R0246 AC

Alameda-Contra Costa Transit District

November 2, 2004

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 2004 Sampling
AC Transit, 1100 Seminary Avenue, Oakland, CA

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the August 2004 sampling event at the 1100 Seminary Avenue, Oakland, facility. We also request again to reduce the sampling frequency from quarterly to semi-annually. We would like to start the semi-annual sampling with this sampling event and perform the next sampling event in February 2005.

Groundwater sampling of six 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 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.

Sample results continue to show that TPH and related compounds are primarily restricted to monitoring wells MW-1, MW-2 and MW-3, installed near the former underground tank farm. Free phase product has not been measured in well MW-2 since the second quarter of 2002.

AC Transit concurs with Cameron-Cole's recommendation that the sampling frequency of the monitoring wells be reduced to a semi-annual schedule. Sampling should take place in February and August of each year to evaluate seasonal fluctuations in groundwater quality. In addition, the overpurging of well MW-2 will be performed every quarter instead of each month. 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

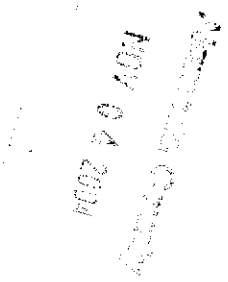
MONITORING REPORT
FOR THE AC TRANSIT FACILITY
LOCATED AT 1100 SEMINARY AVENUE,
OAKLAND, CALIFORNIA

September 2004

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

September 2004

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

Prepared By:
Cameron-Cole
101 W. Atlantic Avenue, Building 90
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Project No: 2016

CAMERON-COLE

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STATE OF CALIFORNIA
REGISTERED GEOLOGIST
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CERTIFIED GEOLOGIST

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INTRODUCTION

This report presents the results of the August 2004 sampling event for the AC Transit facility located at 1100 Seminary Avenue, Oakland, California (Site) (Figure 1). Cameron-Cole performed groundwater sampling of monitor wells MW-1 through MW-3 and MW-9 through MW-11, in accordance with directives from the Alameda County Health Care Services Agency (ACHCS).

OBJECTIVES AND SCOPE OF WORK

Work performed during 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 0.0014 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 of 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 third quarter 2004 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-2 and MW-3. Toluene 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 wells MW-2 and MW-11. 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 0.0014 feet/foot.
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-2 and MW-3 and toluene, ethylbenzene and xylenes in well MW-2.
- Gasoline was found to be present in groundwater samples taken from wells MW-1 (75 ppb), MW-2 (63,000 ppb) and MW-3 (440 ppb).
- Diesel was found to be present in groundwater samples taken from MW-2 and MW-11 at concentrations of 42,000 and 100 ppb, respectively.
- 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 monitoring has been conducted at the site since February 2000. Analytical data collected over this period has been consistent and shows that TPH and related compounds are primarily restricted to monitor wells MW-1 through MW-3 installed nearest the former underground storage tanks (UST). Results from guard wells MW-9 through MW-11 demonstrate that the extent of TPH is not expanding. Because there is very little change observed in site groundwater conditions, it is recommended that the monitoring program be reduced to semi-annual in the second quarter 2004 monitoring report. In order to evaluate seasonal fluctuations in groundwater quality, sampling would be conducted in February and August of each year. To date, AC Transit has not received a response from the ACHCS to their request for a reduced monitoring frequency.

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	
	9-Feb-04		None	3.05	3.20	
	25-May-04		None	3.22	3.03	
	16-Aug-04		**None**	**4.65**	**1.60**	
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	
	9-Feb-04		None	2.94	2.59	
	25-May-04		None	2.90	2.63	
	16-Aug-04		**None**	**4.30**	**1.23**	

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	3.40	1.36	
	9-Feb-04		None	2.06	2.70	
	25-May-04		None	2.10	2.66	
	16-Aug-04		**None**	**3.36**	**1.40**	
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	
	9-Feb-04		None	3.23	2.57	
	25-May-04		None	3.53	2.27	
	16-Aug-04		**None**	**4.20**	**1.60**	

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-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	
	9-Feb-04		None	2.51	2.14	
	25-May-04		None	2.90	1.75	
	16-Aug-04		**None**	**3.90**	**0.75**	
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	
	9-Feb-04		None	2.60	1.59	
	25-May-04		None	2.06	2.13	
	16-Aug-04		**None**	**2.91**	**1.28**	

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
	9-Feb-04	210	370	NA	<0.5	0.50	0.52	<1.0	<1.0	<200	7,000	4,190	>3300
	26-May-04	470	<50	NA	5.0	<0.5	7.2	1.9	<1.0	<200	2,400	3,780	>3300
	16-Aug-04	**75**	**<50**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**<1.0**	**<200**	**11,000**	**4,120**	**2,560**
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
	9-Feb-04	19,000	55,000	NA	5,400	160	800	1,800	<100	<200	1,200	4,730	>3300
	26-May-04	60,000	520,000	NA	22,000	410	1,700	2,800	<250	<200	<500	4,520	>3300
	16-Aug-04	**63,000**	**42,000**	**NA**	**20,000**	**520**	**1,600**	**2,400**	**<250**	**<200**	**<2500**	**3,560**	**>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
	9-Feb-04	700	700	NA	5.6	<0.5	3.8	1.3	<1.0	<200	17,000	4,080	0
	26-May-04	700	<100	NA	83.0	<0.5	11.0	1.7	<1.0	<200	18,000	4,210	0
	16-Aug-04	**440**	**<500**	**NA**	**6.0**	**<0.5**	1.6	**<1.0**	**<1.0**	**<200**	**14,000**	**3,960**	**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
	9-Feb-04	<50	65	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	98,000	5,800	0
	26-May-04	<50	<250	NA	<0.5	<0.5	<0.5	<1.5	<1.0	<200	88,000	5,200	0
	16-Aug-04	**<50**	**<50**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**1.3**	**<200**	**100,000**	**4,960**	**0**

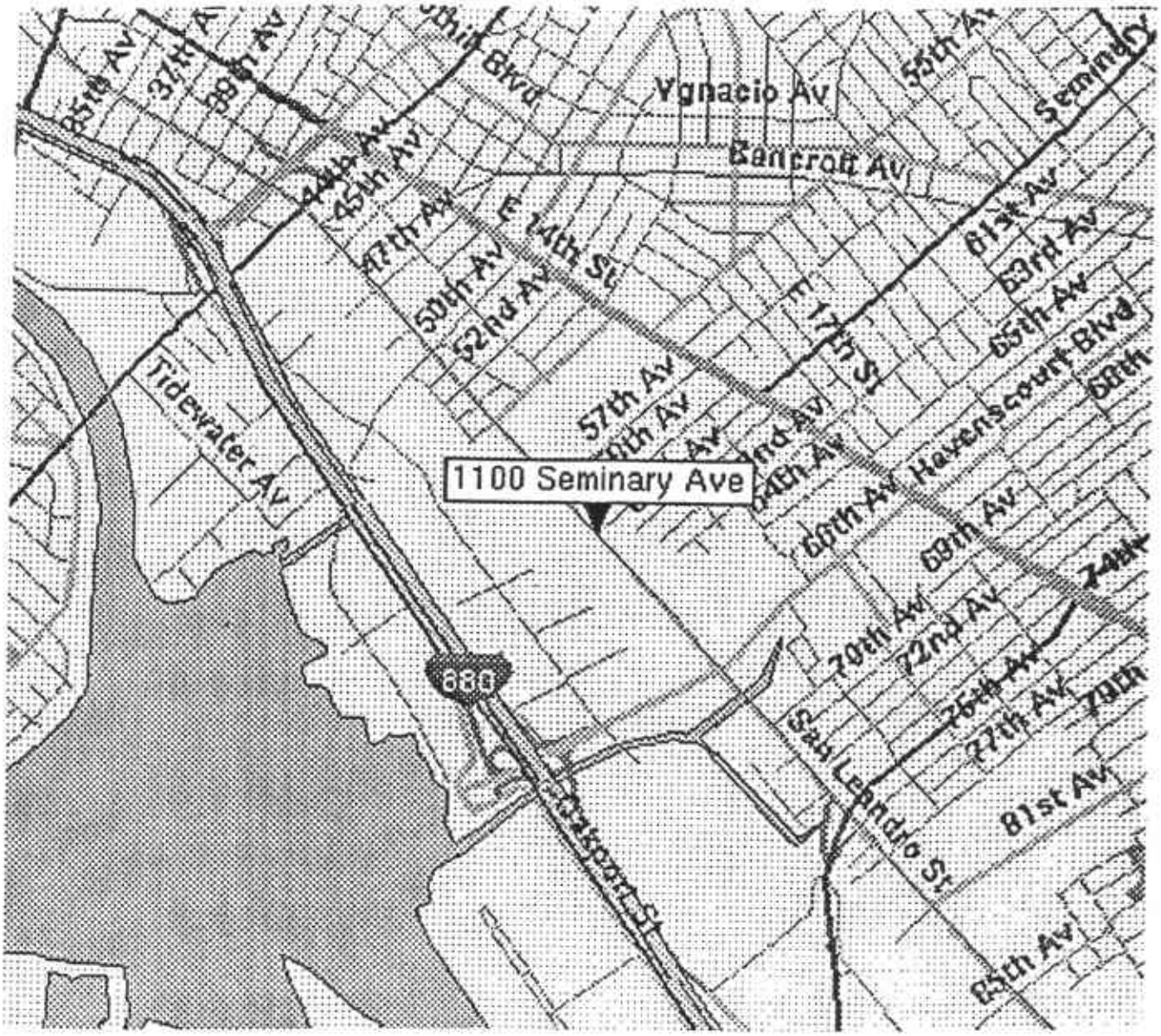
TABLE 2
ANALYTICAL RESULTS OF GROUNDWATER SAMPLES (ppb)
AC Transit Facility
1100 Seminary Avenue, Oakland, California

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-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
	9-Feb-04	<50	250	NA	<0.5	<0.5	<0.5	<1.0	1.1	<200	110,000	1,650	0
	26-May-04	<500	<50	NA	<0.5	<0.5	<0.5	<1.5	<1.0	<200	160,000	1,630	0
	16-Aug-04	**<50**	**<50**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**<1.0**	**<200**	**120,000**	**2,840**	**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
	9-Feb-04	<50	270	NA	<0.5	<0.5	<0.5	<1.0	<1.0	<200	120,000	10,400	0
	26-May-04	<50	<50	NA	<0.5	<0.5	<0.5	<1.5	<1.0	<200	140,000	10,100	0
	16-Aug-04	**<50**	**100**	**NA**	**<0.5**	**<0.5**	**<0.5**	**<1.0**	**<1.0**	**<200**	**130,000**	**8,610**	**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



CAMERON-COLE

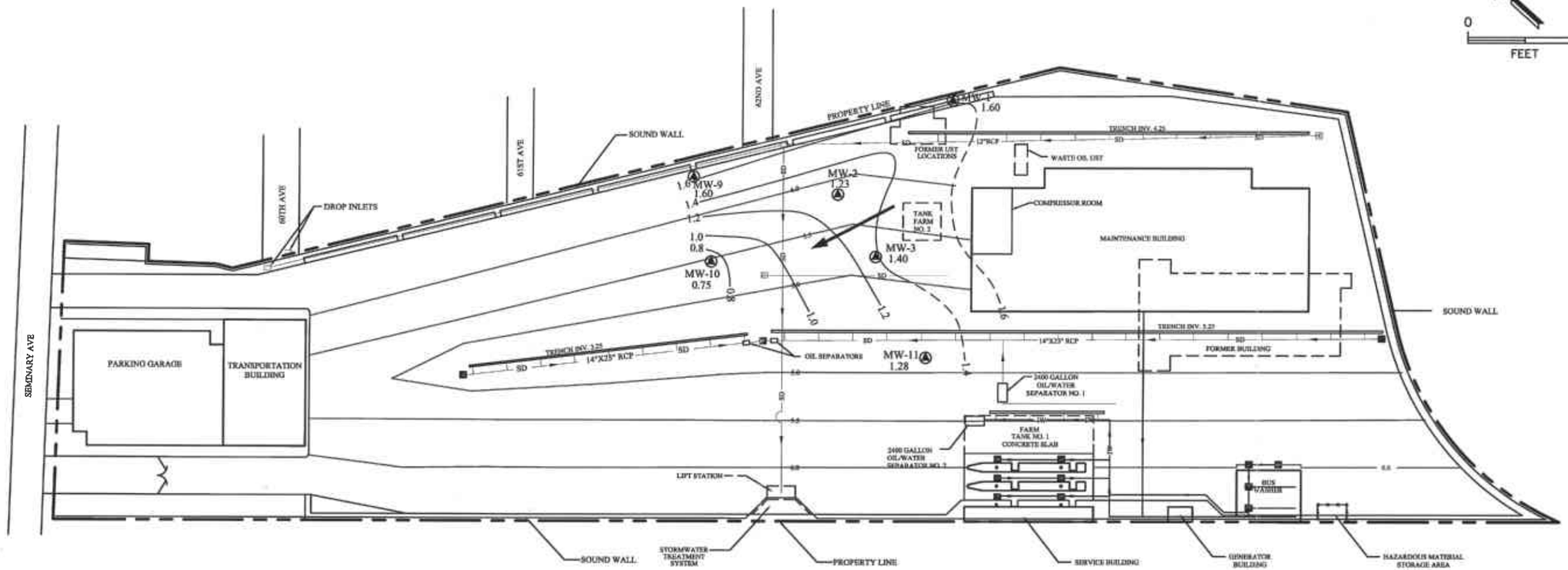
AC TRANSIT - OAKLAND, CALIFORNIA

FIGURE 1
SITE LOCATION MAP
1100 SEMINARY ROAD

SCALE: NO SCALE | DATE: 3/22/00

North

LOCMAP



LEGEND

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

	BY	DATE
DRAWN	WRB	6/4/04
CHECKED		
APPROVED		
APPROVED		
APPROVED		

CAMERON-COLE

FIGURE 2

AC TRANSIT - OAKLAND, CALIFORNIA

1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP
MAY 2004

SCALE: 1" = 120'

DWG. NO.: 2011-12

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

Emily Waters
Cameron-Cole
101 W. Atlantic Ave.,Bldg#90
Alameda, CA 94501

Certificate ID: 40074 - 8/25/2004 10:26:06 AM

Order: 40074
Project Name: ACTransit Seminary
Project Number: 2016

Date Collected: 8/16/2004
Date Received: 8/16/2004
P.O. Number: 2016

Certificate of Analysis - Final Report

On August 16, 2004, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

Matrix	Test	Method	Comments
Liquid	EDD	EDD	
	EPA 8260B	EPA 8260B	
	Nitrate as N	EPA 300.0	
	PDF	PDF	
	Sulfate by IC	EPA 300.0	
	TPH as Gasoline	EPA 8015 MOD. (Purgeable)	
	TPH-Extractable	EPA 8015 MOD. (Extractable)	Report Diesel ONLY

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,

Laurie Glantz-Murphy
Laboratory Director

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

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

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-001 **Sample ID: Trip Blank** **Matrix:** Liquid **Sample Date:** 8/16/2004 9:45 AM

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	08/18/2004	WMS1040818B
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	08/18/2004	WMS1040818B
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	08/18/2004	WMS1040818B
Toluene	ND		1	0.5	µg/L	N/A	N/A	08/18/2004	WMS1040818B
Xylenes, Total	ND		1	1	µg/L	N/A	N/A	08/18/2004	WMS1040818B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	91.3	64 - 125
Dibromofluoromethane	109.0	23 - 172
Toluene-d8	102.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

Entech Analytical Labs, Inc.

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

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-002 **Sample ID: MW-3** **Matrix:** Liquid **Sample Date:** 8/16/2004 10:10 AM

Method: EPA 300.0

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Nitrate as N	ND		1	0.2	mg/L	N/A	N/A	08/18/2004	WIC040818
Sulfate	14		1	0.5	mg/L	N/A	N/A	08/19/2004	WIC040818

Analyzed by: Equeja
Reviewed by: DQUEJA

Method: EPA 8015 MOD. (Extractable) / EPA 3510C / Liq-Liq, Sep Funnel, MeCl

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Diesel	ND		10	500	µg/L	08/17/2004	DW4793A	08/18/2004	DW4793A

Note: 2800ppb hydrocarbon C18-C40; no indication of Diesel

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	114.0	16 - 137

Analyzed by: JZaininger
Reviewed by: MTU

Method: EPA 8015 MOD. (Purgeable) / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	440		1	50	µg/L	N/A	N/A	08/19/2004	WGC4040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	110.8	65 - 135

Analyzed by: JAMES
Reviewed by: MTU

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	6.0		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Ethyl Benzene	1.6		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819
Toluene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Xylenes, Total	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	92.7	64 - 125
Dibromofluoromethane	109.0	23 - 172
Toluene-d8	100.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

Entech Analytical Labs, Inc.

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

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-003 **Sample ID: MW-1** **Matrix:** Liquid **Sample Date:** 8/16/2004 10:45 AM

Method: EPA 300.0

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Nitrate as N	ND		1	0.2	mg/L	N/A	N/A	08/18/2004	WIC040818
Sulfate	11		1	0.5	mg/L	N/A	N/A	08/19/2004	WIC040818

Analyzed by: Equeja
Reviewed by: DQUEJA

Method: EPA 8015 MOD. (Extractable) / EPA 3510C / Sep. funnel liquid/liquid extraction

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Diesel	ND		1	50	µg/L	08/17/2004	DW4793A	08/17/2004	DW4793A

Note: 730ppb hydrocarbon C12-C36; no indication of Diesel.

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	104.0	16 - 137

Analyzed by: JZaininger
Reviewed by: MTU

Method: EPA 8015 MOD. (Purgeable) / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	75	x	1	50	µg/L	N/A	N/A	08/19/2004	WGC4040819

Note: TPH as Gasoline value contains light hydrocarbon compounds in the TPH as Gasoline quantitation range.

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	102.8	65 - 135

Analyzed by: JAMES
Reviewed by: MTU

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040818B
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040818B
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040818B
Toluene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040818B
Xylenes, Total	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040818B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.5	64 - 125
Dibromofluoromethane	110.0	23 - 172
Toluene-d8	102.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

Entech Analytical Labs, Inc.

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

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-004 **Sample ID:** MW-9 **Matrix:** Liquid **Sample Date:** 8/16/2004 11:35 AM

Method: EPA 300.0

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Nitrate as N	ND		1	0.2	mg/L	N/A	N/A	08/18/2004	WIC040818
Sulfate	100		5	2.5	mg/L	N/A	N/A	08/19/2004	WIC040818

Analyzed by: Equeja
Reviewed by: DQUEJA

Method: EPA 8015 MOD. (Extractable) / EPA 3510C / Liq-Liq, Sep Funnel, MeCl

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Diesel	ND		1	50	µg/L	08/17/2004	DW4793A	08/19/2004	DW4793A

Note: 650ppb hydrocarbon C19-C40; no indication of Diesel.

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	102.0	16 - 137

Analyzed by: JZaininger
Reviewed by: MTU

Method: EPA 8015 MOD. (Purgeable) / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	08/19/2004	WGC4040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	95.2	65 - 135

Analyzed by: JAMES
Reviewed by: MTU

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Methyl-t-butyl Ether	1.3		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819
Toluene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Xylenes, Total	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	93.5	64 - 125
Dibromofluoromethane	107.0	23 - 172
Toluene-d8	100.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

Entech Analytical Labs, Inc.

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-005 **Sample ID:** MW-10 **Matrix:** Liquid **Sample Date:** 8/16/2004 12:40 PM

Method: EPA 300.0

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Nitrate as N	ND		1	0.2	mg/L	N/A	N/A	08/18/2004	WIC040818
Sulfate	120		5	2.5	mg/L	N/A	N/A	08/19/2004	WIC040818

Analyzed by: Equeja
Reviewed by: DQUEJA

Method: EPA 8015 MOD. (Extractable) / EPA 3510C / Sep. funnel liquid/liquid extraction

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Diesel	ND		1	50	µg/L	08/17/2004	DW4793A	08/17/2004	DW4793A

Note: 260ppb hydrocarbon C19-C40; no indication of Diesel.

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	85.0	16 - 137

Analyzed by: JZaininger
Reviewed by: MTU

Method: EPA 8015 MOD. (Purgeable) / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	08/19/2004	WGC4040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	98.7	65 - 135

Analyzed by: JAMES
Reviewed by: MTU

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819
Toluene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Xylenes, Total	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	92.8	64 - 125
Dibromofluoromethane	108.0	23 - 172
Toluene-d8	100.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

Entech Analytical Labs, Inc.

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

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-006 **Sample ID: MW-11** **Matrix:** Liquid **Sample Date:** 8/16/2004 11:50 AM

Method: EPA 300.0

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Nitrate as N	ND		1	0.2	mg/L	N/A	N/A	08/18/2004	WIC040818
Sulfate	130		5	2.5	mg/L	N/A	N/A	08/19/2004	WIC040818

Analyzed by: Equeja
Reviewed by: DQUEJA

Method: EPA 8015 MOD. (Extractable) / EPA 3510C / Liq-Liq, Sep Funnel, MeCL

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Diesel	100		1	50	µg/L	08/17/2004	DW4793A	08/19/2004	DW4793A

Note: Not a TPH-Diesel pattern C8-C16. Sample also includes 490ppb C16-C40.

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	97.0	16 - 137

Analyzed by: JZaininger
Reviewed by: MTU

Method: EPA 8015 MOD. (Purgeable) / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	08/19/2004	WGC4040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.0	65 - 135

Analyzed by: JAMES
Reviewed by: MTU

Method: EPA 8260B / EPA 5030B / Purge-and-trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819
Toluene	ND		1	0.5	µg/L	N/A	N/A	08/19/2004	WMS1040819
Xylenes, Total	ND		1	1	µg/L	N/A	N/A	08/19/2004	WMS1040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	93.2	64 - 125
Dibromofluoromethane	108.0	23 - 172
Toluene-d8	101.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

Detection Limit = Detection Limit for Reporting. ND = Not Detected at or above the Detection Limit. DF = Dilution and/or Prep Factor

Entech Analytical Labs, Inc.

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

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

Project Number: 2016
Project Name: ACTransit Seminary
Date Received: 8/16/2004
P.O. Number: 2016
Sampled By: Client

Certificate of Analysis - Data Report

Lab # : 40074-007 **Sample ID:** MW-2 **Matrix:** Liquid **Sample Date:** 8/16/2004 1:30 PM

Method: EPA 300.0

Parameter		Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Nitrate as N		ND		1	0.2	mg/L	N/A	N/A	08/18/2004	WIC040818
Sulfate	Needs Validat	ND		5	2.5	mg/L	N/A	N/A	08/18/2004	WIC040818

Analyzed by: Equcja
Reviewed by: DQUEJA

Method: EPA 8015 MOD. (Extractable) / EPA 3510C / Sep. funnel liquid/liquid extraction

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Diesel	42000		50	2500	µg/L	08/17/2004	DW4793A	08/19/2004	DW4793A

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	NR	16 - 137

Analyzed by: JZaininger
Reviewed by: MTU

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

Method: EPA 8015 MOD. (Purgeable) / EPA 5030B / Soil direct purge & trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	63000		500	25000	µg/L	N/A	N/A	08/19/2004	WGC4040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.2	65 - 135

Analyzed by: JAMES
Reviewed by: MTU

Method: EPA 8260B / EPA 5030B / Soil direct purge & trap

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	20000		250	125	µg/L	N/A	N/A	08/19/2004	WMS1040819
Ethyl Benzene	1600		250	125	µg/L	N/A	N/A	08/19/2004	WMS1040819
Methyl-t-butyl Ether	ND		250	250	µg/L	N/A	N/A	08/19/2004	WMS1040819
Toluene	520		250	125	µg/L	N/A	N/A	08/19/2004	WMS1040819
Xylenes, Total	2400		250	250	µg/L	N/A	N/A	08/19/2004	WMS1040819

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.3	64 - 125
Dibromofluoromethane	106.0	23 - 172
Toluene-d8	101.0	70 - 134

Analyzed by: XBian
Reviewed by: MTU

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Quality Control - Method Blank

Validated by: DQUEJA - 08/23/04

QC Batch ID: WIC040818
Matrix: Liquid
Date of Analysis: 8/18/2004

Method: EPA 300.0

Parameter	Result	DF	PQL	PQLR	Units
Nitrate as N	ND	1	0.2	0.2	mg/L
Sulfate	ND	1	0.5	0.5	mg/L

Quality Control - Laboratory Control Spike / Duplicate Results

Reviewed by: DQUEJA - 08/23/04

QC Batch ID: WIC040818
Date of Analysis: 8/18/2004

Method EPA 300.0 — Liquid — Conc. Units: mg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Nitrate as N	<0.2	2.26	2.33	LCS	8/18/2004	103.1			80 - 120
Sulfate	<0.5	15.0	13.9	LCS	8/18/2004	92.7			80 - 120
Nitrate as N	<0.2	2.26	2.52	LCSD	8/18/2004	111.5	7.8	20	80 - 120
Sulfate	<0.5	15.0	15.1	LCSD	8/18/2004	100.7	8.3	20	80 - 120

Quality Control - Matrix Spike / Duplicate Results

Reviewed by: DQUEJA - 08/23/04

QC Batch ID: WIC040818
Date of Analysis: 8/18/2004

Method EPA 300.0 — Liquid — Conc. Units: mg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 40074-002									
Nitrate as N	ND	4.0	3.79	MS	8/18/2004	94.8			80 - 120
Sulfate	14.2	20.0	33.3	MS	8/18/2004	95.5			80 - 120
MSD SampleNumber: 40074-002									
Nitrate as N	ND	4.0	3.29	MSD	8/18/2004	82.3	14.1	25	80 - 120
Sulfate	14.2	20.0	33.8	MSD	8/18/2004			25	80 - 120

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Quality Control - Method Blank

Prep Batch ID: DW4793A
Prep Date: 8/17/2004

Validated by: MTU - 08/19/04

QC Batch ID: DW4793A
Matrix: Liquid
Date of Analysis: 8/17/2004

Method: EPA 8015 MOD. (Extractable)

Parameter	Result	DF	PQL	PQLR	Units
TPH as Diesel	ND	1	50	50	µg/L

Surrogate for Blank	% Recovery	Control Limits
o-Terphenyl	100.0	16 - 137

Quality Control - Laboratory Control Spike / Duplicate Results

Prep Batch ID: DW4793A
Prep Date: 8/17/2004

Reviewed by: MTU - 08/19/04

QC Batch ID: DW4793A
Date of Analysis: 8/17/2004

Method EPA 8015 MOD. (Extractable) **Liquid** **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Diesel	<50	1000.0	800.	LCS	8/17/2004	80.0			38 - 135
TPH as Motor Oil	<250	500.0	580.	LCS	8/17/2004	116.0			38 - 135

Surrogate	% Recovery	Control Limits
o-Terphenyl	105.0	16 - 137

TPH as Diesel	<50	1000.0	840.	LCSD	8/17/2004	84.0	4.9	25	38 - 135
TPH as Motor Oil	<250	500.0	590.	LCSD	8/17/2004	118.0	1.7	25	38 - 135

Surrogate	% Recovery	Control Limits
o-Terphenyl	109.0	16 - 137

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Quality Control - Method Blank

Validated by: MTU - 08/20/04

QC Batch ID: WGC4040819
Matrix: Liquid
Date of Analysis: 8/19/2004

Method: EPA 8015 MOD. (Purgeable)

Parameter	Result	DF	PQL	PQLR	Units
TPH as Gasoline	ND	1	50	50	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	93.1	65 - 135

Quality Control - Laboratory Control Spike / Duplicate Results

Reviewed by: MTU - 08/20/04

QC Batch ID: WGC4040819
Date of Analysis: 8/19/2004

Method EPA 8015 MOD. (Purgeable) Liquid Conc. Units: µg/L

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<50	250.0	276.6	LCS	8/19/2004	110.6			65 - 135
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	82.1	65 - 135							
TPH as Gasoline	<50	250.0	242.	LCSD	8/19/2004	96.8	13.3	25	65 - 135
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	89.0	65 - 135							

Quality Control - Matrix Spike / Duplicate Results

Reviewed by: MTU - 08/20/04

QC Batch ID: WGC4040819
Date of Analysis: 8/19/2004

Method EPA 8015 MOD. (Purgeable) Liquid Conc. Units: µg/L

Parameter	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
MS SampleNumber: 40074-006									
TPH as Gasoline	ND	250.0	260.2	MS	8/19/2004	104.1			65 - 135
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	93.0	65 - 135							
MSD SampleNumber: 40074-006									
TPH as Gasoline	ND	250.0	265.0	MSD	8/19/2004	106.0	1.8	25	65 - 135
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	94.2	65 - 135							

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Quality Control - Method Blank

Validated by: MTU - 08/19/04

QC Batch ID: WMS1040818B
Matrix: Liquid
Date of Analysis: 8/18/2004

Method: EPA 8260B

Parameter	Result	DF	PQL	PQLR	Units
Benzene	ND	1	0.5	0.5	µg/L
Ethyl Benzene	ND	1	0.5	0.5	µg/L
Methyl-t-butyl Ether	ND	1	1	1	µg/L
Toluene	ND	1	0.5	0.5	µg/L
Xylenes, Total	ND	1	1	1	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	91.7	64 - 125
Dibromofluoromethane	101.0	23 - 172
Toluene-d8	100.0	70 - 134

Quality Control - Laboratory Control Spike / Duplicate Results

Reviewed by: MTU - 08/19/04

QC Batch ID: WMS1040818B
Date of Analysis: 8/18/2004

Method EPA 8260B — **Liquid** — **Conc. Units: µg/L**

Parameter	Blank	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.5	20.0	19.4	LCS	8/18/2004	97.0			60 - 132
Benzene	<0.5	20.0	22.2	LCS	8/18/2004	111.0			77 - 154
Chlorobenzene	<0.5	20.0	21.2	LCS	8/18/2004	106.0			66 - 141
Methyl-t-butyl Ether	<1	20.0	19.4	LCS	8/18/2004	97.0			58 - 127
Toluene	<0.5	20.0	19.9	LCS	8/18/2004	99.5			47 - 137
Trichloroethene	<0.5	20.0	20.9	LCS	8/18/2004	104.5			57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	91.8	64 - 125
Dibromofluoromethane	99.8	23 - 172
Toluene-d8	92.5	70 - 134

1,1-Dichloroethene	<0.5	20.0	18.8	LCSD	8/18/2004	94.0	3.1	25	60 - 132
Benzene	<0.5	20.0	21.5	LCSD	8/18/2004	107.5	3.2	25	77 - 154
Chlorobenzene	<0.5	20.0	20.8	LCSD	8/18/2004	104.0	1.9	25	66 - 141
Methyl-t-butyl Ether	<1	20.0	19.7	LCSD	8/18/2004	98.5	1.5	25	58 - 127
Toluene	<0.5	20.0	19.6	LCSD	8/18/2004	98.0	1.5	25	47 - 137
Trichloroethene	<0.5	20.0	20.5	LCSD	8/18/2004	102.5	1.9	25	57 - 159

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	90.1	64 - 125
Dibromofluoromethane	99.2	23 - 172
Toluene-d8	93.0	70 - 134

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: Emily Waters	Phone No.: (510) 769-3570	Purchase Order No.: 200	Invoice to: (If Different)	Phone:	
Company Name: Cameron-Cole	Fax No.: (510) 337-3794	Project No.: 2016	Company:	Quote No.:	
Mailing Address: 101 W. Atlantic Ave Bldg 90	Email Address:	Project Name: AC Transit-Seminary	Billing Address: (If Different)		
City: Alameda	State: CA	Zip Code: 94501	Project Location: Oakland, CA	City:	State: Zip:

Sampler: E. Waters
Field Org. Code:
Global ID:

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

Order ID:

Sample

Client ID / Field Point	Lab. No.	Date	Time	Matrix	No. of Containers	GC/MS Methods: EPA 8260B	BTEX ☐ MTBE ☐ TPH Gas ☐ by 8260B	5 Oxygenates (MTBE, TBA, ETBA, DIPE, TAME) ☐ Lead Scavengers (1,2-DCA & EDB) ☐ Ethanol ☐	Base/Neutral/Acid Organics 8270C ☐ PAH - 8270C ☐ PAH - 8270C SIM ☐	TPH Extractable: Diesel ☐ Motor Oil ☐ Other ☐ w/ Si-Gel Cleanup ☐	Pesticides-8081 ☐ PCBs - 8082 ☐	GC Methods: TPH as Gas/BTEX ☐ MTBE ☐ by 8015M/8020	Methanol by 8015M	TPH - gas	Nitrate/Sulfate	General Chemistry: Anions: F ☐ Cl ☐ Br ☐ SO4 ☐ NO3 ☐ NO2 ☐ PO4 ☐	pH ☐ TSS ☐ SC ☐ TOC ☐ TRPH ☐ O & G ☐	Metals - Circle Below Total ☐ Dissolved ☐ STLC ☐ TCLP ☐	Remarks
Trip Blank	40014-001	8/16/04	0945	W	3	X												
MW-3	002		1010		3	X												
↓			↓		2				X									
					3							X						
					1								X					
MW-1	003		1045		3	X												
↓			↓		2				X									
					3							X						
					1								X					
MW-9	004		1135		3	X												
↓			↓		2				X									
					3							X						
					1								X					

Relinquished by:	Received by:	Date:	Time:
[signature]	[signature]	8/16/04	1530
[signature]	[signature]	8/16/04	1637

Special Instructions or Comments

- ☐ EDD Report
- ☐ EDF Report
- ☐ Plating
- ☐ LUFT-5
- ☐ RCRA-8
- ☐ PPM-13
- ☐ CAM-17

Metals:
Al, As, Sb, Ba, Be, Bi, B, Cd, Ce, Ca, Cr, Co, Cs, Cu, Fe, Pb, Mg, Mn, Ga, Ge, Hg, In, Li, Mo, Ni, P, K, Si, Ag, Na, S, Se, Sr, Ta, Te, Tl, Sn, Ti, Zn, V, W, Zr

June 2004

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: Emily Waters	Phone No.: (510) 769-3570	Purchase Order No.:	Invoice to: (If Different)	Phone:	
Company Name: Cameron-Cole	Fax No.: (510) 337-3994	Project No.: 2016	Company:	Quote No.:	
Mailing Address: 101 W. Atlantic Ave Bldg 90	Email Address:	Project Name: AC Transit Seminary	Billing Address: (If Different)		
City: Alameda	State: CA	Zip Code: 94501	Project Location: Oakland, CA	City:	State:	Zip:

Sampler: | Field Org. Code:

Global ID:

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

Order ID:

Client ID / Field Point	Lab. No.	Sample Date	Sample Time	Matrix	No. of Containers	GC/MS Methods: EPA 8260B	BTEX	MTBE	TPH Gas by 8260B	5 Oxygenates (MTBE, TBA, ETBA, DIPE, TAME)	Lead Scavengers (1,2-DCA & EDB)	Base/Neutral/Acid Organics 8270C	PAH - 8270C	PAH - 8270C_SIM	Ethanol	TPH Extractable: Diesel	Motor Oil	Other	Pesticides-8081	PCBs - 8082	TPH as Gas/BTEX	MTBE by 8015M/8020	Methanol by 8015M	GC Methods: TPH-Gas	Nitrate/Sulfate	General Chemistry: Anions: F Cl Br SO4 NO3 NO2 PO4	pH TSS SC TOC TRPH O&G	Metals: Circle Below Total Dissolved STLC TCLP	Remarks
MW-10	40074-005	8/16/04	1240	W	3	X										X							X						Per Emily Waters 8/25/04
					2																								
					3																	X							
					1																			X					
MW-11	-006		1150		3	X																							
					2											X													
					3																	X							
					1																			X					
MW-2	-001		1330		3	X																							
					2											X													
					3																	X							
					1																			X					

Relinquished by:	Received by:	Date:	Time:
		8/16/04	1530
		8/16/04	1637

Special Instructions or Comments

- ☐ EDD Report
- ☐ EDF Report
- ☐ Plating
- ☐ LUFT-5
- ☐ RCRA-8
- ☐ PPM-13
- ☐ CAM-17

Metals:
Al, As, Sb, Ba, Be, Bi, B, Cd, Ce, Ca, Cr, Co, Cs, Cu, Fe, Pb, Mg, Mn, Ga, Ge, Hg, In, Li, Mo, Ni, P, K, Si, Ag, Na, S, Se, Sr, Ta, Te, Tl, Sn, Ti, Zn, V, W, Zr

APPENDIX B

SAMPLING EVENT DATA

HYDRODATA

PROJECT: AC Seminary EVENT: Quaterly SAMPLER: EN

NO.	WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
1	MW-1	8/16/04	0919	4.65	SWL	
2	MW-2	↓	0913	4.30	↓	
3	MW-3		0922	3.36		
4	MW-9		0917	4.20		
5	MW-10		0930	3.90		
6	MW-11	↓	0932	2.91	↓	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

CODES:

SWL - Static Water Level

OIL - Oil Level

OWI - Oil/Water Interface

MTD - Measured Total Depth

Project Name: ACTrans Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 15.30
Depth to Water (ft) before purging: 4.65

Project Number: 2016
Sample Date: 8/16/04
Sample ID: MW-1

Well ID: MW-1

Development Method:

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

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

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1030	24.2	748	7.00	5.42	1.5	0.4
1034	23.8	752	6.95	5.52	3.0	↓
1038	24.1	756	6.97	5.47	4.5	↓
			total volume		5.5	

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
15.30 - 4.65 = 10.65 X .165 = 1.76 x 3 = 5.27
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 X 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 8015 DRO Nitrate/Sulfate

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

Decontamination Performed:

Start 1026
stop 1040
sample 1045

Fe: 256 mg/L
DO: 4.12 mg/L
ORP: -35 mV

Comments / Calculations:
Cent pump used to purge
washed/rinsed sounder/meters

Name: Emily Mott 8/16/04

Project Name: ACTrans Seminary
Project Number: 2016
Well ID: MW-2
Casing Diameter (in): 2"
Sample Date: 8/16/04
Total Well Depth (ft): 23.30
Sample ID: MW-2
Depth to Water (ft) before purging: 4.30

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)
1257	6.88	1856	26.2	5.32	2.5	0.25
1307	6.92	1802	26.1	6.90	5.0	↓
1317	7.01	1792	26.2	8.86	7.5	↓
				total vol	9	

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
23.30 - 4.30 = 18.0 x 0.165 = 2.97 x 3 = 8.91
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 X 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 8015 DRO Nitrate/Sulfate

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

Decontamination Performed:
start: 1247
stop: 1327
sample: 1330

Fe: 73.30 mg/L
DO: 3.56 mg/L
ORP: -35 mV

Comments / Calculations:
Cent pump used to purge
washed/rinsed sounder/meters

Name: Emily Mott 8/16/04

Project Name: AC Trans Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 17.00
Depth to Water (ft) before purging: 3.13

Project Number: 2016
Sample Date: 8/16/04
Sample ID: MW-3

Well ID: MW-3

Development Method:

NA ______Bailer: ______Teflon ______Stainless Steel ______PVC ______ABS Plastic

______Pump: ______Dedicated Submersible Pump ______Bladder Pump
______Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
	~~23.9~~ 7.03	719	23.5	5.32	2	0.4
	7.04	816	23.4	7.12	4	↓
	7.09	812	24.2	7.60	6	
				total vol	7	

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
17.00 - 3.13 = 13.87 × 0.165 = 2.29 × 3 = 6.86
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 X 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 8015 DRO Nitrate/Sulfate

Sample Appearance
______OVA Reading (ppm)
______Suspended Solids (describe):

Decontamination Performed: start: 0950
stop: 1007
sample: 1010

Fe: 0.10 mg/L
DO: 3.96 mg/L
ORP: -5 mV

Comments / Calculations:
cent pump used to purge
washed/rinsed sounder/meters
trip blank collected @ 0945

[signature]

8/16/04

Project Name: ACTrans Seminary
Project Number: 2016
Well ID: MW-9
Casing Diameter (in): 2"
Sample Date: 8/16/04
Total Well Depth (ft): 19.70
Sample ID:
Depth to Water (ft) before purging: 4.19

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)
1117	7.72	568	25.8	5.46	2.5	0.4
1123	7.62	598	26.1	6.28	5.0	↓
1129	7.61	592	25.8	7.49	7.5	↓
				total vol	8	

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
19.70 - 4.19 = 15.51 x 0.165 = 2.56 x 3 = 7.68
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 X 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 8015 DRO Nitrate/Sulfate

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

Decontamination Performed:

start: 1111
stop: 1131
sample: 1135

Fe: 0.0 mg/L
DO: 4.96 mg/L
ORP: 100 mV

Comments / Calculations:
Cent pump used to purge
washed/rinsed sounder/meters

Name: [signature] 8/16/04

Project Name: ACTrans Seminary
Project Number: 2016
Well ID: MW-10
Casing Diameter (in): 2"
Sample Date: 3/16/04
Total Well Depth (ft): 11.40
Sample ID: MW-10
Depth to Water (ft) before purging: 3.91

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)
1221	~~7.54~~	1056	24.6	4.41	1	0.3
1224	7.52	1010	24.8	4.86	2	↓
1227	7.49	1002	25.0	5.15	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 - 3.91 = 7.49 x 0.165 = 1.24 x 3 = 3.70
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 X 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 8015 DRO Nitrate/Sulfate

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

Decontamination Performed:

start: 1218
STOP: 1236
sample: 1240

Fe: 0.0 mg/L
DO: 2.84 mg/L
ORP: 180 mV

Comments / Calculations:
Cent pump used to purge
washed/rinsed sounder/meters

Name: Emily M

3/16/04

Project Name: ACTrans Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 13.44
Depth to Water (ft) before purging: 2.91

Project Number: 2016
Sample Date: 8/16/04
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)
1000	7.56	836	23.6	6.07	1.5	0.06
1025	7.15	792	23.7	8.96	3.0	↓
1050	7.07	796	23.7	10.95	4.5	↓
			Total Volume		5.25	

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
13.44 - 2.91 = 10.53 x 0.165 = 1.74 x 3 = 5.21
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 X 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 8015 DRO Nitrate/Sulfate

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

Decontamination Performed: Start: 0936
Stop: 1100
Sample: 1150

Fe: 0.0 mg/L
DO: 5.61 mg/L
ORP: 30 mV

Comments / Calculations:
~~Geoff~~ pump used to purge
washed/rinsed sounder/meters

Name: [signature] 8/16/04

Well ID: MW-2
Overpurge

Project Name: AC Seminary
Casing Diameter (in): 2"
Total Well Depth (ft): 23.30
Depth to Water (ft) before purging: 4.08

Project Number:
Sample Date: 7/21/04
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)
				tot vol = 35 gallons		

Water Volume to be Purged (gal):
(Casing Length in Ft – Depth to Water in Ft) (X) (3)
Where X =1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells
19.22 x .165 = 3.17 x 10 = 31.71
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: _____ _____ _____ _____

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

Decontamination Performed:

Comments / Calculations:

Start: 1010
Stop: 1135

Name: Mike Masotto Date: 7/21/04

Project Name: AC Trans Seminary
Project Number: 2016
Well ID: MW-2 (overpurge)
Casing Diameter (in): 2"
Sample Date: 8/16/04
Total Well Depth (ft): 23.30
Sample ID:
Depth to Water (ft) before purging: 4.30

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)
			from purge/sample		9 gal	
			overpurge		21 gal	
			total volume		30 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
23.30 - 4.30 = 18.0 x 0.165 = 2.97 x 10 = 29.7

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 X 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~~ @ ~~8015 DRO~~ @ ~~Nitrate/Sulfate~~ @

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

Decontamination Performed: Start: 1340
Stop: 1455

~~Fe~~:
DO @
ORP

Comments / Calculations:
Cent pump used to purge
washed/rinsed sounder/meters

Name: Emily M [illegible] 8/16/04