AC Transit

Alameda Contra Costa Transit District

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

January 16, 2004

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Alameda County
JAN 22 2004
Environmental Health

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 – August 2003 Sampling
AC Transit, 1100 Seminary Avenue, Oakland, CA

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the November 2003 sampling event at the 1100 Seminary Avenue, Oakland, facility. Other than observing an increase in gasoline concentrations in well MW-2, analytical results of grab water samples showed parameter concentrations consistent with past quarterly monitoring events. The free phase product in well MW-2 has still 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

December 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
Michael Posson
Environmental Scientist I

Approved By
Brad Wright, RG, CHG
Sr. Hydrogeologist

STATE OF CALIFORNIA
REGISTERED GEOLOGIST
#6776
Exp. 12/04
BRADLEY D. WRIGHT
REGISTERED GEOLOGIST

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INTRODUCTION

This report presents the results of the November 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 0.003 feet/foot.

Groundwater Sampling Activities

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

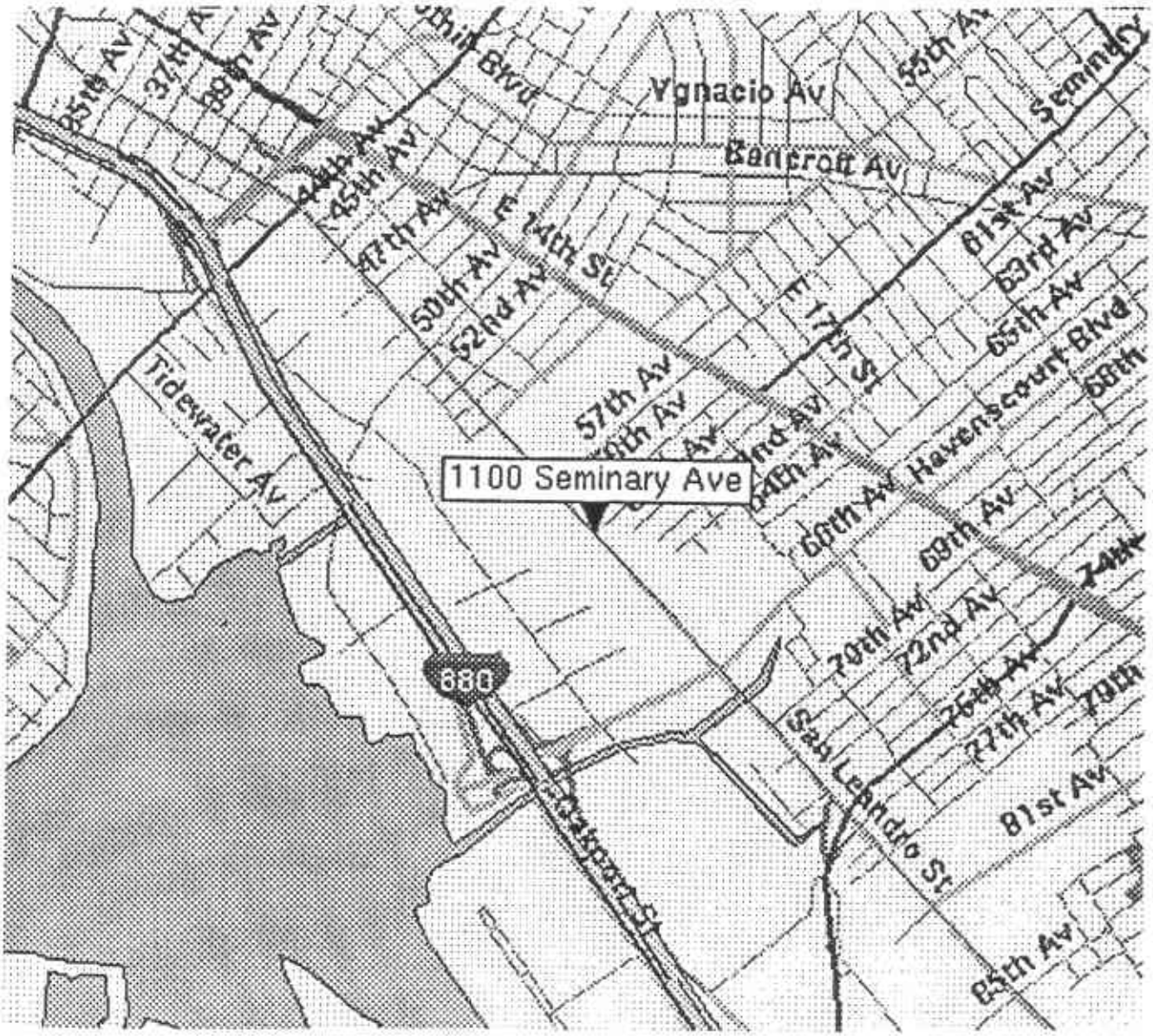
Table 2 presents groundwater historic and fourth quarter 2003 analytical results. Concentrations of benzene above the State of California maximum contaminant level (MCL) of 1.0 part per billion (ppb) were detected in monitor wells MW-1, MW-2, and MW-3. Ethylbenzene was detected above the MCL of 700 ppb 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. A lab control spike and lab control spike duplicate passed the USEPA's criteria for acceptance.

SUMMARY OF RESULTS

- Groundwater flow direction is towards the west at a gradient of 0.003 feet/foot.
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1, MW-2 and MW-3 and toluene, ethylbenzene 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 February 2004.
- Continued monthly over purges of MW-2.



CAMERON-COLE

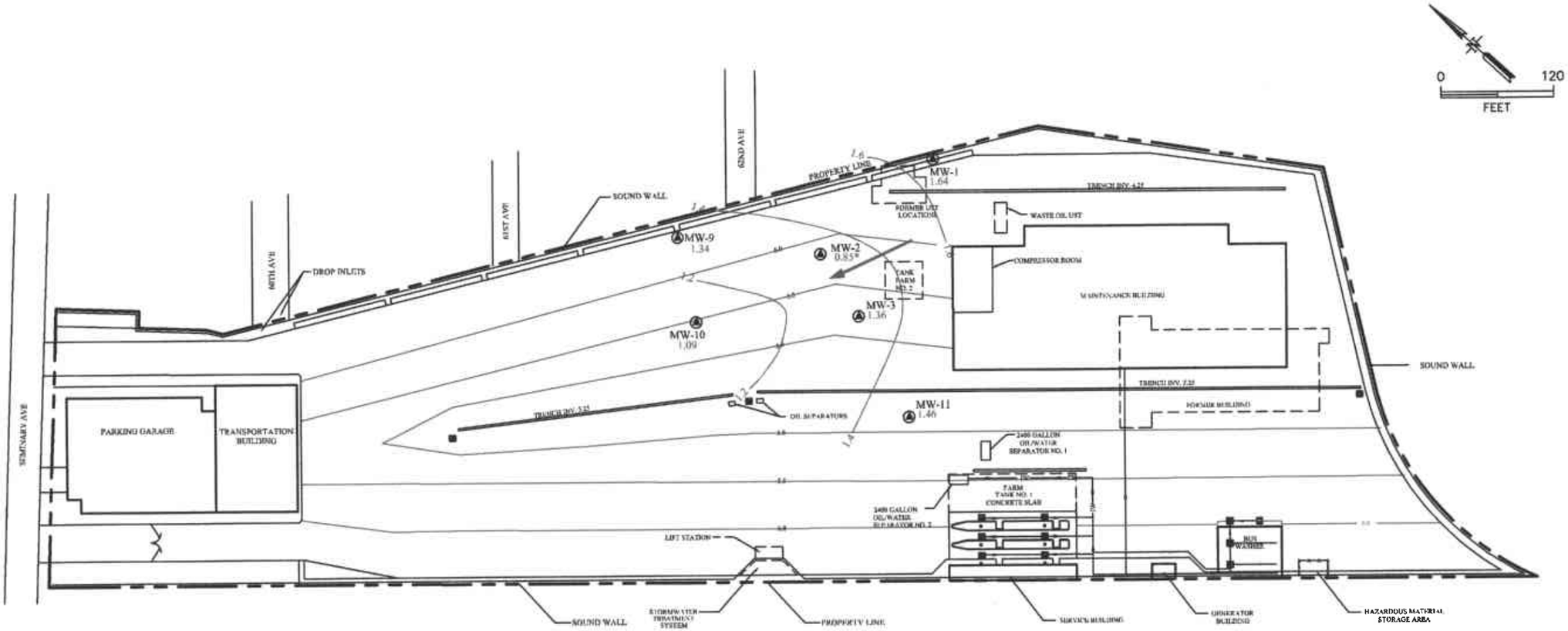
AC TRANSIT - OAKLAND, CALIFORNIA

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
1.07 GROUNDWATER ELEVATION (FT. MSL)	MANHOLE
REPORTED GROUNDWATER FLOW	CATCH BASIN
* VALUE NOT USED IN CONTOUR	
6.0 — CONTOUR	
IW — INDUSTRIAL WASTE PIPELINE	
SURFACE DRAINAGE TRENCH	

BY	DATE
DRAWN WRB	12/9/03
CHECKED	
APPROVED	
APPROVED	
APPROVED	

CAMERON-COLE

FIGURE 2

AC TRANSIT - OAKLAND, CALIFORNIA

1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP
NOVEMBER 20, 2003

SCALE: 1" = 120'

DWG. NO.: 2011-09

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

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thicknes s (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	
	22-Aug-03		None	4.52	1.73	
	20-Nov-03		**None**	**4.61**	**1.64**	
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	
	22-Aug-03		None	4.20	1.33	
	20-Nov-03		**None**	**4.68**	**0.85**	

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

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thicknes s (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness**
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	
	22-Aug-03		None	3.25	1.51	
	20-Nov-03		**None**	**3.4**	**1.36**	
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	
	22-Aug-03		None	4.73	1.07	
	20-Nov-03		**None**	**4.46**	**1.34**	

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

Well	Date	Top of Casing Elevation (ft-msl)*	Product Thicknes s (feet)	DTW (feet)	Measured Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected for Product Thickness**
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	
	22-Aug-03		None	4.52	0.13	
	20-Nov-03		**None**	**3.56**	**1.09**	
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	
	22-Aug-03		None	2.86	1.33	
	20-Nov-03		**None**	**2.73**	**1.46**	

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
	22-Aug-03	150	770	NA	<0.5	<1.0	<1.0	<1.0	<1.0	<200	6,300	2,980	2,570
	20-Nov-03	**300**	**320**	**NA**	**3.0**	**<0.5**	**0.56**	**<1.0**	**<1.0**	**<200**	**7,900**	**3,030**	**2,680**
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
	22-Aug-03	43,000	480,000	NA	22,000	490	1,500	2,100	<400	<200	<500	1,960	>3300
	20-Nov-03	**59,000**	**320,000**	**NA**	**22,000**	**<100**	**1,700**	**3,200**	**<200**	**<200**	**<500**	**2,100**	**>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
	22-Aug-03	400	540	NA	2.7	<1.0	1.6	<1.0	<1.0	<200	18,000	6,620	190
	20-Nov-03	**240**	**520**	**NA**	**8.8**	**<0.5**	**2.2**	**<1.0**	**<1.0**	**<200**	**16,000**	**5,820**	**100**
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
	22-Aug-03	<50	220	NA	<0.5	<1.0	<1.0	<1.0	<1.0	<200	140,000	6,140	0
	20-Nov-03	**<50**	**80**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**1.8**	**<200**	**140,000**	**6,030**	**200**

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
	22-Aug-03	<50	320	NA	<0.5	<1.0	<1.0	<1.0	<1.0	<200	120,000	1,950	0
	20-Nov-03	**<50**	**300**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**1.7**	**<200**	**65,000**	**1,750**	**0**

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
	22-Aug-03	<50	540	NA	<0.5	<1.0	<1.0	<1.0	2.2	<200	130,000	2,210	1,720
	20-Nov-03	**<50**	**290**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**1.8**	**<200**	**120,000**	**2,300**	**1,910**

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

December 03, 2003

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

Order:	36682	**Date Collected:**	11/20/2003
Project Name:	AC Transit Sem.	**Date Received:**	11/20/2003
Project Number:	2014	**P.O. Number:**	
Project Notes:			

On November 20, 2003, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Liquid	BTEX by EPA 8260B	EPA 8260B
	MTBE by EPA 8260B	EPA 8260B
	Nitrate as N	EPA 300.0
	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: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-002 **Client Sample ID:** MW-11
Sample Time: 11:30 AM **Sample Date:** 11/20/2003 **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	11/20/2003	WIC031120	EPA 300.0
Sulfate	120	5	0.5	2.5	mg/L	11/20/2003	WIC031120	EPA 300.0

Order ID: 36682 **Lab Sample ID:** 36682-003 **Client Sample ID:** MW-3
Sample Time: 12:05 PM **Sample Date:** 11/20/2003 **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	11/20/2003	WIC031120	EPA 300.0
Sulfate	16	1	0.5	0.5	mg/L	11/20/2003	WIC031120	EPA 300.0

Order ID: 36682 **Lab Sample ID:** 36682-004 **Client Sample ID:** MW-2
Sample Time: 1:00 PM **Sample Date:** 11/20/2003 **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	11/20/2003	WIC031120	EPA 300.0
Sulfate	ND	1	0.5	0.5	mg/L	11/20/2003	WIC031120	EPA 300.0

Order ID: 36682 **Lab Sample ID:** 36682-005 **Client Sample ID:** MW-9
Sample Time: 1:50 PM **Sample Date:** 11/20/2003 **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	11/20/2003	WIC031120	EPA 300.0
Sulfate	140	5	0.5	2.5	mg/L	11/20/2003	WIC031120	EPA 300.0

Order ID: 36682 **Lab Sample ID:** 36682-006 **Client Sample ID:** MW-1
Sample Time: 2:25 PM **Sample Date:** 11/20/2003 **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	11/20/2003	WIC031120	EPA 300.0
Sulfate	7.9	1	0.5	0.5	mg/L	11/20/2003	WIC031120	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: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-007 **Client Sample ID:** MW-10

Sample Time: 3:00 PM **Sample Date:** 11/20/2003 **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	11/20/2003	WIC031120	EPA 300.0
Sulfate	65	5	0.5	2.5	mg/L	11/20/2003	WIC031120	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

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

Date: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-001 **Client Sample ID:** Trip Blank

Sample Time: 11:20 AM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.7	68 - 118
Dibromofluoromethane	106.4	57 - 156
Toluene-d8	105.1	77 - 150

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	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.7	68 - 118
Dibromofluoromethane	106.4	57 - 156
Toluene-d8	105.1	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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Attn: Brad Wright

Date: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-002 **Client Sample ID:** MW-11

Sample Time: 11:30 AM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.4	68 - 118
Dibromofluoromethane	103.6	57 - 156
Toluene-d8	104.6	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	1.8		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.4	68 - 118
Dibromofluoromethane	103.6	57 - 156
Toluene-d8	104.6	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	290	x	1	50	50	µg/L	11/21/2003	11/25/2003	DW4459A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	87.0	21 - 142

Comment: Not TPH as Diesel: Reported TPH-Diesel value is the result of a heavy end hydrocarbon (C18-C40) overlapping 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	11/21/2003	WGC42998	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.7	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

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

Date: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-003 **Client Sample ID:** MW-3

Sample Time: 12:05 PM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	8.8		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	2.2		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.2	68 - 118
Dibromofluoromethane	105.5	57 - 156
Toluene-d8	108.9	77 - 150

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	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.2	68 - 118
Dibromofluoromethane	105.5	57 - 156
Toluene-d8	108.9	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	520	x	2	50	100	µg/L	11/21/2003	11/25/2003	DW4459A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	47.0	21 - 142

Comment: Not TPH as Diesel: Reported TPH-Diesel value is the result of a heavy end hydrocarbon (C18-C40) overlapping into the Diesel quantitation range.

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	240		1	50	50	µg/L	N/A	11/24/2003	WGC43000	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	118.5	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: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-004 **Client Sample ID:** MW-2

Sample Time: 1:00 PM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	22000		200	0.5	100	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		200	0.5	100	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	1700		200	0.5	100	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	3200		200	1	200	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	95.0	68 - 118
Dibromofluoromethane	105.5	57 - 156
Toluene-d8	107.7	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		200	1	200	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	95.0	68 - 118
Dibromofluoromethane	105.5	57 - 156
Toluene-d8	107.7	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	320000		200	50	10000	µg/L	11/21/2003	11/25/2003	DW4459A	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.

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	59000		500	50	25000	µg/L	N/A	11/24/2003	WGC43000	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	102.2	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

Environmental Analysis Since 1983

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

Date: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-005 **Client Sample ID:** MW-9

Sample Time: 1:50 PM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.5	68 - 118
Dibromofluoromethane	103.0	57 - 156
Toluene-d8	108.4	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	1.8		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.5	68 - 118
Dibromofluoromethane	103.0	57 - 156
Toluene-d8	108.4	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	80	x	1	50	50	µg/L	11/21/2003	11/26/2003	DW4459A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	96.0	21 - 142

Comment: Not TPH as Diesel: Reported TPH-Diesel value is the result of a hevey end hydrocarbon (C18-C40) overlapping 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	11/24/2003	WGC43000	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.1	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

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: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-006 **Client Sample ID:** MW-1

Sample Time: 2:25 PM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	3.0		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	0.56		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.5	68 - 118
Dibromofluoromethane	101.7	57 - 156
Toluene-d8	105.0	77 - 150

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	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.5	68 - 118
Dibromofluoromethane	101.7	57 - 156
Toluene-d8	105.0	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	320	x	1	50	50	µg/L	11/21/2003	11/25/2003	DW4459A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	91.0	21 - 142

Comment: Not TPH as Diesel: Reported TPH-Diesel value is the result of a heavy end hydrocarbon (C11-C40) overlapping into the Diesel quantitation range.

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	300		1	50	50	µg/L	N/A	11/24/2003	WGC43000	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	105.4	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

Entech Analytical Labs, Inc.

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

Date: 12/03/03
Date Received: 11/20/2003
Project Name: AC Transit Sem.
Project Number: 2014
P.O. Number:
Sampled By: Andrew Wyckoff

Certified Analytical Report

Order ID: 36682 **Lab Sample ID:** 36682-007 **Client Sample ID:** MW-10

Sample Time: 3:00 PM **Sample Date:** 11/20/2003 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B
Xylenes, Total	ND		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.9	68 - 118
Dibromofluoromethane	102.9	57 - 156
Toluene-d8	103.0	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	1.7		1	1	1	µg/L	N/A	11/26/2003	WMS310381	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.9	68 - 118
Dibromofluoromethane	102.9	57 - 156
Toluene-d8	103.0	77 - 150

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	300	x	1	50	50	µg/L	11/21/2003	11/25/2003	DW4459A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	90.0	21 - 142

Comment: Not TPH as Diesel: Reported TPH-Diesel value is the result of a heavy end hydrocarbon (C11-C40) overlapping 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	11/24/2003	WGC43000	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	98.7	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

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 #: DW4459A
Matrix: Liquid
Units: µg/L
Date Analyzed: 11/21/2003

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		914.61	LCS	91.5			51.7 - 126.0
	Surrogate			**Surrogate Recovery**			**Control Limits (%)**				
	o-Terphenyl			103.0			21 - 142				
Test: TPH as Diesel											
TPH as Diesel	EPA 8015 M	ND		1000		972.21	LCSD	97.2	6.11	25.00	51.7 - 126.0
	Surrogate			**Surrogate Recovery**			**Control Limits (%)**				
	o-Terphenyl			105.0			21 - 142				

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Quality Control Results Summary

QC Batch #: WGC42998
Matrix: Liquid

Units: µg/L
Date Analyzed: 11/21/2003

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		269.55	LCS	107.8			65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			84.2			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		264.54	LCSD	105.8	1.88	25.00	65.0 - 135.0
Surrogate			**Surrogate Recovery**			**Control Limits (%)**					
4-Bromofluorobenzene			84.3			65 - 135					

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Quality Control Results Summary

QC Batch #: WGC43000
Matrix: Liquid

Units: µg/L
Date Analyzed: 11/24/2003

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		264.6	LCS	105.8			65.0 - 135.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	4-Bromofluorobenzene		88.9			65 - 135					
Test: TPH as Gasoline											
TPH as Gasoline	EPA 8015 M	ND		250		245.2	LCSD	98.1	7.61	25.00	65.0 - 135.0
	Surrogate		**Surrogate Recovery**			**Control Limits (%)**					
	4-Bromofluorobenzene		94.1			65 - 135					

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Quality Control Results Summary

QC Batch #: WMS310381
Matrix: Liquid

Units: µg/L
Date Analyzed: 11/26/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
Test: MTBE by EPA 8260B											
Methyl-t-butyl Ether	EPA 8260B	ND		20		20.2	LCS	101.0			58.0 - 127.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	100.2	68 - 118
Dibromofluoromethane	110.3	57 - 156
Toluene-d8	110.2	77 - 150

Test: MTBE by EPA 8260B											
Methyl-t-butyl Ether	EPA 8260B	ND		20		20.9	LCSD	104.5	3.41	25.00	58.0 - 127.0

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.2	68 - 118
Dibromofluoromethane	111.0	57 - 156
Toluene-d8	120.1	77 - 150

Entech Analytical Labs, Inc.

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Quality Control Results Summary

QC Batch #: WIC031120
Matrix: Liquid

Units: mg/L
Date Analyzed: 11/20/2003

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		2.289	LCS	101.3			80.0 - 120.0
Test: Sulfate											
Sulfate	EPA 300.0	ND		15		14.9	LCS	99.3			80.0 - 120.0
Test: Nitrate as N											
Nitrate as N	EPA 300.0	ND		2.26		2.325	LCSD	102.9	1.56	20.00	80.0 - 120.0
Test: Sulfate											
Sulfate	EPA 300.0	ND		15		15.137	LCSD	100.9	1.58	20.00	80.0 - 120.0

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 (Reqd).:	Send Invoice to (if Different)	Phone	
Company Name: Cameron-Cole	Fax No.: (510) 337-3994	Project Number: 20161	Company		
Mailing Address: 101 W. Atlantic Ave. Bldg. #10	email:	Project Name: AC Transit	Billing Address (if Different)		
City: Alameda	State: CA / Zip: 94501	Project Location: Seminary	City:	State / Zip	

Sampler: AW, MP
Field Org. Code:
Global ID: 36682

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	Volatile Organics by GC/MS: 601/602 ☐ 624 ☐ 8260B ☐	Fuel Oxygenates by 8260 ☐ 8010 by 8260 ☐	MTBE by 8260B ☐	Pesticides-8081 ☐	PCBs - 8082 ☐	8260B - 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 - DRO	8015 - GRO	Nitrate/Sulfate	Metals - Circle Below Total ☐ Dissolved ☐	STLC	TTLC	Remarks
TripBlank		-001	11/20/03	1120	X			2	X						X																	
MW-11		-002	1	1130				3	X						X																	
								3	X																	X						
								1																			X					
								2																	X							
MW-3		-003		1205				3	X						X																	
								3	X																	X						
								1																			X					
								2																	X							
MW-2		-004		1300				3	X																							
								3	X																							
								1																			X					

Relinquished by:	Received by:	Date: 11-20-03	Time: 4:30
Relinquished by:	Received by:	Date: 11-20-3	Time: 700
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

- ☐ 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 ☐

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 (Reqd).:	Send Invoice to (if Different)	Phone	
Company Name: Cameron-Cole	Fax No.: (510) 337-3994	Project Number: 20164	Company		
Mailing Address: 101 W. Atlantic Ave. Bldg #10	email:	Project Name: AC Transit	Billing Address (If Different)		
City: Alameda	State: CA Zip: 94501	Project Location: Seminary	City:	State	Zip

Sampler: AW, MP
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	Volatile Organics by GC/MS: 624 ☐ 601/602 ☐ 8260B ☐	Fuel Oxygenates by 8260 ☐	MTBE by 8260B ☐	Pesticides-8081 ☐	PCBs - 8082 ☐	8260B - 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 - DRO	8015 - GRO	Nitrate/Sulfate	Metals - Circle Below Total ☐ Dissolved ☐	STLC	TTLC	Remarks
MW-2			11/20/03	1300	X			2																	X							
MW-9		-005		1350				3	X						X																	
								3	X																	X						
								1																			X					
								2																	X							
MW-1		-006		1425				3	X						X																	
								3	X																	X						
								1																			X					
								2																	X							
MW-10		-007		1500				3	X						X																	
								3	X																	X						
								1																			X					

Relinquished by:	Received by:	Date: 11-20-3	Time: 4:30
Relinquished by:	Received by:	Date: 11-20-3	Time: 7:01
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

- ☐ 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 ☐

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 (Reqd).:	Send Invoice to (if Different)	Phone
Company Name: Cameron-Cole	Fax No.: (510) 337-3294	Project Number: 20164	Company	
Mailing Address: 101 W. Atlantic Ave Bldg "B"	email:	Project Name: AC Transit	Billing Address (If Different)	
City: Alameda	State: CA Zip: 94501	Project Location: Seminary	City:	State Zip

Sampler: AW, MP
Field Org. Code:
Global ID:

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

Order ID:
Sampling

Client ID:	Field PT	Lab. No.	Date	Time	Matrix H2O	Composite	Grab	Containers	Preservative	Volatile Organics by GCMS: 601/602 ☐ 624 ☐ / Fuel Oxygenates by 8260 ☐ 8010 by 8260B ☐ / MTBE by 8260B ☐ / 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 ☐	X 8015 - DRO	Metals - Circle Below Total ☐ Dissolved ☐ / STLC / TTLC	Remarks
MW-10		-007	11/20/03	1500	X			2										X		

Relinquished by:	Received by:	Date:	Time:
		11.20.3	4:30
		11.20.3	700

Special Instructions or Comments

- ☐ 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 ☐

APPENDIX B

SAMPLING EVENT DATA

DEPTH TO WATER

DATE: 11-20-03

PROJECT AC Transit Seminary EVENT Quarterly TECHNICIAN AW, MP

NO.	WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
1	MW-1	11/20/03	1101	4.61	SWL	
2	MW-2		1054	4.68		
3	MW-3		1052	3.40		
4	MW-9		1059	4.46		
5	MW-10		1056	3.56		
6	MW-11		1050	2.73		
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 Transit, Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 15.35
Depth to Water (ft) before purging: 4.60

Project Number: 2016
Sample Date: 11/20/03
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)
1408	6.85	1269	25.2	5.47	1.5	0.4
1412	6.79	1341	25.3	5.49	3.0	↓
1417	6.82	1339	25.1	5.51	5.0	↓
				total vol =	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
15.35 - 4.60 = 10.75 x 0.165 = 1.77 x 3 = 5.3

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: _____ _____ _____ _____

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

Decontamination Performed:
- washed / rinsed sanders/meters
- cent pump used to purge
- disposable bailer to sample

Comments / Calculations:
start pump : 1404
stop pump : 1420
sample : 1425

Fe - 2.68 mg/L
DO - 3.03 mg/L
ORP - 50 mV

Name: AHL MP Date: 11/20/03

Well ID: MW-2

Project Name: AC Transit, Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 4.68

Project Number: 2016
Sample Date: 11/20/03
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)
1227	6.79	2740	26.3	5.62	3	0.25
1239	6.82	2720	26.1	6.71	6	↓
1251	6.81	2710	25.9	7.59	9	↓
				total wl	9.5	

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
23.51 - 4.68 = 18.83 x 0.165 = 3.1 x 3 = 9.3

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
· cent. pump used to purge
· disposable bailer to sample

Comments / Calculations:
start pump: 1215
stop pump: 1253
sample: 1300

Fe - > 3.30 mg/L
DO - 2.10 mg/L
ORP - -70 mV

Name: _____ Date: _____

Well ID: MW-9

Project Name: AC Transit, Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 19.50
Depth to Water (ft) before purging: 4.46

Project Number: 2016
Sample Date: 11/20/03
Sample 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)
1321	7.69	1470	22.6	5.95	2	0.22
1329	7.52	1450	22.4	6.03	4	↓
1340	7.49	1420	22.9	6.02	6	↓
				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
19.50 - 4.46 = 15.04 x 0.165 = 2.48 x 3 = 7.4
NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least _____ 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 8015GRO/DRO Nitrate/Sulfate _____

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

Decontamination Performed:
washed/rinsed sounder/meters
- cent. pump used to purge
- disposable bailer to sample

Comments / Calculations:
Start pump: 1312
Stop pump: 1348
Sample: 1350

Fe - 0.20 mg/L
DO - 6.03 mg/L
ORP - -15 mV

Name: Will Hall Date: 11/20/03

Well ID: MW-10

Project Name: AC Transit Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 11.40
Depth to Water (ft) before purging: 3.57

Project Number: 2016
Sample Date: 11/20/03
Sample 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)
1445	6.78	3340	25.9	5.91	1	
1448	6.81	3190	25.5	6.05	2	
1452	6.84	3170	25.6	6.21	3	
				Total vol.	4 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
11.40 - 3.57 = 7.83 x 0.165 = 1.29 x 3 = 3.88

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: _____ _____ _____ _____

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

Decontamination Performed:
washed/rinsed sounder/meters
· Cont. pump used to purge
· disposable bailer to sample

Comments / Calculations:
start pump : 1442
stop pump : 1456
Sample : 1500

Fe - 0.01 mg/L
DO - 1.75 mg/L
ORP - -30 mV

AHLMD

11/20/03

Well ID: MW-11

Project Name: AZ TRANSIT SEMINARY
Casing Diameter (in): 2"
Total Well Depth (ft): 13.50
Depth to Water (ft) before purging: 2.73

Project Number: 2016
Sample Date: 11/20/03
Sample ID: MW-11

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)
1113	7.15	1019	21.2	5.21	1.5	0.3
1120	7.09	1017	21.3	7.96	3.0	↓
1125	7.07	1009	21.4	9.91	5.0	↓
			TOTAL	CAL :	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
(13.50 - 2.73) = 10.66 x .163 = 1.77 ~ 5 = 5.33
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:
- WATER SOUNDER + METERS
- TRIP BLANK COLLECTED @ 1120
- CENT PUMP USED TO PURGE
- DISPOSABLE BAILER USED TO SAMPLE

Comments / Calculations:
START : 1107
STOP : 1127
SAMPLE : 1130

Fe = 1.91 mg/L
DO = 2.30 mg/L
ORP = 50 mV

Well ID: MW-3

Project Name: AC Transit Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 16.81
Depth to Water (ft) before purging: 3.41

Project Number: 2016
Sample Date: 11/20/03
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)
~~1148~~ 1150				5.16	2	0.46
1154				7.12	4	↓
1158				9.86	6	↓
				total vol =	6.5 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 - 3.41 = 13.40 x 0.165 = 2.21 x 3 = 6.63

NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least _______ 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 TPH gas TPH diesel Nitrate/sulfate

Sample Appearance

_______ OVA Reading (ppm)

_______ Suspended Solids (describe):

Decontamination Performed:

- WASHED/RINSE SOUNDERS/METERS

- CENT PUMP USED TO PURGE
- DISPOSABLE BAILERS USED TO SAMPLE

Comments / Calculations:

pump start time: 1146
pump stop: 1200
Sample: 1205

Fe = 0.10 mg/L
DO = 5.92 mg/L
ORP = -60 mV

Name: Ali IMD

Date:

Project Name:
Casing Diameter (in): 2"
Total Well Depth (ft): 23.51
Depth to Water (ft) before purging: 4.12

Project Number: 2016
Sample Date: 12/18/03
Sample ID:

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 pump 0940				4.12		0.29
stop pump 1130						↓
				tot. gals = 32		

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

NOTE: 3 to 5 Well Casing Volumes required prior to sample collection.

At least _____ 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: NA _____ _____ _____

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

Decontamination Performed:
- washed/rinsed sounder & oil/water interface probe w/liquinox & DI water
- cent pump used to purge

Comments / Calculations:
$23.51 - 4.12 = (19.39 \times 0.165) \times 10 = 31.9$ gallons ~~2.4 gal~~ $32/3.19 = 10.03$ casing Volumes

Name: M. Poisson Date: 12/18/2003