

**FINAL  
ANNUAL MONITORING REPORT  
SOIL AND GROUNDWATER REMEDIATION  
BUILDING 45- USTs S-941-1 AND 941-2  
MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA**

Prepared for:

**DEPARTMENT OF THE NAVY**  
Contract No.



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Naval Facilities Engineering Command  
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Task Order 0011  
Shaw Project No. 845823  
March 2004

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## ACRONYM LIST

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|                   |                                                                |
|-------------------|----------------------------------------------------------------|
| µg/l              | micrograms per liter                                           |
| AFVR              | aggressive fluid/vapor recovery                                |
| AS                | Air Sparge Well                                                |
| BQL               | below quantitation limits                                      |
| CAP               | corrective action plan                                         |
| CERCLA            | Comprehensive Environmental Restoration & Clean-up ACT         |
| cfm               | cubic feet per minute                                          |
| CSA               | comprehensive site assessment                                  |
| ft bls            | feet below land surface                                        |
| HDPE              | high density polyethylene                                      |
| Hg                | mercury                                                        |
| J.A. Jones        | J.A. Jones Environmental Services Company                      |
| Law               | Law Engineering and Environmental Services, Inc.               |
| LNAPL             | light non-aqueous phase liquid                                 |
| mg/Kg             | milligrams per kilograms                                       |
| mg/m <sup>3</sup> | milligrams per cubic meter                                     |
| MW                | Monitoring Well                                                |
| NAVFACENGCOM      | Navy Atlantic Division, Naval Facilities Engineering Command   |
| NCAC              | North Carolina Administrative Code                             |
| NCDENR            | North Carolina Department of Environment and Natural Resources |
| PAHs              | polychlorinated biphenyls                                      |
| Paradigm          | Paradigm Analytical Laboratories, Inc.                         |
| PCBs              | polychlorinated biphenyls                                      |
| ppm               | parts per million                                              |
| psi               | pounds per square inch                                         |
| PVC               | polyvinyl chloride                                             |
| PW                | pumping well                                                   |
| SVE               | Soil Vapor Extraction                                          |
| TCLP              | toxicity characteristic leachate procedure                     |
| TPH               | total petroleum hydrocarbon                                    |
| USEPA             | United States Environmental Protection Agency                  |
| UST               | Underground Storage Tank                                       |
| VOC               | volatile organic compound                                      |

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## EXECUTIVE SUMMARY

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From April 1998 through July 2002, J.A. Jones implement the selected approach as outlined in the February 21, 1996 Corrective Action Plan (CAP) prepared by Law. The selected remedial approach consists of a remediation treatment system of air sparging and soil vapor extraction that volatilizes dissolved hydrocarbons present in the groundwater and to collect vapors generated during air sparging. It also included groundwater monitoring to maintain optimum treatment system performance and to track petroleum-impacted groundwater migration/attenuation to verify remediation progress.

J.A. Jones prepared a Draft Annual Monitoring Report in December 2002 presenting operation and monitoring results from April 1998 through July 2002. The Department of the Navy Atlantic Division, Lantdiv has retained Shaw Environmental, Inc. to complete this Annual Monitoring Report.

J.A. Jones completed installation and began operation of the Building 45 USTs S-941 and S-941-2 treatment system on April 16, 1998. Groundwater samples were collected monthly from each of the on-site monitoring wells during the first quarter of system operation and quarterly thereafter.

There are two dissolved phase groundwater contamination plumes located at the Building 45 site. A dissolved phase contaminant plume encompasses the area around the location of the former USTs S-941-1 and S-941-2 and extends to encompass PW -01, MW-2, and MW-03. A separate plume, which was located around MW-15, appears to have remediated.

From 1998 through 2002, the interpreted arial extent of dissolved VOCs and PAHs in the vicinity of the former USTs S-941-1 and S-941-2 has remained generally consistent, with a slight decrease in plume size over time. Dissolved phase contaminant concentrations have decreased overall.

Concentrations of VOCs and PAHs in monitoring wells PW-01, MW-02 and MW-03 have decreased significantly after a total of 30 AFVR events were performed from April 9, 1999 to December 13, 2001. A total of 426 gallons of light non-aqueous phase liquid (LNAPL) was recovered during this period.

The Building 45 area is located within a CERCLA site – Installation Restoration Site 84, Operable Unit 19. As part of the remedial action for Site 84, Shaw performed soil excavation in June 2002. Excavation activities included the areas of PW-01, MW-02, MW-03 and MW-10. As a result of this excavation, the air sparge/soil vapor extraction wells AS-5 through AS-8 and SVE-5 through SVE-8 were disconnected and removed. Shaw excavated this area due to the presence of PCBs and pesticides; however, it also represented the most impacted area from the petroleum contamination. Excavation activities were conducted in this area in an effort to remove the source plume. Preliminary data from Shaw activities suggest additional petroleum constituents were

detected at locations not previously under the influence of the system. A final soil removal completion report was submitted by Shaw in March 2003.

Shaw recommends that wells PW-1, MW-2 and MW-3 be replaced and sampled to determine the effectiveness of the site excavation activities and to monitor for the presence of LNAPL. Catlin has been contracted to complete a remediation system optimization survey at the site in 2004. Until the survey has been completed, Shaw recommends continued treatment system operation with an emphasis on the source area and quarterly sampling of select monitoring wells.

A review of the excavation completion report for the work performed by Shaw should be conducted to assess if the air sparge and SVE treatment system previously located at the excavation area (AS-5 through AS-8 and SVE 5 through SVE 8) should be reconnected and be brought back in operation. As part of the evaluation to recommend if the air sparge and SVE treatment system should be reconnected, additional confirmatory soil samples may be required to confirm if the removal of petroleum contaminated soil was fully performed.

## SECTION 1.0

### INTRODUCTION

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As part of the installation, operation, and maintenance of the soil and groundwater treatment system at Building 900 located on Camp Lejeune, North Carolina, J. A. Jones operated the remedial system from July 1999 through June 2002. A Draft Annual Monitoring Report was prepared by J.A. Jones in July 2002 presenting operation and monitoring results from July 1999 through June 2002. Because J.A. Jones remedial contract expired in early 2003, the Department of the Navy Atlantic Division, Naval Facilities Engineering Command (NAVFACENGCOM), has retained Shaw Environmental, Inc. to complete this Annual Monitoring Report. The purpose of this report is to present the findings and recommendations associated with the operation of the groundwater treatment system, groundwater monitoring activities, and additional groundwater and geophysical investigations that took place from July 1999 to June 2002.

This Annual Monitoring Report is organized into four sections of text including tables that present historical analytical data from sampling events and groundwater elevations at the site. Figures provided in this report present groundwater elevation contour maps detailing groundwater flow patterns, contaminant trend line charts from the samples collected from the on-site groundwater monitoring wells, and dissolved contaminant plume isopleth maps, which present the distribution of the volatile aromatic and semi-volatile organic compounds detected above 15A NCAC 2L groundwater quality standards. Also included are two appendices that present the laboratory data from the groundwater monitoring well and soil vapor extraction system sampling events. Two additional appendices were included in this report which document the additional groundwater and geophysical investigations conducted coincident with the operations and maintenance of this groundwater treatment system.

**Section 1.0 Introduction** includes the site history, an operational overview of the groundwater treatment system, the operation and maintenance objectives, the sampling and analyses requirements, and the annual reporting requirements.

**Section 2.0 Operations and Maintenance** provides a summary of the operation of the groundwater treatment system including any problems encountered and troubleshooting required during system operation. This section also includes a summary of modifications made to the system during this period.

**Section 3.0 Analytical Summary** presents a summary of the analytical results from the air effluent samples collected from the soil vapor extraction system and the groundwater samples collected from the on-site monitoring wells.

**Section 4.0 Conclusions and Recommendations** addresses the conclusions and recommendations from the annual operation of the soil and groundwater treatment system and the quarterly groundwater monitoring well sampling events.

## **1.1 SITE HISTORY**

Building 45 was an equipment and maintenance shop located on the Marine Corps Base, Camp Lejeune, Onslow County, North Carolina. USTs 941-1 and 941-2 were part of this facility.

**Figure 1-1** provides a plan of the Building 45 site and shows the air sparging and soil vapor extraction wells designed to remediate the petroleum hydrocarbon contamination at the site. The site consists of former building 45 and 780 and former fueling area. Also provided on the figure is the approximate extent of soil removal activities completed by Shaw in July 2002.

According to information provided in the Leaking UST Site Assessment Report, dated May 12, 1994, prepared by Law, the UST system at the site originally consisted of two USTs installed in 1941: Tank S-941-1 was a 6,000 gallon diesel steel tank and tank S-941-2 was a 550 gallon gasoline steel tank. According to this report in June 1990, UST S-941-2 failed a leak detection test with a leak rate of 0.10250 gallons per hour. A subsequent test of the tank indicated that the leak was from a product pipe associated with the tank. In August 1991, ATEC conducted an investigation of the site, which indicated that soil and groundwater at the subject site was contaminated by petroleum hydrocarbon. In October 1992, both UST S-941-1 and S-941-2 were excavated and removed from the site by Jones and Frank, Inc. A total of 105 cubic yards of contaminated soils was transported from the site for disposal. Soil samples collected during the removal of UST S-941-2 indicated TPH concentrations ranging from 52.3 to 525 ppm. During the excavation of UST S-941-1, free product was observed in the pit. Due to the presence of free product, soil samples were not collected from the UST S-941-1 tank pit.

As part of a 1994 site assessment, Law performed soil borings, hydropunches and monitoring well installation, soil and groundwater sampling and analysis, an 8-hour aquifer-pumping test, five rising head permeability tests, a preliminary exposure assessment, and a preliminary evaluation of remedial alternatives. The results of this investigation were presented by Law in the Leaking UST Site Assessment Report dated May 12, 1994. In June 1994, R.E. Wright Associates, Inc. conducted further groundwater sampling and analysis to define the lateral extent of contamination at the site. Based on the information collected and presented from these investigations, Law submitted a CAP on February 21, 1996.

A Work Plan for the implementation of the CAP was completed by J.A. Jones on May 30, 1997. J.A. Jones completed a Work Plan Addendum in October 1997. The Work Plan Addendum presented the site-specific project activities associated with the construction of a soil and groundwater treatment system, including eight vertical air sparge wells and eight vertical SVE wells. The objectives of the system was to reduce concentrations of adsorbed petroleum hydrocarbons contained in vadose zone soil and reduce dissolved-phase petroleum hydrocarbons in groundwater at the site.

The final work plan was approved by the NCDENR on November 3, 1997. Construction of the soil and groundwater treatment system began in January 1998 and was completed in April 1998. The groundwater monitoring wells were sampled monthly during the first quarter and once every quarter thereafter since the startup of the remedial system on April 16, 1998. **Section 3.0** provides more information on the groundwater monitoring well and treatment system sampling results.

On November 18, 1999, soil contamination was characterized for the purpose of excavation in the plume area around the location of the former USTs S-941-1 and S-941-2 and the area encompassing PW-01, MW-2 and MW-03. Three composite soil samples were collected from the proposed soil excavation area and analyzed for diesel-range and gasoline-range TPH, using USEPA Methods 3550 and 5030, respectively. Three grab samples were collected from the proposed soil excavation area and analyzed by Prism Laboratories, Inc. for PCBs, using USEPA Method 8080 and one grab sample was collected from the proposed excavation area and analyzed for ignitability, reactivity, corrosivity and TCLP using USEPA Method 1311. Diesel-range and gasoline-range TPH were not detected in the three composite samples above laboratory quantitation limits. None of the TCLP constituents were detected above laboratory quantitation limits and the ignitability, reactivity and corrosivity test results verified the fill material is not considered a hazardous waste. The results from the PCB sample indicated that the PCB Arochlor-1260 was detected in two of the three grab samples at concentrations of 1.8 mg/kg and 0.16 mg/kg. In addition, the following pesticides were also detected in the three soil samples at the following concentrations:

4,4-DDD – 9 mg/kg, 79 mg/kg, and 15 mg/kg  
4,4 DDE – 37 mg/kg, 200 mg/kg, and 29 mg/kg  
4,4-DDT – 12 mg/kg, and 19 mg/kg, and 13 mg/kg  
Dieldrin – 18 mg/kg, 340 mg/kg, and 36 mg/kg

Based on the results outlined above, J.A. Jones did not proceed with the proposed soil removal at the Building 45 site. In June 2002, however, Shaw initiated and completed PCB and pesticide excavation activities as part of CERCLA Site 84 remedial activities. The area encompassed PW-1, MW-2, MW-3 and MW-10. Each well was abandoned prior to the start of the work. AS-5 through AS-8 and SVE-5 through SVE-8 were disconnected from the Building 45 treatment system to accommodate the excavation activities. The area excavated by Shaw was located in the area with the highest groundwater petroleum concentrations at the site, and therefore the excavation should have contributed to the removal of the petroleum source plume at the site.

This Annual Monitoring Report documents the operation and performance of the soil and groundwater treatment system throughout its operation from April 1998 to July 2002.

## 1.2 SOIL AND GROUNDWATER TREATMENT SYSTEM

The soil and groundwater treatment system for Building 45 was designed to reduce the concentrations of adsorbed petroleum hydrocarbons in vadose zone soils at the site and to reduce dissolved-phase petroleum hydrocarbons in groundwater at the site. In the February 1996 CAP, prepared by Law, remediation goals for soil and groundwater were identified. The target cleanup level for TPH gasoline range in soil was obtained from a Site Sensitivity Assessment and was identified as 40 mg/kg. The groundwater standards identified below are from 15A NCAC 2L *Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina*. Also identified below (Table 1.0) are the highest concentrations detected during the Law Site Assessment (May 1994) and the CAP (February 1996).

**TABLE 1.0**  
**North Carolina Groundwater Quality Standards and**  
**Site Target Cleanup Concentrations**

| Groundwater<br><u>Constituent</u> | Maximum<br>Detected<br><u>Concentration</u> | July 02 Maximum<br>Detected<br><u>Concentrations</u> | % Decrease<br>In Site<br><u>Contamination</u> | Site Rehabilitation<br><u>Concentration</u> |
|-----------------------------------|---------------------------------------------|------------------------------------------------------|-----------------------------------------------|---------------------------------------------|
| Benzene                           | 3,800 ug/l                                  | 55                                                   | 98.55%                                        | 1.0 ug/l                                    |
| Ethylbenzene                      | 800 ug/l                                    | 5                                                    | 99.38%                                        | 29 ug/l                                     |
| Toluene                           | 1,700 ug/l                                  | 2                                                    | 99.88%                                        | 1,000 ug/l                                  |
| Total Xylenes                     | 3,600 ug/l                                  | BQL                                                  | 100%                                          | 530 ug/l                                    |
| Naphthalene                       | 24 ug/l                                     | BQL                                                  | 100%                                          | 21 ug/l                                     |
| Benzo(a)anthracene                | 7.1 ug/l                                    | BQL                                                  | 100%                                          | 0.0478 ug/l                                 |

Groundwater and soil at the site are treated by an air sparge and SVE system. Eight vertical air sparge wells were installed to a depth of approximately 45 ft bls. Air is injected into the subsurface through these wells using a single air compressor. This compressed air enhances volatilization of the dissolved-phase VOCs in groundwater and adsorbed phase VOCs in saturated soils. Eight vertical SVE wells were installed to a depth of six ft bls. The SVE system works by extracting soil vapors, which also enhances the volatilization of adsorbed VOCs in the unsaturated zone. The extracted soil gas/vapors from the SVE system are discharged to the atmosphere.

The eight air sparge wells are 2-inch diameter and have a screen interval from 39.5 to 44.5 ft bls. The well screens consist of a 5-foot section of 2-inch diameter, 0.02-inch slot width, Circumslot PVC well screen flush threaded to 38 feet of 2-inch diameter schedule 80 PVC well casing. The sand pack in each well consists of washed, grade 6/20 silica sand that is appropriate for the formation and screen slot size.

The eight SVE wells have a diameter of 4-inches and are installed to a depth of six ft bls, with a screen interval from 2.5 to 5.5 ft bls. The well screens consist of a 3 foot section of 4-inch diameter, 0.02 inch slot width, Circumslot PVC well screen flush threaded to 1-foot of 4-inch diameter schedule 80 PVC well casing. The sand pack in each well consists of washed, grade 6/20 silica sand that is appropriate for the formation and screen slot size.

Compressed air is supplied to the eight air sparge wells through a 1.25-inch diameter Air-Pro HDPE compressed air header pipe installed in a trench approximately two feet bls. The air sparge system consists of a rotary vane air compressor, 80 gallon compressed air receiver, inline filter, regulator, and flow meter. The soil vapor extraction system consists of two soil vapor extraction headers installed in a trench approximately two ft bls. The recovery system is configured to allow soil vapors to pass through a moisture separator, a particulate filter prior to the positive displacement vapor extraction blower, and discharged to the atmosphere. A 500 gallon vertical polyethylene storage tank is used to store condensate from the air receiver and to collect fluid from the moisture separator.

### **1.3 OPERATIONS AND MAINTENANCE REQUIREMENTS**

Scheduled operation and maintenance inspections were performed weekly to maintain the performance and operation of the treatment equipment, to inspect moisture accumulation level in the storage tank, and to collect and record instrumentation readings. Instrumentation readings include air sparge and soil vapor extraction pressure, vacuum, and flow rate at the wells and within the treatment building. The frequency of the scheduled operations and maintenance inspections are presented as follows:

| <u>Event Description</u>                        | <u>Frequency</u>                                      |
|-------------------------------------------------|-------------------------------------------------------|
| Record Instrumentation Readings                 | Weekly                                                |
| Verify Proper Operation of Fail Safe Conditions | Monthly                                               |
| Service Equipment                               | As Required by the<br>Manufacturer's Instructions     |
| Measure and Record Groundwater Elevations       | Monthly                                               |
| Collect Groundwater Monitoring Well Samples     | Monthly for First Quarter and<br>Quarterly Thereafter |
| Collect Soil Vapor Extraction Effluent Sample   | Monthly for First Quarter and<br>Quarterly Thereafter |

Non-scheduled operations and maintenance events were required to troubleshoot equipment and adjust treatment system equipment.

### **1.4 SUMMARY OF PRODUCT RECOVERY EVENTS**

A total of 30 AFVR treatment events were performed at wells with LNAPL, including PW-1, MW-2 and MW-3 from April 9, 1999 through December 13, 2001. A total of 426 gallons of LNAPL was removed during this period. Typical operation of an AFVR event involves operating a vacuum truck and applying approximately 25 inches of Hg vacuum to well heads.

The more volatile petroleum constituents are vaporized while LNAPL is physically removed as a liquid. **Appendix A** provides a summary of the results from each AFVR event.

### **1.5 SAMPLING AND ANALYSES REQUIREMENTS**

Groundwater monitoring well and soil vapor extraction effluent samples were collected monthly during the first quarter of operation of the treatment system and quarterly thereafter. Each groundwater sample collected from on-site monitoring wells was delivered by overnight carrier to Paradigm, and analyzed for volatile aromatic hydrocarbons using USEPA Method 602 and polynuclear aromatic hydrocarbons by USEPA Method 610. Initially, on April 14, 1998, groundwater samples were collected from monitoring wells MW-12, MW-16 and MW-17 to establish contaminant concentrations prior to the April 16, 1998 treatment system start-up. After treatment system startup, samples were collected from on-site monitoring wells PW-1, MW-2, MW-3, MW-5, MW-8, MW-9, MW-10, MW-13 through MW-20, MW-01/4, and MW-04/4.

The air quality effluent samples were delivered by overnight carrier to Paradigm and analyzed for volatile aromatic hydrocarbons using USEPA Method 18. These samples were collected during April, May, June and July 1998 and quarterly thereafter. Samples have been collected from the SVE system's effluent and influent to evaluate VOC vapor recovery.

In addition, groundwater elevations were measured from each of the monitoring wells in the network on a monthly basis. During each groundwater elevation survey, the monitoring wells were gauged for the presence of LNAPL.

## SECTION 2.0

### OPERATION AND MAINTENANCE

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#### 2.1 OPERATION HISTORY

Operation and maintenance of the groundwater treatment system began on the system start-up date of April 16, 1998. Since April 16, 1998, the groundwater treatment system has been inspected a minimum of once per week. Frequency of the operation and maintenance inspections increased during system repair and troubleshooting activities. In addition, scheduled inspections were conducted during the groundwater monitoring well and soil vapor extraction effluent sampling events.

Based on the results of a vapor extraction and air sparging pilot test performed at the site on March 30, 1995, Law calculated the following system operating parameters: vacuum flow-rate of 567 cfm with a vacuum of up to 5.75 inches of Hg; and a sparge air flow rate of approximately 24.5 cfm with a delivery pressure of up to 15 psi. At these designed vacuum and injection flow-rates, Law estimated a 42 feet radius of influence for each SVE well and a 33.6 feet radius of influence for each sparge well.

Vapor discharge flowrates were measured on a monthly basis using Dwyer Instruments, Inc. Capsuhelic differential pressure gauges installed on each soil vapor extraction well.

During treatment system operation by J.A. Jones from April 1998 through July 2002, air sparge well injection and vacuum flowrates were adjusted during routine site inspections to be less than the design parameters recommended by Law (60% of the design parameters on average) to mitigate the effects of the sparging activity on groundwater mounding.

Groundwater elevations were measured monthly from wells from April 1998 to July 2002. The groundwater elevation data is presented in **Table 2-1**. A groundwater contour map illustrating the static on-site groundwater elevations on October 14, 1998 (start up date of the soil groundwater treatment system) is provided in **Figure 2-1**. Groundwater elevation contour maps, provided in **Figures 2-2** through **2-5**, present groundwater elevations following a one week period of treatment system shut down in preparation for the quarterly groundwater sampling event.

#### 2.2 SYSTEM REPAIR AND TROUBLESHOOTING

Since start-up of the soil and groundwater treatment system on April 16, 1998 there have been no major repairs associated with the operation of the treatment system. The system was nonoperational only during sampling events, AFVR events, power outages, hurricanes,

demolition activities around Building 45, or high/high level water alarms from the condensate storage tank. As stated previously, AS-5 through AS-8 and SVE-5 through SVE-8 were disconnected from the treatment system in June 2002 to accommodate soil excavation operations performed by Shaw in this area.

### **2.3 SYSTEM-DERIVED WASTE**

Since October 20, 1997, approximately 95,186 gallons of groundwater accumulated during monitoring well development, soil vapor extraction system operation, and AFVR events were transported to either the RR-72 Former Rifle Range groundwater recovery and treatment system or Shaw's North Plant Facility for treatment. In addition, on October 27, 1997 a total of 25 tons of soil generated from soil cuttings accumulated during vertical drilling were transported and disposed of at the Carlisle Farms disposal facility. This soil and approximately 871 gallons of groundwater from well development was generated prior to the start-up of the treatment system.

The transportation and disposal log, presented as **Table 2-2**, provides the complete history of the waste material accumulated during construction activities and derived during treatment system operation. The table includes the transporter, waste treatment destination, date of shipment, and volume and/or weight of material dissposed.

## SECTION 3.0

### ANALYTICAL SUMMARY

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Groundwater samples were collected once prior to treatment system startup on April 16, 1998, monthly during the first quarter of treatment system operation from May 1998 through July 1998, and quarterly thereafter. Groundwater samples were typically collected from groundwater monitoring wells MW-02, MW-03, MW-08, MW-09, MW-10, MW-13 through MW-20, MW-01/4 and MW-04/4 and pumping well PW-01.

Groundwater samples were delivered by overnight carrier to Paradigm and analyzed for volatile aromatic hydrocarbons using USEPA Method 602 and polynuclear aromatic hydrocarbons using USEPA Method 610. Analytical results are presented graphically in **Figures 3-1 through 3-11**.

Volatile aromatic hydrocarbons were not detected in any of the groundwater samples collected from monitoring wells MW-05, MW-08, MW-12, MW-14, MW-17, MW-19 and MW-20 during any of the sampling events conducted at the site from April 1998 through July 2002.

The following paragraphs provide a summary of volatile aromatic hydrocarbons and PAHs detected above the 15A NCAC 2L groundwater quality standard from each monitoring well.

PW-01: Concentrations have been detected above the established 15A NCAC 2L groundwater quality standard of 1 ug/l for benzene and 29 ug/l for ethylbenzene at monitoring well PW-01. Benzene has been detected as high as 130 ug/l while ethylbenzene was detected at a concentration of 31 ug/l during the October 11, 2000 sampling event. Benzene and ethylbenzene were not detected above laboratory quantitation limits during the sampling event conduct on April 17, 2002.

The PAHs naphthalene, fluorene, 1-methylnaphthalene and 2-methylnaphthalene have exceeded groundwater quality standards in PW-01 in past sampling events. The highest concentrations were observed during the July 18, 2000 sampling event where naphthalene, fluorene, 1-methylnaphthalene and 2-methylnaphthalene were detected at 48 mg/l, 40 ug/l, 240 ug/l and 170 ug/l, respectively. From October 16, 2001 to April 17, 2002 PAH constituents in PW-01 remained BQL. In June 2002 PW-01 was abandoned as discussed in Section 1.1 due to contaminated soil removal activities completed by Shaw.

LNAPL was recorded in PW-01 in October 14, 1998, January 14, 1999, March 19, 1999, April 13, 1999, April 22, 1999 and June 19, 2000.

MW-02: The volatile aromatic hydrocarbons benzene, ethylbenzene and total xylenes were detected above the established 15A NCAC 2L standard of 1 ug/l, 29 ug/l, and 530 ug/l respectively. Concentrations of benzene in MW-02 have fluctuated over the course of the sampling events ranging from 710 ug/l in the January 4, 1999 sampling event decreasing to 36 ug/l during the April 17, 2002 sampling event. Concentrations of ethylbenzene, fluctuated over the course of the sampling events as well, ranging from BQL February 1, 2000 to 260 ug/l on July 18, 2000. Ethylbenzene has been below regulatory levels for the last three quarters. The only elevated concentration of total xylenes above the regulatory standards of 530 ug/l occurred on July 18, 2000 (633 ug/l).

The PAHs naphthalene, acenaphthene, fluorene, phenanthrene, pyrene, 1-methylnaphthalene, and 2-methylnaphthalene have been detected above the established 15A NCAC 2L standards in MW-02. Naphthalene, acenaphthene, fluorene, phenanthrene, pyrene, 1-methylnaphthalene, and 2-methylnaphthalene were detected as high as 8,800 ug/l, 1,600 ug/l, 3,700 ug/l, 4,900 ug/l, 220 ug/l, 22,000 ug/l and 27,000 ug/l respectively, during past sampling events. The sampling event conducted on April 17, 2002 had detected concentrations above established 15A NCAC 2L standards for fluorene (17 ug/l), phenanthrene (29 ug/l) and 1-methylnaphthalene (41 ug/l). The PAH 2-methylnaphthalene was detected at 28 ug/l which meets regulatory standards, during April 17, 2002 sampling event. All other analyzed PAHs were below 15A NCAC 2L standards.

LNAPL was recorded at this well through November 27, 2001. This well was abandoned in June of 2002 as a result of contaminated soil removal activities performed by Shaw at this location.

MW-03: Benzene, ethylbenzene, total xylenes were detected above the established 15A NCAC 2L standard of 1 ug/l, 29 ug/l and 530 ug/l respectively. Concentrations of benzene and have decreased from 390 ug/l during the April 12, 1999 sampling event to 55 ug/l during the April 17, 2002 sampling event. Concentrations of ethylbenzene decreased from 560 ug/l on the April 12, 1999 sampling event to 5 ug/l during the April 17, 2002 sampling event. The only time total xylenes exceeded the regulatory limit was during the April 12, 1999 sampling event at a concentration of 2,050 ug/l.

The PAHs 1-methylnaphthalene and 2-methylnaphthalene were detected above the established 15A NCAC 2L groundwater quality standards. The concentrations of 1-methylnaphthalene and 2-methylnaphthalene have decreased from 2,500 ug/l and 3,400 ug/l detected during the April 12, 1999 sampling event, to below quantitation limits during the July 17, 2002 sampling event. PAH concentrations have remained BQL for the last six quarterly sampling events.

LNAPL was recorded at this well through August 9, 2001. As mentioned in the above paragraphs this well was abandoned in June of 2002 as a result of excavation activities completed by Shaw at this location.

MW-09: Benzene was detected in monitoring well MW-09 ranging from BQL in late 1998 and early 1999 to 19 ug/l on April 17, 2002. Benzene was detected at a concentration of 15 ug/l during the July 17, 2002 sampling event, which is above the established 15A NCAC 2L standard of 1 ug/l.

MW-10: Benzene was detected as high as 24 ug/l during the July 17, 1998 groundwater monitoring well sampling event. Benzene has been below quantitation limits for the last seven sampling events. This well was abandoned in June of 2002 due to contaminated soil removal activities completed by Shaw at this location.

MW-15: The VOCs benzene, ethylbenzene, toluene and total xylene were detected in the groundwater sample collected from monitoring well MW-15 during the May 14, 1998 sampling event at concentrations of 2,000 ug/l, 920 ug/l, 1,700 ug/l and 3,550 ug/l respectively. VOC concentrations have since demonstrated a decreasing trend. Since July 2000 only benzene has exceeded groundwater quality standards. Benzene has remained below groundwater quality standards since July 2002.

The PAH naphthalene was detected at concentrations ranging from BQL to 120 ug/l during the sampling events. All PAHs have been BQL since October 11, 2000.

MW-16: The VOCs benzene, ethylbenzene, and total xylenes were detected in MW-16 at concentrations of 1,400 ug/l, 610 ug/l and 2,500 ug/l during the April 14, 1998 groundwater sampling event. The concentration for benzene, ethylbenzene and total xylenes have remained BQL since that sampling event.

The PAH naphthalene was detected at a concentration of 39 ug/l during the April 14, 1998 sampling event. PAHs have not been detected above laboratory quantitation limits in subsequent sampling events.

Trace LNAPL was detected in the monitoring well on April 13, 1999.

MW-18: Benzene was detected as high as 91 ug/l during the June 22, 1998 sampling event and has decreased to BQL for the last 11 quarterly sampling events. During the January 16, 2002 sampling event phenanthrene (18 ug/l) was detected above the regulatory level. This was the only occurrence of phenanthrene in monitoring well MW-18. On April 22, 1999 LNAPL was detected in MW-18.

MW-01/4: Benzene was detected in monitoring well MW-01/4 during the first, second and third quarter 1999 sampling events as well as the April and July 2000 sampling events. Concentrations of benzene in all three of these quarters were above or equal to the established 15A NCAC 2L standard of 1 ug/l but decreased to below laboratory quantitation limits in subsequent sampling events.

MW-04/4: Benzene was detected in monitoring well MW-04/4 during the October 14, 1998 sampling event. The concentration of benzene in this quarter was equal to the established 15A NCAC 2L standard of 1 ug/l. In all other sampling events no VOCs or PAHs were detected above the laboratory quantitations limits.

**Table 3-1** presents a summary of the detected contaminant concentrations in the groundwater samples collected from the on-site groundwater monitoring wells during the sampling events dating back to May 1998. **Appendix B** provides the laboratory analytical reports from the groundwater monitoring well sampling events.

Dissolved contaminant plume isopleth maps, which present the distribution of the volatile aromatic hydrocarbons and the polynuclear aromatic hydrocarbons detected above the 15A NCAC 2L groundwater quality standards are presented in **Figures 3-1** through **3-11**.

During each of the groundwater sample collection events completed from April 16, 1998 through July 17, 2002 an air quality sample was collected from the SVE system effluent or from an SVE system branch. Each air quality sample was delivered by overnight carrier to Paradigm and analyzed for volatile aromatic hydrocarbons using USEPA Method 18.

Volatile aromatic hydrocarbons were detected above laboratory quantitation limits in the air quality samples collected from the SVE system from April 16, 1998 through April 10, 2002. During the April 16, 1998 sampling event, which occurred on the first day of start-up, there was a total xylenes concentration of 17.9 mg/m<sup>3</sup>. On June 19, 1998, total xylenes were detected at a concentration of 0.3 mg/m<sup>3</sup>. VOCs were not detected during subsequent sampling events.

Dilution air is added as the airflow passes through the moisture separator tank to reduce total system vacuum and prevent the collection of groundwater in the treatment system. Due to the addition of dilution air to the SVE system effluent, recovered concentrations of VOCs may not be detected above the laboratory quantitation limits in the samples collected. Therefore, the concentrations of VOCs recovered appear to be zero. For this reason, J.A. Jones began collecting air quality samples from the SVE wells prior to the addition of the dilution air in April 2001, to obtain a more accurate measurement of VOCs recovered during system operation. Each SVE well had a sample port installed, so no system modification was necessary. The sample results had concentrations below laboratory quantitation limit levels. **Table 3-2** presents a summary of the detected contaminant concentrations in the air quality samples collected from the soil vapor extraction system. **Appendix C** provides the laboratory analytical reports from the air quality sampling events.

## SECTION 4.0

### CONCLUSIONS AND RECOMMENDATIONS

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From April 16, 1998 through July 31, 2002, J.A. Jones implemented the selected remedial approach as outlined in the February 21, 1996 CAP prepared by Law. The selected remedial approach is based on the installation and operation of a remediation treatment system consisting of air sparging and soil vapor extraction. The system volatilizes dissolved hydrocarbons present in the groundwater and collects vapors generated during air sparge. J.A. Jones also performed groundwater monitoring to monitor treatment system performance and to track petroleum-impacted groundwater migration to verify remediation progress.

J.A. Jones completed installation and began operation of the Building 45 treatment system on April 16, 1998. Groundwater samples were collected from on-site monitoring wells on a monthly basis for three months after system startup and quarterly thereafter. Groundwater samples were analyzed for volatile aromatic hydrocarbons by USEPA Method 602 and polynuclear aromatic hydrocarbons by USEPA Method 610.

There are two dissolved phase groundwater contamination plumes located at the Building 45 site. One plume is located in the vicinity of the former USTs S-941-1 S-941-2 and the other plume is located in the vicinity of monitoring well MW-15. The dissolved plume around MW-15 appears to have been remediated while the plume in the vicinity of the former USTs appears to have reached an asymptotic concentration level. The soils in the former tank basin were excavated recently in an attempt to eliminate the source of the petroleum plume.

From 1998 through 2002, the interpreted arial extent of dissolved VOCs and PAHs in the vicinity of former USTs S-941-1 and S-941-2 has remained generally consistent, with contaminant concentrations decreasing over time. Dissolved phase contaminant concentrations have decreased overall indicating the remedial system has been effective in volatilizing petroleum contamination at the site.

According to the groundwater elevation data collected by J.A. Jones, the direction of groundwater flow is estimated to be predominantly toward the northwest.

Vapor extraction flowrates were measured from each vapor extraction well, while air quality samples were collected from the treatment system effluent and from the SVE wells themselves. Current sample results indicated concentrations below laboratory quantitations limits.

Shaw recently completed contaminated soil removal activities at the Building 45 site, which encompassed monitoring well PW-1, MW-2, MW-3 and MW-10. Each well was abandoned

prior to the start of the work. Air sparge wells AS-5 through AS-8 and SVE wells SVE-5 through SVE-8 were also disconnected from the treatment system at the site to accommodate the contaminated soil removal activities. Shaw recommends that monitoring wells PW-1, MW-2 and MW-3 be replaced and sampled quarterly for one year to determine the effectiveness of the site excavation activities and to monitor for the presence of LNAPL.

Catlin has been contracted to complete a remediation system optimization survey at the site in 2004. Until the survey has been completed, Shaw recommends continued treatment system operation with an emphasis on the source area and quarterly sampling of selected monitoring wells described in **Section 1.5** Sampling and Analyses Requirements until dissolved petroleum related constituent concentrations meet the site rehabilitation concentrations established by the 15A NCAC 2L groundwater quality standards.

## TABLES

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 10/30/01 <sup>2</sup>                                 |                                            |                                        | 10/30/01 <sup>1</sup>                                 |                                            |                                        | 10/16/2001                                            |                                            |                                        | 10/03/01 <sup>2</sup>                                 |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 10.73                                      |                                        |                                                       | 8.59                                       |                                        |                                                       | 8.68                                       |                                        |                                                       | 10.11                                      |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 12.84                                      |                                        |                                                       | Not Measured                               |                                        |
| MW-2                | 10.74                                 | 8.25                                                  | 10.01                                      |                                        | 8.90                                                  | 9.02                                       |                                        | 8.88                                                  | 8.44                                       |                                        | 8.25                                                  | 10.25                                      |                                        |
| MW-3                | 11.02                                 |                                                       | 16.65                                      |                                        |                                                       | 9.40                                       |                                        |                                                       | 9.56                                       |                                        |                                                       | 15.82                                      |                                        |
| MW-4                | 14.83                                 |                                                       | 12.01                                      | 0.73                                   |                                                       | 11.98                                      | 1.72                                   |                                                       | 11.71                                      | 2.30                                   |                                                       | 11.44                                      | 0.49                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 15.91                                      | 1.46                                   |                                                       | Not Measured                               |                                        |
| MW-5                | 9.73                                  |                                                       | 10.68                                      | 2.82                                   |                                                       | 10.67                                      | 2.85                                   |                                                       | 8.43                                       | 3.12                                   |                                                       | 9.95                                       | 3.39                                   |
| MW-6                | 10.71                                 |                                                       | 19.46                                      |                                        |                                                       | 19.17                                      |                                        |                                                       | 19.65                                      |                                        |                                                       | 19.40                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 9.16                                       |                                        |                                                       | 7.98                                       |                                        |                                                       | 8.01                                       | 1.30                                   |                                                       | 8.78                                       |                                        |
| MW-8                | 10.73                                 |                                                       | 8.13                                       |                                        |                                                       | 8.11                                       |                                        |                                                       | 7.97                                       |                                        |                                                       | 7.47                                       |                                        |
| MW-9                | 10.27                                 |                                                       | 19.50                                      | 0.84                                   |                                                       | 18.91                                      | 2.02                                   |                                                       | 19.49                                      | 1.99                                   |                                                       | 19.49                                      | 1.22                                   |
| MW-10               | 11.49                                 |                                                       | 11.24                                      | 2.60                                   |                                                       | 10.47                                      | 2.62                                   |                                                       | 10.38                                      | 2.76                                   |                                                       | 10.50                                      | 3.26                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | Not Measured                               | 0.25                                   |                                                       | Not Measured                               |                                        |                                                       | 8.49                                       | 1.11                                   |                                                       | Not Measured                               | 0.99                                   |
| MW-14               | 7.32                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 15.80                                      |                                        |                                                       | Not Measured                               |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 10.73                                      |                                        |                                                       | Not Measured                               |                                        |
| MW-16               | 8.77                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 9.30                                       |                                        |                                                       | Not Measured                               |                                        |
| MW-17               | 8.95                                  |                                                       | 9.10                                       |                                        |                                                       | 9.07                                       |                                        |                                                       | 10.76                                      |                                        |                                                       | 8.30                                       |                                        |
| MW-18               | 10.80                                 |                                                       | 10.58                                      |                                        |                                                       | 9.91                                       |                                        |                                                       | 9.35                                       |                                        |                                                       | 9.85                                       |                                        |
| MW-19               | 11.85                                 |                                                       | 9.05                                       |                                        |                                                       | 8.96                                       |                                        |                                                       | 8.69                                       |                                        |                                                       | 8.52                                       | 0.65                                   |
| MW-20               | 10.64                                 |                                                       | 9.16                                       | 0.22                                   |                                                       | 8.25                                       | 0.89                                   |                                                       | 8.12                                       | 1.45                                   |                                                       | 8.70                                       | 0.95                                   |
| MW-21               | 7.13                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 16.05                                      | 3.16                                   |                                                       | Not Measured                               | 3.33                                   |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               | 1.94                                   |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 10/03/01 <sup>1</sup>                                 |                                            |                                        | 9/10/2001                                             |                                            |                                        | 8/29/01 <sup>2</sup>                                  |                                            |                                        | 8/29/01 <sup>1</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 8.04                                       |                                        |                                                       | 6.01                                       |                                        |                                                       | 9.48                                       |                                        |                                                       | 8.07                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | Not Measured                               |                                        |                                                       | 11.59                                      |                                        |                                                       | 11.55                                      |                                        |                                                       | 11.88                                      |                                        |
| MW-2                | 10.74                                 | 8.25                                                  | 8.33                                       |                                        | 7.02                                                  | 7.08                                       |                                        |                                                       | 9.50                                       | 1.24                                   | 8.25                                                  | 8.29                                       | 2.45                                   |
| MW-3                | 11.02                                 |                                                       | 8.80                                       |                                        |                                                       | 7.32                                       |                                        |                                                       | 9.97                                       | 1.05                                   |                                                       | 8.63                                       | 2.39                                   |
| MW-4                | 14.83                                 |                                                       | 11.44                                      | 2.41                                   |                                                       | 10.96                                      | 3.66                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | Not Measured                               | 2.22                                   |                                                       | 15.33                                      | 3.70                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-5                | 9.73                                  |                                                       | 9.90                                       | 3.39                                   |                                                       | 9.10                                       |                                        |                                                       | 9.64                                       | 0.09                                   |                                                       | Not Measured                               |                                        |
| MW-6                | 10.71                                 |                                                       | 19.11                                      |                                        |                                                       | 18.75                                      |                                        |                                                       | 18.76                                      |                                        |                                                       | 18.17                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 7.28                                       |                                        |                                                       | 5.46                                       |                                        |                                                       | 8.07                                       | 1.93                                   |                                                       | 7.20                                       | 2.80                                   |
| MW-8                | 10.73                                 |                                                       | 7.45                                       |                                        |                                                       | 6.07                                       |                                        |                                                       | 6.90                                       | 3.83                                   |                                                       | 6.88                                       | 3.85                                   |
| MW-9                | 10.27                                 |                                                       | 18.91                                      | 2.72                                   |                                                       | 18.47                                      | 4.54                                   |                                                       | 18.46                                      |                                        |                                                       | 18.42                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 9.65                                       | 3.28                                   |                                                       | 5.48                                       | 4.66                                   |                                                       | 10.18                                      | 1.31                                   |                                                       | 9.60                                       | 1.89                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | Not Measured                               | 1.84                                   |                                                       | 7.50                                       | 6.01                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-14               | 7.32                                  |                                                       | Not Measured                               |                                        |                                                       | 14.62                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | 9.08                                       |                                        |                                                       | 9.36                                       |                                        |                                                       | 9.01                                       |                                        |
| MW-16               | 8.77                                  |                                                       | Not Measured                               |                                        |                                                       | 8.15                                       |                                        |                                                       | 8.02                                       | 0.75                                   |                                                       | 8.01                                       | 0.76                                   |
| MW-17               | 8.95                                  |                                                       | 8.20                                       |                                        |                                                       | 5.64                                       |                                        |                                                       | 8.15                                       | 0.80                                   |                                                       | 8.10                                       | 0.85                                   |
| MW-18               | 10.80                                 |                                                       | 9.22                                       |                                        |                                                       | 8.25                                       | 0.62                                   |                                                       | 9.23                                       | 1.57                                   |                                                       | 8.25                                       | 2.55                                   |
| MW-19               | 11.85                                 |                                                       | 8.31                                       | 0.75                                   |                                                       | 7.26                                       | 3.31                                   |                                                       | 8.28                                       | 3.57                                   |                                                       | 8.04                                       | 3.81                                   |
| MW-20               | 10.64                                 |                                                       | 7.56                                       | 1.58                                   |                                                       | 6.05                                       | 2.55                                   |                                                       | 8.05                                       | 2.59                                   |                                                       | 7.43                                       | 3.21                                   |
| MW-21               | 7.13                                  |                                                       | Not Measured                               | 3.54                                   |                                                       | 15.33                                      | 4.59                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-22               |                                       |                                                       | Not Measured                               | 3.08                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 8/16/01 <sup>2</sup>                                  |                                            |                                        | 8/16/01 <sup>1</sup>                                  |                                            |                                        | 8/9/2001                                              |                                            |                                        | 7/17/2001                                             |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 10.46                                      |                                        |                                                       | 7.80                                       |                                        |                                                       | 7.80                                       |                                        |                                                       | 7.19                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 11.71                                      |                                        |                                                       | 10.95                                      |                                        |
| MW-2                | 10.74                                 |                                                       | 10.48                                      | 0.26                                   | 7.88                                                  | 7.93                                       | 2.81                                   | 7.88                                                  | 8.00                                       | 2.74                                   | 7.03                                                  | 7.33                                       | 3.41                                   |
| MW-3                | 11.02                                 |                                                       | 16.69                                      |                                        |                                                       | 8.40                                       | 2.62                                   | 8.40                                                  | 8.42                                       | 2.60                                   |                                                       | 7.74                                       | 3.28                                   |
| MW-4                | 14.83                                 |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 10.56                                      | 4.27                                   |                                                       | 9.63                                       | 5.20                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 14.74                                      |                                        |                                                       | 13.00                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 9.25                                       | 0.48                                   |                                                       | 9.24                                       | 0.49                                   |                                                       | 9.08                                       | 0.65                                   |                                                       | 8.67                                       | 1.06                                   |
| MW-6                | 10.71                                 |                                                       | 18.29                                      |                                        |                                                       | 18.23                                      |                                        |                                                       | 19.13                                      |                                        |                                                       | 18.08                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 8.65                                       | 1.35                                   |                                                       | 7.07                                       | 2.93                                   |                                                       | 6.73                                       | 3.27                                   |                                                       | 6.14                                       | 3.86                                   |
| MW-8                | 10.73                                 |                                                       | 6.74                                       | 3.99                                   |                                                       | 6.70                                       | 4.03                                   |                                                       | 6.75                                       | 3.98                                   |                                                       | 6.47                                       | 4.26                                   |
| MW-9                | 10.27                                 |                                                       | 17.88                                      |                                        |                                                       | 17.75                                      |                                        |                                                       | 19.28                                      |                                        |                                                       | 17.81                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 10.09                                      | 1.40                                   |                                                       | 9.16                                       | 2.33                                   |                                                       | 9.26                                       | 2.23                                   |                                                       | 8.45                                       | 3.04                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 7.32                                       | 0.99                                   |                                                       | 6.58                                       | 1.74                                   |
| MW-14               | 7.32                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 14.20                                      | -6.89                                  |                                                       | 11.18                                      |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 9.05                                       |                                        |                                                       | 8.44                                       |                                        |
| MW-16               | 8.77                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 7.96                                       | 0.81                                   |                                                       | 7.42                                       | 1.35                                   |
| MW-17               | 8.95                                  |                                                       | 7.67                                       | 1.28                                   |                                                       | 7.63                                       | 1.32                                   |                                                       | 7.49                                       | 1.46                                   |                                                       | 6.78                                       | 2.17                                   |
| MW-18               | 10.80                                 |                                                       | 8.85                                       | 1.95                                   |                                                       | 8.43                                       | 2.37                                   |                                                       | 8.93                                       | 1.87                                   |                                                       | 7.75                                       | 3.05                                   |
| MW-19               | 11.85                                 |                                                       | 8.06                                       | 3.79                                   |                                                       | 7.79                                       | 4.06                                   |                                                       | 7.53                                       | 4.32                                   |                                                       | 6.89                                       | 4.96                                   |
| MW-20               | 10.64                                 |                                                       | 8.49                                       | 2.15                                   |                                                       | 7.17                                       | 3.47                                   |                                                       | 6.90                                       | 3.74                                   |                                                       | 6.35                                       | 4.29                                   |
| MW-21               | 7.13                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 15.36                                      |                                        |                                                       | 13.68                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 6/26/01 <sup>2</sup>                                  |                                            |                                        | 6/20/01 <sup>1</sup>                                  |                                            |                                        | 6/20/2001                                             |                                            |                                        | 6/14/01 <sup>2</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 8.20                                       |                                        |                                                       | 5.10                                       |                                        |                                                       | 6.21                                       |                                        |                                                       | 9.96                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 10.73                                      | 0.70                                   |                                                       | 11.10                                      | 0.33                                   |                                                       | 11.15                                      | 0.28                                   |                                                       | 11.64                                      |                                        |
| MW-2                | 10.74                                 |                                                       | 8.92                                       | 1.82                                   | 6.80                                                  | 5.40                                       | 5.34                                   | 6.30                                                  | 6.34                                       | 4.40                                   |                                                       | 9.82                                       | 0.92                                   |
| MW-3                | 11.02                                 |                                                       | 14.13                                      |                                        |                                                       | 6.17                                       | 4.85                                   |                                                       | 6.88                                       | 4.14                                   |                                                       | 14.16                                      |                                        |
| MW-4                | 14.83                                 |                                                       | 8.40                                       | 6.43                                   |                                                       | 8.40                                       | 6.43                                   |                                                       | 8.42                                       | 6.41                                   |                                                       | 9.35                                       | 5.48                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.78                                      |                                        |                                                       | 14.90                                      |                                        |                                                       | 15.03                                      |                                        |                                                       | 15.50                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 7.82                                       | 1.91                                   |                                                       | 7.82                                       | 1.91                                   |                                                       | 8.03                                       | 1.70                                   |                                                       | 8.78                                       | 0.95                                   |
| MW-6                | 10.71                                 |                                                       | 18.33                                      |                                        |                                                       | 18.37                                      |                                        |                                                       | 18.36                                      |                                        |                                                       | 18.68                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 6.65                                       | 3.35                                   |                                                       | 4.14                                       | 5.86                                   |                                                       | 5.07                                       | 4.93                                   |                                                       | 7.98                                       | 2.02                                   |
| MW-8                | 10.73                                 |                                                       | 5.15                                       | 5.58                                   |                                                       | 5.60                                       | 5.13                                   |                                                       | 5.49                                       | 5.24                                   |                                                       | 5.75                                       | 4.98                                   |
| MW-9                | 10.27                                 |                                                       | 17.88                                      |                                        |                                                       | 18.00                                      |                                        |                                                       | 18.01                                      |                                        |                                                       | 18.36                                      | -8.09                                  |
| MW-10               | 11.49                                 |                                                       | 5.23                                       | 6.26                                   |                                                       | 4.54                                       | 6.95                                   |                                                       | 7.13                                       | 4.36                                   |                                                       | 9.05                                       | 2.44                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 6.22                                       | 2.10                                   |                                                       | Not Measured                               |                                        |
| MW-14               | 7.32                                  |                                                       | 12.02                                      |                                        |                                                       | 12.32                                      |                                        |                                                       | 12.38                                      |                                        |                                                       | 14.50                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 8.39                                       |                                        |                                                       | 7.88                                       | 0.38                                   |                                                       | 7.96                                       | 0.30                                   |                                                       | 8.80                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 6.82                                       | 1.95                                   |                                                       | 7.00                                       | 1.77                                   |                                                       | 7.34                                       | 1.43                                   |                                                       | 7.33                                       | 1.44                                   |
| MW-17               | 8.95                                  |                                                       | 4.32                                       | 4.63                                   |                                                       | 3.95                                       | 5.00                                   |                                                       | 5.75                                       | 3.20                                   |                                                       | 6.82                                       | 2.13                                   |
| MW-18               | 10.80                                 |                                                       | 7.10                                       | 3.70                                   |                                                       | 6.56                                       | 4.24                                   |                                                       | 7.12                                       | 3.68                                   |                                                       | 8.40                                       | 2.40                                   |
| MW-19               | 11.85                                 |                                                       | 5.84                                       | 6.01                                   |                                                       | 5.31                                       | 6.54                                   |                                                       | 5.80                                       | 6.05                                   |                                                       | 6.93                                       | 4.92                                   |
| MW-20               | 10.64                                 |                                                       | 6.65                                       | 3.99                                   |                                                       | 4.53                                       | 6.11                                   |                                                       | 5.26                                       | 5.38                                   |                                                       | 7.55                                       | 3.09                                   |
| MW-21               | 7.13                                  |                                                       | 14.07                                      |                                        |                                                       | 14.87                                      |                                        |                                                       | 14.97                                      |                                        |                                                       | 15.40                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 6/14/01 <sup>1</sup>                                  |                                            |                                        | 5/30/01 <sup>2</sup>                                  |                                            |                                        | 5/30/01 <sup>1</sup>                                  |                                            |                                        | 5/9/01 <sup>2</sup>                                   |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 7.03                                       |                                        |                                                       | 10.99                                      |                                        |                                                       | 7.70                                       |                                        |                                                       | 10.70                                      |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.59                                      |                                        |                                                       | 11.40                                      | 0.03                                   |                                                       | 11.40                                      | 0.03                                   |                                                       | 11.06                                      | 0.37                                   |
| MW-2                | 10.74                                 | 6.80                                                  | 6.85                                       | 3.89                                   |                                                       | 9.79                                       | 0.95                                   | 7.24                                                  | 7.28                                       | 3.46                                   |                                                       | 8.03                                       | 2.71                                   |
| MW-3                | 11.02                                 |                                                       | 7.41                                       | 3.61                                   |                                                       | 14.70                                      |                                        | 7.83                                                  | 7.85                                       | 3.17                                   |                                                       | 13.60                                      |                                        |
| MW-4                | 14.83                                 |                                                       | 9.37                                       | 5.46                                   |                                                       | 9.15                                       | 5.68                                   |                                                       | 9.16                                       | 5.67                                   |                                                       | Not Measured                               |                                        |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.50                                      |                                        |                                                       | 15.40                                      |                                        |                                                       | 15.40                                      |                                        |                                                       | 15.06                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.88                                       | 0.85                                   |                                                       | 8.84                                       | 0.89                                   |                                                       | 8.84                                       | 0.89                                   |                                                       | 8.63                                       | 1.10                                   |
| MW-6                | 10.71                                 |                                                       | 18.65                                      |                                        |                                                       | 18.61                                      |                                        |                                                       | 18.60                                      |                                        |                                                       | 18.56                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 5.85                                       | 4.15                                   |                                                       | 8.43                                       | 1.57                                   |                                                       | 6.34                                       | 3.66                                   |                                                       | 8.36                                       | 1.64                                   |
| MW-8                | 10.73                                 |                                                       | 5.85                                       | 4.88                                   |                                                       | 5.79                                       | 4.94                                   |                                                       | 5.81                                       | 4.92                                   |                                                       | 6.22                                       | 4.51                                   |
| MW-9                | 10.27                                 |                                                       | 18.32                                      |                                        |                                                       | 18.23                                      |                                        |                                                       | 18.20                                      |                                        |                                                       | 18.29                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.73                                       | 3.76                                   |                                                       | 9.98                                       | 1.51                                   |                                                       | 8.92                                       | 2.57                                   |                                                       | 9.46                                       | 2.03                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | Not Measured                               |                                        |                                                       | 6.83                                       | 1.49                                   |                                                       | 6.75                                       | 1.57                                   |                                                       | 6.27                                       | 2.05                                   |
| MW-14               | 7.32                                  |                                                       | 14.50                                      |                                        |                                                       | 14.33                                      |                                        |                                                       | 14.22                                      |                                        |                                                       | 13.09                                      | -5.78                                  |
| MW-15               | 8.26                                  |                                                       | 8.42                                       |                                        |                                                       | 9.27                                       |                                        |                                                       | 8.67                                       |                                        |                                                       | 9.02                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 7.61                                       | 1.16                                   |                                                       | 7.42                                       | 1.35                                   |                                                       | 7.34                                       | 1.43                                   |                                                       | 7.06                                       | 1.71                                   |
| MW-17               | 8.95                                  |                                                       | 6.85                                       | 2.10                                   |                                                       | 7.48                                       | 1.47                                   |                                                       | 7.48                                       | 1.47                                   |                                                       | 6.93                                       | 2.02                                   |
| MW-18               | 10.80                                 |                                                       | 7.60                                       | 3.20                                   |                                                       | 8.55                                       | 2.25                                   |                                                       | 7.98                                       | 2.82                                   |                                                       | 7.96                                       | 2.84                                   |
| MW-19               | 11.85                                 |                                                       | 6.58                                       | 5.27                                   |                                                       | 6.87                                       | 4.98                                   |                                                       | 6.54                                       | 5.31                                   |                                                       | 6.55                                       | 5.30                                   |
| MW-20               | 10.64                                 |                                                       | 6.00                                       | 4.64                                   |                                                       | 7.80                                       | 2.84                                   |                                                       | 6.31                                       | 4.33                                   |                                                       | 7.82                                       | 2.82                                   |
| MW-21               | 7.13                                  |                                                       | 15.40                                      |                                        |                                                       | 15.30                                      |                                        |                                                       | 15.22                                      |                                        |                                                       | 15.12                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 5/9/01 <sup>1</sup>                                   |                                            |                                        | 4/26/01 <sup>2</sup>                                  |                                            |                                        | 4/26/01 <sup>1</sup>                                  |                                            |                                        | 4/16/2001                                             |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 7.28                                       |                                        |                                                       | 9.80                                       |                                        |                                                       | 5.55                                       |                                        |                                                       | 5.72                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.10                                      | 0.33                                   |                                                       | 10.50                                      | 0.93                                   |                                                       | 10.12                                      | 1.31                                   |                                                       | 10.70                                      | 0.73                                   |
| MW-2                | 10.74                                 | 6.60                                                  | 6.92                                       | 3.82                                   |                                                       | 9.25                                       | 1.49                                   | 5.85                                                  | 6.00                                       | 4.74                                   | 5.72                                                  | 5.90                                       | 4.84                                   |
| MW-3                | 11.02                                 | 7.25                                                  | 7.30                                       | 3.72                                   |                                                       | 13.30                                      |                                        |                                                       | 6.15                                       | 4.87                                   | 6.40                                                  | 6.51                                       | 4.51                                   |
| MW-4                | 14.83                                 |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 7.54                                       | 7.29                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.05                                      |                                        |                                                       | 14.65                                      |                                        |                                                       | 14.58                                      |                                        |                                                       | 14.55                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.63                                       | 1.10                                   |                                                       | 7.95                                       | 1.78                                   |                                                       | 7.98                                       | 1.75                                   |                                                       | 8.01                                       | 1.72                                   |
| MW-6                | 10.71                                 |                                                       | 18.50                                      |                                        |                                                       | 17.42                                      | 3.00                                   |                                                       | 17.30                                      |                                        |                                                       | 18.47                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 5.82                                       | 4.18                                   |                                                       | 6.98                                       | 3.02                                   |                                                       | 4.73                                       | 5.27                                   |                                                       | 4.66                                       | 5.34                                   |
| MW-8                | 10.73                                 |                                                       | 6.18                                       | 4.55                                   |                                                       | 5.05                                       | 5.68                                   |                                                       | 5.06                                       | 5.67                                   |                                                       | 5.45                                       | 5.28                                   |
| MW-9                | 10.27                                 |                                                       | 18.25                                      |                                        |                                                       | 17.24                                      |                                        |                                                       | 16.90                                      |                                        |                                                       | 18.17                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.27                                       | 4.22                                   |                                                       | Not Measured                               |                                        |                                                       | 7.30                                       | 4.19                                   |                                                       | 7.12                                       | 4.37                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 4.37                                       |                                        |
| MW-13               | 8.32                                  |                                                       | 5.30                                       | 3.02                                   |                                                       | 5.80                                       | 2.52                                   |                                                       | 5.25                                       | 3.07                                   |                                                       | 5.38                                       | 2.94                                   |
| MW-14               | 7.32                                  |                                                       | 13.01                                      |                                        |                                                       | 10.69                                      |                                        |                                                       | 10.66                                      |                                        |                                                       | 9.81                                       | -2.50                                  |
| MW-15               | 8.26                                  |                                                       | 8.62                                       |                                        |                                                       | 8.56                                       |                                        |                                                       | 8.30                                       |                                        |                                                       | 8.64                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 6.95                                       | 1.82                                   |                                                       | 7.25                                       | 1.52                                   |                                                       | 6.92                                       | 1.85                                   |                                                       | 7.34                                       | 1.43                                   |
| MW-17               | 8.95                                  |                                                       | 6.92                                       | 2.03                                   |                                                       | 6.30                                       | 2.65                                   |                                                       | 6.25                                       | 2.70                                   |                                                       | 5.76                                       | 3.19                                   |
| MW-18               | 10.80                                 |                                                       | 7.36                                       | 3.44                                   |                                                       | 7.27                                       | 3.53                                   |                                                       | 6.70                                       | 4.10                                   |                                                       | 6.57                                       | 4.23                                   |
| MW-19               | 11.85                                 |                                                       | 6.11                                       | 5.74                                   |                                                       | 5.46                                       | 6.39                                   |                                                       | 4.98                                       | 6.87                                   |                                                       | 5.03                                       | 6.82                                   |
| MW-20               | 10.64                                 |                                                       | 5.86                                       | 4.78                                   |                                                       | 6.50                                       | 4.14                                   |                                                       | 4.83                                       | 5.81                                   |                                                       | 4.85                                       | 5.79                                   |
| MW-21               | 7.13                                  |                                                       | 15.06                                      |                                        |                                                       | 14.39                                      |                                        |                                                       | 14.35                                      |                                        |                                                       | 14.71                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 3/20/2001                                             |                                            |                                        | 3/1/01 <sup>2</sup>                                   |                                            |                                        | 3/1/01 <sup>1</sup>                                   |                                            |                                        | 2/20/2001                                             |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 5.01                                       |                                        |                                                       | 7.57                                       |                                        |                                                       | 4.90                                       |                                        |                                                       | 5.33                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 10.64                                      | 0.79                                   |                                                       | 11.10                                      | 0.33                                   |                                                       | 11.15                                      | 0.28                                   |                                                       | 11.13                                      |                                        |
| MW-2                | 10.74                                 | 5.23                                                  | 5.52                                       | 5.22                                   |                                                       | 7.86                                       | 2.88                                   |                                                       | 5.20                                       | 5.54                                   | 5.57                                                  | 5.74                                       | 5.00                                   |
| MW-3                | 11.02                                 | 5.68                                                  | 5.76                                       | 5.26                                   |                                                       | 9.03                                       | 1.99                                   | 5.92                                                  | 5.49                                       | 5.53                                   | 5.92                                                  | 6.01                                       | 5.01                                   |
| MW-4                | 14.83                                 |                                                       | 6.63                                       | 8.20                                   |                                                       | 6.92                                       | 7.91                                   |                                                       | 6.95                                       | 7.88                                   |                                                       | 7.16                                       | 7.67                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.70                                      |                                        |                                                       | 15.03                                      |                                        |                                                       | 15.03                                      |                                        |                                                       | 15.09                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 7.71                                       | 2.02                                   |                                                       | 7.81                                       | 1.92                                   |                                                       | 7.81                                       | 1.92                                   |                                                       | 8.03                                       | 1.70                                   |
| MW-6                | 10.71                                 |                                                       | 17.81                                      |                                        |                                                       | 17.96                                      |                                        |                                                       | 18.05                                      |                                        |                                                       | 18.03                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 4.28                                       | 5.72                                   |                                                       | 6.12                                       | 3.88                                   |                                                       | 4.07                                       | 5.93                                   |                                                       | 4.55                                       | 5.45                                   |
| MW-8                | 10.73                                 |                                                       | 4.96                                       | 5.77                                   |                                                       | 4.77                                       | 5.96                                   |                                                       | 4.75                                       | 5.98                                   |                                                       | 5.00                                       | 5.73                                   |
| MW-9                | 10.27                                 |                                                       | 17.41                                      |                                        |                                                       | 17.63                                      |                                        |                                                       | 17.69                                      |                                        |                                                       | 17.67                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 6.88                                       | 4.61                                   |                                                       | 7.26                                       | 4.23                                   |                                                       | 7.02                                       | 4.47                                   |                                                       | 7.37                                       | 4.12                                   |
| MW-12               |                                       |                                                       | 3.95                                       |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 4.55                                       |                                        |
| MW-13               | 8.32                                  |                                                       | 5.60                                       | 2.72                                   |                                                       | 6.12                                       | 2.20                                   |                                                       | 6.12                                       | 2.20                                   |                                                       | 6.22                                       | 2.10                                   |
| MW-14               | 7.32                                  |                                                       | 11.96                                      |                                        |                                                       | 13.90                                      |                                        |                                                       | 13.75                                      |                                        |                                                       | 13.77                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 8.02                                       | 0.24                                   |                                                       | 9.15                                       |                                        |                                                       | 8.75                                       |                                        |                                                       | 8.82                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 6.43                                       | 2.34                                   |                                                       | 6.78                                       | 1.99                                   |                                                       | 6.67                                       | 2.10                                   |                                                       | 6.69                                       | 2.08                                   |
| MW-17               | 8.95                                  |                                                       | 5.94                                       | 3.01                                   |                                                       | 6.38                                       | 2.57                                   |                                                       | 6.42                                       | 2.53                                   |                                                       | 6.65                                       | 2.30                                   |
| MW-18               | 10.80                                 |                                                       | 6.42                                       | 4.38                                   |                                                       | 7.33                                       | 3.47                                   |                                                       | 6.79                                       | 4.01                                   |                                                       | 7.00                                       | 3.80                                   |
| MW-19               | 11.85                                 |                                                       | 4.68                                       | 7.17                                   |                                                       | 4.85                                       | 7.00                                   |                                                       | 4.38                                       | 7.47                                   |                                                       | 4.91                                       | 6.94                                   |
| MW-20               | 10.64                                 |                                                       | 4.41                                       | 6.23                                   |                                                       | 5.72                                       | 4.92                                   |                                                       | 4.04                                       | 6.60                                   |                                                       | 4.65                                       |                                        |
| MW-21               | 7.13                                  |                                                       | 14.60                                      |                                        |                                                       | 14.90                                      |                                        |                                                       | 14.93                                      |                                        |                                                       | 14.90                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 1/31/2001                                             |                                            |                                        | 1/18/01 <sup>2</sup>                                  |                                            |                                        | 1/18/01 <sup>1</sup>                                  |                                            |                                        | 12/21/00 <sup>3</sup>                                 |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 5.93                                       |                                        |                                                       | 9.00                                       |                                        |                                                       | 5.42                                       |                                        |                                                       | 7.74                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.49                                      |                                        |                                                       | 11.07                                      | 0.36                                   |                                                       | 11.06                                      | 0.37                                   |                                                       | 10.04                                      | 1.39                                   |
| MW-2                | 10.74                                 | 6.22                                                  | 6.33                                       | 4.41                                   |                                                       | 8.36                                       | 2.38                                   | 5.67                                                  | 6.03                                       | 4.71                                   |                                                       | 7.82                                       | 2.92                                   |
| MW-3                | 11.02                                 |                                                       | 6.72                                       | 4.30                                   |                                                       | 12.93                                      |                                        | 5.85                                                  | 6.12                                       | 4.90                                   |                                                       | 10.12                                      | 0.90                                   |
| MW-4                | 14.83                                 |                                                       | 7.42                                       | 7.41                                   |                                                       | 7.04                                       | 7.79                                   |                                                       | 7.03                                       | 7.80                                   |                                                       | 5.97                                       | 8.86                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.03                                      |                                        |                                                       | 14.75                                      |                                        |                                                       | 14.78                                      |                                        |                                                       | 14.15                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.63                                       | 1.10                                   |                                                       | 8.02                                       | 1.71                                   |                                                       | 8.02                                       | 1.71                                   |                                                       | 7.13                                       | 2.60                                   |
| MW-6                | 10.71                                 |                                                       | 18.86                                      |                                        |                                                       | 17.90                                      |                                        |                                                       | 17.94                                      |                                        |                                                       | 17.80                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 5.02                                       | 4.98                                   |                                                       | 7.03                                       | 2.97                                   |                                                       | 4.51                                       | 5.49                                   |                                                       | 6.02                                       | 3.98                                   |
| MW-8                | 10.73                                 |                                                       | 5.45                                       | 5.28                                   |                                                       | 5.03                                       | 5.70                                   |                                                       | 5.01                                       | 5.72                                   |                                                       | 4.86                                       | 5.87                                   |
| MW-9                | 10.27                                 |                                                       | 18.65                                      |                                        |                                                       | 17.52                                      |                                        |                                                       | 17.51                                      |                                        |                                                       | 17.40                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.93                                       | 3.56                                   |                                                       | 8.62                                       | 2.87                                   |                                                       | 7.43                                       | 4.06                                   |                                                       | 7.39                                       | 4.10                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 13.08                                      |                                        |                                                       | 6.08                                       | 2.24                                   |                                                       | 6.10                                       | 2.22                                   |                                                       | 5.05                                       | 3.27                                   |
| MW-14               | 7.32                                  |                                                       | 13.14                                      | -5.83                                  |                                                       | 12.67                                      |                                        |                                                       | 12.40                                      |                                        |                                                       | 9.05                                       |                                        |
| MW-15               | 8.26                                  |                                                       | 8.46                                       |                                        |                                                       | 8.96                                       |                                        |                                                       | 8.70                                       |                                        |                                                       | 8.19                                       | 0.07                                   |
| MW-16               | 8.77                                  |                                                       | 7.00                                       | 1.77                                   |                                                       | 6.84                                       | 1.93                                   |                                                       | 6.75                                       | 2.02                                   |                                                       | 6.16                                       | 2.61                                   |
| MW-17               | 8.95                                  |                                                       | 6.95                                       | 2.00                                   |                                                       | 6.57                                       | 2.38                                   |                                                       | 6.54                                       | 2.41                                   |                                                       | 5.15                                       | 3.80                                   |
| MW-18               | 10.80                                 |                                                       | 7.44                                       | 3.36                                   |                                                       | 7.52                                       | 3.28                                   |                                                       | 6.93                                       | 3.87                                   |                                                       | 5.93                                       | 4.87                                   |
| MW-19               | 11.85                                 |                                                       | 5.18                                       | 6.67                                   |                                                       | 5.72                                       | 6.13                                   |                                                       | 4.78                                       | 7.07                                   |                                                       | 4.69                                       | 7.16                                   |
| MW-20               | 10.64                                 |                                                       | 15.02                                      |                                        |                                                       | 6.48                                       | 4.16                                   |                                                       | 4.54                                       | 6.10                                   |                                                       | 5.71                                       | 4.93                                   |
| MW-21               | 7.13                                  |                                                       | 15.32                                      |                                        |                                                       | 14.71                                      |                                        |                                                       | 14.70                                      |                                        |                                                       | 14.27                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 12/21/00 <sup>1</sup>                                 |                                            |                                        | 12/5/2000                                             |                                            |                                        | 11/20/00 <sup>1</sup>                                 |                                            |                                        | 11/13/2000                                            |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 4.91                                       |                                        |                                                       | 3.96                                       |                                        |                                                       | 6.20                                       |                                        |                                                       | 6.43                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 10.14                                      | 1.29                                   |                                                       | 9.68                                       | 1.75                                   |                                                       | 11.01                                      | 0.42                                   |                                                       | 10.78                                      | 0.65                                   |
| MW-2                | 10.74                                 | 4.92                                                  | 5.03                                       | 5.71                                   | 4.39                                                  | 4.50                                       | 6.24                                   | 6.19                                                  | 6.25                                       | 4.49                                   | 5.98                                                  | 6.20                                       | 4.54                                   |
| MW-3                | 11.02                                 | 5.30                                                  | 5.62                                       | 5.40                                   | 4.40                                                  | 4.58                                       | 6.44                                   |                                                       | 6.30                                       | 4.72                                   |                                                       | 6.76                                       | 4.26                                   |
| MW-4                | 14.83                                 |                                                       | 6.04                                       | 8.79                                   |                                                       | 5.84                                       | 8.99                                   |                                                       | 8.24                                       | 6.59                                   |                                                       | 8.04                                       | 6.79                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.17                                      |                                        |                                                       | 13.82                                      |                                        |                                                       | 14.62                                      |                                        |                                                       | 14.83                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 7.15                                       | 2.58                                   |                                                       | 7.14                                       | 2.59                                   |                                                       | 8.49                                       | 1.24                                   |                                                       | 8.63                                       | 1.10                                   |
| MW-6                | 10.71                                 |                                                       | 17.93                                      |                                        |                                                       | 17.23                                      |                                        |                                                       | 17.87                                      |                                        |                                                       | 17.72                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 3.98                                       | 6.02                                   |                                                       | 2.89                                       | 7.11                                   |                                                       | 4.95                                       | 5.05                                   |                                                       | 5.47                                       | 4.53                                   |
| MW-8                | 10.73                                 |                                                       | 4.90                                       | 5.83                                   |                                                       | 4.06                                       | 6.67                                   |                                                       | 5.05                                       | 5.68                                   |                                                       | 5.89                                       | 4.84                                   |
| MW-9                | 10.27                                 |                                                       | 17.51                                      |                                        |                                                       | 16.93                                      |                                        |                                                       | 17.49                                      |                                        |                                                       | 17.34                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 6.45                                       | 5.04                                   |                                                       | 4.23                                       | 7.26                                   |                                                       | 7.93                                       | 3.56                                   |                                                       | 7.98                                       | 3.51                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       |                                            |                                        |                                                       | 5.15                                       |                                        |
| MW-13               | 8.32                                  |                                                       | 5.00                                       | 3.32                                   |                                                       | Not Measured                               |                                        |                                                       | 6.46                                       | 1.86                                   |                                                       | 6.21                                       | 2.11                                   |
| MW-14               | 7.32                                  |                                                       | 8.97                                       |                                        |                                                       | 8.92                                       |                                        |                                                       | 12.43                                      |                                        |                                                       | 10.91                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 7.83                                       | 0.43                                   |                                                       | 7.08                                       | 1.18                                   |                                                       | 8.53                                       |                                        |                                                       | 8.55                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 6.20                                       | 2.57                                   |                                                       | Not Measured                               |                                        |                                                       | 6.79                                       | 1.98                                   |                                                       | 6.76                                       | 2.01                                   |
| MW-17               | 8.95                                  |                                                       | 5.17                                       | 3.78                                   |                                                       | 3.86                                       | 5.09                                   |                                                       | 6.84                                       | 2.11                                   |                                                       | 6.77                                       | 2.18                                   |
| MW-18               | 10.80                                 |                                                       | 5.90                                       | 4.90                                   |                                                       | 5.54                                       | 5.26                                   |                                                       | 7.33                                       | 3.47                                   |                                                       | 7.05                                       | 3.75                                   |
| MW-19               | 11.85                                 |                                                       | 4.33                                       | 7.52                                   |                                                       | 3.45                                       | 8.40                                   |                                                       | 5.20                                       | 6.65                                   |                                                       | 5.95                                       | 5.90                                   |
| MW-20               | 10.64                                 |                                                       | 4.14                                       | 6.50                                   |                                                       | 3.10                                       | 7.54                                   |                                                       | 4.95                                       | 5.69                                   |                                                       | 5.62                                       | 5.02                                   |
| MW-21               | 7.13                                  |                                                       | 14.33                                      |                                        |                                                       | 14.02                                      |                                        |                                                       | 14.48                                      |                                        |                                                       | 14.43                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 UST's S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 10/11/2000                                            |                                            |                                        | 9/11/2000                                             |                                            |                                        | 8/31/00 <sup>2</sup>                                  |                                            |                                        | 8/31/00 <sup>1</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 6.55                                       |                                        |                                                       | 5.42                                       |                                        |                                                       | 10.30                                      |                                        |                                                       | 3.90                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 9.95                                       | 1.48                                   |                                                       | 9.45                                       | 1.98                                   |                                                       | 10.15                                      |                                        |                                                       | 10.15                                      |                                        |
| MW-2                | 10.74                                 | 5.71                                                  | 5.82                                       | 4.92                                   |                                                       | 4.82                                       | 5.92                                   |                                                       | 8.96                                       | 1.78                                   | 4.40                                                  | 4.58                                       | 6.16                                   |
| MW-3                | 11.02                                 | 6.35                                                  | 6.45                                       | 4.57                                   |                                                       | 5.27                                       | 5.75                                   |                                                       | 10.26                                      | 0.76                                   |                                                       | 4.60                                       | 6.42                                   |
| MW-4                | 14.83                                 |                                                       | 6.22                                       | 8.61                                   |                                                       | 6.84                                       | 7.99                                   |                                                       | 7.69                                       | 7.14                                   |                                                       | 7.73                                       | 7.10                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 13.14                                      |                                        |                                                       | 13.66                                      |                                        |                                                       | 14.18                                      |                                        |                                                       | 14.14                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 7.06                                       | 2.67                                   |                                                       | 6.75                                       | 2.98                                   |                                                       | 7.15                                       | 2.58                                   |                                                       | 7.18                                       | 2.55                                   |
| MW-6                | 10.71                                 |                                                       | 18.18                                      |                                        |                                                       | 16.62                                      |                                        |                                                       | 17.36                                      |                                        |                                                       | 17.02                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 4.72                                       | 5.28                                   |                                                       | 3.96                                       | 6.04                                   |                                                       | 7.01                                       | 2.99                                   |                                                       | 3.11                                       | 6.89                                   |
| MW-8                | 10.73                                 |                                                       | 5.09                                       | 5.64                                   |                                                       | 4.60                                       | 6.13                                   |                                                       | 4.25                                       | 6.48                                   |                                                       | 4.18                                       | 6.55                                   |
| MW-9                | 10.27                                 |                                                       | 17.90                                      |                                        |                                                       | 16.13                                      |                                        |                                                       | 17.12                                      |                                        |                                                       | 16.60                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.25                                       | 4.24                                   |                                                       | 5.39                                       | 6.10                                   |                                                       | 4.86                                       | 6.63                                   |                                                       | 4.16                                       | 7.33                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | 3.57                                       |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 5.04                                       | 3.28                                   |                                                       | 4.73                                       | 3.59                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-14               | 7.32                                  |                                                       | 7.85                                       |                                        |                                                       | 7.95                                       |                                        |                                                       | 9.15                                       |                                        |                                                       | 9.13                                       |                                        |
| MW-15               | 8.26                                  |                                                       | 5.04                                       | 3.22                                   |                                                       | 7.31                                       | 0.95                                   |                                                       | 8.94                                       |                                        |                                                       | 7.16                                       | 1.10                                   |
| MW-16               | 8.77                                  |                                                       | 6.18                                       | 2.59                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-17               | 8.95                                  |                                                       | 4.93                                       | 4.02                                   |                                                       | 4.11                                       | 4.84                                   |                                                       | 3.97                                       | 4.98                                   |                                                       | 3.93                                       | 5.02                                   |
| MW-18               | 10.80                                 |                                                       | 6.30                                       | 4.50                                   |                                                       | 5.63                                       | 5.17                                   |                                                       | 6.70                                       | 4.10                                   |                                                       | 6.25                                       | 4.55                                   |
| MW-19               | 11.85                                 |                                                       | 4.92                                       | 6.93                                   |                                                       | 4.63                                       | 7.22                                   |                                                       | 4.80                                       | 7.05                                   |                                                       | 4.26                                       | 7.59                                   |
| MW-20               | 10.64                                 |                                                       | 4.92                                       | 5.72                                   |                                                       | 4.18                                       | 6.46                                   |                                                       | 6.00                                       | 4.64                                   |                                                       | 3.50                                       | 7.14                                   |
| MW-21               | 7.13                                  |                                                       | 13.67                                      |                                        |                                                       | 13.47                                      |                                        |                                                       | 14.00                                      |                                        |                                                       | 13.94                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 7/19/00 <sup>3</sup>                                  |                                            |                                        | 7/18/00 <sup>1</sup>                                  |                                            |                                        | 6/19/00 <sup>2</sup>                                  |                                            |                                        | 6/19/00 <sup>1</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 10.95                                      |                                        |                                                       | 8.70                                       |                                        |                                                       | 10.59                                      |                                        | Trace                                                 | 6.86                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 12.55                                      |                                        |                                                       | 12.55                                      |                                        |                                                       | 11.33                                      |                                        |                                                       | 11.34                                      |                                        |
| MW-2                | 10.74                                 |                                                       | 10.33                                      | 0.41                                   |                                                       | 8.61                                       | 2.13                                   |                                                       | 9.91                                       | 0.83                                   | 6.95                                                  | 7.25                                       | 3.49                                   |
| MW-3                | 11.02                                 |                                                       | 12.78                                      |                                        |                                                       | 9.25                                       | 1.77                                   |                                                       | 11.13                                      |                                        |                                                       | 7.51                                       | 3.51                                   |
| MW-4                | 14.83                                 |                                                       | 11.18                                      | 3.65                                   |                                                       | 11.15                                      | 3.68                                   |                                                       | 9.82                                       | 5.01                                   |                                                       | 9.80                                       | 5.03                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.87                                      |                                        |                                                       | 6.18                                       | 0.93                                   |                                                       | 15.38                                      |                                        |                                                       | 15.47                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 10.25                                      |                                        |                                                       | 10.24                                      |                                        |                                                       | 9.40                                       | 0.33                                   |                                                       | 9.33                                       | 0.40                                   |
| MW-6                | 10.71                                 |                                                       | 19.75                                      |                                        |                                                       | 21.70                                      |                                        |                                                       | 19.08                                      |                                        |                                                       | 19.02                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 9.05                                       | 0.95                                   |                                                       | 7.51                                       | 2.49                                   |                                                       | 8.62                                       | 1.38                                   |                                                       | 6.23                                       | 3.77                                   |
| MW-8                | 10.73                                 |                                                       | 7.63                                       | 3.10                                   |                                                       | 7.53                                       | 3.20                                   |                                                       | 6.67                                       | 4.06                                   |                                                       | 6.64                                       | 4.09                                   |
| MW-9                | 10.27                                 |                                                       | 19.15                                      |                                        |                                                       | 20.03                                      |                                        |                                                       | 18.90                                      |                                        |                                                       | 18.70                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 10.00                                      | 1.49                                   |                                                       | 10.04                                      | 1.45                                   |                                                       | 9.97                                       | 1.52                                   |                                                       | 8.66                                       | 2.83                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 7.97                                       | 0.35                                   |                                                       | 7.82                                       | 0.49                                   |                                                       | 6.80                                       | 1.52                                   |                                                       | 6.75                                       | 1.57                                   |
| MW-14               | 7.32                                  |                                                       | 15.55                                      |                                        |                                                       | Dry                                        |                                        |                                                       | 14.27                                      |                                        |                                                       | 14.20                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 10.27                                      |                                        |                                                       | 10.34                                      |                                        |                                                       | 9.23                                       |                                        |                                                       | 9.10                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 9.40                                       |                                        |                                                       | 8.74                                       | 0.03                                   |                                                       | 7.66                                       | 1.11                                   |                                                       | 7.69                                       | 1.08                                   |
| MW-17               | 8.95                                  |                                                       | 8.45                                       | 0.50                                   |                                                       | 8.25                                       | 0.70                                   |                                                       | 7.44                                       | 1.51                                   |                                                       | 7.35                                       | 1.60                                   |
| MW-18               | 10.80                                 |                                                       | 10.03                                      | 0.77                                   |                                                       | 9.50                                       | 1.30                                   |                                                       | 8.66                                       | 2.14                                   |                                                       | 8.20                                       | 2.60                                   |
| MW-19               | 11.85                                 |                                                       | 8.45                                       | 3.40                                   |                                                       | 8.21                                       | 3.64                                   |                                                       | 7.38                                       | 4.47                                   |                                                       | 7.05                                       | 4.80                                   |
| MW-20               | 10.64                                 |                                                       | 8.71                                       | 1.93                                   |                                                       | 7.25                                       | 3.39                                   |                                                       | 8.03                                       | 2.61                                   |                                                       | 6.45                                       | 4.19                                   |
| MW-21               | 7.13                                  |                                                       | 14.19                                      |                                        |                                                       | 16.34                                      |                                        |                                                       | 15.49                                      |                                        |                                                       | 15.24                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 6/15/2000                                             |                                            |                                        | 5/16/2000                                             |                                            |                                        | 4/7/2000                                              |                                            |                                        | 3/16/2000                                             |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 6.63                                       |                                        |                                                       | 5.31                                       |                                        |                                                       | 6.07                                       |                                        |                                                       | 5.65                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.13                                      | 0.30                                   |                                                       | 10.07                                      | 1.36                                   |                                                       | 11.51                                      |                                        |                                                       | 10.81                                      | 0.62                                   |
| MW-2                | 10.74                                 |                                                       | 7.12                                       | 3.62                                   | 5.36                                                  | 5.40                                       | 5.34                                   | 5.92                                                  | 6.42                                       | 4.32                                   | 5.65                                                  | 5.33                                       | 5.41                                   |
| MW-3                | 11.02                                 |                                                       | 7.25                                       | 3.77                                   | 5.88                                                  | 5.99                                       | 5.03                                   |                                                       | 6.91                                       | 4.11                                   |                                                       | 6.15                                       | 4.87                                   |
| MW-4                | 14.83                                 |                                                       | 9.62                                       | 5.21                                   |                                                       | 7.58                                       | 7.25                                   |                                                       | 6.64                                       | 8.19                                   |                                                       | 7.71                                       | 7.12                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.22                                      |                                        |                                                       | 14.20                                      |                                        |                                                       | 7.74                                       |                                        |                                                       | 15.02                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 9.21                                       | 0.52                                   |                                                       | 8.04                                       | 1.69                                   |                                                       | 7.83                                       | 1.90                                   |                                                       | 8.78                                       | 0.95                                   |
| MW-6                | 10.71                                 |                                                       | 18.64                                      |                                        |                                                       | 16.53                                      |                                        |                                                       | 19.37                                      |                                        |                                                       | 17.81                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 5.98                                       | 4.02                                   |                                                       | 4.75                                       | 5.25                                   |                                                       | 5.21                                       | 4.79                                   |                                                       | 4.96                                       | 5.04                                   |
| MW-8                | 10.73                                 |                                                       | 6.40                                       | 4.33                                   |                                                       | 5.51                                       | 5.22                                   |                                                       | 5.93                                       | 4.80                                   |                                                       | 5.61                                       | 5.12                                   |
| MW-9                | 10.27                                 |                                                       | 18.40                                      |                                        |                                                       | 16.07                                      |                                        |                                                       | 19.58                                      |                                        |                                                       | 17.60                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 8.43                                       | 3.06                                   |                                                       | 7.03                                       | 4.46                                   |                                                       | 7.72                                       | 3.77                                   |                                                       | 7.49                                       | 4.00                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 6.62                                       | 1.70                                   |                                                       | 5.47                                       | 2.85                                   |                                                       | 6.62                                       | 1.70                                   |                                                       | 6.42                                       | 1.90                                   |
| MW-14               | 7.32                                  |                                                       | 13.82                                      |                                        |                                                       | 10.62                                      |                                        |                                                       | 14.31                                      |                                        |                                                       | 13.62                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 8.79                                       |                                        |                                                       | 7.56                                       | 0.70                                   |                                                       | 9.19                                       |                                        |                                                       | 8.26                                       | 0.00                                   |
| MW-16               | 8.77                                  |                                                       | 7.50                                       | 1.27                                   |                                                       | 6.52                                       | 2.25                                   |                                                       | 7.91                                       | 0.86                                   |                                                       | 7.52                                       | 1.25                                   |
| MW-17               | 8.95                                  |                                                       | 7.15                                       | 1.80                                   |                                                       | 5.75                                       | 3.20                                   |                                                       | 6.69                                       | 2.26                                   |                                                       | 6.74                                       | 2.21                                   |
| MW-18               | 10.80                                 |                                                       | 7.79                                       | 3.01                                   |                                                       | 6.50                                       | 4.30                                   |                                                       | 7.51                                       | 3.29                                   |                                                       | 7.06                                       | 3.74                                   |
| MW-19               | 11.85                                 |                                                       | 6.78                                       | 5.07                                   |                                                       | 5.56                                       | 6.29                                   |                                                       | 5.63                                       | 6.22                                   |                                                       | 5.42                                       | 6.43                                   |
| MW-20               | 10.64                                 |                                                       | 6.21                                       | 4.43                                   |                                                       | 5.09                                       | 5.55                                   |                                                       | 5.31                                       | 5.33                                   |                                                       | 5.12                                       | 5.52                                   |
| MW-21               | 7.13                                  |                                                       | 15.18                                      |                                        |                                                       | 13.92                                      |                                        |                                                       | 15.61                                      |                                        |                                                       | 15.86                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 1/26/2000                                             |                                            |                                        | 11/22/1999                                            |                                            |                                        | 10/12/1999                                            |                                            |                                        | 9/2/99 <sup>2</sup>                                   |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | Not Measured                               |                                        |                                                       | 5.96                                       |                                        |                                                       | 5.92                                       |                                        |                                                       | 10.66                                      |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.90                                      |                                        |                                                       | 10.23                                      | 1.20                                   |                                                       | 9.57                                       | 1.86                                   |                                                       | 9.62                                       | 1.81                                   |
| MW-2                | 10.74                                 | 5.16                                                  | 5.33                                       | 5.41                                   | 5.33                                                  | 9.15                                       | 1.59                                   | 5.46                                                  | 5.81                                       | 4.93                                   |                                                       | 9.30                                       | 1.44                                   |
| MW-3                | 11.02                                 |                                                       | Not Measured                               |                                        | 6.13                                                  | 6.22                                       | 4.80                                   | 6.40                                                  | 7.68                                       | 3.34                                   |                                                       | 10.54                                      | 0.48                                   |
| MW-4                | 14.83                                 |                                                       | 7.00                                       | 7.83                                   |                                                       | 6.20                                       | 8.63                                   |                                                       | 8.83                                       | 6.00                                   |                                                       | 9.15                                       | 5.68                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.02                                      |                                        |                                                       | 13.80                                      |                                        |                                                       | 12.57                                      |                                        |                                                       | 14.56                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.68                                       | 1.05                                   |                                                       | 7.57                                       | 2.16                                   |                                                       | 8.44                                       | 1.29                                   |                                                       | 8.90                                       | 0.83                                   |
| MW-6                | 10.71                                 |                                                       | 18.57                                      |                                        |                                                       | 17.71                                      |                                        |                                                       | 17.06                                      |                                        |                                                       | 18.27                                      |                                        |
| MW-7                | 10.00                                 |                                                       | Not Measured                               |                                        |                                                       | 4.60                                       | 5.40                                   |                                                       | 4.53                                       | 5.47                                   |                                                       | 7.70                                       | 2.30                                   |
| MW-8                | 10.73                                 |                                                       | 4.74                                       | 5.99                                   |                                                       | 5.15                                       | 5.58                                   |                                                       | 4.90                                       | 5.83                                   |                                                       | 5.85                                       | 4.88                                   |
| MW-9                | 10.27                                 |                                                       | Not Measured                               |                                        |                                                       | 17.31                                      |                                        |                                                       | 16.86                                      |                                        |                                                       | 17.91                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 4.30                                       | 7.19                                   | 5.92                                                  | 6.98                                       | 4.51                                   | 5.92                                                  | 6.02                                       | 5.47                                   |                                                       | 8.55                                       | 2.94                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | 3.91                                       |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 7.00                                       | 1.32                                   |                                                       | 6.42                                       | 1.90                                   |                                                       | 4.80                                       | 3.52                                   |                                                       | 6.75                                       | 1.57                                   |
| MW-14               | 7.32                                  |                                                       | 14.70                                      |                                        |                                                       | 8.79                                       |                                        |                                                       | 7.65                                       |                                        |                                                       | 12.36                                      |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 7.81                                       | 0.45                                   |                                                       | Not Measured                               |                                        |
| MW-16               | 8.77                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 7.29                                       | 1.48                                   |
| MW-17               | 8.95                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 6.90                                       | 2.05                                   |
| MW-18               | 10.80                                 |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-19               | 11.85                                 |                                                       | 4.11                                       | 7.74                                   |                                                       | 4.63                                       | 7.22                                   |                                                       | 4.49                                       | 7.36                                   |                                                       | 6.87                                       | 4.98                                   |
| MW-20               | 10.64                                 |                                                       | Not Measured                               |                                        |                                                       | 4.60                                       | 6.04                                   |                                                       | 4.51                                       | 6.13                                   |                                                       | 7.31                                       | 3.33                                   |
| MW-21               | 7.13                                  |                                                       | 15.03                                      |                                        |                                                       | 13.90                                      |                                        |                                                       | 12.75                                      |                                        |                                                       | 14.69                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-I and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 9/2/99 <sup>1</sup>                                   |                                            |                                        | 8/26/99 <sup>2</sup>                                  |                                            |                                        | 8/26/99 <sup>1</sup>                                  |                                            |                                        | 8/18/99 <sup>2</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 7.38                                       |                                        |                                                       | 11.26                                      |                                        |                                                       | 9.09                                       |                                        |                                                       | 11.05                                      |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 9.61                                       | 1.82                                   |                                                       | 11.57                                      |                                        |                                                       | 11.57                                      |                                        |                                                       | 11.58                                      |                                        |
| MW-2                | 10.74                                 | 6.65                                                  | 6.99                                       | 3.75                                   |                                                       | 10.00                                      | 0.74                                   | 8.30                                                  | 8.45                                       | 2.29                                   |                                                       | 9.94                                       | 0.80                                   |
| MW-3                | 11.02                                 | Trace                                                 | 7.35                                       | 3.67                                   |                                                       | 11.61                                      |                                        | 8.84                                                  | 8.85                                       | 2.17                                   |                                                       | 11.81                                      |                                        |
| MW-4                | 14.83                                 |                                                       | 9.16                                       | 5.67                                   |                                                       | 11.20                                      | 3.63                                   |                                                       | 11.10                                      | 3.73                                   |                                                       | 11.10                                      | 3.73                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.57                                      |                                        |                                                       | 15.66                                      |                                        |                                                       | 15.67                                      |                                        |                                                       | 15.70                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.90                                       | 0.83                                   |                                                       | 10.02                                      |                                        |                                                       | 10.00                                      |                                        |                                                       | 10.13                                      |                                        |
| MW-6                | 10.71                                 |                                                       | 18.26                                      |                                        |                                                       | 19.20                                      |                                        |                                                       | 19.12                                      |                                        |                                                       | 19.15                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 5.88                                       | 4.12                                   |                                                       | 8.70                                       | 1.30                                   |                                                       | 7.40                                       | 2.60                                   |                                                       | 8.59                                       | 1.41                                   |
| MW-8                | 10.73                                 |                                                       | 5.81                                       | 4.92                                   |                                                       | 7.11                                       | 3.62                                   |                                                       | 7.10                                       | 3.63                                   |                                                       | 7.27                                       | 3.46                                   |
| MW-9                | 10.27                                 |                                                       | 17.85                                      |                                        |                                                       | 19.10                                      |                                        |                                                       | 18.95                                      |                                        |                                                       | 19.01                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.40                                       | 4.09                                   |                                                       | 10.66                                      | 0.83                                   |                                                       | 9.85                                       | 1.64                                   |                                                       | 10.46                                      | 1.03                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 6.75                                       | 1.57                                   |                                                       | 7.85                                       | 0.47                                   |                                                       | 7.85                                       | 0.47                                   |                                                       | 7.89                                       | 0.43                                   |
| MW-14               | 7.32                                  |                                                       | 12.42                                      |                                        |                                                       | 15.16                                      |                                        |                                                       | 15.17                                      |                                        |                                                       | 15.12                                      |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 9.23                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 7.28                                       | 1.49                                   |                                                       | 8.40                                       | 0.37                                   |                                                       | 8.50                                       | 0.27                                   |                                                       | 8.34                                       | 0.43                                   |
| MW-17               | 8.95                                  |                                                       | 6.78                                       | 2.17                                   |                                                       | 8.26                                       | 0.69                                   |                                                       | 8.20                                       | 0.75                                   |                                                       | 8.30                                       | 0.65                                   |
| MW-18               | 10.80                                 |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-19               | 11.85                                 |                                                       | 6.64                                       | 5.21                                   |                                                       | 8.31                                       | 3.54                                   |                                                       | 8.14                                       | 3.71                                   |                                                       | 8.26                                       | 3.59                                   |
| MW-20               | 10.64                                 |                                                       | 6.05                                       | 4.59                                   |                                                       | 8.43                                       | 2.21                                   |                                                       | 7.49                                       | 3.15                                   |                                                       | 8.36                                       | 2.28                                   |
| MW-21               | 7.13                                  |                                                       | 14.65                                      |                                        |                                                       | 15.70                                      |                                        |                                                       | 15.66                                      |                                        |                                                       | 15.68                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 8/18/99 <sup>1</sup>                                  |                                            |                                        | 7/27/99 <sup>2</sup>                                  |                                            |                                        | 7/27/99 <sup>1</sup>                                  |                                            |                                        | 7/19/99 <sup>2</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 8.65                                       |                                        |                                                       | 10.76                                      |                                        |                                                       | 7.55                                       |                                        |                                                       | 9.00                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.58                                      |                                        |                                                       | 11.29                                      | 0.14                                   |                                                       | 11.29                                      | 0.14                                   |                                                       | 11.13                                      | 0.30                                   |
| MW-2                | 10.74                                 | 8.15                                                  | 8.45                                       | 2.29                                   |                                                       | 9.73                                       | 1.01                                   | 7.34                                                  | 7.55                                       | 3.19                                   |                                                       | 9.32                                       | 1.42                                   |
| MW-3                | 11.02                                 | 8.73                                                  | 8.76                                       | 2.26                                   |                                                       | 10.92                                      | 0.10                                   | 7.95                                                  | 8.04                                       | 2.98                                   |                                                       | 9.54                                       | 1.48                                   |
| MW-4                | 14.83                                 |                                                       | 11.08                                      | 3.75                                   |                                                       | 10.35                                      | 4.48                                   |                                                       | 10.31                                      | 4.52                                   |                                                       | 10.03                                      | 4.80                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.69                                      |                                        |                                                       | 15.45                                      |                                        |                                                       | 15.44                                      |                                        |                                                       | 15.30                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 10.13                                      |                                        |                                                       | 9.41                                       | 0.32                                   |                                                       | 9.41                                       | 0.32                                   |                                                       | 9.33                                       | 0.40                                   |
| MW-6                | 10.71                                 |                                                       | 19.11                                      |                                        |                                                       | 18.83                                      |                                        |                                                       | 18.76                                      |                                        |                                                       | 18.58                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 7.31                                       | 2.69                                   |                                                       | 8.05                                       | 1.95                                   |                                                       | 6.44                                       | 3.56                                   |                                                       | 7.24                                       | 2.76                                   |
| MW-8                | 10.73                                 |                                                       | 7.25                                       | 3.48                                   |                                                       | 6.42                                       | 4.31                                   |                                                       | 6.38                                       | 4.35                                   |                                                       | 6.39                                       | 4.34                                   |
| MW-9                | 10.27                                 |                                                       | 18.93                                      |                                        |                                                       | 18.68                                      |                                        |                                                       | 18.57                                      |                                        |                                                       | 18.48                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 9.73                                       | 1.76                                   |                                                       | 9.92                                       | 1.57                                   |                                                       | 8.96                                       | 2.53                                   |                                                       | 9.45                                       | 2.04                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 7.79                                       | 0.52                                   |                                                       | 7.32                                       | 0.99                                   |                                                       | 7.31                                       | 1.01                                   |                                                       | 7.21                                       | 1.11                                   |
| MW-14               | 7.32                                  |                                                       | 15.18                                      |                                        |                                                       | 14.21                                      |                                        |                                                       | 14.21                                      |                                        |                                                       | 13.81                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 9.26                                       |                                        |                                                       | Not Measured                               |                                        |                                                       | 9.24                                       |                                        |                                                       | Not Measured                               |                                        |
| MW-16               | 8.77                                  |                                                       | 8.30                                       | 0.47                                   |                                                       | 8.07                                       | 0.70                                   |                                                       | 8.05                                       | 0.72                                   |                                                       | 7.88                                       | 0.89                                   |
| MW-17               | 8.95                                  |                                                       | 8.29                                       | 0.66                                   |                                                       | 7.70                                       | 1.25                                   |                                                       | 7.58                                       | 1.37                                   |                                                       | 7.60                                       | 1.35                                   |
| MW-18               | 10.80                                 |                                                       | Not Measured                               |                                        |                                                       | 8.96                                       | 1.84                                   |                                                       | 7.60                                       | 3.20                                   |                                                       | Not Measured                               |                                        |
| MW-19               | 11.85                                 |                                                       | 8.15                                       | 3.70                                   |                                                       | 7.50                                       | 4.35                                   |                                                       | 7.31                                       | 4.54                                   |                                                       | 7.27                                       | 4.58                                   |
| MW-20               | 10.64                                 |                                                       | 7.50                                       | 3.14                                   |                                                       | 7.76                                       | 2.88                                   |                                                       | 6.61                                       | 4.03                                   |                                                       | 7.21                                       | 3.43                                   |
| MW-21               | 7.13                                  |                                                       | 15.67                                      |                                        |                                                       | 15.41                                      |                                        |                                                       | 15.37                                      |                                        |                                                       | 15.19                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 7/19/99 <sup>1</sup>                                  |                                            |                                        | 7/12/1999                                             |                                            |                                        | 6/29/99 <sup>2</sup>                                  |                                            |                                        | 6/29/99 <sup>1</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 7.57                                       |                                        |                                                       | 7.76                                       |                                        |                                                       | 10.31                                      |                                        |                                                       | 6.57                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.19                                      | 0.24                                   |                                                       | 11.21                                      | 0.22                                   |                                                       | 10.13                                      | 1.30                                   |                                                       | 10.14                                      | 1.29                                   |
| MW-2                | 10.74                                 | 7.21                                                  | 7.44                                       | 3.53                                   | 7.50                                                  | 7.84                                       | 3.24                                   |                                                       | 8.72                                       | 2.02                                   | 6.44                                                  | 6.94                                       | 4.30                                   |
| MW-3                | 11.02                                 | 7.72                                                  | 7.82                                       | 3.30                                   | 7.79                                                  | 7.91                                       | 3.23                                   |                                                       | 11.02                                      | 0.00                                   | 7.05                                                  | 7.15                                       | 3.97                                   |
| MW-4                | 14.83                                 |                                                       | 10.00                                      | 4.83                                   |                                                       | 9.81                                       | 5.02                                   |                                                       | 8.87                                       | 5.96                                   |                                                       | 8.86                                       | 5.97                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.30                                      |                                        |                                                       | 15.22                                      |                                        |                                                       | 14.96                                      |                                        |                                                       | 14.94                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 9.81                                       |                                        |                                                       | 9.45                                       | 0.28                                   |                                                       | 8.97                                       | 0.76                                   |                                                       | 8.97                                       | 0.76                                   |
| MW-6                | 10.71                                 |                                                       | 18.59                                      |                                        |                                                       | 18.35                                      |                                        |                                                       | 17.64                                      |                                        |                                                       | 17.70                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 6.31                                       | 3.69                                   |                                                       | 6.40                                       | 3.60                                   |                                                       | 7.58                                       | 2.42                                   |                                                       | 5.66                                       | 4.34                                   |
| MW-8                | 10.73                                 |                                                       | 6.30                                       | 4.43                                   |                                                       | 6.57                                       | 4.16                                   |                                                       | 6.04                                       | 4.69                                   |                                                       | 6.03                                       | 4.70                                   |
| MW-9                | 10.27                                 |                                                       | 18.40                                      |                                        |                                                       | 17.90                                      |                                        |                                                       | 16.43                                      |                                        |                                                       | 16.45                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 8.83                                       | 2.66                                   |                                                       | 8.73                                       | 2.76                                   |                                                       | 9.28                                       | 2.21                                   |                                                       | 8.13                                       | 3.36                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 7.17                                       | 1.15                                   |                                                       | 7.04                                       | 1.28                                   |                                                       | 6.76                                       | 1.56                                   |                                                       | 6.73                                       | 1.59                                   |
| MW-14               | 7.32                                  |                                                       | 13.81                                      |                                        |                                                       | 13.25                                      |                                        |                                                       | 12.04                                      |                                        |                                                       | 11.98                                      |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-16               | 8.77                                  |                                                       | 7.88                                       | 0.89                                   |                                                       | 7.51                                       | 1.26                                   |                                                       | 7.11                                       | 1.66                                   |                                                       | 7.14                                       | 1.63                                   |
| MW-17               | 8.95                                  |                                                       | 7.47                                       | 1.48                                   |                                                       | 7.45                                       | 1.50                                   |                                                       | 7.11                                       | 1.84                                   |                                                       | 7.14                                       | 1.81                                   |
| MW-18               | 10.80                                 |                                                       | Not Measured                               |                                        |                                                       | 8.49                                       | 2.31                                   |                                                       | 8.15                                       | 2.65                                   |                                                       | 7.92                                       | 2.88                                   |
| MW-19               | 11.85                                 |                                                       | 7.08                                       | 4.77                                   |                                                       | 7.13                                       | 4.72                                   |                                                       | 6.50                                       | 5.35                                   |                                                       | 6.27                                       | 5.58                                   |
| MW-20               | 10.64                                 |                                                       | 6.47                                       | 4.17                                   |                                                       | 6.62                                       | 4.02                                   |                                                       | 7.14                                       | 3.50                                   |                                                       | 5.78                                       | 4.86                                   |
| MW-21               | 7.13                                  |                                                       | 15.14                                      |                                        |                                                       | 15.11                                      |                                        |                                                       | 14.37                                      |                                        |                                                       | 14.28                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 6/22/99 <sup>2</sup>                                  |                                            |                                        | 6/22/99 <sup>1</sup>                                  |                                            |                                        | 5/11/99 <sup>2</sup>                                  |                                            |                                        | 5/11/99 <sup>1</sup>                                  |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 9.55                                       |                                        |                                                       | 6.23                                       |                                        |                                                       | 8.05                                       |                                        |                                                       | 5.19                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.32                                      | 0.11                                   |                                                       | 11.22                                      | 0.21                                   |                                                       | 10.51                                      | 0.92                                   |                                                       | 10.51                                      | 0.92                                   |
| MW-2                | 10.74                                 |                                                       | 8.53                                       | 2.21                                   | 5.66                                                  | 6.59                                       | 5.08                                   |                                                       | 5.85                                       | 4.89                                   | 5.35                                                  | 5.36                                       | 5.38                                   |
| MW-3                | 11.02                                 |                                                       | 10.82                                      | 0.20                                   | 6.68                                                  | 6.92                                       | 4.34                                   |                                                       | 9.04                                       | 1.98                                   | 5.86                                                  | 6.05                                       | 4.97                                   |
| MW-4                | 14.83                                 |                                                       | 8.35                                       | 6.48                                   |                                                       | 8.38                                       | 6.45                                   |                                                       | 7.22                                       | 7.61                                   |                                                       | 7.22                                       | 7.61                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.40                                      |                                        |                                                       | 15.40                                      |                                        |                                                       | 14.37                                      |                                        |                                                       | 14.33                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.65                                       | 1.08                                   |                                                       | 8.65                                       | 1.08                                   |                                                       | 8.16                                       | 1.57                                   |                                                       | 8.15                                       | 1.58                                   |
| MW-6                | 10.71                                 |                                                       | 19.88                                      |                                        |                                                       | 19.87                                      |                                        |                                                       | 17.89                                      |                                        |                                                       | 17.78                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 7.04                                       | 2.96                                   |                                                       | 5.08                                       | 4.92                                   |                                                       | 6.88                                       | 3.12                                   |                                                       | 4.58                                       | 5.42                                   |
| MW-8                | 10.73                                 |                                                       | 5.50                                       | 5.23                                   |                                                       | 5.44                                       | 5.29                                   |                                                       | 5.23                                       | 5.50                                   |                                                       | 5.20                                       | 5.53                                   |
| MW-9                | 10.27                                 |                                                       | 19.78                                      |                                        |                                                       | 19.74                                      |                                        |                                                       | 17.56                                      |                                        |                                                       | 17.34                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 9.04                                       | 2.45                                   |                                                       | 7.61                                       | 3.88                                   |                                                       | 8.20                                       | 3.29                                   |                                                       | 6.99                                       | 4.50                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 6.82                                       | 1.50                                   |                                                       | 6.55                                       | 1.77                                   |                                                       | 5.85                                       | 2.47                                   |                                                       | 5.87                                       | 2.45                                   |
| MW-14               | 7.32                                  |                                                       | 13.27                                      |                                        |                                                       | 13.32                                      |                                        |                                                       | 8.96                                       |                                        |                                                       | 8.95                                       |                                        |
| MW-15               | 8.26                                  |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | 8.65                                       |                                        |                                                       | 8.32                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 7.66                                       | 1.11                                   |                                                       | 7.57                                       | 1.20                                   |                                                       | 6.75                                       | 2.02                                   |                                                       | 6.75                                       | 2.02                                   |
| MW-17               | 8.95                                  |                                                       | 6.91                                       | 2.04                                   |                                                       | 6.90                                       | 2.05                                   |                                                       | 6.25                                       | 2.70                                   |                                                       | 6.23                                       | 2.72                                   |
| MW-18               | 10.80                                 |                                                       | 8.53                                       | 2.27                                   |                                                       | 8.07                                       | 2.73                                   |                                                       | 7.24                                       | 3.56                                   |                                                       | 6.91                                       | 3.89                                   |
| MW-19               | 11.85                                 |                                                       | 5.94                                       | 5.91                                   |                                                       | 5.69                                       | 6.16                                   |                                                       | 5.35                                       | 6.50                                   |                                                       | 5.14                                       | 6.71                                   |
| MW-20               | 10.64                                 |                                                       | 6.59                                       | 4.05                                   |                                                       | 5.17                                       | 5.47                                   |                                                       | 6.31                                       | 4.33                                   |                                                       | 4.73                                       | 5.91                                   |
| MW-21               | 7.13                                  |                                                       | 15.66                                      |                                        |                                                       | 15.69                                      |                                        |                                                       | 14.25                                      |                                        |                                                       | 14.24                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-I and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 4/22/99 <sup>2</sup>                                  |                                            |                                        | 4/22/99 <sup>1</sup>                                  |                                            |                                        | 4/13/1999                                             |                                            |                                        | 4/9/99 <sup>2</sup>                                   |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 9.03                                       |                                        | 5.30                                                  | 5.35                                       |                                        | 25.30                                                 | 25.25                                      |                                        |                                                       | 5.89                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 10.44                                      | 0.99                                   |                                                       | 10.39                                      | 1.04                                   |                                                       | 10.86                                      | 0.57                                   |                                                       | 5.89                                       | 5.54                                   |
| MW-2                | 10.74                                 | Trace                                                 | 8.24                                       | 2.50                                   | 5.73                                                  | 5.98                                       | 5.01                                   | 6.12                                                  | 6.20                                       | 4.62                                   |                                                       | Not Measured                               |                                        |
| MW-3                | 11.02                                 | 9.91                                                  | 9.94                                       | 1.11                                   |                                                       | Not Measured                               |                                        |                                                       | 6.96                                       | 4.06                                   |                                                       | 10.24                                      | 0.78                                   |
| MW-4                | 14.83                                 |                                                       | 7.87                                       | 6.96                                   |                                                       | 7.86                                       | 6.97                                   |                                                       | 7.58                                       | 7.25                                   |                                                       | 7.32                                       | 7.51                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.50                                      |                                        |                                                       | 14.52                                      |                                        |                                                       | 14.99                                      |                                        |                                                       | 14.92                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.81                                       | 0.92                                   |                                                       | 8.79                                       | 0.94                                   |                                                       | 8.78                                       | 0.95                                   |                                                       | 8.68                                       | 1.05                                   |
| MW-6                | 10.71                                 | 17.84                                                 | 17.85                                      |                                        |                                                       | 12.69                                      |                                        |                                                       | 17.93                                      |                                        |                                                       | 19.42                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 6.59                                       | 3.41                                   |                                                       | 4.72                                       | 5.28                                   |                                                       | 17.92                                      |                                        |                                                       | 5.22                                       | 4.78                                   |
| MW-8                | 10.73                                 | Trace                                                 | 5.70                                       | 5.03                                   |                                                       | 6.63                                       | 4.10                                   |                                                       | 5.96                                       | 4.77                                   |                                                       | 5.59                                       | 5.14                                   |
| MW-9                | 10.27                                 |                                                       | 17.40                                      |                                        |                                                       | 17.21                                      |                                        |                                                       | 19.21                                      |                                        |                                                       | 19.23                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 8.92                                       | 2.57                                   | 7.42                                                  | 7.46                                       | 4.07                                   | 18.51                                                 | 18.30                                      |                                        |                                                       | 7.46                                       | 4.03                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 5.98                                       | 2.34                                   |                                                       | 5.87                                       | 2.45                                   |                                                       | 5.44                                       | 2.88                                   |                                                       | 4.72                                       | 3.60                                   |
| MW-14               | 7.32                                  |                                                       | 8.80                                       |                                        |                                                       | 8.78                                       |                                        |                                                       | 8.28                                       |                                        |                                                       | 8.08                                       |                                        |
| MW-15               | 8.26                                  |                                                       | 8.64                                       |                                        |                                                       | 8.32                                       |                                        |                                                       | 9.18                                       |                                        |                                                       | 8.67                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 6.75                                       | 2.02                                   |                                                       | 6.74                                       | 2.03                                   | Trace                                                 | 6.75                                       | 2.02                                   |                                                       | 6.42                                       | 2.35                                   |
| MW-17               | 8.95                                  |                                                       | 6.70                                       | 2.25                                   |                                                       | 6.68                                       | 2.27                                   |                                                       | 6.58                                       | 2.37                                   |                                                       | 6.32                                       | 2.63                                   |
| MW-18               | 10.80                                 | 7.55                                                  | 7.56                                       | 3.25                                   |                                                       | 7.20                                       | 3.60                                   |                                                       | 7.08                                       | 3.72                                   |                                                       | 7.10                                       | 3.70                                   |
| MW-19               | 11.85                                 |                                                       | 5.79                                       | 6.06                                   |                                                       | 5.60                                       | 6.25                                   |                                                       | 5.90                                       | 5.95                                   |                                                       | 5.19                                       | 6.66                                   |
| MW-20               | 10.64                                 |                                                       | 6.76                                       | 3.88                                   |                                                       | 5.32                                       | 5.32                                   |                                                       | 15.60                                      |                                        |                                                       | 4.78                                       | 5.86                                   |
| MW-21               | 7.13                                  |                                                       | 14.42                                      |                                        |                                                       | 14.36                                      |                                        |                                                       | 14.64                                      |                                        |                                                       | 15.29                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 4/9/99 <sup>1</sup>                                   |                                            |                                        | 3/19/1999                                             |                                            |                                        | 2/8/1999                                              |                                            |                                        | 1/14/1999                                             |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 4.91                                       |                                        | 4.90                                                  | 4.98                                       |                                        |                                                       | 4.59                                       |                                        | 5.56                                                  | 5.57                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 10.49                                      | 0.94                                   |                                                       | 10.12                                      | 1.31                                   |                                                       | 10.30                                      | 1.13                                   |                                                       | 11.62                                      |                                        |
| MW-2                | 10.74                                 | 5.35                                                  | 5.40                                       | 5.39                                   | 5.25                                                  | 5.30                                       | 5.49                                   | 5.10                                                  | 5.15                                       | 5.64                                   | 6.05                                                  | 6.34                                       | 4.40                                   |
| MW-3                | 11.02                                 | 7.10                                                  | 7.14                                       | 3.92                                   | 5.66                                                  | 5.70                                       | 5.32                                   | 5.62                                                  | 5.70                                       | 5.40                                   | 6.83                                                  | 6.86                                       | 4.16                                   |
| MW-4                | 14.83                                 |                                                       | 7.31                                       | 7.52                                   |                                                       | 7.56                                       | 7.27                                   |                                                       | 6.75                                       | 8.08                                   |                                                       | 8.18                                       | 6.65                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.92                                      |                                        |                                                       | 14.37                                      |                                        |                                                       | 14.06                                      |                                        |                                                       | 15.02                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 8.67                                       | 1.06                                   |                                                       | 8.49                                       | 1.24                                   |                                                       | 8.05                                       | 1.68                                   |                                                       | 9.06                                       | 0.67                                   |
| MW-6                | 10.71                                 |                                                       | 19.41                                      |                                        |                                                       | 17.63                                      |                                        |                                                       | 17.49                                      |                                        |                                                       | 19.02                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 4.53                                       | 5.47                                   |                                                       | 4.37                                       | 5.63                                   |                                                       | 4.20                                       | 5.80                                   |                                                       | 5.07                                       | 4.93                                   |
| MW-8                | 10.73                                 |                                                       | 5.57                                       | 5.16                                   |                                                       | 5.18                                       | 5.55                                   |                                                       | 4.95                                       | 5.78                                   |                                                       | 5.58                                       | 5.15                                   |
| MW-9                | 10.27                                 |                                                       | 19.30                                      | -9.03                                  |                                                       | 16.93                                      |                                        |                                                       | 16.95                                      |                                        |                                                       | 18.65                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.05                                       | 4.44                                   |                                                       | 6.99                                       | 4.50                                   |                                                       | 6.80                                       | 4.69                                   |                                                       | 7.79                                       | 3.70                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13               | 8.32                                  |                                                       | 4.73                                       | 3.59                                   |                                                       | 4.79                                       | 3.53                                   |                                                       | 4.82                                       | 3.50                                   |                                                       | 5.49                                       | 2.83                                   |
| MW-14               | 7.32                                  |                                                       | 8.10                                       |                                        |                                                       | 8.19                                       |                                        |                                                       | 8.24                                       |                                        |                                                       | 11.55                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 8.71                                       |                                        |                                                       | 7.97                                       | 0.29                                   |                                                       | 8.24                                       | 0.02                                   |                                                       | 9.14                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 6.50                                       | 2.27                                   |                                                       | 5.88                                       | 2.89                                   |                                                       | 6.83                                       | 1.94                                   |                                                       | 8.38                                       | 0.39                                   |
| MW-17               | 8.95                                  |                                                       | 6.32                                       | 2.63                                   |                                                       | 5.18                                       | 3.77                                   |                                                       | 6.19                                       | 2.76                                   |                                                       | 6.95                                       | 2.00                                   |
| MW-18               | 10.80                                 |                                                       | 6.81                                       | 3.99                                   |                                                       | 6.90                                       | 3.90                                   |                                                       | 6.92                                       | 3.88                                   |                                                       | 8.16                                       | 2.64                                   |
| MW-19               | 11.85                                 |                                                       | 5.13                                       | 6.72                                   |                                                       | 5.12                                       | 6.73                                   |                                                       | 4.74                                       | 7.11                                   |                                                       | 5.49                                       | 6.36                                   |
| MW-20               | 10.64                                 |                                                       | 4.75                                       | 5.89                                   |                                                       | 4.58                                       | 6.06                                   |                                                       | 4.44                                       | 6.20                                   |                                                       | 5.10                                       | 5.54                                   |
| MW-21               | 7.13                                  |                                                       | 15.33                                      |                                        |                                                       | 14.01                                      |                                        |                                                       | 13.96                                      |                                        |                                                       | 15.16                                      |                                        |
| MW-22               |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 12/8/1998                                             |                                            |                                        | 11/2/1998                                             |                                            |                                        | 10/14/1998                                            |                                            |                                        | 9/21/1998                                             |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 5.55                                       |                                        |                                                       | 5.87                                       |                                        | 5.23                                                  | 5.25                                       |                                        |                                                       | 4.43                                       |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.70                                      |                                        |                                                       | 10.96                                      |                                        |                                                       | 10.78                                      | 0.65                                   |                                                       | 10.34                                      |                                        |
| MW-2                | 10.74                                 | 7.16                                                  | 7.37                                       | 3.58                                   | 6.35                                                  |                                            | 4.39                                   | 5.93                                                  | 6.07                                       | 4.67                                   | 4.70                                                  | 5.08                                       | 5.66                                   |
| MW-3                | 11.02                                 | 7.84                                                  | 8.02                                       | 3.18                                   | 7.01                                                  | 7.05                                       | 4.01                                   | 6.28                                                  | 6.32                                       | 4.70                                   | 5.50                                                  | 5.52                                       | 5.50                                   |
| MW-4                | 14.83                                 |                                                       | 10.04                                      | 4.79                                   |                                                       | 8.92                                       | 5.91                                   |                                                       | 4.89                                       | 9.94                                   |                                                       | 6.41                                       | 8.42                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 15.27                                      |                                        |                                                       | 14.49                                      |                                        |                                                       | 14.00                                      |                                        |                                                       | 12.60                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 9.99                                       |                                        |                                                       | 9.23                                       | 0.50                                   |                                                       | 8.68                                       | 1.05                                   |                                                       | 7.67                                       | 2.06                                   |
| MW-6                | 10.71                                 |                                                       | 18.46                                      |                                        |                                                       | 17.76                                      |                                        |                                                       | 18.37                                      |                                        |                                                       | 16.86                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 6.15                                       | 3.85                                   |                                                       | 5.54                                       | 4.46                                   |                                                       | 5.20                                       | 4.80                                   |                                                       | 4.15                                       | 5.85                                   |
| MW-8                | 10.73                                 |                                                       | 6.41                                       | 4.32                                   |                                                       | 6.22                                       | 4.51                                   |                                                       | 5.67                                       | 5.06                                   |                                                       | 4.96                                       | 5.77                                   |
| MW-9                | 10.27                                 |                                                       | 17.93                                      |                                        |                                                       | 17.20                                      |                                        |                                                       | 18.12                                      |                                        |                                                       | 15.91                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 8.90                                       | 2.59                                   |                                                       | 8.01                                       | 3.48                                   |                                                       | 7.56                                       | 3.93                                   |                                                       | 6.60                                       | 4.89                                   |
| MW-12               |                                       |                                                       | Not Measured                               |                                        |                                                       | 5.39                                       |                                        |                                                       | 4.62                                       |                                        |                                                       | 3.60                                       |                                        |
| MW-13               | 8.32                                  |                                                       | 8.83                                       |                                        |                                                       | 6.43                                       | 1.89                                   |                                                       | 5.60                                       | 2.72                                   |                                                       | 5.24                                       | 3.08                                   |
| MW-14               | 7.32                                  |                                                       | 14.14                                      |                                        |                                                       | 11.41                                      |                                        |                                                       | 8.78                                       |                                        |                                                       | 7.91                                       |                                        |
| MW-15               | 8.26                                  |                                                       | 9.64                                       |                                        |                                                       | 8.36                                       |                                        |                                                       | 8.29                                       |                                        |                                                       | Not Measured                               |                                        |
| MW-16               | 8.77                                  |                                                       | 8.35                                       | 0.42                                   |                                                       | 7.64                                       | 1.13                                   |                                                       | 7.36                                       | 1.41                                   |                                                       | 6.98                                       | 1.79                                   |
| MW-17               | 8.95                                  |                                                       | 7.89                                       | 1.06                                   |                                                       | 7.01                                       | 1.94                                   |                                                       | 6.55                                       | 2.40                                   |                                                       | 5.73                                       | 3.22                                   |
| MW-18               | 10.80                                 |                                                       | Not Measured                               |                                        |                                                       | 7.88                                       | 2.92                                   |                                                       | 7.43                                       | 3.37                                   |                                                       | 6.51                                       | 4.29                                   |
| MW-19               | 11.85                                 |                                                       | 6.92                                       | 4.93                                   |                                                       | 6.34                                       | 5.51                                   |                                                       | 5.63                                       | 6.22                                   |                                                       | 4.67                                       | 7.18                                   |
| MW-20               | 10.64                                 |                                                       | 6.40                                       | 4.24                                   |                                                       | 5.86                                       | 4.78                                   |                                                       | 5.33                                       | 5.31                                   |                                                       | 4.18                                       | 6.46                                   |
| MW-21               | 7.13                                  |                                                       | 15.41                                      |                                        |                                                       | 14.60                                      |                                        |                                                       | 14.22                                      |                                        |                                                       | 10.90                                      |                                        |
| MW-22               |                                       |                                                       | 18.87                                      |                                        |                                                       | 18.50                                      |                                        |                                                       | 18.84                                      |                                        |                                                       | 17.23                                      |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point        | Top of Casing Elevation<br>(ft., msl) | 8/11/1998                                             |                                            |                                        | 7/22/1998                                             |                                            |                                        | 7/16/1998                                             |                                            |                                        | 7/6/1998                                              |                                            |                                        |
|---------------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|                     |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1                |                                       |                                                       | 5.62                                       |                                        |                                                       | 6.06                                       |                                        |                                                       | 5.99                                       |                                        |                                                       | Not Measured                               |                                        |
| MW-01/4 (45-1-MW-1) | 11.43                                 |                                                       | 11.43                                      |                                        |                                                       | 11.24                                      |                                        |                                                       | 11.41                                      |                                        |                                                       | 10.81                                      | 0.62                                   |
| MW-2                | 10.74                                 | Trace                                                 | 5.81                                       | 4.93                                   | 6.73                                                  | 6.74                                       | 4.00                                   | 6.41                                                  | 6.42                                       | 4.32                                   | 5.97                                                  | 5.98                                       | 4.76                                   |
| MW-3                | 11.02                                 | Trace                                                 | 6.91                                       | 4.11                                   | 7.33                                                  | 7.34                                       | 3.68                                   | 6.72                                                  | 6.75                                       | 4.27                                   |                                                       | 6.27                                       | 4.75                                   |
| MW-4                | 14.83                                 |                                                       | 9.33                                       | 5.50                                   |                                                       | 14.80                                      | 0.03                                   |                                                       | 9.64                                       | 5.19                                   |                                                       | 8.95                                       | 5.88                                   |
| MW-04/4 (45-1-MW-4) | 7.11                                  |                                                       | 14.01                                      |                                        |                                                       | 14.67                                      |                                        |                                                       | 14.94                                      |                                        |                                                       | 14.64                                      |                                        |
| MW-5                | 9.73                                  |                                                       | 9.35                                       | 0.38                                   |                                                       | 9.80                                       |                                        |                                                       | 9.82                                       |                                        |                                                       | 9.35                                       | 0.38                                   |
| MW-6                | 10.71                                 |                                                       | 17.93                                      |                                        |                                                       | 18.40                                      |                                        |                                                       | 18.45                                      |                                        |                                                       | 18.23                                      |                                        |
| MW-7                | 10.00                                 |                                                       | 5.35                                       | 4.65                                   |                                                       | 5.72                                       | 4.28                                   |                                                       | 5.65                                       | 4.35                                   |                                                       | 5.23                                       | 4.77                                   |
| MW-8                | 10.73                                 |                                                       | 6.45                                       | 4.28                                   |                                                       | 6.63                                       | 4.10                                   |                                                       | 6.66                                       | 4.07                                   |                                                       | 6.23                                       | 4.50                                   |
| MW-9                | 10.27                                 |                                                       | 17.30                                      |                                        |                                                       | 17.37                                      |                                        |                                                       | 18.03                                      |                                        |                                                       | 17.73                                      |                                        |
| MW-10               | 11.49                                 |                                                       | 7.87                                       | 3.62                                   |                                                       | 8.33                                       | 3.16                                   |                                                       | 8.20                                       | 3.29                                   |                                                       | 7.81                                       | 3.68                                   |
| MW-12               |                                       |                                                       | 6.03                                       |                                        |                                                       | 5.32                                       |                                        |                                                       | 5.69                                       |                                        |                                                       | 5.14                                       |                                        |
| MW-13               | 8.32                                  |                                                       | 6.81                                       | 1.51                                   |                                                       | 6.48                                       | 1.84                                   |                                                       | 6.49                                       | 1.83                                   |                                                       | Not Measured                               |                                        |
| MW-14               | 7.32                                  |                                                       | 9.31                                       |                                        |                                                       | 14.42                                      |                                        |                                                       | 11.49                                      |                                        |                                                       | 10.45                                      |                                        |
| MW-15               | 8.26                                  |                                                       | 9.00                                       |                                        |                                                       | 8.76                                       |                                        |                                                       | 9.05                                       |                                        |                                                       | 8.30                                       |                                        |
| MW-16               | 8.77                                  |                                                       | 8.51                                       | 0.26                                   |                                                       | 8.19                                       | 0.58                                   |                                                       | 8.44                                       | 0.33                                   |                                                       | Not Measured                               |                                        |
| MW-17               | 8.95                                  |                                                       | Not Measured                               |                                        |                                                       | 7.01                                       | 1.94                                   |                                                       | 7.33                                       | 1.62                                   |                                                       | Not Measured                               |                                        |
| MW-18               | 10.80                                 |                                                       | 8.30                                       | 2.50                                   |                                                       | 7.91                                       | 2.89                                   |                                                       | 8.38                                       | 2.42                                   |                                                       | 7.86                                       | 2.94                                   |
| MW-19               | 11.85                                 |                                                       | 6.14                                       | 5.71                                   |                                                       | 6.71                                       | 5.14                                   |                                                       | 6.71                                       | 5.14                                   |                                                       | 6.15                                       | 5.70                                   |
| MW-20               | 10.64                                 |                                                       | 5.59                                       | 5.05                                   |                                                       | 6.01                                       | 4.63                                   |                                                       | 5.94                                       | 4.70                                   |                                                       | 5.53                                       | 5.11                                   |
| MW-21               | 7.13                                  |                                                       | 14.01                                      |                                        |                                                       | 11.93                                      |                                        |                                                       | 14.89                                      |                                        |                                                       | 14.64                                      |                                        |
| MW-22               |                                       |                                                       | 18.78                                      |                                        |                                                       | 18.93                                      |                                        |                                                       | 19.04                                      |                                        |                                                       | 18.82                                      |                                        |

Notes:

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point | Top of Casing Elevation<br>(ft., msl) | 7/17/2002                                             |                                            |                                        | 5/15/2002                                             |                                            |                                        | 4/17/2002                                             |                                            |                                        | 3/21/2002                                             |                                            |                                        |
|--------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|              |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1         |                                       |                                                       | Abandoned                                  |                                        |                                                       | 7.14                                       |                                        |                                                       | 7.93                                       |                                        |                                                       | 6.00                                       |                                        |
| 45-1-MW-1    | 11.43                                 |                                                       | 11.32                                      | 0.11                                   |                                                       | 11.16                                      | 0.27                                   |                                                       | 11.91                                      |                                        |                                                       | 11.29                                      |                                        |
| MW-2         | 10.74                                 |                                                       | Abandoned                                  |                                        |                                                       | 7.51                                       | 3.23                                   |                                                       | 7.27                                       | 3.47                                   |                                                       | 6.44                                       | 4.30                                   |
| MW-3         | 11.02                                 |                                                       | Abandoned                                  |                                        |                                                       | 7.80                                       | 3.22                                   |                                                       | 7.54                                       | 3.48                                   |                                                       | 6.71                                       | 4.31                                   |
| MW-4         | 14.83                                 |                                                       | 11.16                                      | 3.67                                   |                                                       | 10.56                                      | 4.27                                   |                                                       | 9.58                                       | 5.25                                   |                                                       | 9.37                                       | 5.46                                   |
| 45-1-MW-4    | 7.11                                  |                                                       | 15.26                                      |                                        |                                                       | 15.72                                      |                                        |                                                       | 15.63                                      |                                        |                                                       | 15.11                                      |                                        |
| MW-5         | 9.73                                  |                                                       | 8.84                                       | 0.89                                   |                                                       | 9.55                                       | 0.18                                   |                                                       | 9.45                                       | 0.28                                   |                                                       | 8.78                                       |                                        |
| MW-6         | 10.71                                 |                                                       | 19.03                                      |                                        |                                                       | 19.12                                      |                                        |                                                       | 19.54                                      |                                        |                                                       | 18.03                                      |                                        |
| MW-7         | 10.00                                 |                                                       | 5.32                                       | 4.68                                   |                                                       | 6.58                                       | 3.42                                   |                                                       | 6.40                                       | 3.60                                   |                                                       | 5.53                                       | 4.47                                   |
| MW-8         | 10.73                                 |                                                       | 6.61                                       | 4.12                                   |                                                       | 6.90                                       | 3.83                                   |                                                       | 6.76                                       | 3.97                                   |                                                       | 6.07                                       | 4.66                                   |
| MW-9         | 10.27                                 |                                                       | 18.69                                      |                                        |                                                       | 17.89                                      |                                        |                                                       | 19.42                                      |                                        |                                                       | 18.02                                      |                                        |
| MW-10        | 11.49                                 |                                                       | Abandoned                                  |                                        |                                                       | 9.15                                       | 2.34                                   |                                                       | 9.03                                       | 2.46                                   |                                                       | 7.85                                       | 3.64                                   |
| MW-12        |                                       |                                                       | Not Measured                               |                                        |                                                       | 6.87                                       |                                        |                                                       | 6.28                                       |                                        |                                                       | Not Measured                               |                                        |
| MW-13        | 8.32                                  |                                                       | 7.71                                       | 0.61                                   |                                                       | 7.51                                       | 0.81                                   |                                                       | 7.35                                       | 0.97                                   |                                                       | 6.92                                       | 1.40                                   |
| MW-14        | 7.32                                  |                                                       | 10.86                                      |                                        |                                                       | 14.41                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | 11.42                                      |                                        |
| MW-15        | 8.26                                  |                                                       | 8.34                                       |                                        |                                                       | 9.27                                       |                                        |                                                       | 9.87                                       |                                        |                                                       | 8.60                                       |                                        |
| MW-16        | 8.77                                  |                                                       | 8.89                                       | -0.13                                  |                                                       | 8.58                                       | 0.19                                   |                                                       | 9.01                                       |                                        |                                                       | 8.45                                       | 0.32                                   |
| MW-17        | 8.95                                  |                                                       | 5.48                                       | 3.47                                   |                                                       | 7.89                                       | 1.06                                   |                                                       | 7.70                                       | 1.25                                   |                                                       | 6.78                                       | 2.17                                   |
| MW-18        | 10.80                                 |                                                       | 7.61                                       | 3.19                                   |                                                       | 8.70                                       | 2.10                                   |                                                       | 8.70                                       | 2.10                                   |                                                       | 7.62                                       | 3.18                                   |
| MW-19        | 11.85                                 |                                                       | 7.36                                       | 4.49                                   |                                                       | 7.54                                       | 4.31                                   |                                                       | 6.99                                       | 4.86                                   |                                                       | 6.54                                       | 5.31                                   |
| MW-20        | 10.64                                 |                                                       | 5.95                                       | 4.69                                   |                                                       | 6.86                                       | 3.78                                   |                                                       | 6.47                                       | 4.17                                   |                                                       | 5.83                                       | 4.81                                   |
| MW-21        | 7.13                                  |                                                       | 15.36                                      |                                        |                                                       | 15.76                                      |                                        |                                                       | 15.76                                      |                                        |                                                       | 15.20                                      |                                        |
| MW-22        |                                       |                                                       | Not Measured                               |                                        |                                                       | 15.72                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point | Top of Casing Elevation<br>(ft., msl) | 2/19/2002                                             |                                            |                                        | 1/16/2002                                             |                                            |                                        | 12/13/01 <sup>2</sup>                                 |                                            |                                        | 12/13/01 <sup>1</sup>                                 |                                            |                                        |
|--------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|              |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1         |                                       |                                                       | 7.61                                       |                                        |                                                       | 9.23                                       |                                        |                                                       | 10.55                                      |                                        |                                                       | 9.38                                       |                                        |
| 45-1-MW-1    | 11.43                                 |                                                       | 12.51                                      |                                        |                                                       | 14.20                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-2         | 10.74                                 |                                                       | 8.06                                       | 2.68                                   |                                                       | 9.80                                       | 0.94                                   |                                                       | 10.55                                      | 0.19                                   |                                                       | 9.88                                       | 0.86                                   |
| MW-3         | 11.02                                 |                                                       | 8.31                                       | 2.71                                   |                                                       | 10.31                                      | 0.71                                   |                                                       | 15.54                                      |                                        |                                                       | 10.01                                      | 1.01                                   |
| MW-4         | 14.83                                 |                                                       | 11.42                                      | 3.41                                   |                                                       | 11.20                                      | 3.63                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| 45-1-MW-4    | 7.11                                  |                                                       | 15.77                                      |                                        |                                                       | 16.50                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-5         | 9.73                                  |                                                       | 9.85                                       |                                        |                                                       | 11.10                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-6         | 10.71                                 |                                                       | 19.19                                      |                                        |                                                       | 20.30                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-7         | 10.00                                 |                                                       | 7.10                                       | 2.90                                   |                                                       | 8.75                                       | 1.25                                   |                                                       | 9.40                                       | 0.60                                   |                                                       | 8.74                                       | 1.26                                   |
| MW-8         | 10.73                                 |                                                       | 7.32                                       | 3.41                                   |                                                       | 8.65                                       | 2.08                                   |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-9         | 10.27                                 |                                                       | 18.82                                      |                                        |                                                       | 20.14                                      |                                        |                                                       | 19.05                                      |                                        |                                                       | 18.92                                      |                                        |
| MW-10        | 11.49                                 |                                                       | 9.63                                       | 1.86                                   |                                                       | 11.45                                      | 0.04                                   |                                                       | 11.76                                      |                                        |                                                       | 11.37                                      | 0.12                                   |
| MW-12        |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13        | 8.32                                  |                                                       | 5.63                                       | 2.69                                   |                                                       | 9.96                                       |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-14        | 7.32                                  |                                                       | 15.82                                      |                                        |                                                       | Dry                                        |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-15        | 8.26                                  |                                                       | 10.45                                      |                                        |                                                       | 12.38                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-16        | 8.77                                  |                                                       | 6.74                                       | 2.03                                   |                                                       | 11.42                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-17        | 8.95                                  |                                                       | 8.41                                       | 0.54                                   |                                                       | 9.84                                       |                                        |                                                       | 9.94                                       |                                        |                                                       | 9.90                                       |                                        |
| MW-18        | 10.80                                 |                                                       | 9.49                                       | 1.31                                   |                                                       | 11.21                                      |                                        |                                                       | 11.06                                      |                                        |                                                       | 10.67                                      | 0.13                                   |
| MW-19        | 11.85                                 |                                                       | 8.22                                       | 3.63                                   |                                                       | 9.49                                       | 2.36                                   |                                                       | 9.73                                       | 2.12                                   |                                                       | 9.64                                       | 2.21                                   |
| MW-20        | 10.64                                 |                                                       | 7.25                                       | 3.39                                   |                                                       | 8.82                                       | 1.82                                   |                                                       | 9.50                                       | 1.14                                   |                                                       | 8.98                                       | 1.66                                   |
| MW-21        | 7.13                                  |                                                       | 15.83                                      |                                        |                                                       | 16.60                                      |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-22        |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

**Table 2-1**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**  
**Groundwater Level Measurement Summary**

| Sample Point | Top of Casing Elevation<br>(ft., msl) | 12/3/2001                                             |                                            |                                        | 11/27/01 <sup>2</sup>                                 |                                            |                                        | 11/27/01 <sup>1</sup>                                 |                                            |                                        | 11/5/2001                                             |                                            |                                        |
|--------------|---------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------------------------|--------------------------------------------|----------------------------------------|
|              |                                       | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) | Depth to<br>Hydrocarbon<br>Product<br>(ft. below toc) | Depth to<br>Groundwater<br>(ft. below toc) | Groundwater<br>Elevation<br>(ft., msl) |
| PW-1         |                                       |                                                       | 9.30                                       |                                        |                                                       | 10.34                                      |                                        |                                                       | 9.21                                       |                                        |                                                       | 8.99                                       |                                        |
| 45-1-MW-1    | 11.43                                 |                                                       | 13.38                                      |                                        |                                                       | 12.96                                      |                                        |                                                       | 13.04                                      |                                        |                                                       | 13.30                                      |                                        |
| MW-2         | 10.74                                 |                                                       | 9.84                                       | 0.90                                   |                                                       | 10.50                                      | 0.24                                   | Trace                                                 | 9.58                                       | 1.16                                   | Trace                                                 | 9.40                                       | 1.34                                   |
| MW-3         | 11.02                                 |                                                       | 10.07                                      | 0.95                                   |                                                       | 14.31                                      |                                        |                                                       | 9.93                                       | 1.09                                   |                                                       | 9.87                                       | 1.15                                   |
| MW-4         | 14.83                                 |                                                       | 12.42                                      | 2.41                                   |                                                       | 12.37                                      | 2.46                                   |                                                       | 12.37                                      | 2.46                                   |                                                       | 12.12                                      | 2.71                                   |
| 45-1-MW-4    | 7.11                                  |                                                       | 16.26                                      |                                        |                                                       | 16.20                                      |                                        |                                                       | 16.21                                      |                                        |                                                       | 16.20                                      |                                        |
| MW-5         | 9.73                                  |                                                       | 11.28                                      |                                        |                                                       | 11.15                                      |                                        |                                                       | 11.15                                      |                                        |                                                       | 10.96                                      |                                        |
| MW-6         | 10.71                                 |                                                       | 19.36                                      |                                        |                                                       | 19.30                                      |                                        |                                                       | 19.30                                      |                                        |                                                       | 19.92                                      |                                        |
| MW-7         | 10.00                                 |                                                       | 8.70                                       | 1.30                                   |                                                       | 9.30                                       | 0.70                                   |                                                       | 8.55                                       | 1.45                                   |                                                       | 8.33                                       | 1.67                                   |
| MW-8         | 10.73                                 |                                                       | 8.71                                       | 2.02                                   |                                                       | 8.60                                       | 2.13                                   |                                                       | 8.60                                       | 2.13                                   |                                                       | 8.42                                       | 2.31                                   |
| MW-9         | 10.27                                 |                                                       | 19.03                                      |                                        |                                                       | 18.98                                      |                                        |                                                       | 18.95                                      |                                        |                                                       | 19.75                                      |                                        |
| MW-10        | 11.49                                 |                                                       | 11.29                                      | 0.20                                   |                                                       | 11.56                                      |                                        |                                                       | 11.15                                      | 0.34                                   |                                                       | 11.01                                      | 0.48                                   |
| MW-12        |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |
| MW-13        | 8.32                                  |                                                       | 9.32                                       |                                        |                                                       | 9.20                                       |                                        |                                                       | 9.23                                       |                                        |                                                       | 8.94                                       |                                        |
| MW-14        | 7.32                                  |                                                       | 15.81                                      |                                        |                                                       | 15.79                                      |                                        |                                                       | 15.74                                      |                                        |                                                       | 16.04                                      |                                        |
| MW-15        | 8.26                                  |                                                       | 11.68                                      |                                        |                                                       | 11.25                                      |                                        |                                                       | 11.32                                      |                                        |                                                       | 11.25                                      |                                        |
| MW-16        | 8.77                                  |                                                       | 10.53                                      |                                        |                                                       | 10.23                                      |                                        |                                                       | 10.45                                      |                                        |                                                       | 10.45                                      |                                        |
| MW-17        | 8.95                                  |                                                       | 9.82                                       |                                        |                                                       | 9.70                                       |                                        |                                                       | 9.72                                       |                                        |                                                       | 9.34                                       |                                        |
| MW-18        | 10.80                                 |                                                       | 10.65                                      | 0.15                                   |                                                       | 10.69                                      | 0.11                                   |                                                       | 10.53                                      | 0.27                                   |                                                       | 10.45                                      | 0.35                                   |
| MW-19        | 11.85                                 |                                                       | 9.54                                       | 2.31                                   |                                                       | 9.54                                       | 2.31                                   |                                                       | 9.50                                       | 2.35                                   |                                                       | 9.15                                       | 2.70                                   |
| MW-20        | 10.64                                 |                                                       | 8.94                                       | 1.70                                   |                                                       | 9.35                                       | 1.29                                   |                                                       | 8.81                                       | 1.83                                   |                                                       | 8.56                                       | 2.08                                   |
| MW-21        | 7.13                                  |                                                       | 16.20                                      |                                        |                                                       | 16.11                                      |                                        |                                                       | 16.13                                      |                                        |                                                       | 16.32                                      |                                        |
| MW-22        |                                       |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |                                                       | Not Measured                               |                                        |

**Notes:**

<sup>1</sup> Groundwater elevation measurements same day prior to AFVR event.

<sup>2</sup> Groundwater elevation measurements same day after AFVR event.

<sup>3</sup> Groundwater elevation measurements one day after AFVR event.

ft = feet

toc = top of casing elevation

msl = mean sea level

| TABLE 2-2<br>TRANSPORTATION AND DISPOSAL LOG<br>J.A. JONES ENVIRONMENTAL SERVICES COMPANY<br>CAMP LEJEUNE, NORTH CAROLINA<br>BUILDING 45 USTs S-941-1 and S-941-2<br>PROJECT NUMBER: 005-067a |                                                                |                                           |      |                 |        |                 |             | 1/31/2003                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------|------|-----------------|--------|-----------------|-------------|-----------------------------------------------------------------------|
|                                                                                                                                                                                               |                                                                |                                           |      | GALLONS TO DATE | 93,946 |                 |             |                                                                       |
|                                                                                                                                                                                               |                                                                |                                           |      | TONS TO DATE    | 25.00  |                 |             |                                                                       |
|                                                                                                                                                                                               |                                                                |                                           |      | DRUMS TO DATE   | 14.00  |                 |             |                                                                       |
| DATE SHIPPED                                                                                                                                                                                  | DISPOSAL FACILITY                                              | HAULER                                    | TONS | GALLONS         | DRUMS  | MANIFEST NUMBER | LOAD NUMBER | COMMENTS                                                              |
| 10/20/1997                                                                                                                                                                                    | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      |                 | 11     | 435             | D-001       | Development Water Accumulated During Vertical Drilling                |
| 10/27/1997                                                                                                                                                                                    | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      |                 | 3      | 436             | D-002       | Development Water Accumulated During Vertical Drilling                |
| 11/21/1997                                                                                                                                                                                    | Carlisle Farms, Inc.                                           | SouthCo Enterprises, Inc.                 | 25   |                 |        | 444             | S-001       | 20 Cubic Yards of Drill Cuttings Accumulated During Vertical Drilling |
| 4/23/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 120             |        | 478             | W-001       | Soil Vapor Water Accumulated in Storage Tank                          |
| 4/27/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 240             |        | 479             | W-002       | Soil Vapor Water Accumulated in Storage Tank                          |
| 4/27/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 150             |        | 480             | W-003       | Soil Vapor Water Accumulated in Storage Tank                          |
| 4/29/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 190             |        | 471             | W-004       | Soil Vapor Water Accumulated in Storage Tank                          |
| 4/29/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 240             |        | 484             | W-005       | Soil Vapor Water Accumulated in Storage Tank                          |
| 8/14/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 600             |        | 293             | W-006       | Soil Vapor Water Accumulated in Storage Tank                          |
| 8/21/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 400             |        | 295             | W-007       | Soil Vapor Water Accumulated in Storage Tank                          |
| 9/16/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 300             |        | 701             | W-008       | Soil Vapor Water Accumulated in Storage Tank                          |
| 9/29/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 250             |        | 706             | W-009       | Soil Vapor Water Accumulated in Storage Tank                          |
| 10/1/1998                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 275             |        | 709             | W-010       | Soil Vapor Water Accumulated in Storage Tank                          |
| 11/10/1998                                                                                                                                                                                    | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 325             |        | 716             | W-011       | Soil Vapor Water Accumulated in Storage Tank                          |
| 1/19/1999                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 400             |        | 807             | W-012       | Soil Vapor Water Accumulated in Storage Tank                          |
| 1/27/1999                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 400             |        | 724             | W-013       | Soil Vapor Water Accumulated in Storage Tank                          |
| 3/5/1999                                                                                                                                                                                      | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 320             |        | 731             | W-014       | Soil Vapor Water Accumulated in Storage Tank                          |
| 4/9/1999                                                                                                                                                                                      | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 960             |        | 821             | W-015       | Groundwater and LNAPL Accumulated During AFVR Activities              |
| 4/22/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,371           |        | 821             | W-016       | Groundwater and LNAPL Accumulated During AFVR Activities              |
| 5/11/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,068           |        | 821             | W-017       | Groundwater and LNAPL Accumulated During AFVR Activities              |
| 6/12/1999                                                                                                                                                                                     | Groundwater Treatment System, Former Rifle Range RR-72         | J.A. Jones Environmental Services Company |      | 500             |        | 734             | W-018       | Soil Vapor Water Accumulated in Storage Tank                          |
| 6/23/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,483           |        | 821             | W-019       | Groundwater Accumulated During AFVR Activities                        |
| 6/30/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,204           |        | 821             | W-020       | Groundwater Accumulated During AFVR Activities                        |
| 7/20/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 708             |        | 821             | W-021       | Groundwater Accumulated During AFVR Activities                        |
| 7/28/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,067           |        | 821             | W-022       | Groundwater Accumulated During AFVR Activities                        |
| 8/19/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,149           |        | 821             | W-023       | Groundwater Accumulated During AFVR Activities                        |
| 8/27/1999                                                                                                                                                                                     | OHM's North Plant aquifer treatment facility, Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,386           |        | 821             | W-024       | Groundwater Accumulated During AFVR Activities                        |

| <b>TABLE 2-2</b><br><b>TRANSPORTATION AND DISPOSAL LOG</b><br><b>J.A. JONES ENVIRONMENTAL SERVICES COMPANY</b><br><b>CAMP LEJEUNE, NORTH CAROLINA</b><br><b>BUILDING 45 USTs S-941-1 and S-941-2</b><br><b>PROJECT NUMBER: 005-067a</b> |                                                               |                                           |      |                 |        |                 |             | 1/31/2003                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------|------|-----------------|--------|-----------------|-------------|------------------------------------------------|
|                                                                                                                                                                                                                                         |                                                               |                                           |      | GALLONS TO DATE | 93,946 |                 |             |                                                |
|                                                                                                                                                                                                                                         |                                                               |                                           |      | TONS TO DATE    | 25.00  |                 |             |                                                |
|                                                                                                                                                                                                                                         |                                                               |                                           |      | DRUMS TO DATE   | 14.00  |                 |             |                                                |
| DATE SHIPPED                                                                                                                                                                                                                            | DISPOSAL FACILITY                                             | HAULER                                    | TONS | GALLONS         | DRUMS  | MANIFEST NUMBER | LOAD NUMBER | COMMENTS                                       |
| 8/27/1999                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 2,174           |        | 821             | W-025       | Groundwater Accumulated During AFVR Activities |
| 1/5/2000                                                                                                                                                                                                                                | OHM's North Plant aquifer treatment facility Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 600             |        | 764             | W-026       | Soil Vapor Water Accumulated in Storage Tank   |
| 2/14/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 400             |        | 821             | W-027       | Soil Vapor Water Accumulated in Storage Tank   |
| 2/15/2000                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 400             |        | 771             | W-028       | Soil Vapor Water Accumulated in Storage Tank   |
| 4/19/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 320             |        | 1010            | W-029       | Soil Vapor Water Accumulated in Storage Tank   |
| 5/2/2000                                                                                                                                                                                                                                | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 450             |        | 1010            | W-030       | Soil Vapor Water Accumulated in Storage Tank   |
| 6/19/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 2,684           |        | 957             | W-031       | Groundwater Accumulated During AFVR Activities |
| 7/19/2000                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,026           |        | 969             | W-032       | Groundwater Accumulated During AFVR Activities |
| 7/27/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 400             |        | 983             | W-033       | Soil Vapor Water Accumulated in Storage Tank   |
| 7/31/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 450             |        | 984             | W-034       | Soil Vapor Water Accumulated in Storage Tank   |
| 8/7/2000                                                                                                                                                                                                                                | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 325             |        | 988             | W-035       | Soil Vapor Water Accumulated in Storage Tank   |
| 8/9/2000                                                                                                                                                                                                                                | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 350             |        | 989             | W-036       | Soil Vapor Water Accumulated in Storage Tank   |
| 8/23/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 175             |        | 991             | W-037       | Soil Vapor Water Accumulated in Storage Tank   |
| 8/31/2000                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 2,973           |        | 995             | W-038       | Groundwater Accumulated During AFVR Activities |
| 9/6/2000                                                                                                                                                                                                                                | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 400             |        | 996             | W-039       | Soil Vapor Water Accumulated in Storage Tank   |
| 9/7/2000                                                                                                                                                                                                                                | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 400             |        | 997             | W-040       | Soil Vapor Water Accumulated in Storage Tank   |
| 9/11/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 700             |        | 998             | W-041       | Soil Vapor Water Accumulated in Storage Tank   |
| 9/13/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 425             |        | 999             | W-042       | Soil Vapor Water Accumulated in Storage Tank   |
| 10/11/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 400             |        | 1000            | W-043       | Soil Vapor Water Accumulated in Storage Tank   |
| 11/20/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 2,806           |        | 1272            | W-044       | Groundwater Accumulated During AFVR Activities |
| 11/20/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 125             |        | 1052            | W-045       | Soil Vapor Water Accumulated in Storage Tank   |
| 11/27/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 400             |        | 1274            | W-046       | Soil Vapor Water Accumulated in Storage Tank   |
| 11/29/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 375             |        | 1275            | W-047       | Soil Vapor Water Accumulated in Storage Tank   |
| 12/5/2000                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 450             |        | 1276            | W-048       | Soil Vapor Water Accumulated in Storage Tank   |
| 12/11/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 425             |        | 1279            | W-049       | Soil Vapor Water Accumulated in Storage Tank   |
| 12/14/2000                                                                                                                                                                                                                              | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 525             |        | 1282            | W-050       | Soil Vapor Water Accumulated in Storage Tank   |
| 1/18/2001                                                                                                                                                                                                                               | Groundwater Treatment System, Former Rifle Range RR-72        | J.A. Jones Environmental Services Company |      | 2,721           |        | 1289            | W-051       | Groundwater Accumulated During AFVR Activities |

| <b>TABLE 2-2</b><br><b>TRANSPORTATION AND DISPOSAL LOG</b><br><b>J.A. JONES ENVIRONMENTAL SERVICES COMPANY</b><br><b>CAMP LEJEUNE, NORTH CAROLINA</b><br><b>BUILDING 45 USTs S-941-1 and S-941-2</b><br><b>PROJECT NUMBER: 005-067a</b> |                                                                  |                                           |      |                 |        |                 |             | 1/31/2003                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------|------|-----------------|--------|-----------------|-------------|-------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                         |                                                                  |                                           |      | GALLONS TO DATE | 93,946 |                 |             |                                                                                                 |
|                                                                                                                                                                                                                                         |                                                                  |                                           |      | TONS TO DATE    | 25.00  |                 |             |                                                                                                 |
|                                                                                                                                                                                                                                         |                                                                  |                                           |      | DRUMS TO DATE   | 14.00  |                 |             |                                                                                                 |
| DATE SHIPPED                                                                                                                                                                                                                            | DISPOSAL FACILITY                                                | HAULER                                    | TONS | GALLONS         | DRUMS  | MANIFEST NUMBER | LOAD NUMBER | COMMENTS                                                                                        |
| 2/6/2001                                                                                                                                                                                                                                | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 325             |        | 1290            | W-052       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 2/12/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 300             |        | 1292            | W-053       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 2/20/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 400             |        | 1293            | W-054       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 3/1/2001                                                                                                                                                                                                                                | Groundwater Treatment System, Former Rifle Range RR-72           | J.A. Jones Environmental Services Company |      | 400             |        | 1297            | W-055       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 3/1/2001                                                                                                                                                                                                                                | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 2,499           |        | 1297            | W-056       | Groundwater Accumulated During AFVR Activities                                                  |
| 3/28/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 820             |        | 1451            | W-057       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 3/29/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 2,757           |        | 1452            | W-058       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 4/10/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 750             |        | 1901            | W-059       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 4/26/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,204           |        | 2545            | W-060       | Groundwater Accumulated During AFVR Activities                                                  |
| 5/2/2001                                                                                                                                                                                                                                | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 425             |        | 2548            | W-061       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 5/9/2001                                                                                                                                                                                                                                | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,441           |        | 2555            | W-062       | Groundwater Accumulated During AFVR Activities                                                  |
| 5/22/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 675             |        | 2565            | W-063       | Groundwater Accumulated During AFVR Activities                                                  |
| 5/30/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,630           |        | 2571            | W-064       | Groundwater Accumulated During AFVR Activities and Soil Vapor Water Accumulated in Storage Tank |
| 6/12/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 725             |        | 2577            | W-066       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 6/14/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,330           |        | 2583            | W-065       | Groundwater Accumulated During AFVR Activities                                                  |
| 6/18/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 425             |        | 2585            | W-067       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 6/25/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 300             |        | 2589            | W-068       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 6/26/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,441           |        | 2592            | W-069       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 7/9/2001                                                                                                                                                                                                                                | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 450             |        | 2603            | W-070       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 7/23/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,405           |        | 2610            | W-071       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 8/13/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 400             |        | 2633            | W-072       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 8/16/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 3,450           |        | 2642            | W-073       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 8/29/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 1,650           |        | 2652            | W-074       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 9/11/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 250             |        | 2658            | W-075       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 9/18/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 400             |        | 2663            | W-076       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 10/3/2001                                                                                                                                                                                                                               | OHM's North Plant aquifer treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |      | 2,940           |        | 2674            | W-077       | Soil Vapor Water Accumulated in Storage Tank                                                    |
| 10/30/2001                                                                                                                                                                                                                              | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC      | J.A. Jones Environmental Services Company |      | 3,350           |        | 2693            | W-078       | Soil Vapor Water Accumulated in Storage Tank                                                    |

| <b>TABLE 2-2</b><br><b>TRANSPORTATION AND DISPOSAL LOG</b><br><b>J.A. JONES ENVIRONMENTAL SERVICES COMPANY</b><br><b>CAMP LEJEUNE, NORTH CAROLINA</b><br><b>BUILDING 45 USTs S-941-1 and S-941-2</b><br><b>PROJECT NUMBER: 005-067a</b> |                                                             |                                           |              |                  |              |                 |             | 1/31/2003                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------|--------------|------------------|--------------|-----------------|-------------|----------------------------------------------|
|                                                                                                                                                                                                                                         |                                                             |                                           |              | GALLONS TO DATE  | 93,946       |                 |             |                                              |
|                                                                                                                                                                                                                                         |                                                             |                                           |              | TONS TO DATE     | 25.00        |                 |             |                                              |
|                                                                                                                                                                                                                                         |                                                             |                                           |              | DRUMS TO DATE    | 14.00        |                 |             |                                              |
| DATE SHIPPED                                                                                                                                                                                                                            | DISPOSAL FACILITY                                           | HAULER                                    | TONS         | GALLONS          | DRUMS        | MANIFEST NUMBER | LOAD NUMBER | COMMENTS                                     |
| 11/1/2001                                                                                                                                                                                                                               | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 275              |              | 2696            | W-079       | Soil Vapor Water Accumulated in Storage Tank |
| 11/27/2001                                                                                                                                                                                                                              | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 3,080            |              | 2685            | W-080       | Soil Vapor Water Accumulated in Storage Tank |
| 12/13/2001                                                                                                                                                                                                                              | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 2,890            |              | 2727            | W-081       | Soil Vapor Water Accumulated in Storage Tank |
| 1/14/2002                                                                                                                                                                                                                               | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 400              |              | 2744            | W-082       | Soil Vapor Water Accumulated in Storage Tank |
| 1/8/2002                                                                                                                                                                                                                                | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 425              |              | 2740            | W-083       | Soil Vapor Water Accumulated in Storage Tank |
| 2/11/2002                                                                                                                                                                                                                               | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 300              |              | 2761            | W-084       | Soil Vapor Water Accumulated in Storage Tank |
| 3/4/2002                                                                                                                                                                                                                                | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 300              |              | 2774            | W-085       | Soil Vapor Water Accumulated in Storage Tank |
| 3/7/2002                                                                                                                                                                                                                                | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 325              |              | 2776            | W-086       | Soil Vapor Water Accumulated in Storage Tank |
| 3/21/2002                                                                                                                                                                                                                               | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 300              |              | 2784            | W-087       | Soil Vapor Water Accumulated in Storage Tank |
| 3/26/2002                                                                                                                                                                                                                               | IT Corp. North Plant treatment facility<br>Camp Lejeune, NC | J.A. Jones Environmental Services Company |              | 150              |              | 2788            | W-088       | Soil Vapor Water Accumulated in Storage Tank |
| 5/14/2002                                                                                                                                                                                                                               | Camp Lejeune EMD Treatment Facility                         | J.A. Jones Environmental Services Company |              | 300              |              | 2842            | W-089       | Soil Vapor Water Accumulated in Storage Tank |
| 7/13/2002                                                                                                                                                                                                                               | Camp Lejeune EMD Treatment Facility                         | J.A. Jones Environmental Services Company |              | 300              |              | 2946            | W-090       | Soil Vapor Water Accumulated in Storage Tank |
| 9/18/2002                                                                                                                                                                                                                               | Camp Lejeune EMD Treatment Facility                         | J.A. Jones Environmental Services Company |              | 200              |              | 2998            | W-091       | Soil Vapor Water Accumulated in Storage Tank |
| 10/17/2002                                                                                                                                                                                                                              | Camp Lejeune EMD Treatment Facility                         | J.A. Jones Environmental Services Company |              | 300              |              | 3257            | W-092       | Soil Vapor Water Accumulated in Storage Tank |
| 1/27/2003                                                                                                                                                                                                                               | Camp Lejeune EMD Treatment Facility                         | J.A. Jones Environmental Services Company |              | 275              |              | 3613            | W-093       | Soil Vapor Water Accumulated in Storage Tank |
| <b>TOTAL as of 1/31/03</b>                                                                                                                                                                                                              |                                                             |                                           | <b>25.00</b> | <b>93,946.00</b> | <b>14.00</b> | <b>SOIL:</b>    | <b>1</b>    | <b>Loads</b>                                 |
|                                                                                                                                                                                                                                         |                                                             |                                           |              |                  |              | <b>WATER:</b>   | <b>93</b>   | <b>Loads</b>                                 |
|                                                                                                                                                                                                                                         |                                                             |                                           |              |                  |              | <b>DRUMS:</b>   | <b>2</b>    | <b>Loads</b>                                 |

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | PW-1               |                    |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                         | Sample ID          | UST45/S941-PW1-02B | UST45/S941-PW1-02A | UST45/S941-PW1-01D | UST45/S941-PW1-01C | UST45/S941-PW1-01B | UST45/S941-PW1-01A | UST45/S941-PW1-00D | UST45/S941-PW1-00C |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 4/17/2002          | 1/16/2002          | 10/16/2001         | 7/17/2001          | 4/16/2001          | 1/31/2001          | 10/11/2000         | 7/18/2000          |
| Benzene                                                                    | 1                       |                    | BQL                | <b>13</b>          | <b>25</b>          | <b>100</b>         | <b>60</b>          | <b>38</b>          | <b>130</b>         | <b>23</b>          |
| Ethylbenzene                                                               | 29                      |                    | BQL                | BQL                | <b>2</b>           | <b>22</b>          | <b>7</b>           | <b>5</b>           | <b>31</b>          | <b>3</b>           |
| Toluene                                                                    | 1,000                   |                    | BQL                | BQL                | BQL                | <b>6</b>           | <b>2</b>           | BQL                | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530                     |                    | BQL                | BQL                | BQL                | <b>13</b>          | <b>5</b>           | BQL                | BQL                | <b>2</b>           |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21                      |                    | BQL                | BQL                | BQL                | <b>12</b>          | BQL                | BQL                | <b>11</b>          | <b>48</b>          |
| Acenaphthylene                                                             | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | <b>40</b>          |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | <b>98</b>          |
| Pyrene                                                                     | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                | BQL                | BQL                | <b>23</b>          | BQL                | BQL                | <b>11</b>          | <b>240</b>         |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | <b>170</b>         |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limits.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | PW-1               |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                         | Sample ID          | UST45/S941-PW1-00B | UST45/S941-PW1-00A | UST45/S941-PW1-99D | UST45/S941-PW1-99C | UST45/S941-PW1-99B | UST45/S941-PW1-99A | UST45/S941-PW1-98D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 4/12/2000          | 2/1/2000           | 10/12/1999         | 7/12/1999          | 4/12/1999          | 1/4/1999           | 10/14/1998         |
| Benzene                                                                    | 1                       |                    | <b>61</b>          | <b>35</b>          | <b>110</b>         | <b>82</b>          | BQL                | BQL                | BQL                |
| Ethylbenzene                                                               | 29                      |                    | <b>9</b>           | <b>10</b>          | <b>30</b>          | <b>14</b>          | BQL                | BQL                | BQL                |
| Toluene                                                                    | 1,000                   |                    | <b>2</b>           | <b>3</b>           | <b>13</b>          | <b>17</b>          | BQL                | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530                     |                    | BQL                | <b>2</b>           | BQL                | <b>11</b>          | BQL                | BQL                | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                    |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21                      |                    | BQL                | BQL                | <b>19</b>          | BQL                | BQL                | BQL                | BQL                |
| Acenaphthylene                                                             | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                | BQL                | <b>12</b>          | BQL                | BQL                | BQL                | BQL                |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | PW-1                |                     | MW-2               |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                  | Sample ID       | UST45/S941-PW1-98C1 | UST45/S941-PW1-98B3 | UST45/S941-MW2-02B | UST45/S941-MW2-02A | UST45/S941-MW2-01D | UST45/S941-MW2-01C | UST45/S941-MW2-01B | UST45/S941-MW2-01A |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 7/17/1998           | 6/22/1998           | 4/17/2002          | 1/16/2002          | 10/16/2001         | 7/17/2001          | 4/16/2001          | 1/31/2001          |
| Benzene                                                                    | 1                |                 | BQL                 | BQL                 | <b>36</b>          | <b>200</b>         | <b>42</b>          | <b>300</b>         | <b>160</b>         | <b>140</b>         |
| Ethylbenzene                                                               | 29               |                 | BQL                 | BQL                 | <b>3</b>           | <b>4</b>           | <b>13</b>          | <b>100</b>         | <b>79</b>          | <b>79</b>          |
| Toluene                                                                    | 1,000            |                 | BQL                 | BQL                 | <b>2</b>           | BQL                | <b>3</b>           | <b>31</b>          | <b>13</b>          | <b>12</b>          |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                 | BQL                 | <b>3</b>           | <b>8</b>           | <b>3</b>           | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530              |                 | BQL                 | BQL                 | BQL                | BQL                | <b>11</b>          | <b>240</b>         | <b>41</b>          | <b>171</b>         |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                  |                 |                     |                     |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21               |                 | BQL                 | BQL                 | BQL                | BQL                | <b>150</b>         | <b>540</b>         | <b>60</b>          | <b>8,800</b>       |
| Acenaphthylene                                                             | 210              |                 | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80               |                 | BQL                 | BQL                 | BQL                | BQL                | BQL                | <b>84</b>          | BQL                | <b>1,200</b>       |
| Fluorene                                                                   | Detection Limit  |                 | BQL                 | BQL                 | <b>17</b>          | BQL                | <b>72</b>          | <b>120</b>         | <b>14</b>          | <b>3,000</b>       |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                 | BQL                 | <b>29</b>          | BQL                | <b>140</b>         | <b>200</b>         | <b>15</b>          | <b>4,400</b>       |
| Anthracene                                                                 | 2,100            |                 | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210              |                 | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                 | BQL                 | <b>41</b>          | BQL                | <b>410</b>         | <b>650</b>         | <b>160</b>         | <b>22,000</b>      |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                 | BQL                 | <b>28</b>          | BQL                | <b>600</b>         | <b>960</b>         | <b>60</b>          | <b>27,000</b>      |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-2               |                    |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|------------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW2-00D | UST45/S941-MW2-00C | UST45/S941-MW2-00B | UST45/S941-MW2-00A | UST45/S941-MW2-99D | UST45/S941-MW2-99C | UST45/S941-MW2-99B | UST45/S941-MW2-99A |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 10/11/2000         | 7/18/2000          | 4/12/2000          | 2/1/2000           | 10/12/1999         | 7/12/1999          | 4/12/1999          | 1/4/1999           |
| Benzene                                                                    | 1                |                 | <b>110</b>         | <b>360</b>         | <b>170</b>         | <b>350</b>         | <b>410</b>         | <b>650</b>         | <b>400</b>         | <b>710</b>         |
| Ethylbenzene                                                               | 29               |                 | <b>61</b>          | <b>260</b>         | <b>31</b>          | BQL                | <b>85</b>          | <b>120</b>         | <b>100</b>         | BQL                |
| Toluene                                                                    | 1,000            |                 | <b>9</b>           | <b>69</b>          | BQL                | BQL                | <b>81</b>          | <b>100</b>         | <b>37</b>          | <b>56</b>          |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530              |                 | <b>24</b>          | <b>633</b>         | <b>63</b>          | BQL                | <b>150</b>         | <b>90</b>          | <b>230</b>         | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                  |                 |                    |                    |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21               |                 | <b>93</b>          | <b>3,300</b>       | <b>5,200</b>       | <b>340</b>         | <b>3,900</b>       | <b>270</b>         | <b>1,100</b>       | <b>110</b>         |
| Acenaphthylene                                                             | 210              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | <b>19</b>          | BQL                | BQL                |
| Acenaphthene                                                               | 80               |                 | <b>16</b>          | <b>290</b>         | <b>1,600</b>       | <b>110</b>         | <b>720</b>         | <b>36</b>          | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit  |                 | <b>35</b>          | <b>1,000</b>       | <b>3,700</b>       | <b>210</b>         | BQL                | <b>66</b>          | <b>300</b>         | <b>14</b>          |
| Phenanthrene                                                               | Detection Limit  |                 | <b>65</b>          | <b>2,000</b>       | <b>4,900</b>       | <b>360</b>         | <b>3,100</b>       | <b>140</b>         | <b>520</b>         | <b>17</b>          |
| Anthracene                                                                 | 2,100            |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | <b>17</b>          |
| Pyrene                                                                     | 210              |                 | <b>12</b>          | <b>220</b>         | BQL                | <b>55</b>          | BQL                | <b>20</b>          | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | <b>360</b>         | <b>8,200</b>       | <b>17,000</b>      | <b>1,200</b>       | <b>12,000</b>      | <b>470</b>         | <b>2,600</b>       | <b>160</b>         |
| 2-Methylnaphthalene                                                        | 28               |                 | <b>190</b>         | <b>9,000</b>       | <b>19,000</b>      | <b>1,000</b>       | <b>11,000</b>      | <b>470</b>         | <b>3,000</b>       | <b>60</b>          |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location<br>Sample ID | MW-2               | MW-3               |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|------------------|------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                  |                              | UST45/S941-MW2-98D | UST45/S941-MW3-02B | UST45/S941-MW3-02A | UST45/S941-MW3-01D | UST45/S941-MW3-01C | UST45/S941-MW3-01B | UST45/S941-MW3-01A | UST45/S941-MW3-00D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date                  | 10/14/1998         | 4/17/2002          | 1/16/2002          | 10/16/2001         | 7/17/2001          | 4/16/2001          | 1/31/2001          | 10/11/2000         |
| Benzene                                                                    | 1                |                              | <b>480</b>         | <b>55</b>          | <b>13</b>          | <b>11</b>          | <b>150</b>         | <b>44</b>          | <b>38</b>          | <b>21</b>          |
| Ethylbenzene                                                               | 29               |                              | <b>33</b>          | <b>5</b>           | <b>1</b>           | BQL                | <b>33</b>          | <b>17</b>          | <b>12</b>          | <b>4</b>           |
| Toluene                                                                    | 1,000            |                              | BQL                | BQL                | BQL                | BQL                | 7                  | 16                 | 13                 | 2                  |
| Methyl-tert-butyl ether                                                    | 200              |                              | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530              |                              | <b>50</b>          | BQL                | BQL                | BQL                | <b>42</b>          | <b>51</b>          | <b>34</b>          | <b>10</b>          |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                  |                              |                    |                    |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21               |                              | <b>140</b>         | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthylene                                                             | 210              |                              | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80               |                              | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit  |                              | <b>71</b>          | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit  |                              | <b>91</b>          | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100            |                              | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210              |                              | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit  |                              | <b>450</b>         | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | <b>14</b>          |
| 2-Methylnaphthalene                                                        | 28               |                              | <b>370</b>         | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | <b>15</b>          |

**Notes:**

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BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-3               |                    |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW3-00C | UST45/S941-MW3-00B | UST45/S941-MW3-00A | UST45/S941-MW3-99D | UST45/S941-MW3-99C | UST45/S941-MW3-99B | UST45/S941-MW3-99A | UST45/S941-MW3-98D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/18/2000          | 4/12/2000          | 2/1/2000           | 10/12/1999         | 7/12/1999          | 4/12/1999          | 1/14/1999          | 10/14/1998         |
| Benzene                                                                    | 1                       |                    | <b>17</b>          | <b>23</b>          | <b>17</b>          | <b>13</b>          | <b>59</b>          | <b>390</b>         | <b>61</b>          | <b>58</b>          |
| Ethylbenzene                                                               | 29                      |                    | <b>34</b>          | <b>4</b>           | <b>7</b>           | <b>3</b>           | <b>22</b>          | <b>560</b>         | <b>26</b>          | BQL                |
| Toluene                                                                    | 1,000                   |                    | <b>2</b>           | BQL                | <b>1</b>           | <b>1</b>           | <b>31</b>          | <b>550</b>         | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530                     |                    | <b>82</b>          | <b>3</b>           | <b>16</b>          | <b>5</b>           | <b>95</b>          | <b>2,050</b>       | <b>65</b>          | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21                      |                    | <b>17</b>          | BQL                | BQL                | BQL                | <b>13</b>          | <b>950</b>         | BQL                | BQL                |
| Acenaphthylene                                                             | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | <b>47</b>          | BQL                | <b>15</b>          | BQL                | <b>28</b>          | <b>2,500</b>       | BQL                | BQL                |
| 2-Methylnaphthalene                                                        | 28                      |                    | <b>62</b>          | BQL                | <b>23</b>          | BQL                | <b>42</b>          | <b>3,400</b>       | <b>11</b>          | BQL                |

**Notes:**

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 BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location<br>Sample ID | MW-3                |                     | MW-5                |                     |                     | MW-8               |                    |                    |
|----------------------------------------------------------------------------|-------------------------|------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|
|                                                                            |                         |                              | UST45/S941-MW3-98C1 | UST45/S941-MW3-98B3 | UST45/S941-MW5-98C1 | UST45/S941-MW5-98B3 | UST45/S941-MW5-98B2 | UST45/S941-MW8-03A | UST45/S941-MW8-02D | UST45/S941-MW8-0C1 |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b>           | 7/17/1998           | 6/22/1998           | 7/17/1998           | 6/22/1998           | 5/14/1998           | 1/15/2003          | 10/24/2002         | 7/17/2002          |
| Benzene                                                                    | 1                       |                              | <b>17</b>           | <b>44</b>           | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Ethylbenzene                                                               | 29                      |                              | <b>8</b>            | <b>7</b>            | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Toluene                                                                    | 1,000                   |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200                     |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Total Xylenes                                                              | 530                     |                              | <b>8</b>            | BQL                 | BQL                 | BQL                 | BQL                 | <b>4.1</b>         | BQL                | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                              |                     |                     |                     |                     |                     |                    |                    |                    |
| Naphthalene                                                                | 21                      |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Acenaphthylene                                                             | 210                     |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80                      |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit         |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit         |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100                   |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210                     |                              | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit         |                              | <b>12</b>           | BQL                 | BQL                 | BQL                 | BQL                 | NA                 | NA                 | BQL                |
| 2-Methylnaphthalene                                                        | 28                      |                              | <b>11</b>           | BQL                 | BQL                 | BQL                 | BQL                 | BQL                | BQL                | BQL                |

Notes:

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-8               |                    |                    |                    |                    |                   |                    |                    |
|----------------------------------------------------------------------------|------------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW8-02B | UST45/S941-MW8-02A | UST45/S941-MW8-01D | UST45/S941-MW8-01C | UST45/S941-MW8-01B | UST45/S941-MW8-01 | UST45/S941-MW8-00D | UST45/S941-MW8-00C |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 4/17/2002          | 1/16/2002          | 10/16/2001         | 7/17/2001          | 4/16/2001          | 1/31/2001         | 10/11/2000         | 7/18/2000          |
| Benzene                                                                    | 1                |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Ethylbenzene                                                               | 29               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Toluene                                                                    | 1,000            |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Total Xylenes                                                              | 530              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                  |                 |                    |                    |                    |                    |                    |                   |                    |                    |
| Naphthalene                                                                | 21               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Acenaphthylene                                                             | 210              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Acenaphthene                                                               | 80               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit  |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Anthracene                                                                 | 2,100            |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| Pyrene                                                                     | 210              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL               | BQL                | BQL                |

Notes:

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

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BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-8               |                    |                    |                    |                    |                    |                    |                     |
|----------------------------------------------------------------------------|------------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW8-00B | UST45/S941-MW8-00A | UST45/S941-MW8-99D | UST45/S941-MW8-99C | UST45/S941-MW8-99B | UST45/S941-MW8-99A | UST45/S941-MW8-98D | UST45/S941-MW8-98C1 |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 4/12/2000          | 2/1/2000           | 10/12/1999         | 7/12/1999          | 4/12/1999          | 1/14/1999          | 10/14/1998         | 7/17/1998           |
| Benzene                                                                    | 1                |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Ethylbenzene                                                               | 29               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Toluene                                                                    | 1,000            |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Total Xylenes                                                              | 530              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                  |                 |                    |                    |                    |                    |                    |                    |                    |                     |
| Naphthalene                                                                | 21               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Acenaphthylene                                                             | 210              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Acenaphthene                                                               | 80               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Fluorene                                                                   | Detection Limit  |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Anthracene                                                                 | 2,100            |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| Pyrene                                                                     | 210              |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location<br>Sample ID | MW-8                |                     | MW-9               |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|-------------------------|------------------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                         |                              | UST45/S941-MW8-98B3 | UST45/S941-MW8-98B2 | UST45/S941-MW9-03A | UST45/S941-MW9-02D | UST45/S941-MW9-02C | UST45/S941-MW9-02B | UST45/S941-MW9-02A | UST45/S941-MW9-01D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b>           | 6/22/1998           | 5/14/1998           | 1/15/2003          | 10/24/2002         | 7/17/2002          | 4/17/2002          | 1/16/2002          | 10/16/2001         |
| Benzene                                                                    | 1                       |                              | BQL                 | BQL                 | <b>16</b>          | <b>24</b>          | <b>15</b>          | <b>19</b>          | <b>15</b>          | <b>13</b>          |
| Ethylbenzene                                                               | 29                      |                              | BQL                 | BQL                 | <b>1.2</b>         | BQL                | BQL                | <b>1</b>           | BQL                | BQL                |
| Toluene                                                                    | 1,000                   |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200                     |                              | BQL                 | BQL                 | <b>19</b>          | <b>18</b>          | <b>12</b>          | <b>10</b>          | <b>9</b>           | <b>7</b>           |
| Total Xylenes                                                              | 530                     |                              | BQL                 | BQL                 | <b>5.8</b>         | BQL                | BQL                | BQL                | BQL                | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                              |                     |                     |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21                      |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthylene                                                             | 210                     |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80                      |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit         |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit         |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100                   |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210                     |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit         |                              | BQL                 | BQL                 | NA                 | NA                 | BQL                | BQL                | BQL                | BQL                |
| 2-Methylnaphthalene                                                        | 28                      |                              | BQL                 | BQL                 | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |

Notes:

NA indicates that the sample was not analyzed for the constituent.

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Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NC/DENR                 | Sample Location    | MW-9               |                    |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------------------|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW9-01C | UST45/S941-MW9-01B | UST45/S941-MW9-01A | UST45/S941-MW9-00D | UST45/S941-MW9-00C | UST45/S941-MW9-00B | UST45/S941-MW9-00A | UST45/S941-MW9-99D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/17/2001          | 4/16/2001          | 1/31/2001          | 10/11/2000         | 7/18/2000          | 4/12/2000          | 2/1/2000           | 10/12/1999         |
| Benzene                                                                    | 1                       |                    | <b>15</b>          | <b>12</b>          | <b>10</b>          | <b>10</b>          | <b>11</b>          | <b>11</b>          | <b>11</b>          | <b>5</b>           |
| Ethylbenzene                                                               | 29                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Toluene                                                                    | 1,000                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Methyl-tert-butyl ether                                                    | 200                     |                    | <b>4</b>           | <b>11</b>          | <b>15</b>          | <b>20</b>          | <b>17</b>          | <b>7</b>           | <b>6</b>           | <b>5</b>           |
| Total Xylenes                                                              | 530                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                    |                    |                    |                    |                    |                    |                    |                    |
| Naphthalene                                                                | 21                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthylene                                                             | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Acenaphthene                                                               | 80                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Fluorene                                                                   | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Anthracene                                                                 | 2,100                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| Pyrene                                                                     | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                | BQL                |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

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BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-9               |                    |                    |                    | MW-10               |                     |                     |                     |
|----------------------------------------------------------------------------|-------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW9-99C | UST45/S941-MW9-99B | UST45/S941-MW9-99A | UST45/S941-MW9-98D | UST45/S941-MW10-02B | UST45/S941-MW10-02A | UST45/S941-MW10-01D | UST45/S941-MW10-01C |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/12/1999          | 4/12/1999          | 1/14/1999          | 10/14/1998         | 4/17/2002           | 1/16/2002           | 10/16/2001          | 7/17/2001           |
| Benzene                                                                    | 1                       |                    | 7                  | 3                  | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200                     |                    | 10                 | 45                 | 45                 | 16                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                              | 530                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                    |                    |                    |                    |                     |                     |                     |                     |
| Naphthalene                                                                | 21                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100                   |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210                     |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                | BQL                | BQL                | BQL                | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

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BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-10               |                     |                     |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW10-01B | UST45/S941-MW10-01A | UST45/S941-MW10-00D | UST45/S941-MW10-00C | UST45/S941-MW10-00B | UST45/S941-MW10-00A | UST45/S941-MW10-99D | UST45/S941-MW10-99C |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 4/16/2001           | 1/31/2001           | 10/11/2000          | 7/18/2000           | 4/12/2000           | 2/1/2000            | 10/12/1999          | 7/12/1999           |
| Benzene                                                                    | 1                       |                    | BQL                 | BQL                 | BQL                 | 7                   | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                              | 530                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | 4                   | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                     |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit  
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 BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-10               |                      |                     |                      |                      |                      | MW-12                |                      |
|----------------------------------------------------------------------------|------------------|-----------------|---------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW10-99B | UST45/S941-MW10-99A1 | UST45/S941-MW10-98D | UST45/S941-MW10-98C1 | UST45/S941-MW10-98B3 | UST45/S941-MW10-98B2 | UST45/S941-MW12-98C1 | UST45/S941-MW12-98B3 |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 4/12/1999           | 1/14/1999            | 10/14/1998          | 7/17/1998            | 6/22/1998            | 5/14/1998            | 7/17/1998            | 6/22/1998            |
| Benzene                                                                    | 1                |                 | BQL                 | BQL                  | BQL                 | <b>24</b>            | <b>1</b>             | BQL                  | BQL                  | BQL                  |
| Ethylbenzene                                                               | 29               |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Toluene                                                                    | 1,000            |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Total Xylenes                                                              | 530              |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                  |                 |                     |                      |                     |                      |                      |                      |                      |                      |
| Naphthalene                                                                | 21               |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Acenaphthylene                                                             | 210              |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Acenaphthene                                                               | 80               |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Fluorene                                                                   | Detection Limit  |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Anthracene                                                                 | 2,100            |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Pyrene                                                                     | 210              |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                 | BQL                  | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-12                |                      | MW-13               |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------|-------------------------|--------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW12-98B2 | UST45/S941-MW12-98B1 | UST45/S941-MW13-03A | UST45/S941-MW13-02D | UST45/S941-MW13-02C | UST45/S941-MW13-02B | UST45/S941-MW13-02A | UST45/S941-MW13-01D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 5/14/1998            | 4/14/1998            | 1/15/2003           | 10/24/2002          | 7/17/2002           | 4/17/2002           | 1/16/2002           | 10/16/2001          |
| Benzene                                                                    | 1                       |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000                   |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                              | 530                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                      |                      |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit         |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100                   |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                  | BQL                  | NA                  | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-13               |                     |                     |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW13-01C | UST45/S941-MW13-01B | UST45/S941-MW13-01A | UST45/S941-MW13-00D | UST45/S941-MW13-00C | UST45/S941-MW13-00B | UST45/S941-MW13-00A | UST45/S941-MW13-99D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/17/2001           | 4/16/2001           | 1/31/2001           | 10/11/2000          | 7/18/2000           | 4/12/2000           | 2/1/2000            | 10/12/1999          |
| Benzene                                                                    | 1                       |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | 8                   |
| Total Xylenes                                                              | 530                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                    |                     |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location<br>Sample ID | MW-13               |                     |                     |                      |                      |                      |                      |
|----------------------------------------------------------------------------|-------------------------|------------------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                            |                         |                              | UST45/S941-MW13-99C | UST45/S941-MW13-99B | UST45/S941-MW13-99A | UST45/S941-MW13-98C1 | UST45/S941-MW13-98B3 | UST45/S941-MW13-98B2 | UST45/S941-MW13-98B1 |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b>           | 7/12/1999           | 4/12/1999           | 1/14/1999           | 10/14/1998           | 7/17/1998            | 6/22/1998            | 5/14/1998            |
| Benzene                                                                    | 1                       |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Ethylbenzene                                                               | 29                      |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Toluene                                                                    | 1,000                   |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Methyl-tert-butyl ether                                                    | 200                     |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Total Xylenes                                                              | 530                     |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA<br/>Method 610, ug/L</i> |                         |                              |                     |                     |                     |                      |                      |                      |                      |
| Naphthalene                                                                | 21                      |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Acenaphthylene                                                             | 210                     |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Acenaphthene                                                               | 80                      |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Fluorene                                                                   | Detection Limit         |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Phenanthrene                                                               | Detection Limit         |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Anthracene                                                                 | 2,100                   |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| Pyrene                                                                     | 210                     |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| 1-Methylnaphthalene                                                        | Detection Limit         |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |
| 2-Methylnaphthalene                                                        | 28                      |                              | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NC DENR                 | Sample Location    | MW-14               |                     |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW14-03A | UST45/S941-MW14-02D | UST45/S941-MW14-02C | UST45/S941-MW14-02B | UST45/S941-MW14-01C | UST45/S941-MW14-01B | UST45/S941-MW14-01A |
| <b>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</b>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 1/15/2003           | 10/24/2002          | 7/17/2002           | 4/17/2002           | 7/17/2001           | 4/16/2001           | 1/31/2001           |
| Benzene                                                                    | 1                       |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                              | 530                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <b>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</b> |                         |                    |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | NA                  | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limits.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-14               |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW14-00D | UST45/S941-MW14-00C | UST45/S941-MW14-00B | UST45/S941-MW14-00A | UST45/S941-MW14-99D | UST45/S941-MW14-99C | UST45/S941-MW14-99B |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/11/2000          | 7/18/2000           | 4/12/2000           | 2/1/2000            | 10/12/1999          | 7/12/1999           | 4/12/1999           |
| Benzene                                                            | 1                |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

Notes:

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-14               |                      |                      |                      |                      |                      |                      |
|----------------------------------------------------------------------------|-------------------------|--------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW14-99A | UST45/S941-MW14-98C1 | UST45/S941-MW14-98B2 | UST45/S941-MW14-98B3 | UST45/S941-MW14-98B1 | UST45/S941-MW14-98B2 | UST45/S941-MW14-98B3 |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 1/14/1999           | 10/14/1998           | 7/17/1998            | 6/22/1998            | 5/14/1998            | 7/17/1998            | 6/22/1998            |
| Benzene                                                                    | 1                       |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Ethylbenzene                                                               | 29                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Toluene                                                                    | 1,000                   |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Total Xylenes                                                              | 530                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                         |                    |                     |                      |                      |                      |                      |                      |                      |
| Naphthalene                                                                | 21                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Acenaphthylene                                                             | 210                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Acenaphthene                                                               | 80                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Fluorene                                                                   | Detection Limit         |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Anthracene                                                                 | 2,100                   |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Pyrene                                                                     | 210                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-15                |                     |                     |                     | MW                  |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW14-98B1 | UST45/S941-MW15-03A | UST45/S941-MW15-02D | UST45/S941-MW15-02C | UST45/S941-MW15-02B | UST45/S941-MW15-02A | UST45/S941-MW15-01D |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 5/14/1998            | 1/15/2003           | 10/24/2002          | 7/17/2002           | 4/17/2002           | 1/16/2002           | 11/5/2001           |
| Benzene                                                            | 1                |                 | BQL                  | BQL                 | BQL                 | BQL                 | <b>5</b>            | BQL                 | NA                  |
| Ethylbenzene                                                       | 29               |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | <b>2</b>            | NA                  |
| Toluene                                                            | 1,000            |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| Total Xylenes                                                      | 530              |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                      |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210              |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                  | NA                  | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

Notes:

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | -15                 |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW15-01D | UST45/S941-MW15-01C | UST45/S941-MW15-01B | UST45/S941-MW15-01A | UST45/S941-MW15-00D | UST45/S941-MW15-00C | UST45/S941-MW15-00B |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/16/2001          | 7/17/2001           | 4/16/2001           | 1/31/2001           | 10/11/2000          | 7/18/2000           | 4/12/2000           |
| Benzene                                                            | 1                |                 | BQL                 | BQL                 | <b>2</b>            | <b>2</b>            | <b>6</b>            | <b>61</b>           | <b>160</b>          |
| Ethylbenzene                                                       | 29               |                 | <b>2</b>            | BQL                 | <b>2</b>            | BQL                 | BQL                 | <b>25</b>           | <b>250</b>          |
| Toluene                                                            | 1,000            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | <b>140</b>          |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | <b>28</b>           | <b>23</b>           |
| Acenaphthylene                                                     | 210              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit.  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-15               |                     |                     |                     |                     | MW                   |                      |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW15-00A | UST45/S941-MW15-99D | UST45/S941-MW15-99C | UST45/S941-MW15-99B | UST45/S941-MW15-99A | UST45/S941-MW15-98C1 | UST45/S941-MW15-98B3 |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 3/7/2000            | 10/12/1999          | 7/28/1999           | 4/12/1999           | 1/14/1999           | 10/14/1998           | 7/17/1998            |
| Benzene                                                            | 1                |                 | 130                 | 1,800               | 890                 | 470                 | 1,500               | 1,600                | 1,500                |
| Ethylbenzene                                                       | 29               |                 | 160                 | 1,000               | 420                 | 180                 | 720                 | 660                  | 990                  |
| Toluene                                                            | 1,000            |                 | BQL                 | 4,200               | 480                 | 220                 | BQL                 | BQL                  | 870                  |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Total Xylenes                                                      | 530              |                 | 100                 | 5,410               | 3,200               | 900                 | 4,400               | 3,730                | 4,330                |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                      |                      |
| Naphthalene                                                        | 21               |                 | 21                  | 120                 | 85                  | 71                  | 85                  | 67                   | 45                   |
| Acenaphthylene                                                     | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Acenaphthene                                                       | 80               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Fluorene                                                           | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Anthracene                                                         | 2,100            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Pyrene                                                             | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                 | 16                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                 | 26                  | 12                  | 14                  | 15                  | BQL                  | BQL                  |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | -15                  |                      | MW-16               |                     |                     |                     |            |
|----------------------------------------------------------------------------|------------------|-----------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW15-98B2 | UST45/S941-MW15-98B1 | UST45/S941-MW16-02C | UST45/S941-MW16-02B | UST45/S941-MW16-02A | UST45/S941-MW16-01D |            |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 6/22/1998            | 5/14/1998            | 7/17/2002           | 4/17/2002           | 1/16/2002           | 11/5/2001           | 10/16/2001 |
| Benzene                                                                    | 1                |                 | <b>1,500</b>         | <b>2,000</b>         | BQL                 | BQL                 | BQL                 | NA                  | BQL        |
| Ethylbenzene                                                               | 29               |                 | <b>870</b>           | <b>920</b>           | BQL                 | BQL                 | BQL                 | NA                  | BQL        |
| Toluene                                                                    | 1,000            |                 | <b>1,100</b>         | <b>1,700</b>         | BQL                 | BQL                 | BQL                 | NA                  | BQL        |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | NA                  | BQL        |
| Total Xylenes                                                              | 530              |                 | <b>4,010</b>         | <b>3,550</b>         | BQL                 | BQL                 | BQL                 | NA                  | BQL        |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                  |                 |                      |                      |                     |                     |                     |                     |            |
| Naphthalene                                                                | 21               |                 | <b>31</b>            | <b>27</b>            | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| Acenaphthylene                                                             | 210              |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| Acenaphthene                                                               | 80               |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| Fluorene                                                                   | Detection Limit  |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| Anthracene                                                                 | 2,100            |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| Pyrene                                                                     | 210              |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | NA         |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-16               |                     |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW16-01C | UST45/S941-MW16-01B | UST45/S941-MW16-01A | UST45/S941-MW16-00D | UST45/S941-MW16-00C | UST45/S941-MW16-00B | UST45/S941-MW16-00A |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 7/17/2001           | 4/16/2001           | 1/31/2001           | 10/11/2000          | 7/18/2000           | 4/12/2000           | 3/7/2000            |
| Benzene                                                                    | 1                |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                              | 530              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

Notes:

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit.  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-16               |                     |                     |                     |                      |                      |                      |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW16-99D | UST45/S941-MW16-99C | UST45/S941-MW16-99B | UST45/S941-MW16-99A | UST45/S941-MW16-98C1 | UST45/S941-MW16-98B3 | UST45/S941-MW16-98B1 |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/12/1999          | 7/12/1999           | 4/12/1999           | 1/14/1999           | 10/14/1998           | 7/17/1998            | 5/14/1998            |
| Benzene                                                            | 1                |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Ethylbenzene                                                       | 29               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Toluene                                                            | 1,000            |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Methyl-tert-butyl ether                                            | 200              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | 3                    |
| Total Xylenes                                                      | 530              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                      |                      |                      |
| Naphthalene                                                        | 21               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Acenaphthylene                                                     | 210              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Acenaphthene                                                       | 80               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Fluorene                                                           | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Phenanthrene                                                       | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Anthracene                                                         | 2,100            |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| Pyrene                                                             | 210              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |
| 2-Methylnaphthalene                                                | 28               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-17               |                     |                     |                     |                     |                     |                     |
|----------------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW16-98D | UST45/S941-MW17-03A | UST45/S941-MW17-02D | UST45/S941-MW17-02C | UST45/S941-MW17-02B | UST45/S941-MW17-02A | UST45/S941-MW17-01D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 4/14/1998           | 1/15/2003           | 10/24/2002          | 7/17/2002           | 4/17/2002           | 1/16/2002           | 11/5/2001           |
| Benzene                                                                    | 1                |                 | <b>1,400</b>        | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| Ethylbenzene                                                               | 29               |                 | <b>610</b>          | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| Toluene                                                                    | 1,000            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| Total Xylenes                                                              | 530              |                 | <b>2,500</b>        | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | NA                  |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21               |                 | <b>39</b>           | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                               | 80               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                                     | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                 | NA                  | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-17               |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW17-01D | UST45/S941-MW17-01C | UST45/S941-MW17-01B | UST45/S941-MW17-01A | UST45/S941-MW17-00D | UST45/S941-MW17-00C | UST45/S941-MW17-00B |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/16/2001          | 7/17/2001           | 4/16/2001           | 1/31/2001           | 10/11/2000          | 7/18/2000           | 4/12/2000           |
| Benzene                                                            | 1                |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-17               |                     |                     |                     |                     |                      |                      |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW17-00A | UST45/S941-MW17-99D | UST45/S941-MW17-99C | UST45/S941-MW17-99B | UST45/S941-MW17-99A | UST45/S941-MW17-98C1 | UST45/S941-MW17-98B3 |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 2/1/2000            | 10/12/1999          | 7/12/1999           | 4/12/1999           | 1/14/1999           | 10/14/1998           | 7/17/1998            |
| Benzene                                                            | 1                |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Ethylbenzene                                                       | 29               |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Toluene                                                            | 1,000            |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Total Xylenes                                                      | 530              |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                      |                      |
| Naphthalene                                                        | 21               |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Acenaphthylene                                                     | 210              |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Acenaphthene                                                       | 80               |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Fluorene                                                           | Detection Limit  |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Anthracene                                                         | 2,100            |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Pyrene                                                             | 210              |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                  | BQL                  |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    |                      |                      |                     | MW-18               |                     |                     |                     |
|--------------------------------------------------------------------|-------------------------|--------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                         | Sample ID          | UST45/S941-MW17-98B2 | UST45/S941-MW17-98B1 | UST45/S941-MW17-98D | UST45/S941-MW18-03A | UST45/S941-MW18-02D | UST45/S941-MW18-02C | UST45/S941-MW18-02B |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 6/22/1998            | 5/14/1998            | 4/14/1998           | 1/15/2003           | 10/24/2002          | 7/17/2002           | 4/17/2002           |
| Benzene                                                            | 1                       |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000                   |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | 7                   |
| Total Xylenes                                                      | 530                     |                    | BQL                  | BQL                  | BQL                 | 1.7                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                      |                      |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit         |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit         |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100                   |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210                     |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                  | BQL                  | BQL                 | NA                  | NA                  | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    | MW-18               |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                         | Sample ID          | UST45/S941-MW18-02A | UST45/S941-MW18-01D | UST45/S941-MW18-01D | UST45/S941-MW18-01C | UST45/S941-MW18-01B | UST45/S941-MW18-01A | UST45/S941-MW18-00D |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 1/16/2002           | 11/5/2001           | 10/16/2001          | 7/17/2001           | 4/16/2001           | 1/31/2001           | 10/11/2000          |
| Benzene                                                            | 1                       |                    | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29                      |                    | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000                   |                    | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200                     |                    | <b>5</b>            | NA                  | <b>5</b>            | <b>5</b>            | <b>5</b>            | <b>5</b>            | <b>4</b>            |
| Total Xylenes                                                      | 530                     |                    | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21                      |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210                     |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80                      |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit         |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit         |                    | <b>18</b>           | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100                   |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210                     |                    | <b>21</b>           | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    | MW-18               |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                         | Sample ID          | UST45/S941-MW18-00C | UST45/S941-MW18-00B | UST45/S941-MW18-00A | UST45/S941-MW18-99D | UST45/S941-MW18-99C | UST45/S941-MW18-99B | UST45/S941-MW18-99A |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/18/2000           | 4/12/2000           | 3/7/2000            | 10/12/1999          | 7/12/1999           | 4/12/1999           | 1/14/1999           |
| Benzene                                                            | 1                       |                    | BQL                 | BQL                 | BQL                 | NA                  | <b>4</b>            | <b>13</b>           | <b>18</b>           |
| Ethylbenzene                                                       | 29                      |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000                   |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200                     |                    | <b>6</b>            | <b>8</b>            | <b>5</b>            | NA                  | <b>14</b>           | <b>10</b>           | <b>15</b>           |
| Total Xylenes                                                      | 530                     |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21                      |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210                     |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80                      |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100                   |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-18                |                      |                      |                      | MW-19               |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW18-98C1 | UST45/S941-MW18-98B3 | UST45/S941-MW18-98B2 | UST45/S941-MW18-98B1 | UST45/S941-MW19-03A | UST45/S941-MW19-02D | UST45/S941-MW19-02C |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/14/1998           | 7/17/1998            | 6/22/1998            | 5/14/1998            | 1/15/2003           | 10/24/2002          | 7/17/2002           |
| Benzene                                                            | 1                |                 | <b>29</b>            | <b>56</b>            | <b>91</b>            | <b>76</b>            | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29               |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000            |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200              |                 | <b>16</b>            | <b>20</b>            | <b>20</b>            | <b>20</b>            | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530              |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                      |                      |                      |                      |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210              |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                  | BQL                  | BQL                  | BQL                  | NA                  | NA                  | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-19               |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW19-02B | UST45/S941-MW19-02A | UST45/S941-MW19-01D | UST45/S941-MW19-01D | UST45/S941-MW19-01C | UST45/S941-MW19-01B | UST45/S941-MW19-01A |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 4/17/2002           | 1/16/2002           | 11/5/2001           | 10/16/2001          | 7/11/2001           | 4/16/2001           | 1/31/2001           |
| Benzene                                                            | 1                |                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29               |                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000            |                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530              |                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210              |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    | MW-19               |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                         | Sample ID          | UST45/S941-MW19-00D | UST45/S941-MW19-00C | UST45/S941-MW19-00B | UST45/S941-MW19-00A | UST45/S941-MW19-99D | UST45/S941-MW19-99C | UST45/S941-MW19-99B |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 10/11/2000          | 7/18/2000           | 4/12/2000           | 2/1/2000            | 10/12/1999          | 7/12/1999           | 4/12/1999           |
| Benzene                                                            | 1                       |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

Notes:

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                         | NCDENR                  | Sample Location    | MW-19               |                      |                      |                      |                      |                     |                     |
|-----------------------------------------------------------------------------------|-------------------------|--------------------|---------------------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------|
|                                                                                   |                         | Sample ID          | UST45/S941-MW19-99A | UST45/S941-MW19-98C1 | UST45/S941-MW19-98B3 | UST45/S941-MW19-98B2 | UST45/S941-MW19-98B1 | UST45/S941-MW20-03A | UST45/S941-MW20-02D |
| <b><i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i></b>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 1/14/1999           | 10/14/1998           | 7/17/1998            | 6/22/1998            | 5/14/1998            | 1/15/2003           | 10/24/2002          |
| Benzene                                                                           | 1                       |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Ethylbenzene                                                                      | 29                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Toluene                                                                           | 1,000                   |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                           | 200                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Total Xylenes                                                                     | 530                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | 4                   | BQL                 |
| <b><i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i></b> |                         |                    |                     |                      |                      |                      |                      |                     |                     |
| Naphthalene                                                                       | 21                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Acenaphthylene                                                                    | 210                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Acenaphthene                                                                      | 80                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Fluorene                                                                          | Detection Limit         |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Phenanthrene                                                                      | Detection Limit         |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Anthracene                                                                        | 2,100                   |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| Pyrene                                                                            | 210                     |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                               | Detection Limit         |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | NA                  | NA                  |
| 2-Methylnaphthalene                                                               | 28                      |                    | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR                  | Sample Location    | MW-20               |                     |                     | MV                  |                     |                     |                     |
|----------------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                            |                         | Sample ID          | UST45/S941-MW20-02C | UST45/S941-MW20-02B | UST45/S941-MW20-02A | UST45/S941-MW20-01D | UST45/S941-MW20-01D | UST45/S941-MW20-01C | UST45/S941-MW20-01B |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/17/2002           | 4/17/2002           | 1/16/2002           | 11/5/2001           | 10/16/2001          | 7/17/2001           | 4/16/2001           |
| Benzene                                                                    | 1                       |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                               | 29                      |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Toluene                                                                    | 1,000                   |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                                    | 200                     |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                              | 530                     |                    | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                         |                    |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                                | 21                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| Acenaphthylene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| Acenaphthene                                                               | 80                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| Fluorene                                                                   | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| Phenanthrene                                                               | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| Anthracene                                                                 | 2,100                   |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| Pyrene                                                                     | 210                     |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                        | Detection Limit         |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                        | 28                      |                    | BQL                 | BQL                 | BQL                 | BQL                 | NA                  | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | V-20                |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------|------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW20-01A | UST45/S941-MW20-00D | UST45/S941-MW20-00C | UST45/S941-MW20-00B | UST45/S941-MW20-00A | UST45/S941-MW20-99D | UST45/S941-MW20-99C |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 1/31/2001           | 10/11/2000          | 7/18/2000           | 4/12/2000           | 2/1/2000            | 10/12/1999          | 7/12/1999           |
| Benzene                                                            | 1                |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                       | 29               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                            | 1,000            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                      | 530              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                     |                     |                     |                     |                     |                     |                     |
| Naphthalene                                                        | 21               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthylene                                                     | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Acenaphthene                                                       | 80               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Fluorene                                                           | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Anthracene                                                         | 2,100            |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Pyrene                                                             | 210              |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.  
 Bold type indicates detected concentrations above laboratory quantitation limit.  
 Shaded areas indicate detected concentrations above regulatory limits.  
 BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    | MW-20               |                     |                      |                      |                      | MW-20                |           |
|--------------------------------------------------------------------|-------------------------|--------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|-----------|
|                                                                    |                         | Sample ID          | UST45/S941-MW20-99B | UST45/S941-MW20-99A | UST45/S941-MW20-98C1 | UST45/S941-MW20-98B3 | UST45/S941-MW20-98B2 | UST45/S941-MW20-98B1 |           |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 4/12/1999           | 1/14/1999           | 10/14/1998           | 7/17/1998            | 6/22/1998            | 5/14/1998            | 1/15/2003 |
| Benzene                                                            | 1                       |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Ethylbenzene                                                       | 29                      |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Toluene                                                            | 1,000                   |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Methyl-tert-butyl ether                                            | 200                     |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Total Xylenes                                                      | 530                     |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                     |                     |                      |                      |                      |                      |           |
| Naphthalene                                                        | 21                      |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Acenaphthylene                                                     | 210                     |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Acenaphthene                                                       | 80                      |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Fluorene                                                           | Detection Limit         |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Phenanthrene                                                       | Detection Limit         |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Anthracene                                                         | 2,100                   |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| Pyrene                                                             | 210                     |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | NA        |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                 | BQL                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL       |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW-01/4               |                       |                       |                       |                       |                       |           |
|--------------------------------------------------------------------|------------------|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|
|                                                                    |                  | Sample ID       | UST45/S941-MW01/4-02D | UST45/S941-MW01/4-02C | UST45/S941-MW01/4-02B | UST45/S941-MW01/4-02A | UST45/S941-MW01/4-01D | UST45/S941-MW01/4-01D |           |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/24/2002            | 7/17/2002             | 4/17/2002             | 1/16/2002             | 11/5/2001             | 10/16/2001            | 7/17/2001 |
| Benzene                                                            | 1                |                 | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL                   | BQL       |
| Ethylbenzene                                                       | 29               |                 | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL                   | BQL       |
| Toluene                                                            | 1,000            |                 | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL                   | BQL       |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL                   | BQL       |
| Total Xylenes                                                      | 530              |                 | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL                   | BQL       |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                       |                       |                       |                       |                       |                       |           |
| Naphthalene                                                        | 21               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| Acenaphthylene                                                     | 210              |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| Acenaphthene                                                       | 80               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| Fluorene                                                           | Detection Limit  |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| Anthracene                                                         | 2,100            |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| Pyrene                                                             | 210              |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | NA                    | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | NA                    | BQL       |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    | MW-01/4               |                       |                       |                       |                       |                       |                       |
|--------------------------------------------------------------------|-------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                                    |                         | Sample ID          | UST45/S941-MW01/4-01B | UST45/S941-MW01/4-01A | UST45/S941-MW01/4-00D | UST45/S941-MW01/4-00C | UST45/S941-MW01/4-00B | UST45/S941-MW01/4-00A | UST45/S941-MW01/4-99D |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 4/16/2001             | 1/31/2001             | 10/11/2000            | 7/18/2000             | 4/12/2000             | 2/1/2000              | 10/12/1999            |
| Benzene                                                            | 1                       |                    | BQL                   | BQL                   | BQL                   | <b>2</b>              | <b>2</b>              | BQL                   | BQL                   |
| Ethylbenzene                                                       | 29                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Toluene                                                            | 1,000                   |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Methyl-tert-butyl ether                                            | 200                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Total Xylenes                                                      | 530                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                       |                       |                       |                       |                       |                       |                       |
| Naphthalene                                                        | 21                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthylene                                                     | 210                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthene                                                       | 80                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Fluorene                                                           | Detection Limit         |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Phenanthrene                                                       | Detection Limit         |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Anthracene                                                         | 2,100                   |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Pyrene                                                             | 210                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR                  | Sample Location    | MW-01/4               |                       |                       | MW-04/4               |                       |                       |                       |
|--------------------------------------------------------------------|-------------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                                    |                         | Sample ID          | UST45/S941-MW01/4-99C | UST45/S941-MW01/4-99B | UST45/S941-MW01/4-99A | UST45/S941-MW04/4-03A | UST45/S941-MW04/4-02D | UST45/S941-MW04/4-02C | UST45/S941-MW04/4-02B |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | <b>Regulatory Limit</b> | <b>Sample Date</b> | 7/12/1999             | 4/12/1999             | 1/14/1999             | 1/15/2003             | 10/24/2002            | 7/17/2002             | 4/17/2002             |
| Benzene                                                            | 1                       |                    | <b>1</b>              | <b>4</b>              | <b>2</b>              | BQL                   | BQL                   | BQL                   | BQL                   |
| Ethylbenzene                                                       | 29                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Toluene                                                            | 1,000                   |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Methyl-tert-butyl ether                                            | 200                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Total Xylenes                                                      | 530                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                         |                    |                       |                       |                       |                       |                       |                       |                       |
| Naphthalene                                                        | 21                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthylene                                                     | 210                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthene                                                       | 80                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Fluorene                                                           | Detection Limit         |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Phenanthrene                                                       | Detection Limit         |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Anthracene                                                         | 2,100                   |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Pyrene                                                             | 210                     |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| 1-Methylnaphthalene                                                | Detection Limit         |                    | BQL                   | BQL                   | BQL                   | NA                    | NA                    | BQL                   | BQL                   |
| 2-Methylnaphthalene                                                | 28                      |                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDENR           | Sample Location | MW-04/4               |                       |                       |                       |                       |                       |                       |
|----------------------------------------------------------------------------|------------------|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW04/4-02A | UST45/S941-MW04/4-01D | UST45/S941-MW04/4-01D | UST45/S941-MW04/4-01C | UST45/S941-MW04/4-01B | UST45/S941-MW04/4-01A | UST45/S941-MW04/4-00D |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 1/16/2002             | 11/5/2001             | 10/16/2001            | 7/17/2001             | 4/16/2001             | 1/31/2001             | 10/11/2000            |
| Benzene                                                                    | 1                |                 | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Ethylbenzene                                                               | 29               |                 | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Toluene                                                                    | 1,000            |                 | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Total Xylenes                                                              | 530              |                 | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                  |                 |                       |                       |                       |                       |                       |                       |                       |
| Naphthalene                                                                | 21               |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthylene                                                             | 210              |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthene                                                               | 80               |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| Fluorene                                                                   | Detection Limit  |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| Anthracene                                                                 | 2,100            |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| Pyrene                                                                     | 210              |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                   | BQL                   | NA                    | BQL                   | BQL                   | BQL                   | BQL                   |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                                  | NCDEMR           | Sample Location | MW-04/4               |                       |                       |                       |                       |                       |                       |
|----------------------------------------------------------------------------|------------------|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                                            |                  | Sample ID       | UST45/S941-MW04/4-00C | UST45/S941-MW04/4-00B | UST45/S941-MW04/4-00A | UST45/S941-MW04/4-99D | UST45/S941-MW04/4-99C | UST45/S941-MW04/4-99B | UST45/S941-MW04/4-99A |
| <i>Volatile Aromatic Hydrocarbons<br/>by USEPA Method 602, ug/L</i>        | Regulatory Limit | Sample Date     | 7/18/2000             | 4/12/2000             | 2/1/2000              | 10/12/1999            | 7/12/1999             | 4/12/1999             | 1/14/1999             |
| Benzene                                                                    | 1                |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Ethylbenzene                                                               | 29               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Toluene                                                                    | 1,000            |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Methyl-tert-butyl ether                                                    | 200              |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Total Xylenes                                                              | 530              |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| <i>Polynuclear Aromatic<br/>Hydrocarbons by USEPA Method<br/>610, ug/L</i> |                  |                 |                       |                       |                       |                       |                       |                       |                       |
| Naphthalene                                                                | 21               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthylene                                                             | 210              |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Acenaphthene                                                               | 80               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Fluorene                                                                   | Detection Limit  |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Phenanthrene                                                               | Detection Limit  |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Anthracene                                                                 | 2,100            |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| Pyrene                                                                     | 210              |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| 1-Methylnaphthalene                                                        | Detection Limit  |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |
| 2-Methylnaphthalene                                                        | 28               |                 | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   | BQL                   |

Notes:

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit.

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

Table 3-1 (cont.)

**Groundwater Analytical Results  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                          | NCDENR           | Sample Location | MW 04/4               |                        |                        |                        |
|--------------------------------------------------------------------|------------------|-----------------|-----------------------|------------------------|------------------------|------------------------|
|                                                                    |                  | Sample ID       | UST45/S941-MW04/4-98D | UST45/S941-MW04/4-98C1 | UST45/S941-MW04/4-98B3 | UST45/S941-MW04/4-98B2 |
| <i>Volatile Aromatic Hydrocarbons by USEPA Method 602, ug/L</i>    | Regulatory Limit | Sample Date     | 10/14/1998            | 10/14/1998             | 7/16/1998              | 6/22/1998              |
| Benzene                                                            | 1                |                 | 1                     | BQL                    | BQL                    | BQL                    |
| Ethylbenzene                                                       | 29               |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Toluene                                                            | 1,000            |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Methyl-tert-butyl ether                                            | 200              |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Total Xylenes                                                      | 530              |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| <i>Polynuclear Aromatic Hydrocarbons by USEPA Method 610, ug/L</i> |                  |                 |                       |                        |                        |                        |
| Naphthalene                                                        | 21               |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Acenaphthylene                                                     | 210              |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Acenaphthene                                                       | 80               |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Fluorene                                                           | Detection Limit  |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Phenanthrene                                                       | Detection Limit  |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Anthracene                                                         | 2,100            |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| Pyrene                                                             | 210              |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| 1-Methylnaphthalene                                                | Detection Limit  |                 | BQL                   | BQL                    | BQL                    | BQL                    |
| 2-Methylnaphthalene                                                | 28               |                 | BQL                   | BQL                    | BQL                    | BQL                    |

**Notes:**

NA indicates that the sample was not analyzed for the constituent.

Bold type indicates detected concentrations above laboratory quantitation limit

Shaded areas indicate detected concentrations above regulatory limits.

BQL = Below Laboratory Quantitation Limit

**Table 3-2  
Summary of Detected Concentrations  
Treatment System Samples  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                         | Sample Location | SVE-1 <sup>1</sup>  |                     |                     |                     |                     | SVE-1 <sup>2</sup>  |                     |
|-------------------------------------------------------------------|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                                                                   | Sample ID       | UST45/S941-SVEI-03A | UST45/S941-SVEI-02D | UST45/S941-SVEI-02B | UST45/S941-SVEI-02A | UST45/S941-SVEI-01D | UST45/S941-SVEI-01C | UST45/S941-SVEI-01B |
| <i>Volatile Aromatic Hydrocarbons by<br/>USEPA Method 18, ppm</i> | Sample Date     | 1/9/2003            | 10/16/2002          | 4/10/2002           | 1/9/2002            | 10/8/2001           | 7/10/2001           | 4/12/2001           |
| Benzene                                                           |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Ethylbenzene                                                      |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Toluene                                                           |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |
| Total Xylenes                                                     |                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 | BQL                 |

**NOTE:**

<sup>1</sup> Sample collected from Soil Vapor Extraction System Effluent

<sup>2</sup> Sample SVE-1 includes soil vapor extraction wells SVE-1 through SVE-4.

<sup>3</sup> Sample SVE-2 includes soil vapor extraction wells SVE-5 through SVE-8.

<sup>4</sup> Sample SVE-1 collected from Soil Vapor Extraction System Influent.

Shaded areas indicate detected concentrations above laboratory quantitation limits.

BQL = Below Laboratory Quantitation Limit

**Table 3-2**  
**Summary of Detected Concentrations**  
**Treatment System Samples**  
**Building 45 USTs S-941-1 and 2**  
**Camp Lejeune, North Carolina**

| Parameter                                                         | Sample Location | SVE-2 <sup>3</sup>  |                     | SVE-E <sup>1</sup>   |                      |
|-------------------------------------------------------------------|-----------------|---------------------|---------------------|----------------------|----------------------|
|                                                                   | Sample ID       | UST45/S941-SVE2-01C | UST45/S941-SVE2-01B | UST45/S941-SVE-E-01A | UST45/S941-SVE-E-00D |
| <i>Volatile Aromatic Hydrocarbons by<br/>USEPA Method 18, ppm</i> | Sample Date     | 7/10/2001           | 4/12/2001           | 1/24/2001            | 10/3/2000            |
| Benzene                                                           |                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Ethylbenzene                                                      |                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Toluene                                                           |                 | BQL                 | BQL                 | BQL                  | BQL                  |
| Total Xylenes                                                     |                 | BQL                 | BQL                 | BQL                  | BQL                  |

**NOTE:**

<sup>1</sup> Sample collected from Soil Vapor Extraction System Effluent

<sup>2</sup> Sample SVE-1 includes soil vapor extraction wells SVE-1 through SVE-4.

<sup>3</sup> Sample SVE-2 includes soil vapor extraction wells SVE-5 through SVE-8.

<sup>4</sup> Sample SVE-1 collected from Soil Vapor Extraction System Influent.

Shaded areas indicate detected concentrations above laboratory quantitation limits.

BQL = Below Laboratory Quantitation Limit

**Table 3-2  
Summary of Detected Concentrations  
Treatment System Samples  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                         | Sample Location | SVE-E <sup>1</sup>   |                      |                      |                      |                      |
|-------------------------------------------------------------------|-----------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                   | Sample ID       | UST45/S941-SVE-E-00C | UST45/S941-SVE-E-00B | UST45/S941-SVE-E-00A | UST45/S941-SVE-E-99D | UST45/S941-SVE-E-99C |
| <i>Volatile Aromatic Hydrocarbons by<br/>USEPA Method 18, ppm</i> | Sample Date     | 7/10/2000            | 4/4/2000             | 1/12/2000            | 10/5/1999            | 7/7/1999             |
| Benzene                                                           |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Ethylbenzene                                                      |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Toluene                                                           |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |
| Total Xylenes                                                     |                 | BQL                  | BQL                  | BQL                  | BQL                  | BQL                  |

**NOTE:**

<sup>1</sup> Sample collected from Soil Vapor Extraction System Effluent

<sup>2</sup> Sample SVE-1 includes soil vapor extraction wells SVE-1 through SVE-4.

<sup>3</sup> Sample SVE-2 includes soil vapor extraction wells SVE-5 through SVE-8.

<sup>4</sup> Sample SVE-1 collected from Soil Vapor Extraction System Influent.

Shaded areas indicate detected concentrations above laboratory quantitation limits.

BQL = Below Laboratory Quantitation Limit

**Table 3-2  
Summary of Detected Concentrations  
Treatment System Samples  
Building 45 USTs S-941-1 and 2  
Camp Lejeune, North Carolina**

| Parameter                                                         | Sample Location | SVE-E                |                      |                      |                       |                       | SVE-E                 |                       |
|-------------------------------------------------------------------|-----------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                                                   | Sample ID       | UST45/S941-SVE-E-99B | UST45/S941-SVE-E-99A | UST45/S941-SVE-E-98D | UST45/S941-SVE-E-98C1 | UST45/S941-SVE-E-98B3 | UST45/S941-SVE-E-98B2 | UST45/S941-SVE-E-98B1 |
| <i>Volatile Aromatic Hydrocarbons by<br/>USEPA Method 18, ppm</i> | Sample Date     | 4/5/1999             | 1/6/1999             | 10/8/1998            | 7/8/1998              | 6/19/1998             | 5/8/1998              | 4/16/1998             |
| Benzene                                                           |                 | BQL                  | BQL                  | BQL                  | BQL                   | BQL                   | BQL                   | BQL                   |
| Ethylbenzene                                                      |                 | BQL                  | BQL                  | BQL                  | BQL                   | BQL                   | BQL                   | BQL                   |
| Toluene                                                           |                 | BQL                  | BQL                  | BQL                  | BQL                   | BQL                   | BQL                   | BQL                   |
| Total Xylenes                                                     |                 | BQL                  | BQL                  | BQL                  | BQL                   | 0.3                   | BQL                   | 17.9                  |

**NOTE:**

<sup>1</sup> Sample collected from Soil Vapor Extraction System Effluent

<sup>2</sup> Sample SVE-1 includes soil vapor extraction wells SVE-1 through SVE-4.

<sup>3</sup> Sample SVE-2 includes soil vapor extraction wells SVE-5 through SVE-8.

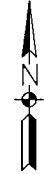
<sup>4</sup> Sample SVE-1 collected from Soil Vapor Extraction System Influent.

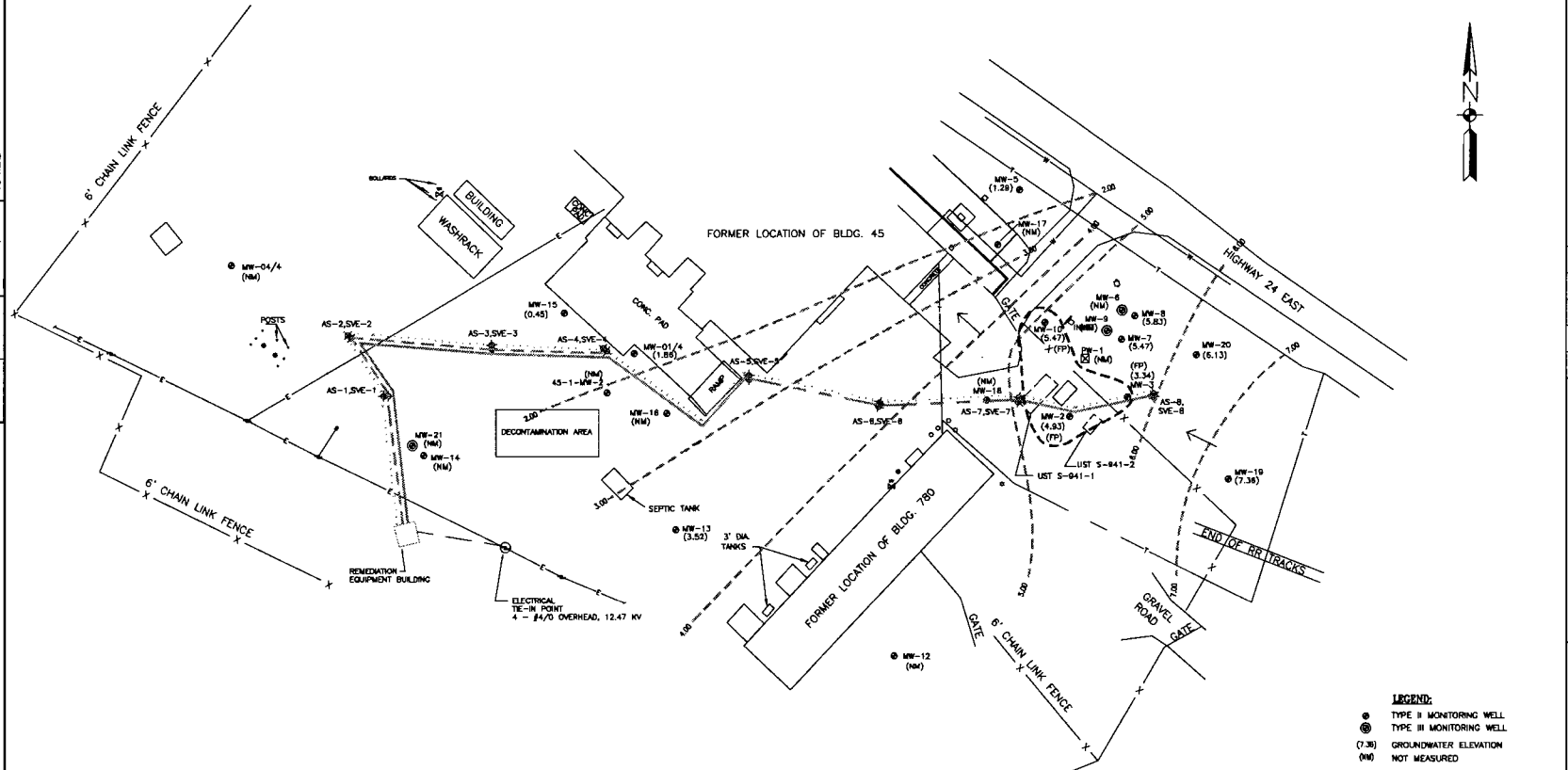
Shaded areas indicate detected concentrations above laboratory quantitation limits.

BQL = Below Laboratory Quantitation Limit

## FIGURES







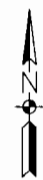
**SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING MOSS MOUNTAIN PARK (NAD 1983 COORDINATES N=361,294.78; E=2,498,141.90; ELEV=30.12)
2. UTILITIES ARE BASED ON MCR, CAMP LEJEUNE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. FOR SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

REFERENCE: J. A. JONES MONITORING REPORT.

PLOT DATE: 10/04/03  
 FORMAT: REVISED

|                                                                                                                                   |  |                              |                  |                   |
|-----------------------------------------------------------------------------------------------------------------------------------|--|------------------------------|------------------|-------------------|
| SHAW<br>SHAW ENVIRONMENTAL INC.<br>10000 W. 10TH AVE.<br>DENVER, CO 80202                                                         |  | PROJECT NO. 000000           | DATE BY: CAC/JPW | DESCRIPTION/ISSUE |
| ATLANTIC DIVISION<br>ANNUAL MONITORING REPORT<br>CAMP GEBER, NORTH CAROLINA<br>GROUNDWATER ELEVATION CONTOUR MAP-OCTOBER 12, 1999 |  | CHECKED BY: JRM              | DATE BY: JRM     | REVISIONS         |
| SHEET NO. 001<br>SHEET TOTAL 001                                                                                                  |  | SHEET NO. 2<br>SHEET TOTAL 2 |                  |                   |



GRAPHICS SCALE  
IF THIS DRAWING IS A REDUCTION, USE GRAPHIC SCALE

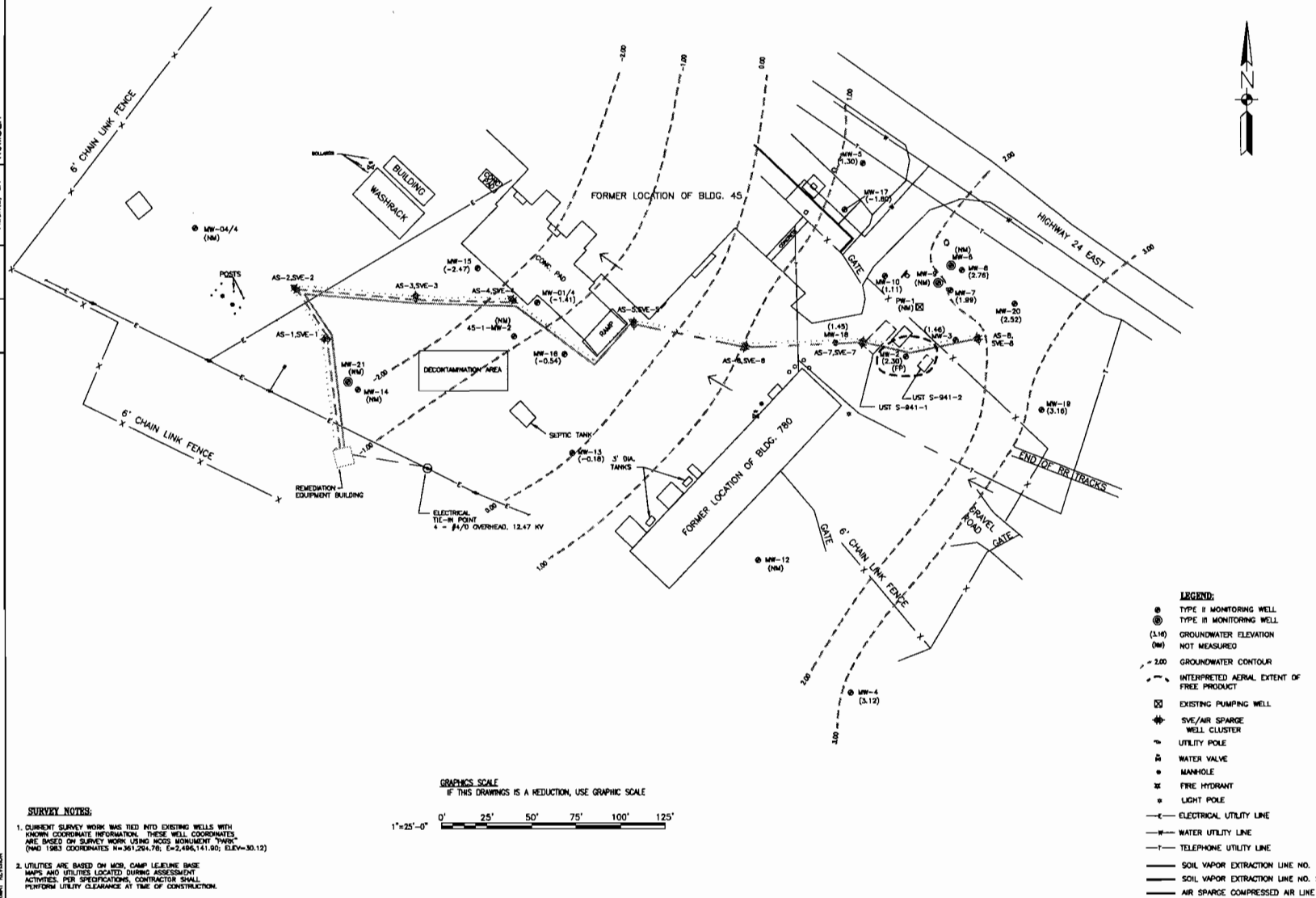
0' 25' 50' 75' 100' 125'

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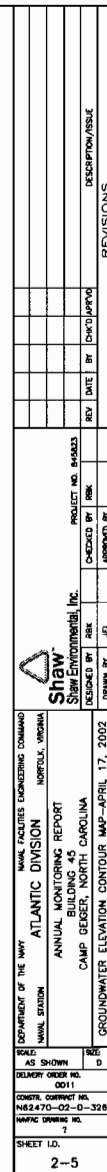


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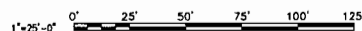
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| SHEET NO. |  | DATE     |  | BY  |  | CHECKED BY |  | REVISIONS                   |  |
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| 11        |  | 10/15/01 |  | JTB |  | JTB        |  | 11. REVISED TO ADD COMMENTS |  |
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APRIL 17, 2002

GRAPHICS SCALE  
IF THIS DRAWINGS IS A REDUCTION, USE GRAPHIC SCALE



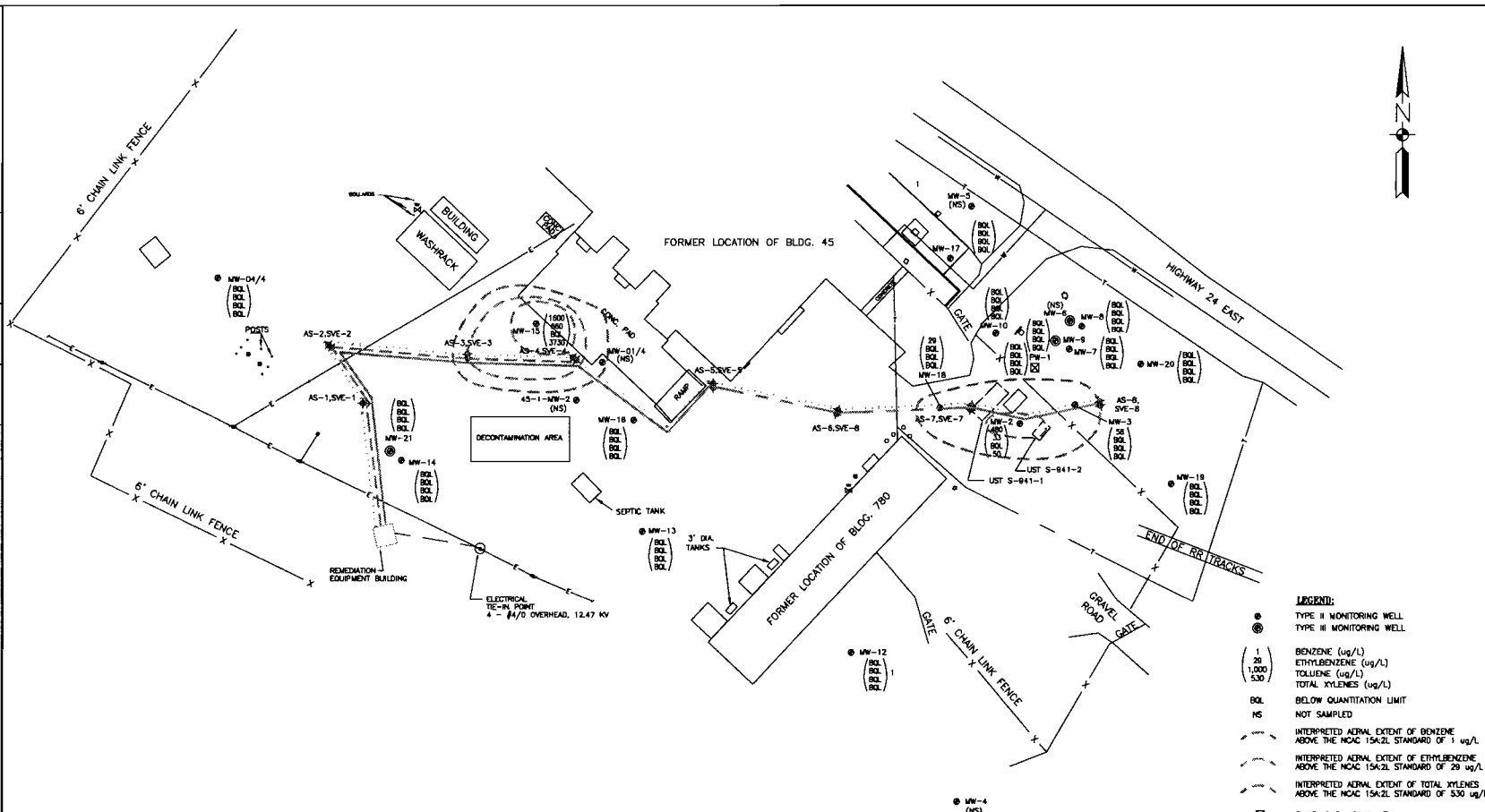
**SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING MCB'S MONUMENT "PARK" (HAD 1983 COORDINATES N=381,294.78; E=2,486,141.80; ELEV=30.12)
2. UTILITIES ARE BASED ON MCB, CAMP LEVEE/NE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

REFERENCE: J. A. JONES MONITORING REPORT.

**LEGEND:**

- |        |                                   |
|--------|-----------------------------------|
| ⊙      | TYPE II MONITORING WELL           |
| ⊙      | TYPE III MONITORING WELL          |
| (4.80) | GROUNDWATER ELEVATION             |
| (M)    | NOT MEASURED                      |
| 2.00   | GROUNDWATER CONTOUR               |
| ☒      | EXISTING PUMPING WELL             |
| ☒      | SVE/AIR SPARGE WELL CLUSTER       |
| ⌘      | UTILITY POLE                      |
| ⌘      | WATER VALVE                       |
| ⌘      | MANHOLE                           |
| ⌘      | FIRE HYDRANT                      |
| ⌘      | LIGHT POLE                        |
| —      | ELECTRICAL UTILITY LINE           |
| —      | WATER UTILITY LINE                |
| —      | TELEPHONE UTILITY LINE            |
| —      | SOIL VAPOR EXTRACTION LINE, NO. 1 |
| —      | SOIL VAPOR EXTRACTION LINE, NO. 2 |
| —      | AIR SPARGE COMPRESSION AIR LINE   |



# DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP - OCTOBER 14, 1998 VOLATILE AROMATIC HYDROCARBONS

## SURVEY NOTES:

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NCOS MONUMENT "PARK" (NAD 1983 COORDINATES N=361,204.70; E=2,498,141.90; ELEV=30.12)
2. UTILITIES ARE BASED ON MOSI, CAMP LEJEUNE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

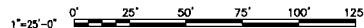
## NOTE:

1. ANALYTICAL RESULTS FROM SAMPLES COLLECTED FROM MONITORING WELLS MW-3 AND MW-12 ON JULY 17, 1998.

REFERENCE: J. A. JONES MONITORING REPORT.

## GRAPHIC SCALE

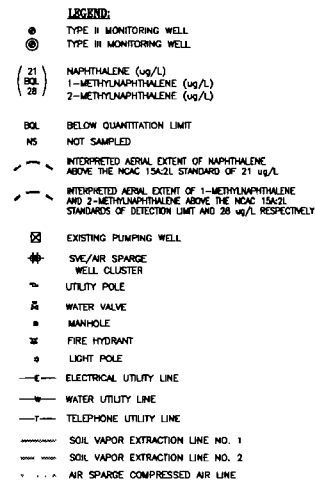
IF THIS DRAWING IS A REDUCTION, USE GRAPHIC SCALE



## LEGEND:

- TYPE II MONITORING WELL
- TYPE III MONITORING WELL
- 1, 20, 1000, 500 BENZENE (ug/L)
- ETHYLBENZENE (ug/L)
- 1000, 500 TOLUENE (ug/L)
- TOTAL XYLENES (ug/L)
- BOL BELOW QUANTIFICATION LIMIT
- NS NOT SAMPLED
- INTERPRETED AERIAL EXTENT OF BENZENE ABOVE THE NCAC 15ACZL STANDARD OF 1 ug/L
- INTERPRETED AERIAL EXTENT OF ETHYLBENZENE ABOVE THE NCAC 15ACZL STANDARD OF 20 ug/L
- INTERPRETED AERIAL EXTENT OF TOTAL XYLENES ABOVE THE NCAC 15ACZL STANDARD OF 300 ug/L
- ☒ EXISTING PUMPING WELL
- ◆ SVE/AIR SPARGE WELL CLUSTER
- UTILITY POLE
- WATER VALVE
- MANHOLE
- FIRE HYDRANT
- LIGHT POLE
- ELECTRICAL UTILITY LINE
- WATER UTILITY LINE
- TELEPHONE UTILITY LINE
- SOIL VAPOR EXTRACTION LINE NO. 1
- SOIL VAPOR EXTRACTION LINE NO. 2
- AIR SPARGE COMPRESSED AIR LINE

|                                                 |                          |                          |                  |                                                |           |
|-------------------------------------------------|--------------------------|--------------------------|------------------|------------------------------------------------|-----------|
| COMPONENT OF THE MAP                            |                          | ANNUAL MONITORING REPORT |                  | DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP |           |
| MAP STATION                                     | AS SHOWN                 | PROJECT NO. 84823        | CHECKED BY: RSK  | DATE: 01/21/99                                 | REVISIONS |
| ANNUAL MONITORING REPORT                        | ATLANTIC DIVISION        | DESIGNED BY: RSK         | APPROVED BY: JEL | DATE: 01/21/99                                 |           |
| CAMP GEESE, NORTH CAROLINA                      | SHAW ENVIRONMENTAL, INC. | PROJECT NO. 84823        | DATE: 01/21/99   | DATE: 01/21/99                                 |           |
| DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP  | SHAW ENVIRONMENTAL, INC. | PROJECT NO. 84823        | DATE: 01/21/99   | DATE: 01/21/99                                 |           |
| VOLATILE AROMATIC HYDROCARBONS-OCTOBER 14, 1998 | SHAW ENVIRONMENTAL, INC. | PROJECT NO. 84823        | DATE: 01/21/99   | DATE: 01/21/99                                 |           |
| SHEET 1.0.                                      | 3-1                      |                          |                  |                                                |           |



**SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NOCS MONITORING "PAIR" (WMD 1983 COORDINATES: W-31, 294.778; E-2, 496.141, 30; ELEY-30, 12)

2. UTILITIES ARE BASED ON M/CB, CAMP LEAGUE BASE. MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. FOR SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

**NOTES:**

1. ANALYTICAL RESULTS FROM SAMPLES COLLECTED FROM MONITORING WELLS MW-3 AND MW-12 ON JULY 7, 1998.

REFERENCE: J. A. JONES MONITORING REPORT.

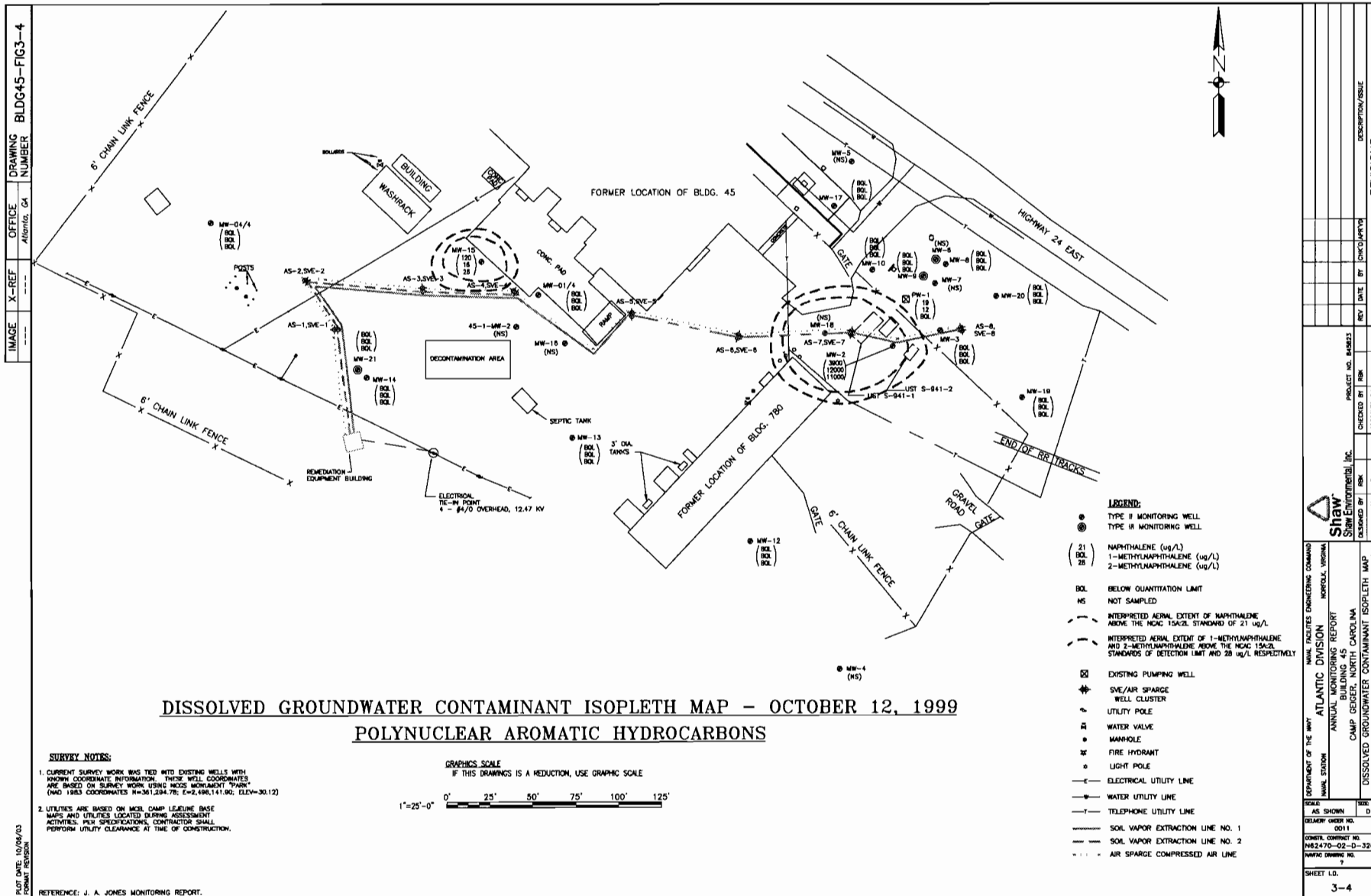
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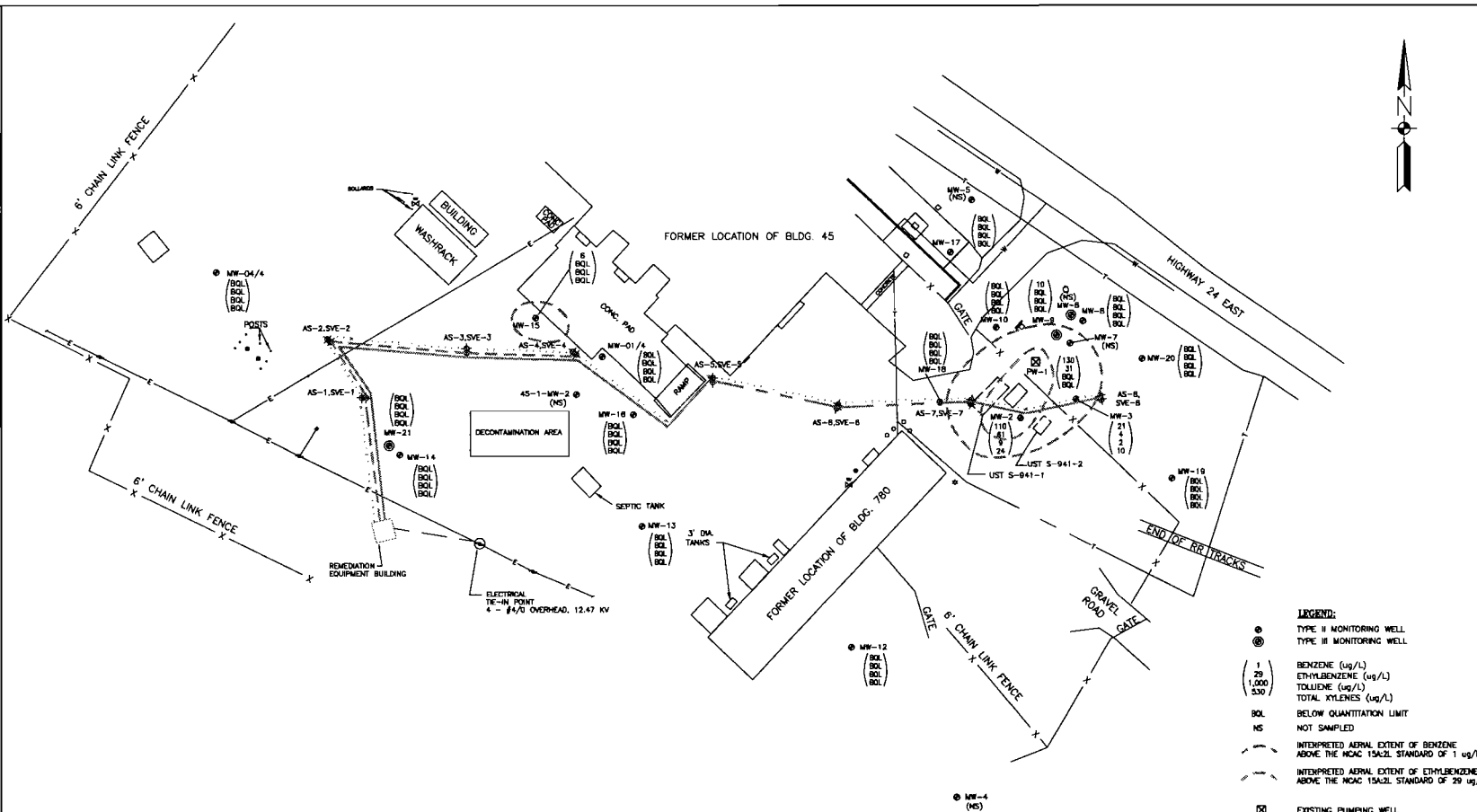


A horizontal graphic scale bar with alternating black and white segments. It is marked with the following values: 0', 25', 50', 75', 100', and 125'.





|                                                    |  |                                                                                                         |  |                                                       |  |
|----------------------------------------------------|--|---------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------|--|
| DEPARTMENT OF THE ARMY<br>NATAL STATION            |  | MAJOR FACILITIES ENGINEERING COMMAND<br>ATLANTIC DIVISION<br>BUILDING 45<br>CAMP GEORGE, NORTH CAROLINA |  | SHAW<br>Shaw Environmental, Inc.<br>NORFOLK, VIRGINIA |  |
| ANNUAL MONITORING REPORT                           |  | DESIGNED BY                                                                                             |  | CHECKED BY                                            |  |
| DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP     |  | DRAWN BY                                                                                                |  | APPROVED BY                                           |  |
| POLYNUCLEAR AROMATIC HYDROCARBONS-OCTOBER 12, 1999 |  | PRODUCT NO. B4821                                                                                       |  | REV. DATE BY                                          |  |
| SHEET 1 OF 1                                       |  | REVISIONS                                                                                               |  | DESCRIPTION/ISSUE                                     |  |
| SHEET 1 OF 1                                       |  | 3-4                                                                                                     |  |                                                       |  |



# **DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP - OCTOBER 11, 2000** **VOLATILE AROMATIC HYDROCARBONS**

## **SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NCSS MONUMENT "PARK" (NAD 1983 COORDINATES N=361,294.78; E=2,486,141.92; ELEV=30.12)
2. UTILITIES ARE BASED ON MCB CAMP LEISURE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

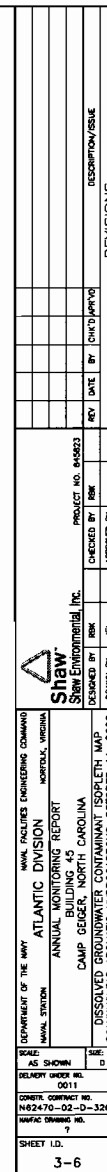
GRAPHIC SCALE  
IF THIS DRAWING IS A REDUCTION, USE GRAPHIC SCALE

1"=25'-0"  
0' 25' 50' 75' 100' 125'

REFERENCE: J. A. JONES MONITORING REPORT.

- LEGEND:**
- TYPE II MONITORING WELL
  - ⊙ TYPE III MONITORING WELL
  - 1 BENZENE (ug/L)
  - 25 ETHYLBENZENE (ug/L)
  - 100 TOLUENE (ug/L)
  - 330 TOTAL XYLENES (ug/L)
  - BOL BELOW QUANTITATION LIMIT
  - NS NOT SAMPLED
  - - - INTERPRETED AERIAL EXTENT OF BENZENE ABOVE THE NCAC 13AC2L STANDARD OF 1 ug/L
  - - - INTERPRETED AERIAL EXTENT OF ETHYLBENZENE ABOVE THE NCAC 13AC2L STANDARD OF 29 ug/L
  - ☐ EXISTING PUMPING WELL
  - ⚡ SVE/AIR SPARGE
  - ⊕ WELL CLUSTER
  - ⌵ UTILITY POLE
  - ⌵ WATER VALVE
  - ⌵ MANHOLE
  - ⌵ FIRE HYDRANT
  - ⌵ LIGHT POLE
  - ELECTRICAL UTILITY LINE
  - WATER UTILITY LINE
  - TELEPHONE UTILITY LINE
  - SOIL VAPOR EXTRACTION LINE NO. 1
  - SOIL VAPOR EXTRACTION LINE NO. 2
  - AIR SPARGE COMPRESSED AIR LINE

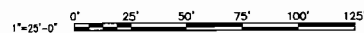
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| DESIGNED BY: [blank]                                                                                                                                                                                       |        |
| CHECKED BY: [blank]                                                                                                                                                                                        |        |
| APPROVED BY: [blank]                                                                                                                                                                                       |        |
| DATE: [blank]                                                                                                                                                                                              |        |
| BY: [blank]                                                                                                                                                                                                |        |
| DESCRIPTION/ISSUE: [blank]                                                                                                                                                                                 |        |
| REVISIONS: [blank]                                                                                                                                                                                         |        |
| <div> <b>Shaw Environmental, Inc.</b><br/>           10000 SHAW BLVD.<br/>           SUITE 100<br/>           FORT WORTH, TEXAS 76116         </div>                                                       |        |
| DEPARTMENT OF THE ARMY<br>ATLANTIC DIVISION<br>ANNUAL MONITORING REPORT<br>CAMP BEGER, NORTH CAROLINA<br>DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP<br>VOLATILE AROMATIC HYDROCARBONS-OCTOBER 11, 2000 |        |
| SCALE: AS SHOWN                                                                                                                                                                                            | SEC: D |
| DELIVERY ORDER NO. 0011                                                                                                                                                                                    |        |
| OWNER: CONTRACT NO. W42470-02-D-3280                                                                                                                                                                       |        |
| SHAW DRAWING NO. 7                                                                                                                                                                                         |        |
| SHEET 1.0                                                                                                                                                                                                  |        |



**SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NCOS MONUMENT "PARK" (NAD 1983 COORDINATES N=361,294.76; E=2,498,141.90; ELEV=30.12)
2. UTILITIES ARE BASED ON MCB, CAMP LEJEUNE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

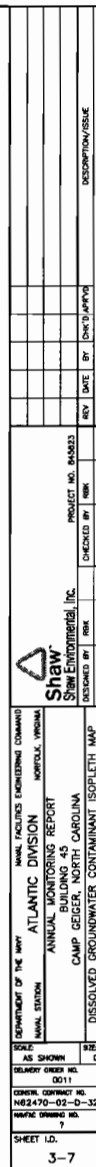
GRAPHICS SCALE  
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REFERENCE: J. A. JONES MONITORING REPORT.

**LEGEND:**

- |                |                                                                                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| ②              | TYPE II MONITORING WELL                                                                                                                             |
| ③              | TYPE III MONITORING WELL                                                                                                                            |
| 11<br>10<br>20 | NAPHTHALENE (ug/L)<br>1-METHYLNAPHTHALENE (ug/L)<br>2-METHYLNAPHTHALENE (ug/L)                                                                      |
| BOL            | BELOW QUANTITATION LIMIT                                                                                                                            |
| NS             | NOT SAMPLED                                                                                                                                         |
| —              | INTERPRETED AERIAL EXTENT OF NAPHTHALENE ABOVE THE MCL 150.2 STANDARD OF 21 ug/L                                                                    |
| —              | INTERPRETED AERIAL EXTENT OF 1-METHYLNAPHTHALENE AND 2-METHYLNAPHTHALENE ABOVE THE MCL 150.2 STANDARDS OF DETECTION LIMIT AND 20 ug/L, RESPECTIVELY |
| ☒              | EXISTING PUMPING WELL                                                                                                                               |
| ⊕              | SVE/AIR SPARGE WELL CLUSTER                                                                                                                         |
| ~              | UTILITY POLE                                                                                                                                        |
| ⌋              | WATER VALVE                                                                                                                                         |
| *              | MANHOLE                                                                                                                                             |
| ≡              | FIRE HYDRANT                                                                                                                                        |
| —              | LIGHT POLE                                                                                                                                          |
| —E—            | ELECTRICAL UTILITY LINE                                                                                                                             |
| —H—            | WATER UTILITY LINE                                                                                                                                  |
| —T—            | TELEPHONE UTILITY LINE                                                                                                                              |
| —S—            | SOIL VAPOR EXTRACTION LINE NO. 1                                                                                                                    |
| —S—            | SOIL VAPOR EXTRACTION LINE NO. 2                                                                                                                    |
| —A—            | AIR SPARGE COMPRESSED AIR LINE                                                                                                                      |

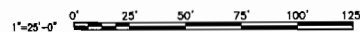


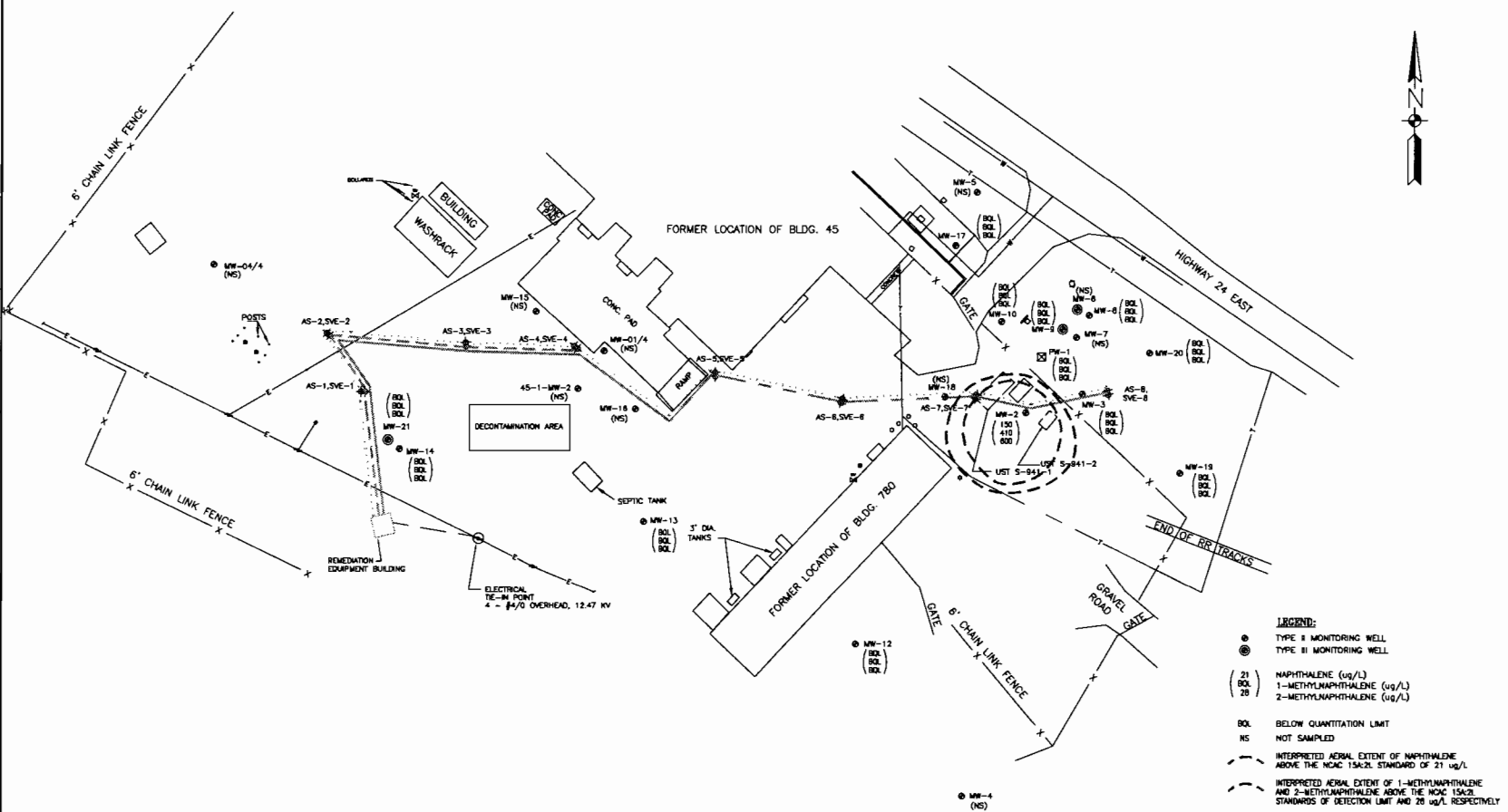
SURVEY NOTES:

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING MOOS MONUMENT "PARC" (NAD 1983 COORDINATES N=361,284.78; E=2,498,141.92; ELEV=30.12)
2. UTILITIES ARE BASED ON MCB, CAMP LEJUNE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

REFERENCE: J. A. JONES MONITORING REPORT.

GRAPHICS SCALE  
IF THIS DRAWINGS IS A REDUCTION, USE GRAPHIC SCALE





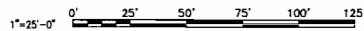
# DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP - OCTOBER 16, 2001 POLYNUCLEAR AROMATIC HYDROCARBONS

## **SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NCOS MONUMENT "PARK" (MAD 1983 COORDINATES N=361,284.78; E=2,486,141.90; ELEV=30.12)
2. UTILITIES ARE BASED ON MCB, CAMP LEJEUNE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. FOR SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

## **GRAPHICS SCALE**

IF THIS DRAWING IS A REDUCTION, USE GRAPHIC SCALE

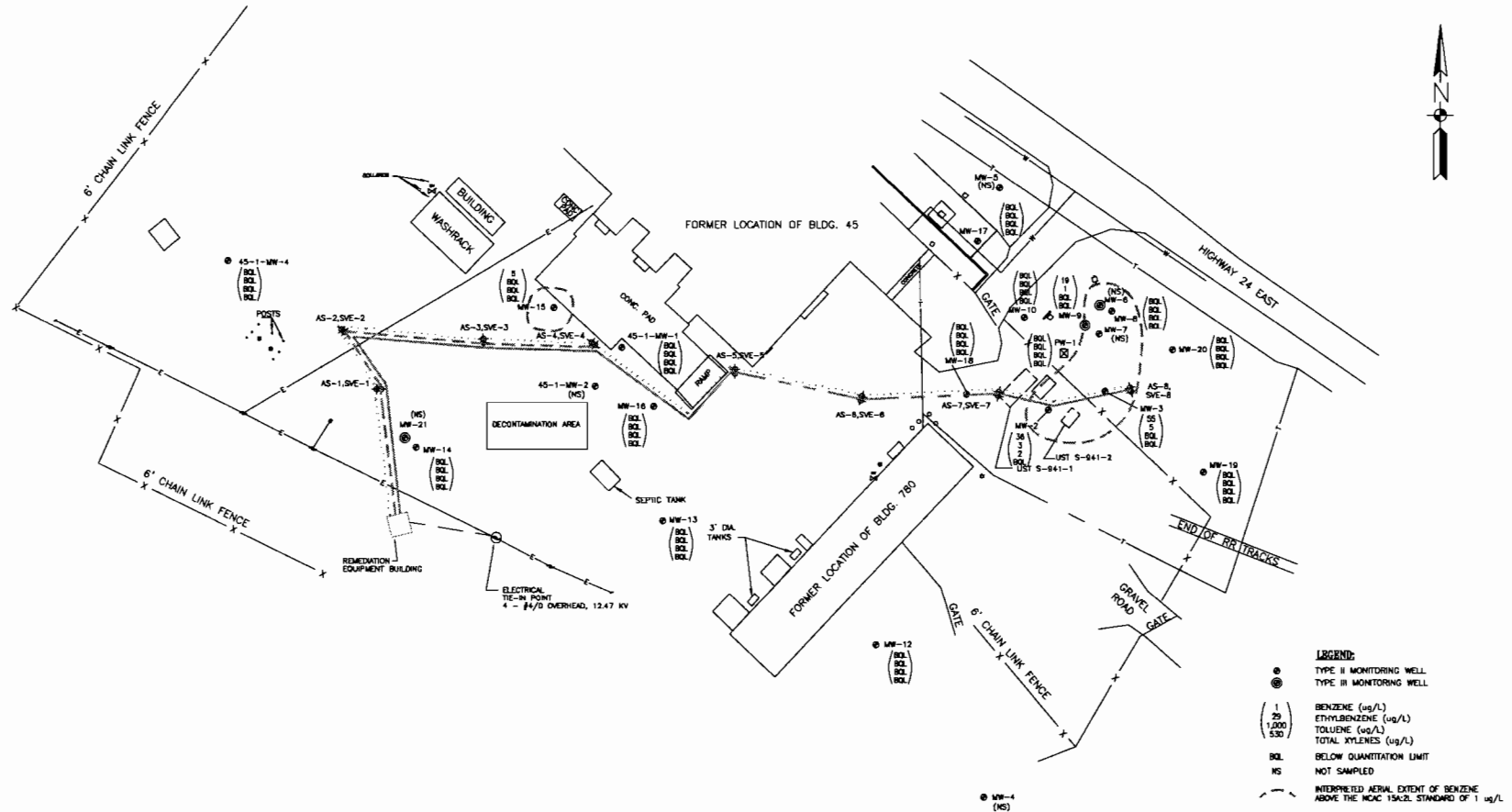


- LEGEND:**
- TYPE I MONITORING WELL
  - ⊙ TYPE II MONITORING WELL
  - (21) NAPHTHALENE (ug/L)
  - (28) 1-METHYLNAPHTHALENE (ug/L)
  - (28) 2-METHYLNAPHTHALENE (ug/L)
  - BOL BELOW QUANTITATION LIMIT
  - NS NOT SAMPLED
  - - - INTERPRETED AERIAL EXTENT OF NAPHTHALENE ABOVE THE NCOS 15ACR STANDARD OF 21 ug/L
  - - - INTERPRETED AERIAL EXTENT OF 1-METHYLNAPHTHALENE AND 2-METHYLNAPHTHALENE ABOVE THE NCOS 15ACR STANDARDS OF DETECTION LIMIT AND 28 ug/L, RESPECTIVELY
  - ⊠ EXISTING PUMPING WELL
  - ⊕ SVE/AIR SPARGE WELL CLUSTER
  - ⊙ UTILITY POLE
  - ⊕ WATER VALVE
  - ⊕ MANHOLE
  - ⊕ FIRE HYDRANT
  - ⊕ LIGHT POLE
  - ELECTRICAL UTILITY LINE
  - WATER UTILITY LINE
  - TELEPHONE UTILITY LINE
  - SOIL VAPOR EXTRACTION LINE NO. 1
  - SOIL VAPOR EXTRACTION LINE NO. 2
  - AIR SPARGE COMPRESSED AIR LINE

REFERENCE: J. A. JONES MONITORING REPORT.

PLOT DATE: 10/06/03  
 DRAWN BY: J. A. JONES

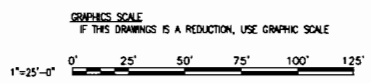
|                                                                                                                                                                                                             |          |                               |  |                  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------|--|------------------|--|
| PROJECT NO. 84883                                                                                                                                                                                           |          | CHECKED BY: RSK               |  | APPROVED BY: JEL |  |
| DESIGNED BY: RSK                                                                                                                                                                                            |          | DRAWN BY: JEL                 |  | DATE: 10/06/03   |  |
| DEPARTMENT OF THE ARMY<br>NATAL DIVISION<br>ATLANTIC DIVISION<br>BUILDING 45<br>CAMP LEJEUNE, NC 28542<br>DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP<br>POLYNUCLEAR AROMATIC HYDROCARBONS-JULY 17, 2001 |          |                               |  |                  |  |
| SCALE: AS SHOWN                                                                                                                                                                                             | SHEET: 0 | CONTRACT NO. H42470-02-D-3280 |  |                  |  |
| SHEET 1 OF 1                                                                                                                                                                                                |          | SHEET 1.0                     |  |                  |  |
| 3-8                                                                                                                                                                                                         |          |                               |  |                  |  |



# DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP - APRIL 17, 2002 VOLATILE AROMATIC HYDROCARBONS

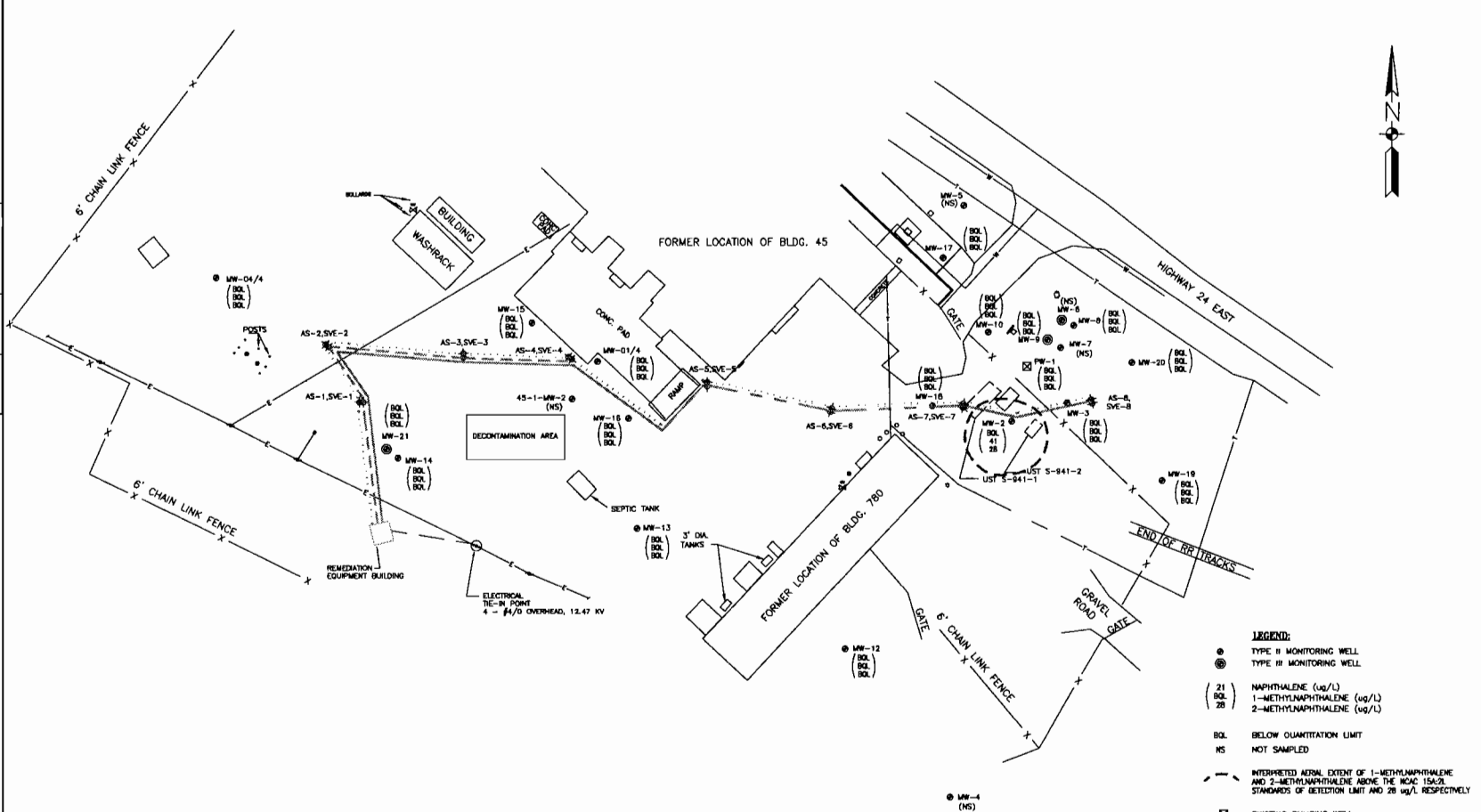
## SURVEY NOTES:

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING MONUMENT PARK (NAD 1983 COORDINATES N=361,294.76; E=2,496,141.90; ELEV=30.12)
2. UTILITIES ARE BASED ON MCR, CAMP LEJEUNE BASE. WELLS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. FOR SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.



- LEGEND:**
- TYPE II MONITORING WELL
  - ⊙ TYPE III MONITORING WELL
  - ( 1 / 29 / 1,000 / 530 ) BENZENE (ug/L)
  - ETHYLBENZENE (ug/L)
  - TOLUENE (ug/L)
  - TOTAL XYLENES (ug/L)
  - BOL BELOW QUANTITATION LIMIT
  - NS NOT SAMPLED
  - INTERPRETED AERIAL EXTENT OF BENZENE ABOVE THE MCR 1542.2 STANDARD OF 1 ug/L
  - ⊠ EXISTING PUMPING WELL
  - ⊕ SVE/AIR SPARGE WELL CLUSTER
  - ⋈ UTILITY POLE
  - ⋈ WATER VALVE
  - ⋈ MANHOLE
  - ⋈ FIRE HYDRANT
  - ⋈ LIGHT POLE
  - ELECTRICAL UTILITY LINE
  - WATER UTILITY LINE
  - TELEPHONE UTILITY LINE
  - SOIL VAPOR EXTRACTION LINE NO. 1
  - SOIL VAPOR EXTRACTION LINE NO. 2
  - AIR SPARGE COMPRESSED AIR LINE

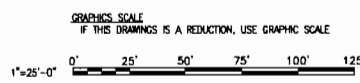
|                                                                                                                                                                                                                                            |  |                                                           |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------|--|
|                                                                                                                                                                                                                                            |  | PROJECT NO. 040025<br>CHECKED BY: [ ]<br>APPROVED BY: [ ] |  |
| DEPARTMENT OF THE ARMY<br>MARINE DIVISION<br>ATLANTIC DIVISION<br>ANNUAL MONITORING REPORT<br>BUILDING 45<br>CAMP GEESE, NORTH CAROLINA<br>DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP<br>VOLATILE AROMATIC HYDROCARBONS-APRIL 17, 2002 |  | SHEET 3-9                                                 |  |



# **DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP - APRIL 17, 2002** **POLYNUCLEAR AROMATIC HYDROCARBINS**

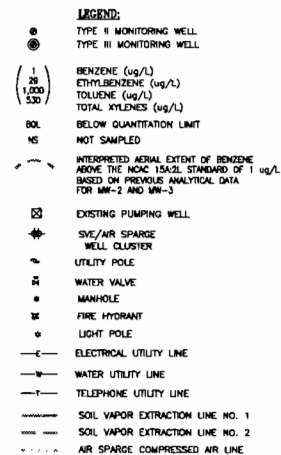
**SURVEY NOTES:**

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING MONUMENT "THANK" (NAD 1983 COORDINATES N=381,244.78; E=2,498,141.80; ELEV=30.12)
2. UTILITIES ARE BASED ON MOB. CAMP LEVINE BASE MAPS AND UTILITIES LOCATED DURING ASSIGNMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.



REFERENCE: J. A. JONES MONITORING REPORT.

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| DEPARTMENT OF THE ARMY<br>MAIN FACILITIES ENGINEERING COMMAND<br>ATLANTIC DIVISION<br>BUILDING 45<br>CAMP GEORGE, NORTH CAROLINA<br>DISSOLVED GROUNDWATER CONTAMINANT ISOPLETH MAP<br>POLYNUCLEAR AROMATIC HYDROCARBONS-APRIL 17, 2002 |  | <br><b>Shaw</b><br>Shaw Environmental, Inc. |  | PROJECT NO. B45B33 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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SURVEY NOTES:

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NCGS MONUMENT "PARK" (HAD 1983 COORDINATES N=361,294.78; E=2,498,141.90; ELEV=30.12)

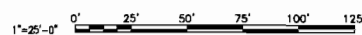
2. UTILITIES ARE BASED ON MCB, CAMP LEJEUNE, BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

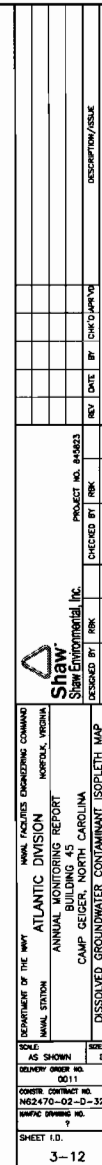
**NOTE:**

1. MONITORING WELLS PW-1, MW-2, MW-3 AND MW-10 WERE ABANDONED DURING SOIL EXCAVATION ACTIVITIES BY SHAW ENVIRONMENTAL AND INFRASTRUCTURE IN JUNE 2002.

REFERENCE: J. A. JONES MONITORING REPORT.

GRAPHICS SCALE  
IF THIS DRAWINGS IS A REDUCTION, USE GRAPHIC SCALE





SURVEY NOTES:

1. CURRENT SURVEY WORK WAS TIED INTO EXISTING WELLS WITH KNOWN COORDINATE INFORMATION. THESE WELL COORDINATES ARE BASED ON SURVEY WORK USING NCMS MONUMENT "PARK" (NAD 1983 COORDINATES N=381,294.78; E=2,496,141.90; ELEV=30.12)

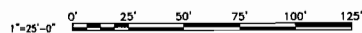
2. UTILITIES ARE BASED ON MOB, CAMP LEJEUNE BASE MAPS AND UTILITIES LOCATED DURING ASSESSMENT ACTIVITIES. PER SPECIFICATIONS, CONTRACTOR SHALL PERFORM UTILITY CLEARANCE AT TIME OF CONSTRUCTION.

**NOTE:**

1. MONITORING WELLS PW-1, MW-2, MW-3 AND MW-10 WERE ABANDONED DURING SOIL EXCAVATION ACTIVITIES BY SHAW ENVIRONMENTAL AND INFRASTRUCTURE IN JUNE 2002.

REFERENCE: J. A. JONES MONITORING REPORT.

GRAPHICS SCALE  
IF THIS DRAWINGS IS A REDUCTION, USE GRAPHIC SCALE



**LEGEND:**

- ② TYPE I MONITORING WELL  
 TYPE II MONITORING WELL  
 ( 21 ) NAPHTHALENE (ug/L)  
 BSL 20 1-METHYLNAPHTHALENE (ug/L)  
 2-METHYLNAPHTHALENE (ug/L)  
 BSL BELOW QUANTIFICATION LIMIT  
 NS NOT SAMPLED  
 INTERPRETED AERIAL EXTENT OF 1-METHYLNAPHTHALENE  
 AND 2-METHYLNAPHTHALENE ABOVE THE RCAC 1500L  
 STANDARDS OF DETECTION LIMIT AND 20 UG/L, RESPECTIVELY  
 ☒ EXISTING PUMPING WELL  
 ⚡ SVE/AIR SPARGE  
 WELL CLUSTER  
 ~ UTILITY POLE  
 ⚙ WATER VALVE  
 ○ MANHOLE  
 ✂ FIRE HYDRANT  
 ○ LIGHT POLE  
 —E— ELECTRICAL UTILITY LINE  
 —W— WATER UTILITY LINE  
 —T— TELEPHONE UTILITY LINE  
 SOIL VAPOR EXTRACTION LINE NO. 1  
 SOIL VAPOR EXTRACTION LINE NO. 2  
 AIR SPARGE COMPRESSED AIR LINE

## **APPENDIX A**

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### **AGGRESSIVE FLUID/VAPOR RECOVERY RESULTS**

**AFVR**  
**Building 45, USTs S-941-1 and 2**  
**Data Measurement Summary**

Date:

Time Duration Since Start of Vacuum Applied to Recovery/Monitoring Well(s):

(Measurements must be collected every 15 minutes for the first two hours and every 30 minutes thereafter)

Diameter of Exhaust Pipe:

Vacuum Measurement at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Stinger Length (inches) | Well Vacuum (in. of Hg) | Start Time | Stop Time |
|-----------------------------------------------|-------------------------|-------------------------|------------|-----------|
| 1. MW-2                                       |                         |                         |            |           |
| 2. MW-3                                       |                         |                         |            |           |
| 3. PW-1                                       |                         |                         |            |           |

If vacuum is applied from MW-2, MW-3, or PW-1 collect water levels from the following monitoring well locations.

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-2          | 10.74                              |                                              |                            |                                  |                                       |
| MW-3          | 11.02                              |                                              |                            |                                  |                                       |
| MW-6          | 10.71                              |                                              |                            |                                  |                                       |
| MW-8          | 10.73                              |                                              |                            |                                  |                                       |
| MW-10         | 11.49                              |                                              |                            |                                  |                                       |
| MW-18         | 10.80                              |                                              |                            |                                  |                                       |
| MW-19         | 11.85                              |                                              |                            |                                  |                                       |
| MW-20         | 10.64                              |                                              |                            |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR**  
**Building 45, USTs S-941-1 and 2**  
**Temperature, Relative Humidity, Velocity, and Vapor Concentration Measurement Summary**

Date:

Vacuum Measurement at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Stinger Length (inches) | Well Vacuum (in. of Hg) | Start Time | Stop Time |
|-----------------------------------------------|-------------------------|-------------------------|------------|-----------|
| 1. MW-2                                       |                         |                         |            |           |
| 2. MW-3                                       |                         |                         |            |           |
| 3. PW-1                                       |                         |                         |            |           |

| Time Duration Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Time | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | TVA Reading (ppm) |
|-----------------------------------------------------------------------------|------|------------------|-----------------------|-------------------|-------------------|
| start-up                                                                    |      |                  |                       |                   |                   |
| 15 mins                                                                     |      |                  |                       |                   |                   |
| 30 mins                                                                     |      |                  |                       |                   |                   |
| 45 mins                                                                     |      |                  |                       |                   |                   |
| 60 mins                                                                     |      |                  |                       |                   |                   |
| 1 hour 15 mins                                                              |      |                  |                       |                   |                   |
| 1 hour 30 mins                                                              |      |                  |                       |                   |                   |
| 1 hour 45 mins                                                              |      |                  |                       |                   |                   |
| 2 hours                                                                     |      |                  |                       |                   |                   |
| 2 hours 30 mins                                                             |      |                  |                       |                   |                   |
| 3 hours                                                                     |      |                  |                       |                   |                   |
| 3 hours 30 mins                                                             |      |                  |                       |                   |                   |
| 4 hours                                                                     |      |                  |                       |                   |                   |
| 4 hours 30 mins                                                             |      |                  |                       |                   |                   |
| 5 hours                                                                     |      |                  |                       |                   |                   |
| 5 hours 30 mins                                                             |      |                  |                       |                   |                   |
| 6 hours                                                                     |      |                  |                       |                   |                   |

Total Volume of Hydrocarbon Product Recovered (gallons):

Total Volume of Groundwater Recovered (gallons):

**AFVR  
Building 45  
Data Measurement Summary**

Date: April 9, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 24

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 21                      | 900        | 1030      | 1.50             |
| MW-3                                          | 22                      | 900        | 1030      | 1.50             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 6 minutes - 9:06                                                                            | 78.9                          | 100.0                 | 172               | 730               |
| Average                                                                                     | 78.9                          | 100.0                 | 172               | 730               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 7.08                       |                                  |                                       |
| MW-7          | 10.00                              |                                              | 5.80                       | 4.20                             |                                       |
| MW-9          | 10.27                              |                                              | 16.26                      |                                  |                                       |
| MW-10         | 11.49                              |                                              | 7.35                       | 4.14                             |                                       |
| MW-18         |                                    |                                              | 6.83                       |                                  |                                       |
| MW-19         |                                    |                                              | 5.18                       |                                  |                                       |
| MW-20         |                                    |                                              | 5.62                       |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - April 9, 1999**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 and MW-3 |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 1.50          |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 78.9          |
| Average Relative Humidity (%)                                                                                          | 100.0         |
| Average Velocity (ft/min)                                                                                              | 172           |
| Average FID Reading (ppm)                                                                                              | 730           |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0215        |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0333        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 538.9         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 14.2          |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 730           |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 755           |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 755           |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 377           |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000024      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.02          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.02          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.03          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.00          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.00</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from April 9, 1999 AFVR Event</b>                              | <b>26</b>     |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from April 9, 1999 AFVR Event</b>                    | <b>26.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>26.00</b>  |

**AFVR  
Building 45  
Data Measurement Summary**

Date: April 22, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 23.5 - reduced to 21 at 9:00 - reduced to 18.5 at 9:45

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 21                      | 8:45       | 11:00     | 2.25             |
| MW-3                                          | 22                      | 8:45       | 11:00     | 2.25             |
| PW-1                                          | 22                      | 8:45       | 11:00     | 2.25             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| 15 minutes - 900                                                                            | 86.4             | 34.4                  | 7                 | No FID            |
| 45 minutes - 930                                                                            | 84.6             | 32.5                  | 701               | No FID            |
| 75 minutes - 1000                                                                           | 84.1             | 32.4                  | 1041              | No FID            |
| Average                                                                                     | 85.0             | 33.1                  | 583               | No FID            |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-7          | 10.00                              |                                              | 7.79                       | 2.21                             |                                       |
| MW-9          | 10.27                              |                                              | 17.46                      |                                  |                                       |
| MW-10         | 11.49                              |                                              | 8.86                       | 2.63                             |                                       |
| MW-18         |                                    |                                              | 7.55                       |                                  |                                       |
| MW-19         |                                    |                                              | 5.75                       |                                  |                                       |
| MW-20         |                                    |                                              | 6.81                       |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - April 22, 1999**

|                                                                                                                        |                    |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
| Time Duration (hours)                                                                                                  | 2.25               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 85.0               |
| Average Relative Humidity (%)                                                                                          | 33.1               |
| Average Velocity (ft/min)                                                                                              | 583                |
| Average FID Reading (ppm)                                                                                              | No FID             |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0091             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0144             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 545.0              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 48.6               |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                            | No FID             |
| PPM <sub>d</sub> (dry concentration)                                                                                   |                    |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            |                    |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  |                    |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             |                    |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                |                    |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     |                    |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      |                    |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     |                    |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   |                    |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from April 22, 1999 AFVR Event</b>                             | <b>56</b>          |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from April 22, 1999 AFVR Event</b>                   | <b>56.00</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>82.00</b>       |

**AFVR  
Building 45  
Data Measurement Summary**

Date: May 11, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 25

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 21                      | 10:15      | 11:50     | 1.58             |
| MW-3                                          | 24                      | 10:15      | 11:50     | 1.58             |
| PW-1                                          | 20                      | 10:15      | 11:50     | 1.58             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| 30 minutes - 1045                                                                           | 86.6             | 35.0                  | 1007              | 36                |
| 60minutes - 1115                                                                            | 98.3             | 67.0                  | 233               | 16                |
| 90 minutes - 1145                                                                           | 97.4             | 58.1                  | 210               | 8                 |
| Average                                                                                     | 94.1             | 53.4                  | 483               | 20                |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-6          | 10.00                              |                                              | 17.81                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.21                       | 5.06                             |                                       |
| MW-10         | 11.49                              |                                              | 7.94                       | 3.55                             |                                       |
| MW-18         |                                    |                                              | 7.10                       |                                  |                                       |
| MW-19         |                                    |                                              | 5.25                       |                                  |                                       |
| MW-20         |                                    |                                              | 6.00                       |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - May 11, 1999**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                  | 1.58               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 94.1               |
| Average Relative Humidity (%)                                                                                          | 53.4               |
| Average Velocity (ft/min)                                                                                              | 483                |
| Average FID Reading (ppm)                                                                                              | 20                 |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0198             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0307             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 554.1              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 39.0               |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 20                 |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 21                 |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 21                 |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 10                 |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000001           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.00               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.00               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.00               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.00               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.00</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from May 11, 1999 AFVR Event</b>                               | <b>0</b>           |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from May 11, 1999 AFVR Event</b>                     | <b>0.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>82.00</b>       |

**AFVR  
Building 45  
Data Measurement Summary**

Date: June 22, 1999

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 25

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 24                      | 9:30       | 11:30     | 2.00             |
| MW-3                                          | 19                      | 9:30       | 11:30     | 2.00             |
| PW-1                                          | 22                      | 9:30       | 11:30     | 2.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 15 minutes - 945                                                                            | 72.4                          | 68.7                  | 175               | 347               |
| 45 minutes - 1015                                                                           | 78.8                          | 69.7                  | 576               | 113               |
| 75 minutes - 1145                                                                           | 80.8                          | 41.9                  | 1290              | 118               |
| 120 minutes - 1130                                                                          | 86.8                          | 79.8                  | 323               | 69                |
| Average                                                                                     | 79.7                          | 65.0                  | 591               | 162               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-6          | 10.71                              |                                              | 19.88                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.48                       | 4.79                             |                                       |
| MW-10         | 11.49                              |                                              | 9.03                       | 2.46                             |                                       |
| MW-18         |                                    |                                              | 8.51                       |                                  |                                       |
| MW-19         |                                    |                                              | 5.91                       |                                  |                                       |
| MW-20         |                                    |                                              | 6.84                       |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - June 22, 1999**

|                                                                                                                            |                    |
|----------------------------------------------------------------------------------------------------------------------------|--------------------|
| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                         | MW-2, MW-3, & PW-1 |
| Time Duration (hours)                                                                                                      | 2.00               |
| Average Temperature ( $^{\circ}\text{F}$ )                                                                                 | 79.7               |
| Average Relative Humidity (%)                                                                                              | 65.0               |
| Average Velocity (ft/min)                                                                                                  | 591                |
| Average FID Reading (ppm)                                                                                                  | 162                |
| $B_{\text{WSW}}$ (lb. water/lb. dry air)                                                                                   | 0.0140             |
| $B_{\text{WS}}$ (water vapor % by volume)                                                                                  | 0.0219             |
| Stack Pipe Cross Sectional Area ( $\text{ft}^2$ )                                                                          | 0.087              |
| $T_{\text{S}}$ Stack Temperature ( $^{\circ}\text{R}$ )                                                                    | 539.7              |
| $Q_{\text{std}}$ (flow at DSCRM)                                                                                           | 49.4               |
| $\text{PPM}_{\text{W}}$ (wet concentration=measured concentration)                                                         | 162                |
| $\text{PPM}_{\text{d}}$ (dry concentration)                                                                                | 165                |
| $\text{PPM}_{\text{c}}$ ( $\text{PPM}_{\text{v}}$ , volumetric concentration of VOC emissions as carbon, dry basis at STP) | 165                |
| $C_{\text{cm}}$ ( $\text{mg/dsm}^3$ , mass concentration of VOC emissions as carbon)                                       | 83                 |
| $C_{\text{c}}$ ( $\text{lb/dscf}$ , mass concentration of VOC emissions as carbon, dry basis, at STP)                      | 0.000005           |
| $\text{PMR}_{\text{c}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as carbon)                                  | 0.02               |
| $\text{PMR}_{\text{gas/diesel}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)       | 0.02               |
| $\text{PMR}_{\text{gas/diesel}}$ (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                   | 0.03               |
| $\text{PMR}_{\text{gas/diesel}}$ (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                  | 0.01               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                       | <b>0.01</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from June 22, 1999 AFVR Event</b>                                  | <b>0</b>           |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from June 22, 1999 AFVR Event</b>                        | <b>0.01</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b>     | <b>82.01</b>       |

**AFVR  
Building 45  
Data Measurement Summary**

Date: June 29, 1999

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 21

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 15                      | 10:00      | 12:00     | 2.00             |
| MW-3                                          | 19                      | 10:00      | 12:00     | 2.00             |
| PW-1                                          | 20                      | 10:00      | 12:00     | 2.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 15 minutes - 1015                                                                           | 97.8                          | 100.0                 | 1124              | 1361              |
| 30 minutes - 1030                                                                           | 85.0                          | 93.7                  | 2006              | 190               |
| 60 minutes - 1100                                                                           | 95.0                          | 91.7                  | 806               | 25                |
| 90 minutes - 1130                                                                           | 91.8                          | 92.9                  | 760               | 14                |
| 120 minutes - 1200                                                                          | 94.5                          | 74.9                  | 780               | 37                |
| Average                                                                                     | 92.8                          | 90.6                  | 1095              | 325               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.64                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 6.03                       | 4.24                             |                                       |
| MW-10         | 11.49                              |                                              | 9.19                       | 2.30                             |                                       |
| MW-18         |                                    |                                              | 8.13                       |                                  |                                       |
| MW-19         |                                    |                                              | 6.46                       |                                  |                                       |
| MW-20         |                                    |                                              | 7.23                       |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - June 29, 1999**

|                                                                                                                        |                    |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
| Time Duration (hours)                                                                                                  | 2.00               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 92.8               |
| Average Relative Humidity (%)                                                                                          | 90.6               |
| Average Velocity (ft/min)                                                                                              | 1095               |
| Average FID Reading (ppm)                                                                                              | 325                |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0306             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0467             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 552.8              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 87.1               |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                            | 325                |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 341                |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 341                |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 170                |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000011           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.06               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.06               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.12               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.02               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.02</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from June 29, 1999 AFVR Event</b>                              | <b>27.50</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from June 29, 1999 AFVR Event</b>                    | <b>27.52</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>109.53</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: July 19, 1999  
Diameter of Exhaust Pipe: 4 inches  
Vacuum at the Blower (in. of Hg): 25

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-3                                          | 22                      | 9:30       | 11:30     | 2.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| start-up - 0930                                                                             | 91.6             | 81.9                  | 0                 | 1816              |
| 30 minutes - 1000                                                                           | 111.2            | 35.7                  | 0                 | 125               |
| 60 minutes - 1030                                                                           | 101.2            | 56.1                  | 0                 | 727               |
| 90 minutes - 1100                                                                           | 113.7            | 75.0                  | 0                 | 75                |
| 120 minutes - 1130                                                                          | 103.3            | 58.9                  | 0                 | 1415              |
| Average                                                                                     | 104.2            | 61.5                  | 0                 | 832               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 9.32                       |                                  |                                       |
| MW-2          | 10.74                              | 8.84                                         | 9.04                       | 1.70                             |                                       |
| MW-6          | 10.71                              |                                              | 18.61                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 6.36                       | 3.91                             |                                       |
| MW-10         | 11.49                              |                                              | 9.27                       | 2.22                             |                                       |
| MW-18         | 10.80                              |                                              | Not Measured               |                                  |                                       |
| MW-19         | 11.85                              |                                              | 7.28                       | 4.57                             |                                       |
| MW-20         | 10.64                              |                                              | 7.53                       | 3.11                             |                                       |

Notes:  
ft = feet  
toc = top of casing elevation  
msl = mean sea level

Date: July 19, 1999  
Diameter of Exhaust Pipe: 4 inches  
Vacuum at the Blower (in. of Hg): 25

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 21                      | 11:45      | 14:30     | 2.75             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| start-up - 1145                                                                             | 103.1            | 57.2                  | 173               | 53                |
| 30 minutes - 1215                                                                           | 114.4            | 74.9                  | 160               | 34                |
| 60 minutes - 1245                                                                           | 116.2            | 76.8                  | 0                 | 30                |
| 90 minutes - 1315                                                                           | 104.3            | 60.3                  | 359               | 69                |
| 120 minutes - 1345                                                                          | 117.2            | 58.1                  | 147               | 53                |
| 165 minutes - 1430                                                                          | 121.3            | 78.8                  | 208               | 228               |
| Average                                                                                     | 112.8            | 67.7                  | 175               | 78                |

**AFVR  
Building 45  
AFVR Event - July 19, 1999**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                      | MW-3          | MW-2     |
|-------------------------------------------------------------------------------------------------------------------------|---------------|----------|
| Time Duration (hours)                                                                                                   | 2.00          | 2.75     |
| Average Temperature (°F)                                                                                                | 104.2         | 112.8    |
| Average Relative Humidity (%)                                                                                           | 61.5          | 67.7     |
| Average Velocity (ft/min)                                                                                               | 0             | 175      |
| Average FID Reading (ppm)                                                                                               | 832           | 78       |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                                | 0.0442        | 0.0615   |
| B <sub>WS</sub> (water vapor % by volume)                                                                               | 0.0661        | 0.0897   |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                      | 0.087         | 0.087    |
| T <sub>S</sub> Stack Temperature (°R)                                                                                   | 564.2         | 572.8    |
| Q <sub>std</sub> (flow at DSCRM)                                                                                        | 0.0           | 12.8     |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                             | 832           | 78       |
| PPM <sub>d</sub> (dry concentration)                                                                                    | 891           | 86       |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)             | 891           | 86       |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                   | 445           | 43       |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                              | 0.000028      | 0.000003 |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                 | 0.00          | 0.00     |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                      | 0.00          | 0.00     |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                       | 0.00          | 0.01     |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.00          | 0.00     |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                    | <b>0.00</b>   |          |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from July 19, 1999 AFVR Event</b>                               | <b>0.00</b>   |          |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from July 19, 1999 AFVR Event</b>                     | <b>0.00</b>   |          |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b> | <b>109.53</b> |          |

**AFVR  
Building 45  
Data Measurement Summary**

Date: July 27, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 20

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 20                      | 10:15      | 11:30     | 1.25             |
| MW-3                                          | 17                      | 10:15      | 11:30     | 1.25             |
| PW-1                                          | 14                      | 10:15      | 11:30     | 1.25             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 5 minutes - 1020                                                                            | 102.1                         | 9.2                   | 1977              | 1522              |
| 4 minutes - 1055                                                                            | 103.8                         | 51.4                  | 342               | 1446              |
| 60 minutes - 1115                                                                           | 103.6                         | 68.2                  | 326               | 1489              |
| 75 minutes - 1130                                                                           | 109.5                         | 88.4                  | 164               | 1192              |
| Average                                                                                     | 104.8                         | 54.3                  | 702               | 1412              |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-6          | 10.71                              |                                              |                            |                                  |                                       |
| MW-8          | 10.27                              |                                              |                            | 10.27                            |                                       |
| MW-10         | 11.49                              |                                              |                            | 11.49                            |                                       |
| MW-18         |                                    |                                              |                            |                                  |                                       |
| MW-19         |                                    |                                              |                            |                                  |                                       |
| MW-20         |                                    |                                              |                            |                                  |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - July 27, 1999**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                      | MW-2, MW-3,<br>& PW-1 |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Time Duration (hours)                                                                                                   | 1.25                  |
| Average Temperature ( <sup>0</sup> F)                                                                                   | 104.8                 |
| Average Relative Humidity (%)                                                                                           | 54.3                  |
| Average Velocity (ft/min)                                                                                               | 702                   |
| Average FID Reading (ppm)                                                                                               | 1412                  |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                                | 0.0260                |
| B <sub>WS</sub> (water vapor % by volume)                                                                               | 0.0400                |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                      | 0.087                 |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                      | 564.8                 |
| Q <sub>std</sub> (flow at DSCR)                                                                                         | 55.0                  |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                             | 1412                  |
| PPM <sub>d</sub> (dry concentration)                                                                                    | 1471                  |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)             | 1471                  |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                   | 734                   |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                              | 0.000046              |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                 | 0.15                  |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                      | 0.16                  |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                       | 0.21                  |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.03                  |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                    | <b>0.03</b>           |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from July 27, 1999 AFVR Event</b>                               | <b>0</b>              |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from July 27, 1999 AFVR Event</b>                     | <b>0.03</b>           |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b> | <b>109.56</b>         |

**AFVR  
Building 45  
Data Measurement Summary**

Date: August 18, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 22.5

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 24                      | 10:00      | 11:00     | 1.50             |
| MW-3                                          | 20                      | 10:00      | 11:00     | 1.50             |
| PW-1                                          | 17                      | 10:00      | 11:00     | 1.50             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>o</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 5 minutes - 1005                                                                            | 95.7                          | 56.7                  | 1291              | 1915              |
| 30 minutes - 1030                                                                           | 110.1                         | 18.5                  | 1575              | 1265              |
| 60 minutes - 1100                                                                           | 117.8                         | 23.9                  | 926               | 873               |
| 90 minutes - 1130                                                                           | 103.6                         | 61.8                  | 998               | 1014              |
| Average                                                                                     | 106.8                         | 40.2                  | 1198              | 1267              |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-6          | 10.71                              |                                              | 19.13                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 7.29                       | 2.98                             |                                       |
| MW-10         | 11.49                              |                                              | 10.48                      | 1.01                             |                                       |
| MW-18         | 10.80                              |                                              |                            |                                  |                                       |
| MW-19         | 11.85                              |                                              | 8.26                       | 3.59                             |                                       |
| MW-20         | 10.64                              |                                              | 8.38                       | 2.26                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - August 18, 1999**

|                                                                                                                        |                    |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
| Time Duration (hours)                                                                                                  | 1.50               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 106.8              |
| Average Relative Humidity (%)                                                                                          | 40.2               |
| Average Velocity (ft/min)                                                                                              | 1198               |
| Average FID Reading (ppm)                                                                                              | 1267               |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0210             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0326             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 566.8              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 94.3               |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                            | 1267               |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 1310               |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 1310               |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 653                |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000041           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.23               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.25               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.38               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.06               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.06</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from August 18, 1999 AFVR Event</b>                            | <b>27.5</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from August 18, 1999 AFVR Event</b>                  | <b>27.56</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>137.12</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: August 26, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 22

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 18                      | 9:30       | 12:00     | 2.50             |
| MW-3                                          | 21                      | 9:30       | 12:00     | 2.50             |
| PW-1                                          | 18                      | 9:30       | 12:00     | 2.50             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 30 minutes - 1000                                                                           | 105.1                         | 12.6                  | 926               | 3185              |
| 60 minutes - 1030                                                                           | 104.9                         | 56.7                  | 638               | 1408              |
| 90 minutes - 1100                                                                           | 94.3                          | 53.1                  | 713               | 3164              |
| 120 minutes - 1130                                                                          | 91.8                          | 53.2                  | 748               | 1281              |
| 150 minutes - 1200                                                                          | 93.7                          | 47.3                  | 862               | 313               |
| Average                                                                                     | 98.0                          | 44.6                  | 777               | 1870              |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              |                            |                                  |                                       |
| MW-6          | 10.71                              |                                              | 19.15                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 7.10                       | 3.17                             |                                       |
| MW-10         | 11.49                              |                                              | 10.68                      | 0.81                             |                                       |
| MW-18         | 10.80                              |                                              |                            |                                  |                                       |
| MW-19         | 11.85                              |                                              | 8.24                       | 3.61                             |                                       |
| MW-20         | 10.64                              |                                              | 8.37                       | 2.27                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - August 26, 1999**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                  | 2.50               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 98.0               |
| Average Relative Humidity (%)                                                                                          | 44.6               |
| Average Velocity (ft/min)                                                                                              | 777                |
| Average FID Reading (ppm)                                                                                              | 1870               |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0180             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0280             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 558.0              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 62.4               |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                            | 1870               |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 1924               |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 1924               |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 960                |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000060           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.22               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.24               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.61               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.09               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.09</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from August 26, 1999 AFVR Event</b>                            | <b>8</b>           |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from August 26, 1999 AFVR Event</b>                  | <b>8.09</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>145.21</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: September 2, 1999

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 23

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 17                      | 9:25       | 11:00     | 1.58             |
| MW-3                                          | 22                      | 9:25       | 11:00     | 1.58             |
| PW-1                                          | 21                      | 9:25       | 11:00     | 1.58             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| 35 minutes - 1000                                                                           | 89.9                          | 56.1                  | 1109              | 535               |
| 65 minutes - 1030                                                                           | 88.7                          | 28.6                  | 1239              | 151               |
| 95 minutes - 1100                                                                           | 86.2                          | 36.9                  | 908               | 131               |
| Average                                                                                     | 88.3                          | 40.5                  | 1085              | 272               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 7.38                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 18.26                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.81                       | 4.46                             |                                       |
| MW-10         | 11.49                              |                                              | 7.40                       | 4.09                             |                                       |
| MW-18         | 10.80                              |                                              |                            |                                  |                                       |
| MW-19         | 11.85                              |                                              | 6.64                       | 5.21                             |                                       |
| MW-20         | 10.64                              |                                              | 6.05                       | 4.59                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - September 2, 1999**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                      | MW-2, MW-3, & PW-1 |
|-------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                   | 1.58               |
| Average Temperature ( <sup>0</sup> F)                                                                                   | 88.3               |
| Average Relative Humidity (%)                                                                                           | 40.5               |
| Average Velocity (ft/min)                                                                                               | 1085               |
| Average FID Reading (ppm)                                                                                               | 272                |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                                | 0.0110             |
| B <sub>WS</sub> (water vapor % by volume)                                                                               | 0.0173             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                      | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                      | 548.3              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                        | 89.6               |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                             | 272                |
| PPM <sub>d</sub> (dry concentration)                                                                                    | 277                |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)             | 277                |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                   | 138                |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                              | 0.000009           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                 | 0.05               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                      | 0.05               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                       | 0.08               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.01               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                    | <b>0.01</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from September 2, 1999 AFVR Event</b>                           | <b>11.25</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from September 2, 1999 AFVR Event</b>                 | <b>11.26</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b> | <b>156.47</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: June 19, 2000

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 20                      | 8:30       | 13:00     | 4.50             |
| MW-3                                          | 23                      | 8:30       | 13:00     | 4.50             |
| PW-1                                          | 16                      | 8:30       | 13:00     | 4.50             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| Initial - 8:30                                                                              | 97.9             | 11.0                  | 3973              | 1528              |
| 15 minutes - 8:45                                                                           | 101.2            | 14.8                  | 3524              | 1047              |
| 30 minutes - 9:00                                                                           | 98.6             | 12.4                  | 3021              | 1041              |
| 45 minutes - 9:15                                                                           | 106.1            | 2.8                   | 513               | 5971              |
| 1 hour - 9:30                                                                               | 114.9            | 12.3                  | 761               | 15100             |
| 1 hour 15 minutes - 9:45                                                                    | 105.5            | 39.3                  | 421               | 18000             |
| 1 hour 30 minutes - 10:00                                                                   | 122.2            | 40.6                  | 633               | 16700             |
| 1 hour 45 minutes - 10:15                                                                   | 116.8            | 51.7                  | 771               | 16400             |
| 2 hours - 10:30                                                                             | 99.9             | 56.1                  | 683               | 13200             |
| 2 hour 30 minutes - 11:00                                                                   | 106.4            | 50.1                  | 711               | 12700             |
| 3 hours - 11:30                                                                             | 121.9            | 28.6                  | 744               | 12200             |
| 3 hours 30 minutes - 12:00                                                                  | 113.7            | 19.0                  | 928               | 11700             |
| 4 hours - 12:30                                                                             | 113.2            | 18.2                  | 928               | 11500             |
| 4 hours 30 minutes - 13:00                                                                  | 109.3            | 41.5                  | 918               | 10600             |
| Average                                                                                     | 109.1            | 28.5                  | 1324              | 10549             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    | Trace                                        | 3.90                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.02                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 4.18                       | 6.09                             |                                       |
| MW-10         | 11.49                              |                                              | 4.16                       | 7.33                             |                                       |
| MW-18         | 10.80                              |                                              | 6.25                       |                                  |                                       |
| MW-19         | 11.85                              |                                              | 4.26                       | 7.59                             |                                       |
| MW-20         | 10.64                              |                                              | 3.50                       | 7.14                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - June 19, 2000**

|                                                                                                                            |                    |
|----------------------------------------------------------------------------------------------------------------------------|--------------------|
| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                         | MW-2, MW-3, & PW-1 |
| Time Duration (hours)                                                                                                      | 4.50               |
| Average Temperature ( $^{\circ}\text{F}$ )                                                                                 | 109.1              |
| Average Relative Humidity (%)                                                                                              | 28.5               |
| Average Velocity (ft/min)                                                                                                  | 1324               |
| Average FID Reading (ppm)                                                                                                  | 10549              |
| $B_{\text{WSW}}$ (lb. water/lb. dry air)                                                                                   | 0.0158             |
| $B_{\text{WS}}$ (water vapor % by volume)                                                                                  | 0.0247             |
| Stack Pipe Cross Sectional Area ( $\text{ft}^2$ )                                                                          | 0.087              |
| $T_{\text{S}}$ Stack Temperature ( $^{\circ}\text{R}$ )                                                                    | 569.1              |
| $Q_{\text{std}}$ (flow at DSCRM)                                                                                           | 104.6              |
| $\text{PPM}_{\text{W}}$ (wet concentration=measured concentration)                                                         | 10549              |
| $\text{PPM}_{\text{d}}$ (dry concentration)                                                                                | 10816              |
| $\text{PPM}_{\text{c}}$ ( $\text{PPM}_{\text{v}}$ , volumetric concentration of VOC emissions as carbon, dry basis at STP) | 10816              |
| $C_{\text{cm}}$ ( $\text{mg/dsm}^3$ , mass concentration of VOC emissions as carbon)                                       | 5397               |
| $C_{\text{c}}$ ( $\text{lb/dscf}$ , mass concentration of VOC emissions as carbon, dry basis, at STP)                      | 0.000337           |
| $\text{PMR}_{\text{c}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as carbon)                                  | 2.11               |
| $\text{PMR}_{\text{gas/diesel}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)       | 2.30               |
| $\text{PMR}_{\text{gas/diesel}}$ (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                   | 10.34              |
| $\text{PMR}_{\text{gas/diesel}}$ (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                  | 1.57               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                       | <b>1.57</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from June 19, 2000 AFVR Event</b>                                  | <b>4.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from June 19, 2000 AFVR Event</b>                        | <b>5.57</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b>     | <b>162.04</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: July 19, 2000

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 22

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 20                      | 7:30       | 13:00     | 6.00             |
| MW-3                                          |                         | 7:30       | 13:00     | 6.00             |
| PW-1                                          | 20                      | 7:30       | 13:00     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 7:30                                                                              | 89.3                          |                       | 1125              | 15700             |
| 15 minutes - 7:45                                                                           | 88.2                          |                       | 1692              | 26400             |
| 30 minutes - 8:00                                                                           | 89.7                          |                       | 1291              | 25800             |
| 45 minutes - 8:15                                                                           | 90.6                          |                       | 1166              | 21800             |
| 1 hour - 8:30                                                                               | 91.5                          |                       | 978               | 25100             |
| 1 hour 15 minutes - 8:45                                                                    | 93.7                          |                       | 874               | 24700             |
| 1 hour 30 minutes - 9:00                                                                    | 99.5                          |                       | 877               | 30200             |
| 1 hour 45 minutes - 9:15                                                                    | 101.3                         |                       | 822               | 31100             |
| 2 hours - 9:30                                                                              | 101.4                         |                       | 915               | 39700             |
| 2 hour 30 minutes - 10:00                                                                   | 106.2                         |                       | 1068              | 35500             |
| 3 hours - 10:30                                                                             | 98.6                          |                       | 1008              | 28100             |
| 3 hours 30 minutes - 11:00                                                                  | 97.9                          |                       | 945               | 25100             |
| 4 hours - 11:30                                                                             | 106.2                         |                       | 802               | 25100             |
| 4 hours 30 minutes - 12:00                                                                  | 114.6                         |                       | 923               | 22200             |
| 5 hours - 12:30                                                                             | 108.6                         |                       | 927               | 22200             |
| 5 hours 30 minutes - 13:00                                                                  | 113.9                         |                       | 918               | 20200             |
| Average                                                                                     | 99.5                          | 55.8*                 | 1020.7            | 26181.3           |

\* Based on the average of the relative humidity measurements from previous AFVR events.

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 8.70                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 21.70                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 7.53                       | 2.74                             |                                       |
| MW-10         | 11.49                              |                                              | 10.04                      | 1.45                             |                                       |
| MW-18         | 10.80                              |                                              | 9.50                       | 1.30                             |                                       |
| MW-19         | 11.85                              |                                              | 8.21                       | 3.64                             |                                       |
| MW-20         | 10.64                              |                                              | 7.25                       | 3.39                             |                                       |

**Notes:**

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - July 19, 2000**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                  | 6.00               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 99.5               |
| Average Relative Humidity (%)                                                                                          | 55.8               |
| Average Velocity (ft/min)                                                                                              | 1021               |
| Average FID Reading (ppm)                                                                                              | 26181              |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0210             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0326             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 559.5              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 81.4               |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 26181              |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 27062              |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 27062              |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 13503              |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000843           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 4.11               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 4.47               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 26.84              |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 4.07               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>4.07</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from July 19, 2000 AFVR Event</b>                              | <b>0.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from July 19, 2000 AFVR Event</b>                    | <b>4.07</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>166.11</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: August 31, 2000

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg): 22

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          |                         | 8:00       | 15:00     | 7.00             |
| MW-3                                          |                         | 8:00       | 15:00     | 7.00             |
| PW-1                                          |                         | 8:00       | 15:00     | 7.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 177.5            | 9.7                   | 3536              | 98.67             |
| 15 minutes - 8:15                                                                           | 174.2            | 11.6                  | 5267              | 72.63             |
| 30 minutes - 8:30                                                                           | 169.4            | 14.7                  | 3355              | 76.00             |
| 45 minutes - 8:45                                                                           | 176.5            | 6.0                   | 4091              | 75.47             |
| 1 hour - 9:00                                                                               | 183.1            | 14.4                  | 3495              | 84.65             |
| 1 hour 15 minutes - 9:15                                                                    | 162.4            | 10.4                  | 2069              | 89.96             |
| 1 hour 30 minutes - 9:30                                                                    | 168.6            | 11.2                  | 3218              | 79.45             |
| 1 hour 45 minutes - 9:45                                                                    | 162.7            | 25.2                  | 1731              | 121.00            |
| 2 hours - 10:00                                                                             | 167.0            | 23.2                  | 2263              | 113.00            |
| 2 hour 30 minutes - 10:30                                                                   | 166.9            | 18.8                  | 1794              | 111.00            |
| 3 hours - 11:00                                                                             | 177.9            | 8.5                   | 2703              | 107.00            |
| 3 hours 30 minutes - 11:30                                                                  | 168.1            | 12.4                  | 2809              | 109.00            |
| 4 hours - 12:00                                                                             | 149.6            | 12.7                  | 1784              | 109.00            |
| Average                                                                                     | 169.5            | 13.8                  | 2931.9            | 95.9              |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    | Sheen                                        | 3.90                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.02                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 4.18                       | 6.09                             |                                       |
| MW-10         | 11.49                              |                                              | 4.16                       | 7.33                             |                                       |
| MW-18         | 10.80                              |                                              | 6.25                       | 4.55                             |                                       |
| MW-19         | 11.85                              |                                              | 4.26                       | 7.59                             |                                       |
| MW-20         | 10.64                              |                                              | 3.50                       | 7.14                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - August 31, 2000**

|                                                                                                                        |                    |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
| Time Duration (hours)                                                                                                  | 4.00               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 169.5              |
| Average Relative Humidity (%)                                                                                          | 13.8               |
| Average Velocity (ft/min)                                                                                              | 2932               |
| Average FID Reading (ppm)                                                                                              | 96                 |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0328             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0499             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 629.5              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 204.0              |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 96                 |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 101                |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 101                |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 50                 |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000003           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.04               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.04               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.17               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.03               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.03</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from August 31, 2000 AFVR Event</b>                            | <b>0.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from August 31, 2000 AFVR Event</b>                  | <b>0.03</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>166.14</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: November 20, 2000  
Diameter of Exhaust Pipe: 4 inches  
Vacuum at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          |                         | 8:30       | 15:00     | 6.50             |
| MW-3                                          |                         | 8:30       | 15:00     | 6.50             |
| PW-1                                          |                         | 8:30       | 15:00     | 6.50             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:30                                                                              | 128.7                         | 20.5                  | 3574              | 68.42             |
| 15 minutes - 8:45                                                                           | 141.7                         | 7.9                   | 2852              | 66.78             |
| 30 minutes - 9:00                                                                           | 132.8                         | 12.4                  | 3281              | 85.34             |
| 45 minutes - 9:15                                                                           | 139.3                         | 8.7                   | 4150              | 74.86             |
| 1 hour - 9:30                                                                               | 142.7                         | 4.7                   | 4111              | 77.02             |
| 1 hour 15 minutes - 9:45                                                                    | 147.2                         | 20.5                  | 4058              | 85.21             |
| 1 hour 30 minutes - 10:00                                                                   | 128.2                         | 35.6                  | 3571              | 88.75             |
| 1 hour 45 minutes - 10:15                                                                   | 140.0                         | 7.5                   | 5021              | 107               |
| 2 hours - 10:15                                                                             | 145.8                         | 9.9                   | 4368              | 111               |
| 2 hour 30 minutes - 11:00                                                                   | 138.2                         | 12.4                  | 4291              | 156               |
| 3 hours - 11:30                                                                             | 147.1                         | 4.1                   | 3393              | 108               |
| 3 hours 30 minutes - 12:00                                                                  | 138.7                         | 12.4                  | 4381              | 103               |
| 4 hours - 12:30                                                                             | 148.2                         | 14.8                  | 4021              | 102               |
| 4 hours 30 minutes - 13:00                                                                  | 148.7                         | 11.4                  | 3037              | 103               |
| 5 hours - 13:30                                                                             | 150.1                         | 13.7                  | 4074              | 105               |
| 5 hours 30 minutes - 14:00                                                                  | 150.7                         | 14.0                  | 5332              | 102               |
| 6 hours - 14:30                                                                             | 146.4                         | 16.8                  | 4763              | 101               |
| 6 hours 30 minutes - 15:00                                                                  | 151.0                         | 16.0                  | 3184              | 105               |
| Average                                                                                     | 142.5                         | 13.5                  | 3970.1            | 97.2              |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 6.20                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.87                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.05                       | 5.22                             |                                       |
| MW-10         | 11.49                              |                                              | 7.93                       | 3.56                             |                                       |
| MW-18         | 10.80                              |                                              | 7.33                       | 3.47                             |                                       |
| MW-19         | 11.85                              |                                              | 5.20                       | 6.65                             |                                       |
| MW-20         | 10.64                              |                                              | 4.95                       | 5.69                             |                                       |

Notes:  
ft = feet  
toc = top of casing elevation  
msl = mean sea level

**AFVR  
Building 45  
AFVR Event - November 20, 2000**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                  | 6.50               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 142.5              |
| Average Relative Humidity (%)                                                                                          | 13.5               |
| Average Velocity (ft/min)                                                                                              | 3970               |
| Average FID Reading (ppm)                                                                                              | 97                 |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0186             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0289             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.087              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 602.5              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 294.9              |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 97                 |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 100                |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 100                |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 50                 |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000003           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.06               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.06               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.39               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.06               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.06</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from November 20, 2000 AFVR Event</b>                          | <b>5.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from November 20, 2000 AFVR Event</b>                | <b>5.06</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>171.20</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: December 21, 2000

Diameter of Exhaust Pipe: 4 inches

Vacuum at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          |                         | 8:00       | 13:00     | 5.00             |
| MW-3                                          |                         | 8:00       | 13:00     | 5.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 98.6                          | 30.6                  | 815               | 384               |
| 15 minutes - 8:15                                                                           | 96.4                          | 29.8                  | 784               | 342               |
| 30 minutes - 8:30                                                                           | 97.8                          | 31.9                  | 843               | 334               |
| 45 minutes - 8:45                                                                           | 122.0                         | 10.3                  | 2109              | 223               |
| 1 hour - 9:00                                                                               | 122.7                         | 8.1                   | 3271              | 136               |
| 1 hour 15 minutes - 9:15                                                                    | 110.7                         | 8.3                   | 2821              | 73                |
| 1 hour 30 minutes - 9:30                                                                    | 147.8                         | 8.1                   | 3218              | 66                |
| 1 hour 45 minutes - 9:45                                                                    | 153.2                         | 15.4                  | 3972              | 63.84             |
| 2 hours - 10:00                                                                             | 152.1                         | 4.8                   | 2276              | 43.64             |
| 2 hour 30 minutes - 10:30                                                                   | 148.9                         | 6.4                   | 3218              | 41.29             |
| 3 hours - 11:00                                                                             | 155.2                         | 8.1                   | 1546              | 30.46             |
| 3 hours 30 minutes - 11:30                                                                  | 167.8                         | 4.8                   | 3398              | 35.69             |
| 4 hours - 12:00                                                                             | 158.7                         | 6.2                   | 2816              | 20.89             |
| 4 hours 30 minutes - 12:30                                                                  | 148.9                         | 12.7                  | 1874              | 23.74             |
| 5 hours - 13:00                                                                             | 150.5                         | 9.2                   | 2618              | 18.93             |
| Average                                                                                     | 135.4                         | 13.0                  | 2371.9            | 122.4             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 4.91                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.93                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 4.90                       | 5.37                             |                                       |
| MW-10         | 11.49                              |                                              | 6.45                       | 5.04                             |                                       |
| MW-18         | 10.80                              |                                              | 5.90                       | 4.90                             |                                       |
| MW-19         | 11.85                              |                                              | 4.33                       | 7.52                             |                                       |
| MW-20         | 10.64                              |                                              | 4.14                       | 6.50                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - December 21, 2000**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                         | MW-2 & MW-3   |
|----------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                      | 5.00          |
| Average Temperature ( $^{\circ}\text{F}$ )                                                                                 | 135.4         |
| Average Relative Humidity (%)                                                                                              | 13.0          |
| Average Velocity (ft/min)                                                                                                  | 2372          |
| Average FID Reading (ppm)                                                                                                  | 122           |
| $B_{\text{WSW}}$ (lb. water/lb. dry air)                                                                                   | 0.0148        |
| $B_{\text{WS}}$ (water vapor % by volume)                                                                                  | 0.0232        |
| Stack Pipe Cross Sectional Area ( $\text{ft}^2$ )                                                                          | 0.087         |
| $T_{\text{S}}$ Stack Temperature ( $^{\circ}\text{R}$ )                                                                    | 595.4         |
| $Q_{\text{std}}$ (flow at DSCRM)                                                                                           | 179.4         |
| $\text{PPM}_{\text{W}}$ (wet concentration=measured concentration)                                                         | 122           |
| $\text{PPM}_{\text{d}}$ (dry concentration)                                                                                | 125           |
| $\text{PPM}_{\text{c}}$ ( $\text{PPM}_{\text{v}}$ , volumetric concentration of VOC emissions as carbon, dry basis at STP) | 125           |
| $C_{\text{cm}}$ ( $\text{mg/dsm}^3$ , mass concentration of VOC emissions as carbon)                                       | 63            |
| $C_{\text{c}}$ ( $\text{lb/dscf}$ , mass concentration of VOC emissions as carbon, dry basis, at STP)                      | 0.000004      |
| $\text{PMR}_{\text{c}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as carbon)                                  | 0.04          |
| $\text{PMR}_{\text{gas/diesel}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)       | 0.05          |
| $\text{PMR}_{\text{gas/diesel}}$ (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                   | 0.23          |
| $\text{PMR}_{\text{gas/diesel}}$ (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                  | 0.03          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                       | <b>0.03</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from December 21, 2000 AFVR Event</b>                              | <b>1.00</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from December 21, 2000 AFVR Event</b>                    | <b>1.03</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b>    | <b>172.23</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: January 18, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          |                         | 8:30       | 14:00     | 5.50             |
| MW-3                                          |                         | 8:30       | 14:00     | 5.50             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| Initial - 8:30                                                                              | 146.3            | 15.8                  | 5082              | 43.80             |
| 15 minutes - 8:45                                                                           | 122.0            | 18.4                  | 5318              | 32.83             |
| 30 minutes - 9:00                                                                           | 136.8            | 16.3                  | 5072              | 31.61             |
| 45 minutes - 9:15                                                                           | 137.2            | 12.6                  | 4817              | 30.90             |
| 1 hour - 9:30                                                                               | 173.0            | 4.5                   | 5677              | 25.18             |
| 1 hour 15 minutes - 9:45                                                                    | 156.4            | 4.1                   | 4829              | 47.93             |
| 1 hour 30 minutes - 10:00                                                                   | 163.7            | 5.3                   | 4711              | 46.12             |
| 1 hour 45 minutes - 10:15                                                                   | 155.3            | 5.8                   | 5573              | 32.36             |
| 2 hours - 10:30                                                                             | 156.3            | 5.2                   | 4817              | 31.18             |
| 2 hour 30 minutes - 11:00                                                                   | 163.4            | 6.2                   | 4634              | 29.41             |
| 3 hours - 11:30                                                                             | 163.6            | 8.7                   | 4023              | 37.86             |
| 3 hours 30 minutes - 12:00                                                                  | 174.6            | 6.2                   | 5704              | 39.74             |
| 4 hours - 12:30                                                                             | 180.2            | 4.9                   | 6028              | 47.93             |
| 4 hours 30 minutes - 13:00                                                                  | 168.8            | 17.8                  | 4982              | 41.64             |
| 5 hours - 13:30                                                                             | 177.6            | 3.7                   | 4708              | 49.05             |
| 5 hours 30 minutes - 14:00                                                                  | 162.9            | 3.6                   | 4893              | 48.78             |
| Average                                                                                     | 158.6            | 8.7                   | 5054.3            | 38.52             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 5.42                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.94                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.01                       | 5.26                             |                                       |
| MW-10         | 11.49                              |                                              | 7.43                       | 4.06                             |                                       |
| MW-18         | 10.80                              |                                              | 6.93                       | 3.87                             |                                       |
| MW-19         | 11.85                              |                                              | 4.78                       | 7.07                             |                                       |
| MW-20         | 10.64                              |                                              | 4.54                       | 6.10                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - January 18, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 5.50          |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 158.6         |
| Average Relative Humidity (%)                                                                                          | 8.7           |
| Average Velocity (ft/min)                                                                                              | 5054          |
| Average FID Reading (ppm)                                                                                              | 39            |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0159        |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0248        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 618.6         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 824.5         |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 39            |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 40            |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 40            |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 20            |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000001      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.06          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.07          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.36          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.06          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.06</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from January 18, 2001 AFVR Event</b>                           | <b>40.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from January 18, 2001 AFVR Event</b>                 | <b>40.06</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>212.29</b> |

**AFVR  
Building 45  
AFVR Event - March 1, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  |               |
| Average Temperature ( <sup>0</sup> F)                                                                                  |               |
| Average Relative Humidity (%)                                                                                          |               |
| Average Velocity (ft/min)                                                                                              |               |
| Average FID Reading (ppm)                                                                                              |               |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               |               |
| B <sub>WS</sub> (water vapor % by volume)                                                                              |               |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     |               |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     |               |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       |               |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            |               |
| PPM <sub>d</sub> (dry concentration)                                                                                   |               |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            |               |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  |               |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             |               |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                |               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     |               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      |               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     |               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   |               |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from March 1, 2001 AFVR Event</b>                              | <b>10.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from March 1, 2001 AFVR Event</b>                    | <b>10.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>222.29</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: March 29, 2001  
Diameter of Exhaust Pipe: 6 inches  
Vacuum at the Blower (in. of Hg): 24

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          |                         | 8:30       | 14:30     | 6.00             |
| MW-3                                          |                         | 8:30       | 14:30     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| Initial - 8:30                                                                              | 137.0            | 13.5                  | 7074              | 186.78            |
| 15 minutes - 8:45                                                                           | 167.1            | 8.6                   | 6980              | 33.81             |
| 30 minutes - 9:00                                                                           | 168.4            | 8.4                   | 7418              | 33.92             |
| 45 minutes - 9:15                                                                           | 173.2            | 8.6                   | 8861              | 32.18             |
| 1 hour - 9:30                                                                               | 174.4            | 8.7                   | 8917              | 31.74             |
| 1 hour 15 minutes - 9:45                                                                    | 169.2            | 8.2                   | 7416              | 20.31             |
| 1 hour 30 minutes - 10:00                                                                   | 168.6            | 7.9                   | 8013              | 18.21             |
| 1 hour 45 minutes - 10:15                                                                   | 167.4            | 7.4                   | 9418              | 21.36             |
| 2 hours - 10:30                                                                             | 172.1            | 9.4                   | 9862              | 16.49             |
| 2 hour 30 minutes - 11:00                                                                   | 178.2            | 6.8                   | 10201             | 17.65             |
| 3 hours - 11:30                                                                             | 168.4            | 7.6                   | 8928              | 17.69             |
| 3 hours 30 minutes - 12:00                                                                  | 115.7            | 9.7                   | 7926              | 16.30             |
| 4 hours - 12:30                                                                             | 163.6            | 8.6                   | 8188              | 11.82             |
| 4 hours 30 minutes - 13:00                                                                  | 164.8            | 6.3                   | 7981              | 10.11             |
| 5 hours - 13:30                                                                             | 162.4            | 5.4                   | 8001              | 9.69              |
| 5 hours 30 minutes - 14:00                                                                  | 173.2            | 5.6                   | 8745              | 17.36             |
| 6 hours - 14:30                                                                             | 168.8            | 7.2                   | 8641              | 16.91             |
| Average                                                                                     | 164.3            | 8.1                   | 8386.5            | 30.14             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 4.62                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.38                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 4.45                       | 5.82                             |                                       |
| MW-10         | 11.49                              |                                              | 6.05                       | 5.44                             |                                       |
| MW-18         | 10.80                              |                                              | 4.75                       | 6.05                             |                                       |
| MW-19         | 11.85                              |                                              | 4.05                       | 7.80                             |                                       |
| MW-20         | 10.64                              |                                              | 3.95                       | 6.69                             |                                       |

Notes:  
ft = feet  
toc = top of casing elevation  
msl = mean sea level

**AFVR  
Building 45  
AFVR Event - March 29, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 6.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 164.3         |
| Average Relative Humidity (%)                                                                                          | 8.1           |
| Average Velocity (ft/min)                                                                                              | 8387          |
| Average FID Reading (ppm)                                                                                              | 30            |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0185        |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0288        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 624.3         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 1350.2        |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 30            |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 31            |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 31            |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 15            |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000001      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.08          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.09          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.51          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.08          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.08</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from March 29, 2001 AFVR Event</b>                             | <b>0.00</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from March 29, 2001 AFVR Event</b>                   | <b>0.08</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>222.37</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: April 26, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          |                         | 8:00       | 12:00     | 4.00             |
| MW-3                                          |                         | 8:00       | 11:00     | 3.00             |
| PW-1                                          |                         | 8:00       | 9:00      | 1.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 120.6                         | 15.1                  | 5720              | 215               |
| 15 minutes - 8:15                                                                           | 148.5                         | 5.8                   | 5840              | 174               |
| 30 minutes - 8:30                                                                           | 136.2                         | 6.2                   | 6201              | 101               |
| 45 minutes - 8:45                                                                           | 138.2                         | 5.8                   | 5724              | 98.02             |
| 1 hour - 9:00                                                                               | 146.2                         | 4.2                   | 5414              | 64.86             |
| 1 hour 15 minutes - 9:15                                                                    | 146.0                         | 5.6                   | 5864              | 70.04             |
| 1 hour 30 minutes - 9:30                                                                    | 150.1                         | 4.4                   | 5624              | 98.64             |
| 1 hour 45 minutes - 9:45                                                                    | 142.8                         | 4.4                   | 6817              | 101               |
| 2 hours - 10:00                                                                             | 148.4                         | 4.8                   | 5721              | 112               |
| 2 hour 30 minutes - 10:30                                                                   | 142.8                         | 4.5                   | 5732              | 115               |
| 3 hours - 11:00                                                                             | 158.3                         | 3.4                   | 5630              | 124               |
| 3 hours 30 minutes - 11:30                                                                  | 143.8                         | 6.7                   | 5418              | 83                |
| 4 hours - 12:00                                                                             | 146.7                         | 5.4                   | 5600              | 62.98             |
| Average                                                                                     | 143.7                         | 5.9                   | 5792.7            | 109.20            |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 5.55                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.30                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.06                       | 5.21                             |                                       |
| MW-10         | 11.49                              |                                              | 7.30                       | 4.19                             |                                       |
| MW-18         | 10.80                              |                                              | 6.70                       | 4.10                             |                                       |
| MW-19         | 11.85                              |                                              | 4.98                       | 6.87                             |                                       |
| MW-20         | 10.64                              |                                              | 4.83                       | 5.81                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - April 26, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                      | MW-2, MW-3, & PW-1 |
|-------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                   | 4.00               |
| Average Temperature ( <sup>0</sup> F)                                                                                   | 143.7              |
| Average Relative Humidity (%)                                                                                           | 5.9                |
| Average Velocity (ft/min)                                                                                               | 5793               |
| Average FID Reading (ppm)                                                                                               | 109                |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                                | 0.0083             |
| B <sub>WS</sub> (water vapor % by volume)                                                                               | 0.0131             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                      | 0.196              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                      | 603.7              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                        | 980.0              |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                             | 109                |
| PPM <sub>d</sub> (dry concentration)                                                                                    | 111                |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)             | 111                |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                   | 55                 |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                              | 0.000003           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                 | 0.20               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                      | 0.22               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                       | 0.88               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.13               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                    | <b>0.13</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from April 26, 2001 AFVR Event</b>                              | <b>4.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from April 26, 2001 AFVR Event</b>                    | <b>4.13</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b> | <b>226.50</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: May 9, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 26

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 26                      | 8:00       | 14:00     | 6.00             |
| MW-3                                          | 25                      | 8:00       | 14:00     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 122.0            | 15.2                  | 8182              | 668               |
| 15 minutes - 8:15                                                                           | 144.4            | 6.8                   | 7842              | 865               |
| 30 minutes - 8:30                                                                           | 148.1            | 7.1                   | 8214              | 208               |
| 45 minutes - 8:45                                                                           | 171.3            | 4.8                   | 15000             | 155               |
| 1 hour - 9:00                                                                               | 176.1            | 4.3                   | 15000             | 131               |
| 1 hour 15 minutes - 9:15                                                                    |                  |                       | 15000             | 129               |
| 1 hour 30 minutes - 9:30                                                                    | 181.2            | 3.8                   | 15000             | 119               |
| 1 hour 45 minutes - 9:45                                                                    | 179.8            | 3.6                   | 15000             | 122               |
| 2 hours - 10:00                                                                             | 172.0            | 3.7                   | 14448             | 154               |
| 2 hour 30 minutes - 10:30                                                                   | 187.2            | 3.2                   | 14299             | 153               |
| 3 hours - 11:00                                                                             | 178.3            | 3.4                   | 15000             | 164               |
| 3 hours 30 minutes - 11:30                                                                  | 178.4            | 3.3                   | 15000             | 186               |
| 4 hours - 12:00                                                                             | 176.2            | 3.6                   | 15000             | 184               |
| 4 hour 30 minutes - 12:30                                                                   | 173.8            | 3.1                   | 15000             | 198               |
| 5 hours - 13:00                                                                             | 175.0            | 2.8                   | 15000             | 210               |
| 5 hours 30 minutes - 13:30                                                                  | 181.2            | 2.3                   | 13974             | 236               |
| 6 hours - 14:00                                                                             | 174.6            | 3.2                   | 15000             | 231               |
| Average                                                                                     | 170.0            | 4.6                   | 13644.6           | 241.9             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 7.28                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 18.50                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 6.18                       | 4.09                             |                                       |
| MW-10         | 11.49                              |                                              | 7.27                       | 4.22                             |                                       |
| MW-18         | 10.80                              |                                              | 7.36                       | 3.44                             |                                       |
| MW-19         | 11.85                              |                                              | 6.11                       | 5.74                             |                                       |
| MW-20         | 10.64                              |                                              | 5.86                       | 4.78                             |                                       |

**Notes:**

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - May 9, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3    |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 6.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 170.0         |
| Average Relative Humidity (%)                                                                                          | 4.6           |
| Average Velocity (ft/min)                                                                                              | 13645         |
| Average FID Reading (ppm)                                                                                              | 242           |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0120        |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0189        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 630.0         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 2199.1        |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 242           |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 247           |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 247           |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 123           |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000008      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 1.01          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 1.10          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 6.61          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 1.00          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>1.00</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from May 9, 2001 AFVR Event</b>                                | <b>27.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from May 9, 2001 AFVR Event</b>                      | <b>28.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>254.50</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: May 30, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 26

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 12                      | 8:00       | 11:00     | 3.00             |
| MW-3                                          | 12                      | 8:00       | 11:00     | 3.00             |
| PW-1                                          | 12                      | 8:00       | 11:00     | 3.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 119.5                         | 20.7                  | 9419              | 653               |
| 15 minutes - 8:15                                                                           | 142.0                         | 11.6                  | 9450              | 762               |
| 30 minutes - 8:30                                                                           | 171.2                         | 6.3                   | 10387             | 780               |
| 45 minutes - 8:45                                                                           | 184.4                         | 6.1                   | 11041             | 608               |
| 1 hour - 9:00                                                                               | 173.3                         | 6.2                   | 12075             | 483               |
| 1 hour 15 minutes - 9:15                                                                    | 167.8                         | 5.3                   | 11969             | 394               |
| 1 hour 30 minutes - 9:30                                                                    | 158.4                         | 8.2                   | 9257              | 378               |
| 1 hour 45 minutes - 9:45                                                                    | 173.5                         | 10.4                  | 9340              | 343               |
| 2 hours - 10:00                                                                             | 160.4                         | 6.7                   | 9064              | 310               |
| 2 hour 30 minutes - 10:30                                                                   | 168.8                         | 6.1                   | 7818              | 326               |
| 3 hours - 11:00                                                                             | 162.7                         | 6.8                   | 8893              | 354               |
| Average                                                                                     | 162.0                         | 8.6                   | 9883.0            | 490.1             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 7.70                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 18.60                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.81                       | 4.46                             |                                       |
| MW-10         | 11.49                              |                                              | 8.92                       | 2.57                             |                                       |
| MW-18         | 10.80                              |                                              | 7.98                       | 2.82                             |                                       |
| MW-19         | 11.85                              |                                              | 6.54                       | 5.31                             |                                       |
| MW-20         | 10.64                              |                                              | 6.31                       | 4.33                             |                                       |

**Notes:**

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - May 30, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                         | MW-2, MW-3, & PW-1 |
|----------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                      | 3.00               |
| Average Temperature ( $^{\circ}\text{F}$ )                                                                                 | 162.0              |
| Average Relative Humidity (%)                                                                                              | 8.6                |
| Average Velocity (ft/min)                                                                                                  | 9883               |
| Average FID Reading (ppm)                                                                                                  | 490                |
| $B_{\text{WSW}}$ (lb. water/lb. dry air)                                                                                   | 0.0193             |
| $B_{\text{WS}}$ (water vapor % by volume)                                                                                  | 0.0300             |
| Stack Pipe Cross Sectional Area ( $\text{ft}^2$ )                                                                          | 0.196              |
| $T_{\text{S}}$ Stack Temperature ( $^{\circ}\text{R}$ )                                                                    | 622.0              |
| $Q_{\text{std}}$ (flow at DSCRM)                                                                                           | 1595.0             |
| $\text{PPM}_{\text{W}}$ (wet concentration=measured concentration)                                                         | 490                |
| $\text{PPM}_{\text{d}}$ (dry concentration)                                                                                | 505                |
| $\text{PPM}_{\text{c}}$ ( $\text{PPM}_{\text{v}}$ , volumetric concentration of VOC emissions as carbon, dry basis at STP) | 505                |
| $C_{\text{cm}}$ ( $\text{mg/dsm}^3$ , mass concentration of VOC emissions as carbon)                                       | 252                |
| $C_{\text{c}}$ ( $\text{lb/dscf}$ , mass concentration of VOC emissions as carbon, dry basis, at STP)                      | 0.000016           |
| $\text{PMR}_{\text{c}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as carbon)                                  | 1.51               |
| $\text{PMR}_{\text{gas/diescl}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)       | 1.64               |
| $\text{PMR}_{\text{gas/diesel}}$ (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                   | 4.91               |
| $\text{PMR}_{\text{gas/diesel}}$ (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                  | 0.75               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                       | <b>0.75</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from May 9, 2001 AFVR Event</b>                                    | <b>25.00</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from May 9, 2001 AFVR Event</b>                          | <b>25.75</b>       |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b>    | <b>280.25</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: June 14, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 25

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 22                      | 8:00       | 14:00     | 6.00             |
| MW-3                                          | 22                      | 8:00       | 14:00     | 6.00             |
| PW-1                                          | 20                      | 8:00       | 9:00      | 1.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 126.8                         | 19.1                  | 8309              | 381               |
| 15 minutes - 8:15                                                                           | 160.2                         | 9.6                   | 9365              | 335               |
| 30 minutes - 8:30                                                                           | 163.6                         | 8.6                   | 13600             | 275               |
| 45 minutes - 8:45                                                                           | 175.3                         | 7.0                   | 13210             | 219               |
| 1 hour - 9:00                                                                               | 175.7                         | 6.5                   | 14404             | 191               |
| 1 hour 15 minutes - 9:15                                                                    | 178.6                         | 5.9                   | 14396             | 189               |
| 1 hour 30 minutes - 9:30                                                                    | 178.7                         | 6.1                   | 14817             | 186               |
| 1 hour 45 minutes - 9:45                                                                    | 175.1                         | 6.7                   | 13394             | 178               |
| 2 hours - 10:00                                                                             | 167.9                         | 6.8                   | 12289             | 173               |
| 2 hour 30 minutes - 10:30                                                                   | 171.0                         | 6.8                   | 13483             | 158               |
| 3 hours - 11:00                                                                             | 172.8                         | 6.8                   | 13892             | 162               |
| 3 hours 30 minutes - 11:30                                                                  | 184.7                         | 6.3                   | 13711             | 174               |
| 4 hours - 12:00                                                                             | 186.5                         | 8.6                   | 13804             | 173               |
| 4 hours 30 minutes - 12:30                                                                  | 178.8                         | 7.4                   | 14110             | 173               |
| 5 hours - 13:00                                                                             | 177.8                         | 6.5                   | 13097             | 180               |
| 5 hours 30 minutes - 13:30                                                                  | 178.5                         | 6.3                   | 14070             | 238               |
| 6 hours - 14:00                                                                             | 179.3                         | 6.3                   | 14268             | 202               |
| Average                                                                                     | 172.4                         | 7.7                   | 13189.4           | 211.0             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 7.03                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 18.65                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 5.85                       | 4.42                             |                                       |
| MW-10         | 11.49                              |                                              | 7.73                       | 3.76                             |                                       |
| MW-18         | 10.80                              |                                              | 7.60                       | 3.20                             |                                       |
| MW-19         | 11.85                              |                                              | 6.58                       | 5.27                             |                                       |
| MW-20         | 10.64                              |                                              | 6.00                       | 4.64                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - June 14, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2, MW-3, & PW-1 |
|------------------------------------------------------------------------------------------------------------------------|--------------------|
| Time Duration (hours)                                                                                                  | 6.00               |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 172.4              |
| Average Relative Humidity (%)                                                                                          | 7.7                |
| Average Velocity (ft/min)                                                                                              | 13189              |
| Average FID Reading (ppm)                                                                                              | 211                |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0215             |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0333             |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196              |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 632.4              |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 2086.5             |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 211                |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 218                |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 218                |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 109                |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000007           |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.85               |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.93               |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 5.55               |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.84               |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.84</b>        |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from June 14, 2001 AFVR Event</b>                              | <b>2.00</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from June 14, 2001 AFVR Event</b>                    | <b>2.84</b>        |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>283.09</b>      |

**AFVR  
Building 45  
Data Measurement Summary**

Date: June 26, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg):

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 25                      | 9:00       | 14:00     | 5.00             |
| MW-3                                          | 25                      | 9:00       | 14:00     | 5.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 9:00                                                                              | 128.0                         | 28.8                  | 4963              | 42.39             |
| 15 minutes - 9:15                                                                           | 166.1                         | 11.6                  | 7053              | 59.81             |
| 30 minutes - 9:30                                                                           | 174.3                         | 6.9                   | 9112              | 35.41             |
| 45 minutes - 9:45                                                                           | 171.4                         | 6.8                   | 13385             | 29.72             |
| 1 hour - 10:00                                                                              | 186.1                         | 6.3                   | 11998             | 29.13             |
| 1 hour 15 minutes - 10:15                                                                   | 189.4                         | 5.6                   | 15000             | 48.72             |
| 1 hour 30 minutes - 10:30                                                                   | 189.2                         | 5.5                   | 15000             | 81.97             |
| 1 hour 45 minutes - 10:45                                                                   | 182.4                         | 5.7                   | 15000             | 81.24             |
| 2 hours - 11:00                                                                             | 181.7                         | 5.8                   | 15000             | 82.01             |
| 2 hour 30 minutes - 11:30                                                                   | 189.6                         | 5.3                   | 14987             | 78.97             |
| 3 hours - 12:00                                                                             | 195.3                         | 4.9                   | 15000             | 83.44             |
| 3 hours 30 minutes - 12:30                                                                  | 191.7                         | 4.9                   | 15000             | 99.04             |
| 4 hours - 13:00                                                                             | 187.9                         | 4.8                   | 15000             | 95.78             |
| 4 hours 30 minutes - 13:30                                                                  | 202.1                         | 4.1                   | 14889             | 102               |
| 5 hours - 14:00                                                                             | 203.6                         | 2.9                   | 15000             | 101               |
| Average                                                                                     | 182.6                         | 7.3                   | 13092.5           | 70.0              |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 5.10                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 18.37                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 8.10                       | 2.17                             |                                       |
| MW-10         | 11.49                              |                                              | 4.54                       | 6.95                             |                                       |
| MW-18         | 10.80                              |                                              | 6.56                       | 4.24                             |                                       |
| MW-19         | 11.85                              |                                              | 5.31                       | 6.54                             |                                       |
| MW-20         | 10.64                              |                                              | 4.53                       | 6.11                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - June 26, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                      | MW-2 & MW-3   |
|-------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                   | 5.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                   | 182.6         |
| Average Relative Humidity (%)                                                                                           | 7.3           |
| Average Velocity (ft/min)                                                                                               | 13093         |
| Average FID Reading (ppm)                                                                                               | 70            |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                                | 0.0258        |
| B <sub>WS</sub> (water vapor % by volume)                                                                               | 0.0397        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                      | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                      | 642.6         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                        | 2024.8        |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                             | 70            |
| PPM <sub>d</sub> (dry concentration)                                                                                    | 73            |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)             | 73            |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                   | 36            |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                              | 0.000002      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                 | 0.28          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                      | 0.30          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                       | 1.50          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.23          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                    | <b>0.23</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from June 26, 2001 AFVR Event</b>                               | <b>36.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from June 26, 2001 AFVR Event</b>                     | <b>36.23</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b> | <b>319.32</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: July 23, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 25

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 25                      | 8:30       | 14:30     | 6.00             |
| MW-3                                          | 25                      | 8:30       | 14:30     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>0</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:30                                                                              | 107.8                         | 39.8                  | 15000             | 304               |
| 15 minutes - 8:45                                                                           | 141.5                         | 14.2                  | 8597              | 492               |
| 30 minutes - 9:00                                                                           | 174.6                         | 7.5                   | 11771             | 397               |
| 45 minutes - 9:15                                                                           | 173.5                         | 7.1                   | 15000             | 379               |
| 1 hour - 9:30                                                                               | 176.6                         | 6.9                   | 14897             | 344               |
| 1 hour 15 minutes - 9:45                                                                    | 183.4                         | 5.6                   | 15000             | 343               |
| 1 hour 30 minutes - 10:00                                                                   | 174.2                         | 7.0                   | 15000             | 323               |
| 1 hour 45 minutes - 10:15                                                                   | 192.8                         | 6.1                   | 15000             | 325               |
| 2 hours - 10:30                                                                             | 178.0                         | 6.3                   | 15000             | 312               |
| 2 hour 30 minutes - 11:00                                                                   | 183.2                         | 6.1                   | 15000             | 328               |
| 3 hours - 11:30                                                                             | 178.6                         | 5.9                   | 15000             | 338               |
| 3 hours 30 minutes - 12:00                                                                  | 178.6                         | 6.0                   | 15000             | 354               |
| 4 hours - 12:30                                                                             | 182.1                         | 5.7                   | 15000             | 357               |
| 4 hours 30 minutes - 13:00                                                                  | 158.8                         | 6.3                   | 13631             | 394               |
| 5 hours - 13:30                                                                             | 176.6                         | 7.3                   | 12382             | 361               |
| 5 hours 30 minutes - 14:00                                                                  | 169.9                         | 7.4                   | 11989             | 344               |
| 6 hours - 14:30                                                                             | 168.2                         | 7.5                   | 12428             | 358               |
| Average                                                                                     | 170.5                         | 9.0                   | 13864.4           | 356.1             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 7.05                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 17.30                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 6.29                       | 3.98                             |                                       |
| MW-10         | 11.49                              |                                              | 8.38                       | 3.11                             |                                       |
| MW-18         | 10.80                              |                                              | 7.65                       | 3.15                             |                                       |
| MW-19         | 11.85                              |                                              | 7.17                       | 4.68                             |                                       |
| MW-20         | 10.64                              |                                              | 6.50                       | 4.14                             |                                       |

**Notes:**

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - July 23, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 6.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 170.5         |
| Average Relative Humidity (%)                                                                                          | 9.0           |
| Average Velocity (ft/min)                                                                                              | 13864         |
| Average FID Reading (ppm)                                                                                              | 356           |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0242        |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0373        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 630.5         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 2190.7        |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 356           |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 370           |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 370           |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 185           |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000012      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 1.51          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 1.65          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 9.88          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 1.50          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>1.50</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from July 23, 2001 AFVR Event</b>                              | <b>2.00</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from July 23, 2001 AFVR Event</b>                    | <b>3.50</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>322.82</b> |

**AFVR  
Building 45  
AFVR Event - August 16, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 5.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                  |               |
| Average Relative Humidity (%)                                                                                          |               |
| Average Velocity (ft/min)                                                                                              |               |
| Average FID Reading (ppm)                                                                                              |               |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               |               |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0000        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 460.0         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 0.0           |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 0             |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 0             |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 0             |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 0             |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000000      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.00          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.00          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.00          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.00          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.00</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from August 16, 2001 AFVR Event</b>                            | <b>16.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from August 16, 2001 AFVR Event</b>                  | <b>16.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>338.82</b> |

**AFVR  
Building 45  
AFVR Event - August 29, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 5.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                  |               |
| Average Relative Humidity (%)                                                                                          |               |
| Average Velocity (ft/min)                                                                                              |               |
| Average FID Reading (ppm)                                                                                              |               |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               |               |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.0000        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 460.0         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 0.0           |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                            | 0             |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 0             |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 0             |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 0             |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000000      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 0.00          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 0.00          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 0.00          |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 0.00          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>0.00</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from August 29, 2001 AFVR Event</b>                            | <b>20.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from August 29, 2001 AFVR Event</b>                  | <b>20.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>358.82</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: October 3, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 27

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 22                      | 7:45       | 13:45     | 6.00             |
| MW-3                                          | 22                      | 7:45       | 13:45     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature (°F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|------------------|-----------------------|-------------------|-------------------|
| Initial - 7:45                                                                              | 98.7             | 38.0                  | 2870              | 109               |
| 15 minutes - 8:00                                                                           | 172.7            | 15.0                  | 6728              |                   |
| 30 minutes - 8:15                                                                           | 187.5            | 10.0                  | 6912              |                   |
| 45 minutes - 8:30                                                                           | 190.3            | 9.0                   | 6345              |                   |
| 1 hour - 8:45                                                                               | 198.3            | 9.0                   | 7209              |                   |
| 1 hour 15 minutes - 9:00                                                                    | 198.1            | 9.0                   | 7016              |                   |
| 1 hour 30 minutes - 9:15                                                                    | 200.2            | 11.0                  | 6492              |                   |
| 1 hour 45 minutes - 9:30                                                                    | 185.3            | 11.0                  | 6401              |                   |
| 2 hours - 9:45                                                                              | 186.4            | 10.0                  | 6708              |                   |
| 2 hour 30 minutes - 10:15                                                                   | 196.0            | 6.0                   | 11195             |                   |
| 3 hours - 10:45                                                                             | 198.0            | 7.0                   | 9692              |                   |
| 3 hours 30 minutes - 11:15                                                                  | 213.7            | 10.0                  | 10872             | 404               |
| 4 hours - 11:45                                                                             | 198.7            | 7.0                   | 11237             | 421               |
| 4 hours 30 minutes - 12:15                                                                  | 194.8            | 4.0                   | 11525             | 451               |
| 5 hours - 12:45                                                                             | 195.4            | 5.0                   | 11771             | 460               |
| 5 hours 30 minutes - 13:15                                                                  | 196.1            | 5.0                   | 11404             | 458               |
| 6 hours - 13:45                                                                             | 193.9            | 6.0                   | 11774             | 479               |
| Average                                                                                     | 188.5            | 10.1                  | 8597.1            | 397.4             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 8.04                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 19.11                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 7.45                       | 2.82                             |                                       |
| MW-10         | 11.49                              |                                              | 9.65                       | 1.84                             |                                       |
| MW-18         | 10.80                              |                                              | 9.22                       | 1.58                             |                                       |
| MW-19         | 11.85                              |                                              | 8.31                       | 3.54                             |                                       |
| MW-20         | 10.64                              |                                              | 7.56                       | 3.08                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - October 3, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                         | MW-2 & MW-3   |
|----------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                      | 6.00          |
| Average Temperature ( $^{\circ}\text{F}$ )                                                                                 | 188.5         |
| Average Relative Humidity (%)                                                                                              | 10.1          |
| Average Velocity (ft/min)                                                                                                  | 8597          |
| Average FID Reading (ppm)                                                                                                  | 397           |
| $B_{\text{WSW}}$ (lb. water/lb. dry air)                                                                                   | 0.0400        |
| $B_{\text{WS}}$ (water vapor % by volume)                                                                                  | 0.0602        |
| Stack Pipe Cross Sectional Area ( $\text{ft}^2$ )                                                                          | 0.196         |
| $T_{\text{S}}$ Stack Temperature ( $^{\circ}\text{R}$ )                                                                    | 648.5         |
| $Q_{\text{std}}$ (flow at DSCRM)                                                                                           | 1289.3        |
| $\text{PPM}_{\text{W}}$ (wet concentration=measured concentration)                                                         | 397           |
| $\text{PPM}_{\text{d}}$ (dry concentration)                                                                                | 423           |
| $\text{PPM}_{\text{c}}$ ( $\text{PPM}_{\text{v}}$ , volumetric concentration of VOC emissions as carbon, dry basis at STP) | 423           |
| $C_{\text{cm}}$ ( $\text{mg/dsm}^3$ , mass concentration of VOC emissions as carbon)                                       | 211           |
| $C_{\text{c}}$ ( $\text{lb/dscf}$ , mass concentration of VOC emissions as carbon, dry basis, at STP)                      | 0.000013      |
| $\text{PMR}_{\text{c}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as carbon)                                  | 1.02          |
| $\text{PMR}_{\text{gas/diesel}}$ ( $\text{lb/hr}$ , pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)       | 1.11          |
| $\text{PMR}_{\text{gas/diesel}}$ (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                   | 6.65          |
| $\text{PMR}_{\text{gas/diesel}}$ (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                  | 1.01          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                       | <b>1.01</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from October 3, 2001 AFVR Event</b>                                | <b>20.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from October 3, 2001 AFVR Event</b>                      | <b>21.01</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b>    | <b>379.83</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: October 30, 2001  
Diameter of Exhaust Pipe: 6 inches  
Vacuum at the Blower (in. of Hg): 24

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 24                      | 8:45       | 14:45     | 6.00             |
| MW-3                                          | 22                      | 8:45       | 14:45     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>o</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:45                                                                              | 131.5                         | 14.0                  | 5358              | 198               |
| 15 minutes - 9:00                                                                           | 171.3                         | 8.0                   | 7404              | 529               |
| 30 minutes - 9:15                                                                           | 184.8                         | 7.0                   | 8519              | 593               |
| 45 minutes - 9:30                                                                           | 191.8                         | 6.0                   | 8514              | 591               |
| 1 hour - 9:45                                                                               | 199.2                         | 6.0                   | 8225              | 617               |
| 1 hour 15 minutes - 10:00                                                                   | 201.1                         | 5.0                   | 8619              | 610               |
| 1 hour 30 minutes - 10:15                                                                   | 208.2                         | 5.0                   | 8802              | 615               |
| 1 hour 45 minutes - 10:30                                                                   | 210.3                         | 5.0                   | 8405              | 636               |
| 2 hours - 10:45                                                                             | 211.2                         | 4.0                   | 8301              | 658               |
| 2 hour 30 minutes - 11:15                                                                   | 213.8                         | 4.0                   | 9116              | 669               |
| 3 hours - 11:45                                                                             | 216.4                         | 4.0                   | 8708              | 670               |
| 3 hours 30 minutes - 12:15                                                                  | 216.8                         | 5.0                   | 9312              | 712               |
| 4 hours - 12:45                                                                             | 214.1                         | 3.0                   | 9917              | 701               |
| 4 hours 30 minutes - 13:15                                                                  | 211.2                         | 4.0                   | 9224              | 708               |
| 5 hours - 13:45                                                                             | 209.4                         | 5.0                   | 9455              | 686               |
| 5 hours 30 minutes - 14:15                                                                  | 209.1                         | 5.0                   | 9107              | 674               |
| 6 hours - 14:45                                                                             | 206.0                         | 3.0                   | 8524              | 675               |
| Average                                                                                     | 200.4                         | 5.5                   | 8559.4            | 620.1             |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 8.59                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 19.17                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 8.11                       | 2.16                             |                                       |
| MW-10         | 11.49                              |                                              | 10.47                      | 1.02                             |                                       |
| MW-18         | 10.80                              |                                              | 9.91                       | 0.89                             |                                       |
| MW-19         | 11.85                              |                                              | 8.96                       | 2.89                             |                                       |
| MW-20         | 10.64                              |                                              | 8.25                       | 2.39                             |                                       |

Notes:  
ft = feet  
toc = top of casing elevation  
msl = mean sea level

**AFVR  
Building 45  
AFVR Event - October 30, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                      | MW-2 & MW-3   |
|-------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                   | 6.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                   | 200.4         |
| Average Relative Humidity (%)                                                                                           | 5.5           |
| Average Velocity (ft/min)                                                                                               | 8559          |
| Average FID Reading (ppm)                                                                                               | 620           |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                                | 0.0275        |
| B <sub>WS</sub> (water vapor % by volume)                                                                               | 0.0422        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                      | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                      | 660.4         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                        | 1284.7        |
| PPM <sub>w</sub> (wet concentration=measured concentration)                                                             | 620           |
| PPM <sub>d</sub> (dry concentration)                                                                                    | 647           |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)             | 647           |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                   | 323           |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                              | 0.000020      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                 | 1.55          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                      | 1.69          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                       | 10.14         |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 1.54          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                    | <b>1.54</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from October 30, 2001 AFVR Event</b>                            | <b>38.00</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from October 30, 2001 AFVR Event</b>                  | <b>39.54</b>  |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b> | <b>419.37</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: November 27, 2001

Diameter of Exhaust Pipe: 6 inches

Vacuum at the Blower (in. of Hg): 20

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 12                      | 8:00       | 14:00     | 6.00             |
| MW-3                                          | 12                      | 8:00       | 14:00     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>o</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:00                                                                              | 134.9                         | 34                    | 5332              | 1328              |
| 15 minutes - 8:15                                                                           | 158.1                         | 36                    | 7051              | 404               |
| 30 minutes - 8:30                                                                           | 166.8                         | 30                    | 8893              | 455               |
| 45 minutes - 8:45                                                                           | 190.7                         | 27                    | 10153             | 481               |
| 1 hour - 9:00                                                                               | 184.9                         | 23                    | 8897              | 526               |
| 1 hour 15 minutes - 9:15                                                                    | 192.5                         | 10                    | 10232             | 550               |
| 1 hour 30 minutes - 9:30                                                                    | 189.7                         | 15                    | 9411              | 543               |
| 1 hour 45 minutes - 9:45                                                                    | 187.8                         | 18                    | 11408             | 576               |
| 2 hours - 10:00                                                                             | 220.0                         | 11                    | 10464             | 562               |
| 2 hour 30 minutes - 10:30                                                                   | 187.8                         | 13                    | 11809             | 592               |
| 3 hours - 11:00                                                                             | 219.0                         | 16                    | 11191             | 625               |
| 3 hours 30 minutes - 11:30                                                                  | 221.0                         | 14                    | 11401             | 625               |
| 4 hours - 12:00                                                                             | 228.7                         | 13                    | 11726             | 633               |
| 4 hours 30 minutes - 12:30                                                                  | 227.1                         | 11                    | 11133             | 623               |
| 5 hours - 13:00                                                                             | 188.4                         | 14                    | 7933              | 583               |
| 5 hours 30 minutes - 13:30                                                                  | 184.0                         | 12                    | 8519              | 574               |
| 6 hours - 14:00                                                                             | 187.6                         | 13                    | 8803              | 560               |
| Average                                                                                     | 192.3                         | 18                    | 9668              | 602               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 9.21                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | 19.30                      |                                  |                                       |
| MW-8          | 10.27                              |                                              | 8.60                       | 1.67                             |                                       |
| MW-10         | 11.49                              |                                              | 11.15                      | 0.34                             |                                       |
| MW-18         | 10.80                              |                                              | 10.53                      | 0.27                             |                                       |
| MW-19         | 11.85                              |                                              | 9.50                       | 2.35                             |                                       |
| MW-20         | 10.64                              |                                              | 8.81                       | 1.83                             |                                       |

Notes:

ft = feet

toc = top of casing elevation

msl = mean sea level

**AFVR  
Building 45  
AFVR Event - November 27, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                     | MW-2 & MW-3   |
|------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                  | 6.00          |
| Average Temperature ( <sup>0</sup> F)                                                                                  | 192.3         |
| Average Relative Humidity (%)                                                                                          | 18.0          |
| Average Velocity (ft/min)                                                                                              | 9668          |
| Average FID Reading (ppm)                                                                                              | 602           |
| B <sub>WSW</sub> (lb. water/lb. dry air)                                                                               | 0.0900        |
| B <sub>WS</sub> (water vapor % by volume)                                                                              | 0.1260        |
| Stack Pipe Cross Sectional Area (ft <sup>2</sup> )                                                                     | 0.196         |
| T <sub>S</sub> Stack Temperature ( <sup>0</sup> R)                                                                     | 652.3         |
| Q <sub>std</sub> (flow at DSCRM)                                                                                       | 1340.5        |
| PPM <sub>W</sub> (wet concentration=measured concentration)                                                            | 602           |
| PPM <sub>d</sub> (dry concentration)                                                                                   | 689           |
| PPM <sub>c</sub> (PPM <sub>v</sub> , volumetric concentration of VOC emissions as carbon, dry basis at STP)            | 689           |
| C <sub>cm</sub> (mg/dsm <sup>3</sup> , mass concentration of VOC emissions as carbon)                                  | 344           |
| C <sub>c</sub> (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                             | 0.000021      |
| PMR <sub>c</sub> (lb/hr, pollutant mass removal rate of VOCs as carbon)                                                | 1.73          |
| PMR <sub>gas/diesel</sub> (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                     | 1.88          |
| PMR <sub>gas/diesel</sub> (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                      | 11.26         |
| PMR <sub>gas/diesel</sub> (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                     | 1.71          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                   | <b>1.71</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from November 27, 2001 AFVR Event</b>                          | <b>4.00</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from November 27, 2001 AFVR Event</b>                | <b>5.71</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activites April 9, 1999</b> | <b>425.08</b> |

**AFVR  
Building 45  
Data Measurement Summary**

Date: December 13, 2001  
Diameter of Exhaust Pipe: 6 inches  
Vacuum at the Blower (in. of Hg): 22

| Vacuum Applied to Recovery/Monitoring Well(s) | Well Vacuum (in. of Hg) | Start Time | Stop Time | Duration (hours) |
|-----------------------------------------------|-------------------------|------------|-----------|------------------|
| MW-2                                          | 20                      | 8:30       | 14:30     | 6.00             |
| MW-3                                          | 22                      | 8:30       | 14:30     | 6.00             |

| Time Duration And Actual Time Since Start of Vacuum Applied to Recovery/Monitoring Well(s): | Temperature ( <sup>o</sup> F) | Relative Humidity (%) | Velocity (ft/min) | FID Reading (ppm) |
|---------------------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------------|-------------------|
| Initial - 8:30                                                                              | 136.2                         | 18                    | 5832              | 235               |
| 15 minutes - 8:45                                                                           | 172.5                         | 11                    | 7905              | 385               |
| 30 minutes - 9:00                                                                           | 188.4                         | 7                     | 8771              | 462               |
| 45 minutes - 9:15                                                                           | 197.2                         | 8                     | 8938              | 463               |
| 1 hour - 9:30                                                                               | 207.8                         | 8                     | 9423              | 529               |
| 1 hour 15 minutes - 9:45                                                                    | 207.6                         | 7                     | 9985              | 557               |
| 1 hour 30 minutes - 10:00                                                                   | 205.8                         | 7                     | 9741              | 541               |
| 1 hour 45 minutes - 10:15                                                                   | 205.5                         | 6                     | 9532              | 538               |
| 2 hours - 10:30                                                                             | 209.6                         | 7                     | 9655              | 567               |
| 2 hour 30 minutes - 11:00                                                                   | 210.7                         | 7                     | 9409              | 579               |
| 3 hours - 11:30                                                                             | 217.9                         | 7                     | 10240             | 581               |
| 3 hours 30 minutes - 12:00                                                                  | 188.0                         | 9                     | 8917              | 579               |
| 4 hours - 12:30                                                                             | 187.1                         | 10                    | 8784              | 573               |
| 4 hours 30 minutes - 13:00                                                                  | 194.8                         | 7                     | 9156              | 571               |
| 5 hours - 13:30                                                                             | 193.6                         | 8                     | 8713              | 565               |
| 5 hours 30 minutes - 14:00                                                                  | 196.6                         | 9                     | 9269              | 549               |
| 6 hours - 14:30                                                                             | 196.4                         | 9                     | 9118              | 563               |
| Average                                                                                     | 195.0                         | 9                     | 9023              | 520               |

| Recovery Well | Top of Casing Elevation (ft., msl) | Depth to Hydrocarbon Product (ft. below toc) | Depth to Groundwater (ft.) | Groundwater Elevation (ft., msl) | Well Vacuum (in. of H <sub>2</sub> O) |
|---------------|------------------------------------|----------------------------------------------|----------------------------|----------------------------------|---------------------------------------|
| PW-1          |                                    |                                              | 9.38                       |                                  |                                       |
| MW-6          | 10.71                              |                                              | Not Measured               |                                  |                                       |
| MW-8          | 10.27                              |                                              | Not Measured               |                                  |                                       |
| MW-10         | 11.49                              |                                              | 11.37                      | 0.12                             |                                       |
| MW-18         | 10.80                              |                                              | 10.67                      | 0.13                             |                                       |
| MW-19         | 11.85                              |                                              | 9.64                       | 2.21                             |                                       |
| MW-20         | 10.64                              |                                              | 8.98                       | 1.66                             |                                       |

Notes:  
ft = feet  
toc = top of casing elevation  
msl = mean sea level

**AFVR  
Building 45  
AFVR Event - December 13, 2001**

| AFVR Event - Vacuum Applied to Recovery and Monitoring Wells/Calculated Parameters                                         | MW-2 & MW-3   |
|----------------------------------------------------------------------------------------------------------------------------|---------------|
| Time Duration (hours)                                                                                                      | 6.00          |
| Average Temperature ( $^{\circ}\text{F}$ )                                                                                 | 195.0         |
| Average Relative Humidity (%)                                                                                              | 9.0           |
| Average Velocity (ft/min)                                                                                                  | 9023          |
| Average FID Reading (ppm)                                                                                                  | 520           |
| $B_{\text{WSW}}$ (lb. water/lb. dry air)                                                                                   | 0.0429        |
| $B_{\text{WS}}$ (water vapor % by volume)                                                                                  | 0.0643        |
| Stack Pipe Cross Sectional Area ( $\text{ft}^2$ )                                                                          | 0.196         |
| $T_{\text{S}}$ Stack Temperature ( $^{\circ}\text{R}$ )                                                                    | 655.0         |
| $Q_{\text{std}}$ (flow at DSCRM)                                                                                           | 1333.9        |
| $\text{PPM}_{\text{W}}$ (wet concentration=measured concentration)                                                         | 520           |
| $\text{PPM}_{\text{d}}$ (dry concentration)                                                                                | 556           |
| $\text{PPM}_{\text{c}}$ ( $\text{PPM}_{\text{v}}$ , volumetric concentration of VOC emissions as carbon, dry basis at STP) | 556           |
| $C_{\text{cm}}$ ( $\text{mg/dsm}^3$ , mass concentration of VOC emissions as carbon)                                       | 277           |
| $C_{\text{c}}$ (lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP)                                 | 0.000017      |
| $\text{PMR}_{\text{c}}$ (lb/hr, pollutant mass removal rate of VOCs as carbon)                                             | 1.39          |
| $\text{PMR}_{\text{gas/diesel}}$ (lb/hr, pollutant mass removal rate of VOCs as Gasoline and Diesel Fuel)                  | 1.51          |
| $\text{PMR}_{\text{gas/diesel}}$ (lbs, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                   | 9.04          |
| $\text{PMR}_{\text{gas/diesel}}$ (gals, total pollutant mass removal of VOCs as Gasoline and Diesel Fuel)                  | 1.37          |
| <b>Total Gallons of Pollutant Volume Removal of VOCs as Gasoline and Diesel Fuel</b>                                       | <b>1.37</b>   |
| <b>Gallons of LNAPL Removed as Gasoline and Diesel Fuel from December 13, 2001 AFVR Event</b>                              | <b>0.00</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel from December 13, 2001 AFVR Event</b>                    | <b>1.37</b>   |
| <b>Total Gallons of Pollutant Removed as Gasoline and Diesel Fuel Since Initiation of AFVR Activities April 9, 1999</b>    | <b>426.45</b> |

## **APPENDIX B**

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### **GROUNDWATER MONITORING WELLS – LABORATORY ANALYTICAL REPORTS**