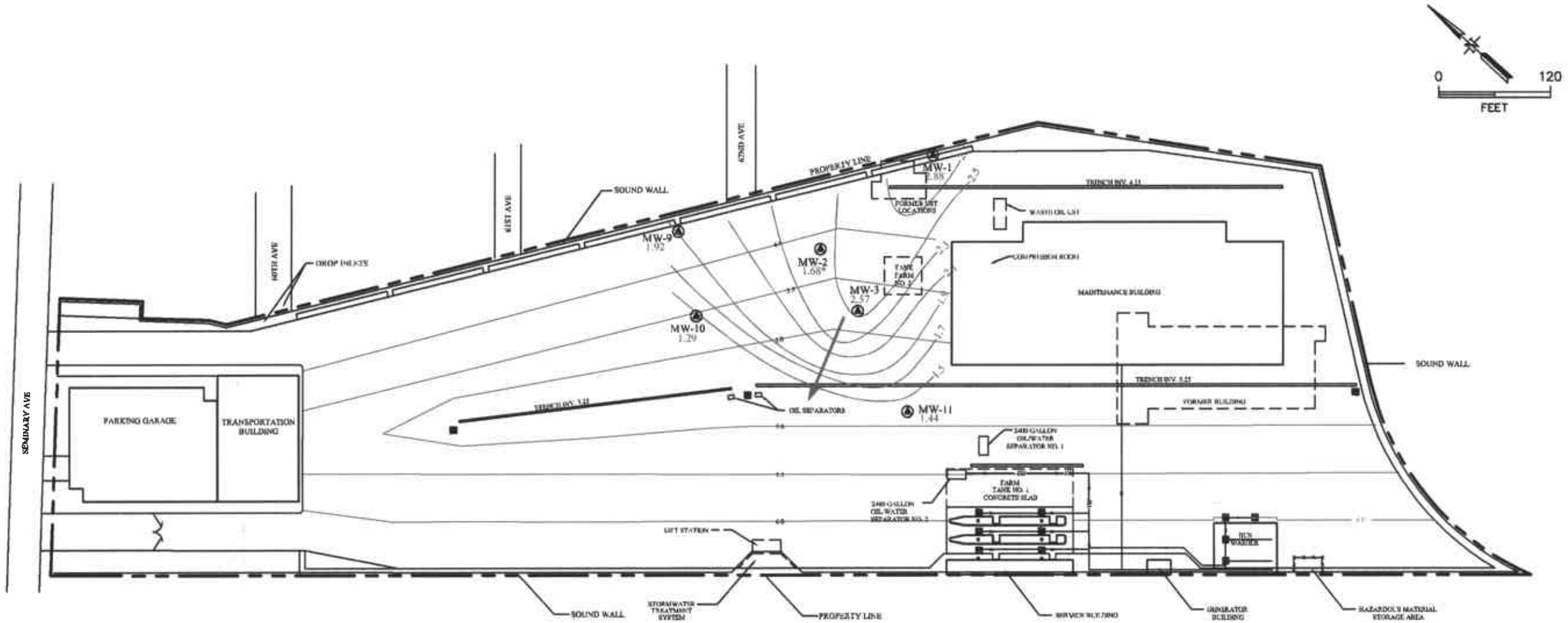
CAMERON-COLE

AC TRANSIT - OAKLAND, CALIFORNIA

FIGURE 1
SITE LOCATION MAP
1100 SEMINARY ROAD

SCALE:	DATE:
NO SCALE	3/22/00

LOCMAP



LEGEND

1.7	GROUNDWATER ELEVATION CONTOUR	0.54	GROUNDWATER ELEVATION (FT. MSL)
	REPORTED GROUNDWATER FLOW	•	NOT USED IN CONTOURING
6.0	CONTOUR		EXISTING MONITORING WELL
IW	INDUSTRIAL WASTE PIPELINE		MANHOLE
	SURFACE DRAINAGE TRENCH		CATCH BASIN

	BY	DATE
DRAWN	WRB	3/24/03
CHECKED		
APPROVED		
APPROVED		
APPROVED		

CAMERON-COLE

FIGURE 2

AC TRANSIT - OAKLAND, CALIFORNIA

1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP
FEBRUARY 3, 2003

SCALE: 1" = 120'

DWG. NO.: 2016-02

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**	
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**	
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**	

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**	
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**	
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**	

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**
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**

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**
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**

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**

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**

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

February 13, 2003

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

Order:	33148	**Date Collected:**	02/05/03
Project Name:	AC Transit Sem.	**Date Received:**	02/05/03
Project Number:	2014	**P.O. Number:**	2014
Project Notes:			

On February 05, 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
	Nitrate as N	EPA 300.0
	PDF	PDF
	Sulfate by IC	EPA 300.0
	TPH as Diesel	EPA 8015 MOD. (Extractable)
	TPH as Gasoline	EPA 8015 MOD. (Purgeable)

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: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-001 **Client Sample ID:** Trip Blank

Sample Time: 9:30 AM **Sample Date:** 02/05/03 **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	02/06/03	WMS21919	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	02/06/03	WMS21919	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	100.0	73 - 151
Dibromofluoromethane	118.6	57 - 156
Toluene-d8	111.5	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)

Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

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

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-002 **Client Sample ID:** MW-3

Sample Time: 10:25 AM **Sample Date:** 02/05/03 **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	02/07/03	WMS21920B	EPA 8260B
Benzene	55		1	0.5	0.5	µg/L	N/A	02/07/03	WMS21920B	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	02/07/03	WMS21920B	EPA 8260B
Ethyl Benzene	20		1	0.5	0.5	µg/L	N/A	02/07/03	WMS21920B	EPA 8260B
Xylenes, Total	7.1		1	1	1	µg/L	N/A	02/07/03	WMS21920B	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.5	73 - 151
Dibromofluoromethane	104.7	57 - 156
Toluene-d8	115.9	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	270	x	1	50	50	µg/L	02/05/03	02/06/03	DW4298A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	45.0	21 - 142

Comment: Not a TPH as Diesel pattern. Reported TPH as Diesel value is a result of possible gasoline compounds in the TPH as Diesel range and from carry over from Motor Oil range into Diesel quantitation range.

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	720		1	50	50	µg/L	N/A	02/08/03	WGC62742B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	71.7	65 - 135

Comment: Reported TPH as Gasoline value is the resule of heavy end hydrocarbons with the TPH as Gasoline quantitation range but not typical of TPH as Gasoline.

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

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Cameron-Cole
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Alameda, CA 94501
Attn: Brad Wright

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-003 **Client Sample ID:** MW-10

Sample Time: 11:10 AM **Sample Date:** 02/05/03 **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	02/06/03	WMS21919	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	02/06/03	WMS21919	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	100.8	73 - 151
Dibromofluoromethane	115.2	57 - 156
Toluene-d8	111.6	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	160	x	1	50	50	µg/L	02/05/03	02/06/03	DW4298A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	77.0	21 - 142

Comment: Reported TPH as Diesel value is a result of carry over from Hydraulic Oil range into Diesel quantitation range.

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	02/08/03	WGC62742B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	84.9	65 - 135

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

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

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-004 **Client Sample ID:** MW-9

Sample Time: 12:00 PM **Sample Date:** 02/05/03 **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	02/06/03	WMS21919	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	02/06/03	WMS21919	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	98.7	73 - 151
Dibromofluoromethane	116.1	57 - 156
Toluene-d8	112.3	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	82	x	1	50	50	µg/L	02/05/03	02/06/03	DW4298A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	59.0	21 - 142

Comment: Reported TPH as Diesel value is a result of carry over from Motor Oil range into Diesel quantitation range.

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	02/08/03	WGC62742B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	80.1	65 - 135

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

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Attn: Brad Wright

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-005 **Client Sample ID:** MW-1

Sample Time: 12:40 PM **Sample Date:** 02/05/03 **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	02/06/03	WMS21919	EPA 8260B
Benzene	16		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Ethyl Benzene	0.93		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	02/06/03	WMS21919	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101.9	73 - 151
Dibromofluoromethane	114.5	57 - 156
Toluene-d8	110.9	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	210	x	1	50	50	µg/L	02/05/03	02/06/03	DW4298A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	57.0	21 - 142

Comment: Reported TPH as Diesel value is a result of carry over from Motor Oil range into Diesel quantitation range.

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	250		1	50	50	µg/L	N/A	02/08/03	WGC62742B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	85.6	65 - 135

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

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Alameda, CA 94501
Attn: Brad Wright

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-006 **Client Sample ID:** MW-11

Sample Time: 12:55 PM **Sample Date:** 02/05/03 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	3.4		1	1	1	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	02/06/03	WMS21919	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.3	73 - 151
Dibromofluoromethane	115.9	57 - 156
Toluene-d8	111.7	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	410	x	1	50	50	µg/L	02/05/03	02/11/03	DW4298A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	80.0	21 - 142

Comment: Reported TPH as Diesel value is a result of overlap from the Hydraulic Oil range into the Diesel quantitation range.

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	02/10/03	WGC62746	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	83.0	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)

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

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-007 **Client Sample ID:** MW-2

Sample Time: 2:00 PM **Sample Date:** 02/05/03 **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	02/06/03	WMS21919	EPA 8260B
Benzene	15000		100	0.5	50	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Toluene	360		100	0.5	50	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Ethyl Benzene	1200		100	0.5	50	µg/L	N/A	02/06/03	WMS21919	EPA 8260B
Xylenes, Total	2100		100	1	100	µg/L	N/A	02/06/03	WMS21919	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101.3	73 - 151
Dibromofluoromethane	119.5	57 - 156
Toluene-d8	110.6	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	28000		20	50	1000	µg/L	02/05/03	02/07/03	DW4298A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	116.0	21 - 142

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	47000		50	50	2500	µg/L	N/A	02/11/03	WGC42747	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	117.8	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)

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

Date: 2/13/03
Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-002 **Client Sample ID:** MW-3
Sample Time: 10:25 AM **Sample Date:** 02/05/03 **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	02/05/03	WIC030205	EPA 300.0
Sulfate	22	2	0.5	1	mg/L	02/11/03	WIC030205	EPA 300.0

Order ID: 33148 **Lab Sample ID:** 33148-003 **Client Sample ID:** MW-10
Sample Time: 11:10 AM **Sample Date:** 02/05/03 **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	02/05/03	WIC030205	EPA 300.0
Sulfate	110	10	0.5	5	mg/L	02/11/03	WIC030205	EPA 300.0

Order ID: 33148 **Lab Sample ID:** 33148-004 **Client Sample ID:** MW-9
Sample Time: 12:00 PM **Sample Date:** 02/05/03 **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	02/05/03	WIC030205	EPA 300.0
Sulfate	140	10	0.5	5	mg/L	02/11/03	WIC030205	EPA 300.0

Order ID: 33148 **Lab Sample ID:** 33148-005 **Client Sample ID:** MW-1
Sample Time: 12:40 PM **Sample Date:** 02/05/03 **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	02/05/03	WIC030205	EPA 300.0
Sulfate	6.5	1	0.5	0.5	mg/L	02/05/03	WIC030205	EPA 300.0

Order ID: 33148 **Lab Sample ID:** 33148-006 **Client Sample ID:** MW-11
Sample Time: 12:55 PM **Sample Date:** 02/05/03 **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	02/05/03	WIC030205	EPA 300.0
Sulfate	88	10	0.5	5	mg/L	02/11/03	WIC030205	EPA 300.0

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

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Date Received: 02/05/03
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number: 2014
Sampled By: Mike Marotto

Certified Analytical Report

Order ID: 33148 **Lab Sample ID:** 33148-007 **Client Sample ID:** MW-2

Sample Time: 2:00 PM **Sample Date:** 02/05/03 **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	02/05/03	WIC030205	EPA 300.0
Sulfate	ND	1	0.5	0.5	mg/L	02/05/03	WIC030205	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

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 #: DW4298A
Matrix: Liquid
Units: µg/L
Date Analyzed: 02/06/03

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		939.35	LCS	93.9			51.7 - 126.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	o-Terphenyl		96.0			21 - 142					
Test: TPH as Diesel											
TPH as Diesel	EPA 8015 M	ND		1000		944.23	LCSD	94.4	0.52	25.00	51.7 - 126.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	o-Terphenyl		93.0			21 - 142					

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Quality Control Results Summary

QC Batch #: WGC42747 **Units:** µg/L
Matrix: Liquid **Date Analyzed:** 02/11/03

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		259.	LCS	103.6			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			79.8			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		238.4	LCSD	95.4	8.28	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			79.5			65 - 135					

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Quality Control Results Summary

QC Batch #: WGC62742B
Matrix: Liquid
Units: µg/L
Date Analyzed: 02/08/03

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		223.48	LCS	89.4			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			83.8			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		226.89	LCSD	90.8	1.51	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			85.8			65 - 135					

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Quality Control Results Summary

QC Batch #: WGC62746 **Units:** µg/L
Matrix: Liquid **Date Analyzed:** 02/10/03

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		228.01	LCS	91.2			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			84.3			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		219.56	LCSD	87.8	0.00	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			84.4			65 - 135					

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Quality Control Results Summary

QC Batch #: WIC030205 **Units:** mg/L
Matrix: Liquid **Date Analyzed:** 02/05/03

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		2.245	LCS	99.3			90.0 - 110.0
Test: sulfate											
Sulfate	EPA 300.0	ND		15		13.789	LCS	91.9			90.0 - 110.0
Test: Nitrate as N											
Nitrate as N	EPA 300.0	ND		2.26		2.303	LCSD	101.9	2.55	20.00	90.0 - 110.0
Test: sulfate											
Sulfate	EPA 300.0	ND		15		14.347	LCSD	95.6	3.97	20.00	90.0 - 110.0

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Quality Control Results Summary

QC Batch #: WMS21919
Matrix: Liquid

Units: µg/L
Date Analyzed: 02/06/03

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		22.3082	LCS	111.5			65.0 - 135.0
Methyl-t-butyl Ether	EPA 8260B	ND		20		22.678	LCS	113.4			56.0 - 135.0
Toluene	EPA 8260B	ND		20		20.7139	LCS	103.6			65.0 - 135.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.6	73 - 151
Dibromofluoromethane	114.0	57 - 156
Toluene-d8	111.6	77 - 150

Test: BTEX+MTBE by EPA 8260B											
Benzene	EPA 8260B	ND		20		22.5439	LCSD	112.7	1.05	25.00	65.0 - 135.0
Methyl-t-butyl Ether	EPA 8260B	ND		20		23.2796	LCSD	116.4	2.62	25.00	56.0 - 135.0
Toluene	EPA 8260B	ND		20		21.0116	LCSD	105.1	1.43	25.00	65.0 - 135.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	104.8	73 - 151
Dibromofluoromethane	112.2	57 - 156
Toluene-d8	111.9	77 - 150

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Quality Control Results Summary

QC Batch #: WMS21920B
Matrix: Liquid
Units: µg/L
Date Analyzed: 02/07/03

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		20.7296	LCS	103.6			65.0 - 135.0
Methyl-t-butyl Ether	EPA 8260B	ND		20		19.6159	LCS	98.1			56.0 - 135.0
Toluene	EPA 8260B	ND		20		20.4216	LCS	102.1			65.0 - 135.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	101.3	73 - 151
Dibromofluoromethane	108.3	57 - 156
Toluene-d8	115.8	77 - 150

Test: BTEX+MTBE by EPA 8260B											
Benzene	EPA 8260B	ND		20		21.3846	LCSD	106.9	3.11	25.00	65.0 - 135.0
Methyl-t-butyl Ether	EPA 8260B	ND		20		19.3266	LCSD	96.6	1.49	25.00	56.0 - 135.0
Toluene	EPA 8260B	ND		20		21.0412	LCSD	105.2	2.99	25.00	65.0 - 135.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.8	73 - 151
Dibromofluoromethane	105.8	57 - 156
Toluene-d8	113.8	77 - 150

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

Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: (510) 769-3563	Purchase Order No (Reqd).:	Send Invoice to (If Different) / Phone
Company Name: Cameron-Cole	Fax No.: (510) 337-3994	Project Number: 2014	Company
Mailing Address: 101 W. Atlantic Ave Bldg 90	email: bwright@cameron-cole.com	Project Name: AC Transit Seminary	Billing Address (If Different)
City: Alameda	State: CA Zip: 94501	Project Location: Seminary	City: / State / Zip

Sampler: Mike Masotto
Field Org. Code:
Global ID:

Turn Around Time
- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ 4 Day
- ☐ 5 Day
- ☒ Standard (10 Day)

Order ID:

Sampling

Client ID:	Field PT	Lab. No.	Date	Time	Matrix H2O	Composite	Grab	Containers	Preservative HCL	8260 BTX / MTBE	8015 GRO	8015 DRO	Oil & Grease	Remarks
Trip Blank	33148	-001	2/5/03	0930	X			1	X					
MW-3	—	-002		1025				3	X					
								3	X	X				
								2			X			
								1				X		
MW-10		-003		1110				3	X					
								3	X	X				
								2			X			
								1				X		

Volatile Organics by GCMS: 601/602 ☐ 624 ☐ 8260B ☐
Fuel Oxygenates by 8260 ☐ 8010 by 8260B ☐ MTBE by 8260B ☐
Pesticides-8081 ☐ PCBs - 8082 ☐
TPH as Gas/BTEX ☐ TPH as Gas/BTEX/MTBE ☐
Base/Neutral/Acid Organics 8270 ☐ 8270-SIM ☐ PNA ☐
Fuel Scan Extractable ☐ Purgeable ☐
Diesel ☐ w/ Si-gel Standard Cleanup ☐
Motor Oil ☐ w/ Si-gel Column Cleanup ☐
pH
CN
TRPH ☐
Metals - Circle Below: Total ☐ Dissolved ☐ STLC TTLC

Relinquished by:	Received by:	Date:	Time:
		2-5-03	17:40
Relinquished by:	Received by: Machado	2/5/03	16:00
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

1 of 3

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 : RCRA-8 ☐ CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

- ☐ NPDES Detection Limits
- ☐ EDD Report Required
- ☐ EDF Report Required
- ☐ PDF File Required

Entech Analytical Labs, Inc.

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Santa Clara. CA 95054
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Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: (510) 769-3563	Purchase Order No (Reqd).:	Send Invoice to (if Different) / Phone
Company Name: Cameron-Cole	Fax No.: (510) 337 3994	Project Number: 2014	Company
Mailing Address: 101 West Atlantic Bldg 90	email: bwright@cameron-cole.com	Project Name: AC Transit	Billing Address (if Different)
City: Alameda	State: CA / Zip: 94501	Project Location: Seminary	City: / State / Zip

Sampler: MM | Field Org. Code:

Global ID:

Turn Around Time
- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☐ 4 Day ☐ 5 Day
- ☒ Standard (10 Day)

Order ID:

Client ID:	Field PT	Lab. No.	Sampling Date	Sampling Time	Matrix H2O	Composite	Grab	Containers	Preservative HCL	8260 BTEX/MTBE	8015 GRO	8015 DRO	N. Trak (Sulfur)	Remarks
MW-9	33148	-004	2/5/03	1200				3	X	X				
								3	X					
								2			X			
								1				X		
MW-1		-005	2/5/03	1240				3	X	X				
								3	X					
								2			X			
								1				X		
MW-11		-006		1255				3	X	X				
								3	X					
								2			X			
								1				X		

Volatile Organics by GCMS: 601/602 ☐ 8010 by 8260 ☐ 8260B ☐ 82608 ☐
Fuel Oxygenates by 8260B ☐
MTBE by 8260B ☐
Pesticides-8081 ☐ PCBs - 8082 ☐
TPH as Gas/BTEX ☐
TPH as Gas/BTEX/MTBE ☐
Base/Neutral/Acid Organics 8270 ☐ 8270-SIM ☐ PNA ☐
Fuel Scan Extractable ☐ Purgeable ☐
Diesel ☐ w/ Si-gel Standard Cleanup ☐
Motor Oil ☐ w/ Si-gel Column Cleanup ☐
pH
CN
TRPH ☐ Oil & Grease ☐
Metals - Circle Below
Total ☐ Dissolved ☐
STLC
TTLC

Relinquished by:	Received by:	Date: 02-5-03	Time: 15:40
Relinquished by:	Received by: Machado	Date: 2/5/03	Time: 1600
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

2 of 3

- ☐ NPDES Detection Limits
- ☐ EDD Report Required
- ☐ EDF Report Required
- ☐ PDF File Required

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 : RCRA-8 ☐ CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

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

Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: (510) 337-8660	Purchase Order No (Reqd).:	Send Invoice to (if Different) / Phone
Company Name: Cameron-Cole	Fax No.: (510) 337-3944	Project Number: 2014	Company
Mailing Address: 101 West Atlantic Bldg 90	email: bwright@cameron-cole	Project Name: AC Transit	Billing Address (if Different)
City: Alameda	State: CA / Zip: 94501	Project Location: Seminary	City / State / Zip

Sampler: MM
Field Org. Code:
Global ID:

Turn Around Time
- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ 4 Day
- ☐ 5 Day
- ☒ Standard (10 Day)

Order ID:

Preservative: HCl

Client ID:	Field PT	Lab. No.	Sampling Date	Sampling Time	Matrix: H2O	Composite	Grab	Containers	Volatile Organics by GC/MS: 601/602 ☐ 8260B ☐	Fuel Oxygenates by 8260 ☐	MTBE by 8260B ☐	Pesticides-8081 ☐	PCBs - 8082 ☐	8260 BTEX/MTBE	TPH as Gas/BTEX ☐	TPH as Gas/BTEX/MTBE ☐	Base/Neutral/Acid Organics 8270 ☐	8270-SIM ☐	PNA ☐	Fuel Scan Extractable ☐ Purgeable ☐	Diesel ☐ w/ Si-gel Standard Cleanup ☐	Motor Oil ☐ w/ Si-gel Column Cleanup ☐	pH	CN	TRPH ☐ Oil & Grease ☐	8015 GRO	8015 DRO	Nitrate / Sulfate	Metals - Circle Below Total ☐ Dissolved ☐	STLC	TTLC	Remarks
MW-2	33148-007		2/5/03	1400	X			3						X																		
								3																X								
								2																	X							
					↓			1																		X						

Relinquished by:	Received by:	Date: 2/5/03	Time: 1500
Relinquished by:	Received by: Guadiado	Date: 2/5/03	Time: 1600
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

3 of 3

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 : RCRA-8 ☐ CAM-17 ☐ Plating ☐ PPM-13 ☐ LUFT-5 ☐

- ☐ NPDES Detection Limits
- ☐ EDD Report Required
- ☐ EDF Report Required
- ☐ PDF File Required

APPENDIX B

SAMPLING EVENT DATA

DEPTH TO WATER

DATE: 2/5/03

PROJECT AC Transit Seminary EVENT Quarterly TECHNICIAN MM

NO.	WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
1	MW-1	2/5/03	0896	3.37	*	Double checked
2	MW-2		0904	3.85	*	
3	MW-3		0859	2.19	*	
4	MW-9		0852	3.88	*	
5	MW-10		0856	3.36	*	
6	MW-11		0910	2.75	*	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

CODES: * SWL - Static Water Level
OIL - Oil Level

Well ID: MW-1

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 15.35
Depth to Water (ft) before purging: 3.37

Project Number: 2014
Sample Date: 2/5/03
Sample ID: MW-1

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)
1216	7.17	1130	26.1	4.03	1.5	0.25
1222	7.15	1105	25.8	4.11	3.0	↓
1228	7.14	1117	26.3	4.68	4.5	
			Tot	Vol = 6.0 gal		

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
(15.35 - 3.37) (0.165) = (1.98)(3) = 5.94

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:

X **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 to purge
disp. bailer to sample

Decontamination Performed:
Washed/Rinsed
Sounders, meters

Start: 1210
Stop: 1234
Sample: 1240

Fe: 7.3.30
DO: 5.63 mg/L
Orp: -55mv

Comments / Calculations:

Name: Mike Marotto Date: 2/5/03

Well ID: MW-2

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 3.85

Project Number: 2014
Sample Date: 2/5/03
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)
1322	6.76	2390	26.0	5.38	3	0.14
1338	6.77	2420	26.2	5.87	6	↓
1354	6.75	2350	25.8	6.22	9	↓
			Tot	Vol = 10		

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
(23.51 - 3.85)(0.165)(3.24x3) = 9.73
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:
__X__**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):

Decontamination Performed:
Washed/Rinsed
Sondes, Meters

Comments / Calculations:
Start: 1306
Stop: 1358
Sample - 1400

Fe: ~~<3.30 mg/L~~ >3.30 mg/L
DO: 6.94 mg/L
ORP: -65 mV

Name: MM Date: 2/5/03

Well ID: MW-2
Over purge

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 3.85

Project Number: 2014
Sample Date: 2/5/03
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:	1410			32.4 gal		0.29
Stop:	1530			- 10 from	purge	
				22.4		
			Tot Vol = 23 gal			

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
(23.51 - 3.85)(0.165)(3.24*10) = 32.4

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:
______ **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: ______ ______ ______ ______

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

Decontamination Performed:

Comments / Calculations:

Name: MM

Date: 2/5/03

Well ID: MW-3

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 16.81
Depth to Water (ft) before purging: 2.19

Project Number: 3014
Sample Date: 2/5/03
Sample ID: MW-3

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)
0945	7.25	693	24.3	6.37	2	0.20
0955	7.30	698	23.7	7.94	4	1
~~0955~~ @1005	7.32	714	24.0	8.15	6	1
			Tot	Vol = 8 gal		

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
(16.81 – 2.19)(0.165) = (2.41 x 3) = 7.23
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:
X **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):

Cont pump used to purge
Disp. bailer used to sample

Decontamination Performed:
Washed/Rinsed
Sounder, Meters

Start: 0935
Stop: 1015
Sample: 1025

Fe: >3.30 mg/L
DO: ~~4.56~~ 8.32 mg/L
Orp: -45mV

Comments / Calculations:
Trip Blank collected @ 0930

Name: Mike Masotto Date: 2/5/03

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 19.5
Depth to Water (ft) before purging: 3.88

Project Number: 2014
Sample Date: 2/5/03
Sample ID: MW-9

Well ID: MW-9

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)
1134	7.42	1529	23.5	5.27	2	0.25
1142	7.45	1486	23.6	5.49	4	↓
1150	7.41	1511	23.8	5.68	6	↓
			Tot Vol = 8 gal			

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
(19.5 3.88)(0.165) = 2.58 x 3 = 7.74
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:

X **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) Cent pump used to purge
_____Suspended Solids (describe): Disp. Bailer used to sample

Decontamination Performed:
Washed/Rinsed
Sounder, Meters

Start: 1126
Stop: 1158
Sample: 1200

Fe: 2.87 mg/L
DO: 8.63 mg/L
Orp: -10mv

Comments / Calculations:

Name: Mike Masotto

Date: 2/5/03

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 11.40
Depth to Water (ft) before purging: 3.36

Project Number: 2014
Sample Date: 2/5/03
Sample ID: MW-10

Well ID: MW-10

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)
1052	6.99	2.68×10^3	21.8	6.21	1	0.25
1056	7.02	2.71×10^3	22.4	6.43	2	↓
1100	6.98	2.65×10^3	21.6	6.69	3	↓
			Tot Vol = 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
(11.40 - 3.36)(0.165) = (1.33 x 3) = 3.99

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:

X **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): Cant pump to purge
Disp. bailer to sample

Decontamination Performed:
Washed/Rinsed
Sounder, Meters

Start: 1048
Stop: 1106
Sample: 1110

Fe: > 3.30 mg/L
DO: 5.26 mg/L
Orp: -25 mV

Comments / Calculations:

Name: Mike Mantha 2/5/03

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 13.5
Depth to Water (ft) before purging: 2.75

Project Number: 2014
Sample Date: 2/5/03
Sample ID: MW-11

Well 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)
1120	7.22	1146	22.1	5.54	1.0	.04
1205	7.15	1093	22.8	7.93	3.5	↓
1247	7.13	1124	23.0	10.15	5.20	
			Tot Vol	= 5.30		

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
(13.5 - 2.75)(0.165) = 1.76 x 3 = 5.28

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:

X **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):

Decontamination Performed:
Washed/Rinsed
Sounders, Meters

Start: 1040
Stop: 1250
Sample: 1255

Fe: 0 mg/L
DO: 9.59 mg/L
Orp: 60 mV

Comments / Calculations:

Ded. Pump used to purge
Disp. bailer used to sample

Name: Mike Marotto   Date: 2/5/03