

# AC Transit

Alameda-Contra Costa Transit District

10626 East 14th Street, Oakland, California 94603 ☐ (510) 577-8804  
FAX ☐ (510) 577-8859

January 16, 2002

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

Re 296



APR 19 2002

Dear Mr. Chan:

Subject: Quarterly Groundwater Monitoring Report  
AC Transit, 1100 Seminary Avenue, Oakland, CA

AC Transit hereby submits the enclosed quarterly groundwater monitoring report for the fourth quarter of 2001 for the AC Transit facility located at 1100 Seminary Avenue in Oakland. Groundwater sampling of monitoring wells MW-1 through MW-3 and MW-9 through MW-11 was performed by Cameron-Cole in accordance with directives from your office.


Groundwater samples were collected from the six on-site monitoring wells on October 16, 2001. Samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline and diesel using EPA Method 8015, benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl-tert butyl ether (MTBE) using EPA Method 8260B and nitrate and sulfate using Standard Methods 300.0A. Field parameters collected during sampling included pH, temperature, electrical conductivity, dissolved oxygen, ferrous iron and oxidation reduction potential. In addition, monitoring well MW-2 is being purged dry monthly and during each quarterly sampling event

Analytical results of grab water samples showed benzene concentrations above the California maximum contaminant level of 1 ppb in wells MW-1, MW-2, and MW-3. Ethylbenzene was detected above the MCL of 700 ppb in well MW-2 at a concentration of 1,100 ppb.

Unspecified hydrocarbons, thought to be degraded diesel, were detected at concentrations above laboratory reporting limits in all wells except MW-2.

These results continue to be consistent with past sampling results. Monthly purging of well MW-2 began in July 2001. The next quarterly sampling event is scheduled to occur in February 2002. If you have any questions regarding this report or other matters pertaining to this site, please call me at (510) 577-8869.

Sincerely,

  
Suzanne Patton, P.E.  
Environmental Engineer

Area of concern still  
MW-2 w/ elevated TPH  
& Benz. Purging until  
from this well. Maybe  
try oxidation mgw.

Enclosure  
Barneychan01'16'02.doc

MOVING TOWARD THE 21st CENTURY

SUZANNE PATTON, P. E.  
EXT. 8869

4-12-02

Barney,

In reviewing and organizing  
my office, I located this report.

I think my administrative  
assistant only sent you pages  
from this report when you should  
have gotten the whole thing.

Regards

Sue Patton

(510) 577-8869.

APR 19 2002

**AC TRANSIT**

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

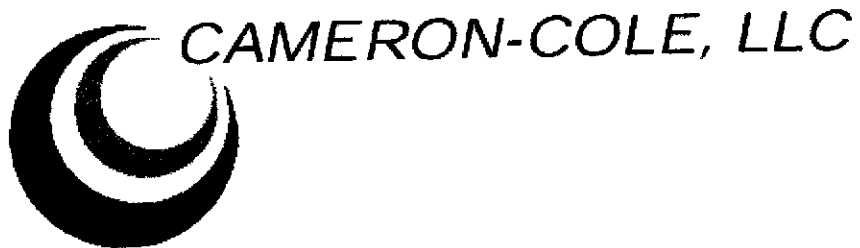
December 30, 2001

Ms. Suzanne Patton  
AC Transit  
10626 E. 14<sup>th</sup> Street  
Oakland, California 94603

APR 19 2002

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

Project No: 2014



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

December 30, 2001

**Prepared For:**

Ms. Suzanne Patton  
AC Transit  
10626 E. 14<sup>th</sup> Street  
Oakland, California 94603

**Prepared By:**

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

Project No: 2014

*E.K.H. 0617 for:*

Written By  
Brady Hanson  
Geologist I



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## **INTRODUCTION**

This report presents the results from the October 2001 sampling event for the AC Transit Facility located at 1100 Seminary Avenue, Oakland, California (Site) (Figure 1). Groundwater sampling of monitor wells MW-1 through MW-3 and MW-9 through MW-11 was performed by Cameron-Cole, in accordance with directives from the Alameda County Health Care Services Agency (ACHCS).

## **OBJECTIVES AND SCOPE OF WORK**

Work performed during quarterly sampling included measuring depth to water and presence of free phase hydrocarbons in the monitor wells and sample collection. Field parameters collected during sampling included pH, temperature, electric conductivity, dissolved oxygen (DO), ferrous iron ( $\text{Fe}^{2+}$ ) and oxygen reduction potential (ORP). Groundwater samples were collected for laboratory analysis using United States Environmental Protection Agency (USEPA) Method 8015 for total petroleum hydrocarbons (TPH) gasoline/diesel, USEPA Method 8260B for benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl-tert butyl ether (MTBE) and methods of chemical analysis for water and waste (MCAWW) 300.0A for nitrate and sulfate.

Chain-of-custody documents and certified analytical reports are presented in Appendix A. Field data sheets are included in Appendix B.

### **Groundwater Elevations and Flow Direction**

Prior to purging and sample collection, all six Site monitor wells were inspected and measured for presence of free phase hydrocarbons and depth to groundwater. Measurements of depths to groundwater are presented on Table 1 and were used to construct the groundwater elevation contours shown in Figure 2. As shown on Figure 2, groundwater flow is to the west at a gradient of 0.012 feet/foot.

### **Groundwater Sampling Activities**

The monitor wells were purged a minimum of three casing volumes, using a centrifugal pump and samples were collected using disposable polyethylene bailers. During well purging, field parameters for pH, electrical conductivity, DO, ORP and temperature were monitored using calibrated field meters. Due to the very low yield encountered while purging monitoring well MW-11, only two casing volumes were evacuated before it became dry.

In addition, MW-2 is now being completely purged dry monthly and during all quarterly sampling events in an attempt to cleanse the formation around the immediate vicinity of the well. Field data sheets for this new over-purge event are included in Appendix B.

Groundwater samples were transferred to appropriate laboratory supplied and preserved containers and placed in an ice-filled cooler for shipment under chain-of-custody to a State of California certified laboratory. A trip blank was submitted for analysis by USEPA Method 8260B.

### **Groundwater Analytical Results**

Table 2 presents groundwater historic and fourth quarter 2001 analytical results. Concentrations of benzene above the State of California maximum contaminant level (MCL) of 1.0 part per billion (ppb) were detected in monitor wells MW-1, MW-2 and MW-3. Ethylbenzene was detected above the MCL of 700 ppb in monitor well MW-2. TPH-Diesel, qualified as "degraded" by the laboratory, was detected above the reporting limit in monitor well MW-2. TPH-Gas was detected above the reporting limit in monitor wells MW-2 and MW-3. Additionally, chemical concentrations above laboratory reporting limits detected in all monitoring wells except MW-2 included unspecified hydrocarbons. The unspecified hydrocarbons detected in these Site monitor wells is thought to be degraded diesel. No analytes were detected in the trip blanks or method blanks. A lab control spike and lab control spike duplicate passed the USEPA's criteria for acceptance.

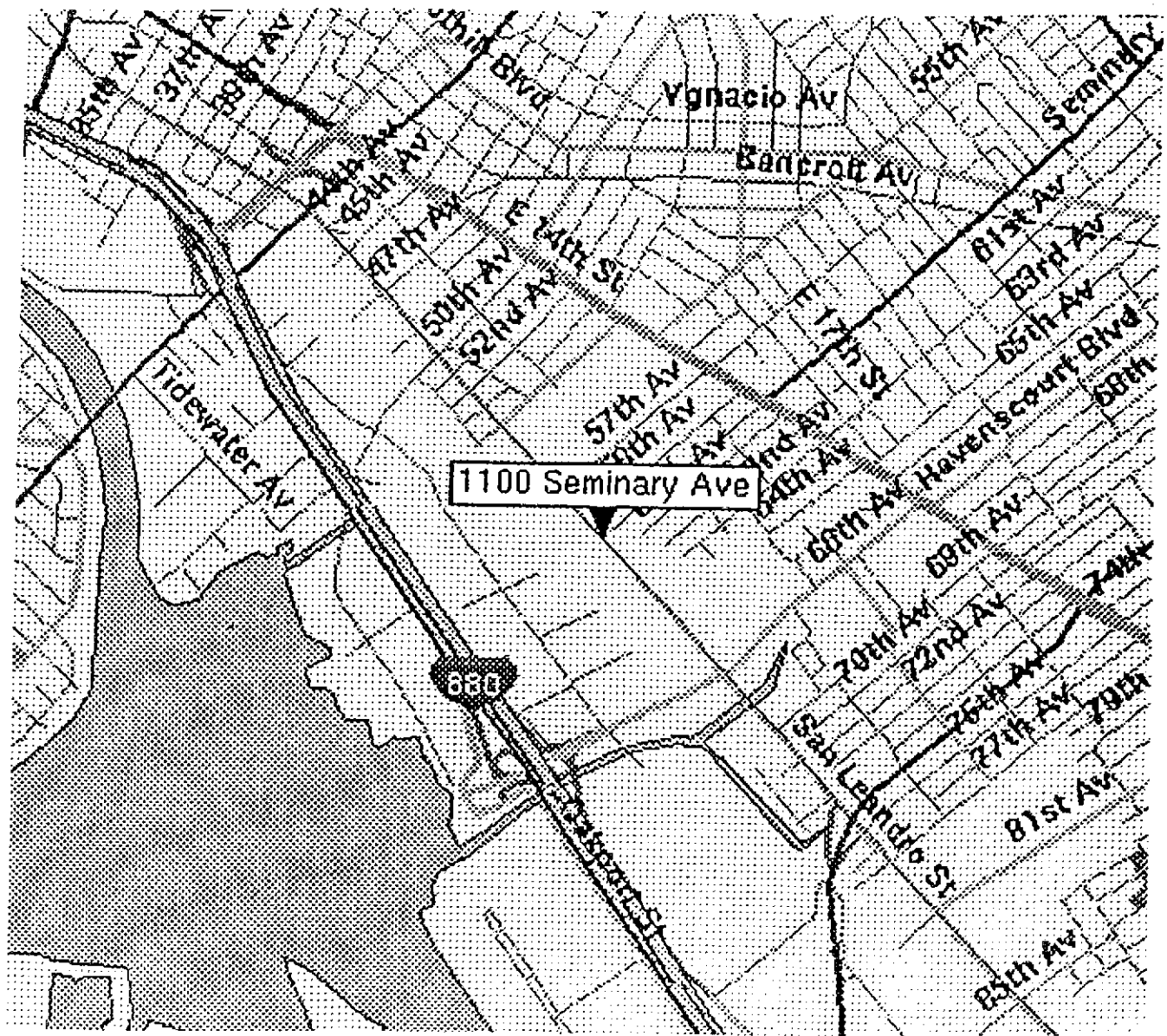
## **SUMMARY OF RESULTS**

- Groundwater flow direction is towards the west at a gradient of 0.012 feet/foot.
- Chemical concentrations in excess of MCLs were limited to benzene in wells MW-1, MW-2 and MW-3 and ethylbenzene in MW-2.

## **PROJECTED WORK AND RECOMMENDATIONS**

- Quarterly groundwater monitoring is scheduled for February 2002.
- Continued monthly over purges of MW-2.





1100 Seminary Ave



AC TRANSIT - OAKLAND, CALIFORNIA

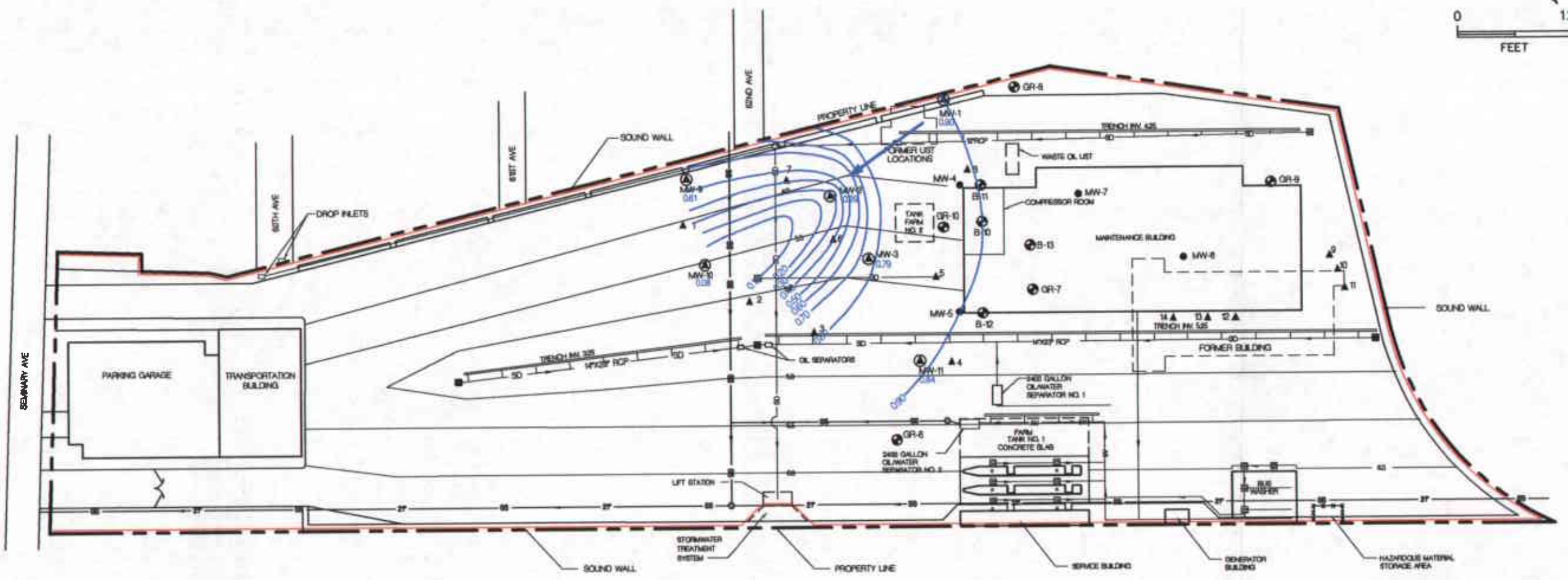
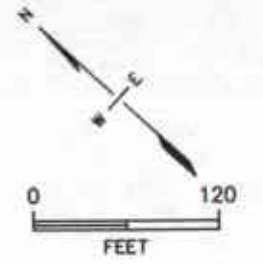
FIGURE 1  
SITE LOCATION MAP  
1100 SEMINARY ROAD

SCALE: NO SCALE

DATE: 3/22/00

LOCMAP





**LEGEND:**

- 150 — GROUNDWATER ELEVATION CONTOUR
- REPORTED GROUNDWATER FLOW
- 60 — CONTOUR
- SD — STORM DRAIN PIPELINE
- SS — SANITARY SEWER PIPELINE
- IW — INDUSTRIAL WASTE PIPELINE
- — SURFACE DRAINAGE TRENCH
- ⊙ (with 'A') EXISTING MONITORING WELL
- (with 'A') ABANDONED MONITORING WELL
- ⊕ (with 'A') PREVIOUSLY INSTALLED SOIL BORING
- ▲ (with 'A') NEWLY INSTALLED SOIL BORING
- ⊙ (with 'M') MANHOLE
- ▭ (with 'C') CATCH BASIN
- 159 GROUNDWATER ELEVATION (FT. MSL)

| BY  | DATE     |
|-----|----------|
| WFB | 12/03/01 |
|     |          |
|     |          |
|     |          |



**FIGURE 2**

**AC TRANSIT - OAKLAND, CALIFORNIA**

**1100 SEMINARY ROAD-POTENTIOMETRIC SURFACE MAP**

**OCTOBER 16, 2001**

|       |           |          |         |
|-------|-----------|----------|---------|
| SCALE | 1" = 120' | DWG. NO: | 2011-02 |
|-------|-----------|----------|---------|

**TABLE 1**  
**GROUNDWATER LEVEL MEASUREMENTS**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

| Well | Date             | Top of Casing Elevation (ft-msl)* | Product Thickness (feet) | DTW (feet)  | Measured Groundwater Elevation (ft-msl) | Groundwater Elevation Corrected for Product Thickness** |
|------|------------------|-----------------------------------|--------------------------|-------------|---|---|
| MW-1 | 7-Jan-99         | 6.25                              | None                     | 5.13        | 1.12                                    |   |
|      | 7-Feb-00         |                                   | None                     | 3.75        | 2.5                                     |   |
|      | 25-May-00        |                                   | None                     | 3.69        | 2.56                                    |   |
|      | 22-Aug-00        |                                   | None                     | 4.79        | 1.46                                    |   |
|      | 20-Nov-00        |                                   | None                     | 4.92        | 1.33                                    |   |
|      | 1-Mar-01         |                                   | None                     | 2.75        | 3.50                                    |   |
|      | 14-May-01        |                                   | None                     | 3.67        | 2.58                                    |   |
|      | 26-Jul-01        |                                   | None                     | 4.73        | 1.52                                    |   |
|      | <b>16-Oct-01</b> |                                   | <b>None</b>              | <b>5.35</b> | <b>0.90</b>                             |   |
| MW-2 | 7-Jan-99         | 5.53                              | 2.27                     | 6.91        | -1.38                                   | 0.44  |
|      | 8-Jun-99         |                                   | 2.23                     | 5.83        | -0.3                                    | 1.48  |
|      | 9-Jun-99         |                                   | 0                        | 3.9         | 1.63                                    | 1.63  |
|      | 10-Jun-99        |                                   | 0                        | 3.9         | 1.63                                    | 1.63  |
|      | 15-Jun-99        |                                   | 0.42                     | 3.92        | 1.61                                    | 1.95  |
|      | 8-Jul-99         |                                   | 0.2                      | 4.3         | 1.23                                    | 1.39  |
|      | 7-Feb-00         |                                   | Sheen                    | 3.8         | 1.73                                    |   |
|      | 25-May-00        |                                   | 0.12                     | 3.23        | 2.3                                     | 2.40  |
|      | 22-Aug-00        |                                   | 0.23                     | 4.45        | 1.08                                    | 1.10  |
|      | 20-Nov-00        |                                   | 0.23                     | 4.70        | 0.83                                    | 0.85  |
|      | 1-Mar-01         |                                   | 0.13                     | 2.75        | 2.78                                    | 2.79  |
|      | 14-May-01        |                                   | Sheen                    | 3.30        | 2.23                                    |   |
|      | 26-Jul-01        |                                   | None                     | 3.27        | 2.26                                    |   |
|      |                  |                                   | <b>16-Oct-01</b>         |             | <b>0.02</b>                             | <b>5.25</b>   |
| MW-3 | 7-Jan-99         | 4.76                              | None                     | 4.11        | 0.65                                    |   |
|      | 7-Feb-00         |                                   | None                     | 3.1         | 1.66                                    |   |
|      | 25-May-00        |                                   | None                     | 2.41        | 2.35                                    |   |
|      | 22-Aug-00        |                                   | None                     | 3.45        | 1.31                                    |   |
|      | 20-Nov-00        |                                   | None                     | 3.42        | 1.34                                    |   |
|      | 1-Mar-01         |                                   | None                     | 2.00        | 2.76                                    |   |
|      | 14-May-01        |                                   | None                     | 2.64        | 2.12                                    |   |
|      | 26-Jul-01        |                                   | None                     | 3.17        | 1.59                                    |   |
|      | <b>16-Oct-01</b> |                                   | <b>None</b>              | <b>3.97</b> | <b>0.79</b>                             |   |

**TABLE 1**  
**GROUNDWATER LEVEL MEASUREMENTS**  
**AC Transit Facility**  
**1100 Seminary Avenue, Oakland, California**

| Well  | Date             | Top of Casing Elevation (ft-msl)* | Product Thickness (feet) | DTW (feet)  | Measured Groundwater Elevation (ft-msl) | Groundwater Elevation Corrected for Product Thickness** |
|-------|------------------|-----------------------------------|--------------------------|-------------|---|---|
| MW-9  | 7-Feb-00         | 5.8                               | None                     | 4.37        | 1.43                                    |   |
|       | 25-May-00        |                                   | None                     | 4.95        | 0.85                                    |   |
|       | 22-Aug-00        |                                   | None                     | 5.18        | 0.62                                    |   |
|       | 20-Nov-00        |                                   | None                     | 4.70        | 1.10                                    |   |
|       | 1-Mar-01         |                                   | None                     | 3.03        | 2.77                                    |   |
|       | 14-May-01        |                                   | None                     | 4.56        | 1.24                                    |   |
|       | 26-Jul-01        |                                   | None                     | 5.17        | 0.63                                    |   |
|       | <b>16-Oct-01</b> |                                   | <b>None</b>              | <b>5.19</b> | <b>0.61</b>                             |   |
| MW-10 | 7-Feb-00         | 4.65                              | None                     | 3.19        | 1.46                                    |   |
|       | 25-May-00        |                                   | None                     | 3.11        | 1.54                                    |   |
|       | 22-Aug-00        |                                   | None                     | 4.35        | 0.30                                    |   |
|       | 20-Nov-00        |                                   | None                     | 4.18        | 0.47                                    |   |
|       | 1-Mar-01         |                                   | None                     | 3.14        | 1.51                                    |   |
|       | 14-May-01        |                                   | None                     | 3.27        | 1.38                                    |   |
|       | 26-Jul-01        |                                   | None                     | 3.95        | 0.70                                    |   |
|       | <b>16-Oct-01</b> |                                   | <b>None</b>              | <b>4.57</b> | <b>0.08</b>                             |   |
| MW-11 | 7-Feb-00         | 4.19                              | None                     | 4.97        | -0.78                                   |   |
|       | 25-May-00        |                                   | None                     | 7.58        | -3.39                                   |   |
|       | 22-Aug-00        |                                   | None                     | 3.01        | 1.18                                    |   |
|       | 20-Nov-00        |                                   | None                     | 2.88        | 1.31                                    |   |
|       | 1-Mar-01         |                                   | None                     | 1.91        | 2.28                                    |   |
|       | 14-May-01        |                                   | None                     | 4.49        | -0.3                                    |   |
|       | 26-Jul-01        |                                   | None                     | 2.95        | 1.24                                    |   |
|       | <b>16-Oct-01</b> |                                   | <b>None</b>              | <b>3.35</b> | <b>0.84</b>                             |   |

Notes:

\* ft-msl: feet-mean sea level

\*\* used 0.8 specific gravity of product

DTW: Depth to Water

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

| Well      | Date              | TPH-G     | TPH-D   | TPH     | Benzene | Toluene   | Ethyl    |         | MTBE     | Nitrate    | Sulfate | DO      | Fe     |
|-----------|-------------------|-----------|---------|---------|---------|-----------|----------|---------|----------|------------|---------|---------|--------|
|           |                   |           |         |         |         |           | Benzene  | Xylenes |          |            |         |         |        |
|           |                   | MCL (ppb) |         |         | 1.0     | 150       | 700      | 1,750   | 13       |            |         |         |        |
| MW-1      | 7-Jan-99          | <100      | 470     | NA      | 17.0    | 2         | 31.0     | 18      | <50      | 150        | 3,400   | 360     | 53     |
|           | 7-Feb-00          | 390       | <60     | 1,300   | 13.0    | <10       | <10      | <10     | <20      | <50        | 1,200   | 1,220   | 11,800 |
|           | 25-May-00         | <50       | <50     | 1,000   | 12.0    | <1.0      | <1.0     | <1.0    | <2.0     | 140        | 1,500   | 1,950   | 1,380  |
|           | 22-Aug-00         | <50       | <50     | 600     | 6.3     | <1.0      | 2.3      | <1.0    | <2.0     | 75         | 2,100   | 6,850   | 2,350  |
|           | 20-Nov-00         | <50       | <50     | 630     | 2.8     | <1.0      | 1.1      | <1.0    | <2.0     | <50        | 4,500   | 11,210  | 1,170  |
|           | 1-Mar-01          | <50       | <50     | 900     | 29.0    | 1.2       | 16.0     | 6       | <2.0     | <50        | 2,800   | 6,020   | 2,920  |
|           | 14-May-01         | <50       | <50     | 540     | 4.1     | <1.0      | 3.1      | <1.0    | <2.0     | <50        | 2,500   | 13,970  | 1,870  |
|           | 26-Jul-01         | 190       | <50     | 500     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 75         | 3,700   | 8,480   | 1,950  |
|           | 16-Oct-01         | <50       | <50     | 650     | 16.0    | 1.1       | 4.6      | 1.6     | <2.0     | <50        | 3,600   | 9,480   | 2,560  |
|           | MW-2<br>(Product) | 8-Jun-99  | 11,000  | 434,000 | 117,000 | 1,000,000 | <100,000 | 260,000 | <300,000 | <5,000,000 | NA      | NA      | NA     |
| 7-Feb-00  |                   | 51,000    | 160,000 | <5000   | 19,000  | <500      | 920      | <500    | <1000    | 51         | <1000   | 6,660   | 7,300  |
| 25-May-00 |                   | <1200     | <50000  | 65,000  | 11,000  | <500      | 670      | 530     | <1000    | 330        | <1000   | 5,670   | 0      |
| 22-Aug-00 |                   | <2500     | <2500   | 150,000 | 23,000  | <500      | 1,100    | 1,100   | <1000    | 370        | <1000   | 4,530   | 3,680  |
| 20-Nov-00 |                   | <1200     | <25000  | 430,000 | 18,000  | <500      | 840      | 610     | <1000    | <250       | <500    | 1,700   | 3,300  |
| 3-Mar-01  |                   | <500      | <25000  | 610,000 | 14,000  | <830      | <830     | <830    | <1700    | <250       | <5000   | 7,880   | 3,300  |
| 14-May-01 |                   | <1000     | 280,000 | 51,000  | 19,000  | 240       | 1,100    | 1,200   | <330     | <50        | <1000   | 3,330   | >3300  |
| 26-Jul-01 |                   | 54,000    | 590,000 | <25000  | 19,000  | <500      | 1,300    | 1,500   | <1000    | <50        | <1000   | 9,960   | >3300  |
| 16-Oct-01 |                   | 43,000    | 560,000 | <25000  | 18,000  | 280       | 1,100    | 1,300   | <100     | <50        | 1,500   | 17,630  | >3300  |
| MW-3      |                   | 7-Jan-99  | 199     | 2,680   | NA      | 450       | <10      | 250     | 190      | <500       | 170     | 3,300   | 880    |
|           | 7-Feb-00          | 2,000     | <150    | 3,100   | 26      | <2        | 5        | 2       | <4       | <50        | 47,300  | 6,480   | 17,800 |
|           | 25-May-00         | <50       | <50     | 1,000   | 35      | <1.0      | 6        | 4       | <2.0     | <50        | 21,700  | 4,640   | 600    |
|           | 22-Aug-00         | <50       | <50     | 2,400   | 240     | <10       | <10      | <10     | <20      | <50        | 19,300  | 3,970   | 20     |
|           | 20-Nov-00         | <50       | <50     | 2,400   | <25     | <25       | <25      | <25     | <50      | <50        | 26,500  | 4,120   | 20     |
|           | 1-Mar-01          | <50       | <50     | 1,200   | 100     | <5.0      | 8.3      | <5.0    | <10      | <50        | 27,000  | 1,510   | 50     |
|           | 14-May-01         | <50       | <50     | 860     | 8.4     | <1.0      | 1.2      | <1.0    | <2.0     | <50        | 21,100  | 9,800   | 0      |
|           | 26-Jul-01         | 1,200     | <50     | 790     | 140     | <5.0      | 12       | <5.0    | <10      | <50        | 18,700  | 8,650   | 80     |
|           | 16-Oct-01         | 1,000     | <50     | 1,600   | 5.1     | <1.0      | 4.3      | <1.0    | <2.0     | <50        | 29,800  | 11,360  | 640    |
|           | MW-9              | 7-Feb-00  | <50     | <50     | 240     | <1        | <1       | <1      | <1       | <2         | 230     | 183,000 | 6,940  |
| 25-May-00 |                   | <50       | <50     | 130     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 250        | 172,000 | 6,020   | 1,200  |
| 22-Aug-00 |                   | <50       | <50     | 120     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 280        | 157,000 | 7,250   | 0      |
| 20-Nov-00 |                   | <50       | <50     | 130     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 340        | 147,000 | 9,690   | 0      |
| 1-Mar-01  |                   | <50       | <50     | 150     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 230        | 116,000 | 4,210   | 0      |
| 14-May-01 |                   | <50       | <50     | 110     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 100        | 140,000 | 8,290   | 0      |
| 26-Jul-01 |                   | <50       | <50     | 71      | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 130        | 143,000 | 7,560   | 0      |
| 16-Oct-01 |                   | <50       | <50     | 120     | <1.0    | <1.0      | <1.0     | <1.0    | <2.0     | 89         | 141,000 | 967     | 50     |

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

| Well  | Date      | TPH-G     | TPH-D | TPH | Benzene | Toluene | Ethyl   |         | MTBE | Nitrate | Sulfate | DO     | Fe     |
|-------|-----------|-----------|-------|-----|---------|---------|---------|---------|------|---------|---------|--------|--------|
|       |           |           |       |     |         |         | Benzene | Xylenes |      |         |         |        |        |
|       |           | MCL (ppb) |       |     | 1.0     | 150     | 700     | 1,750   | 13   |         |         |        |        |
| MW-10 | 7-Feb-00  | <50       | <50   | 470 | <1      | <1      | <1      | <1      | <2   | 53      | 114,000 | 1,200  | 55,000 |
|       | 25-May-00 | <50       | <50   | 220 | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | 480     | 136,000 | 1,940  | 0      |
|       | 22-Aug-00 | <50       | <50   | 140 | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | 69      | 126,000 | 4,350  | 0      |
|       | 20-Nov-00 | <50       | <50   | 300 | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | <50     | 76,200  | 3,790  | 0      |
|       | 1-Mar-01  | <50       | <50   | 250 | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | <250    | 106,000 | 7,440  | 0      |
|       | 14-May-01 | <50       | <50   | 74  | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | <50     | 135,000 | 6,790  | 0      |
|       | 26-Jul-01 | <50       | <50   | 120 | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | <50     | 125,000 | 9,680  | 1,970  |
|       | 16-Oct-01 | <50       | <50   | 190 | <1.0    | <1.0    | <1.0    | <1.0    | <2.0 | <50     | 90,100  | 28,000 | 570    |
| MW-11 | 7-Feb-00  | <50       | <50   | 400 | <1      | <1      | <1      | <1      | 25   | 800     | 167,000 | 7,300  | 16,200 |
|       | 25-May-00 | <50       | <50   | 200 | <1.0    | <1.0    | <1.0    | <1.0    | 16   | 480     | 207,000 | 6,540  | 0      |
|       | 22-Aug-00 | <50       | <50   | 170 | <1.0    | <1.0    | <1.0    | <1.0    | 9.3  | 610     | 168,000 | 4,640  | 20     |
|       | 20-Nov-00 | <50       | <50   | 190 | <1.0    | <1.0    | <1.0    | <1.0    | 7.5  | 550     | 143,000 | 2,380  | 0      |
|       | 1-Mar-01  | <50       | <50   | 250 | <1.0    | <1.0    | <1.0    | <1.0    | 15.0 | 170     | 80,300  | 5,860  | 0      |
|       | 14-May-01 | <50       | <50   | 160 | <1.0    | <1.0    | <1.0    | <1.0    | 14.0 | 230     | 103,000 | 6,060  | 2,910  |
|       | 26-Jul-01 | <50       | <50   | 220 | 5.9     | <1.0    | <1.0    | 2.7     | 20.0 | 180     | 71,300  | 7,360  | >3300  |
|       | 16-Oct-01 | <50       | <50   | 170 | <1.0    | <1.0    | <1.0    | <1.0    | 12.0 | 190     | 101,000 | 8,810  | >3300  |

Notes:

ppb: parts per billion

TPH-G: total petroleum hydrocarbons as gasoline

TPH-D: total petroleum hydrocarbons as diesel

TPH: total petroleum hydrocarbons as motor oil or unknown hydrocarbon

MCL: Maximum Contaminant Level

MTBE: Methyl-tert-butylether

DO: Dissolved Oxygen

Fe: Ferrous Iron

**APPENDIX A**  
**CERTIFIED ANALYTICAL REPORTS**  
**CHAIN-OF-CUSTODY DOCUMENTS**



November 19, 2001

STL SACRAMENTO PROJECT NUMBER: G1J160290

**STL Sacramento**  
880 Riverside Parkway  
West Sacramento, CA 95605-1500

Tel: 916 373 5600  
Fax: 916 371 8420  
[www.stl-inc.com](http://www.stl-inc.com)

Brad Wright  
Cameron-Cole LLC  
101 West Atlantic Avenue  
Building #90  
Alameda, CA 94501

Dear Mr. Wright,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on October 16, 2001. These samples are associated with your AC Transit project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4414.

Sincerely,

A handwritten signature in cursive script that reads "Bonnie McNeill".

Bonnie J. McNeill  
Project Manager



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Sample Data Sheets

Method Blank Reports

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WATER, 8260B, BTEX + MTBE

Samples: 1, 2, 3, 4, 5, 6, 7

Sample Data Sheets

Method Blank Reports

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WATER, 8015 MOD, Diesel

Samples: 1, 2, 3, 4, 5, 6

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Laboratory QC Reports

General Chemistry – Method 300.0

Samples: 1, 2, 3, 4, 5, 6

Sample Data Sheets

Method Blank Reports

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## CASE NARRATIVE

### STL SACRAMENTO PROJECT NUMBER G1J160290

#### General Comments

Samples were received at 9 and 13 degrees Centigrade.

#### **WATER, 8260B, BTEX + MTBE**

Sample(s): 6

This sample was screened and then injected at a reasonable dilution as suggested by the screening data. The data showed no analytes within the linear range of the calibration. The sample was then injected at a lower dilution and showed benzene over range. This suggests non-homogeneity, as each vial tested showed very different levels of analytes. There was insufficient sample volume for re-injection. Both analyses were reported.

#### **WATER, 8015 MOD, Diesel**

Sample(s): 1, 2, 3, 4, 5, 6

There was insufficient sample volume to prepare an MS/SD pair with this batch. An LCS/LCSD was prepared instead.

There were no other anomalies associated with this project.

*STL Sacramento*  
**Quality Control Definitions**

| QC Parameter                                     | Definition  |
|--|---|
| QC Batch   | A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.  |
| Duplicate Control Sample (DCS)                   | Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.   |
| Duplicate Sample (DU)                            | A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.                             |
| Laboratory Control Sample (LCS)                  | A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.   |
| Matrix Spike and Matrix Spike Duplicate (MS/MSD) | A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked. |
| Method Blank (MB)                                | A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.   |
| Surrogate Spike                                  | Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.  |

Source: STL Sacramento Laboratory Quality Manual

**STL Sacramento Certifications:**

Alaska (UST-055), Arizona (#AZ00616), Arkansas, California (NELAP # 01119CA) (ELAP #I-2439), Connecticut (#PH-0691), Florida (E87570), Hawaii, Louisiana (AI # 30612), New Jersey (Lab ID 44005), Nevada (#CA 044), New York (LAB ID 11666 serial # 107407), Oregon (LAB ID CA 044), South Carolina (LAB ID 87014, Cert. # 870140), Utah (E-168), Virginia (#00178), Washington (# C087), West Virginia (# 9930C), Wisconsin (Lab 998204680), USNAVY, USACE, USDA Foreign Plant (Permit # 37-82605), USDA Foreign Soil (Permit # S-46613)..

## Sample Summary

### G1J160290

| <u>WO#</u> | <u>Sample #</u> | <u>Client Sample ID</u> | <u>Sampling Date</u> | <u>Received Date</u> |
|------------|-----------------|-------------------------|----------------------|----------------------|
| EL8X5      | 1               | MW-1                    | 10/16/01 11:10 AM    | 10/16/01 05:45 PM    |
| EL8X6      | 2               | MW-10                   | 10/16/01 12:00 PM    | 10/16/01 05:45 PM    |
| EL8X7      | 3               | MW-9                    | 10/16/01 12:55 PM    | 10/16/01 05:45 PM    |
| EL80C      | 4               | MW-11                   | 10/16/01 01:30 PM    | 10/16/01 05:45 PM    |
| EL80D      | 5               | MW-3                    | 10/16/01 02:10 PM    | 10/16/01 05:45 PM    |
| EL80E      | 6               | MW-2                    | 10/16/01 03:00 PM    | 10/16/01 05:45 PM    |
| EL80F      | 7               | TRIP BLANK              | 10/16/01 10:00 AM    | 10/16/01 05:45 PM    |

#### Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.



WATER, 8015M, TPH Gas

CAMERON-COLE LLC

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #....: G1J160290-001    Work Order #....: EL8X51AE    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
Prep Batch #....: 1295527  
Dilution Factor: 1    Method.....: DHS CA LUFT

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------|--------------|
| TPH (as Gasoline)   | ND            | 50                         | ug/L         |
| Unknown Hydrocarbon | 310           | 50                         | ug/L         |

| <u>SURROGATE</u>     | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene | 111                         | (70 - 130)                 |

CAMERON-COLE LLC

Client Sample ID: MW-10

GC Volatiles

Lot-Sample #....: G1J160290-002    Work Order #....: EL8X61AE    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
Prep Batch #....: 1295527  
Dilution Factor: 1    Method.....: DHS CA LUFT

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------|--------------|
| TPH (as Gasoline)   | ND            | 50                         | ug/L         |
| Unknown Hydrocarbon | ND            | 50                         | ug/L         |

| <u>SURROGATE</u>     | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene | 102                         | (70 - 130)                 |



CAMERON-COLE LLC

Client Sample ID: MW-9

GC Volatiles

Lot-Sample #...: G1J160290-003    Work Order #...: EL8X71AE    Matrix.....: WATER  
Date Sampled...: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
Prep Batch #...: 1295527  
Dilution Factor: 1    Method.....: DHS CA LUFT

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------|--------------|
| TPH (as Gasoline)   | ND            | 50                         | ug/L         |
| Unknown Hydrocarbon | ND            | 50                         | ug/L         |

| <u>SURROGATE</u>     | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene | 99                          | (70 - 130)                 |

CAMERON-COLE LLC

Client Sample ID: MW-11

GC Volatiles

Lot-Sample #....: G1J160290-004    Work Order #....: EL80C1AE    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
Prep Batch #....: 1295527  
Dilution Factor: 1    Method.....: DHS CA LUFT

| <u>PARAMETER</u>     | <u>RESULT</u>   | <u>REPORTING</u> |              |
|----------------------|-----------------|------------------|--------------|
|                      |                 | <u>LIMIT</u>     | <u>UNITS</u> |
| TPH (as Gasoline)    | ND              | 50               | ug/L         |
| Unknown Hydrocarbon  | ND              | 50               | ug/L         |
|                      |                 |                  |              |
| <u>SURROGATE</u>     | <u>PERCENT</u>  | <u>RECOVERY</u>  |              |
|                      | <u>RECOVERY</u> | <u>LIMITS</u>    |              |
| 4-Bromofluorobenzene | 100             | (70 - 130)       |              |

CAMERON-COLE LLC

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...: G1J160290-005    Work Order #...: EL80D1AE    Matrix.....: WATER  
Date Sampled...: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
Prep Batch #...: 1295527  
Dilution Factor: 1    Method.....: DHS CA LUFT

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING</u><br><u>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------------|--------------|
| TPH (as Gasoline)   | 1000          | 50                               | ug/L         |
| Unknown Hydrocarbon | ND            | 50                               | ug/L         |

| <u>SURROGATE</u>     | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|----------------------|-----------------------------------|----------------------------------|
| 4-Bromofluorobenzene | 118                               | (70 - 130)                       |

NOTE(S):

The gasoline pattern appears degraded.

CAMERON-COLE LLC

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #....: G1J160290-006    Work Order #....: EL80E1AE    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
Prep Batch #....: 1295527  
Dilution Factor: 20    Method.....: DHS CA LUFT

| <u>PARAMETER</u>     | <u>RESULT</u>              | <u>REPORTING</u> |               |
|----------------------|----------------------------|------------------|---------------|
|                      |                            | <u>LIMIT</u>     | <u>UNITS</u>  |
| TPH (as Gasoline)    | 43000                      | 1000             | ug/L          |
| Unknown Hydrocarbon  | ND                         | 1000             | ug/L          |
| <u>SURROGATE</u>     |                            | <u>RECOVERY</u>  | <u>LIMITS</u> |
| 4-Bromofluorobenzene | PERCENT<br>RECOVERY<br>107 | (70 - 130)       |               |

# QC DATA ASSOCIATION SUMMARY

G1J160290

## Sample Preparation and Analysis Control Numbers

| <u>SAMPLE#</u> | <u>MATRIX</u> | <u>ANALYTICAL<br/>METHOD</u> | <u>LEACH<br/>BATCH #</u> | <u>PREP<br/>BATCH #</u> | <u>MS RUN#</u> |
|----------------|---------------|------------------------------|--------------------------|-------------------------|----------------|
| 001            | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
| 002            | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
| 003            | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
| 004            | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
| 005            | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
| 006            | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |

METHOD BLANK REPORT

GC Volatiles

Client Lot #....: G1J160290  
MB Lot-Sample #: G1J220000-527

Work Order #....: EMK GK1AA

Matrix.....: WATER

Analysis Date...: 10/19/01  
Dilution Factor: 1

Prep Date.....: 10/19/01  
Prep Batch #....: 1295527

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING</u> |              | <u>METHOD</u> |
|---------------------|---------------|------------------|--------------|---------------|
|                     |               | <u>LIMIT</u>     | <u>UNITS</u> |               |
| TPH (as Gasoline)   | ND            | 50               | ug/L         | DHS CA LUFT   |
| Unknown Hydrocarbon | ND            | 50               | ug/L         | DHS CA LUFT   |

| <u>SURROGATE</u>     | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|----------------------|-----------------------------------|----------------------------------|
| 4-Bromofluorobenzene | 103                               | (70 - 130)                       |

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #....: G1J160290      Work Order #....: EMKGK1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J220000-527      EMKGK1AD-LCSD  
 Prep Date.....: 10/19/01      Analysis Date...: 10/19/01  
 Prep Batch #....: 1295527  
 Dilution Factor: 1

| <u>PARAMETER</u>     | <u>SPIKE</u><br><u>AMOUNT</u> | <u>MEASURED</u><br><u>AMOUNT</u> | <u>UNITS</u> | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RPD</u> | <u>METHOD</u>                    |
|----------------------|-------------------------------|----------------------------------|--------------|-----------------------------------|------------|----------------------------------|
| TPH (as Gasoline)    | 1000                          | 991                              | ug/L         | 99                                |            | DHS CA LUFT                      |
|                      | 1000                          | 976                              | ug/L         | 98                                | 1.6        | DHS CA LUFT                      |
| <u>SURROGATE</u>     |                               |                                  |              | <u>PERCENT</u><br><u>RECOVERY</u> |            | <u>RECOVERY</u><br><u>LIMITS</u> |
| 4-Bromofluorobenzene |                               |                                  |              | 112                               |            | (70 - 130)                       |
|                      |                               |                                  |              | 110                               |            | (70 - 130)                       |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: G1J160290      Work Order #...: EMKGK1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J220000-527      EMKGK1AD-LCSD  
 Prep Date.....: 10/19/01      Analysis Date...: 10/19/01  
 Prep Batch #...: 1295527  
 Dilution Factor: 1

| <u>PARAMETER</u>  | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> | <u>RPD</u> | <u>RPD LIMITS</u> | <u>METHOD</u> |
|-------------------|-------------------------|------------------------|------------|-------------------|---------------|
| TPH (as Gasoline) | 99                      | (70 - 130)             |            |                   | DHS CA LUFT   |
|                   | 98                      | (70 - 130)             | 1.6        | (0-35)            | DHS CA LUFT   |

| <u>SURROGATE</u>     | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> |
|----------------------|-------------------------|------------------------|
| 4-Bromofluorobenzene | 112                     | (70 - 130)             |
|                      | 110                     | (70 - 130)             |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



WATER, 8260B, BTEX + MTBE

CAMERON-COLE LLC

Client Sample ID: MW-1

GC/MS Volatiles

Lot-Sample #....: G1J160290-001    Work Order #....: EL8XS1AF    Matrix.....: WATER  
 Date Sampled...: 10/16/01    Date Received...: 10/16/01  
 Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
 Prep Batch #....: 1296473  
 Dilution Factor: 1    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |
|-----------------------------------|---------------|------------------|--------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |
| Benzene                           | 16            | 1.0              | ug/L         |
| Toluene                           | 1.1           | 1.0              | ug/L         |
| Ethylbenzene                      | 4.6           | 1.0              | ug/L         |
| Xylenes (total)                   | 1.6           | 1.0              | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 108                         | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 112                         | (76 - 118)                 |
| Toluene-d8            | 102                         | (79 - 115)                 |

CAMERON-COLE LLC

Client Sample ID: MW-10

GC/MS Volatiles

Lot-Sample #....: GLJ160290-002    Work Order #....: EL8X61AF    Matrix.....: WATER  
 Date Sampled....: 10/16/01    Date Received...: 10/16/01  
 Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
 Prep Batch #....: 1296473  
 Dilution Factor: 1    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |
|-----------------------------------|---------------|------------------|--------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |
| Benzene                           | ND            | 1.0              | ug/L         |
| Toluene                           | ND            | 1.0              | ug/L         |
| Ethylbenzene                      | ND            | 1.0              | ug/L         |
| Xylenes (total)                   | ND            | 1.0              | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 99                          | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 107                         | (76 - 118)                 |
| Toluene-d8            | 102                         | (79 - 115)                 |

CAMERON-COLE LLC

Client Sample ID: MW-9

GC/MS Volatiles

Lot-Sample #....: G1J160290-003    Work Order #....: EL8X71AF    Matrix.....: WATER  
 Date Sampled....: 10/16/01    Date Received...: 10/16/01  
 Prep Date.....: 10/19/01    Analysis Date...: 10/19/01  
 Prep Batch #....: 1296473  
 Dilution Factor: 1    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|-----------------------------------|---------------|----------------------------|--------------|
| Benzene                           | ND            | 1.0                        | ug/L         |
| Toluene                           | ND            | 1.0                        | ug/L         |
| Ethylbenzene                      | ND            | 1.0                        | ug/L         |
| Xylenes (total)                   | ND            | 1.0                        | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0                        | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 103                         | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 109                         | (76 - 118)                 |
| Toluene-d8            | 103                         | (79 - 115)                 |

CAMERON-COLE LLC

Client Sample ID: MW-11

GC/MS Volatiles

Lot-Sample #....: G1J160290-004    Work Order #....: EL80C1AF    Matrix.....: WATER  
 Date Sampled....: 10/16/01    Date Received...: 10/16/01  
 Prep Date.....: 10/24/01    Analysis Date...: 10/24/01  
 Prep Batch #....: 1299308  
 Dilution Factor: 1    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |
|-----------------------------------|---------------|------------------|--------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |
| Benzene                           | ND            | 1.0              | ug/L         |
| Toluene                           | ND            | 1.0              | ug/L         |
| Ethylbenzene                      | ND            | 1.0              | ug/L         |
| Xylenes (total)                   | ND            | 1.0              | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | 12            | 2.0              | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 103                         | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 110                         | (76 - 118)                 |
| Toluene-d8            | 104                         | (79 - 115)                 |

CAMERON-COLE LLC

Client Sample ID: MW-3

GC/MS Volatiles

Lot-Sample #....: GLJ160290-005    Work Order #....: EL80D1AF    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/24/01    Analysis Date...: 10/24/01  
Prep Batch #....: 1299308  
Dilution Factor: 1    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |
|-----------------------------------|---------------|------------------|--------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |
| Benzene                           | 5.1           | 1.0              | ug/L         |
| Toluene                           | ND            | 1.0              | ug/L         |
| Ethylbenzene                      | 4.3           | 1.0              | ug/L         |
| Xylenes (total)                   | ND            | 1.0              | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|-----------------------|-----------------------------------|----------------------------------|
| 4-Bromofluorobenzene  | 109                               | (76 - 112)                       |
| 1,2-Dichloroethane-d4 | 110                               | (76 - 118)                       |
| Toluene-d8            | 109                               | (79 - 115)                       |

CAMERON-COLE LLC

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #....: GLJ160290-006    Work Order #....: EL80E1AF    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/24/01    Analysis Date...: 10/24/01  
Prep Batch #....: 1299308  
Dilution Factor: 625    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |
|-----------------------------------|---------------|------------------|--------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |
| Benzene                           | 1600          | 620              | ug/L         |
| Toluene                           | ND            | 620              | ug/L         |
| Ethylbenzene                      | ND            | 620              | ug/L         |
| Xylenes (total)                   | ND            | 1200             | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 1200             | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 96                          | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 97                          | (76 - 118)                 |
| Toluene-d8            | 101                         | (79 - 115)                 |

CAMBRON-COLE LLC

Client Sample ID: MW-2

GC/MS Volatiles

Lot-Sample #....: G1J160290-006    Work Order #....: EL80E2AF    Matrix.....: WATER  
 Date Sampled....: 10/16/01    Date Received...: 10/16/01  
 Prep Date.....: 10/25/01    Analysis Date...: 10/25/01  
 Prep Batch #....: 1299521  
 Dilution Factor: 50    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|-----------------------------------|---------------|----------------------------|--------------|
| Benzene                           | 18000 E       | 50                         | ug/L         |
| Toluene                           | 280           | 50                         | ug/L         |
| Ethylbenzene                      | 1100          | 50                         | ug/L         |
| Xylenes (total)                   | 1300          | 100                        | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 100                        | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 108                         | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 116                         | (76 - 118)                 |
| Toluene-d8            | 113                         | (79 - 115)                 |

NOTE(S):

E Estimated result. Result concentration exceeds the calibration range.



CAMERON-COLE LLC

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #....: G1J160290-007    Work Order #....: EL80F1AA    Matrix.....: WATER  
 Date Sampled....: 10/16/01    Date Received...: 10/16/01  
 Prep Date.....: 10/24/01    Analysis Date...: 10/24/01  
 Prep Batch #....: 1299308  
 Dilution Factor: 1    Method.....: SW846 8260B

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |
|-----------------------------------|---------------|------------------|--------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |
| Benzene                           | ND            | 1.0              | ug/L         |
| Toluene                           | ND            | 1.0              | ug/L         |
| Ethylbenzene                      | ND            | 1.0              | ug/L         |
| Xylenes (total)                   | ND            | 1.0              | ug/L         |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 100                         | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 109                         | (76 - 118)                 |
| Toluene-d8            | 104                         | (79 - 115)                 |

# QC DATA ASSOCIATION SUMMARY

GIJ160290

Sample Preparation and Analysis Control Numbers

| <u>SAMPLE#</u> | <u>MATRIX</u> | <u>ANALYTICAL<br/>METHOD</u> | <u>LEACH<br/>BATCH #</u> | <u>PREP<br/>BATCH #</u> | <u>MS RUN#</u> |
|----------------|---------------|------------------------------|--------------------------|-------------------------|----------------|
| 001            | WATER         | SW846 8260B                  |                          | 1296473                 |                |
| 002            | WATER         | SW846 8260B                  |                          | 1296473                 |                |
| 003            | WATER         | SW846 8260B                  |                          | 1296473                 |                |
| 004            | WATER         | SW846 8260B                  |                          | 1299308                 |                |
| 005            | WATER         | SW846 8260B                  |                          | 1299308                 |                |
| 006            | WATER         | SW846 8260B                  |                          | 1299308                 |                |
|                | WATER         | SW846 8260B                  |                          | 1299521                 | 1299271        |
| 007            | WATER         | SW846 8260B                  |                          | 1299308                 |                |

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: G1J160290  
 MB Lot-Sample #: G1J230000-473

Work Order #...: EML431AA

Matrix.....: WATER

Analysis Date...: 10/19/01

Prep Date.....: 10/19/01

Prep Batch #...: 1296473

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              |               |
|-----------------------------------|---------------|------------------|--------------|---------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> | <u>METHOD</u> |
| Benzene                           | ND            | 1.0              | ug/L         | SW846 8260B   |
| Toluene                           | ND            | 1.0              | ug/L         | SW846 8260B   |
| Ethylbenzene                      | ND            | 1.0              | ug/L         | SW846 8260B   |
| Xylenes (total)                   | ND            | 1.0              | ug/L         | SW846 8260B   |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 93                          | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 94                          | (76 - 118)                 |
| Toluene-d8            | 96                          | (79 - 115)                 |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: G1J160290  
 MB Lot-Sample #: G1J260000-308

Work Order #...: EMVGG1AA

Matrix.....: WATER

Analysis Date...: 10/24/01

Prep Date.....: 10/24/01

Prep Batch #...: 1299308

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              | <u>METHOD</u> |
|-----------------------------------|---------------|------------------|--------------|---------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |               |
| Benzene                           | ND            | 1.0              | ug/L         | SW846 8260B   |
| Toluene                           | ND            | 1.0              | ug/L         | SW846 8260B   |
| Ethylbenzene                      | ND            | 1.0              | ug/L         | SW846 8260B   |
| Xylenes (total)                   | ND            | 1.0              | ug/L         | SW846 8260B   |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 99                          | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 105                         | (76 - 118)                 |
| Toluene-d8            | 106                         | (79 - 115)                 |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: G1J160290  
 MB Lot-Sample #: G1J260000-521

Work Order #...: EMW3Q1AA

Matrix.....: WATER

Analysis Date...: 10/25/01  
 Dilution Factor: 1

Prep Date.....: 10/25/01

Prep Batch #...: 1299521

| <u>PARAMETER</u>                  | <u>RESULT</u> | <u>REPORTING</u> |              | <u>METHOD</u> |
|-----------------------------------|---------------|------------------|--------------|---------------|
|                                   |               | <u>LIMIT</u>     | <u>UNITS</u> |               |
| Benzene                           | ND            | 1.0              | ug/L         | SW846 8260B   |
| Toluene                           | ND            | 1.0              | ug/L         | SW846 8260B   |
| Ethylbenzene                      | ND            | 1.0              | ug/L         | SW846 8260B   |
| Methyl tert-butyl ether<br>(MTBE) | ND            | 2.0              | ug/L         | SW846 8260B   |
| Xylenes (total)                   | ND            | 2.0              | ug/L         | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|-----------------------|-----------------------------------|----------------------------------|
| 4-Bromofluorobenzene  | 103                               | (76 - 112)                       |
| 1,2-Dichloroethane-d4 | 106                               | (76 - 118)                       |
| Toluene-d8            | 108                               | (79 - 115)                       |

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: G1J160290      Work Order #....: EML431AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J230000-473      EML431AD-LCSD  
 Prep Date.....: 10/19/01      Analysis Date...: 10/19/01  
 Prep Batch #....: 1296473  
 Dilution Factor: 1

| PARAMETER          | SPIKE  | MEASURED |       | PERCENT  |      | METHOD      |
|--------------------|--------|----------|-------|----------|------|-------------|
|                    | AMOUNT | AMOUNT   | UNITS | RECOVERY | RPD  |             |
| Benzene            | 10.0   | 9.00     | ug/L  | 90       |      | SW846 8260B |
|                    | 10.0   | 9.47     | ug/L  | 95       | 5.0  | SW846 8260B |
| Toluene            | 10.0   | 9.32     | ug/L  | 93       |      | SW846 8260B |
|                    | 10.0   | 9.81     | ug/L  | 98       | 5.1  | SW846 8260B |
| Chlorobenzene      | 10.0   | 8.80     | ug/L  | 88       |      | SW846 8260B |
|                    | 10.0   | 9.26     | ug/L  | 93       | 5.1  | SW846 8260B |
| 1,1-Dichloroethene | 10.0   | 8.84     | ug/L  | 88       |      | SW846 8260B |
|                    | 10.0   | 8.86     | ug/L  | 89       | 0.20 | SW846 8260B |
| Trichloroethene    | 10.0   | 9.21     | ug/L  | 92       |      | SW846 8260B |
|                    | 10.0   | 9.95     | ug/L  | 100      | 7.8  | SW846 8260B |

| SURROGATE             | PERCENT  | RECOVERY   |
|-----------------------|----------|------------|
|                       | RECOVERY | LIMITS     |
| 4-Bromofluorobenzene  | 90       | (76 - 112) |
|                       | 97       | (76 - 112) |
| 1,2-Dichloroethane-d4 | 89       | (76 - 118) |
|                       | 96       | (76 - 118) |
| Toluene-d8            | 94       | (79 - 115) |
|                       | 96       | (79 - 115) |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: G1J160290      Work Order #...: EML431AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J230000-473      EML431AD-LCSD  
 Prep Date.....: 10/19/01      Analysis Date...: 10/19/01  
 Prep Batch #...: 1296473  
 Dilution Factor: 1

| <u>PARAMETER</u>   | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> | <u>RPD</u> | <u>RPD LIMITS</u> | <u>METHOD</u> |
|--------------------|-------------------------|------------------------|------------|-------------------|---------------|
| Benzene            | 90                      | (85 - 120)             |            |                   | SW846 8260B   |
|                    | 95                      | (85 - 120)             | 5.0        | (0-14)            | SW846 8260B   |
| Toluene            | 93                      | (82 - 121)             |            |                   | SW846 8260B   |
|                    | 98                      | (82 - 121)             | 5.1        | (0-30)            | SW846 8260B   |
| Chlorobenzene      | 88                      | (86 - 117)             |            |                   | SW846 8260B   |
|                    | 93                      | (86 - 117)             | 5.1        | (0-15)            | SW846 8260B   |
| 1,1-Dichloroethene | 88                      | (79 - 115)             |            |                   | SW846 8260B   |
|                    | 89                      | (79 - 115)             | 0.20       | (0-26)            | SW846 8260B   |
| Trichloroethene    | 92                      | (78 - 118)             |            |                   | SW846 8260B   |
|                    | 100                     | (78 - 118)             | 7.8        | (0-20)            | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> |
|-----------------------|-------------------------|------------------------|
| 4-Bromofluorobenzene  | 90                      | (76 - 112)             |
|                       | 97                      | (76 - 112)             |
| 1,2-Dichloroethane-d4 | 89                      | (76 - 118)             |
|                       | 96                      | (76 - 118)             |
| Toluene-d8            | 94                      | (79 - 115)             |
|                       | 96                      | (79 - 115)             |

**NOTE (S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: GLJ160290      Work Order #...: EMVGGLAC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: GLJ260000-308      EMVGGLAD-LCSD  
 Prep Date.....: 10/24/01      Analysis Date...: 10/24/01  
 Prep Batch #...: 1299308  
 Dilution Factor: 1

| PARAMETER          | SPIKE AMOUNT | MEASURED AMOUNT | UNITS | PERCENT RECOVERY | RPD  | METHOD      |
|--------------------|--------------|-----------------|-------|------------------|------|-------------|
| Benzene            | 10.0         | 9.08            | ug/L  | 91               |      | SW846 8260B |
|                    | 10.0         | 9.27            | ug/L  | 93               | 2.1  | SW846 8260B |
| Toluene            | 10.0         | 9.30            | ug/L  | 93               |      | SW846 8260B |
|                    | 10.0         | 9.75            | ug/L  | 97               | 4.6  | SW846 8260B |
| Chlorobenzene      | 10.0         | 8.98            | ug/L  | 90               |      | SW846 8260B |
|                    | 10.0         | 9.03            | ug/L  | 90               | 0.58 | SW846 8260B |
| 1,1-Dichloroethene | 10.0         | 8.54            | ug/L  | 85               |      | SW846 8260B |
|                    | 10.0         | 8.66            | ug/L  | 87               | 1.4  | SW846 8260B |
| Trichloroethene    | 10.0         | 9.03            | ug/L  | 90               |      | SW846 8260B |
|                    | 10.0         | 9.23            | ug/L  | 92               | 2.2  | SW846 8260B |

| SURROGATE             | PERCENT RECOVERY | RECOVERY LIMITS |
|-----------------------|------------------|-----------------|
| 4-Bromofluorobenzene  | 91               | (76 - 112)      |
|                       | 93               | (76 - 112)      |
| 1,2-Dichloroethane-d4 | 94               | (76 - 118)      |
|                       | 99               | (76 - 118)      |
| Toluene-d8            | 93               | (79 - 115)      |
|                       | 98               | (79 - 115)      |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters



LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: G1J160290      Work Order #...: EMW3Q1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J260000-521      EMW3Q1AD-LCSD  
 Prep Date.....: 10/24/01      Analysis Date...: 10/25/01  
 Prep Batch #...: 1299521  
 Dilution Factor: 1

| PARAMETER          | SPIKE  | MEASURED |       | PERCENT  |      | METHOD      |
|--------------------|--------|----------|-------|----------|------|-------------|
|                    | AMOUNT | AMOUNT   | UNITS | RECOVERY | RPD  |             |
| Benzene            | 10.0   | 9.47     | ug/L  | 95       |      | SW846 8260B |
|                    | 10.0   | 9.82     | ug/L  | 98       | 3.6  | SW846 8260B |
| Toluene            | 10.0   | 9.54     | ug/L  | 95       |      | SW846 8260B |
|                    | 10.0   | 9.79     | ug/L  | 98       | 2.5  | SW846 8260B |
| Chlorobenzene      | 10.0   | 9.07     | ug/L  | 91       |      | SW846 8260B |
|                    | 10.0   | 9.31     | ug/L  | 93       | 2.6  | SW846 8260B |
| 1,1-Dichloroethene | 10.0   | 8.77     | ug/L  | 88       |      | SW846 8260B |
|                    | 10.0   | 8.83     | ug/L  | 88       | 0.73 | SW846 8260B |
| Trichloroethene    | 10.0   | 9.77     | ug/L  | 98       |      | SW846 8260B |
|                    | 10.0   | 9.89     | ug/L  | 99       | 1.3  | SW846 8260B |

| SURROGATE             | PERCENT  | RECOVERY   |
|-----------------------|----------|------------|
|                       | RECOVERY | LIMITS     |
| 4-Bromofluorobenzene  | 96       | (76 - 112) |
|                       | 104      | (76 - 112) |
| 1,2-Dichloroethane-d4 | 102      | (76 - 118) |
|                       | 104      | (76 - 118) |
| Toluene-d8            | 98       | (79 - 115) |
|                       | 105      | (79 - 115) |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: G1J160290      Work Order #...: EMW3Q1AC      Matrix.....: WATER  
 LCS Lot-Sample#: G1J260000-521  
 Prep Date.....: 10/25/01      Analysis Date...: 10/25/01  
 Prep Batch #...: 1299521  
 Dilution Factor: 1

| <u>PARAMETER</u>   | <u>SPIKE<br/>AMOUNT</u> | <u>MEASURED<br/>AMOUNT</u> | <u>UNITS</u> | <u>PERCENT<br/>RECOVERY</u> | <u>METHOD</u> |
|--------------------|-------------------------|----------------------------|--------------|-----------------------------|---------------|
| Benzene            | 10.0                    | 9.47                       | ug/L         | 95                          | SW846 8260B   |
| Toluene            | 10.0                    | 9.54                       | ug/L         | 95                          | SW846 8260B   |
| Chlorobenzene      | 10.0                    | 9.07                       | ug/L         | 91                          | SW846 8260B   |
| 1,1-Dichloroethene | 10.0                    | 8.77                       | ug/L         | 88                          | SW846 8260B   |
| Trichloroethene    | 10.0                    | 9.77                       | ug/L         | 98                          | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|-----------------------|-----------------------------|----------------------------|
| 4-Bromofluorobenzene  | 96                          | (76 - 112)                 |
| 1,2-Dichloroethane-d4 | 102                         | (76 - 118)                 |
| Toluene-d8            | 98                          | (79 - 115)                 |

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: GLJ160290      Work Order #....: EMW3Q1AC      Matrix.....: WATER  
 LCS Lot-Sample#: GLJ260000-521  
 Prep Date.....: 10/25/01      Analysis Date...: 10/25/01  
 Prep Batch #....: 1299521  
 Dilution Factor: 1

| <u>PARAMETER</u>   | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> | <u>METHOD</u> |
|--------------------|-------------------------|------------------------|---------------|
| Benzene            | 95                      | (85 - 120)             | SW846 8260B   |
| Toluene            | 95                      | (82 - 121)             | SW846 8260B   |
| Chlorobenzene      | 91                      | (86 - 117)             | SW846 8260B   |
| 1,1-Dichloroethene | 88                      | (79 - 115)             | SW846 8260B   |
| Trichloroethene    | 98                      | (78 - 118)             | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> |
|-----------------------|-------------------------|------------------------|
| 4-Bromofluorobenzene  | 96                      | (76 - 112)             |
| 1,2-Dichloroethane-d4 | 102                     | (76 - 118)             |
| Toluene-d8            | 98                      | (79 - 115)             |

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: G1J160290      Work Order #....: EMGCW1AF-MS      Matrix.....: WATER  
 MS Lot-Sample #: G1J190248-018      EMGCWLAG-MSD  
 Date Sampled....: 10/11/01      Date Received...: 10/19/01  
 Prep Date.....: 10/24/01      Analysis Date...: 10/25/01  
 Prep Batch #....: 1299521  
 Dilution Factor: 1

| PARAMETER          | SAMPLE SPIKE MEASRD |      |        | UNITS | PERCENT  |      |             |
|--------------------|---------------------|------|--------|-------|----------|------|-------------|
|                    | AMOUNT              | AMT  | AMOUNT |       | RECOVERY | RPD  | METHOD      |
| Benzene            | ND                  | 10.0 | 9.88   | ug/L  | 99       |      | SW846 8260B |
|                    | ND                  | 10.0 | 9.44   | ug/L  | 94       | 4.5  | SW846 8260B |
| Toluene            | ND                  | 10.0 | 9.57   | ug/L  | 96       |      | SW846 8260B |
|                    | ND                  | 10.0 | 9.66   | ug/L  | 97       | 0.96 | SW846 8260B |
| Chlorobenzene      | ND                  | 10.0 | 8.92   | ug/L  | 89       |      | SW846 8260B |
|                    | ND                  | 10.0 | 9.21   | ug/L  | 92       | 3.3  | SW846 8260B |
| 1,1-Dichloroethene | ND                  | 10.0 | 8.77   | ug/L  | 88       |      | SW846 8260B |
|                    | ND                  | 10.0 | 8.87   | ug/L  | 89       | 1.2  | SW846 8260B |
| Trichloroethene    | 2.1                 | 10.0 | 11.3   | ug/L  | 93       |      | SW846 8260B |
|                    | 2.1                 | 10.0 | 11.7   | ug/L  | 96       | 3.0  | SW846 8260B |

| SURROGATE             | PERCENT  | RECOVERY   |
|-----------------------|----------|------------|
|                       | RECOVERY | LIMITS     |
| 4-Bromofluorobenzene  | 103      | (76 - 112) |
| 1,2-Dichloroethane-d4 | 104      | (76 - 112) |
|                       | 110      | (76 - 118) |
|                       | 107      | (76 - 118) |
| Toluene-d8            | 106      | (79 - 115) |
|                       | 107      | (79 - 115) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: G1J160290      Work Order #...: EMGCW1AF-MS      Matrix.....: WATER  
 MS Lot-Sample #: G1J190248-018      EMGCW1AG-MSD  
 Date Sampled...: 10/11/01      Date Received...: 10/19/01  
 Prep Date.....: 10/24/01      Analysis Date...: 10/25/01  
 Prep Batch #...: 1299521  
 Dilution Factor: 1

| <u>PARAMETER</u>   | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> | <u>RPD</u> | <u>RPD LIMITS</u> | <u>METHOD</u> |
|--------------------|-------------------------|------------------------|------------|-------------------|---------------|
| Benzene            | 99                      | (85 - 120)             |            |                   | SW846 8260B   |
|                    | 94                      | (85 - 120)             | 4.5        | (0-14)            | SW846 8260B   |
| Toluene            | 96                      | (82 - 121)             |            |                   | SW846 8260B   |
|                    | 97                      | (82 - 121)             | 0.96       | (0-30)            | SW846 8260B   |
| Chlorobenzene      | 89                      | (86 - 117)             |            |                   | SW846 8260B   |
|                    | 92                      | (86 - 117)             | 3.3        | (0-15)            | SW846 8260B   |
| 1,1-Dichloroethene | 88                      | (79 - 115)             |            |                   | SW846 8260B   |
|                    | 89                      | (79 - 115)             | 1.2        | (0-26)            | SW846 8260B   |
| Trichloroethene    | 93                      | (78 - 118)             |            |                   | SW846 8260B   |
|                    | 96                      | (78 - 118)             | 3.0        | (0-20)            | SW846 8260B   |

| <u>SURROGATE</u>      | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> |
|-----------------------|-------------------------|------------------------|
| 4-Bromofluorobenzene  | 103                     | (76 - 112)             |
|                       | 104                     | (76 - 112)             |
| 1,2-Dichloroethane-d4 | 110                     | (76 - 118)             |
|                       | 107                     | (76 - 118)             |
| Toluene-d8            | 106                     | (79 - 115)             |
|                       | 107                     | (79 - 115)             |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters

WATER, 8015 MOD, Diesel

CAMERON-COLE LLC

Client Sample ID: MW-1

GC Semivolatiles

Lot-Sample #....: G1J160290-001    Work Order #....: EL8X51AD    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/25/01  
Prep Batch #....: 1292243  
Dilution Factor: 1    Method.....: SW846 8015 MOD

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------|--------------|
| TPH (as Diesel)     | ND            | 50                         | ug/L         |
| Unknown Hydrocarbon | 650           | 50                         | ug/L         |

| <u>SURROGATE</u> | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|------------------|-----------------------------|----------------------------|
| o-Terphenyl      | 108                         | (57 - 147)                 |

NOTE(S):

The unknown from n-C10 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-10

GC Semivolatiles

Lot-Sample #...: G1J160290-002    Work Order #...: EL8X61AD    Matrix.....: WATER  
Date Sampled...: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/25/01  
Prep Batch #...: 1292243  
Dilution Factor: 1    Method.....: SW846 8015 MOD

| <u>PARAMETER</u>    | <u>RESULT</u>  | <u>REPORTING</u> |              |
|---------------------|----------------|------------------|--------------|
|                     |                | <u>LIMIT</u>     | <u>UNITS</u> |
| TPH (as Diesel)     | ND             | 50               | ug/L         |
| Unknown Hydrocarbon | 190            | 50               | ug/L         |
|                     |                | <u>RECOVERY</u>  |              |
| <u>SURROGATE</u>    | <u>PERCENT</u> | <u>LIMITS</u>    |              |
| o-Terphenyl         | 93             | (57 - 147)       |              |

NOTE(S) :

The unknown from n-C12 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.



CAMERON-COLE LLC

Client Sample ID: MW-9

GC Semivolatiles

Lot-Sample #....: G1J160290-003    Work Order #....: EL8X71AD    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/25/01  
Prep Batch #....: 1292243  
Dilution Factor: 1    Method.....: SW846 8015 MOD

| <u>PARAMETER</u>    | <u>RESULT</u>  | <u>REPORTING</u> |              |
|---------------------|----------------|------------------|--------------|
|                     |                | <u>LIMIT</u>     | <u>UNITS</u> |
| TPH (as Diesel)     | ND             | 50               | ug/L         |
| Unknown Hydrocarbon | 120            | 50               | ug/L         |
|                     |                | <u>RECOVERY</u>  |              |
| <u>SURROGATE</u>    | <u>PERCENT</u> | <u>LIMITS</u>    |              |
| o-Terphenyl         | 96             | (57 - 147)       |              |

NOTE(S):

The unknown from n-C14 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-11

GC Semivolatiles

Lot-Sample #...: G1J160290-004    Work Order #...: EL80C1AD    Matrix.....: WATER  
Date Sampled...: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 10/25/01  
Prep Batch #...: 1292243  
Dilution Factor: 1    Method.....: SW846 8015 MOD

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING<br/>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------|--------------|
| TPH (as Diesel)     | ND            | 50                         | ug/L         |
| Unknown Hydrocarbon | 170           | 50                         | ug/L         |

| <u>SURROGATE</u> | <u>PERCENT<br/>RECOVERY</u> | <u>RECOVERY<br/>LIMITS</u> |
|------------------|-----------------------------|----------------------------|
| o-Terphenyl      | 96                          | (57 - 147)                 |

NOTE(S):

The unknown from n-C14 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-3

GC Semivolatiles

Lot-Sample #...: G1J160290-005 Work Order #...: EL80D1AD Matrix.....: WATER  
Date Sampled...: 10/16/01 Date Received...: 10/16/01  
Prep Date.....: 10/19/01 Analysis Date...: 10/25/01  
Prep Batch #...: 1292243  
Dilution Factor: 1 Method.....: SW846 8015 MOD

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING</u><br><u>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------------|--------------|
| TPH (as Diesel)     | ND            | 50                               | ug/L         |
| Unknown Hydrocarbon | 1600          | 50                               | ug/L         |

| <u>SURROGATE</u> | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|------------------|-----------------------------------|----------------------------------|
| o-Terphenyl      | 124                               | (57 - 147)                       |

NOTE(S):

The unknown from n-C08 to n-C40 is quantitated based on a diesel reference from n-C10 to n-C24.

CAMERON-COLE LLC

Client Sample ID: MW-2

GC Semivolatiles

Lot-Sample #....: G1J160290-006    Work Order #....: EL80E1AD    Matrix.....: WATER  
Date Sampled....: 10/16/01    Date Received...: 10/16/01  
Prep Date.....: 10/19/01    Analysis Date...: 11/01/01  
Prep Batch #....: 1292243  
Dilution Factor: 500    Method.....: SW846 8015 MOD

| <u>PARAMETER</u>    | <u>RESULT</u> | <u>REPORTING</u><br><u>LIMIT</u> | <u>UNITS</u> |
|---------------------|---------------|----------------------------------|--------------|
| TPH (as Diesel)     | 560000 Q      | 25000                            | ug/L         |
| Unknown Hydrocarbon | ND            | 25000                            | ug/L         |

| <u>SURROGATE</u> | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|------------------|-----------------------------------|----------------------------------|
| o-Terphenyl      | 0.0 SRD                           | (57 - 147)                       |

NOTE(S):

SRD The surrogate recovery was not calculated because the extract was diluted beyond the ability to quantitate a recovery.

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

The diesel fuel pattern appears degraded.

# QC DATA ASSOCIATION SUMMARY

G1J160290

Sample Preparation and Analysis Control Numbers

| <u>SAMPLE#</u> | <u>MATRIX</u> | <u>ANALYTICAL<br/>METHOD</u> | <u>LEACH<br/>BATCH #</u> | <u>PREP<br/>BATCH #</u> | <u>MS RUN#</u> |
|----------------|---------------|------------------------------|--------------------------|-------------------------|----------------|
| 001            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
|                | WATER         | SW846 8015 MOD               |                          | 1292243                 |                |
|                | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
|                | WATER         | SW846 8260B                  |                          | 1296473                 |                |
| 002            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
|                | WATER         | SW846 8015 MOD               |                          | 1292243                 |                |
|                | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
|                | WATER         | SW846 8260B                  |                          | 1296473                 |                |
| 003            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
|                | WATER         | SW846 8015 MOD               |                          | 1292243                 |                |
|                | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
|                | WATER         | SW846 8260B                  |                          | 1296473                 |                |
| 004            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
|                | WATER         | SW846 8015 MOD               |                          | 1292243                 |                |
|                | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
|                | WATER         | SW846 8260B                  |                          | 1299308                 |                |
| 005            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
|                | WATER         | SW846 8015 MOD               |                          | 1292243                 |                |
|                | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
|                | WATER         | SW846 8260B                  |                          | 1299308                 |                |
| 006            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
|                | WATER         | SW846 8015 MOD               |                          | 1292243                 |                |
|                | WATER         | DHS CA LUFT                  |                          | 1295527                 |                |
|                | WATER         | SW846 8260B                  |                          | 1299308                 |                |
|                | WATER         | SW846 8260B                  |                          | 1299521                 | 1299271        |
| 007            | WATER         | SW846 8260B                  |                          | 1299308                 |                |

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G1J160290  
MB Lot-Sample #: G1J190000-243

Work Order #...: EMFJFLAA

Matrix.....: WATER

Analysis Date...: 10/25/01  
Dilution Factor: 1

Prep Date.....: 10/19/01  
Prep Batch #...: 1292243

| <u>PARAMETER</u>    | <u>RESULT</u>   | <u>REPORTING</u> |              | <u>METHOD</u>  |
|---------------------|-----------------|------------------|--------------|----------------|
|                     |                 | <u>LIMIT</u>     | <u>UNITS</u> |                |
| TPH (as Diesel)     | ND              | 50               | ug/L         | SW846 8015 MOD |
| Unknown Hydrocarbon | ND              | 50               | ug/L         | SW846 8015 MOD |
| <u>SURROGATE</u>    | <u>PERCENT</u>  | <u>RECOVERY</u>  |              |                |
|                     | <u>RECOVERY</u> | <u>LIMITS</u>    |              |                |
| o-Terphenyl         | 87              | (57 - 147)       |              |                |

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: G1J160290      Work Order #....: EMFJFLAC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J190000-243      EMFJF1AD-LCSD  
 Prep Date.....: 10/19/01      Analysis Date...: 10/25/01  
 Prep Batch #....: 1292243  
 Dilution Factor: 1

| <u>PARAMETER</u> | <u>SPIKE</u><br><u>AMOUNT</u> | <u>MEASURED</u><br><u>AMOUNT</u> | <u>UNITS</u> | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RPD</u> | <u>METHOD</u>  |
|------------------|-------------------------------|----------------------------------|--------------|-----------------------------------|------------|----------------|
| TPH (as Diesel)  | 300                           | 248                              | ug/L         | 83                                |            | SW846 8015 MOD |
|                  | 300                           | 256                              | ug/L         | 85                                | 3.2        | SW846 8015 MOD |

| <u>SURROGATE</u> | <u>PERCENT</u><br><u>RECOVERY</u> | <u>RECOVERY</u><br><u>LIMITS</u> |
|------------------|-----------------------------------|----------------------------------|
| o-Terphenyl      | 101                               | (57 - 147)                       |
|                  | 104                               | (57 - 147)                       |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G1J160290      Work Order #...: EMFJF1AC-LCS      Matrix.....: WATER  
 LCS Lot-Sample#: G1J190000-243      EMFJF1AD-LCSD  
 Prep Date.....: 10/19/01      Analysis Date...: 10/25/01  
 Prep Batch #...: 1292243  
 Dilution Factor: 1

| <u>PARAMETER</u> | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> | <u>RPD</u> | <u>RPD LIMITS</u> | <u>METHOD</u>  |
|------------------|-------------------------|------------------------|------------|-------------------|----------------|
| TPH (as Diesel)  | 83                      | (39 - 125)             |            |                   | SW846 8015 MOD |
|                  | 85                      | (39 - 125)             | 3.2        | (0-44)            | SW846 8015 MOD |

| <u>SURROGATE</u> | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u> |
|------------------|-------------------------|------------------------|
| o-Terphenyl      | 101                     | (57 - 147)             |
|                  | 104                     | (57 - 147)             |

**NOTE (S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.  
 Bold print denotes control parameters



*General Chemistry – Method 300.0*

CAMERON-COLE LLC

Client Sample ID: MW-1

General Chemistry

Lot-Sample #...: GLJ160290-001    Work Order #...: EL8X5    Matrix.....: WATER  
Date Sampled...: 10/16/01 11:10    Date Received...: 10/16/01 17:45

| <u>PARAMETER</u> | <u>RESULT</u> | <u>RL</u>               | <u>UNITS</u> | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|-------------------------|--------------|---------------|---------------------------------------|-------------------------|
| Nitrate as N     | ND            | 0.050                   | mg/L         | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               | Analysis Time...: 11:42 |              |               |                                       |                         |
| Sulfate          | 3.6           | 1.0                     | mg/L         | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               | Analysis Time...: 11:42 |              |               |                                       |                         |

CAMERON-COLE LLC

Client Sample ID: MW-10

General Chemistry

Lot-Sample #...: G1J160290-002    Work Order #...: EL8X6    Matrix.....: WATER  
Date Sampled...: 10/16/01 12:00    Date Received...: 10/16/01 17:45

| <u>PARAMETER</u> | <u>RESULT</u> | <u>RL</u> | <u>UNITS</u>            | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|-----------|-------------------------|---------------|---------------------------------------|-------------------------|
| Nitrate as N     | ND            | 0.050     | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               |           | Analysis Time...: 11:56 |               |                                       |                         |
| Sulfate          | 90.1 Q        | 5.0       | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               |           | Analysis Time...: 13:06 |               |                                       |                         |

NOTE(S):

RL Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

CAMERON-COLE LLC

Client Sample ID: MW-9

General Chemistry

Lot-Sample #...: G1J160290-003    Work Order #...: EL8X7    Matrix.....: WATER  
Date Sampled...: 10/16/01 12:55    Date Received...: 10/16/01 17:45

| <u>PARAMETER</u> | <u>RESULT</u> | <u>RL</u> | <u>UNITS</u>            | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|-----------|-------------------------|---------------|---------------------------------------|-------------------------|
| Nitrate as N     | 0.089         | 0.050     | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               |           | Analysis Time...: 12:10 |               |                                       |                         |
| Sulfate          | 141 Q         | 10.0      | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               |           | Analysis Time...: 13:20 |               |                                       |                         |

NOTE(S) :

RL Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

CAMERON-COLE LLC

Client Sample ID: MW-11

General Chemistry

Lot-Sample #...: GLJ160290-004    Work Order #...: EL80C    Matrix.....: WATER  
Date Sampled...: 10/16/01 13:30    Date Received...: 10/16/01 17:45

| <u>PARAMETER</u> | <u>RESULT</u> | <u>RL</u> | <u>UNITS</u>            | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|-----------|-------------------------|---------------|---------------------------------------|-------------------------|
| Nitrate as N     | 0.19          | 0.050     | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               |           | Analysis Time...: 12:24 |               |                                       |                         |
| Sulfate          | 101 Q         | 5.0       | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               |           | Analysis Time...: 13:34 |               |                                       |                         |

**NOTE(S):**

RL Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

CAMERON-COLE LLC

Client Sample ID: MW-3

General Chemistry

Lot-Sample #...: G1J160290-005    Work Order #...: EL80D    Matrix.....: WATER  
Date Sampled...: 10/16/01 14:10    Date Received...: 10/16/01 17:45

| <u>PARAMETER</u> | <u>RESULT</u> | <u>RL</u> | <u>UNITS</u>            | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|-----------|-------------------------|---------------|---------------------------------------|-------------------------|
| Nitrate as N     | ND            | 0.050     | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               |           | Analysis Time...: 12:38 |               |                                       |                         |
| Sulfate          | 29.8          | 1.0       | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               |           | Analysis Time...: 12:38 |               |                                       |                         |

CAMERON-COLE LLC

Client Sample ID: MW-2

General Chemistry

Lot-Sample #....: G1J160290-006    Work Order #....: EL80E    Matrix.....: WATER  
Date Sampled....: 10/16/01 15:00    Date Received...: 10/16/01 17:45

| <u>PARAMETER</u> | <u>RESULT</u> | <u>RL</u> | <u>UNITS</u>            | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|-----------|-------------------------|---------------|---------------------------------------|-------------------------|
| Nitrate as N     | ND            | 0.050     | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               |           | Analysis Time...: 14:45 |               |                                       |                         |
| Sulfate          | 1.5           | 1.0       | mg/L                    | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               |           | Analysis Time...: 14:45 |               |                                       |                         |

# QC DATA ASSOCIATION SUMMARY

GLJ160290

Sample Preparation and Analysis Control Numbers

| <u>SAMPLE#</u> | <u>MATRIX</u> | <u>ANALYTICAL<br/>METHOD</u> | <u>LEACH<br/>BATCH #</u> | <u>PREP<br/>BATCH #</u> | <u>MS RUN#</u> |
|----------------|---------------|------------------------------|--------------------------|-------------------------|----------------|
| 001            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
| 002            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
| 003            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
| 004            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
| 005            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |
| 006            | WATER         | MCAWW 300.0A                 |                          | 1291444                 | 1291244        |
|                | WATER         | MCAWW 300.0A                 |                          | 1293120                 | 1293017        |



METHOD BLANK REPORT

General Chemistry

Client Lot #...: G1J160290

Matrix.....: WATER

| <u>PARAMETER</u> | <u>RESULT</u> | <u>REPORTING</u>                                      |              | <u>METHOD</u> | <u>PREPARATION-<br/>ANALYSIS DATE</u> | <u>PREP<br/>BATCH #</u> |
|------------------|---------------|---|--------------|---------------|---------------------------------------|-------------------------|
|                  |               | <u>LIMIT</u>  | <u>UNITS</u> |               |                                       |                         |
| Nitrate as N     | ND            | 0.050   | mg/L         | MCAWW 300.0A  | 10/17/01                              | 1293120                 |
|                  |               | Work Order #: EMHKE1AA MB Lot-Sample #: G1J200000-120 |              |               |                                       |                         |
|                  |               | Analysis Time...: 11:14                               |              |               |                                       |                         |
| Sulfate          | ND            | 1.0   | mg/L         | MCAWW 300.0A  | 10/17/01                              | 1291444                 |
|                  |               | Work Order #: EMEA61AA MB Lot-Sample #: G1J180000-444 |              |               |                                       |                         |
|                  |               | Analysis Time...: 11:14                               |              |               |                                       |                         |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #....: G1J160290

Matrix.....: WATER

| <u>PARAMETER</u>   | <u>SPIKE AMOUNT</u> | <u>MEASURED AMOUNT</u> | <u>UNITS</u> | <u>PERCNT RECVRY</u> | <u>METHOD</u> | <u>PREPARATION- ANALYSIS DATE</u> | <u>PREP BATCH #</u> |
|--|---------------------|------------------------|--------------|----------------------|---------------|-----------------------------------|---------------------|
| Nitrate as N   | 1.00                | 0.951                  | mg/L         | 95                   | MCAWW 300.0A  | 10/17/01                          | 1293120             |
| Work Order #: EMHKE1AC LCS Lot-Sample#: G1J200000-120<br>Analysis Time...: 11:00 |                     |                        |              |                      |               |                                   |                     |
| Sulfate  | 10.0                | 9.51                   | mg/L         | 95                   | MCAWW 300.0A  | 10/17/01                          | 1291444             |
| Work Order #: EMEA61AC LCS Lot-Sample#: G1J180000-444<br>Analysis Time...: 11:00 |                     |                        |              |                      |               |                                   |                     |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: G1J160290

Matrix.....: WATER

| <u>PARAMETER</u> | <u>PERCENT RECOVERY</u> | <u>RECOVERY LIMITS</u>               | <u>METHOD</u>                                  | <u>PREPARATION- ANALYSIS DATE</u> | <u>PREP BATCH #</u> |
|------------------|-------------------------|--------------------------------------|--|-----------------------------------|---------------------|
| Nitrate as N     | 95                      | Work Order #: EMHKE1AC<br>(90 - 110) | LCS Lot-Sample#: G1J200000-120<br>MCAWW 300.0A | 10/17/01                          | 1293120             |
|                  |                         | Analysis Time...: 11:00              |  |                                   |                     |
| Sulfate          | 95                      | Work Order #: EMEA61AC<br>(90 - 110) | LCS Lot-Sample#: G1J180000-444<br>MCAWW 300.0A | 10/17/01                          | 1291444             |
|                  |                         | Analysis Time...: 11:00              |  |                                   |                     |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: G1J160290

Matrix.....: WATER

Date Sampled...: 10/16/01 11:10 Date Received...: 10/16/01 17:45

| PARAMETER    | SAMPLE SPIKE MEASURED  |       |        | UNITS | PERCENT |      | METHOD       | PREPARATION-<br>ANALYSIS DATE | PREP<br>BATCH # |
|--------------|--|-------|--------|-------|---------|------|--------------|-------------------------------|-----------------|
|              | AMOUNT   | AMT   | AMOUNT |       | RECVRY  | RPD  |              |                               |                 |
| Nitrate as N | WO#: EL8X51AJ-MS/EL8X51AK-MSD MS Lot-Sample #: G1J160290-001 |       |        |       |         |      |              |                               |                 |
| ND           | 1.00   | 0.991 |        | mg/L  | 99      |      | MCAWW 300.0A | 10/17/01                      | 1293120         |
| ND           | 1.00   | 0.974 |        | mg/L  | 97      | 1.7  | MCAWW 300.0A | 10/17/01                      | 1293120         |
|              | Analysis Time...: 14:17                                      |       |        |       |         |      |              |                               |                 |
| Sulfate      | WO#: EL8X51AG-MS/EL8X51AH-MSD MS Lot-Sample #: G1J160290-001 |       |        |       |         |      |              |                               |                 |
| 3.6          | 10.0   | 13.2  |        | mg/L  | 96      |      | MCAWW 300.0A | 10/17/01                      | 1291444         |
| 3.6          | 10.0   | 13.2  |        | mg/L  | 96      | 0.24 | MCAWW 300.0A | 10/17/01                      | 1291444         |
|              | Analysis Time...: 14:17                                      |       |        |       |         |      |              |                               |                 |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #....: G1J160290

Matrix.....: WATER

Date Sampled....: 10/16/01 11:10 Date Received...: 10/16/01 17:45

| PARAMETER    | PERCENT RECOVERY | RPD        | RPD                      | METHOD           | PREPARATION-  | PREP    |
|--------------|------------------|------------|--------------------------|------------------|---------------|---------|
|              | RECOVERY         | LIMITS     | LIMITS                   |                  | ANALYSIS DATE | BATCH # |
| Nitrate as N |                  |            |                          |                  |               |         |
|              |                  | WO#:       | EL8X51AJ-MS/EL8X51AK-MSD | MS Lot-Sample #: | G1J160290-001 |         |
|              | 99               | (90 - 110) |                          | MCAWW 300.0A     | 10/17/01      | 1293120 |
|              | 97               | (90 - 110) | 1.7 (0-10)               | MCAWW 300.0A     | 10/17/01      | 1293120 |
|              |                  |            | Analysis Time...: 14:17  |                  |               |         |
| Sulfate      |                  |            |                          |                  |               |         |
|              |                  | WO#:       | EL8X51AG-MS/EL8X51AH-MSD | MS Lot-Sample #: | G1J160290-001 |         |
|              | 96               | (90 - 110) |                          | MCAWW 300.0A     | 10/17/01      | 1291444 |
|              | 96               | (90 - 110) | 0.24 (0-10)              | MCAWW 300.0A     | 10/17/01      | 1291444 |
|              |                  |            | Analysis Time...: 14:17  |                  |               |         |

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**APPENDIX B**  
**SAMPLING EVENT DATA**

DEPTH TO WATER

DATE: 10-16-01

PROJECT AC Transit Seminary

EVENT Quarterly

TECHNICIAN EG/KA

| NO. | WELL OR LOCATION | DATE     | TIME | MEASUREMENT | CODE    | COMMENTS |  |
|-----|------------------|----------|------|-------------|---------|----------|--|
| 1   | MW-1             | 10-16-01 | 0925 | 5.35        | SWL     |          |  |
| 2   | MW-2             | ↓        | 0950 | 5.25/5.23   | OIL/SWL |          |  |
| 3   | MW-3             |          | 0944 | 3.97        | SWL     |          |  |
| 4   | MW-9             |          | 0930 | 5.19        | ↓       |          |  |
| 5   | MW-10            |          | 0934 | 4.57        |         |          |  |
| 6   | MW-11            |          | ↓    | 0940        | 3.35    | ↓        |  |
| 7   |                  |          |      |             |         |          |  |
| 8   |                  |          |      |             |         |          |  |
| 9   |                  |          |      |             |         |          |  |
| 10  |                  |          |      |             |         |          |  |
| 11  |                  |          |      |             |         |          |  |
| 12  |                  |          |      |             |         |          |  |
| 13  |                  |          |      |             |         |          |  |
| 14  |                  |          |      |             |         |          |  |
| 15  |                  |          |      |             |         |          |  |
| 16  |                  |          |      |             |         |          |  |
| 17  |                  |          |      |             |         |          |  |
| 18  |                  |          |      |             |         |          |  |
| 19  |                  |          |      |             |         |          |  |
| 20  |                  |          |      |             |         |          |  |

CODES: SWL - Static Water Level  
 OIL - Oil Level

Project Name: ACT (Semiannual QTY)  
 Casing Diameter (in): 2"  
 Total Well Depth (ft): 15.35'  
 Depth to Water (ft) before purging: 5.35'

Project Number: 2014-1  
 Sample Date: 10-16-01  
 Sample ID: MW-1

Well ID: MW-1

Development Method:  
 Bailer: \_\_\_\_\_ Teflon \_\_\_\_\_ Stainless Steel \_\_\_\_\_ PVC \_\_\_\_\_ ABS Plastic  
 NA  
 Pump: \_\_\_\_\_ Dedicated Submersible Pump \_\_\_\_\_ Bladder Pump  
 \_\_\_\_\_ Non-Dedicated Submersible Pump

| Time | pH   | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1039 | 6.52 | 15.35                  | 23.44                 | 5.90                      | 2               | 0.6             |
| 1042 | 6.99 | 1610                   | 24.0                  | 6.03                      | 4               | ↓               |
| 1045 | 7.07 | 1640                   | 24.5                  | 6.09                      | 6               |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           | Total = 6       |                 |

Water Volume to be Purged (gal):  $(15.35 - 5.35) = 10.0 \times 0.165 = 1.65 \times 3 = 4.95$   
 (Casing Length in Ft - Depth to Water in Ft) (X) (3)  
 Where X=1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells

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

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

Sample Collection Method:  
 Bailer: \_\_\_\_\_ Teflon \_\_\_\_\_ Stainless Steel \_\_\_\_\_ PVC \_\_\_\_\_ ABS Plastic  
 Pump: \_\_\_\_\_ Dedicated Submersible Pump \_\_\_\_\_ Bladder Pump  
 \_\_\_\_\_ Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):  
 Trip Blank collected @ 1000 for 8260 BTEX/MTBE

Parameter Collected: 8015 BRO 8015 DRO 8260 MTBE/BEX Nitrate/Sulfate

Sample Appearance  
 OVA Reading (ppm) \_\_\_\_\_  
 Suspended Solids (describe): \_\_\_\_\_ Centrifugal pump to purge

Decontamination Performed:  
 W/R S/M  
 Fe: 2.56  
 DO: 9.48  
 ORP: <-50

Comments / Calculations:  
 Start: 1035  
 Stop: 1045  
 Sample: 1100

Name: Erik R. Gorbey Date: 10-16-01



Well ID: MW-10

Project Name: ACT (Seminary QHly)  
Casing Diameter (in): 2"  
Total Well Depth (ft): 14.45'  
Depth to Water (ft) before purging: 4.57'

Project Number: 2014-1  
Sample Date: 10-16-01  
Sample ID: MW-10

Development Method:

NA Bailer:        Teflon        Stainless Steel        PVC        ABS Plastic  
Pump:        Dedicated Submersible Pump        Bladder Pump  
       Non-Dedicated Submersible Pump

| Time | pH   | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1144 | 7.14 | 4440                   | 23.55                 | 4.81                      | 1.5             | 0.6             |
| 1148 | 7.42 | 5280                   | 23.4                  | 5.27                      | 3.0             | ↓               |
| 1150 | 7.41 | 5290                   | 23.5                  | 6.97                      | 5.5             | ↓               |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       | Total                     | 5.5             |                 |

Water Volume to be Purged (gal):  $(14.45 - 4.57) = 9.88 \times 0.165 = 1.63 \times 3 = 4.9$   
(Casing Length in Ft - Depth to Water in Ft) (X) (3)  
Where X = 1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells

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

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

Sample Collection Method:

X Bailer:        Teflon        Stainless Steel        PVC        ABS Plastic  
Pump:        Dedicated Submersible Pump        Bladder Pump  
       Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8015 GRD 8015 DRD 8260 BTEX/MTBE Nitrate/Sulfate

Sample Appearance

       OVA Reading (ppm) Centrifugal Pump  
       Suspended Solids (describe): to purge

Decontamination Performed:

W/R S/M

Fe: 0.57  
ORP: 52.0  
DO: 28

Comments / Calculations:

Start: 1230  
Stop: 1247  
Sample: 1255

Name: Erik B. Gerly Date: 10-16-01

Project Name: ACT (Seminary, QH<sub>2</sub>)  
 Casing Diameter (in): 2"  
 Total Well Depth (ft): 19.50  
 Depth to Water (ft) before purging: 5.19

Project Number: 2014-1  
 Sample Date: 10-16-01  
 Sample ID: MW-9

Well ID: MW-9

Development Method:  
 Bailer:  Teflon  Stainless Steel  PVC  ABS Plastic

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

| Time | pH   | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1233 | 7.50 | 2950                   | 26.9                  | 6.08                      | 2               | 0.5             |
| 1237 | 7.55 | 3440                   | 32.5                  | 6.37                      | 4               | ↓               |
| 1240 | 7.59 | 3440                   | 32.8                  | 7.21                      | 6               | ↓               |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       | Total =                   | 8               |                 |

Water Volume to be Purged (gal):  $(19.5 - 5.19) = 14.31 \times 0.165 = 2.36 \times 3 = 7.1$   
 (Casing Length in Ft - Depth to Water in Ft) (X) (3)  
 Where X = 1 Well Volume in Gal/ft, X = 0.165 for 2" wells, X = 0.37 for 3" wells, X = 0.65 for 4" wells

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

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

Sample Collection Method:  
 Bailer:  Teflon  Stainless Steel  PVC  ABS Plastic  
 Pump:  Dedicated Submersible Pump  Bladder Pump  
 Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8015 GRO 8015 DRD 8260 BTEX/MTBE Nitrate/Sulfate

Sample Appearance  
 OVA Reading (ppm)  
 Suspended Solids (describe): Centrifugal Pump to purge

DO: 9.67 mg/L  
 ORP: 75 mV  
 Fe: 0.05 mg/L

Decontamination Performed:  
w/R s/M

Comments / Calculations:  
Start: 1230  
Stop: 1247  
Sample: 1255

Name: Erik R. Conly Date: 10-16-01



Well ID: MW-3

Project Name: ACT (Seminary Q11y)

Project Number:

Casing Diameter (in): 2"

Sample Date: 10-16-01

Total Well Depth (ft): 16.8'

Sample ID: MW-3

Depth to Water (ft) before purging: 3.97'

Development Method:

NA Bailer: Teflon Stainless Steel PVC ABS Plastic

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

| Time | pH   | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1351 | 7.05 | 2290                   | 24.9                  | 4.05                      | 2               | 0.6             |
| 1354 | 6.90 | 6530                   | 24.5                  | 4.20                      | 4               | ↓               |
| 1357 | 6.92 | 6520                   | 24.5                  | 4.29                      | 6               |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       | Total                     | 7               |                 |

Water Volume to be Purged (gal)  $(16.8 - 3.97) = 12.83 \times 0.165 = 2.11 \times 3 = 6.4$   
(Casing Length in Ft - Depth to Water in Ft) (X) (3)

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

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

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

Sample Collection Method:

X Bailer: Teflon Stainless Steel PVC ABS Plastic

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

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: 8015 GRO 8015 DRO 8260 BTEX MTBE Nitrate/Sulfate

Sample Appearance

OVA Reading (ppm)

Suspended Solids (describe):

Centrifugal Pump to purge

DO: 11.36 mg/L

ORP: 80 mV

FE: 0.64 mg/L

Decontamination Performed:

washed/Rinsed Sounders/Meters

Comments / Calculations:

Start: 1349

Stop: 1359

Sample: 1410

Name: Eric R. Gersh

Date: 10-16-01

Well ID: MW-2

Project Name: ACT Seminary  
Casing Diameter (in): 2"  
Total Well Depth (ft): 23.5  
Depth to Water (ft) before purging:

Project Number: 2014-1  
Sample Date: 10-16-01  
Sample ID: MW-2

5.25 / 5.23; Depth to Free Product / Depth to water

Development Method:  
NA Bailer:        Teflon        Stainless Steel        PVC        ABS Plastic

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

| Time | pH   | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1436 | 7.02 | 3720                   | 24.5                  | 5.85                      | 3               | 0.6             |
| 1439 | 7.41 | 3870                   | 24.1                  | 7.98                      | 6               | ↓               |
| 1451 | 7.37 | 3900                   | 24.1                  | 12.57                     | 9               | ↓               |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       |                           |                 |                 |
|      |      |                        |                       | Total =                   | 10              |                 |

Water Volume to be Purged (gal):  $(23.5 - 5.25) = 18.25 \times 0.165 = 3.01 \times 3 = 9.03$   
(Casing Length in Ft - Depth to Water in Ft) (X) (3)  
Where X = 1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells

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

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

Sample Collection Method:  
X Bailer:        Teflon        Stainless Steel        PVC        ABS Plastic  
       Pump:        Dedicated Submersible Pump        Bladder Pump  
       Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

8015 GRO/DRO Nitrate/Sulfate  
8260 BTEX/MTBE  
Parameter Collected: \_\_\_\_\_

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

centrifugal pump to Porge

Fe = >3.3  
DO = 17.63  
ORP = <-50

Decontamination Performed:  
R/W S/M

start: 1433  
stop: 1453  
sample: 1500

Comments / Calculations:

Name: Erik R. Gerking Date: 10-16-01

# Chain of Custody Record



Severn Trent Laboratories, Inc.

STL-4124 (1200)

Client: Cameron-Cole, LLC Project Manager: Brad Wright Date: 10-16-01 Chain of Custody Number: 071572  
 Address: 101 W. Atlantic Bldg 90 Telephone Number (Area Code)/Fax Number: (510) 337 8600 (Ext. 18) Lab Number: \_\_\_\_\_  
 City: Alameda State: CA Zip Code: 94501 Site Contact: \_\_\_\_\_ Lab Contact: Sam McNeil Page 1 of 1

| Sample I.D. No. and Description<br>(Containers for each sample may be combined on one line) | Date     | Time | Matrix |         |     |      | Containers & Preservatives |       |      |     |      |      | Analysis (Attach list if more space is needed) |                 |             |          | Special Instructions/<br>Conditions of Receipt |         |   |
|---|----------|------|--------|---------|-----|------|----------------------------|-------|------|-----|------|------|--|-----------------|-------------|----------|--|---------|---|
|   |          |      | Air    | Aqueous | Sed | Soil | Unpres.                    | H2SO4 | HNO3 | HCl | NaOH | ZnAc | NaOH   | Nitrate/Sulfate | BOD/MEI/MBE | GR0/GR1S |  | DE0/GR5 |   |
| MW-1  | 10-16-01 | 1110 |        | X       |     |      |                            |       |      |     |      |      |  |                 |             | X        | X  | X       | X |
| MW-10   |          | 1200 |        |         |     |      |                            |       |      |     |      |      |  |                 |             |          |  |         |   |
| MW-9  |          | 1255 |        |         |     |      |                            |       |      |     |      |      |  |                 |             |          |  |         |   |
| MW-11   |          | 1330 |        |         |     |      |                            |       |      |     |      |      |  |                 |             |          |  |         |   |
| MW-3  |          | 1410 |        |         |     |      |                            |       |      |     |      |      |  |                 |             |          |  |         |   |
| MW-2  |          | 1500 |        |         |     |      |                            |       |      |     |      |      |  |                 |             |          |  |         |   |
| Trip Blank  |          | 1000 |        | L       |     |      |                            |       |      |     |      |      |  |                 |             |          |  |         |   |

Possible Hazard Identification:  Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required:  24 Hours  48 Hours  7 Days  14 Days  21 Days  Other \_\_\_\_\_ QC Requirements (Specify) \_\_\_\_\_

|   |   |                                    |   |
|---|---|------------------------------------|---|
| 1. Relinquished By: <u>Chuck Worley</u> | Date: <u>10-16-01</u> Time: <u>1600</u> | 1. Received By: <u>Brad Wright</u> | Date: <u>10-16-01</u> Time: <u>1600</u> |
| 2. Relinquished By: _____               | Date: _____ Time: _____                 | 2. Received By: _____              | Date: _____ Time: _____                 |
| 3. Relinquished By: _____               | Date: _____ Time: _____                 | 3. Received By: _____              | Date: _____ Time: _____                 |

Comments: \_\_\_\_\_

Well ID: MW-2

Project Name: AC Transit (Seminary) Project Number: 2014-1  
Casing Diameter (in): 2" Date: 10-3-01  
Total Well Depth (ft): 23.51'  
Depth to Water (ft) before purging: 5.76' (Free Product) / 5.78' (water)

Development Method:  
N/A Bailer:        Teflon        Stainless Steel        PVC        ABS Plastic  
       Pump:        Dedicated Submersible Pump        Bladder Pump  
              Non-Dedicated Submersible Pump

| Time | pH    | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|-------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1335 | Start | Pump                   | —————                 | —————                     | 0               | 0.2             |
| 1610 | Stop  | Pump                   | —————                 | —————                     | 31              | ↓               |
|      |       |                        |                       |                           | Total v = 31    |                 |
|      |       |                        |                       |                           | Casings = 10.6  |                 |

Water Volume to be Purged (gal):  $(23.51' - 5.78') \times 0.165 = 17.73' \times 0.165 = 2.93 \times 20 = 58.6 \text{ gal}$   
(Casing Length in Ft - Depth to Water in Ft) (X) (3)  
Where X = 1 Well Volume in Gal/ft, X = 0.165 for 2" wells, X = 0.37 for 3" wells, X = 0.65 for 4" wells

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

At least 10 well casing volumes were removed.

Sample Collection Method:  
       Bailer: NA Teflon        Stainless Steel        PVC        ABS Plastic  
       Pump:        Dedicated Submersible Pump        Bladder Pump  
              Non-Dedicated Submersible Pump

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: NA

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

Decontamination Performed:  
washed / Rinsed oil/water interface probe

Comments / Calculations:  
Start: 1330  
Stop: 1610

Name: Erik R. Gerdy Date: 10-3-01

MW-2 over-purge event

Well ID: MW-2

Project Name: AC Transit (Seminary)

Project Number: 2014-1

Casing Diameter (in): 2"

Sample Date: 10-18-01

Total Well Depth (ft): 23.51

Sample ID:

Depth to Water (ft) before purging:

5.31' (swl)

Development Method:

Bailer: Teflon Stainless Steel PVC ABS Plastic

NA

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

| Time | pH         | Conductivity (umho/cm) | Temperature (Celsius) | Water Level (to 0.01 ft.) | Cum. Vol. (gal) | Pump Rate (GPM) |
|------|------------|------------------------|-----------------------|---------------------------|-----------------|-----------------|
| 1535 | Start Pump |                        |                       |                           | 0               | 0.3             |
| 1640 | Stop Pump  |                        |                       |                           | 22              | ↓               |
|      |            |                        |                       |                           | Total(V) = 22   |                 |
|      |            |                        |                       |                           | Casings = 7.3   |                 |

Water Volume to be Purged (gal):  $(23.51 - 5.31) = 18.20 \times 0.165 = 3.0 = \text{one casing volume}$   
(Casing Length in Ft - Depth to Water in Ft) (X) (3)  
Where X=1 Well Volume in Gal/ft, X=0.165 for 2" wells, X=0.37 for 3" wells, X=0.65 for 4" wells

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

At least \_\_\_\_\_ well casing volumes were removed prior to sampling.

Sample Collection Method:

Bailer: Teflon Stainless Steel PVC ABS Plastic

NA

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

QA/QC Samples if any (Duplicate, Field Blank, Rinse Blank, Etc.):

Parameter Collected: NA

Sample Appearance

OVA Reading (ppm)  
Suspended Solids (describe): NA

Decontamination Performed:

washed / Rinsed sounder

Comments / Calculations:

Start: 1535  
Stop: 1640

Name: Erik R. Gerby

Date: 10-18-01



# SAMPLING EVENT DATA SHEET

(fill out completely)

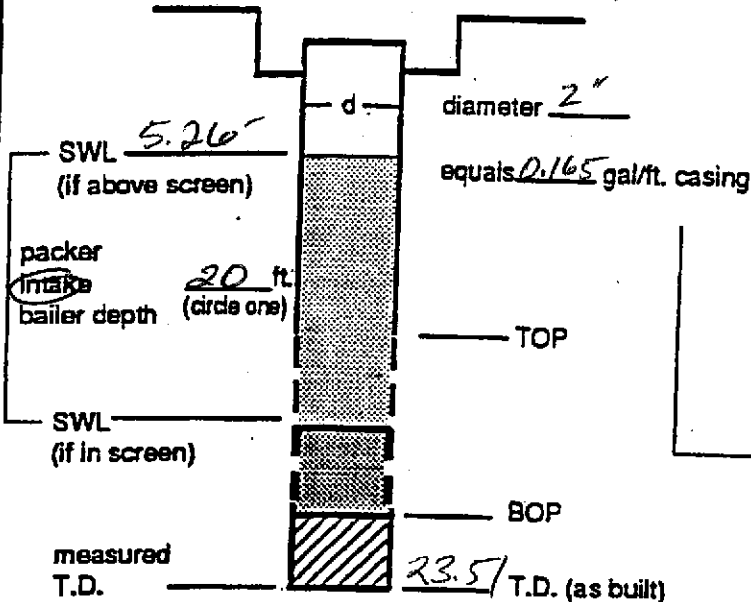
WELL OR LOCATION MW-2

PROJECT AC Transit Seminary EVENT MW-2-Over-logs SAMPLER EG DATE 11/12/01

**Well / Hydrologic statistics**

Well type MW  
(MW, EW, etc.)

diameter 2"  
equals 0.165 gal/ft. casing



| Action              | Time | Pump rate | IWL (low yield) |
|---------------------|------|-----------|-----------------|
| Start pump / Begin  | 1300 | 0.3       |                 |
| Stop                | 1500 |           |                 |
| Sampled (Final IWL) |      |           |                 |

**Purge calculation**

$0.165 \text{ gal/ft.} \times 18.25 \text{ ft.} = 3.01 \text{ gals} \times 3 = 9.03 \text{ gals.}$

SWL to BOP or one packer to BOP volume      purge volume- 3 casings

**Head purge calculation (Air lift only)**

gal/ft.        ft. =        gals.  
packer to SWL

**Equipment Used / Sampling Method / Description of Event:**

*Centrifugal pump to purge*

|                        |                   |
|------------------------|-------------------|
| Actual gallons purged  | <u>29</u>         |
| Actual volumes purged  | <u>9.6</u>        |
| Well yield (see below) | <u>⊕ MY/LY</u>    |
| COC #                  | <u>NA</u>         |
| Sample I.D.            | Analysis      Lab |
| <u>NA</u>              | <u>      </u> →   |

**Additional comments:**

Depth to top of oil layer = 5.12'  
SWL = 5.26'  
oil layer thickness = 0.14'  
\* Weather Conditions: Heavy Rain

| Gallons purged * | TEMP °C / °F (circle one) | EC (µs / cm) | pH | TURBIDITY (NTU) | PID |
|------------------|---------------------------|--------------|----|-----------------|-----|
| <u>NA</u>        |                           |              |    |                 |     |
|                  |                           |              |    |                 |     |
|                  |                           |              |    |                 |     |
|                  |                           |              |    |                 |     |
|                  |                           |              |    |                 |     |

Take measurement at approximately each casing volume purged

⊕ HY - Minimal W.L. drop      MY - WL drop - able to purge 3 volumes during one sitting by reducing pump rate

LY - Able to purge 3 volumes by returning      VLY - Minimal recharge - unable to purge