RO-402

GROUNDWATER MONITORING REPORT FOR THE AC TRANSIT FACILITY LOCATED AT 1177 47th STREET, EMERYVILLE, CALIFORNIA

December 2002

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

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

Project No: 2016-1

CAMERON-COLE

RO-402

AC Transit

Alameda Contra Costa Transit District

Suzanne Patton, P.E.
Environmental Engineer
(510) 577-8869
January 30, 2003

Ms. eva chu
Alameda County Health Division
Division of Environmental Protection
Department of Environmental Health
1131 Harbor Bay Parkway, Second Floor
Alameda, CA 94502

Dear Ms. chu:

Subject: Quarterly Groundwater Monitoring Report,
AC Transit, 1177 47th Street, Emeryville

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the AC Transit facility located at 1177 47th Street in Emeryville. The report was prepared by our consultant, Cameron-Cole, LLC, and contains the results of the October 30, 2002, sampling event.

Groundwater samples were collected from two monitoring wells (MW-11 and MW-12). Samples were analyzed for total extractable petroleum hydrocarbons (TEPH) using modified EPA Method 8015 and benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert-butyl ether (MTBE) using EPA Method 8021B. A groundwater sample was not collected from MW-13 due to the presence of a free phase hydrocarbon layer.

Analytical results indicate that TPH as degraded diesel was detected in MW-11 and MW-12 at concentrations of 260 and 440 ppb, respectively. TPH as degraded gasoline was detected in MW-12 at 420 ppb. BTEX and MTBE were not detected above the laboratory reporting limits.

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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CAMERON-COLE

STATE OF CALIFORNIA
REGISTERED GEOLOGIST

Reviewed By
Brad Wright, RG, CHG
Senior Hydrogeologist

Written By
Emily Waters
Environmental Scientist I

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INTRODUCTION

This report presents the results from the October 2002 sampling event for the AC Transit Facility located at 1177 47th Street, Emeryville, California (Site). Groundwater sampling of monitor wells MW-11, MW-12 and MW-13 was conducted in accordance with directives from Alameda County Health Care Services (ACHCS). In a letter dated August 7, 2001, ACHCS requested quarterly groundwater sampling for monitor wells MW-11, MW-12 and MW-13 and semi-annual groundwater sampling of other Site monitor wells. AC Transit retained Cameron-Cole to perform this work.

GROUNDWATER MONITORING

Work performed during this sampling event included measuring depth to water in all monitor wells and collecting groundwater samples from monitor wells MW-11 and MW-12. Groundwater samples were analyzed for total extractable petroleum hydrocarbons (TEPH) using Environmental Protection Agency (EPA) Method 8015 Modified and benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tertiary-butyl ether (MTBE) by EPA Method 8021B. A groundwater sample was not collected from MW-13 due to the presence of a free phase hydrocarbon layer.

A site map displaying the monitor well locations is presented as Figure 1. Chain-of-custody documents, field data sheets and certified analytical reports are included in Appendix A.

Groundwater Elevations and Flow Direction

On October 30, 2002 all 16 Site monitor wells were inspected and measured for the 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 0.024 feet/foot. A free phase hydrocarbon layer measuring 6.04 feet was detected in MW-13.

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, dissolved oxygen, oxidation-reduction potential, ferrous iron and temperature were monitored using calibrated field meters.

Groundwater samples were collected in 40-milliliter glass vials preserved with hydrochloric acid and one-liter non-preserved amber glass containers and placed in an ice-filled cooler for shipment under chain-of-custody to a State of California certified laboratory. A trip blank was submitted for analysis by EPA Method 8021B.

Groundwater Analytical Results

Table 2 presents groundwater analytical results for the October 2002 sampling event. TPH as diesel was detected in monitor wells MW-11 and MW-12 at concentrations of 260 and 440 parts per billion (ppb), respectively. TPH as motor oil was detected in monitor wells MW-11 and MW-12 at concentrations of 510 and 920 ppb, respectively. TPH as gasoline was detected in monitor well MW-12 at a concentration of 420 pbb. BTEX and MTBE were not detected above the laboratory reporting limits. The laboratory noted that concentration of TPH detected in monitor well MW-12 more closely match the hydraulic oil standard than the diesel and motor oil standards. No analytes were detected in the trip blank or method blank. A lab control spike and lab control spike duplicate passed the EPA's criteria for acceptance.

SUMMARY OF RESULTS

- Groundwater flow is to the west at a gradient of 0.024 feet/foot.

- TPH as degraded diesel was detected in MW-11 and MW-12 at 260 and 440 ppb, respectively. The MW-12 result matched more closely with the hydraulic oil standard than the diesel standard.

- TPH as degraded gasoline was detected in MW-12 at 420 ppb.

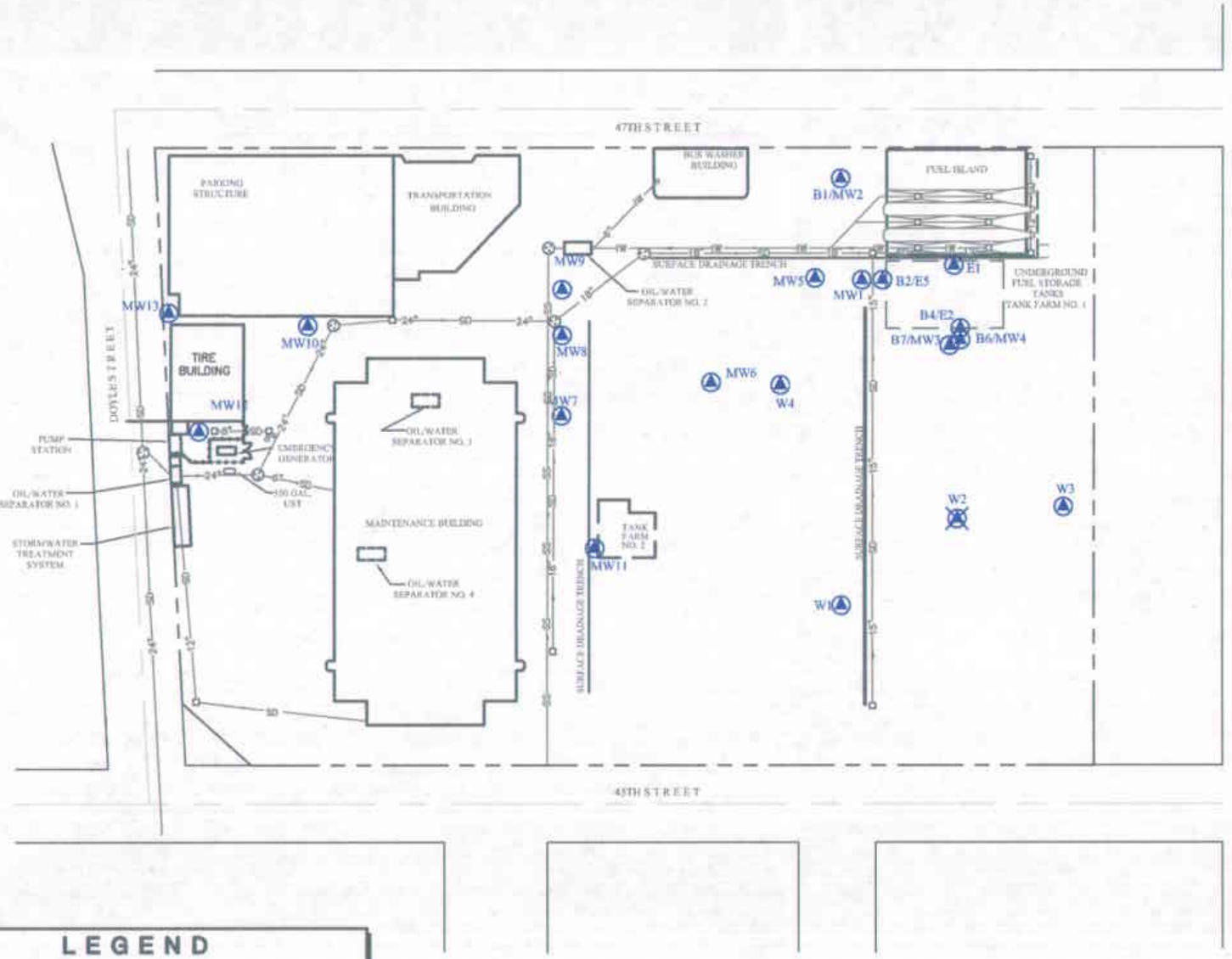
- Motor Oil was detected in both MW-11 and MW-12 at 510 and 920 ppb, respectively. The MW-12 result again matched more closely with the hydraulic oil standard than the motor oil standard.

- On November 13, 2002, Cameron-Cole implemented free product removal in monitor well MW-13. Initially, product layer removal consisted of pumping the free phase layer from the well on a daily basis. By November 20, 2002, the layer had been reduced to a sheen (<0.01 feet).

PROJECTED WORK AND RECOMMENDATIONS

- Quarterly groundwater monitoring of all monitoring wells is scheduled for February 2003. This event will include site-wide depth to groundwater level measurements, including inspection of each monitor well for free-phase hydrocarbon.

- A workplan outlining interim remedial measures conducted at MW-13 and proposing a subsurface investigation to assess the extent of hydraulic oil will be submitted to the ACHCS.



LEGEND

- MANHOLE
- CATCH BASIN
- MONITORING WELL
- ABANDONED MONITORING WELL
- SD — STORM DRAIN PIPELINE
- SS — SANITARY SEWER PIPELINE
- IW — INDUSTRIAL WASTE PIPELINE
- CHAIN LINK FENCE

BY	DATE
DRAWN: WRB	10/25/02
CHECKED	
APPROVED	
APPROVED	
APPROVED	

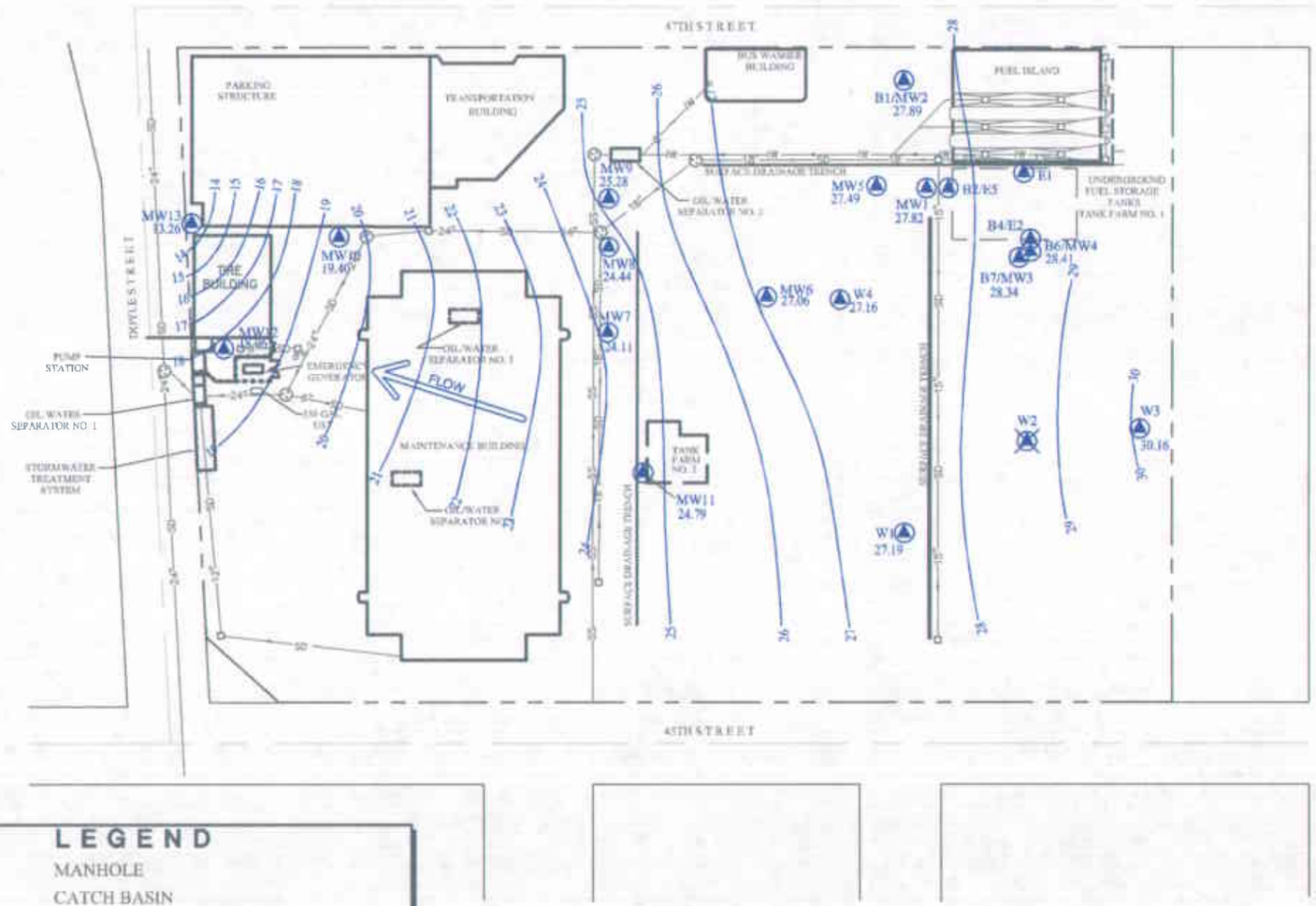
CAMERON-COLE

EMERYVILLE FACILITY - OAKLAND, CALIFORNIA

FIGURE 1
AC TRANSIT - MONITORING WELL LOCATION MAP

SCALE: 1" = 100'

DWG. NO.: 2015-01



LEGEND

- MANHOLE
- CATCH BASIN
- MONITORING WELL
- ABANDONED MONITORING WELL
- 27.19 — POTENTIOMETRIC SURFACE ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR
- SD — STORM DRAIN PIPELINE
- SS — SANITARY SEWER PIPELINE
- IW — INDUSTRIAL WASTE PIPELINE
- CHAIN LINK FENCE

0 100
FEET

FIGURE 2

BY	DATE
WRB	1/8/03

CAMERON-COLE

EMERYVILLE FACILITY - OAKLAND, CALIFORNIA

AC TRANSIT - POTENTIOMETRIC SURFACE MAP
OCTOBER 30, 2000

SCALE: 1" = 100'

DWG. NO.: 2015-08

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thickness (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
MW-1	8/31/1999	32.56	None	3.24	29.32	NA
	11/23/1999		None	4.55	28.01	NA
	3/1/2000		None	3.65	28.91	NA
	5/17/2000		None	4.08	28.48	NA
	8/30/2000		None	5.18	27.38	NA
	12/18/2000		None	4.86	27.7	NA
	3/20/2001		None	4.22	28.34	NA
	6/7/2001		None	4.88	27.68	NA
	9/20/2001		None	4.97	27.59	NA
	12/14/2001		None	3.59	28.97	NA
	2/27/2002		None	4.03	28.53	NA
	5/16/2002		None	4.32	28.24	NA
	9/18/2002		None	4.61	27.95	NA
	10/30/2002		**None**	**4.74**	**27.82**	**NA**
MW-2	8/31/1999	32.12	None	5.24	26.88	NA
	11/23/1999		None	4.03	28.09	NA
	3/1/2000		None	3.11	29.01	NA
	5/17/2000		None	3.66	28.46	NA
	8/30/2000		None	4.65	27.47	NA
	12/18/2000		None	4.06	28.06	NA
	3/20/2001		None	3.91	28.21	NA
	6/7/2001		None	4.40	27.72	NA
	9/20/2001		None	4.45	27.67	NA
	12/14/2001		None	3.19	28.93	NA
	2/27/2002		None	3.45	28.67	NA
	5/16/2002		None	3.74	28.38	NA
	9/18/2002		None	4.20	27.92	NA
	10/30/2002		**None**	**4.23**	**27.89**	**NA**
MW-3	8/31/1999	34.06	None	6.15	27.91	NA
	11/23/1999		None	5.78	28.28	NA
	3/1/2000		None	4.82	29.24	NA
	5/17/2000		None	5.29	28.77	NA
	8/30/2000		None	6.20	27.86	NA
	12/18/2000		None	5.65	28.41	NA
	3/20/2001		None	5.18	28.88	NA
	6/7/2001		None	6.01	28.05	NA
	9/20/2001		None	5.9	28.16	NA
	12/14/2001		None	4.66	29.40	NA
	2/27/2002		None	5.00	29.06	NA
	5/16/2002		None	5.21	28.85	NA
	9/18/2002		None	5.61	28.45	NA
	10/30/2002		**None**	**5.72**	**28.34**	**NA**

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thickness (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
MW-4	8/31/1999	34.11	None	6.22	27.89	NA
	11/23/1999		None	6.01	28.10	NA
	3/1/2000		None	4.74	29.37	NA
	5/17/2000		None	5.33	28.78	NA
	8/30/2000		None	6.26	27.85	NA
	12/18/2000		None	5.66	28.45	NA
	3/20/2001		None	5.46	28.65	NA
	6/7/2001		None	6.02	28.09	NA
	9/20/2001		None	6.06	28.05	NA
	12/14/2001		None	5.39	28.72	NA
	2/27/2002		None	5.28	28.83	NA
	5/16/2002		None	5.39	28.72	NA
	9/18/2002		None	5.61	28.50	NA
	10/30/2002		**None**	**5.70**	**28.41**	**NA**
MW-5	8/31/1999	31.70	None	4.51	27.19	NA
	11/23/1999		None	4.00	27.70	NA
	3/1/2000		None	3.31	28.39	NA
	5/17/2000		None	3.59	28.11	NA
	8/30/2000		None	4.53	27.17	NA
	12/18/2000		None	3.97	27.73	NA
	3/20/2001		None	3.68	28.02	NA
	6/7/2001		None	4.37	27.33	NA
	9/20/2001		None	4.46	27.24	NA
	12/14/2001		None	3.23	28.47	NA
	2/27/2002		None	3.44	28.26	NA
	5/16/2002		None	3.68	28.02	NA
	9/18/2002		None	4.04	27.66	NA
	10/30/2002		**None**	**4.21**	**27.49**	**NA**
MW-6	8/31/1999	31.02	None	4.40	26.62	NA
	11/23/1999		None	3.81	27.21	NA
	3/1/2000		None	2.88	28.14	NA
	5/17/2000		None	3.44	27.58	NA
	8/30/2000		None	4.40	26.62	NA
	12/18/2000		None	3.61	27.41	NA
	3/20/2001		None	3.16	27.86	NA
	6/7/2001		None	4.18	26.84	NA
	9/20/2001		Sheen	4.22	26.80	NA
	12/14/2001		None	3.62	27.40	NA
	2/27/2002		None	2.94	28.08	NA
	5/16/2002		None	3.53	27.49	NA
	9/18/2002		None	3.97	27.05	NA
	10/30/2002		**None**	**3.96**	**27.06**	**NA**

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thickness (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
MW-7	8/31/1999	29.62	None	5.47	24.15	NA
	11/23/1999		None	4.93	24.69	NA
	3/1/2000		None	4.06	25.56	NA
	5/17/2000		None	4.69	24.93	NA
	8/30/2000		None	5.50	24.12	NA
	12/18/2000		None	5.78	23.84	NA
	3/20/2001		None	4.83	24.79	NA
	6/7/2001		None	4.80	24.82	NA
	9/20/2001		None	5.19	24.43	NA
	12/14/2001		None	4.68	24.94	NA
	2/27/2002		None	4.53	25.09	NA
	5/16/2002		None	4.34	25.28	NA
	9/18/2002		None	5.28	24.34	NA
	10/30/2002		**None**	**5.51**	**24.11**	**NA**
MW-8	8/31/1999	29.43	None	5.35	24.08	NA
	11/23/1999		None	4.75	24.68	NA
	3/1/2000		None	4.48	24.95	NA
	5/17/2000		None	4.78	24.65	NA
	8/30/2000		None	5.02	24.41	NA
	12/18/2000		None	5.23	24.20	NA
	3/20/2001		None	4.70	24.73	NA
	6/7/2001		None	5.13	24.30	NA
	9/20/2001		None	5.68	23.75	NA
	12/14/2001		None	4.26	25.17	NA
	2/27/2002		None	4.18	25.25	NA
	5/16/2002		None	4.58	24.85	NA
	9/18/2002		None	4.96	24.47	NA
	10/30/2002		**None**	**4.99**	**24.44**	**NA**
MW-9	8/31/1999	29.18	None	4.15	25.03	NA
	11/23/1999		None	3.93	25.25	NA
	3/1/2000		None	3.69	25.49	NA
	5/17/2000		None	3.56	25.62	NA
	8/30/2000		None	4.64	24.54	NA
	12/18/2000		None	4.02	25.16	NA
	3/20/2001		None	3.92	25.26	NA
	6/7/2001		None	4.28	24.90	NA
	9/20/2001		None	5.12	24.06	NA
	12/14/2001		None	3.87	25.31	NA
	2/27/2002		None	4.48	24.70	NA
	5/16/2002		None	5.13	24.05	NA
	9/18/2002		None	4.48	24.70	NA
	10/30/2002		**None**	**3.90**	**25.28**	**NA**

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thickness (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
MW-10	8/31/1999	29.13	None	9.59	19.54	NA
	11/23/1999		None	9.44	19.69	NA
	3/1/2000		None	9.06	20.07	NA
	5/17/2000		None	9.31	19.82	NA
	8/30/2000		None	9.68	19.45	NA
	12/18/2000		None	9.41	19.72	NA
	3/20/2001		None	9.23	19.90	NA
	6/7/2001		None	9.60	19.53	NA
	9/20/2001		None	9.70	19.43	NA
	12/14/2001		None	8.83	20.30	NA
	2/27/2002		None	9.15	19.98	NA
	5/16/2002		None	9.45	19.68	NA
	9/18/2002		None	9.65	19.48	NA
	10/30/2002		**None**	**9.73**	**19.40**	**NA**
MW-11	9/20/2001	28.93	None	4.41	24.52	NA
	12/14/2001		None	1.82	27.11	NA
	2/27/2002		None	2.39	26.54	NA
	5/16/2002		None	2.98	25.95	NA
	9/18/2002		None	4.00	24.93	NA
	10/30/2002		**None**	**4.14**	**24.79**	**NA**
MW-12	9/20/2001	28.68	None	10.41	18.27	NA
	12/14/2001		None	9.62	19.06	NA
	2/27/2002		None	10.09	18.59	NA
	5/16/2002		None	10.04	18.64	NA
	9/18/2002		None	10.66	18.02	NA
	10/30/2002		**None**	**10.62**	**18.06**	**NA**
MW-13	9/20/2001	22.715	None	8.83	13.89	NA
	12/14/2001		None	7.95	14.77	NA
	2/27/2002		None	7.64	15.08	NA
	5/16/2002		None	8.43	14.29	NA
	9/18/2002		6.86	15.09	7.63	13.11
	10/30/2002		**6.04**	**14.29**	**8.43**	**13.26**
W-1	3/2/2000	33.43	None	4.08	29.35	NA
	5/17/2000		None	5.41	28.02	NA
	8/30/2000		None	6.71	26.72	NA
	12/18/2000		None	5.73	27.70	NA
	3/20/2001		None	5.16	28.27	NA
	6/7/2001		None	6.10	27.33	NA
	9/20/2001		None	6.58	26.85	NA
	12/14/2001		None	4.69	28.74	NA
	2/27/2002		None	4.94	28.49	NA
	5/16/2002		None	5.54	27.89	NA
	9/18/2002		None	6.08	27.35	NA
	10/30/2002		**None**	**6.24**	**27.19**	**NA**

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	Top of Casing Elevation (ft-msl)	Product Thickness (feet)	DTW (feet)	Groundwater Elevation (ft-msl)	Groundwater Elevation Corrected from Product Thickness* (ft-msl)
W-2	5/17/2000	34.21	None	5.60	28.61	NA
	8/30/2000		None	7.37	26.84	NA
	12/18/2000		None	6.44	27.77	NA
	1/23/2001					abandoned
W-3	5/17/2000	37.46	None	6.38	31.08	NA
	8/30/2000		None	8.16	29.30	NA
	12/18/2000		None	7.19	30.27	NA
	3/20/2001		None	5.70	31.76	NA
	6/7/2001		None	7.51	29.95	NA
	9/20/2001		None	7.83	29.63	NA
	12/14/2001		None	4.76	32.70	NA
	2/27/2002		None	5.32	32.14	NA
	5/16/2002		None	6.45	31.01	NA
	9/18/2002		None	7.10	30.36	NA
	10/30/2002		**None**	**7.30**	**30.16**	**NA**
W-4	3/2/2000	31.72	None	3.34	28.38	NA
	5/17/2000		None	3.86	27.86	NA
	8/30/2000		None	4.99	26.73	NA
	12/18/2000		None	4.20	27.52	NA
	3/20/2001		None	3.75	27.97	NA
	6/7/2001		None	4.67	27.05	NA
	9/20/2001		None	4.80	26.92	NA
	12/14/2001		None	3.22	28.50	NA
	2/27/2002		None	3.58	28.14	NA
	5/16/2002		None	3.89	27.83	NA
	9/18/2002		None	4.24	27.48	NA
	10/30/2002		**None**	**4.56**	**27.16**	**NA**

Notes:

* used 0.8 specific gravity of product

ft-msl: feet mean sea level

DTW: Depth to water

NA: not applicable

TABLE 2
ANALYTICAL RESULTS GROUNDWATER SAMPLES
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	TPH-8015 (diesel)	TPH-8015 (gas)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MCL (ppb)		None	None	1.0	150	700	1750	13
MW-1	8/31/1999	310	NA	<1.0	2.4	1	1.6	NA
	11/23/1999	250	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	310	62	<1.0	<1.0	<1.0	<2.0	687
	5/17/2000	390	63	<1.0	<1.0	<1.0	<2.0	74
	8/31/2000	180	<50	<1.0	<1.0	<1.0	<2.0	49
	12/18/2000	310	<50	<1.0	<1.0	<1.0	<2.0	44
	3/21/2001	240	<50	<1.0	<1.0	<1.0	<2.0	17
	6/7/2001	540	<50	<1.0	<1.0	<1.0	<2.0	32
	9/20/2001	290	<50	<1.0	<1.0	<1.0	<2.0	29
	2/27/2002	<250	<50	<1.0	<1.0	<1.0	<2.0	14
	9/18/2002	230	<50	<1.0	<1.0	<1.0	<2.0	30
MW-2	8/31/1999	180	NA	<1.0	<1.0	<1.0	1.2	NA
	11/23/1999	120	NA	<1.0	<1.0	<1.0	<5.0	NA
	3/1/2000	510	<50	<1.0	<1.0	<1.0	<2.0	81
	5/17/2000	1,100	<50	<1.0	<1.0	<1.0	<2.0	87
	8/31/2000	620	<50	<1.0	<1.0	<1.0	<2.0	65
	12/19/2000	830	<50	<1.0	<1.0	<1.0	<2.0	70
	3/21/2001	900	<50	<2.0	<2.0	<2.0	<4.0	33
	6/7/2001	810	<50	<1.0	<1.0	<1.0	<2.0	43
	9/20/2001	1,200	<50	<1.0	<1.0	<1.0	<2.0	35
	2/27/2002	<250	<50	<1.0	<1.0	<1.0	<2.0	19
	9/18/2002	180	<50	<1.0	<1.0	<1.0	<2.0	17
MW-3	8/31/1999	2,700	NA	<1.0	<1.0	<1.0	<1.0	NA
	11/23/1999	640	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/2000	620	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/2000	1,800	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/2000	NA	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/21/2001	1,700	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/2001	770	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	9/21/2001	260	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	2/27/2002	560	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	9/18/2002	340	<50	<1.0	<1.0	<1.0	<2.0	<5.0
MW-4	8/31/1999	<50	NA	<1.0	<1.0	<1.0	1.6	NA
	11/23/1999	<50	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/2000	80	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/2000	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/2000	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/2001	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/2001	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
MW-5	8/31/1999	250	NA	<1.0	<1.0	<1.0	1	NA
	11/23/1999	300	NA	<1.0	<1.0	<1.0	<5.0	NA
	3/1/2000	340	<50	<1.0	<1.0	<1.0	<2.0	100
	5/17/2000	230	<50	<1.0	<1.0	<1.0	<2.0	86
	8/31/2000	220	<50	<1.0	<1.0	<1.0	<2.0	59
	12/18/2000	360	<50	<1.0	<1.0	<1.0	<2.0	57
	3/20/2001	250	<50	<5.0	<5.0	<5.0	<10	87
	6/7/2001	600	<50	<1.0	<1.0	<1.0	<2.0	74
MW-6	8/31/1999	140,000	NA	77	18	31	49	NA
	11/23/1999	6,100	NA	45	14	6.9	48	NA
	3/1/2000	22,000	2800	6.8	<2.0	<2.0	<10	<5.0
	5/17/2000	1,800	6200	77	16	39	37	<5.0
	8/31/2000	76,000	5300	60	13	43	45.7	<5.0
	12/19/2000	6,300	1300	26.0	4.9	8.4	11.5	<5.0
	3/21/2001	5,100	1900	49.0	9.5	13	12	<10
	6/7/2001	14,000	2600	47.0	10	13	19	<10
	9/21/2001	15,000	4000	180	14	24	40	<50
	2/27/2002	43,000	5000	68	16	52	41.8	<25
	9/18/2002	320,000	2000	74	7.3	22	25	<5.0

TABLE 2
ANALYTICAL RESULTS GROUNDWATER SAMPLES
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	TPH-8015 (diesel)	TPH-8015 (gas)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MCL (ppb)		None	None	1.0	150	700	1750	13
MW-7	8/31/1999	1,400	NA	<1.0	2.9	2.3	2.7	NA
	11/23/1999	530	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	640	860	<1.0	<1.0	<1.0	<2.0	<20
	5/17/2000	430	410	<1.0	<1.0	<1.0	<2.0	9.5
	8/31/2000	950	1100	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/2000	1,100	820	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/2001	770	1000	<1.0	1.4	<1.0	<2.0	<5.0
	6/7/2001	1,400	870	<1.0	<1.0	<1.0	<2.0	<5.0
	9/21/2001	940	1000	<1.0	<1.0	<2.0	<5.0	<5.0
	2/27/2002	430	930	<1.0	<1.0	<1.0	<2.0	<5.0
	9/18/2002	440	870	<1.0	<1.0	<1.0	<2.0	<5.0
MW-8	8/31/1999	230	NA	<1.0	<1.0	1.2	<1.0	NA
	11/23/1999	220	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	260	150	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/2000	660	310	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/2000	460	300	<1.0	<1.0	<1.0	1.4	<5.0
	12/18/2000	370	230	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/2001	1,700	64	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/2001	1,300	180	<1.0	<1.0	<1.0	<2.0	<5.0
MW-9	8/31/1999	2,800	NA	<1.0	<1.0	<1.0	1.1	NA
	11/23/1999	1,300	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	510	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/17/2000	990	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/2000	1,100	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/2000	1,900	<50	<1.0	<1.0	<1.0	<2.0	5.9
	3/20/2001	1,500	<50	<1.0	<1.0	<1.0	<2.0	5.5
	6/7/2001	590	<50	<1.0	<1.0	<1.0	<2.0	8.1
	9/20/2001	790	<50	<1.0	<1.0	<1.0	<2.0	8.5
	2/27/2002	650	<50	<1.0	<1.0	<1.0	<2.0	9.5
	9/18/2002	480	<50	<1.0	<1.0	<1.0	<2.0	6.2
MW-10	8/31/1999	1,100	NA	<1.0	1.2	2.0	<1.0	NA
	11/23/1999	1,200	NA	<1.0	<1.0	<1.0	<1.0	NA
	3/1/2000	1,300	540	<1.0	<1.0	<1.0	<2.0	NA
	5/17/2000	990	460	<1.0	<1.0	<1.0	<2.0	6.9
	8/31/2000	840	320	<1.0	<1.0	<1.0	<2.0	25
	12/18/2000	900	290	<1.0	<1.0	<1.0	<2.0	<9.0
	3/21/2001	620	220	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/2001	1,300	360	<1.0	<1.0	<1.0	<2.0	15
	9/20/2001	1,000	350	<1.0	<1.0	<1.0	<2.0	44
	2/27/2002	610	150	<1.0	<1.0	<1.0	<2.0	<5.0
	9/18/2002	850	240	<1.0	1.2	<1.0	<2.0	20
MW-11	9/20/2001	460	88	<1.0	<1.0	<1.0	<2.0	<5.0
	12/14/2002	320	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	2/27/2002	<50	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	5/16/2002	380	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	9/18/2002	250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	10/30/2002	**260**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**<2.5**
MW-12	9/20/2001	540	960	<1.0	<1.0	<2.0	<5.0	11
	12/14/2002	170	670	<1.0	<1.0	<1.0	<2.0	9.4
	2/27/2002	350	950	<1.0	<1.0	<1.0	<2.0	11
	5/16/2002	500	1100	<1.0	<1.0	<1.0	<2.0	6.7
	9/18/2002	1,600	570	<1.0	<1.0	<1.0	<3.0	7.1
	10/30/2002	**440**	**420**	**<0.5**	**<0.5**	**<0.5**	**<1.5**	**<2.5**

TABLE 2
ANALYTICAL RESULTS GROUNDWATER SAMPLES
AC TRANSIT
1177 47TH STREET, EMERYVILLE, CALIFORNIA

Well	Date	TPH-8015 (diesel)	TPH-8015 (gas)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
MCL (ppb)		None	None	1.0	150	700	1750	13
MW-13	9/21/2001	<250	<50	<1.0	<1.0	<1.0	<2.0	7.4
	12/14/2002	160	<50	<1.0	<1.0	<1.0	<2.0	11
	2/27/2002	1,100	450	<1.0	<5.0	<1.0	<2.0	9.9
W-1	5/16/2002	520	150	<1.0	<1.0	<1.0	<2.0	8.7
	3/2/2000	1,800	3400	20.0	5.3	30	23.8	<5.0
	5/17/2000	1,100	7300	35.0	11	59	45	<1.0
	8/31/2000	2,200	6200	20.0	7.9	36	38.2	<10
	12/19/2000	1,700	5600	20.0	8.4	30	35.6	<5.0
	3/20/2001	2,100	7200	32.0	13	56	40	<10
	6/7/2001	2,100	7300	26.0	18	42	38.3	<10
	9/21/2001	1,800	7100	27	<10	48	40	<10
	2/27/2002	1,800	7100	24	9	52	34	<25
W-2	9/18/2002	1,000	5900	11	<22	23	22	<5.0
	5/17/2000	19,000	870	<2.0	<1.0	<2.0	<4.0	<5.0
	8/31/2000	7,400	2200	4.6	2.5	3.8	11	<5.0
W-3	12/19/2000	10,000	290	8.8	3.4	8.6	17.4	<5.0
	5/17/2000	<50	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/2000	<50	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/18/2000	<250	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/20/2001	630	<50	<1.0	<1.0	<1.0	<2.0	<5.0
W-4	6/7/2001	1,200	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/2/2000	190	<50	1.1	<1.0	<1.0	<2.0	<5.0
	5/17/2000	230	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	8/31/2000	240	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	12/19/2000	320	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	3/21/2001	220	<50	<1.0	<1.0	<1.0	<2.0	<5.0
	6/7/2001	430	<50	<1.0	<1.0	<1.0	<2.0	<5.0

Notes:
ppb: parts per billion
TPH: Total Petroleum Hydrocarbons
MTBE: methyl tert butylether
MCL: Maximum Contaminant Level
NA: not analyzed

APPENDIX A

CHAIN-OF-CUSTODY DOCUMENTATION
FIELD DATA SHEETS
CERTIFIED ANALYTICAL REPORTS

AC TRANSIT - EMERYVILLE
FOURTH QUARTER 2002

FIELD PERSONNEL: FV

WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
MW-1	10/30/02	1020	4.74	SWL	
MW-2		1017	4.23	SWL	
MW-3		1027	5.72	SWL	
MW-4		1030	5.70	SWL	
MW-5		1015	4.21	SWL	
MW-6		1035	4.96	~~SWL~~ ~~OIL~~	oil/water interphase
MW-6		↓	3.96	~~SWL~~ ~~OWI~~	blue sounder
MW-7		1004	5.51	SWL	
MW-8		1007	4.99	SWL	
MW-9		1011	3.90	SWL	
MW-10		0955	9.73	SWL	
MW-11		1002	4.14	SWL	
MW-12		0958	10.62	SWL	
MW-13		0925	9.25	OIL	oil/water
MW-13		↓	15.29	OWI	interphase probe
W-1		1041	6.24	SWL	
W-3		1043	7.30	SWL	
W-4	↓	1039	4.56	SWL	

SWL - Static Water Level
OIL - Oil Level
OWI - Oil/Water Interface
MTD - Measured Total Depth

Well ID: MW-11

Project Name:
Casing Diameter (in): 2"
Total Well Depth (ft): 17.40
Depth to Water (ft) before purging: 4.14

Project Number: 2018
Sample Date: 10/30/02
Sample ID: MW-11

Development Method:
NA
_____**Bailer:** _____Teflon _____Stainless Steel _____PVC _____ABS Plastic
_____**Pump:** _____Dedicated Submersible Pump _____Bladder Pump
_____Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft.)	Cum. Vol. (gal)	Pump Rate (GPM)
1105	7.06	856	23.9	4.15	2	
1108	7.11	723	24.8	4.18	4	
1111	7.15	720	25.6	4.17	6	

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
(17.40 – 4.14) = 13.26 x .165 = 2.19 x 3 = 6.57
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 DRO/GRO _____ _____

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

Start: 1102
Stop: 1114
Sample: 1120

DO: 3.81
ORP = 152
Fe 2.17

Decontamination Performed:
Washed/rinsed
sounder/meters

Comments / Calculations:
Cent pump used to purge
disposable bailer used to sample

TB collected @ 1050

Name: E Waters

Date: 10/30/02

Project Name: AC Transit-Hwy Project Number: 2016
Casing Diameter (in): 2" Sample Date: 10/20/02
Total Well Depth (ft): 29.87 Sample ID: MW-12
Depth to Water (ft) before purging: 10.65

Well ID: MW-12

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)
1151	7.03	791	23.1	11.01	3	0.5
1157	6.80	804	25.8	11.34	6	↓
1206	6.78	809	26.2	11.76	9	
			total vol =		10.5 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
29.87 - 10.65 = 19.22 x 0.165 = 3.17 x 3 = 9.51
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 8015 DRO/GRO _____ _____

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

start 1145
stop 1209
sample 1215

FC > 3.30
DO 3.81
ORP -125

Decontamination Performed:
Washed / rinsed
sounder / meters

Comments / Calculations:
Grundfos pump used to purge
disposable bailer used to sample

Name: C. Weeks Date: 10/20/02

Entech Analytical Labs, Inc.

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

December 09, 2002

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

Order:	31809	**Date Collected:**	10/30/02
Project Name:	ACTransit	**Date Received:**	10/31/02
Project Number:	2016	**P.O. Number:**	2016
Project Notes:			

On October 31, 2002, samples were received under documentented chain of custody. Results for the following analyses are attached:

Matrix	Test	Method
Liquid	BTEX+MTBE	EPA 8020
	EDD	EDD
	EPA 8021B by EPA 8260B	EPA 8260B
	PDF	PDF
	TPH as Diesel	EPA 8015 MOD. (Extractable)
	TPH as Gasoline	EPA 8015 MOD. (Purgeable)
	TPH as Motor Oil	EPA 8015 MOD. (Extractable)

Case Narrative: Per client request, report re-issued 12/9/02 to include BTEX/MTBE by EPA 8020. All QC has been re-validated to include additional compounds.

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: 12/9/02
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-002 **Client Sample ID:** MW-11

Sample Time: 11:20 AM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		2.5	5	12.5	µg/L	N/A	11/06/02	WGC62647	EPA 8020
Benzene	ND		2.5	0.5	1.25	µg/L	N/A	11/06/02	WGC62647	EPA 8020
Toluene	ND		2.5	0.5	1.25	µg/L	N/A	11/06/02	WGC62647	EPA 8020
Ethyl Benzene	ND		2.5	0.5	1.25	µg/L	N/A	11/06/02	WGC62647	EPA 8020
Xylenes, Total	ND		2.5	1	2.5	µg/L	N/A	11/06/02	WGC62647	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.4	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	260	x	1	50	50	µg/L	N/A	11/03/02	DW4251A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	111.0	32 - 145

Comment: Not a Diesel pattern; Reported value is the result of overlap from the TPH as Motor Oil range (C19- C40) into the TPH as Diesel quantitation range (C10-C28).

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	11/05/02	WGC62647	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.6	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	510		1	250	250	µg/L	N/A	11/03/02	DW4251A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	111.0	32 - 145

Comment: While TPH as Motor Oil is present, the presence of discrete peaks not typical of Motor Oil but within the TPH as Motor Oil range will slightly elevate the final Motor Oil reported concentration.

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: 12/9/02
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-003 **Client Sample ID:** MW-12

Sample Time: 12:15 PM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		2.5	5	12.5	µg/L	N/A	11/06/02	WGC62645B	EPA 8020
Benzene	ND		2.5	0.5	1.25	µg/L	N/A	11/06/02	WGC62645B	EPA 8020
Toluene	ND		2.5	0.5	1.25	µg/L	N/A	11/06/02	WGC62645B	EPA 8020
Ethyl Benzene	ND		2.5	0.5	1.25	µg/L	N/A	11/06/02	WGC62645B	EPA 8020
Xylenes, Total	ND		2.5	1	2.5	µg/L	N/A	11/06/02	WGC62645B	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.6	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	440	x	1	50	50	µg/L	N/A	11/02/02	DW4251A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	90.0	32 - 145

Comment: Not a Diesel pattern; Reported value is the result of overlap from Hydraulic Oil (C13-C34) and an unidentified hydrocarbon (C10-C17) in the Diesel quantitation range (C10-C28).

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	420		2.5	50	125	µg/L	N/A	11/06/02	WGC62645B	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	117.6	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Motor Oil	920	x	1	250	250	µg/L	N/A	11/02/02	DW4251A	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	90.0	32 - 145

Comment: Not Motor Oil pattern; Reported value is the result of discrete peaks and overlap from Hydraulic Oil range (C13-C34) into TPH as Motor Oil quantitation range (C19-C40).

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

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

Patti Sandrock, QA/QC Manager

Entech Analytical Labs, Inc.

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:
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-001 **Client Sample ID:** Trip Blank

Sample Time: 10:50 AM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
1,1,1-Trichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1,2,2-Tetrachloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1,2-Trichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1-Dichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dibromoethane (EDB)	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichloropropane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,3-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,4-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromodichloromethane	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromoform	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromomethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Carbon Tetrachloride	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloroform	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
cis-1,2-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
cis-1,3-Dichloropropene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Dibromochloromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Dichlorodifluoromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Freon 113	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Methylene Chloride	ND		1	5	5	µg/L	11/01/02	WMS21787B	EPA 8260B
Tetrachloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
trans-1,2-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
trans-1,3-Dichloropropene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Trichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Trichlorofluoromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B

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:
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-001 **Client Sample ID:** Trip Blank

Sample Time: 10:50 AM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Vinyl Chloride	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Xylene, m+p	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Xylene, o	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	91.9	73 - 151
Dibromofluoromethane	100.4	57 - 156
Toluene-d8	87.6	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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Entech Analytical Labs, Inc.

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

Date:
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-002 **Client Sample ID:** MW-11

Sample Time: 11:20 AM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
1,1,1-Trichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1,2,2-Tetrachloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1,2-Trichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1-Dichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dibromoethane (EDB)	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichloropropane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,3-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,4-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromodichloromethane	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromoform	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromomethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Carbon Tetrachloride	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloroform	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
cis-1,2-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
cis-1,3-Dichloropropene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Dibromochloromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Dichlorodifluoromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Freon 113	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Methylene Chloride	ND		1	5	5	µg/L	11/01/02	WMS21787B	EPA 8260B
Tetrachloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
trans-1,2-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
trans-1,3-Dichloropropene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Trichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Trichlorofluoromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B

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:
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-002 **Client Sample ID:** MW-11

Sample Time: 11:20 AM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Vinyl Chloride	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Xylene, m+p	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Xylene, o	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	92.9	73 - 151
Dibromofluoromethane	98.0	57 - 156
Toluene-d8	87.6	77 - 150

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

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

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

Date:
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-003 **Client Sample ID:** MW-12

Sample Time: 12:15 PM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
1,1,1-Trichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1,2,2-Tetrachloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1,2-Trichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1-Dichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,1-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dibromoethane (EDB)	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,2-Dichloropropane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,3-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
1,4-Dichlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Benzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromodichloromethane	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromoform	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Bromomethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Carbon Tetrachloride	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chlorobenzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloroethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloroform	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Chloromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
cis-1,2-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
cis-1,3-Dichloropropene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Dibromochloromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Dichlorodifluoromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Ethyl Benzene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Freon 113	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Methylene Chloride	ND		1	5	5	µg/L	11/01/02	WMS21787B	EPA 8260B
Tetrachloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Toluene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
trans-1,2-Dichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
trans-1,3-Dichloropropene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Trichloroethene	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B
Trichlorofluoromethane	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B

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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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:
Date Received: 10/31/02
Project Name: ACTransit
Project Number: 2016
P.O. Number: 2016
Sampled By: EW

Certified Analytical Report

Order ID: 31809 **Lab Sample ID:** 31809-003 **Client Sample ID:** MW-12

Sample Time: 12:15 PM **Sample Date:** 10/30/02 **Matrix:** Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Analysis Date	QC Batch ID	Method
Vinyl Chloride	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Xylene, m+p	ND		1	1	1	µg/L	11/01/02	WMS21787B	EPA 8260B
Xylene, o	ND		1	0.5	0.5	µg/L	11/01/02	WMS21787B	EPA 8260B

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103.1	73 - 151
Dibromofluoromethane	97.3	57 - 156
Toluene-d8	86.9	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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Environmental Analysis Since 1983

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

Chain of Custody / Analysis Request

Attention to: Brad Wright	Phone No.: (510) 337-8660	Purchase Order No.:	Send Invoice to (if Different) / Phone
Company Name: Cameron Cole	Fax No.: (510) 337-3994	Project Number: 2016	Company: AC Transit
Mailing Address: 101 W. Atlantic Ave Bldg 90		Project Name: AC Transit	Billing Address (if Different)
City: Alameda / State: CA / Zip: 94501		Project Location: Emeryville	City: / State / Zip

Sampler: EW

Date: 10/30/02

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

Order ID:

Client ID	Laboratory No.	Sampling Date	Sampling Time	Matrix	Composite	Grab	Containers	Preservative	Volatile Organics by GCMS: Freon 113 ☐ 8240 ☐ 8260B ☐	Fuel Oxygenates by 8260B ☐ MTBE by 8260B ☐	Pesticides-8081 ☐ PCBs - 8082 ☐	Halogenated or Aromatic Volatiles: P113 ☐ 601/8010 ☐ 8021/8020 ☐	TPH as Gas/BTEX ☐ 8021 ☐	TPH as Gas/BTEX/MTBE ☐	Base/Neutral/Acid Organics 8270 ☐ 8270-SIMS ☐	Fuel Scan	Diesel ☐	w/ Si-gel Standard Cleanup ☐ w/ Si-gel Column Cleanup ☐	8021	TPH - Gas	TRPH ☐ Oil & Grease ☐	Diesel/Heavy Oil	THM (502.2)	Metals - Circle Below Total ☐ Dissolved ☐	Remarks
Trip Blank	31809-001	10/30/02	1050	W			3	HCl											X						
MW-11	002		1120				3	HCl											X						
↓			↓				3	HCl												X					
							2	NA													X				
MW-12	003		1215				3	HCl											X						
↓			↓				3	HCl												X					
		↓		↓			2	NA													X				

Relinquished by:	Received by:	Date:	Time:
Emily Waters	[signature]	10-31-02	1235
[signature]	[signature]	10/31/02	1435
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Special Instructions or Comments

☐ NPDES Detection Limits

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