



Alameda-Contra Costa Transit District

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Alameda County  
Environmental Health

January 17, 2008

Mr. Stephen Plunkett  
Alameda County Health Division  
Division of Environmental Protection  
Department of Environmental Health  
1131 Harbor Bay Parkway, Second Floor  
Alameda, CA 94502

Dear Mr. Plunkett:

Subject: Groundwater Monitoring Report – November 2007  
AC Transit, 1177 47<sup>th</sup> Street, Emeryville

AC Transit hereby submits the enclosed groundwater monitoring report for the AC Transit facility located at 1177 47<sup>th</sup> Street in Emeryville. The report was prepared by our consultant, Esseltech, and contains the results of groundwater monitoring performed on November 10, 2007, from 15 on-site monitoring wells.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

If you have any questions or comments regarding the enclosed report, please call me at (510) 577-8869.

Sincerely,

Suzanne Chaewsky, P.E.  
Environmental Engineer

enclosure



**GROUND-WATER MONITORING  
IN  
NOVEMBER 2007  
ALAMEDA CONTRA COSTA  
TRANSIT DISTRICT FACILITY  
1177 47<sup>TH</sup> STREET  
EMERYVILLE, CALIFORNIA**

*Prepared for*

**Alameda Contra Costa Transit District  
10626 International Boulevard  
Oakland, California 94603**

*Prepared by*

**Essel Technology Services, Inc.  
9778 Broadmoor Drive  
San Ramon, California 94583  
(925) 833-7977**

**Project No. 07-68-01**

**December 2007**



**GROUND-WATER MONITORING  
IN  
NOVEMBER 2007  
ALAMEDA CONTRA COSTA  
TRANSIT DISTRICT FACILITY  
1177 47<sup>TH</sup> STREET  
EMERYVILLE, CALIFORNIA**

**1.0 INTRODUCTION**

The Alameda Contra Costa Transit District (AC Transit) has contracted with Essel Technology Services, Inc. (Essel Tech) to perform ground-water monitoring and sampling at the AC Transit Division 2 facility in Emeryville, California. This report presents the results of monitoring and sampling performed in November 2007.

**1.1 Site Location and Description**

The Division 2 facility is located at 1177 47<sup>th</sup> Street in Emeryville, California and occupies nearly the entire city block that is bounded by 47<sup>th</sup> Street on the north, 45<sup>th</sup> Street on the south, San Pablo Avenue on the east, and Doyle Street on the west, as shown on Plate 1. The facility is used for storage and maintenance of AC Transit buses. The primary site feature is a maintenance building that is located in the southwestern portion of the site. Other facilities include a parking garage, a transportation building, and a bus washing structure that are located along the northern property line adjacent to 47<sup>th</sup> Street; and a tire building, an emergency generator building, a pump station, and storm water treatment facilities that are located at the western edge of the site next to Doyle Street. The site also contains underground storage tanks (USTs). The existing USTs, referred to as Tank Farm No. 1, are located near the northeastern corner of the property and just south of fuel dispenser islands. Former USTs, referred to as Tank Farm No. 2, were located near the center of the property and a short distance east of the present maintenance building. These tanks were removed in 1999. A 550-gallon UST that provides fuel for an emergency generator is located next to the southern side of the emergency generator building.

Sixteen wells used for ground-water monitoring are presently installed at the site. Thirteen of the wells (MW-1 through MW-10, MW-12, MW-13, and W-4) are spaced across the northern half of the site and monitor the ground water near and to the west (approximately downgradient) of Tank Farm No 1 and the fuel dispenser islands. Well MW-12 also serves to monitor the ground water at a location northwest of the 550-gallon emergency generator UST. Three of the 16 wells are located in the southeastern quadrant of the property. Well W-3 is at the eastern edge of the property at a location that is upgradient of Tank Farm No. 1, well W-1 is located approximately 220 feet south of Tank Farm No. 1, and MW-11 is near the southwestern corner of Tank Farm No. 2. Three additional wells, that are not part of the ground-water-monitoring program, are located adjacent to Tank Farm No. 1. These wells are referred to as E-1, E-2, and E-5. Plate 2 is a Site Plan that shows the relative locations of the AC Transit facilities, the 16 ground-water-monitoring wells, and the three additional wells.

## **2.0 FIELD AND LABORATORY WORK**

### **2.1 Field Procedures**

Essel Tech personnel visited the site on November 10, 2007, to measure the water level in 15 of the 16 wells (MW-1 through MW-12, W-1, W-3, and W-4), to measure the thickness of any free-phase petroleum product in the wells, and to purge the wells for ground-water sampling. The depths to free-phase petroleum product and the static ground-water surface in each well were measured to the nearest 0.1-foot using an electronic oil-water interface probe. Following water-level measurements, the 15 wells were purged of water using a submersible pump and discharge hose. Approximately three casing volumes of water were pumped from each well. Field measurements of temperature, pH, electrical conductivity, dissolved oxygen, oxygen reduction potential, and ferrous iron were monitored during pumping. Measurements were recorded on field well purging and sampling forms, which are included in Appendix A. Well MW-13 was not purged because the well contained free-phase petroleum product.

To minimize the potential for inadvertently introducing contaminants, wells were purged in order from least contaminated to most contaminated using the analytical results from the previous monitoring event. In addition, the purge pump and attached discharge hose were cleaned before use in each well by washing the equipment in a soap solution followed by rinsing twice with clean tap water. Discharge water from well purging was directed into 55-gallon drums, which were then emptied into the maintenance building steam bay.

Essel Tech personnel collected water samples from wells MW-1 through MW-12, W-1, W-3, and W-4 on November 10, 2007. A clean, disposable polyethylene bailer was lowered partly through the air-water interface in each well and retrieved to collect the samples. The retrieved water samples were then slowly transferred from the bailer to clean, 40-milliliter volatile organic analysis (VOA) glass vials containing hydrochloric acid as a preservative and to clean, 1-liter brown glass liter bottles containing sulfuric acid as a preservative. The various containers were filled completely to eliminate air bubbles, sealed with caps, labeled, and placed in ice storage for transport to an analytical laboratory.

### **2.2 Laboratory Analyses**

Essel Tech personnel prepared Chain-of-Custody forms for the ground-water samples collected and these forms accompanied the samples to the laboratory. Copies of the Chain-of-Custody forms are included in Appendix B. The water samples were delivered to McCampbell Analytical, Inc. (McCampbell) in Pittsburg, California for analysis. McCampbell analyzed the samples for total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd) using Environmental Protection Agency (EPA) modified Method 8015C, and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) using EPA Method 8021B.

### **3.0 RESULTS OF MONITORING AND SAMPLING**

#### **3.1 Ground-Water Monitoring**

A total thickness of 1.22 feet of free-phase petroleum product was measured in well MW-13 on November 10, 2007. No measurable free-phase petroleum product was detected in the other 15 wells. The measured depth to the static ground-water surface ranged from 3.3 to 9.7 feet below the tops of the well casings. Essel Tech used wellhead elevation data and the depth-to-water measurements made on November 10 to calculate the elevation of the ground-water surface, which varied from 17.78 to 29.91 feet above mean sea level in the wells. Water-level measurements show the ground-water surface dropped from 0.02- to 0.82-foot (average 0.42-foot) in 14 of the 15 wells between the May and November 2007 monitoring events and rose 0.25-foot in well MW-1 between these two monitoring events. The ground-water surface in 13 wells ranged from 0.10-foot to 1.6 feet (average 0.56-foot) lower in November 2007 than at the equivalent time (November) in 2006. In wells MW-7 and MW-8 the ground-water surface in November 2007 was at the same or a higher elevation than in November 2006. Based on the range of elevations calculated from water levels measured on November 10, 2007, ground water beneath the site is estimated to flow approximately toward the west at a gradient of 0.018 (1.8 feet vertical distance per 100 feet horizontal distance). Table 1 presents data since November 2005 on product thickness, depth to ground water, and ground-water elevation for the 16 wells. Plate 3 is a contour map of the shallow ground-water surface interpreted from water-level data collected on November 10, 2007.

#### **3.2 Laboratory Analyses**

Results of laboratory analyses show gasoline-range hydrocarbons (i.e., TPHg) were detected in seven of the 15 wells sampled. The highest detected concentrations were found in wells W-1 (6,100 parts per billion [ppb]) and MW-6 (2,100 ppb), located near the center of the site. Lower concentrations of 170 to 420 ppb TPHg were detected in samples from wells MW-5, MW-7, MW-8, MW-10, and MW-12. No TPHg was detected in samples from wells MW-1 through MW-4, MW-9, MW-11, and W-3. The trends of detected concentrations of TPHg have varied among wells. In well W-1 (south-central portion of site), the level of TPHg declined from 6,200 ppb in November 2005 to 2,600 ppb in November 2006 and increased to 6,100 ppb in November 2007. A fluctuating pattern of lower TPHg level in November and higher level in May is observed in well MW-6 (central portion of site) and generally, the concentration of TPHg in this well has increased. In northern wells MW-5, MW-8, and MW-10, trends of increasing levels of TPHg have occurred recently and in west-central wells MW-7 and MW-12, levels of TPHg have fluctuated from one monitoring event to the next.

The aromatic hydrocarbons benzene, ethylbenzene, and total xylenes were each detected in wells W-1 and MW-6 during the latest monitoring event at concentrations ranging from 3.9 to 32 ppb. Toluene was not detected in either well. In wells MW-5 and MW-7, trace to very low levels (0.59- to 1.3 ppb) of ethylbenzene and total xylenes were detected. No BTEX was found in water samples from wells MW-8, MW-10, or MW-12, in which TPHg was detected. The fuel oxygenate MTBE was not detected (detection limits of 5.0 to 25 ppb) in any of the 15 wells sampled during the November 2007 monitoring event. Table 2 presents the cumulative results since November 2005 of analyses of water samples for TPHg, BTEX, and MTBE and Appendix B contains a copy of the laboratory report.

Diesel-range hydrocarbons (i.e., TPHd) were detected in 13 of the 15 wells sampled at concentrations ranging from 55 to 9,300 ppb. The highest concentrations were found in wells MW-6 (9,300 ppb),

MW-10 (1,200 ppb), and W-1 (1,200 ppb). Concentrations of TPHd between 500 and 1,000 ppb were found in wells MW-9 (930 ppb) and MW-3 (730 ppb) and concentrations ranging from 55 to 160 ppb were detected in wells MW-1, MW-2, MW-5, MW-7, MW-8, MW-11, MW-12, and W-4. No TPHd was found in wells MW-4 and W-3. The highest levels of TPHd, which were detected in wells MW-6, MW-10, and W-1, are equal to or higher than detected during the previous year and the 1,200 ppb detected in well MW-10 is the highest found since Essel Tech began monitoring in November 2005. Higher levels of TPHd are also present in wells MW-9 and MW-3 during recent monitoring events than during monitoring events performed earlier in 2007 or in 2005 to 2006. A notable increase from non-detectable to 730 ppb occurred in well MW-3 between the May and November 2007 monitoring events. Trends of generally decreasing concentrations of TPHd are observed in wells MW-1, MW-2, and MW-5, located in the northeastern (upgradient) portion of the site. In wells MW-7, MW-8, MW-11, and MW-12, the concentrations of TPHd have fluctuated. During the November 2005 to November 2007 time period, concentrations of TPHd in wells MW-8 and MW-11 have declined moderately and in wells MW-7 and MW-12 have not changed, essentially. Table 2 presents the cumulative results since November 2005 of analyses of water samples for TPHd and Appendix B contains a copy of the laboratory report.

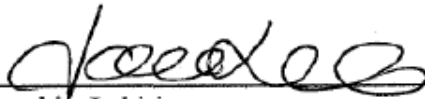
#### 4.0 RECOMMENDATION

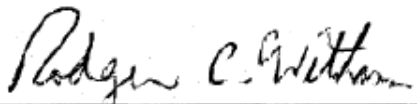
Essel Tech recommends that ground-water monitoring and sampling continue on a quarterly basis. The next sampling event should be scheduled for February 2008 and would include measuring depth to water and product thickness in wells MW-11, MW-12, and MW-13 and purging and sampling the wells for laboratory analysis.

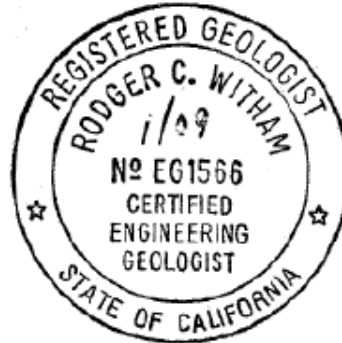
Please call if you have any questions.

Sincerely;

**Essel Technology Services, Inc.**

  
\_\_\_\_\_  
Samhita Lahiri  
Project Manager

  
\_\_\_\_\_  
Rodger C. Witham, P.G., C.E.G  
Senior Hydrogeologist



- Table 1: Well Monitoring Data
- Table 2: Results of Laboratory Analyses of Ground-Water Samples
- Plate 1: Site Vicinity Map
- Plate 2: Site Plan
- Plate 3: Ground-Water-Surface Map, November 10, 2007
- Appendix A: Field Purging and Sampling Forms
- Appendix B: Chain-of-Custody Records and Laboratory Report

**TABLE 1**  
**WELL MONITORING DATA**  
**Alameda Contra Costa Transit District Facility**  
**1177 47th Street, Emeryville, California**

Well Number	Date	Top of Casing	Product Thickness	Depth to Ground Water	Ground-Water-Surface Elevation	Ground-Water-Surface Elevation Corrected for Product Thickness#
MW-1	11/02/05	32.56	0.00	5.14	27.42	27.42
	05/28/06	32.56	0.00	4.05	28.51	28.51
	11/12/06	32.56	0.00	3.36	29.20	29.20
	05/27/07	32.56	0.00	4.90	27.66	27.66
	11/10/07	32.56	0.00	4.65	27.91	27.91
MW-2	11/02/05	32.12	0.00	4.65	27.47	27.47
	05/28/06	32.12	0.00	3.55	28.57	28.57
	11/16/06	32.12	0.00	3.6	28.52	28.52
	05/27/07	32.12	0.00	3.73	28.39	28.39
	11/10/07	32.12	0.00	4.2	27.92	27.92
MW-3	11/02/05	34.06	0.00	6.21	27.85	27.85
	05/28/06	34.06	0.00	4.95	29.11	29.11
	11/16/06	34.06	0.00	5.5	28.56	28.56
	05/27/07	34.06	0.00	5.28	28.78	28.78
	11/10/07	34.06	0.00	5.75	28.31	28.31
MW-4	11/02/05	34.11	0.00	6.30	27.81	27.81
	05/28/06	34.11	0.00	5.15	28.96	28.96
	11/16/06	34.11	0.00	5.4	28.71	28.71
	05/27/07	34.11	0.00	5.61	28.50	28.50
	11/10/07	34.11	0.00	5.85	28.26	28.26
MW-5	11/02/05	31.70	0.00	4.55	27.15	27.15
	05/28/06	31.70	0.00	3.62	28.08	28.08
	11/12/06	31.70	0.00	2.5	29.20	29.20
	05/27/07	31.70	0.00	3.64	28.06	28.06
	11/10/07	31.70	0.00	4.1	27.60	27.60
MW-6	11/02/05	31.02	0.00	4.21	26.81	26.81
	05/28/06	31.02	0.00	3.00	28.02	28.02
	11/16/06	31.02	0.00	3.3	27.72	27.72
	05/27/07	31.02	0.03	3.20	27.82	27.84
	11/10/07	31.02	0.03	3.65	27.37	27.39
MW-7	11/02/05	29.62	0.00	5.50	24.12	24.12
	05/28/06	29.62	0.00	4.25	25.37	25.37
	11/16/06	29.62	0.00	5.7	23.92	23.92
	05/27/07	29.62	0.00	4.54	25.08	25.08
	11/10/07	29.62	0.00	5.15	24.47	24.47
MW-8	11/02/05	29.43	0.00	5.05	24.38	24.38
	05/28/06	29.43	0.00	4.95	24.48	24.48
	11/12/06	29.43	0.00	4.7	24.73	24.73
	05/27/07	29.43	0.00	4.08	25.35	25.35
	11/10/07	29.43	0.00	4.7	24.73	24.73
MW-9	11/02/05	29.18	0.00	4.26	24.92	24.92
	05/28/06	29.18	0.00	3.70	25.48	25.48
	11/12/06	29.18	0.00	3.5	25.68	25.68
	05/27/07	29.18	0.00	3.43	25.75	25.75
	11/10/07	29.18	0.00	3.75	25.43	25.43

See notes on page 2 of 2.

**TABLE 1**  
**WELL MONITORING DATA**  
**Alameda Contra Costa Transit District Facility**  
**1177 47th Street, Emeryville, California**

Well Number	Date	Top of Casing	Product Thickness	Depth to Ground Water	Ground-Water-Surface Elevation	Ground-Water-Surface Elevation Corrected for Product Thickness#
MW-10	11/02/05	29.13	0.00	9.81	19.32	19.32
	05/28/06	29.13	0.00	9.55	19.58	19.58
	11/16/06				Well not accessible	
	02/24/07	29.13	0.00	9.0	20.13	20.13
	05/27/07	29.13	0.00	9.45	19.68	19.68
	11/10/07	29.13	0.00	9.7	19.43	19.43
MW-11	11/02/05	29.93	0.00	4.30	25.63	25.63
	02/22/06	29.93	0.00	2.50	27.43	27.43
	05/28/06	29.93	0.00	2.85	27.08	27.08
	08/27/06	29.93	0.00	3.00	26.93	26.93
	11/12/06	29.93	0.00	3.02	26.91	26.91
	02/24/07	29.93	0.00	2.15	27.78	27.78
	05/27/07	29.93	0.00	2.78	27.15	27.15
	09/02/07	29.93	0.00	4.2	25.73	25.73
	11/10/07	29.93	0.00	3.3	26.63	26.63
MW-12	11/02/05	28.68	0.00	10.76	17.92	17.92
	02/22/06	28.68	0.00	10.50	18.18	18.18
	05/28/06	28.68	0.00	10.82	17.86	17.86
	08/27/06	28.68	0.00	10.50	18.18	18.18
	11/16/06	28.68	0.00	10.8	17.88	17.88
	02/24/07	28.68	0.00	10.3	18.38	18.38
	05/27/07	28.68	0.00	10.88	17.80	17.80
	09/02/07	28.68	0.00	10.7	17.98	17.98
	11/10/07	28.68	0.00	10.9	17.78	17.78
MW-13	11/02/05	22.72	0.063	9.10	13.62	13.67
	02/22/06	22.72	0.167	NM	NM	NM
	05/28/06	22.72	NM	NM	NM	NM
	11/16/06	22.72	0.017	NM	NM	NM
	05/27/07	22.72	0.45	9.45	13.27	13.63
	09/02/07	22.72	1.1	10.3	12.42	13.30
	11/10/07	22.72	1.22	10.62	12.10	13.07
W-1	11/02/05	33.43	0.00	6.59	26.84	26.84
	05/28/06	33.43	0.00	5.15	28.28	28.28
	11/16/06	33.43	0.00	5.5	27.93	27.93
	05/27/07	33.43	0.00	5.80	27.63	27.63
	11/10/07	33.43	0.00	5.95	27.48	27.48
W-3	11/02/05	37.46	0.00	8.24	29.22	29.22
	05/28/06	37.46	0.00	6.32	31.14	31.14
	11/16/06	37.46	0.00	6.8	30.66	30.66
	05/27/07	37.46	0.00	6.73	30.73	30.73
	11/10/07	37.46	0.00	7.55	29.91	29.91
W-4	11/02/05	31.72	0.00	4.70	27.02	27.02
	05/28/06	31.72	0.00	4.50	27.22	27.22
	11/16/06	31.72	0.00	3.9	27.82	27.82
	05/27/07	31.72	0.00	3.82	27.90	27.90
	11/10/07	31.72	0.00	4.3	27.42	27.42

Top of casing in feet above mean sea level.  
Product thickness in feet.  
Depth to ground water in feet below the top of the well casing.  
Ground-water surface elevation in feet above mean sea level.  
NM = not measured  
#Multiply product thickness by specific gravity of 0.8 and add to ground-water surface elevation.



**TABLE 2**  
**RESULTS OF LABORATORY ANALYSES OF GROUND-WATER SAMPLES**  
**Alameda Contra Costa Transit District Facility**  
**1177 47th Street, Emeryville, California**

Well No.	Date Sampled	TPHg	TPHd	TPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Nitrate	Sulfate	Dissolved Oxygen	Ferrous Iron
MW-1	11/03/05	<50	70	NA	<0.5	<0.5	<0.5	<0.5	4.5	<100	56,000	2,330	0
	5/29/06	<50	89	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	5,400	0
	11/12/06	<50	65	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	6,520	0
	5/27/07	<50	65	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	50	1,280
	11/10/07	<50	59	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	460	2,210
MW-2	11/03/05	<50	110	NA	<0.5	<0.5	<0.5	<0.5	4.9	430	53,000	2,090	130
	5/29/06	<50	70	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	6,800	60
	11/16/06	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	8,300	10
	5/27/07	<50	75	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	90	1,540
	11/10/07	<50	62	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	320	130
MW-3	11/03/05	<50	180	NA	<0.5	<0.5	<0.5	<0.5	3.2	3,500	67,000	1,850	0
	5/29/06	<50	180	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	4,600	0
	11/16/06	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	360	630
	5/27/07	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	100	1,480
	11/10/07	<50	730	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	1,690	3,300
MW-4	11/03/05	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	4.1	3,500	67,000	1,860	60
	5/29/06	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	4,900	0
	11/16/06	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	1,500	1,060
	5/27/07	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	400	1,360
	11/10/07	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	1,930	0
MW-5	11/03/05	<50	1,500	NA	<0.5	<0.5	<0.5	<0.5	5.7	<100	62,000	1,930	150
	5/29/06	<50	200	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	4,900	40
	11/12/06	<50	130	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	4,500	2,170
	5/27/07	140	180	NA	<0.5	<0.5	<0.5	<0.5	<10	NA	NA	220	1,350
	11/10/07	170	110	NA	<0.5	<0.5	0.59	1.3	<10	NA	NA	500	300
MW-6	11/03/05	750	2,000	NA	13	1.9	2.9	4.6	1.4	<100	16,000	1,570	3,300
	5/29/06	2,700	12,000	NA	55	5.7	16	26	<15	NA	NA	4,900	20
	11/16/06	530	2,100	NA	12	0.82	0.58	2.8	<5.0	NA	NA	3,600	2,370
	5/27/07	5,200	2,500	NA	110	5.1	23	17	<60	NA	NA	50	3,300
	11/10/07	2,100	9,300	NA	30	<1.7	3.9	4.0	<17	NA	NA	510	3,220

See notes on page 4 of 4.

**TABLE 2**  
**RESULTS OF LABORATORY ANALYSES OF GROUND-WATER SAMPLES**  
**Alameda Contra Costa Transit District Facility**  
**1177 47th Street, Emeryville, California**

Well No.	Date Sampled	TPHg	TPHd	TPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Nitrate	Sulfate	Dissolved Oxygen	Ferrous Iron
MW-7	11/03/05	310	140	NA	<0.5	<0.5	<0.5	<0.5	2.3	<100	3,100	3,190	30
	5/29/06	260	120	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	Anomalous	60
	11/12/06	120	96	NA	<0.5	<0.5	<0.5	0.76	<5.0	NA	NA	1,100	23
	5/27/07	700	220	NA	<0.5	<0.5	1.0	2.0	<5.0	NA	NA	170	1,090
	11/10/07	220	150	NA	<0.5	<0.5	<0.5	1.0	<5.0	NA	NA	4,270	40
MW-8	11/03/05	150	280	NA	<0.5	<0.5	<0.5	<0.5	0.69	<100	24,000	1,630	860
	5/29/06	<50	150	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	8,300	40
	11/12/06	95	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	3,810	860
	5/27/07	140	140	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	390	1,770
	11/10/07	240	160	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	1,430	30
MW-9	11/03/05	<50	470	NA	<0.5	<0.5	<0.5	<0.5	4.8	110	28,000	1,720	450
	5/29/06	<50	190	NA	<0.5	<0.5	<0.5	<0.5	5.2	NA	NA	8,600	0
	11/12/06	<50	65	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	2,470	570
	5/27/07	<50	1,000	NA	<0.5	0.92	<0.5	<0.5	<5.0	NA	NA	290	1,140
	11/10/07	<50	930	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	730	430
MW-10	11/03/05	300	600	NA	<0.5	<0.5	<0.5	<0.5	4.1	<100	780	2,350	2,670
	5/29/06	140	540	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	5,600	10
	11/16/06						Well Not Accessible						
	2/24/07	190	970	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	3,460	1,060
	5/27/07	330	850	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	150	2,530
	11/10/07	420	1,200	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	760	2,510
MW-11	11/03/05	<50	290	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<100	21,000	1,360	0
	2/22/06	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<100	27,000	100	0
	5/29/06	<50	250	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	6,000	100
	8/27/06	<50	57	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	100	0
	11/12/06	<50	56	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	2,810	0
	2/24/07	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	950	0
	5/27/07	<50	61	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	40	1,170
	9/2/07	<50	67	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	60	630
	11/10/07	<50	55	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	470	0

See notes on page 4 of 4.

**TABLE 2**  
**RESULTS OF LABORATORY ANALYSES OF GROUND-WATER SAMPLES**  
**Alameda Contra Costa Transit District Facility**  
**1177 47th Street, Emeryville, California**

Well No.	Date Sampled	TPHg	TPHd	TPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Nitrate	Sulfate	Dissolved Oxygen	Ferrous Iron
MW-12	11/03/05	440	120	NA	<0.5	<0.5	<0.5	<0.5	6.6	<100	3,700	1,700	740
	2/22/06	400	140	NA	<0.5	<0.5	<0.5	<0.5	7.8	<100	7,600	90	NM
	5/29/06	310	140	NA	<0.5	<0.5	<0.5	<0.5	5.7	NA	NA	7,200	10
	8/27/06	530	120	NA	<0.5	<0.5	<0.5	<0.5	6.6	NA	NA	90	720
	11/16/06	740	200	NA	<0.5	2.1	<0.5	6.3	<10	NM	NM	3,700	680
	2/24/07	200	87	NA	<0.5	<0.5	<0.5	<0.5	<10	NA	NA	750	310
	5/27/07	340	140	NA	<0.5	<0.5	1.4	1.8	<10	NA	NA	130	1,610
	9/2/07	430	130	NA	<0.5	<0.5	<0.5	0.77	8.3	NA	NA	100	3,300
	11/10/07	360	94	NA	<0.5	<0.5	<0.5	<0.5	<10	NA	NA	1,120	1,340
	MW-13	11/03/05	Not sampled - free-phase product in well										
2/22/06		Not sampled - free-phase product in well											
5/29/06		Not sampled - free-phase product in well											
11/16/06		Not sampled - free-phase product in well											
5/27/07		Not sampled - free-phase product in well											
9/2/07		Not sampled - free-phase product in well											
11/10/07		Not sampled - free-phase product in well											
W-1	11/03/05	6,200	2,400	NA	7.2	3.6	5.7	20	0.73	140	1,300	1,230	3,300
	5/29/06	4,600	1,700	NA	18	4.4	17	32	<17	NM	NM	4,500	60
	11/16/06	2,600	760	NA	18	3.7	10	19	<10	NA	NA	5,400	2,010
	5/27/07	4,200	1,200	NA	20	34	12	17	<45	NA	NA	60	2,050
	11/10/07	6,100	1,200	NA	32	<2.5	9.4	14	<25	NA	NA	730	1,570

See notes on page 4 of 4.

**TABLE 2**  
**RESULTS OF LABORATORY ANALYSES OF GROUND-WATER SAMPLES**  
**Alameda Contra Costa Transit District Facility**  
**1177 47th Street, Emeryville, California**

Well No.	Date Sampled	TPHg	TPHd	TPH	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Nitrate	Sulfate	Dissolved Oxygen	Ferrous Iron
W-3	11/03/05	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	1.2	3,700	51,000	2,170	0
	5/29/06	<50	240	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NM	NM	Anomalous	50
	11/16/06	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	3,900	2,140
	5/27/07	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	70	1,130
	11/10/07	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	880	0
W-4	11/03/05	<50	66	NA	<0.5	<0.5	<0.5	<0.5	2.0	<100	32,000	1,620	970
	5/29/06	<50	110	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NM	NM	NM	NM
	11/16/06	<50	72	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	4,500	1,750
	5/27/07	99	180	NA	0.89	<0.5	<0.5	<0.5	<5.0	NA	NA	70	2,770
	11/10/07	<50	83	NA	<0.5	<0.5	<0.5	<0.5	<5.0	NA	NA	730	1,020

Results are in micrograms per liter = parts per billion; detectable results are shaded.

TPHg = total petroleum hydrocarbons as gasoline

TPHd = total petroleum hydrocarbons as diesel

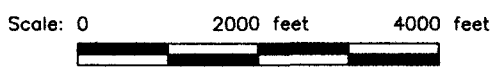
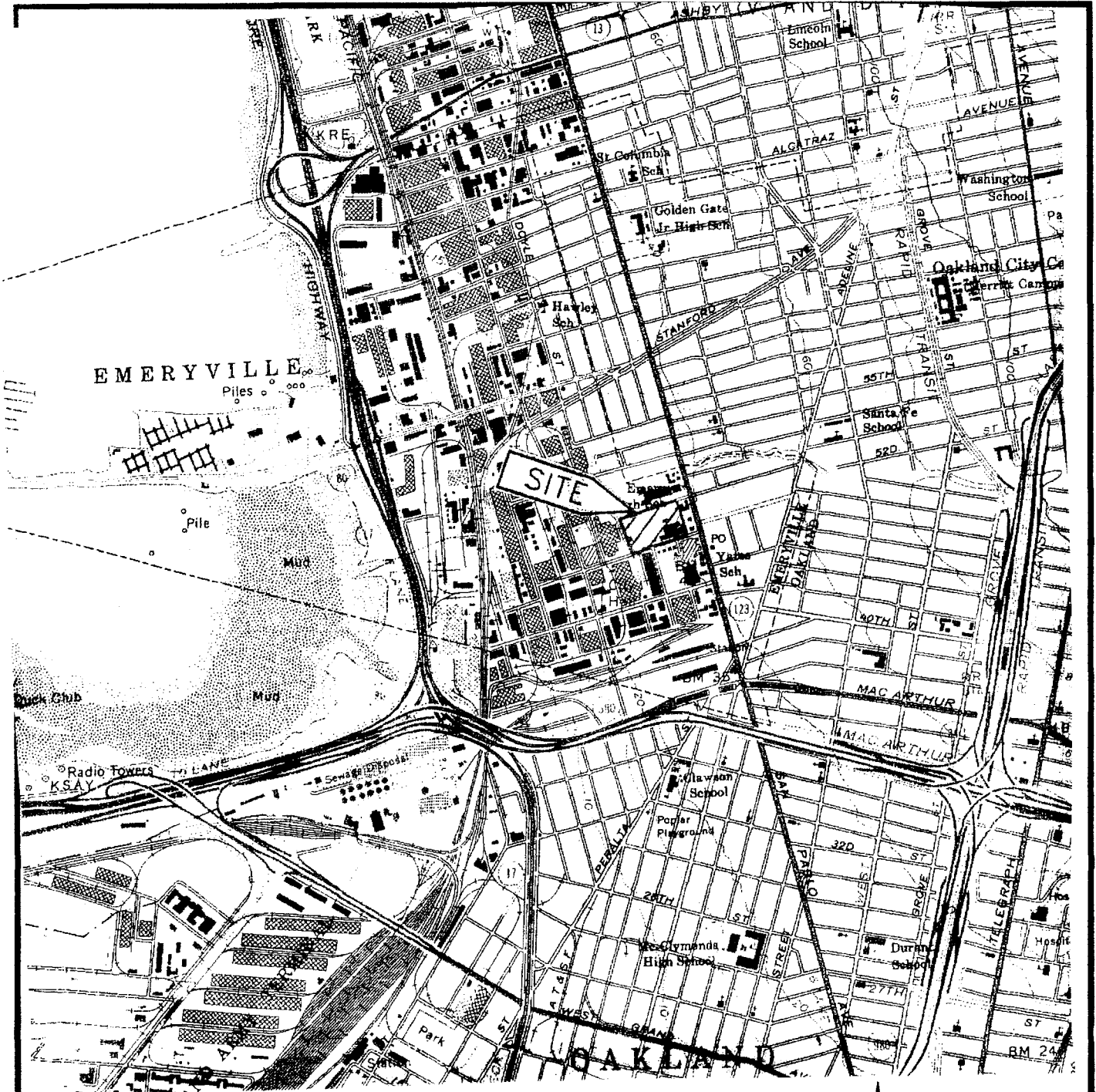
TPH = total petroleum hydrocarbons as motor oil or unknown hydrocarbon

MTBE = methyl tertiary butyl ether

NA = not analyzed

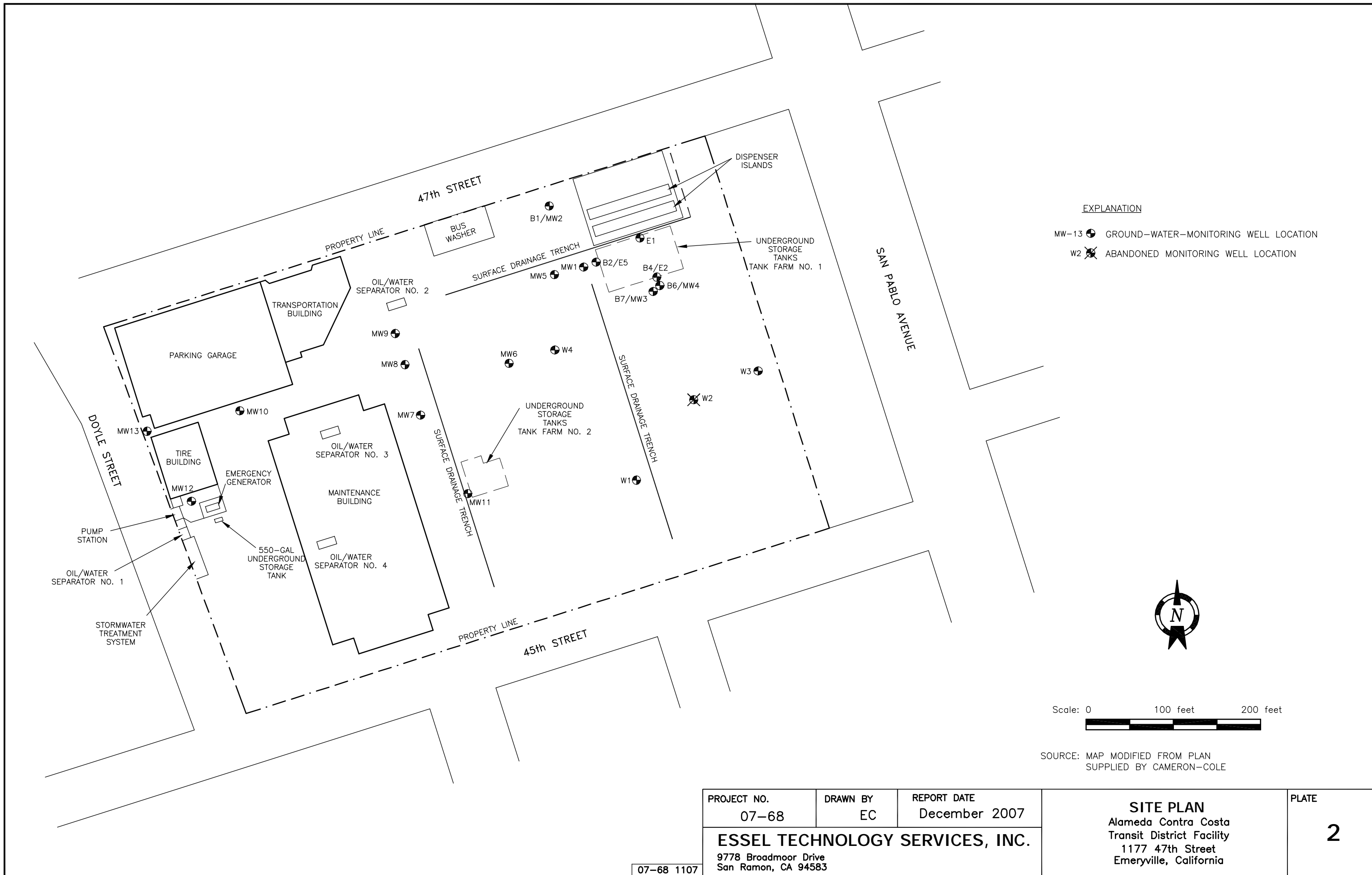
NM = not measured

< = less than the laboratory method detection limit



Source: USGS 7 1/2-Minute Quadrangle, Oakland West, California, Photorevised 1980.

PROJECT NO. 07-68	DRAWN BY EC	REPORT DATE December 2007	<b>SITE VICINITY MAP</b> Alameda Contra Costa Transit District Facility 1177 47th Street Emeryville, California	PLATE  <div style="text-align: center; font-size: 2em;">1</div>
<b>ESSEL TECHNOLOGY SERVICES, INC.</b> 9778 Broadmoor Drive San Ramon, CA 94583				



**EXPLANATION**

- MW-13 GROUND-WATER-MONITORING WELL LOCATION
- W2 ABANDONED MONITORING WELL LOCATION



Scale: 0 100 feet 200 feet



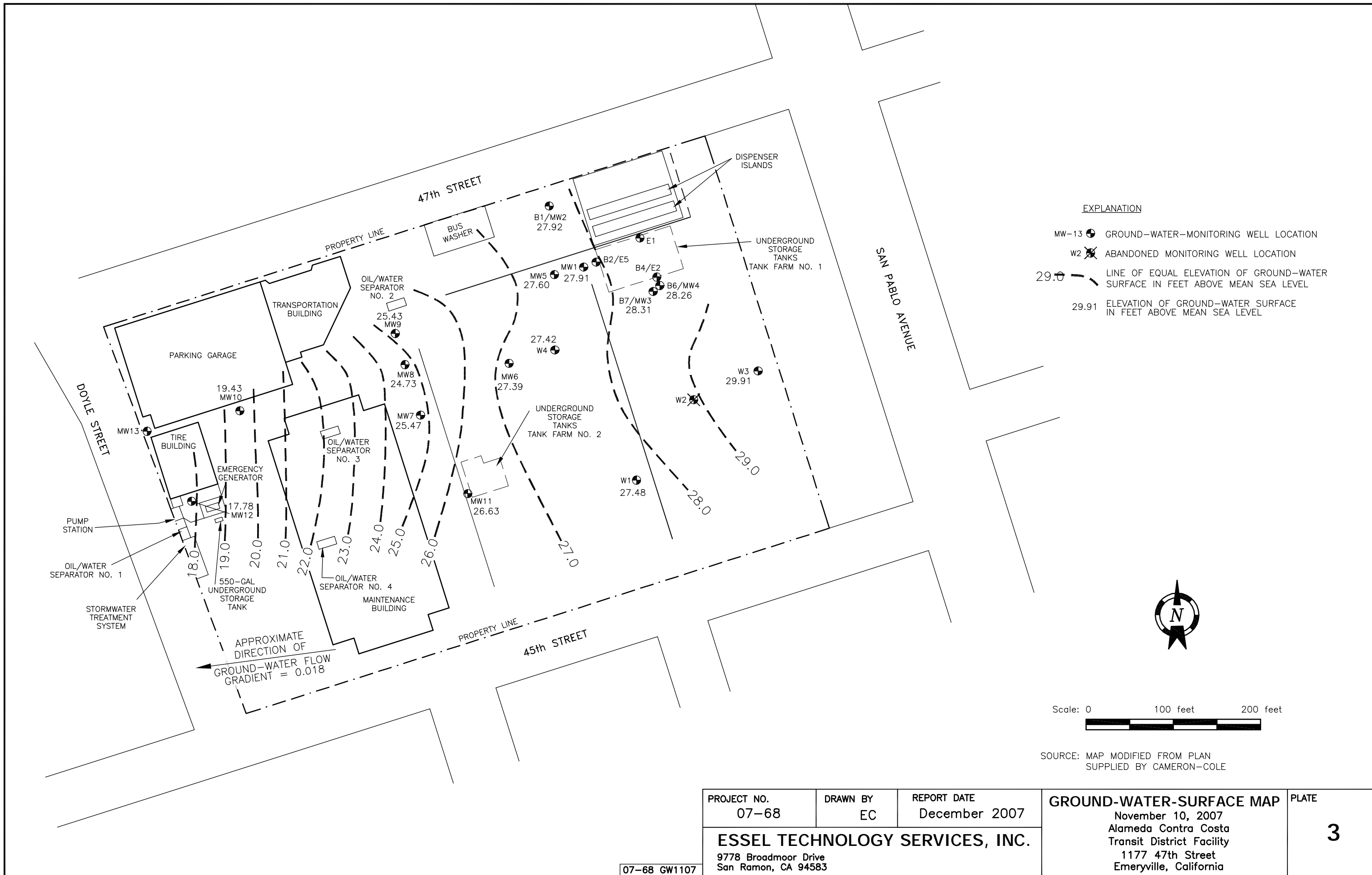
SOURCE: MAP MODIFIED FROM PLAN  
SUPPLIED BY CAMERON-COLE

PROJECT NO. 07-68	DRAWN BY EC	REPORT DATE December 2007
<b>ESSEL TECHNOLOGY SERVICES, INC.</b>		
9778 Broadmoor Drive San Ramon, CA 94583		

**SITE PLAN**  
Alameda Contra Costa  
Transit District Facility  
1177 47th Street  
Emeryville, California

PLATE

**2**



- EXPLANATION**
- MW-13 GROUND-WATER-MONITORING WELL LOCATION
  - W2 ABANDONED MONITORING WELL LOCATION
  - 29.0 LINE OF EQUAL ELEVATION OF GROUND-WATER SURFACE IN FEET ABOVE MEAN SEA LEVEL
  - 29.91 ELEVATION OF GROUND-WATER SURFACE IN FEET ABOVE MEAN SEA LEVEL



Scale: 0 100 feet 200 feet

SOURCE: MAP MODIFIED FROM PLAN SUPPLIED BY CAMERON-COLE

PROJECT NO. 07-68	DRAWN BY EC	REPORT DATE December 2007	<b>GROUND-WATER-SURFACE MAP</b> November 10, 2007 Alameda Contra Costa Transit District Facility 1177 47th Street Emeryville, California	PLATE <b>3</b>
<b>ESSEL TECHNOLOGY SERVICES, INC.</b> 9778 Broadmoor Drive San Ramon, CA 94583				

07-68 GW1107

**APPENDIX A**  
**FIELD PURGING AND SAMPLING FORMS**



# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 1

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>14.6'</u>	<input type="checkbox"/> Bail Bailer Type: <u>DISPOSABLE</u>
Depth to water (DTW) in Feet <u>4.65'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(14.6) - (4.65) \times 3 \times .17 = 5.07$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	<u>20.54</u>	<u>.618</u>	<u>5.66</u>	<u>5.37</u>	<u>320.1</u>	<u>1</u>	<u>2.21</u>	
	<u>22.56</u>	<u>.663</u>	<u>1.84</u>	<u>6.29</u>	<u>262.3</u>	<u>2</u>		
	<u>22.72</u>	<u>.684</u>	<u>.72</u>	<u>6.70</u>	<u>222.4</u>	<u>3</u>		
	<u>22.75</u>	<u>.686</u>	<u>.54</u>	<u>6.74</u>	<u>205.0</u>	<u>4</u>		
	<u>22.77</u>	<u>.620</u>	<u>.46</u>	<u>6.76</u>	<u>183.5</u>	<u>5</u>		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Good / Turbid, clean, gasoline

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 2

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>14.65'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>4.2'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(14.65) - (4.2) \times 3 \times .17 = 5.3$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F=.17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	22.33	.520	1.77	5.94	281.5	1		
	22.90	.516	1.62	6.51	240.5	2	.13	
	23.03	.583	.72	6.06	211.4	3		
	23.08	.599	.46	6.67	202.1	4		
	23.13	.608	.32	6.67	182.7	5		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Turbid - Dirty Water / odor of Fuel ; very dark water

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW-3

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>14.6</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposasie</u>
Depth to water (DTW) in Feet <u>5.75</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(14.6) - (5.75) \times 3 \times .17 = 4.5$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	23.17	1699	4.60	6.23	211.3	1	3.3	
	23.43	1600	3.57	6.28	211.4	2		
	23.77	1703	2.49	6.46	186.8	3		
	23.83	1700	2.07	6.48	171.3	4		
	23.81	1705	1.29	6.49	162.9	5		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

low fuel odor High Turbidity

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: **Emeryville** Well Number: MW 4

Job Number: **07-68-01** Date: **11/10/07**

Sampled By: **Lahiri, S.**

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>11.7'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposale</u>
Depth to water (DTW) in Feet <u>5.85'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(11.7) - (5.85) \times 3 \times .17 = 2.98$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	<u>22.47</u>	<u>.729</u>	<u>3.77</u>	<u>5.91</u>	<u>247</u>	<u>1</u>	<u>0.0</u>	
	<u>23.12</u>	<u>.756</u>	<u>2.66</u>	<u>6.17</u>	<u>226</u>	<u>2</u>		
	<u>23.32</u>	<u>.768</u>	<u>1.93</u>	<u>6.37</u>	<u>209.0</u>	<u>3</u>		

Total gallons pumped:  
 Observations during purging (well condition, turbidity, color, odor etc.)  
Slight turbidity,

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date: \_\_\_\_\_ Time: \_\_\_\_\_

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW5

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>19.6'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>4.1'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(19.6) - (4.1) \times 3 \times .17 = 7.9$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot V= well volume F= gallon of water per foot of casing	

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	22.43	.355	6.03	6.59	300.1	1		
	22.63	.633	3.50	6.32	255.4	2		
	22.54	.686	1.96	6.68	219.0	3		
	22.54	.693	1.12	6.77	189.3	4	0.30	
	22.55	.694	.94	6.77	177.6	5		
	22.55	.695	.58	6.76	144.3	6		
	22.57	.696	.54	6.76	134.7	7		
	22.59	.698	.50	6.76	125.7	8		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Clear water, no odor observed

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW6

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>19.7</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>3.65'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(19.7) - (3.65) \times 3 \times 17 = 8.19$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other

### Explanation

For 2" diameter well: V=3, F= .17gallon/foot

V= well volume

F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	23.14	.916	5.13	6.10	-35.1	1	3.22	
	23.23	.930	1.27	6.60	-103.4	2		
	23.24	.932	1.07	6.63	-111.12	3		
	23.27	.937	.82	6.66	-120.8	4		
	23.30	.941	.67	6.67	-126.8	5		
	23.31	.943	.57	6.67	-130.7	6		
	23.32	.943	.55	6.67	-131.4	7		
	23.33	.945	.51	6.67	-133.2	8		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Turbidity low; Odor Present

Gas

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 7

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>24.6'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>5.15'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(24.6) - (5.15) \times 3 \times .17 = 9.92$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	21.83	.872	4.26	6.40	219.3	1	.04	
	21.09	.980	1.72	6.37	90.2	2		
	21.60	.983	1.42	6.38	58.5	3		
	21.51	.988	1.12	6.36	21.7	4		
	21.58	.996	.75	6.33	7.4	5		
	21.64	1.004	3.72	6.38	123.2	6		
	21.73	1.003	4.92	6.47	135.3	7		
	21.72	1.006	4.27	6.44	145.7	8		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Turbidity observed; slight fuel odor.

None

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 8

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>20.65'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>4.7'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(20.65) - (4.7) \times 3 \times .17 = 8.13$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F=.17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	21.75	1.013	4.05	6.45	214.5	1	.03	
	21.94	1.024	3.59	6.59	199.5	2		
	21.88	1.020	3.19	6.61	183.5	3		
	22.24	1.009	2.15	6.57	149.8	4		
	22.33	1.011	1.72	6.57	112.7	5		
	22.35	1.012	1.58	6.59	102.5	6		
	22.24	1.011	1.47	6.57	97.0	7		
	22.31	1.010	1.43	6.55	95.4	8		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Low turbidity; No odor observed

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:



# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 9

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>3.75'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>20.2'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(20.2) - (3.75) \times 3 \times .17 = 8.39$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F=.17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	21.11	.733	5.36	6.15	126.4	1	.43	
	21.34	.692	1.52	6.58	-14.2	2		
	21.48	.700	1.76	6.53	-24.7	3		
	21.81	.986	1.56	6.53	-24.4	4		
	22.10	1.023	1.02	6.53	-23.8	5		
	22.11	1.024	.87	6.54	-24.8	6		
	22.10	1.020	.79	6.54	-25.7	7		
	22.09	1.014	.73	6.53	-25.2	8		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Dirty & Turbid - Very High; Black ca Water; Water turbidity ↓ color decreases

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 10

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>24.2'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>9.7'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(24.2) - (9.7) \times 3 \times .17 = 7.395$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	<u>20.00</u>	<u>1792</u>	<u>3.76</u>	<u>6.59</u>	<u>-8.6</u>	<u>1</u>		
	<u>19.99</u>	<u>1811</u>	<u>2.87</u>	<u>6.68</u>	<u>-35.6</u>	<u>2</u>		
	<u>19.88</u>	<u>1804</u>	<u>1.68</u>	<u>6.75</u>	<u>-62.5</u>	<u>3</u>	<u>2.51</u>	
	<u>19.86</u>	<u>1797</u>	<u>1.11</u>	<u>6.76</u>	<u>-74.3</u>	<u>4</u>		
	<u>19.87</u>	<u>1794</u>	<u>.85</u>	<u>6.76</u>	<u>-81.5</u>	<u>5</u>		
	<u>19.89</u>	<u>1792</u>	<u>.78</u>	<u>6.75</u>	<u>-85.9</u>	<u>6</u>		
	<u>19.90</u>	<u>1790</u>	<u>.76</u>	<u>6.74</u>	<u>-89.1</u>	<u>7</u>		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Strong  
Clear water - low turbidity; Fuel odor

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 11

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>17.2'</u>	<input type="checkbox"/> Bail Bailer Type: <u>disposable</u>
Depth to water (DTW) in Feet <u>3.3'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(17.2) - (3.3) \times 3 \times .17 = 7.10$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	22.5	.507	4.25	6.25	206.5	1	0.00	
	22.53	.507	1.84	7.02	183.9	2		
	22.58	.508	1.04	7.09	154.2	3		
	22.62	.507	.68	7.11	112.6	4		
	22.64	.506	.55	7.11	79.2	5		
	22.65	.507	.56	7.11	65.8	6		
	22.65	.507	.47	7.11	34.6	7		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

High turbidity? No odor @userwd?

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: MW 12

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>30.0</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>10.9</u>	<input type="checkbox"/> Pump
Purge Volume Calculation ( <u>30</u> ) - ( <u>10.7</u> ) x <u>3</u> x <u>.17</u> = _____ gallons	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
(TD) - (DTW) x V x F = Purge Volume	
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

2  
17  
3  
51  
30  
10.9  
19.1  
x .17  
1.91  
95.5  
47.41

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
0902	19.87	.860	6.37	6.12	106.3	1		
0903	20.14	.860	4.21	6.50	65.0	2	1.24	
0905	20.13	.867	2.70	6.56	44.6	3		
0906	20.09	.818	2.02	6.59	33.3	4		
0907	20.04	.875	1.71	6.58	17.0	5		
0908	19.99	.868	1.36	6.56	3.3	6		
	19.97	.863	1.28	6.56	1.4	7		
	19.96	.862	1.26	6.55	.4	8		
	19.92	.850	1.22	6.53	0.8	9		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Turbid water / No smell

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville Well Number: W1

Job Number: 07-68-01 Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input checked="" type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>16.2'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>5.95'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(16.2) - (5.95) \times 3 \times .17 = 5.53$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	<u>22.77</u>	<u>.894</u>	<u>1.53</u>	<u>6.49</u>	<u>-30.8</u>	<u>1</u>		
	<u>22.75</u>	<u>.895</u>	<u>1.29</u>	<u>6.56</u>	<u>-55.5</u>	<u>2</u>	<u>1.57</u>	
	<u>22.00</u>	<u>.896</u>	<u>.94</u>	<u>6.61</u>	<u>-86.7</u>	<u>3</u>		
	<u>22.90</u>	<u>.898</u>	<u>.78</u>	<u>6.63</u>	<u>-107.6</u>	<u>4</u>		
	<u>22.96</u>	<u>.892</u>	<u>.73</u>	<u>6.65</u>	<u>-103.2</u>	<u>5</u>		

Total gallons pumped: \_\_\_\_\_  
 Observations during purging (well condition, turbidity, color, odor etc.)  
 \_\_\_\_\_  
 \_\_\_\_\_

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date: \_\_\_\_\_ Time: \_\_\_\_\_

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: W3

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>28.8'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>7.55'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(28.8) - (7.55) \times 3 \times .17 = 10.83$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F=.17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	<del>22.78</del>	.291	3.07	6.05	103.0	1	0.00	
	23.14	.326	1.40	6.44	109.0	2		
	22.94	.419	.80	6.51	68.0	3		
	22.72	.460	.65	6.51	55.0	4		
	22.25	.505	.50	6.51	41.6	5		
	22.02	.537	.41	6.52	52.7	6		
	21.97	.541	.46	6.50	56.0	8		
	21.77	.582	.94	6.31	95.5	7		
	21.85	.557	.88	6.30	92.9	0		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

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Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# ESSEL TECHNOLOGY SERVICES, INC.

Job Name: Emeryville

Well Number: W 4

Job Number: 07-68-01

Date: 11/10/07

Sampled By: Lahiri, S.

Purge Volume	Development/Purge Method(s)
Casing Diameter: 2 inch <input type="checkbox"/> 4 inch <input type="checkbox"/> Other <input type="checkbox"/>	<input type="checkbox"/> Swab <input type="checkbox"/> Surge <input type="checkbox"/> Other _____
Total Depth (TD) of casing in Feet <u>17'</u>	<input type="checkbox"/> Bail Bailer Type: <u>Disposable</u>
Depth to water (DTW) in Feet <u>4.3'</u>	<input type="checkbox"/> Pump
Purge Volume Calculation $(17) - (4.3) \times 3 \times 17 = 6.48$ gallons $(TD) - (DTW) \times V \times F = \text{Purge Volume}$	Pump type: <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Centrifuge <input type="checkbox"/> Bladder <input type="checkbox"/> Other
<b>Explanation</b>	
For 2" diameter well: V=3, F= .17gallon/foot	V= well volume F= gallon of water per foot of casing

Field Parameters								
Time AM PM	Temperature °C	Conductivity µS/cm	DO (mg/L)	pH	ORP	Gallons Pumped	Fe mg/L	Water Level (TD-DTW)
	22.81	.929	1.81	6.63	64.4	1	1.02	
	22.84	.929	1.44	6.64	56.6	2		
	22.84	.928	1.22	6.64	38.0	3		
	22.86	.926	1.07	6.64	31.0	4		
	22.86	.925	.99	6.63	24.2	5		
	22.90	.920	.73	6.64	3.8	6		

Total gallons pumped:

Observations during purging (well condition, turbidity, color, odor etc.)

Turbid water, faint fuel odor

Discharge water disposal:  Sanitary sewer  Storm drain  Drum  Other \_\_\_\_\_

Well Sampling Date:

Time:

# **APPENDIX B**

## **CHAIN-OF-CUSTODY RECORDS AND LABORATORY REPORT**





**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Essel Technology Service 9778 Broadmoore Drive San Ramon, CA 94583	Client Project ID: #07-68-01; GR Water Sampling	Date Sampled: 11/10/07
		Date Received: 11/12/07
	Client Contact: Samhita Lahiri	Date Reported: 11/16/07
	Client P.O.:	Date Completed: 11/16/07

**WorkOrder: 0711297**

November 16, 2007

Dear Samhita:

Enclosed are:

- 1). the results of **16** analyzed samples from your **#07-68-01; GR Water Sampling project**,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Best regards,

Angela Rydelius, Lab Manager

BTSR

0711297 Emeryville

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**McCAMPBELL ANALYTICAL, INC.**

1534 WILLOW PASS ROAD  
PITTSBURG, CA 94565-1701

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME

RUSH  24 HR  48 HR  72 HR  5 DAY

GeoTracker EDF  PDF  Excel  Write On (DW)

Check if sample is effluent and "J" flag is required

Report To: *Samuelo Lahn* Bill To: *Same*  
Company: *ESSELTEK SERVICES INC.*  
*9778 Broadway Dr, San Ramon, CA 94583*  
E-Mail: *ESSELTEK SERVICES@*  
Tele: *(907) 266-0270* Fax: *(925) 833-7977 AOL 6m*  
Project #: *07-68-01* Project Name: *Gr. water sampling*  
Project Location: *Emeryville*  
Sampler Signature: *S. Lahn*

Analysis Request

Other

Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED							
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other				
MW-1-01	MW-1	11/10	9:00	1	Amb	X						X						
↓ 02	↓	↓	↓	3	YoH							X						
↓ 03	↓	↓	↓	↓	↓							X						
↓ 04	↓	↓	↓	↓	↓							X						
MW-2-01	MW-2		9:30	1	Amb								X					
↓ 02	↓		↓	3	YoA							X						
↓ 03	↓		↓	↓	↓							X						
↓ 04	↓		↓	↓	↓							X						
MW-3-01	MW-3		10:15	1	Amb								X					
↓ 02	↓		↓	3	↓							X						
↓ 03	↓		↓	↓	↓							X						
↓ 04	↓		↓	↓	↓							X						

BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	
TPH as Diesel (8015)	X
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	
Total Petroleum Hydrocarbons (418.1)	
EPA 502.2 / 601 / 8010 / 8021 (BIVOCs)	
MTBE / BTEX ONLY (EPA 602 / 8021)	
EPA 505 / 608 / 8081 (CI Pesticides)	
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	
EPA 507 / 8141 (NP Pesticides)	
EPA 515 / 8151 (Acidic CI Herbicides)	
EPA 524.2 / 624 / 8260 (VOCs)	
EPA 525.2 / 625 / 8270 (SVOCs)	
EPA 8270 SIM / 8310 (PAHs / PNAs)	
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	
Lead (200.7 / 200.8 / 6010 / 6020)	

Filter Samples for Metals analysis: Yes / No

7  
+  
+

Relinquished By: <i>S. Lahn</i>	Date: <i>11/12</i>	Time: <i>11:20</i>	Received By: <i>[Signature]</i>
Relinquished By: <i>[Signature]</i>	Date: <i>11/15/07</i>	Time: <i>17:00</i>	Received By: <i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:

ICE# *5.0* COMMENTS:  
GOOD CONDITION \_\_\_\_\_  
HEAD SPACE ABSENT \_\_\_\_\_  
DECHLORINATED IN LAB \_\_\_\_\_  
APPROPRIATE CONTAINERS \_\_\_\_\_  
PRESERVED IN LAB \_\_\_\_\_  
VOAS O&G METALS OTHER  
PRESERVATION pH-2



**McCAMPBELL ANALYTICAL, INC.**  
 1534 WILLOW PASS ROAD  
 PITTSBURG, CA 94565-1701  
 Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
 Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**  
**TURN AROUND TIME**       
 RUSH 24 HR 48 HR 72 HR 5 DAY  
 GeoTracker EDF  PDF  Excel  Write On (DW)   
 Check if sample is effluent and "J" flag is required

Report To: *Samhita Lakheri* Bill To: *Same*  
 Company: *ESSEL TECHNOLOGY SERVICES INC.*  
*9770 Broadway Dr, San Ramon CA*  
 E-Mail: *EsselTechServices@aol.com*  
 Tele: *(510) 206-0270* Fax: *(925) 833-7977*  
 Project #: \_\_\_\_\_ Project Name: \_\_\_\_\_  
 Project Location: *Emeryville*  
 Sampler Signature: *S. Lee*

Analysis Request											Other	Comments	
BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE													Filter Samples for Metals analysis: Yes / No
TPH as Diesel (8015)													
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)													
Total Petroleum Hydrocarbons (418.1)													
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)													
MTBE / BTEX ONLY (EPA 602 / 8021)													
EPA 505/608 / 8081 (CI Pesticides)													
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners													
EPA 507 / 8141 (NP Pesticides)													
EPA 515 / 8151 (Acidic CI Herbicides)													
EPA 524.2 / 624 / 8260 (VOCs)													
EPA 525.2 / 625 / 8270 (SVOCs)													
EPA 8270 SIM / 8310 (PAHs / PNAs)													
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)													
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)													
Lead (200.7 / 200.8 / 6010 / 6020)													

+  
+  
+

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other			
MW-4-01	MW-4	11/10	11:00	1	Amb	X						X					
↓ 02	↓	↓	↓	3	ROA							X					
↓ 03	↓	↓	↓	↓	↓							X					
↓ 04	↓	↓	↓	↓	↓							X					
MW-5-01	MW-5	11/10	11:30	1	Amb							X					
↓ 02	↓	↓	↓	3	ROA							X					
↓ 03	↓	↓	↓	↓	↓							X					
↓ 04	↓	↓	↓	↓	↓							X					
MW-6-01	MW-6	11/10	12:15	1	Amb							X					
↓ 02	↓	↓	↓	3	ROA							X					
↓ 03	↓	↓	↓	↓	↓							X					
↓ 04	↓	↓	↓	↓	↓							X					

Relinquished By: *S. Lee* Date: *11/12* Time: *11:20* Received By: *Denise*  
 Relinquished By: *Denise* Date: *11/15* Time: *17:00* Received By: *Chau*  
 Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

ICE/° \_\_\_\_\_ COMMENTS:  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PRESERVED IN LAB \_\_\_\_\_  
 VOAS O&G METALS OTHER  
 PRESERVATION pH<2



**McCAMPBELL ANALYTICAL, INC.**  
 1534 WILLOW PASS ROAD  
 PITTSBURG, CA 94565-1701  
 Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
 Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**  
**TURN AROUND TIME**  RUSH  24 HR  48 HR  72 HR  5 DAY  
 GeoTracker EDF  PDF  Excel  Write On (DW)   
 Check if sample is effluent and "J" flag is required

Report To: *Sambate Ja hills* Bill To: *Same*  
 Company: *ESSEL TECHNOLOGY SERVICES INC*  
*9778 Broadmeadow, San Ramon, CA*  
 E-Mail:  
 Tele: *(510) 206 0270* Fax: *(915) 833-7977*  
 Project #: *07-68 01* Project Name: *Gr. water monitoring*  
 Project Location: *Emeryville*  
 Sampler Signature: *S. Cole*

Analysis Request												Other	Comments		
BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE															Filter Samples for Metals analysis: Yes / No
TPH as Diesel (8015)															
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)															
Total Petroleum Hydrocarbons (418.1)															
EPA 502.2 / 601 / 8010 / 8021 (HVOCS)															
MTBE / BTEX ONLY (EPA 602 / 8021)															
EPA 505/608 / 8081 (C1 Pesticides)															
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners															
EPA 807 / 8141 (NP Pesticides)															
EPA 515 / 8151 (Acidic CI Herbicides)															
EPA 524.2 / 624 / 8260 (VOCs)															
EPA 525.2 / 625 / 8270 (SVOCs)															
EPA 8270 SIM / 8310 (PAHs / PNAAs)															
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)															
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)															
Lead (200.7 / 200.8 / 6010 / 6020)															

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other			
MW-7-01	MW-7	11/10	13:00	1	Amb	X											
02	↓	↓	↓	3	VOA												
03	↓	↓	↓	↓	↓												
04	↓	↓	↓	↓	↓												
MW-8-01	MW-8	11/10	13:45	1	Amb	X											
02	↓	↓	↓	3	VOA												
03	↓	↓	↓	↓	↓												
04	↓	↓	↓	↓	↓												
MW-9-01	MW-9	11-10	14:30	1	Amb	X											
02	↓	↓	↓	3	VOA												
03	↓	↓	↓	↓	↓												
04	↓	↓	↓	↓	↓												

Relinquished By: *Sambate Ja* Date: *11-12-07* Time: *11:20* Received By: *Denise Land*  
 Relinquished By: *[Signature]* Date: *11/16/07* Time: *12:52* Received By: *[Signature]*  
 Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

COMMENTS:  
 ICE/4° \_\_\_\_\_  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PRESERVED IN LAB \_\_\_\_\_  
 VOAS O&G METALS OTHER  
 PRESERVATION pH<2

X  
X  
X



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 Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**  
**TURN AROUND TIME**       
 RUSH 24 HR 48 HR 72 HR 5 DAY  
 GeoTracker EDF  PDF  Excel  Write On (DW)   
 Check if sample is effluent and "J" flag is required

Report To: *Samhita Lakitu* Bill To: *Same*  
 Company: *ESSEL TECHNOLOGY SERVICES INC*  
*9778 Broadmoor Dr*  
*San Ramon, CA 94583* E-Mail:  
 Tele: *(510) 206-0270* Fax: *(925) 833-7977*  
 Project #: *0768-01* Project Name: *Go-wat monitor*  
 Project Location: *Emeryville*  
 Sampler Signature:

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					ANALYSIS REQUEST													Other	Comments														
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other	BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 8520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	MTBE / BTEX ONLY (EPA 602 / 8021)	EPA 505 / 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)			EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)							
MW-10-01	MW-10	11.10	15.00	1	Amb	X						X																											
↓ -02	↓	↓	↓	3	roB																																		
↓ -03	↓	↓	↓	↓	↓																																		
↓ -04	↓	↓	↓	↓	↓																																		
MW-11-01	MW-11		15.30	1	Amb																																		
↓ 02	↓	↓	↓	3	roB																																		
↓ 03	↓	↓	↓	↓	↓																																		
↓ 04	↓	↓	↓	↓	↓																																		
MW-12-01	MW-12		16.10	1	Amb																																		
↓ -02	↓	↓	↓	3	roA																																		
↓ -03	↓	↓	↓	↓	↓																																		
↓ -04	↓	↓	↓	↓	↓																																		

Relinquished By: *S. Lee* Date: *11.13/07* Time: *11:20* Received By: *Denise*  
 Relinquished By: *Shirley* Date: *11/26/07* Time: *12:00* Received By: *Craver*  
 Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

ICE/P \_\_\_\_\_ COMMENTS:  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PRESERVED IN LAB \_\_\_\_\_  
 PRESERVATION VOAS O&G METALS OTHER  
 pH < 2

+  
+  
+



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 Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**  
**TURN AROUND TIME**       
 RUSH 24 HR 48 HR 72 HR 5 DAY  
 GeoTracker EDF  PDF  Excel  Write On (DW)   
 Check if sample is effluent and "J" flag is required

Report To: Sambhita Dahiya Bill To: same  
 Company: ESSELTEK SERVICES Inc.  
9778 Broadway Drive  
San Ramon, CA 94583 E-Mail: ESSELTEKSERVICES@  
 Tele: (510) 206-0270 Fax: (925) 933-7977 40L.6M  
 Project #: 0769-01 Emeryville Project Name: Gr. water monitor  
 Project Location: Emeryville ACT Bus garage  
 Sampler Signature: Sambhita Dahiya

Analysis Request												Other	Comments		
BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE															Filter Samples for Metals analysis: Yes / No
TPH as Diesel (8015)															
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)															
Total Petroleum Hydrocarbons (418.1)															
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)															
MTBE / BTEX ONLY (EPA 602 / 8021)															
EPA 505 / 608 / 8081 (CI Pesticides)															
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners															
EPA 507 / 8141 (NP Pesticides)															
EPA 515 / 8151 (Acidic CI Herbicides)															
EPA 524.2 / 624 / 8260 (VOCs)															
EPA 525.2 / 625 / 8270 (SVOCs)															
EPA 8270 SIM / 8310 (PAHs / PNAAs)															
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)															
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)															
Lead (200.7 / 200.8 / 6010 / 6020)															

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other			
W-1-01	W-1	11/10	16:30	1	Amb	X								X			
↓ 02	↓			3	VOA									X			
↓ 03	↓			↓	↓									X			
↓ 04	↓			↓	↓									X			
W-3-01	W-3	11/10	17:00	1	Amb									X			
↓ -02	↓			3	VOA									X			
↓ 03	↓			↓	↓									X			
↓ -04	↓			↓	↓									X			
W-4-01	W-4	11/10	17:40	1	Amb									X			
↓ 02	↓			3	VOA									X			
↓ 03	↓			↓	↓									X			
↓ 04	↓			↓	↓									X			

Relinquished By: Sambhita Dahiya Date: 11-12-07 Time: 11:21  
 Relinquished By: Debrah Date: 11/2/07 Time: 17:00  
 Relinquished By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

ICE/rp \_\_\_\_\_  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PRESERVED IN LAB \_\_\_\_\_  
 COMMENTS:  
 VOAS O&G METALS OTHER  
 PRESERVATION pH<2

6/6



**McCAMPBELL ANALYTICAL, INC.**

1534 WILLOW PASS ROAD  
PITTSBURG, CA 94565-1701

Website: [www.mccampbell.com](http://www.mccampbell.com) Email: [main@mccampbell.com](mailto:main@mccampbell.com)  
Telephone: (877) 252-9262 Fax: (925) 252-9269

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME       
 RUSH  24 HR  48 HR  72 HR  5 DAY  
 GeoTracker EDF  PDF  Excel  Write On (DW)   
 Check if sample is effluent and "J" flag is required

Report To: *Sambito Arheh* Bill To: *Same*  
 Company: *Essel Technology Services Inc*  
*9998 Broadway Dr.*  
 E-Mail: *esseltekservis@att.net*  
 Tele: *(510) 206-0270* Fax: *(949) 833-7977*  
 Project #: *07-68-01* Project Name: *Asbestos monitoring*  
 Project Location: *Emeryville / Saminny*  
 Sampler Signature: *S. Arheh*

Analysis Request Other Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED									
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO <sub>3</sub>	Other						
		<i>11/10</i>	<i>5:00 PM</i>	<i>1</i>	<i>V/A</i>															

<input checked="" type="checkbox"/> BTEX & TPH as Gas (602 / 8021 + 8015) / MTBE TPH as Diesel (8015)	<input type="checkbox"/> Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	<input type="checkbox"/> Total Petroleum Hydrocarbons (418.1)	<input type="checkbox"/> EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	<input type="checkbox"/> MTBE / BTEX ONLY (EPA 602 / 8021)	<input type="checkbox"/> EPA 505/ 608 / 8081 (CI Pesticides)	<input type="checkbox"/> EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	<input type="checkbox"/> EPA 507 / 8141 (NP Pesticides)	<input type="checkbox"/> EPA 515 / 8151 (Acidic CI Herbicides)	<input type="checkbox"/> EPA 824.2 / 624 / 8260 (VOCs)	<input type="checkbox"/> EPA 825.2 / 625 / 8270 (SVOCs)	<input type="checkbox"/> EPA 8270 SIM / 8310 (PAHs / PNA's)	<input type="checkbox"/> CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	<input type="checkbox"/> LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	<input type="checkbox"/> Lead (200.7 / 200.8 / 6010 / 6020)						
--	---	---	--	--	--	--	---	--	--	---	---	--	--	---	--	--	--	--	--	--

Relinquished By: *S. Arheh* Date: *11/12* Time: *1:36* Received By: *Arheh*  
 Relinquished By: Date: Time: Received By:  
 Relinquished By: Date: Time: Received By:

ICE/r° \_\_\_\_\_  
 GOOD CONDITION \_\_\_\_\_  
 HEAD SPACE ABSENT \_\_\_\_\_  
 DECHLORINATED IN LAB \_\_\_\_\_  
 APPROPRIATE CONTAINERS \_\_\_\_\_  
 PRESERVED IN LAB \_\_\_\_\_  
 COMMENTS:  
 VOAS O&G METALS OTHER  
 PRESERVATION pH<2



# McC Campbell Analytical, Inc.

1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 0711297

ClientID: ETSR

EDF     Excel     Fax     Email     HardCopy     ThirdParty

Report to:	Samhita Lahiri	Email: esseltekservices@aol.com	Bill to:	Sher Guha	Requested TAT: 5 days
	Essel Technology Service	TEL: (925) 833-7991    FAX: (925) 833-7977		Essel Technology Service	Date Received: 11/12/2007
	9778 Broadmoore Drive	ProjectNo: #07-68-01; GR Water Sampling		9778 Broadmoore Drive	Date Printed: 11/12/2007
	San Ramon, CA 94583	PO:		San Ramon, CA 94523	

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0711297-001	MW-1-01	Water	11/10/07 9:00:00	<input type="checkbox"/>	A	A	B										
0711297-002	MW-2-01	Water	11/10/07 9:30:00	<input type="checkbox"/>	A		B										
0711297-003	MW-3-01	Water	11/10/07 10:15:00	<input type="checkbox"/>	A		B										
0711297-004	MW-4-01	Water	11/10/07 11:00:00	<input type="checkbox"/>	A		B										
0711297-005	MW-5-01	Water	11/10/07 11:30:00	<input type="checkbox"/>	A		B										
0711297-006	MW-6-01	Water	11/10/07 12:15:00	<input type="checkbox"/>	A		B										
0711297-007	MW-7-01	Water	11/10/07 1:00:00	<input type="checkbox"/>	A		B										
0711297-008	MW-8-01	Water	11/10/07 1:45:00	<input type="checkbox"/>	A		B										
0711297-009	MW-9-01	Water	11/10/07 2:30:00	<input type="checkbox"/>	A		B										
0711297-010	MW-10-01	Water	11/10/07 3:00:00	<input type="checkbox"/>	A		B										
0711297-011	MW-11-01	Water	11/10/07 3:30:00	<input type="checkbox"/>	A		B										
0711297-012	MW-12-01	Water	11/10/07 4:10:00	<input type="checkbox"/>	A		B										
0711297-013	W-1-01	Water	11/10/07 4:30:00	<input type="checkbox"/>	A		B										
0711297-014	W-3-01	Water	11/10/07 5:00:00	<input type="checkbox"/>	A		B										
0711297-015	W-4-01	Water	11/10/07 5:40:00	<input type="checkbox"/>	A		B										

**Test Legend:**

1	G-MBTEX_W	2	PREDF REPORT	3	TPH(D)_W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Ana Venegas

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.



# McC Campbell Analytical, Inc.



1534 Willow Pass Rd  
 Pittsburg, CA 94565-1701  
 (925) 252-9262

# CHAIN-OF-CUSTODY RECORD

**WorkOrder: 0711297**

**ClientID: ETSR**

EDF     Excel     Fax     Email     HardCopy     ThirdParty

<b>Report to:</b> Samhita Lahiri Essel Technology Service 9778 Broadmoore Drive San Ramon, CA 94583	<b>Email:</b> esseltekservices@aol.com <b>TEL:</b> (925) 833-7991 <b>FAX:</b> (925) 833-7977 <b>ProjectNo:</b> #07-68-01; GR Water Sampling <b>PO:</b>	<b>Bill to:</b> Sher Guha Essel Technology Service 9778 Broadmoore Drive San Ramon, CA 94523	<b>Requested TAT: 5 days</b>  <b>Date Received: 11/12/2007</b> <b>Date Printed: 11/12/2007</b>
---	---	--	---

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)													
					1	2	3	4	5	6	7	8	9	10	11	12		
0711297-016	TB	Water	11/10/07 5:00:00	<input type="checkbox"/>	A													

**Test Legend:**

1	G-MBTEX_W	2	PREDF REPORT	3	TPH(D)_W	4		5	
6		7		8		9		10	
11		12							

**Prepared by: Ana Venegas**

**Comments:**

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.



### Sample Receipt Checklist

Client Name: **Essel Technology Service**

Date and Time Received: **11/12/07 6:38:44 PM**

Project Name: **#07-68-01; GR Water Sampling**

Checklist completed and reviewed by: **Ana Venegas**

WorkOrder N°: **0711297** Matrix Water

Carrier: Derik Cartan (MAI Courier)

#### Chain of Custody (COC) Information

- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Sample IDs noted by Client on COC? Yes  No
- Date and Time of collection noted by Client on COC? Yes  No
- Sampler's name noted on COC? Yes  No

#### Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes  No  NA
- Shipping container/cooler in good condition? Yes  No
- Samples in proper containers/bottles? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No

#### Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes  No
- Container/Temp Blank temperature Cooler Temp: 3.6°C NA
- Water - VOA vials have zero headspace / no bubbles? Yes  No  No VOA vials submitted
- Sample labels checked for correct preservation? Yes  No
- TTLC Metal - pH acceptable upon receipt (pH<2)? Yes  No  NA

Client contacted:

Date contacted:

Contacted by:

Comments:



# McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Essel Technology Service 9778 Broadmoore Drive San Ramon, CA 94583	Client Project ID: #07-68-01; GR Water Sampling	Date Sampled: 11/10/07
		Date Received: 11/12/07
	Client Contact: Samhita Lahiri	Date Extracted: 11/13/07-11/15/07
	Client P.O.:	Date Analyzed 11/13/07-11/15/07

## Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE\*

Extraction method SW5030B

Analytical methods SW8021B/8015Cm

Work Order: 0711297

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1-01	W	ND	ND	ND	ND	ND	ND	1	90
002A	MW-2-01	W	ND	ND	ND	ND	ND	ND	1	93
003A	MW-3-01	W	ND	ND	ND	ND	ND	ND	1	91
004A	MW-4-01	W	ND	ND	ND	ND	ND	ND	1	91
005A	MW-5-01	W	170,b,m	ND<10	ND	ND	0.59	1.3	1	101
006A	MW-6-01	W	2100,g,m	ND<17	30	ND<1.7	3.9	4.0	3.3	95
007A	MW-7-01	W	220,m	ND	ND	ND	ND	1.0	1	113
008A	MW-8-01	W	240,g	ND	ND	ND	ND	ND	1	111
009A	MW-9-01	W	ND	ND	ND	ND	ND	ND	1	102
010A	MW-10-01	W	420,g,m	ND	ND	ND	ND	ND	1	104
011A	MW-11-01	W	ND	ND	ND	ND	ND	ND	1	104
012A	MW-12-01	W	360,m	ND<10	ND	ND	ND	ND	1	115
013A	W-1-01	W	6100,a,m,h	ND<25	32	ND<2.5	9.4	14	5	106
014A	W-3-01	W	ND	ND	ND	ND	ND	ND	1	101
015A	W-4-01	W	ND	ND	ND	ND	ND	ND	1	105
016A	TB	W	ND	ND	ND	ND	ND	ND	1	108

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	0.5	1	µg/L
	S	NA	NA	NA	NA	NA	NA	NA	1	mg/Kg

\* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

# cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request; p) see attached narrative.



# McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701  
Web: www.mcccampbell.com E-mail: main@mcccampbell.com  
Telephone: 877-252-9262 Fax: 925-252-9269

Essel Technology Service 9778 Broadmoore Drive San Ramon, CA 94583	Client Project ID: #07-68-01; GR Water Sampling	Date Sampled: 11/10/07
	Client Contact: Samhita Lahiri	Date Received: 11/12/07
	Client P.O.:	Date Analyzed: 11/13/07-11/16/07
		Date Extracted: 11/12/07

### Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel\*

Extraction method SW3510C

Analytical methods SW8015C

Work Order: 0711297

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0711297-001B	MW-1-01	W	59,b	1	94
0711297-002B	MW-2-01	W	62,b	1	77
0711297-003B	MW-3-01	W	730,g	1	103
0711297-004B	MW-4-01	W	ND	1	102
0711297-005B	MW-5-01	W	110,d,b	1	100
0711297-006B	MW-6-01	W	9300,n,a,g	5	93
0711297-007B	MW-7-01	W	150,d	1	107
0711297-008B	MW-8-01	W	160,n,b	1	107
0711297-009B	MW-9-01	W	930,g,b	1	106
0711297-010B	MW-10-01	W	1200,a,g	1	72
0711297-011B	MW-11-01	W	55,b	1	91
0711297-012B	MW-12-01	W	94,d	1	74
0711297-013B	W-1-01	W	1200,d,b,g,h	1	79
0711297-014B	W-3-01	W	ND	1	83
0711297-015B	W-4-01	W	83,b	1	100

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

\* water samples are reported in µg/L, wipe samples in µg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in µg/L.

# cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0711297

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31849			Spiked Sample ID: 0711288-004A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	112	109	1.96	114	108	5.70	70 - 130	30	70 - 130	30
MTBE	ND	10	88.5	96.2	8.38	94	86.5	8.35	70 - 130	30	70 - 130	30
Benzene	ND	10	91.8	99.1	7.58	96.2	95.6	0.623	70 - 130	30	70 - 130	30
Toluene	ND	10	104	112	7.91	108	107	0.587	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	101	109	7.15	104	105	0.734	70 - 130	30	70 - 130	30
Xylenes	ND	30	113	120	5.71	117	117	0	70 - 130	30	70 - 130	30
%SS:	97	10	85	89	5.16	88	88	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31849 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0711297-001A	11/10/07 9:00 AM	11/13/07	11/13/07 6:38 PM	0711297-002A	11/10/07 9:30 AM	11/13/07	11/13/07 7:12 PM
0711297-003A	11/10/07 10:15 AM	11/13/07	11/13/07 7:46 PM	0711297-004A	11/10/07 11:00 AM	11/13/07	11/13/07 8:20 PM
0711297-005A	11/10/07 11:30 AM	11/13/07	11/13/07 8:54 PM	0711297-006A	11/10/07 12:15 PM	11/15/07	11/15/07 1:03 AM
0711297-007A	11/10/07 1:00 PM	11/14/07	11/14/07 10:30 PM	0711297-008A	11/10/07 1:45 PM	11/13/07	11/13/07 7:05 PM
0711297-009A	11/10/07 2:30 PM	11/13/07	11/13/07 7:35 PM	0711297-010A	11/10/07 3:00 PM	11/14/07	11/14/07 11:32 PM
0711297-011A	11/10/07 3:30 PM	11/14/07	11/14/07 1:12 AM	0711297-012A	11/10/07 4:10 PM	11/15/07	11/15/07 12:33 AM
0711297-013A	11/10/07 4:30 PM	11/15/07	11/15/07 1:34 AM	0711297-014A	11/10/07 5:00 PM	11/14/07	11/14/07 3:14 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0711297

Analyte	EPA Method SW8021B/8015Cm		Extraction SW5030B			BatchID: 31854			Spiked Sample ID: 0711297-016A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) <sup>£</sup>	ND	60	79	80	1.27	78.4	89.1	12.8	70 - 130	30	70 - 130	30
MTBE	ND	10	105	104	1.49	100	96.9	3.36	70 - 130	30	70 - 130	30
Benzene	ND	10	102	101	0.605	103	96.5	6.92	70 - 130	30	70 - 130	30
Toluene	ND	10	100	101	0.311	103	96	6.63	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	102	102	0	105	97.5	7.37	70 - 130	30	70 - 130	30
Xylenes	ND	30	96.3	95.7	0.694	100	91.3	9.06	70 - 130	30	70 - 130	30
%SS:	108	10	103	105	1.48	106	107	1.42	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31854 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0711297-015A	11/10/07 5:40 PM	11/13/07	11/13/07 11:09 PM	0711297-016A	11/10/07 5:00 PM	11/13/07	11/13/07 11:40 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

# cluttered chromatogram; sample peak coelutes with surrogate peak.



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0711297

EPA Method SW8015C		Extraction SW3510C			BatchID: 31783			Spiked Sample ID: N/A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	124	128	2.67	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	87	106	19.9	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31783 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0711297-007B	11/10/07 1:00 PM	11/12/07	11/14/07 7:32 AM	0711297-008B	11/10/07 1:45 PM	11/12/07	11/14/07 11:33 PM
0711297-009B	11/10/07 2:30 PM	11/12/07	11/15/07 12:43 AM	0711297-010B	11/10/07 3:00 PM	11/12/07	11/13/07 8:47 PM
0711297-011B	11/10/07 3:30 PM	11/12/07	11/13/07 9:53 PM	0711297-012B	11/10/07 4:10 PM	11/12/07	11/13/07 11:00 PM
0711297-013B	11/10/07 4:30 PM	11/12/07	11/14/07 12:07 AM	0711297-014B	11/10/07 5:00 PM	11/12/07	11/14/07 1:14 AM
0711297-015B	11/10/07 5:40 PM	11/12/07	11/13/07 11:00 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 \* (MS-Sample) / (Amount Spiked); RPD = 100 \* (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.



### QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder 0711297

EPA Method SW8015C		Extraction SW3510C			BatchID: 31794			Spiked Sample ID: N/A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	98.6	113	13.9	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	83	100	18.0	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:  
NONE

#### BATCH 31794 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0711297-001B	11/10/07 9:00 AM	11/12/07	11/14/07 4:11 PM	0711297-002B	11/10/07 9:30 AM	11/12/07	11/14/07 7:54 AM
0711297-003B	11/10/07 10:15 AM	11/12/07	11/14/07 3:27 AM	0711297-004B	11/10/07 11:00 AM	11/12/07	11/14/07 4:34 AM
0711297-005B	11/10/07 11:30 AM	11/12/07	11/14/07 5:41 AM	0711297-006B	11/10/07 12:15 PM	11/12/07	11/16/07 12:16 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery =  $100 * (MS - Sample) / (Amount\ Spiked)$ ;  $RPD = 100 * (MS - MSD) / ((MS + MSD) / 2)$ .

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.