

RO-402

**GROUNDWATER MONITORING REPORT  
FOR THE AC TRANSIT FACILITY  
LOCATED AT 1177 47<sup>th</sup> STREET,  
EMERYVILLE, CALIFORNIA**

June 2003

**Prepared For:**

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Building 90  
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Project No: 2016



**CAMERON-COLE**

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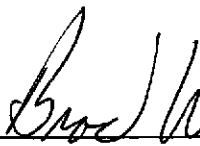
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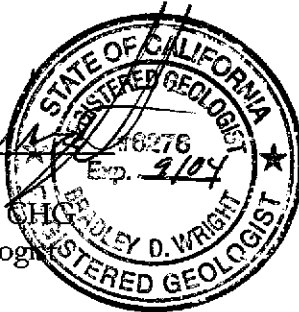
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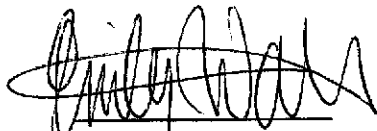
Alameda County  
JUL 13 2003  
Environmental Health



**CAMERON-COLE**

  
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## **INTRODUCTION**

This report presents the results from the May 2003 sampling event for the AC Transit Facility located at 1177 47<sup>th</sup> 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 May 1, 2003 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 0.025 feet/foot. A free phase hydrocarbon layer measuring 0.24 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**

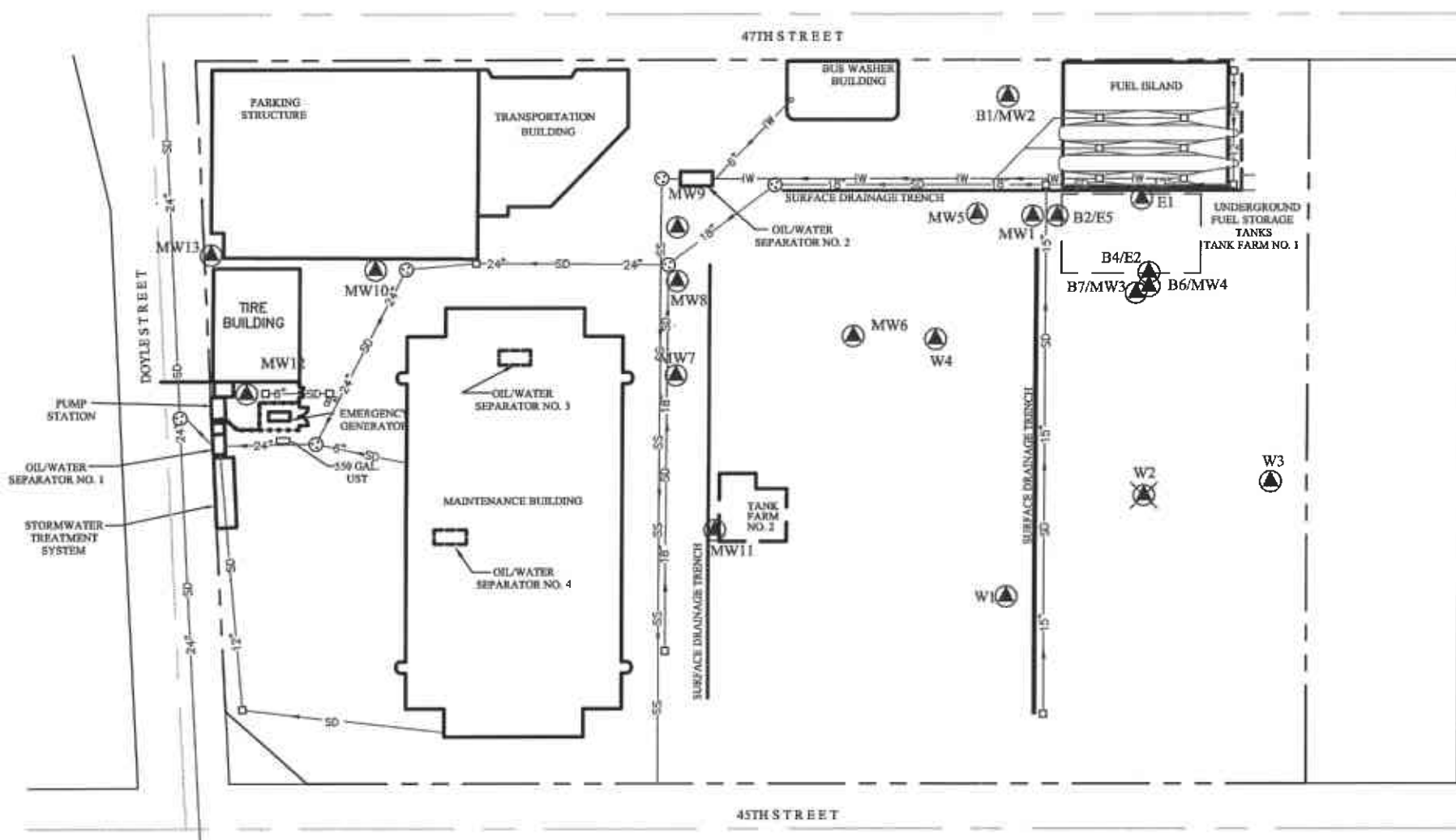
Table 2 presents groundwater analytical results for the May 2003 sampling event. TPH as diesel was detected in monitor wells MW-11 and MW-12 at concentrations of 220 and 580 parts per billion (ppb), respectively. TPH as gasoline was detected in monitor well MW-12 at a concentration of 950 ppb. Ethylbenzene and xylenes were detected in MW-12 at 3.7 and 9.0 ppb, respectively. MTBE was detected in MW-12 at a concentration of 8.8 ppb. 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 0.025 feet/foot.
- TPH as degraded diesel was detected in MW-11 and MW-12 at 220 and 580 ppb, respectively.
- TPH as degraded gasoline was detected in MW-12 at 950 ppb.
- Ethylbenzene, xylenes, and MTBE were detected in MW-12 at 3.7, 9.0 and 8.8 ppb, respectively.

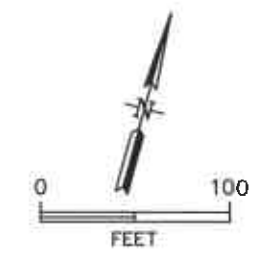
## PROJECTED WORK AND RECOMMENDATIONS

- Semi-annual groundwater monitoring of all monitoring wells is scheduled for August 2003. This event will include site-wide depth to groundwater level measurements, including inspection of each monitor well for free-phase hydrocarbon.
- The results of a subsurface investigation associated with hydraulic fluid detected in the vicinity of the tire building was submitted to Alameda County in May 2003. The investigation report included a recommendation to install additional grab groundwater borings.



SAN PABLO AVENUE

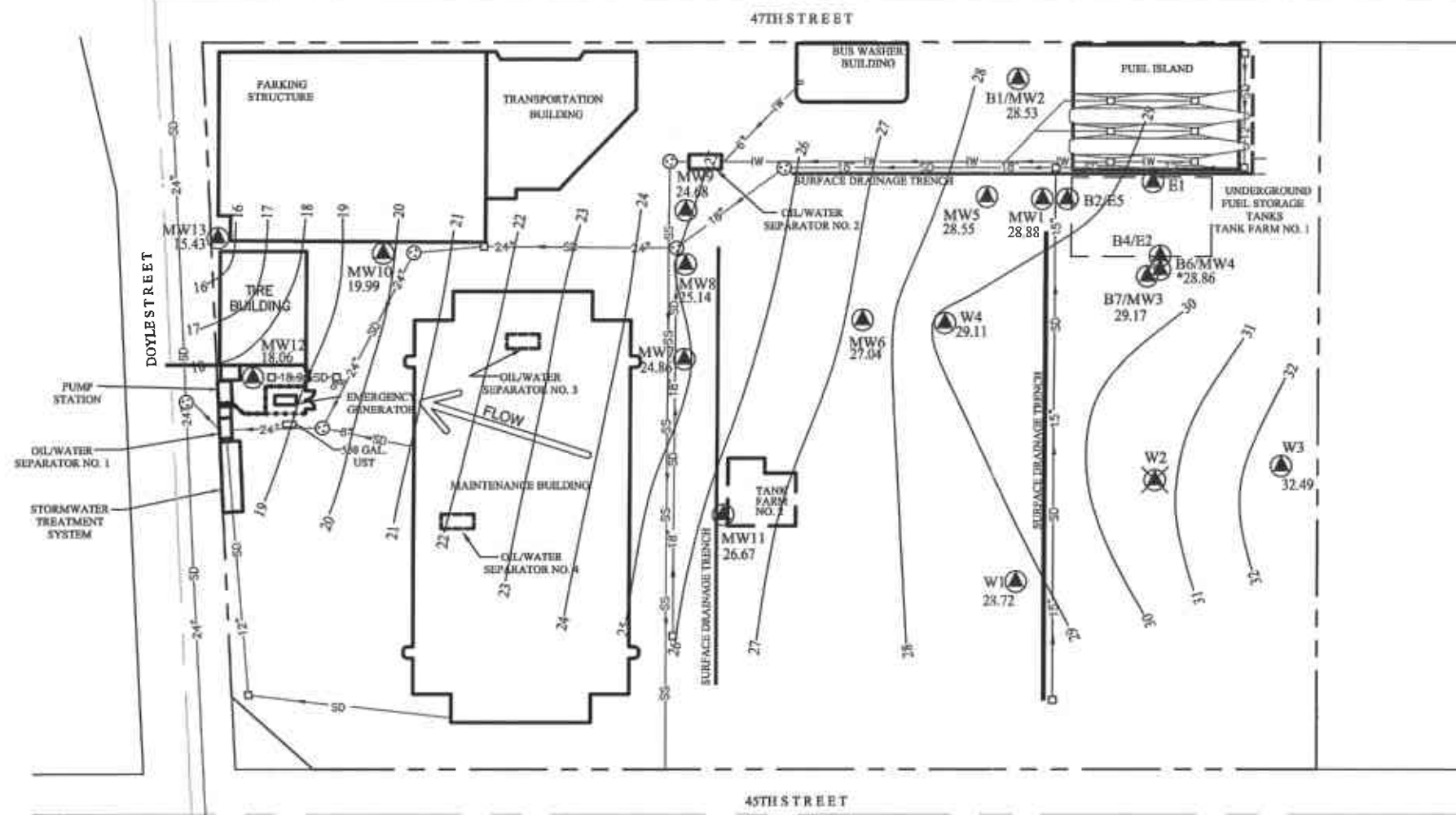
LEGEND	
	MANHOLE
	CATCH BASIN
	MONITORING WELL
	ABANDONED MONITORING WELL
	STORM DRAIN PIPELINE
	SANITARY SEWER PIPELINE
	INDUSTRIAL WASTE PIPELINE
	CHAIN LINK FENCE



BY	DATE
DRAWN WRB	10/25/02
DESIGNED	
APPROVED	
APPROVED	



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
*28.86	NOT USED IN CONTOURING
	POTENTIOMETRIC SURFACE CONTOUR
	STORM DRAIN PIPELINE
	SANITARY SEWER PIPELINE
	INDUSTRIAL WASTE PIPELINE
	CHAIN LINK FENCE

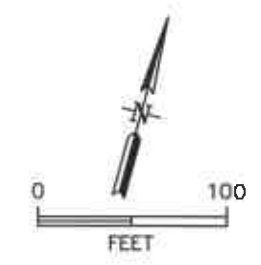


FIGURE 2  
 EMERYVILLE FACILITY - OAKLAND, CALIFORNIA  
 AC TRANSIT - POTENTIOMETRIC SURFACE MAP  
 MAY 1, 2003

BY	DATE
Drawn CJJ	6-4-03
Checked	
Approved	
Approved	
Approved	



SCALE: 1" = 100'      DWG. NO.: 2015-13



**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
	2/6/2003		None	4.08	28.48	NA
	<b>5/1/2003</b>		<b>None</b>	<b>3.68</b>	<b>28.88</b>	<b>NA</b>
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
	2/6/2003		None	3.70	28.42	NA
	<b>5/1/2003</b>		<b>None</b>	<b>3.59</b>	<b>28.53</b>	<b>NA</b>
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
	2/6/2003		None	4.97	29.09	NA
	<b>5/1/2003</b>		<b>None</b>	<b>4.89</b>	<b>29.17</b>	<b>NA</b>

**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
	2/6/2003		None	5.39	28.72	NA
	<b>5/1/2003</b>		<b>None</b>	<b>5.25</b>	<b>28.86</b>	<b>NA</b>
	MW-5		8/31/1999	31.70	None	4.51
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
2/6/2003		None	3.61		28.09	NA
<b>5/1/2003</b>		<b>None</b>	<b>3.15</b>		<b>28.55</b>	<b>NA</b>
MW-6		8/31/1999	31.02		None	4.40
	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
	2/6/2003	None		2.97	28.05	NA
	<b>5/1/2003</b>	<b>None</b>		<b>3.98</b>	<b>27.04</b>	<b>NA</b>

**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
	2/6/2003		None	4.36	25.26	NA
	<b>5/1/2003</b>		<b>None</b>	<b>4.76</b>	<b>24.86</b>	<b>NA</b>
	MW-8		8/31/1999	29.43	None	5.35
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
2/6/2003		None	4.41		25.02	NA
<b>5/1/2003</b>		<b>None</b>	<b>4.29</b>		<b>25.14</b>	<b>NA</b>
MW-9		8/31/1999	29.18		None	4.15
	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
	2/6/2003	None		3.65	25.53	NA
	<b>5/1/2003</b>	<b>None</b>		<b>4.50</b>	<b>24.68</b>	<b>NA</b>

**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
	2/6/2003		None	9.34	19.79	NA
	<b>5/1/2003</b>		<b>None</b>	<b>9.14</b>	<b>19.99</b>	<b>NA</b>
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
	2/6/2003		None	2.59	26.34	NA
	<b>5/1/2003</b>		<b>None</b>	<b>2.26</b>	<b>26.67</b>	<b>NA</b>
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
	2/6/2003		None	9.97	18.71	NA
	<b>5/1/2003</b>		<b>None</b>	<b>9.78</b>	<b>18.90</b>	<b>NA</b>
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
	2/6/2003		0.09	8.25	14.47	14.54
	<b>5/1/2003</b>		<b>0.24</b>	<b>7.29</b>	<b>15.43</b>	<b>15.62</b>

**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-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		
	2/6/2003		None	5.17	28.26	NA		
	<b>5/1/2003</b>		<b>None</b>	<b>4.71</b>	<b>28.72</b>	<b>NA</b>		
	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		
	2/6/2003		None	5.69	31.77	NA		
	<b>5/1/2003</b>		<b>None</b>	<b>4.97</b>	<b>32.49</b>	<b>NA</b>		

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

<b>Well</b>	<b>Date</b>	<b>Top of Casing Elevation (ft-msl)</b>	<b>Product Thickness (feet)</b>	<b>DTW (feet)</b>	<b>Groundwater Elevation (ft-msl)</b>	<b>Groundwater Elevation Corrected from Product Thickness* (ft-msl)</b>
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
	2/6/2003		None	3.67	28.05	NA
	<b>5/1/2003</b>		<b>None</b>	<b>2.61</b>	<b>29.11</b>	<b>NA</b>

*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	
	2/6/2003	82	<50	<0.5	<0.5	<0.5	<1.0	17	
	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	
2/6/2003		58	<50	<0.5	<0.5	<0.5	<1.0	18	
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	
	2/6/2003	<50	<50	<0.5	<0.5	<0.5	<1.0	3.9	
	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	
	2/6/2003	4,300	2600	63	8.2	18	15	<1.0	

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	<2.0
	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
	2/6/2003	230	890	<0.5	<0.5	<0.5	<1.0	1.6
	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
MW-8	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
	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
MW-9	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
	2/6/2003	54	<50	<0.5	<0.5	<0.5	<1.0	5.5
	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	13	
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	
2/6/2003	510	200	<0.5	<0.5	<0.5	<1.0	2.8	
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
	2/6/2003	250	<50	<0.5	<0.5	<0.5	<1.0	<1.0
	5/1/2003	220	<50	<0.5	<0.5	<0.5	<1.0	<1.0
	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	
2/6/2003	190	340	<0.5	<0.5	<0.5	<1.0	6.8	
5/1/2003	580	950	<2.5	<2.5	3.7	9.0	8.8	



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
W-1	2/27/2002	1,100	450	<1.0	<5.0	<1.0	<2.0	9.9
	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	<1.0
	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	<1.0
	6/7/2001	2,100	7300	26.0	18	42	38.3	<1.0
	9/21/2001	1,800	7100	27	<10	48	40	<1.0
	2/27/2002	1,800	7100	24	9	52	34	<25
W-2	2/6/2003	990	5300	11	4.7	27	24	<1.0
	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
W-3	8/31/2000	7,400	2200	4.6	2.5	3.8	11	<5.0
	12/19/2000	10,000	290	8.8	3.4	8.6	17.4	<5.0
W-4	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
	6/7/2001	1,200	<50	<1.0	<1.0	<1.0	<2.0	<5.0
W-4	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**

# Entech Analytical Labs, Inc.

RECEIVED MAY 23 2003

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

May 16, 2003

Brad Wright

Cameron-Cole

101 W. Atlantic Ave., Bldg#90

Alameda, CA 94501

**Order:** 34286

**Date Collected:** 5/1/2003

**Project Name:** ACTransit

**Date Received:** 5/2/2003

**Project Number:** 2016

**P.O. Number:** 2016

**Project Notes:**

On May 02, 2003, samples were received under documented chain of custody. Results for the following analyses are attached:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>
Liquid	BTEX+MTBE	EPA 8020
	Gas/BTEX/MTBE	EPA 8015 MOD. (Purgeable)
		EPA 8020
	PDF	PDF
	TPH as Diesel	EPA 8015 MOD. (Extractable)

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

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

Sincerely,



Patti Sandrock  
QA/QC Manager

# Entech Analytical Labs, Inc.

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

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

Date: 5/16/03  
Date Received: 5/2/2003  
Project Name: ACTransit  
Project Number: 2016  
P.O. Number: 2016  
Sampled By: Mike Marotto

## Certified Analytical Report

Order ID: 34286

Lab Sample ID: 34286-001

Client Sample ID: Trip Blank

Sample Time: 10:30 AM

Sample Date: 5/1/2003

Matrix: Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		1	1	1	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Benzene	ND		1	0.5	0.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Xylenes, Total	ND		1	1	1	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
					<b>Surrogate</b>			<b>Surrogate Recovery</b>		<b>Control Limits (%)</b>
					4-Bromofluorobenzene			93.2		65 - 135


DF = Dilution Factor

ND = Not Detected

DLR = Detection Limit Reported

PQL = Practical Quantitation Limit

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

  
Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

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

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

Date: 5/16/03  
Date Received: 5/2/2003  
Project Name: ACTransit  
Project Number: 2016  
P.O. Number: 2016  
Sampled By: Mike Marotto

## Certified Analytical Report

Order ID: 34286

Lab Sample ID: 34286-002

Client Sample ID: MW-11

Sample Time: 11:00 AM

Sample Date: 5/1/2003

Matrix: Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		1	0.5	0.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Toluene	ND		1	0.5	0.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Ethyl Benzene	ND		1	0.5	0.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Xylenes, Total	ND		1	1	1	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	93.2	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	ND		1	1	1	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	93.2	65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	220	x	1	50	50	µg/L	5/2/2003	5/5/2003	DW4351B	EPA 8015 MOD. (Extractable)

Surrogate	Surrogate Recovery	Control Limits (%)
o-Terphenyl	105.0	21 - 142

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

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	ND		1	50	50	µg/L	N/A	5/5/2003	WGC62825C	EPA 8015 MOD. (Purgeable)

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	81.3	65 - 135

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

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

  
Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

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

Date: 5/16/03  
Date Received: 5/2/2003  
Project Name: ACTransit  
Project Number: 2016  
P.O. Number: 2016  
Sampled By: Mike Marotto

## Certified Analytical Report

Order ID: 34286      Lab Sample ID: 34286-003      Client Sample ID: MW-12  
Sample Time: 11:50 AM      Sample Date: 5/1/2003      Matrix: Liquid

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Benzene	ND		5	0.5	2.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Toluene	ND		5	0.5	2.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Ethyl Benzene	3.7		5	0.5	2.5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020
Xylenes, Total	9.0		5	1	5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020

Surrogate      Surrogate Recovery      Control Limits (%)  
4-Bromofluorobenzene      97.3      65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
Methyl-t-butyl Ether	8.8		5	1	5	µg/L	N/A	5/5/2003	WGC62825C	EPA 8020

Surrogate      Surrogate Recovery      Control Limits (%)  
4-Bromofluorobenzene      97.3      65 - 135

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Diesel	580	x	1	50	50	µg/L	5/2/2003	5/4/2003	DW4351B	EPA 8015 MOD. (Extractable)

Surrogate      Surrogate Recovery      Control Limits (%)  
o-Terphenyl      113.0      21 - 142

**Comment:** Not a TPH as Diesel pattern; Reported value is the result of heavy end hydrocarbons (C11-C40) overlapping into the TPH as Diesel quantitation range (C9-C26) as well as possible GRO compounds within the TPH as Diesel range..

Parameter	Result	Flag	DF	PQL	DLR	Units	Extraction Date	Analysis Date	QC Batch ID	Method
TPH as Gasoline	950		5	50	250	µg/L	N/A	5/5/2003	WGC62825C	EPA 8015 MOD. (Purgeable)

Surrogate      Surrogate Recovery      Control Limits (%)  
4-Bromofluorobenzene      125.3      65 - 135

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

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

  
Patti Sandrock, QA/QC Manager

Environmental Analysis Since 1983

# Entech Analytical Labs, Inc.

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## STANDARD LAB QUALIFIERS (FLAGS)

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

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

# Entech Analytical Labs, Inc.

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## Quality Control Results Summary

QC Batch #: DW4351B  
Matrix: Liquid

Units:  $\mu\text{g/L}$   
Date Analyzed: 5/2/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
<b>Test:</b> TPH as Diesel											
TPH as Diesel	EPA 8015 M	ND		1000		687.25	LCS	68.7			51.7 - 126.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
o-Terphenyl			93.0			21 - 142					
<b>Test:</b> TPH as Diesel											
TPH as Diesel	EPA 8015 M	ND		1000		732.71	LCSD	73.3	6.40	25.00	51.7 - 126.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
o-Terphenyl			96.0			21 - 142					



# Entech Analytical Labs, Inc.

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## Quality Control Results Summary

QC Batch #: WGC62825C

Units: µg/L

Matrix: Liquid

Date Analyzed: 5/5/2003

Parameter	Method	Blank Result	Spike Sample ID	Spike Amount	Sample Result	Spike Result	QC Type	% Recovery	RPD	RPD Limits	Recovery Limits
<b>Test: TPH as Gasoline</b>											
TPH as Gasoline	EPA 8015 M	ND		250		234	LCS	93.6			65.0 - 135.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
	4-Bromofluorobenzene			87.4				65 - 135			
<b>Test: BTEX</b>											
Benzene	EPA 8020	ND		8		8.1	LCS	101.3			65.0 - 135.0
Ethyl Benzene	EPA 8020	ND		8		8.4	LCS	105.0			65.0 - 135.0
Toluene	EPA 8020	ND		8		7.7	LCS	96.3			65.0 - 135.0
Xylenes, total	EPA 8020	ND		24		26	LCS	108.3			65.0 - 135.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
	4-Bromofluorobenzene			102.6				65 - 135			
<b>Test: MTBE by EPA 8020</b>											
Methyl-t-butyl Ether	EPA 8020	ND		8		8.1	LCS	101.3			65.0 - 135.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
	4-Bromofluorobenzene			102.6				65 - 135			
<b>Test: TPH as Gasoline</b>											
TPH as Gasoline	EPA 8015 M	ND		250		228	LCSD	91.2	2.60	25.00	65.0 - 135.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
	4-Bromofluorobenzene			85.0				65 - 135			
<b>Test: BTEX</b>											
Benzene	EPA 8020	ND		8		8.2	LCSD	102.5	1.23	25.00	65.0 - 135.0
Ethyl Benzene	EPA 8020	ND		8		7.9	LCSD	98.8	6.13	25.00	65.0 - 135.0
Toluene	EPA 8020	ND		8		7.4	LCSD	92.5	3.97	25.00	65.0 - 135.0
Xylenes, total	EPA 8020	ND		24		26	LCSD	108.3	0.00	25.00	65.0 - 135.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
	4-Bromofluorobenzene			105.1				65 - 135			
<b>Test: MTBE by EPA 8020</b>											
Methyl-t-butyl Ether	EPA 8020	ND		8		8	LCSD	100.0	1.24	25.00	65.0 - 135.0
<b>Surrogate</b>			<b>Surrogate Recovery</b>			<b>Control Limits (%)</b>					
	4-Bromofluorobenzene			105.1				65 - 135			

# Entech Analytical Labs, Inc.

3334 Victor Court  
Santa Clara, CA 95054

(408) 588-0200  
(408) 588-0201 - Fax

# Chain of Custody / Analysis Request

Attention to: <b>Brad Wright</b>	Phone No.: (510) 337 8664	Purchase Order No.:	Send Invoice to (if Different)	Phone
Company Name: <b>Cameron - Cole</b>	Fax No.: (510) 337-3994	Project Number: <b>2016</b>	Company	
Mailing Address: <b>101 West Atlantic Ave Bldg 90</b>	Project Name: <b>AC Transit</b>	Billing Address (if Different)		
City: <b>Alameda</b>	State: <b>CA</b>	Zip: <b>94501</b>	Project Location: <b>Emeryville</b>	City: State Zip

Sampler: <b>MM</b>	Turn <input type="checkbox"/> Same Day Around <input type="checkbox"/> 24 Hour Time <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input checked="" type="checkbox"/> Standard
Date: <b>5/11/03</b>	

Order ID:	Sampling	Matrix H <sub>2</sub> O	Composite	Grab	Containers
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Client ID	Laboratory No.	Date	Time	Matrix H <sub>2</sub> O	Composite	Grab	Containers	Preservative	Volatiles Organics by GC/MS: 624 <input type="checkbox"/> 8240 <input type="checkbox"/> 8240B <input type="checkbox"/> 8240C <input type="checkbox"/>	Fuel Organics by GC/MS: MTBE by 8240B <input type="checkbox"/> 8240C <input type="checkbox"/>	Pesticides-8091 <input type="checkbox"/>	Halogenated or Aromatic Volatiles: 801/801D <input type="checkbox"/> PCBs - 8092 <input type="checkbox"/>	TPH as Gas/TPHEX <input type="checkbox"/> P113 <input type="checkbox"/>	Base/Neutral/Acid Organics 8270 <input type="checkbox"/> 8270-SIMS <input type="checkbox"/>	Fuel Scan <input type="checkbox"/>	Diesel <input type="checkbox"/>	w/ Special Standard Cleanup <input type="checkbox"/>	w/ Special Column Cleanup <input type="checkbox"/>	TPH-6AS <input type="checkbox"/>	TPH-6AS <input type="checkbox"/>	TPH-DIESEL <input type="checkbox"/>	TPM (502-2) <input type="checkbox"/>	Metals - Circle Below <input type="checkbox"/>	Total <input type="checkbox"/>	Disolved <input type="checkbox"/>	Remarks	
Trip Blank	34286-001	5/11/03	1030	X				X																			
MW-11	002		1100					X																			
↓			↓																								
MW-12	003		1150					X																			
↓			↓																								
↓			↓																								

Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date: 05-02-03	Time: 9:10 AM
Relinquished by: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date: 5/2/03	Time: 1:30
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

DATE: 5/1/03

AC Transit Emeryville

EVENT Quarterly

TECHNICIAN MM

WELL OR LOCATION	DATE	TIME	MEASUREMENT	CODE	COMMENTS
MW-1	5/1/03	0958	3.68	SWL	
MW-2		0949	3.59	SWL	
MW-3		1019	4.89	SWL	
MW-4		1022	5.25	SWL	
MW-5		0954	3.15	SWL	
MW-6		1005	3.98	SWL	
MW-7		0927	4.76	SWL	
MW-8		0929	4.29	SWL	
MW-9		0931	4.50	SWL	
MW-10		0934	9.14	SWL	No well cap
MW-11		0924	2.26	SWL	
MW-12		0939	9.78	SWL	
MW-13		0905	8.05	OIL	Product level *
MW-13		0907	8.29	SWL	Water level *
W-1		0918	4.71	SWL	
W-3		0913	4.97	SWL	
W-4	▽	1013	2.61	SWL	

SWL - Static Water Level

OIL - Oil Level

OWI - Oil/Water Interface

MTD - Measured Total Depth

\* used oil/water interface probe for MW-13 (off by 1 foot)

Well ID: MW-11

Project Name: AC Transit Energyville  
Casing Diameter (in): 2"  
Total Well Depth (ft): 17.40  
Depth to Water (ft) before purging: 2.26

Project Number: 2016  
Sample Date: 5/1/03  
Sample ID: MW-11

Development Method:

NA Bailer:      Teflon      Stainless Steel      PVC      ABS Plastic

     Pump:      Dedicated Submersible Pump      Bladder Pump  
     Non-Dedicated Submersible Pump

Time	pH	Conductivity (umho/cm)	Temperature (Celsius)	Water Level (to 0.01 ft)	Cum. Vol. (gal)	Pump Rate (GPM)
1042	7.64	586	24.1	2.30	2.0	1.0
1046	7.62	572	24.7	2.31	4.0	↓
1048	7.61	581	24.9	2.30	6.0	↓
			Tot. Vol = 8.0 gal			

Water Volume to be Purged (gal):

(Casing Length in Ft - Depth to Water in Ft) (X) (3)

Where X=1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells

$(17.40 - 2.26) (15.14 * 0.165) = (2.50 * 3) = 7.50$

**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: 8021 TPH gas Diesel/Motoroil

Sample Appearance

     OVA Reading (ppm)  
     Suspended Solids (describe):

- Cent pump used to purge
- Disp- bailer used to sample
- Trip Blank collected @ 1030

Decontamination Performed:

Washed (Rinsed) sounder, meters

Comments / Calculations:

Start : 1040  
stop : 1050  
sample : 1100

DO : 0.46 mg/L  
Fe : 0.97 mg/L  
O.P. : 50mV

Name:

MM

Date:

5/1/03

Well ID: MW-12

Project Name: AC Transit Emeryville  
Casing Diameter (in): 2"  
Total Well Depth (ft): 29.87  
Depth to Water (ft) before purging: 9.78

Project Number: 2016  
Sample Date: 5/11/03  
Sample 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)
1128	7.14	581	25.5	12.19	3.0	0.50
1134	7.11	573	25.5	13.50	6.0	↓
1140	7.07	584	25.4	13.85	9.0	↓
				Tot Vol = 10 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

$(29.87 - 9.78) (20.09 * 0.165) = (3.31 * 3) = 9.94$

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

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

Sample Collection Method:

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: 8021 TPH gas TPH 2-41

Sample Appearance

OVA Reading (ppm)  
 Suspended Solids (describe):

Decontamination Performed:

Washed/Rinsed Sounding meters

- Cent Pump used to purge
- Dix. Bailer used to sample

Comments / Calculations:

Start: 1122  
Stop: 1142  
Sample: 1150

Fe: ~~0.1~~ 2.32 mg/L  
DO: 0.50 mg/L  
ORP: 40 mV

Name: MM

Date: 5/11/03