# GROUND-WATER MONITORING IN FEBRUARY 2007 ALAMEDA CONTRA COSTA TRANSIT DISTRICT FACILITY 1177 47TH 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**
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**(925) 833-7977**

**Project No. 07-36**

**March 2007**

**GROUND-WATER MONITORING**
**IN**
**FEBRUARY 2007**
**ALAMEDA CONTRA COSTA**
**TRANSIT DISTRICT FACILITY**
**1177 47TH 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 February 2007.

### 1.1 Site Location and Description

The Division 2 facility is located at 1177 47th Street in Emeryville, California and occupies nearly the entire city block that is bounded by 47th Street on the north, 45th 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 47th 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 February 24, 2007 to measure the water level in wells MW-10, MW-11, and MW-12, to measure the thickness of any free petroleum product in the three wells, and to purge the wells for ground-water sampling. The depths to free-phase 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 three 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-development and sampling forms, which are included in Appendix A.

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-10, MW-11, and MW-12 on February 24, 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 a Chain-of-Custody form for the ground-water samples collected and this form accompanied the samples to the laboratory. A copy of the Chain-of-Custody form is 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

No free-phase petroleum product was measured or noted in any of the three wells. The measured depth to the static ground-water surface in wells ranged from 2.15 to 10.3 feet below the tops of the three well casings on February 24, 2007. Essel Tech used wellhead elevation data and the depth-to-water measurements made on February 24, 2007 to calculate the elevation of the ground-water surface in the wells, which varied from 18.38 to 27.78 feet above mean sea level. Water-level measurements show the ground-water surface rose an average of 0.69-foot between the November 2006 and February 2007 monitoring events. The ground-water surface was approximately 0.28-foot higher in February 2007 than in February 2006. Based on the range of elevations calculated from water levels measured on February 24, 2007, ground water in the vicinity of the three wells is estimated to flow toward the west at a gradient of 0.03 (3 feet vertical distance per 100 feet horizontal distance). Table 1 presents data on product thickness, depth to ground water, and ground-water elevation for the 16 wells and the most recent data for wells MW-10, MW-11, and MW-12. Plate 3 is a contour map of the shallow ground-water surface interpreted from water-level data collected on February 24.

### 3.2 Laboratory Analyses

Results of laboratory analyses show gasoline-range hydrocarbons (i.e., TPHg) were detected in two of the three wells sampled. Approximately equal concentrations of 190 and 200 parts per billion (ppb) TPHg were detected in wells MW-10 and MW-12, respectively. These wells are located near the western edge of the property. No TPHg was detected in the water sample from well MW-11, which is located adjacent to the former locations of the USTs at Tank Farm No. 2. The aromatic hydrocarbons BTEX and the fuel oxygenate MTBE were not detected in any of the three wells sampled during the February 2007 monitoring event.

Diesel-range hydrocarbons (i.e., TPHd) were also detected in wells MW-10 and MW-12 at respective concentrations of 970 and 87 ppb. The laboratory report notes the diesel-range hydrocarbons in well MW-10 are unmodified to weakly modified and the diesel-range hydrocarbons in well MW-12 do not present a recognizable diesel chromatographic pattern. No TPHd was found in the water sample from well MW-11. A copy of the laboratory analytical report is included in Appendix B.

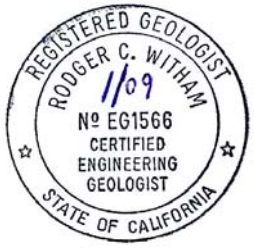
## 4.0 RECOMMENDATION

Essel Tech recommends that ground-water monitoring and sampling continue on a quarterly basis. The next sampling event should be scheduled for May 2007 and would include measuring depth to water and product thickness in the 16 ground-water-monitoring wells (MW-1 through MW-13, W-1, W-3, and W-4) 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

Appendix A: Well Development and Sampling Forms
Appendix B: Chain-of-Custody Form 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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** |
| 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** |

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-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** |
| 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 |
| 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 |
| 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 |
| 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 |

Recent monitoring results are in bold type.
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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |

See notes on page 3 of 3.

# 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-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 |
| 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 |
| MW-11 | 11/03/05 | <50 | 290 | NA | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <100 | 21,000 | 1,360 | 0 |
| | 02/22/06 | <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 |
| MW-12 | 11/03/05 | 440 | 120 | NA | <0.5 | <0.5 | <0.5 | <0.5 | 6.6 | <100 | 3,700 | 1,700 | 740 |
| | 02/22/06 | 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 |
| MW-13 | 11/03/05 | Not sampled - free-phase product in well | | | | | | | | | | | |
| | 02/22/06 | 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 | | | | | | | | | | | |

See notes on page 3 of 3.

# 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-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 |
| 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 |
| 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 |

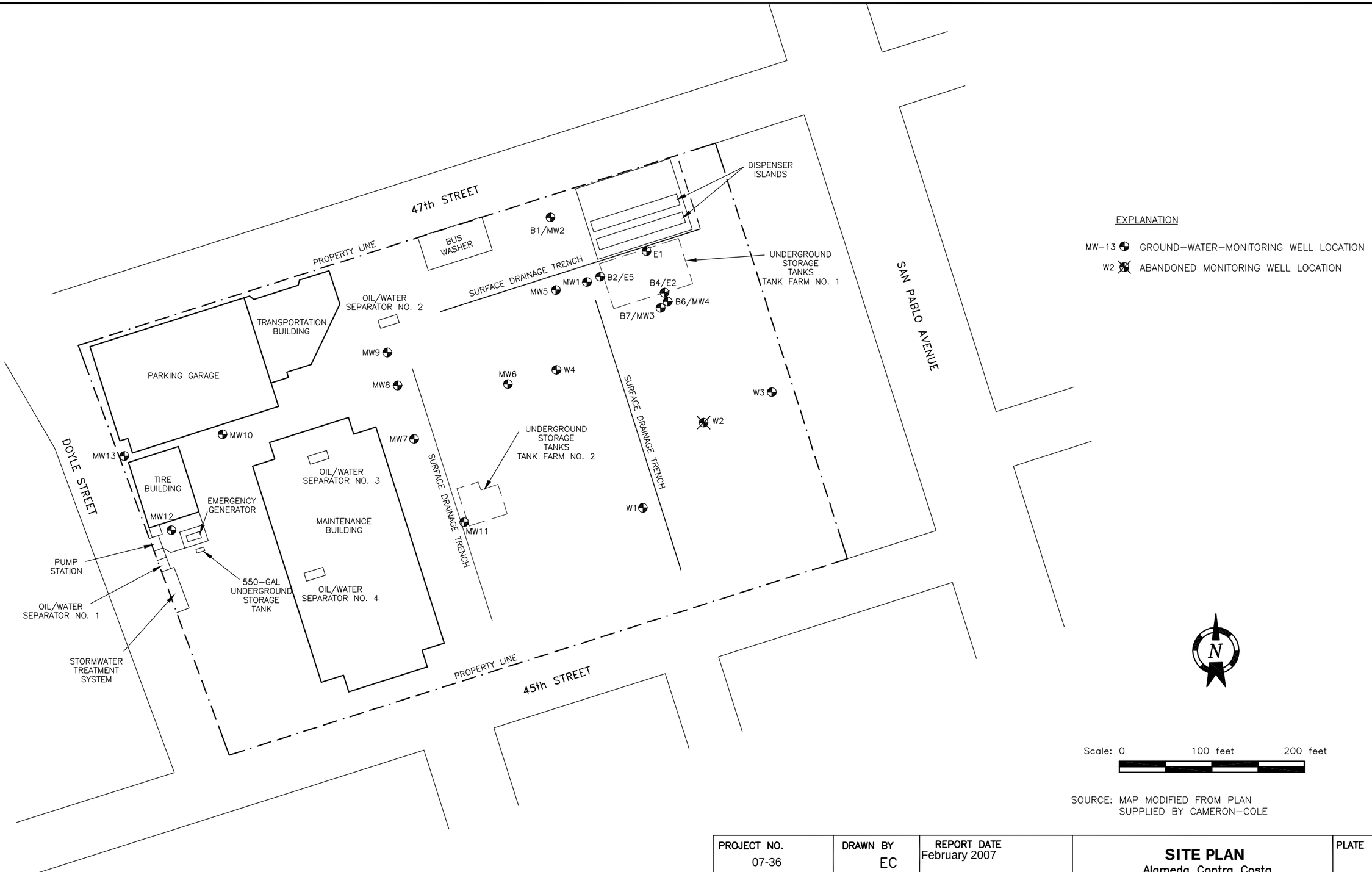
Results are in micrograms per liter = parts per billion; detectable results are shaded.
TPHg = total petroleum hydrocarbons as gasoline
TPHd = total petroleum hydrocarbons as diesel
TPH = total petroleum hydrocarbons as motor oil or unknown hydrocarbon
MTBE = methyl tertiary butyl ether
NA = not analyzed
NM = not measured
< = less than the laboratory method detection limit


Scale: 0 2000 feet 4000 feet

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

| PROJECT NO. | DRAWN BY | REPORT DATE | SITE VICINITY MAP | PLATE |
|---|---|---|---|---|
| 07-36 | EC | February 2007 | Alameda Contra Costa Transit District Facility<br>1177 47th Street<br>Emeryville, California | 1 |


ESSEL TECHNOLOGY SERVICES, INC.
9778 Broadmoor Drive
San Ramon, CA 94583



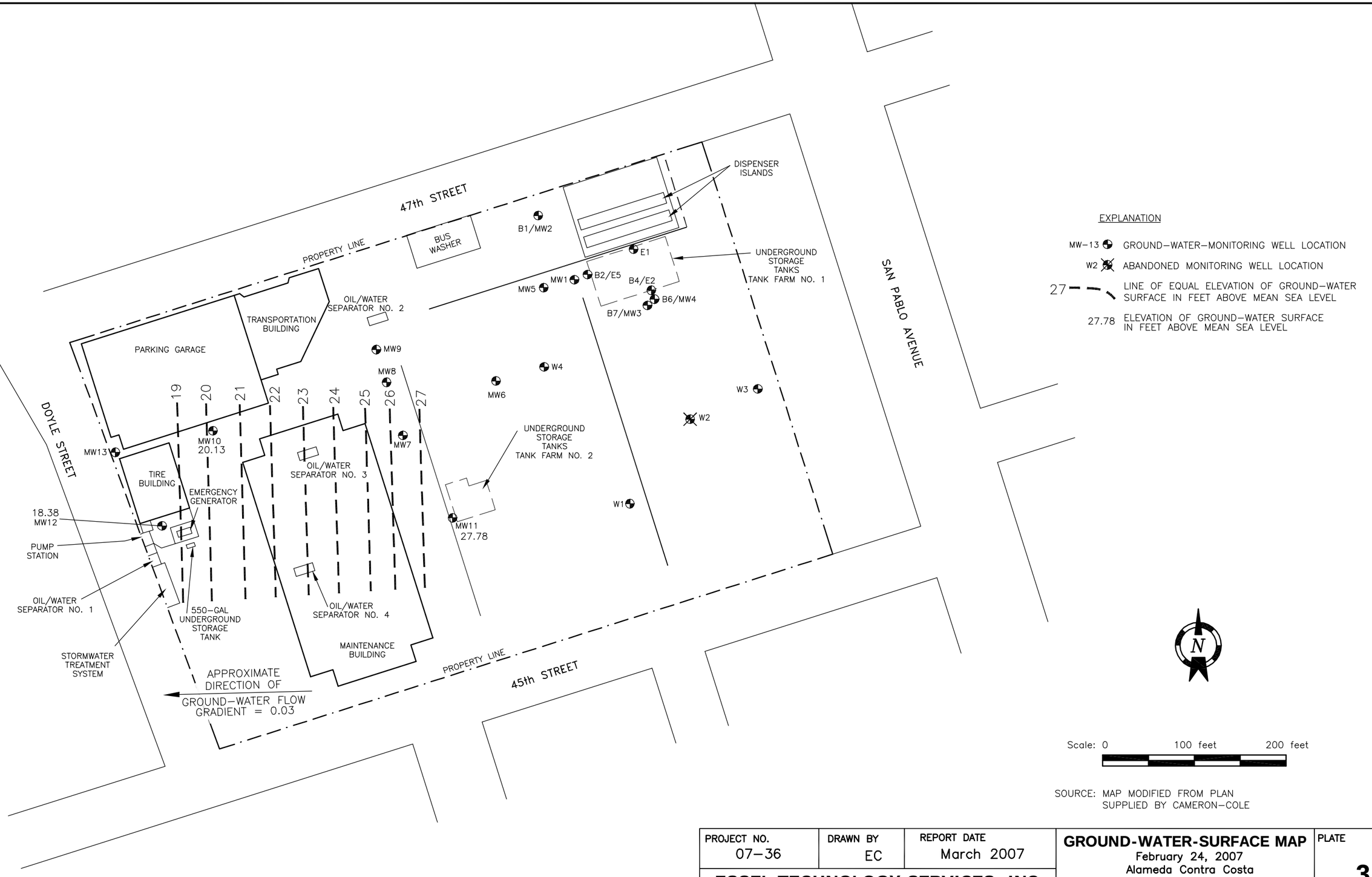

SOURCE: MAP MODIFIED FROM PLAN SUPPLIED BY CAMERON-COLE

| PROJECT NO. | DRAWN BY | REPORT DATE |
|---|---|---|
| 07-36 | EC | February 2007 |

**ESSEL TECHNOLOGY SERVICES, INC.**
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

27 LINE OF EQUAL ELEVATION OF GROUND-WATER SURFACE IN FEET ABOVE MEAN SEA LEVEL

27.78 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

05-69 gw 207

| PROJECT NO. | DRAWN BY | REPORT DATE |
|---|---|---|
| 07-36 | EC | March 2007 |

**ESSEL TECHNOLOGY SERVICES, INC.**
9778 Broadmoor Drive
San Ramon, CA 94583

**GROUND-WATER-SURFACE MAP**
February 24, 2007
Alameda Contra Costa
Transit District Facility
1177 47th Street
Emeryville, California

PLATE **3**

# APPENDIX A

## WELL DEVELOPMENT AND SAMPLING FORMS

# Well Development and Sampling Form

2

Job Name AC Transit Well Number MW10

Job Number 07-36 Date 2/24/07

Sample By S Lowe

| Purge Volume | Development/Purge Method(s) |
|---|---|
| Casing Diameter: 2-inch [✓] 4-inch [ ] Other | [ ] Swab [ ] Surge Other |
| Total depth (TD) of casing in feet + | [ ] Bail Bailer Type: Disposable |
| Depth to water (DTW) in feet 9 | [ ] Pump |
| Purge Volume Calculation (24.15 - 9) x 3 x .17 = 7.7265 gallons | Pump Type: [✓] Submersible [ ] Centrifuge |
| TD - DTW x V x F = Purge volume | [ ] Bladder [ ] Other |

**Explanation**

For 2" diameter well: V = 5, F = 0.17 gallon/foot — V= well volume

For 4" diameter well: V = 3, F= 0.66 gallon/foot — F= gallon of water per foot of casing

**Field Parameters**

| Time AM [ ] PM [ ] | Gallons pumped | Conductivity Microhos/cm | Dissolved Oxygen | Temperature [ ]°C [ ]°F | Turbidity | pH | ORP |
|---|---|---|---|---|---|---|---|
| Start | 7 | 650 | 3.25 | 17.64°C | cloudy | 6.91 | 6.7 |
| 10.00 | 2.00 | | | | | | |
| 10.10 | 4.00 | 647 | 2.91 mg/L | 18.29 | Cloudy | 6.9 | 4.0 |
| 10.15 | 6.00 | 647 | 3.46 mg/L | 18.36 | Cloudy | 6.89 | 3.5 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Fe Ferr 1.06 mg/L

Total Gallons Pumped 10 gals

Observations during purging (well condition, turbidity, color, odor): good, low, cloudy, diesel

Discharge water disposal: [ ] Sanitary Sewer [ ] Storm Drain [ ] Drum [ ] Other

Well Sampling Date: 3.09 Time:

9' ... D

# Well Development and Sampling Form

Job Name AC Transit Well Number MW 11

Job Number 07-36 Date 2/24/07

Sample By Samhita Lahiri

| Purge Volume | Development/Purge Method(s) |
|---|---|
| Casing Diameter: 2-inch [✓] 4-inch [ ] Other ____ | [ ] Swab [ ] Surge Other ____ |
| Total depth (TD) of casing in feet 17.4" + | [ ] Bail Bailer Type: ____ |
| Depth to water (DTW) in feet 2.15' | [ ] Pump |
| Purge Volume Calculation (17.4 - 2.15) x 3 x .17 = 7.77 gallons | Pump Type: [✓] Submersible [ ] Centrifuge |
| TD - DTW x V x F = Purge volume | [ ] Bladder [ ] Other |

**Explanation**

For 2" diameter well: V = 5, F = 0.17 gallon/foot

For 4" diameter well: V = 3, F= 0.66 gallon/foot

V= well volume

F= gallon of water per foot of casing

**Field Parameters**

| Time AM [ ] PM [ ] | Gallons pumped | Conductivity Microhos/cm | Dissolved Oxygen mg/L | Temperature [ ]°C [ ]°F | Turbidity | pH | ORP |
|---|---|---|---|---|---|---|---|
| Start | | | | | | | |
| 9:13 2 gals | 2 gals | 568 | 11.06 | 16.9 | Cloudy | 7.24 | 177 |
| | | | | | | | |
| 9:19 | 4 gals | 564 | 1.98 | 17.18 | Cloudy | 7.22 | 117.0 |
| 9:25 | 6 | 563 | 1.3 | 17.18 | Cloudy | 7.22 | 97.0 |
| 9:30 | 7 | 562 | .95 | 17.19 | Clear | 7.22 | 86.9 |
| | | | | | | | |
| | | | | | | | |

Fe = 0.0 mg/L

Total Gallons Pumped 8 gals.

Observations during purging (well condition, turbidity, color, odor): good, cloudy, low, No odor

Discharge water disposal: [ ] Sanitary Sewer [ ] Storm Drain [ ] Drum [ ] Other Steam Bay

Well Sampling Date: 2/24/07 Time: ____

# Well Development and Sampling Form

**Job Name** AC Transit **Well Number** MW-12

**Job Number** 07-36 **Date** 2/24/07

**Sample By** S. Lahm

| Purge Volume | Development/Purge Method(s) |
|---|---|
| Casing Diameter: 2-inch [ ] 4-inch [ ] Other | [ ] Swab [ ] Surge Other |
| Total depth (TD) of casing in feet +<br>Depth to water (DTW) in feet | [ ] Bail Bailer Type: Disposable<br>[ ] Pump<br>Pump Type: [ ] Submersible [ ] Centrifuge<br>[ ] Bladder [ ] Other |
| Purge Volume Calculation<br>(29.9 - 10.3) x 3 x 0.17 = 9.99 gallons<br>TD - DTW x V x F = Purge volume | |

**Explanation**

For 2" diameter well: V = 5, F = 0.17 gallon/foot — V= well volume

For 4" diameter well: V = 3, F = 0.66 gallon/foot — F= gallon of water per foot of casing

**Field Parameters**

| Time AM [ ] PM [ ] | Gallons pumped | Conductivity Microhos/cm | Dissolved Oxygen mg/L | Temperature [ ]°C [ ]°F | Turbidity | pH | ORP | Fe |
|---|---|---|---|---|---|---|---|---|
| Start | | | | | | | | |
| 12:00 | 2 gal | 2 gals | 810 | 3.40 | 18.76 | cloudy | 6.75 | 64.4 | 0.31 mg/L |
| | | | | | | | | |
| 12:10 | 4 gals | 814 | .66 | 19.31 | Cloudy | 6.67 | 45.1 | |
| 12:15 | 6 gals | 812 | .57 | 19.42 | cloudy | 6.66 | 31.1 | |
| 12:18 | 8 gal | 799 | .95 | 19.52 | Cloudy | 6.64 | 27.4 | |
| | | | | | | | | |
| | | | | | | | | |

**Total Gallons Pumped** 16 gals

**Observations during purging (well condition, turbidity, color, odor):** good, cloudy, low, low

**Discharge water disposal:** [ ] Sanitary Sewer [ ] Storm Drain [ ] Drum [ ] Other

**Well Sampling Date:** MW-12 2/24/07 **Time:**

# APPENDIX B

## CHAIN-OF-CUSTODY FORM
## AND
## LABORATORY REPORT

**McCampbell Analytical, Inc.**
"When Quality Counts"

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

| | | |
|---|---|---|
| Essel Technology Service<br>9778 Broadmoore Drive<br>San Ramon, CA 94583 | Client Project ID: #07-36 | Date Sampled: 02/24/07 |
| | | Date Received: 02/26/07 |
| | Client Contact: Samhita Lahiri | Date Reported: 03/05/07 |
| | Client P.O.: | Date Completed: 03/05/07 |

**WorkOrder: 0702609**

March 05, 2007

Dear Samhita:

Enclosed are:

1). the results of **4** analyzed samples from your **#07-36 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. McCampbell 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

U102609 EDF

# McCAMPBELL ANALYTICAL, INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 798-1620 Fax: (925) 798-1622

# CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 D

GeoTracker EDF ☑ PDF ☑ Excel ☐ Write On (DW) ☐

**Report To:** Samuta Lahiri **Bill To:** ESSEL TECHNOLOGY

**Company:** ESSEL TECHNOLOGY SERVICES INC

9778 Broadmoor Drive, San Ramon, CA 94583

**E-Mail:** ESSELTEKSERVICES@

**Tele:** (510) 206-0270 **Fax:** (925) 833-7977 AOL. COM

**Project #:** 07-36 **Project Name:** Gr. water sampling

**Project Location:** Emeryville, AC Transit

**Sampler Signature:**

| SAMPLE ID | LOCATION/ Field Point Name | SAMPLING Date | SAMPLING Time | # Containers | Type Containers | MATRIX Water | MATRIX Soil | MATRIX Air | MATRIX Sludge | MATRIX Other | METHOD PRESERVED ICE | METHOD PRESERVED HCL | METHOD PRESERVED $HNO_3$ | METHOD PRESERVED Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-10-01 | MW-10 | 2/24/07 | 1:00 pm | 1 | Amb | X | | | | | | | | |
| 02 | | | | 3 | VOA | | | | | | | | | |
| 03 | | | | | | | | | | | | | | |
| 04 | | | | | | | | | | | | | | |
| MW-11-05 | MW-11 | | 2 pm | 1 | Amb | X | | | | | | | | |
| MW-11-06 | | | | 3 | VOA | | | | | | | | | |
| MW 11-07 | | | | | | | | | | | | | | |
| MW11-08 | | | | | | | | | | | | | | |
| MW-12-09 | MW-12 | | 3 pm | 1 | Amb | X | | | | | | | | |
| MW-12-10 | | | | 3 | VOA | | | | | | | | | |
| MW-12-11 | | | | | | | | | | | | | | |
| MW-12-12 | | | | | | | | | | | | | | |
| W13- | Blank | | | 1 | VOA | X | | | | | | | | |

Analysis Request

| MTBE / BTEX & TPH as Gas (602 / 8021 + 8015) | MTBE / BTEX ONLY (EPA 602 / 8021) | TPH as Diesel / Motor Oil (8015) | Total Petroleum Oil & Grease (1664 / 5520 E/B&F) | Total Petroleum Hydrocarbons (418.1) | EPA 502.2 / 601 / 8010 / 8021 (HVOCs) | EPA 505/ 608 / 8081 (Cl Pesticides) | EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners | EPA 507 / 8141 (NP Pesticides) | EPA 515 / 8151 (Acidic Cl Herbicides) | EPA 524.2 / 624 (8260 VOCs) BTEX+MTBE only | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | | X | | | | | | | | X | | | | | |
| | | | | | | | | | | | | | | | |
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| X | | X | | | | | | | | | | | | | |
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| X | | X | | | | | | | | | | | | | |
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Other: Nitrate, Sulfate (as SO4) 300.0

Comm: Filter Samp for M analy Yes /

| Relinquished By: | Date: | Time: | Received By: |
|---|---|---|---|
| Samuta Lahiri | 2/26/07 | 11:35 | |
| Relinquished By: | Date: | Time: | Received By: |
| Relinquished By: | Date: | Time: | Received By: |

ICE/t° 5.6°
GOOD CONDITION_____
HEAD SPACE ABSENT_____
DECHLORINATED IN LAB_____
APPROPRIATE CONTAINERS_____
PRESERVED IN LAB_____

| | VOAS | O&G | METALS | OTHER |
|---|---|---|---|---|
| PRESERVATION | | | pH<2 | |

COMMENTS:

**McCampbell Analytical, Inc.**
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD



**WorkOrder: 0702609** **ClientID: ETSR**

☑ EDF ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty

**Report to:**
Samhita Lahiri
Essel Technology Service
9778 Broadmoore Drive
San Ramon, CA 94583
Email: esseltekservices@aol.com
TEL: (925) 833-7991 FAX: (925) 833-7977
ProjectNo: #07-36
PO:

**Bill to:**
Sher Guha
Essel Technology Service
9778 Broadmoore Drive
San Ramon, CA 94523

**Requested TAT:** 5 days

***Date Received:*** 02/26/2007
***Date Printed:*** 02/27/2007

| Sample ID | ClientSampID | Matrix | Collection Date | Hold | Requested Tests (See legend below) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 0702609-001 | MW-10 | Water | 2/24/07 1:00:00 AM | ☐ | A | A | | | | | | | | | | |
| 0702609-002 | MW-11 | Water | 2/24/07 2:00:00 AM | ☐ | A | | | | | | | | | | | |
| 0702609-003 | MW-12 | Water | 2/24/07 3:00:00 AM | ☐ | A | | | | | | | | | | | |

**Test Legend:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G-MBTEX_W | 2 | PREDF REPORT | 3 | | 4 | | 5 | |
| 6 | | 7 | | 8 | | 9 | | 10 | |
| 11 | | 12 | | | | | | | |

The following SampIDs: 0702609-001A, 0702609-002A, 0702609-003A contain testgroup. Please make sure all relevant testcodes are reported. Many thanks.

**Prepared by: Sheli Cryderman**

**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.

**McCampbell Analytical, Inc.**
"When Quality Counts"

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

| | | |
|---|---|---|
| Essel Technology Service | Client Project ID: #07-36 | Date Sampled: 02/24/07 |
| 9778 Broadmoore Drive | | Date Received: 02/26/07 |
| San Ramon, CA 94583 | Client Contact: Samhita Lahiri | Date Extracted: 02/28/07-03/01/07 |
| | Client P.O.: | Date Analyzed 02/28/07-03/01/07 |

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline ***

Extraction method SW5030B Analytical methods SW8015Cm Work Order: 0702609

| Lab ID | Client ID | Matrix | TPH(g) | DF | % SS |
|---|---|---|---|---|---|
| 001A | MW-10 | W | 190,m | 1 | 96 |
| 002A | MW-11 | W | ND | 1 | 102 |
| 003A | MW-12 | W | 200,m | 1 | 107 |

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

* 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 McCampbell 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.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

| | | |
|---|---|---|
| Essel Technology Service | Client Project ID: #07-36 | Date Sampled: 02/24/07 |
| 9778 Broadmoore Drive | | Date Received: 02/26/07 |
| San Ramon, CA 94583 | Client Contact: Samhita Lahiri | Date Extracted: 02/28/07-03/01/07 |
| | Client P.O.: | Date Analyzed: 02/28/07-03/01/07 |

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0702609

| Lab ID | Client ID | Matrix | TPH(g) | MTBE | Benzene | Toluene | Ethylbenzene | Xylenes | DF | % SS |
|---|---|---|---|---|---|---|---|---|---|---|
| 001A | MW-10 | W | 190,m | ND | ND | ND | ND | ND | 1 | 96 |
| 002A | MW-11 | W | ND | ND | ND | ND | ND | ND | 1 | 102 |
| 003A | MW-12 | W | 200,m | ND<10 | ND | ND | ND | ND | 1 | 107 |
| | | | | | | | | | | |
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 | 1 | µg/L |
| | S | 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 McCampbell 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.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

**McCampbell Analytical, Inc.**
"When Quality Counts"

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

| | | |
|---|---|---|
| Essel Technology Service | Client Project ID: #07-36 | Date Sampled: 02/24/07 |
| 9778 Broadmoore Drive | | Date Received: 02/26/07 |
| San Ramon, CA 94583 | Client Contact: Samhita Lahiri | Date Extracted: 02/26/07 |
| | Client P.O.: | Date Analyzed 02/27/07 |

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

Extraction method SW3510C Analytical methods SW8015C Work Order: 0702609

| Lab ID | Client ID | Matrix | TPH(d) | DF | % SS |
|---|---|---|---|---|---|
| 0702609-001A | MW-10 | W | 970,a | 1 | 98 |
| 0702609-002A | MW-11 | W | ND | 1 | 96 |
| 0702609-003A | MW-12 | W | 87,b | 1 | 96 |

| | | | |
|---|---|---|---|
| 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 McCampbell 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.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

**McCampbell Analytical, Inc.**
"When Quality Counts"

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

# QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder 0702609

| EPA Method SW8015Cm | Extraction SW5030B | | | | BatchID: 26478 | | | | Spiked Sample ID: 0702609-002A | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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(btex)£ | ND | 60 | 99.1 | 102 | 2.60 | 91.8 | 94.8 | 3.24 | 70 - 130 | 30 | 70 - 130 | 30 |
| MTBE | ND | 10 | 103 | 103 | 0 | 100 | 102 | 1.96 | 70 - 130 | 30 | 70 - 130 | 30 |
| Benzene | ND | 10 | 102 | 99.5 | 2.24 | 103 | 100 | 2.76 | 70 - 130 | 30 | 70 - 130 | 30 |
| Toluene | ND | 10 | 93.6 | 91.8 | 1.94 | 92.7 | 91.8 | 0.979 | 70 - 130 | 30 | 70 - 130 | 30 |
| Ethylbenzene | ND | 10 | 102 | 102 | 0 | 90.2 | 80.9 | 10.9 | 70 - 130 | 30 | 70 - 130 | 30 |
| Xylenes | ND | 30 | 96.7 | 96.7 | 0 | 91.7 | 100 | 8.70 | 70 - 130 | 30 | 70 - 130 | 30 |
| %SS: | 102 | 10 | 97 | 97 | 0 | 100 | 94 | 6.03 | 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 26478 SUMMARY

| Sample ID | Date Sampled | Date Extracted | Date Analyzed | Sample ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 0702609-001 | 2/24/07 1:00 AM | 3/01/07 | 3/01/07 9:20 PM | 0702609-002 | 2/24/07 2:00 AM | 2/28/07 | 2/28/07 1:12 PM |
| 0702609-003 | 2/24/07 3:00 AM | 3/01/07 | 3/01/07 8:50 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.

**McCampbell Analytical, Inc.**
"When Quality Counts"

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# QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder 0702609

| EPA Method SW8015C | Extraction SW3510C | BatchID: 26441 | 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 | 95.4 | 97.9 | 2.68 | N/A | N/A | 70 - 130 | 30 |
| %SS: | N/A | 2500 | N/A | N/A | N/A | 87 | 88 | 1.92 | 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 26441 SUMMARY

| Sample ID | Date Sampled | Date Extracted | Date Analyzed | Sample ID | Date Sampled | Date Extracted | Date Analyzed |
|---|---|---|---|---|---|---|---|
| 0702609-001 | 2/24/07 1:00 AM | 2/26/07 | 2/27/07 9:03 PM | 0702609-002 | 2/24/07 2:00 AM | 2/26/07 | 2/27/07 10:10 PM |
| 0702609-003 | 2/24/07 3:00 AM | 2/26/07 | 2/27/07 11:19 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.

DHS ELAP Certification N° 1644

QA/QC Officer