832 0

File: 541.460.000n
M.D.

THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 832

SEMI-ANNUAL SUMMARY REPORT
YEAR SIX FIRST HALF

Dunn Field Interim Remedial Action
Defense Depot Memphis, Tennessee

October 2004

Defense Logistics Agency
Defense Depot Memphis, Tennessee

Contract No. F41624-03-D-8606
Task Order No. 0029

MACTEC

MACTEC Engineering and Consulting, Inc.

Air Force Center for Environmental Excellence

MACTEC

October 29, 2004

Mr. Jesse Perez
311th HSW/PKV
3300 Sidney Brooks
Brooks City Base, TX 78235-5112

Subject: **Semi-Annual Summary Report Y6S1**
Dunn Field Interim Remedial Action
Defense Depot Memphis, Tennessee
Contract No. F41624-03-D-8606, Task Order 0029
MACTEC Project No. 6301-03-0015

Dear Mr. Perez:

MACTEC Engineering and Consulting, Inc. (MACTEC) is pleased to submit this Semi-Annual Summary Report for the Interim Remedial Action at Dunn Field of the Defense Depot Memphis Tennessee (DDMT). This report summarizes the operations and maintenance activities along with the field sampling performed between January 1, 2004 and June 30, 2004.

We appreciate the opportunity to assist you on this important project. If you have any questions regarding this submittal, please do not hesitate to call us at 770-421-3400.

Sincerely,

MACTEC Engineering and Consulting, Inc.

Thomas C. Holmes
Project Manager

James M. DeLano By SMB with permission
James M. DeLano
Principal Engineer

MACTEC Engineering and Consulting, Inc.
3200 Town Point Drive NW, Suite 100 • Kennesaw, GA 30144
770-421-3400 • Fax: 770-421-3486

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1-1
1.1 SITE DESCRIPTION AND BACKGROUND 1-1
1.2 HYDROGEOLOGY 1-2
1.3 GROUNDWATER CONTAMINATION 1-3
1.4 SYSTEM DESCRIPTION 1-4
1.5 SCOPE OF WORK 1-5

2.0 FIELD ACTIVITIES 2-1
2.1 ROUTINE MAINTENANCE AND MONTHLY REPORTS 2-1
2.2 WATER LEVEL MEASUREMENTS 2-2
2.3 SAMPLING AND ANALYSIS 2-2
2.3.1 Groundwater Sampling 2-2
2.3.2 Effluent Samples 2-3
2.3.3 Quality Assurance/Quality Control Samples 2-3

3.0 SUMMARY OF FINDINGS 3-1
3.1 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT 3-1
3.2 ANALYTICAL RESULTS 3-1
3.2.1 Monitoring Wells 3-2
3.2.2 Recovery Wells 3-3
3.2.3 Effluent Sample Analytical Summary 3-5

LIST OF TABLES

Table

1 Summary of Field Activities – Dunn Field
2 Summary of Recovery Well Data – Dunn Field
3 Summary of Groundwater Elevations
4 Monitoring Wells Sampled
5 Positive Summary Table – Groundwater
6 Positive Summary Table – Recovery Wells
7 Maximum Concentration and Variation with Depth
8 Positive Summary Table – Effluent Samples

LIST OF FIGURES

Figure

1 Monitoring Well and Recovery Well Locations
2 Groundwater Elevation Map, April 2004
3 VOC Concentrations, North Monitoring Wells
4 VOC Concentrations, South Monitoring Wells
5 VOC Concentrations, Recovery Wells

LIST OF APPENDICES

Appendix A System Layout and Operation and Maintenance Monthly Reports
Appendix B Industrial Wastewater Discharge Agreement Permit No. S-NN3.0097
Appendix C Results of Laboratory Analyses
Appendix D Quality Control and Data Quality Evaluation
Appendix E Pressure Transducer Data for Selected Monitoring Wells

1.0 INTRODUCTION

MACTEC Engineering and Consulting has prepared this Semi-Annual Summary Report for the Dunn Field Groundwater Interim Remedial Action (IRA) under Contract F41624-03-D-8606, Task Order 29 to the Air Force Center for Environmental Excellence (AFCEE). This report summarizes the activities and findings of the Year Six, First Half (Y6S1) monitoring program for the Dunn Field IRA at the former Defense Distribution Depot Memphis, Tennessee (DDMT). The report covers the period of January 1, 2004 to June 30, 2004 and includes monthly operational reports and the analytical results for effluent samples collected from the groundwater recovery system and for groundwater samples collected from monitoring wells and recovery wells. Limited interpretations of the results are presented in this report; a more complete discussion will be presented in the annual report to be submitted in January 2005.

1.1 SITE DESCRIPTION AND BACKGROUND

The Memphis Depot (formerly known as the Defense Distribution Depot Memphis, Tennessee and also referred to in this report as the DDMT) originated as a military facility in the early 1940s. The DDMT received, warehoused, and distributed supplies common to all U.S. military services and some civil agencies located primarily in the southeastern United States, Puerto Rico, and Panama. In 1995, the DDMT was placed on the list of the Department of Defense (DoD) facilities to be closed under Base Realignment and Closure (BRAC). Storage and distribution of materiel for all U.S. military services and some civil agencies continued until the facility closed in September 1997.

The DDMT is in southeastern Memphis, Shelby County, Tennessee approximately 5 miles east of the Mississippi River and just northeast of Interstate 240. The property consists of approximately 642 acres and includes two components: the Main Installation (MI), which contains approximately 578 acres with open storage areas, warehouses, military family housing, and outdoor recreational areas, and Dunn Field, which contains approximately 64 acres and includes former mineral storage and waste disposal areas.

Dunn Field is located across Dunn Avenue from the north-northwest portion of the MI. Dunn Field is bounded by the Illinois Central Gulf Railroad and Person Avenue to the north, Hays Road to the east, and Dunn Avenue to the south. Dunn Field is partially bounded to the west by: (1) Kyle Street; (2) a Memphis Light Gas and Water (MLGW) powerline corridor (which bisects Dunn Field); (3) undeveloped

property; and (4) a light industrial/warehouse facility. Dunn Field was divided into three separate areas for purposes of previous investigations: Northeast Open Area; Disposal Area; and Stockpile Area.

1.2 HYDROGEOLOGY

The four uppermost stratigraphic units underlying Dunn Field are (in descending order):

- Loess, including surface soil;
- Fluvial deposits;
- Jackson Formation/Upper Claiborne Group (the Jackson [if present], Cockfield, and Cook Mountain Formations); and
- Memphis Sand

Loess. The Quaternary-aged loess consists of brown to reddish brown low-plasticity clayey silt (ML) or low plasticity silty clay (CL) and is continuous throughout the entire Dunn Field area. The loess deposits average about 20 to 30 feet thick.

Fluvial Deposits. The Quaternary- and possibly Pliocene-aged fluvial (terrace) deposits are composed of two generalized layers identified throughout the Dunn Field area. The upper layer is a silty, sandy clay that transitions to a clayey sand and ranges from about 10 feet to 36 feet thick. The second unit is composed of layers of sand, sandy gravel, and gravelly sand, has an average thickness of approximately 40 feet at Dunn Field and along the eastern and western boundaries.

Jackson Formation/Upper Claiborne Group. The late Eocene-aged Jackson Formation/Upper Claiborne Group consists primarily of clays, silts and sands. The upper clay unit appears to be continuous underneath Dunn Field except at the southwestern boundary of Dunn Field. Offsite there are gaps in the clay to the west and northwest of Dunn Field. These gaps provide connections for groundwater flow from the fluvial deposits.

Memphis Sand. The Early to Middle Eocene-aged Memphis Sand is composed primarily of thick-bedded, white to brown or gray, very fine grained to gravely, partly argillaceous and micaceous sand. The Memphis Sand ranges from 500 to 890 feet thick and is at a depth of 120 to 300 feet bgs in the Memphis area. MW-67 is the only monitoring well completed in the Memphis Sand at the Memphis Depot; the top of the Memphis Sand was reached at a depth of 255 feet bgs (elevation of 21 feet msl).

There are three aquifers underlying Dunn Field which correspond to the geologic units described previously.

Fluvial Aquifer. The uppermost aquifer at Dunn Field is the unconfined fluvial aquifer, consisting of saturated sands and gravelly sands in the lower portion of the fluvial deposits. Recharge to this unit is primarily from the infiltration of rainfall, and discharge from the fluvial aquifer is generally directed toward underlying units in hydraulic communication with the fluvial deposits, or laterally into adjacent stream channels. Saturated thickness of the fluvial aquifer ranges between 10 and 20 feet at Dunn Field and is controlled by the configuration of the uppermost clay in the Jackson Formation/Upper Claiborne Group. Water level elevations range from approximately 203 feet msl to 245 feet msl.

Intermediate Aquifer. The intermediate aquifer underlying the Memphis Depot is locally developed in deposits of the Jackson Formation/Upper Claiborne Group, which also contain laterally extensive, thick deposits of clay. Away from areas of recharge from the fluvial aquifer, water level elevations in the intermediate aquifer range from approximately 161 feet msl to 189 feet msl, with a general westward flow.

Memphis Aquifer. The Memphis aquifer contains groundwater under strong artesian (confined) conditions and is a regionally significant source of potable water in the Memphis area. The Memphis aquifer is confined by overlying clays and silts in the Cook Mountain Formation (part of the Jackson/Upper Claiborne Group). This aquifer receives most of its recharge from an outcrop area several miles east of Memphis. Some recharge is derived from overlying or hydraulically communicating units. Locally, extensive pumping has lowered water levels considerably. The top of the Memphis aquifer potentiometric surface at MW-67 is approximately 160 feet msl.

1.3 GROUNDWATER CONTAMINATION

Several VOCs have been detected in the fluvial aquifer during past sampling events at Dunn Field; these include 1,1,1,2-tetrachloroethane (PCA), carbon tetrachloride (CCl4), 1,1,2-trichloethane (TCA), chloroform, tetrachloroethene (PCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE), and trichloroethene (TCE). There appear to be three major VOC plumes underlying Dunn Field: a northern plume, a west-northwest plume, and west-southwest plume, with much mixing and intermingling of the plumes due to the active groundwater extraction system and natural groundwater flow.

The plume along the northern boundary of the site appears to be composed of PCE, TCE and 1,1-DCE. There appears to be an off-site source of these contaminants north to northeast of Dunn Field. The west-northwest plume appears to be a mixture of PCE, TCE, cDCE, PCA, TCA, CCl4, and chloroform. The west-southwest plume is a mixture of several different contaminants and the source of these plumes appears to be located at the southern end of the Disposal Area of Dunn Field. This plume is principally composed of PCA, CC14, TCA, and chloroform, but there are also portions of the plume where TCE, PCE, and cDCE are also present.

The nature and extent of VOCs in groundwater have been impacted by the groundwater extraction system at Dunn Field to some extent. PCE, TCE, and PCA concentrations in offsite monitoring wells near the northwest corner of the extraction system have dropped by factors of 7 to 10 from pre-extraction concentrations. However, relatively high concentrations of TCE and 1, 1, 2, 2-PCA have been detected in wells installed downgradient of the west-central part of Dunn Field. These higher concentrations in downgradient monitoring wells indicate a significant portion of the west-northwest plume is beyond the influence of the extraction system capture zone.

1.4 SYSTEM DESCRIPTION

The IRA ROD for groundwater at Dunn Field was signed in April 1996 with the objectives of hydraulic containment to: (1) prevent further contaminant plume migration; and (2) reduce contaminant mass in groundwater. The final design for Phase 1 of this groundwater extraction system was completed in August 1997, and included the installation of seven ground water extraction wells (RW-3 through RW-9), one pre-cast concrete building, an underground conveyance system, flow measurement and control systems. The system was constructed from January 1998 through October 1998 and began operation in November 1998.

The Phase II design was completed in January 2000 included four additional extraction wells and associated electrical, mechanical and instrumentation/controls components. The system was updated due to detection of groundwater contamination in the southern portion of the Disposal Area and the northwest portion of the Stockpile Area. Installation of new recovery wells (RW-1, RW-1A, RW-1B and RW-2) south of recovery well RW-03 began in late 1999. The other components were constructed from September 2000 through February 2001 and the expanded system was in full operation in June 2001. A figure showing the system layout is included in Appendix A.

The Five Year Review for Dunn Field (CH2M Hill, 2003), concluded that, while over 300 pounds of VOCs have been removed from groundwater by the IRA from 1998 to 2002, the extraction system does not provide adequate control over groundwater flow and contaminant migration in the fluvial aquifer has continued beyond the western perimeter of Dunn Field.

1.5 SCOPE OF WORK

MACTEC initiated operations and maintenance activities for the IRA on January 1, 2004. These activities include routine maintenance of the groundwater extraction system; collection of quarterly effluent samples; collection of quarterly water levels in monitoring and recovery wells; and collection of semi-annual groundwater samples from monitoring and recovery wells. Table 1 lists the monitoring wells at which either water levels or groundwater samples are collected. The operational condition of the IRA is checked during bi-weekly visits with required maintenance performed at that time or during additional visits as required. The following sections present a description of maintenance activities, water level collection, and the groundwater sampling and analysis requirements.

Monthly reports are provided to Baldwin Engineering, the City of Memphis, Tennessee Department of Environment and Conservation (TDEC) and United States Environmental Protection Agency Region IV (EPA). These monthly reports document data collection activities, system operational notes, alarm summaries, maintenance summaries, planned activities for the following month, effluent discharge data, recovery well percent run time and contaminant mass removal. The recovery and monitoring wells used for water level measurements and for groundwater sampling are shown on Figure 1.

2.0 FIELD ACTIVITIES

2.1 ROUTINE MAINTENANCE AND MONTHLY REPORTS

MACTEC initiated operations and maintenance (O&M) activities for the Dunn Field IRA on January 1, 2004. O&M activities have generally included; data collection (water level measurements, flow measurements and analytical data), microcontroller repair, pump replacement, flow meter replacement and an electronic system calibration. A summary of the recovery well operational times and cumulative flows are presented on Table 2. Copies of the monthly reports are included in Appendix A. It should be noted that the system was shut-down June 22 to June 25, 2004 for an evaluation of water levels under non-pumping conditions. The following presents a general discussion of the maintenance performed between January 1, 2004 and June 30, 2004.

Pump Replacement

RW- 4 (March 16, 2004)
RW-8 (March 25, 2004)

Flow Meter Replacement

RW-1, RW-5 and RW-5 (June 23-24, 2004)

Microcontroller Repair/Replacement

RW-4 repaired (January 29, 2004)
RW-4 replaced (March 25, 2004)

Electronic System Calibration

As part of the annual system calibration, the flow meters and pressure transducers were evaluated by comparing the actual voltage input and output with the manufacturer's specifications. This was performed by Allied Electrical Contractors under subcontract to MACTEC. The initial assessment indicated the equipment was operating within the specified parameters. However, the pressure transducer in RW-1 was noted as having excessive drift during the temporary system shutdown in June 2004. Further evaluation is currently being performed and the results and recommendations will be included in the annual report.

2.2 WATER LEVEL MEASUREMENTS

Water level measurements were collected from 88 monitoring and recovery wells on January 6-7, 2004 and April 6 -7, 2004. Table 3 presents a summary of the water levels collected during those events. Water levels are measured in the recovery wells during the bi-weekly visits. Pressure transducers located in the eleven recovery wells and six monitoring wells (MW-04, MW-13, MW-45, MW-55, MW-84, and MW-95) collect water levels on a 30-minute cycle, and are downloaded quarterly. The transducer was removed from MW-95 on April 7, 2004 during the sampling event and replaced on August 4, 2004.

2.3 SAMPLING AND ANALYSIS

The procedures for field sampling and laboratory analysis at DDMT are fully described in the Remedial Action Sampling and Analysis Plan (RA SAP) (MACTEC, 2004). The complete analytical results with data quality evaluation flags are provided in the data summary tables in Appendix C. Field and laboratory quality control and data quality evaluation are summarized in Appendix D.

2.3.1 Groundwater Sampling

A total of 86 groundwater samples were collected from 36 wells in April, 2004 using passive diffusion bag samplers (PDB) in general accordance with the *User's Guide for Polyethylene-Based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells*, Water Resources Investigation Report 01-4060, U.S. Geological Survey, 2001. The samples were collected by filling the PDBs with de-ionized water and placing each PDB at the pre-selected depth interval within a well. One PDB was installed for approximately each five feet of saturated screen interval. PDB sample intervals for each monitoring wells are shown on Table 4.

The PDBs were placed in the wells on April 6 and 7, 2004 and retrieved on April 28 and 29, 2004. Upon removal from the monitoring well, a sample of water from each PDB was transferred to 40 milliliter (ml) vials preserved with hydrochloric acid. The sample vials were sent to Severn Trent Laboratories (STL) for analysis of volatile organic compounds (VOCs) by U.S. EPA Method SW8260B.

Groundwater samples were collected from all the recovery wells on May 4, 2004, except RW8 which was sampled on May 12, 2004 following electrical repairs to the pump. The samples were collected from a sample port at the well head. The valve was slowly opened and the extracted groundwater was allowed to

slowly fill 40 milliliter vials preserved with hydrochloric acid. The sample vials were sent to Severn Trent Laboratories (STL) for analysis of VOCs by U.S. EPA method SW8260B.

2.3.2 Effluent Samples

Groundwater pumped from the recovery is continuously discharged to the City of Memphis Sewer System under Industrial Wastewater Discharge Agreement S-NN3-097, which expires on April 30, 2008. A copy of the agreement is included as Appendix B. The agreement requires that effluent samples be collected on a semi-annual basis and analyzed for VOCs, semi-volatile organic compounds (SVOCs) and metals. In order to support the evaluation of system operations, two additional effluent samples are collected quarterly and analyzed for VOCs only. The effluent samples are collected at a sample port approximately 200 feet upstream from the final discharge point, at a manhole located on Person Avenue on the north property line of the Depot. The valve on the sample port was slowly opened and the extracted groundwater was allowed to slowly fill 40-milliliter vials preserved with hydrochloric acid. An effluent sample was collected on February 21, 2004 and sent to Severn Trent Laboratories (STL) for analysis of VOCs by U.S. EPA Method SW8260B. An effluent sample was collected on May 24, 2004 and sent to Severn Trent Laboratories (STL) for analysis of VOCs by U.S. EPA Method SW8260B, SVOCs by U.S. EPA method SW8270C, and metals by U.S. EPA method SW6010B.

2.3.3 Quality Assurance/Quality Control Samples

Field and laboratory quality control (QC) samples were collected during each sampling event. Although groundwater was the only matrix analyzed, samples were collected from three different sources: monitoring wells, recovery wells, and effluent discharge.

QC samples collected in the field during this semi-annual sampling event included duplicates, temperature blanks, and trip blanks. The trip blank and temperature blank were included in coolers delivered from the laboratory. One duplicate was collected for approximately every ten samples, and one matrix/spike and matrix spike duplicate (MS/MSD) were collected for every 20 samples. Laboratory QA/QC included surrogate spikes, method blanks laboratory control samples, and MS/MSD samples.

Samples and associated QC samples were placed in a cooler with bagged ice immediately following collection. Stored samples were checked periodically and ice was replaced as needed to maintain a 4

degree Celsius temperature. Samples were segregated in sealed plastic bubble-wrap bags and chain-of-custody forms were included in the cooler prior to shipping. Samples were typically delivered to FedEx the same day of collection and shipped overnight to the laboratory.

3.0 SUMMARY OF FINDINGS

The following sections present the results of data gathered from field work conducted from January to June, 2004. The discussions include results of water level measurements and analytical results for groundwater samples collected from the monitoring wells, recovery wells and the effluent discharge point.

3.1 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT

Water level measurements collected on January 6-7 and April 6-7, 2004 are listed on Table 3. Groundwater contours are shown for the April 2004 water level measurements on Figure 2. The groundwater flow direction is to the west. The calculated hydraulic gradient varied from 0.008 ft/ft in the northern portion of Dunn Field to 0.010 ft/ft across the southernmost portion of Dunn Field during the January and April measurements. Monitoring well pairs used to calculate hydraulic gradient included; MW-128 and MW-127, MW-130 and MW-80 and PZ-02 and MW-42 for the northern portion of Dunn Field and MW-53 and MW-19, MW-84 and MW-19 and MW-49 and MW-19for the southern portion of Dunn Field. The radius of influence for the recovery well system appears to have little discernable influence on water levels in nearby monitoring wells.

Time trend graphs presenting water level data collected from the pressure transducers in monitoring wells (MW04, MW13, MW45, MW55, MW85, and MW95) are presented in Appendix E.

3.2 ANALYTICAL RESULTS

The discussion of groundwater analytical results for both monitoring wells and recovery wells is based on the nine persistent VOCs detected in groundwater at Dunn Field: carbon tetrachloride, chloroform, 1,1-dichloroethene, trans1,2-dichlorothene, cis1,2-dichloroethene, 1,1,2,2-tetrachloroethane, tetrachloroethene, 1,1,2-trichloroethane, and trichloroethene. The analytical results were compared to the Maximum Contaminant Level (MCL) or, if an MCL was not available, to U.S. EPA Region IX Preliminary Remediation Goals (PRG) shown on Table 5 for monitoring wells and on Table 6 for recovery wells. The analytical results for these nine VOCs are presented on Figures 3 and 4 for monitoring wells and on Figure 5 for recovery wells. The complete analytical results are provided in Appendix C.

3.2.1 Monitoring Wells

A total of 86 groundwater samples were collected from 36 monitoring wells at the site. A positive result summary for the groundwater samples collected from monitoring wells is provided in Table 5. The analytical results for the nine persistent VOCs at each monitoring well samples are also shown on Figures 3 and 4.

VOCs detected above the reporting limits in the PDB samples from monitoring wells are shown on Table 7. The VOCs detected at the highest concentrations were 1,1,2,2-PCA and TCE; both were detected at concentrations above 1000 µg/L in three wells, MW 54, MW 70 and MW77. TCE was detected above reporting limits in the most wells (17). Other VOCs detected frequently were: PCE (11 wells), 1,1-DCE (11 wells), chloroform (8 wells), and 1,1,2,2-PCA (7 wells). Carbon tetrachloride and 1,1,1-TCA were detected above reporting limits in 4 wells, 1,1,1,-DCA in 3 wells, CIS-1,2-DCE in 2 wells, and chlorobenzene and toluene in 1 well each. Review of the results for wells with multiple PDB sample intervals indicates there is little stratification of VOCs in the aquifer, except at MW 128 and to a lesser extent at MW 71.

The following discussion compares the detections of the major constituents of concern for Dunn Field.

Carbon tetrachloride was detected in nine monitoring wells (MW-7, MW-9, MW-31, MW-32, MW-34, MW-44, MW-57, MW-68, and MW-71) at concentrations ranging from 0.18J µg/L to 33 µg/L. The detected concentrations of carbon tetrachloride exceeded the MCL of 5 µg/L in three wells (MW-32, MW-57, and MW-71).

Chloroform was detected in fourteen monitoring wells (MW-7, MW-9, MW-31, MW-32, MW-34, MW-40, MW-44, MW-56, MW-57, MW-58, MW-68, MW-71, MW-76, and MW-79) at concentrations ranging from 0.21 µg/L to 56 µg/L. The detected concentrations of chloroform did not exceed the MCL of 80 µg/L.

1,1-Dichloroethene was detected in ten monitoring wells (MW-7, MW-8, MW-29, MW-31, MW-51, MW-68, MW-79, MW-128, MW-129, and MW-130) at concentrations ranging from 1.3 µg/L to 57 µg/L. The detected concentrations of 1,1-Dichloroethene concentrations exceeded the MCL of 7 µg/L in seven wells (MW-7, MW-29, MW-31, MW-51, MW-79, MW-129, and MW-130).

trans-1,2-Dichloroethene was detected in seven monitoring wells (MW-31, MW-32, MW-54, MW-57, MW-76, MW-78, and MW-79) at concentrations ranging from 0.36J µg/L to 54 µg/L. The detected concentrations of trans-1,2-Dichloroethene did not exceed the MCL of 100 µg/L.

cis-1,2-Dichloroethene was detected in ten monitoring wells (MW-29, MW-31, MW-32, MW-44, MW-54, MW-70, MW-71, MW-76, MW-77, and MW-129) at concentrations ranging from 0.27J µg/L to 170J µg/L. The detected concentrations of cis-1,2-Dichloroethene exceeded the MCL of 70 µg/L in two wells (MW-70 and MW-77).

1,1,2,2-Tetrachloroethane was detected in seven monitoring wells (MW-32, MW-54, MW-70, MW-71, MW-76, MW-77, and MW-78) at concentrations ranging from 3.1 µg/L to 15,000 µg/L. The detected concentrations of 1,1,2,2-tetrachloroethane exceeded the PRG of 0.055µg/L in all of the wells.

Tetrachloroethene was detected in fourteen monitoring wells (MW-7, MW-8, MW-29, MW-31, MW-32, MW-51, MW-57, MW-68, MW-69, MW-71, MW-79, MW-128, MW-129, and MW-130) at concentrations ranging from 0.15J µg/L to 120 µg/L. The detected concentrations of tetrachloroethene exceeded the MCL of 5 µg/L in four wells (MW-7, MW-128, MW-129, and MW-130).

1,1,2-Trichloroethane was not detected in any of the monitoring wells.

Trichloroethene was detected in twenty-four monitoring wells (MW-7, MW-8, MW-9, MW-29, MW-31, MW-32, MW-34, MW-44, MW-51, MW-54, MW-56,MW-57, MW-58, MW-68, MW-69, MW-70, MW-71, MW-76, MW-77, MW-78, MW-79, MW-128, MW-129, and MW-130) at concentrations ranging from 0.25 to 5400 µg/L. The detected concentrations of trichloroethene exceeded the MCL of 5 µg/L in sixteen wells (MW-7, MW-29, MW-31, MW-32, MW-51, MW-54, MW-56, MW-57, MW-70, MW-71, MW-76, MW-77, MW-79, MW-1289, MW-129, and MW-130).

3.2.2 Recovery Wells

Groundwater samples were collected from the 11 recovery wells at the site. The analytical results are presented on Figure 5. Table 6 presents a positive results summary for the samples collected from recovery wells.

Carbon tetrachloride was detected in six recovery wells (RW-1, RW-1A, RW-1B, RW-2, RW-3, and RW-9) at concentrations ranging from 0.8J µg/L to 24 µg/L. The detected concentrations of carbon tetrachloride exceeded the MCL of 5 µg/L in all of the wells except RW-9.

Chloroform was detected in all eleven recovery wells at concentrations ranging from 1.2 J µg/L to 580 µg/L. The detected concentrations of chloroform exceeded the MCL of 80 µg/L in well RW-1A.

1,1-Dichloroethene was detected in two recovery wells (RW-8 and RW-9) at concentrations of 8.8J µg/L and 31 µg/L respectively. The detected concentrations of 1,1-dichloroethene exceeded the MCL of 7 µg/L in both wells.

trans-1,2-Dichloroethene was detected in all of the recovery wells at concentrations ranging from 2J µg/L to 28 µg/L. The detected concentrations of trans-1,2-dichloroethene did not exceed the MCL of 100 µg/L.

cis-1,2-Dichloroethene was detected in all of the recovery wells with the exception of RW-1 at concentrations ranging from 6.6J µg/L to 160 µg/L. The detected concentrations of cis-1,2-dichloroethene exceeded the MCL of 70 µg/L only in recovery well RW-8.

1,1,2,2-Tetrachloroethane was detected eight in recovery wells (RW-1A, RW-1B, RW-2, RW-4, RW-5, RW-7, RW-8, and RW-9) at concentrations ranging from 1.4J µg/L to 350 µg/L. All detected concentrations of 1,1,2,2-tetrachloroethane exceeded the PRG of 0.055 µg/L.

Tetrachloroethene was detected in all of the recovery wells at concentrations ranging from 1.1J µg/L to 35 µg/L. The detected concentrations of tetrachloroethene exceeded the MCL of 5 µg/L in eight recovery wells (RW-1, RW-1A, RW-4, RW-5, RW-6, RW-7, RW-8, and RW-9).

1,1,2-Trichloroethane was detected in recovery well RW-2 at a concentration of 1.9 µg/L. The detected concentration of 1,1,2-Trichloroethane did not exceed the MCL of 5 µg/L.

Trichloroethene was detected in all of the recovery wells at concentrations ranging from 36 to 820 µg/L. The detected concentrations of trichloroethene exceeded the MCL of 5 µg/L in all recovery wells.

3.2.3 Effluent Sample Analytical Summary

Effluent discharge sample were collected in February and May 2004. The analytical results are presented on Table 8. None of the detections exceeded the permit limits.

TABLES

TABLE 1

Summary of Field Activities - Dunn Field
Semi-Annual Sampling Event
Defense Distribution Center (Memphis)
Memphis, Tennessee

Well ID	Water Level Collected	Groundwater Samples Collected
MW-02	X	
MW-03	X	
MW-04**	X	
MW-05	X	
MW-06	X	
MW-07	X	X
MW-08	X	X
MW-09	X	X
MW-10	X	
MW-11	X	
MW-12	X	
MW-13**	X	
MW-14	X	
MW-15	X	
MW-18	X	
MW-19	X	
MW-27	X	
MW-28	X	
MW-29	X	X
MW-30	X	X
MW-31	X	X
MW-32	X	X
MW-33	X	X
MW-34	X	X
MW-35	X	
MW-36	X	X
MW-37	X	X
MW-38	X	
MW-40	X	X
MW-41	X	
MW-42	X	X
MW-43	X	X
MW-44	X	X
MW-45**	X	
MW-46	X	
MW-51	X	X
MW-53	X	
MW-54	X	X
MW-55**	X	
MW-56	X	X
MW-57	X	X
MW-58	X	X
MW-59	X	
MW-60	X	

TABLE 1

Summary of Field Activities - Dunn Field
Semi-Annual Sampling Event
Defense Distribution Center (Memphis)
Memphis, Tennessee

Well ID	Water Level Collected	Groundwater Samples Collected
MW-61	X	
MW-62	X	
MW-63	X	
MW-65	X	
MW-67	X	X
MW-68	X	X
MW-69	X	X
MW-70	X	X
MW-71	X	X
MW-73	X	
MW-74	X	
MW-75	X	
MW-76	X	X
MW-77	X	X
MW-78	X	X
MW-79	X	X
MW-80	X	X
MW-84**	X	
MW-87	X	
MW-89	X	
MW-90	X	
MW-91	X	
MW-95**	X	X
MW-126	X	X
MW-127	X	X
MW-128	X	X
MW-129	X	X
MW-130	X	X
MW-131	X	
MW-132	X	
MW-133	X	
MW-134	X	
MW-135	X	
MW-144	X	
MW-145	X	
MW-147	X	
MW-148	X	
MW-149	X	
MW-150	X	
PZ-02	X	
RW-01	X	X
RW-01A	X	X
RW-01B	X	X
RW-02	X	X

TABLE 1

Summary of Field Activities - Dunn Field
Semi-Annual Sampling Event
Defense Distribution Center (Memphis)
Memphis, Tennessee

Well ID	Water Level Collected	Groundwater Samples Collected
RW-03	X	X
RW-04	X	X
RW-05	X	X
RW-06	X	X
RW-07	X	X
RW-08	X	X
RW-09	X	X

Notes:
** - Indicates a pressure transducer
is installed in the monitoring well.

CHECKED/DATE: GFB 9/30/04
REVIEWED/DATE: JMD 10/1/04

TABLE 2

Summary of Recovery Well Data - Dunn Field
Semi-Annual Sampling Event
Defense Distribution Center (Memphis)
Memphis, Tennessee

Recovery Well ID	Monthly Operational Percent Run Time						
	January	February	March	April	May	June	Average
RW-1	100	100	100	100	65	89	92
RW-1A	100	100	100	100	100	89	98
RW-1B	100	100	100	100	100	89	98
RW-2	100	100	100	100	100	89	98
RW-3	100	100	100	100	100	89	98
RW-4	6	38	51.6	100	100	89	64
RW-5	100	100	58.1	100	100	89	91
RW-6	100	100	100	100	100	89	98
RW-7	100	100	100	100	100	89	98
RW-8	100	97	71	65	65	64	77
RW-9	100	100	100	100	100	89	98
Recovery Well ID	**Monthly Flow (Gallons)**						
	January	**February**	**March**	**April**	**May**	**June**	**Total**
RW-1	4464	41760	44640	44640	26784	38016	200304
RW-1A	160704	149041	165168	191952	187488	162720	1017073
RW-1B	66960	58464	66960	71424	71424	60912	396144
RW-2	98208	87696	93744	89280	93744	79056	541728
RW-3	89280	4176	4464	4464	4464	9279	116127
RW-4	1339	15827	53568	133920	142848	135360	482862
RW-5	147312	133632	84816	142848	142848	122400	773856
RW-6	392832	331783	370512	361584	437472	401184	2295367
RW-7	410688	384192	415152	419616	415152	353520	2398320
RW-8	620496	560461	455328	325872	272304	384192	2618653
RW-9	647280	601344	647280	424080	660672	566352	3547008

Notes:

1) RW-4 was not operational on January 1, 2004.
2) The entire system was shut down between June 22 and 25, 2004 for an evaluation of water levels under non-pumping conditions.

CHECKED/DATE: GFB 9/30/04
REVIEWED/DATE: JMD 10/1/04

TABLE 3

Summary of Groundwater Elevations
Dunn Field Interim Action
Defense Distribution Center (Memphis)
Memphis, Tennessee

Well ID	Screened Interval	Top of Casing Elevation (ft. MSL)	1/6-7/04		4/6-7/04	
			Depth to Water (ft. BTOC)	Water Level Elevation (ft. MSL)	Depth to Water (ft. BTOC)	Water Level Elevation (ft. MSL)
MW-02	Fluvial	292.04	NM	NM	NM	NM
MW-03	Fluvial	292.35	68.55	223.8	68.31	224.04
MW-04	Fluvial	301.61	74.84	226.77	74.66	226.95
MW-05	Fluvial	304.64	Dry	Dry	Dry	Dry
MW-06	Fluvial	289.11	64.32	224.79	63.97	225.14
MW-07	Fluvial	295.10	66.26	228.84	66.00	229.10
MW-08	Fluvial	292.59	61.69	230.9	61.31	231.28
MW-09	Fluvial	304.32	75.6	228.72	75.52	228.8
MW-10	Fluvial	288.79	63.39	225.40	63.22	225.57
MW-11	Fluvial	299.47	75.27	224.2	75.08	224.39
MW-12	Fluvial	301.30	76.68	224.62	76.51	224.79
MW-13	Fluvial	300.01	73.13	226.88	72.96	227.05
MW-14	Fluvial	302.22	74.6	227.62	73.99	228.23
MW-15	Fluvial	295.12	70.08	225.04	69.62	225.5
MW-18	Intermediate	308.04	132.27	175.77	130.54	177.50
MW-19	Fluvial	290.57	87.17	203.4	86.65	203.92
MW-27	Fluvial	303.98	88.32	215.66	88.41	215.57
MW-28	Fluvial	294.79	58.49	236.3	57.92	236.87
MW-29	Fluvial	273.22	38.12	235.1	37.42	235.80
MW-30	Fluvial	275.14	46.34	228.80	45.95	229.19
MW-31	Fluvial	290.37	69.71	220.66	69.60	220.77
MW-32	Fluvial	285.38	63.41	221.97	63.37	222.01
MW-33	Fluvial	280.71	56.10	224.61	55.81	224.90
MW-34	Intermediate	299.97	135.52	164.45	133.65	166.32
MW-35	Fluvial	300.46	75.81	224.65	75.63	224.83
MW-36	Intermediate	310.24	148.12	162.12	148.87	161.37
MW-37	Intermediate	284.91	123.49	161.42	123.77	161.14
MW-38	Intermediate	307.45	131.64	175.81	129.49	177.96
MW-40	Intermediate	262.23	NM	NM	79.42	182.81
MW-41	Abandoned					
MW-42	Fluvial	274.83	54.32	220.51	53.67	221.16
MW-43	Intermediate	284.99	123.37	161.62	122.44	162.55
MW-44	Fluvial	269.07	NM	NM	53.9	215.17
MW-45	Fluvial	293.22	54.47	238.75	57.75	235.47
MW-46	Fluvial	287.56	53.12	234.44	52.73	234.83
MW-49	Fluvial	310.49	78.39	232.1	78.08	232.41
MW-51	Fluvial	275.23	39.99	235.24	39.28	235.95
MW-53	Fluvial	306.38	73.17	233.21	72.53	233.85
MW-54	Fluvial	295.35	79.76	215.59	79.54	215.81
MW-55	Fluvial	292.08	70.60	221.48	70.8	221.28
MW-56	Fluvial	293.60	67.72	225.88	67.11	226.49
MW-57	Fluvial	290.77	64.03	226.74	63.35	227.42

TABLE 3

Summary of Groundwater Elevations
Dunn Field Interim Action
Defense Distribution Center (Memphis)
Memphis, Tennessee

Well ID	Screened Interval	Top of Casing Elevation (ft. MSL)	1/6-7/04		4/6-7/04	
			Depth to Water (ft. BTOC)	Water Level Elevation (ft. MSL)	Depth to Water (ft. BTOC)	Water Level Elevation (ft. MSL)
MW-58	Fluvial	290.51	63.69	226.82	63.18	227.33
MW-59	Fluvial	300.13	74.39	225.74	74.09	226.04
MW-60	Fluvial	296.86	70.71	226.15	70.47	226.39
MW-61	Fluvial	294.04	67.14	226.90	66.91	227.13
MW-62	Fluvial	293.65	NM	NM	NM	NM
MW-63	Abandoned					
MW-65	Fluvial	263.22	6.01	257.21	NM	NM
MW-67	Memphis	278.21	N M	NM	116.84	161.37
MW-68	Fluvial	291.69	68.11	223.58	68	223.69
MW-69	Fluvial	307.02	83.24	223.78	83.02	224
MW-70	Fluvial	304.99	80.60	224.39	80.7	224.29
MW-71	Fluvial	294.40	70.30	224.10	70.19	224.21
MW-73	Fluvial	300.65	75.25	225.40	75.12	225.53
MW-74	Fluvial	303.68	79.09	224.59	78.95	224.73
MW-75	Fluvial	303.61	79.22	224.39	79.10	224.51
MW-76	Fluvial	302.71	83.73	218.98	83.58	219.13
MW-77	Fluvial	304.42	81.74	222.68	81.72	222.70
MW-78	Fluvial	275.00	47.72	227.28	47.51	227.49
MW-79	Fluvial	285.03	70.56	214.47	70.36	214.67
MW-80	Fluvial	273.81	59.21	214.60	58.85	214.96
MW-84	Fluvial	311.15	81.80	229.35	81.64	229.51
MW-87	Fluvial	294.93	70.45	224.48	70.12	224.81
MW-89	Intermediate	303.98	115.51	188.47	113.99	189.99
MW-90	Intermediate	304.19	115.79	188.40	114.21	189.98
MW-91	Fluvial	291.99	67.68	224.31	67.33	224.66
MW-95	Fluvial	259.43	27.78	231.65	25.60	233.83
MW-126	Fluvial	252.22	17.38	234.84	15.26	236.96
MW-127	Fluvial	268.71	58.42	210.29	58.07	210.64
MW-128	Fluvial	284.14	39.80	244.34	37.49	246.65
MW-129	Fluvial	293.01	55.11	237.90	54.25	238.76
MW-130	Fluvial	293.20	54.26	238.94	53.49	239.71
MW-131	Fluvial	300.64	NM	NM	NM	NM
MW-132	Fluvial	300.73	NM	NM	NM	NM
MW-133	Fluvial	300.89	NM	NM	NM	NM
MW-134	Fluvial	300.81	NM	NM	NM	NM
MW-135	Fluvial	300.53	NM	NM	NM	NM
PZ-02	Fluvial	284.39	39.63	244.76	36.70	247.69
RW-01	Fluvial	295.71	75.91	219.80	69.00	226.71
RW-01A	Fluvial	295.42	73.65	221.77	73.36	222.06
RW-01B	Fluvial	289.17	68.15	221.02	68.18	220.99
RW-02	Fluvial	289.92	69.71	220.21	71.25	218.67
RW-03	Fluvial	299.34	75.84	223.50	74.82	224.52

TABLE 3

Summary of Groundwater Elevations
Dunn Field Interim Action
Defense Distribution Center (Memphis)
Memphis, Tennessee

Well ID	Screened Interval	Top of Casing Elevation (ft. MSL)	1/6-7/04		4/6-7/04	
			Depth to Water (ft. BTOC)	Water Level Elevation (ft. MSL)	Depth to Water (ft. BTOC)	Water Level Elevation (ft. MSL)
RW-04	Fluvial	305.11	80.34	224.77	81.40	223.71
RW-05	Fluvial	307.13	87.70	219.43	86.75	220.38
RW-06	Fluvial	304.56	83.63	220.93	83.66	220.90
RW-07	Fluvial	297.44	75.70	221.74	75.50	221.94
RW-08	Fluvial	292.99	74.38	218.61	74.35	218.64
RW-09	Fluvial	290.67	66.48	224.19	70.91	219.76

NOTES:

NM = Not Measured
NA = Not Applicable

PREPARED/DATE: AMC 11/01/04
CHECKED/DATE: JLP 11/01/04

TABLE 4

Monitoring Wells Sampled
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

Monitoring Well ID	Date Sampled	Measured Well Depth (ft bls)	Depth to Water (feet from TOC)	Sample Depth Interval - 1 (feet below TOC)	Sample Depth Interval - 2 (feet below TOC)	Sample Depth Interval - 3 (feet below TOC)	Sample Depth Interval - 4 (fetl below TOC)
MW07	4/28/2004	73.45	66.00	66.9-68.9	70.5-72.5	NI	NI
MW08	4/28/2004	67.4	61.31	65-67	NI	NI	NI
MW09	4/28/2004	79.5	75.52	76.5-78.5	NI	NI	NI
MW29	4/28/2004	53.6	37.42	40.7-42.7	45.7-47.7	50.7-52.7	NI
MW30	4/29/2004	60.0	45.95	46.5-48.5	51.5-53.5	56.5-58.5	NI
MW31	4/29/2004	81.0	69.6	72.2-74.2	77.5-79.5	NI	NI
MW32	4/29/2004	67.8	63.37	64.5-66.5	NI	NI	NI
MW33	4/29/2004	63.2	55.81	56-58	59.5-61.5	NI	NI
MW34	4/28/2004	155.8	133.65	138-140	142-144	147-149	152-154
MW36	4/28/2004	206.2	148.87	192.9-194.9	197.9-199.9	202.9-204.9	NI
MW37	4/29/2004	184.0	123.77	170.5-172.5	175.5-177.5	180.5-182.5	NI
MW40	4/29/2004	95.4	79.42	87.9-89.9	91.9-93.9	NI	NI
MW42	4/29/2004	58.3	53.67	54.4-56.4	NI	NI	NI
MW43	4/29/2004	171.5	122.44	163-165	168-170	NI	NI
MW44	4/29/2004	72.8	53.90	64-66	69-71	NI	NI
MW51	4/29/2004	66.6	39.28	58-60	63-65	NI	NI
MW54	4/29/2004	94.4	79.54	85.6-87.6	90.6-92.6	NI	NI
MW56	4/28/2004	69.4	67.11	67.2-69.2	NI	NI	NI
MW57	4/29/2004	70.4	63.35	64.5-65.5	67-69	NI	NI
MW58	4/28/2004	67.7	63.18	64.5-66.5	NI	NI	NI
MW67	4/29/2004	275.0	116.84	261-263	266-268	271-273	NI
MW68	4/29/2004	81.6	68.00	69-71	73-75	78-80	NI
MW69	4/29/2004	94.9	83.02	86-88	91-93	NI	NI
MW70	4/29/2004	94.4	80.70	85.8-87.8	90.8-92.8	NI	NI
MW71	4/29/2004	77.9	70.19	71-73	74.4-76.4	NI	NI
MW76	4/29/2004	94.8	83.58	86-88	91-93	NI	NI
MW77	4/29/2004	89.1	81.72	82-84	85.6-87.6	NI	NI
MW78	4/29/2004	65.3	47.51	47-49	52-54	57-59	62-64

832 27

TABLE 4

Monitoring Wells Sampled
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

Monitoring Well ID	Date Sampled	Measured Well Depth (ft bls)	Depth to Water (feet from TOC)	Sample Depth Interval - 1 (feet below TOC)	Sample Depth Interval - 2 (feet below TOC)	Sample Depth Interval - 3 (feet below TOC)	Sample Depth Interval - 4 (fetl below TOC)
MW79	4/29/2004	102.6	70.36	84-86	89-91	94-96	99-101
MW80	4/29/2004	73.5	58.85	59.9-61.9	64.9-66.9	69.9-71.9	NA
MW95	4/29/2004	60.7	25.60	42-44	47-49	52-54	57-59
MW-126	4/29/2004	25.7	15.26	17.2-19.2	22.2-24.2	NI	NI
MW-127	4/29/2004	69.9	58.07	61.2-63.2	66.2-68.2	NI	NI
MW-128	4/29/2004	74.6	37.49	56-58	61-63	66-68	71-73
MW-129	4/29/2004	80.0	54.25	66.3-68.3	71.3-73.3	76.3-78.3	NI
MW-130	4/29/2004	79.7	53.49	60.5-62.5	65.5-67.5	70.5-72.5	75.5-77.5

Notes
1) NI - Not Installed
2) The PDBs were installed on April 6-7, 2004

PREPARED/DATE: WWP
CHECKED/DATE: GFB

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-007 4/28/2004 0:00 66.9-68.9	MW-007 4/28/2004 16:15 70.5-72.5	MW-008 4/28/2004 15:45 65-67	MW-009 4/28/2004 15:55 76.5-78.5
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	0.94 J	1.5	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1.2	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1.2	<1	<1
1,1-Dichloroethane	NA	810	1.1	1.5	<1	<1
1,1-Dichloroethene	7	340	**22**	**32**	1.3	<1
1,2-Dichloroethane	5	0.12	0.23 J	0.41 J	<1	<1
1,2-Dichloroethene (total)						
2-Butanone (MEK)	NA	1900	6.1 J	4.8 J	5.8 J	6.1 J
Acetone	NA	610	12 J	12 J	11 J	15 J
Benzene	5	0.34	<1	<1.2	<1	<1
Bromodichloromethane	NA	0.18	<1	<1.2	<1	<1
Bromoform	NA	8.5	<1	<1.2	<1	<1
Carbon disulfide	NA	1000	<1	<1.2	<1	<1
Carbon tetrachloride	5	0.17	0.29 J	<1.2	<1	0.28 J
Chlorobenzene	100	110	<1	<1.2	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1.2	<1	<1
Chloroform	80	6.2	8	<1.2	<1	2.2
cis-1,2-Dichloroethene	70	61	<1	<1.2	<1	<1
Ethylbenzene	700	2.9	<1	<1.2	<1	<1
Methylene chloride	NA	4.3	<1	<1.2	0.4 B	0.45 B
Tetrachloroethene	5	0.66	**28**	**50**	0.37 J	<1
Toluene	1000	720	<1	<1.2	<1	8.1
trans-1,2-Dichloroethene	100	120	<1	<1.2	<1	<1
Trichloroethene	5	0.56	**18**	**32**	0.85 J	0.25 J

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quantitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth; USEPA Region 9 PRGs	MW-029 4/28/2004 15:10 40.7-42.7	MW-0029/MWDUP-1 4/29/2004 12:00 40.7-42.7	MW-029 4/28/2004 15:15 45.7-47.7	MW-029 4/28/2004 15:20 50.7-52.7	MW-030 4/29/2004 10:10 46.5-48.5
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	2.7	2.6	2.6	2.8	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	1.2	1.3	1.2	<1
1,1-Dichloroethene	7	340	**24**	**22**	**24**	**24**	<1
1,2-Dichloroethane	5	0.12	0.22 J	<1	<1	0.23 J	<1
1,2-Dichloroethene (total)							
2-Butanone (MEK)	NA	1900	5.9 J	5.4 J	5.7 J	5 J	5 J
Acetone	NA	610	12 J	11 B	12 J	13 J	14 J
Benzene	5	0.34	<1	<1	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	<1	<1
Chlorobenzene	100	110	<1	<1	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1	<1	<1
Chloroform	80	6.2	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	70	61	0.4 J	0.39 J	0.35 J	0.33 J	<1
Ethylbenzene	700	2.9	<1	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1	<1
Tetrachloroethene	5	0.66	**27**	**28**	**28**	**29**	<1
Toluene	1000	720	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1	<1	<1
Trichloroethene	5	0.56	**29**	**29**	**29**	**31**	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

832 30

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-030 4/29/2004 10:15 51.5-53.5	MW-030 4/29/2004 10:20 56.5-58.5	MW-031 4/29/2004 15:10 72.2-74.2	MW-031 4/29/2004 15:15 77.5-79.5
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	ND	ND	0.74 J	0.54 J
1,1,2,2-Tetrachloroethane	NA	0.055	ND	ND	ND	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	0.4 J	0.39 J
1,1-Dichloroethene	7	340	<1	<1	**40**	**33**
1,2-Dichloroethane	5	0.12	<1	<1	0.28 J	0.23 J
1,2-Dichloroethene (total)						
2-Butanone (MEK)	NA	1900	5.9 J	5.9 J	5.8 J	5.7 J
Acetone	NA	610	11 J	11 J	30 J	32 J
Benzene	5	0.34	<1	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	0.24 J	0.18 J
Chlorobenzene	100	110	<1	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1	<1
Chloroform	80	62	<1	<1	0.32 J	0.32 J
cis-1,2-Dichloroethene	70	61	<1	<1	0.46 J	0.56 J
Ethylbenzene	700	2.9	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	2.2	0.85 J
Toluene	1000	720	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	0.42 J	0.47 J
Trichloroethene	5	0.56	<1	<1	**16**	**12**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

832 31

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth USEPA Region 9 PRGs	MW-032 4/29/2004 11:45 64.5-66.5	MW-032/MWDUP-2 4/29/2004 12:00 64.5-66.5	MW-033 4/29/2004 11:20 56-58	MW-033 4/29/2004 11:25 59.5-61.5	MW-034 4/28/2004 16:20 138-140
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	<1	<1	<1	<1	<4
1,1,2,2-Tetrachloroethane	NA	0.055	**8.1**	**7**	<1	<1	<4
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1	<4
1,1-Dichloroethane	NA	810	<1	<1	<1	<1	<4
1,1-Dichloroethene	7	340	<1	<1	<1	<1	<4
1,2-Dichloroethane	5	0.12	<1	<1	<1	<1	<4
1,2-Dichloroethene (total)							
2-Butanone (MEK)	NA	1900	6 J	5.5 J	6.1 J	6.9 J	5 J
Acetone	NA	610	15 J	16 J	11 J	11 J	170 J
Benzene	5	0.34	<1	<1	<1	<1	<4
Bromodichloromethane	NA	0.18	<1	<1	<1	<1	<4
Bromoform	NA	8.5	<1	<1	<1	<1	<4
Carbon disulfide	NA	1000	<1	<1	<1	<1	<4
Carbon tetrachloride	5	0.17	**8.2**	**6.1**		<1	<4
Chlorobenzene	100	110	<1	<1	<1	<1	<4
Chlorodibromomethane	NA	0.13	<1	<1	<1	<1	<4
Chloroform	80	6.2	37	31	<1	<1	1.1 J
cis-1,2-Dichloroethene	70	61	2	2.2	<1	<1	<4
Ethylbenzene	700	2.9	<1	<1	<1	<1	<4
Methylene chloride	NA	4.3	<1	<1	<1	<1	3.1 B
Tetrachloroethene	5	0.66	0.37 J	0.35 J	<1	<1	<4
Toluene	1000	720	<1	<1	<1	<1	<4
trans-1,2-Dichloroethene	100	120	0.36 J	0.98 J	<1	<1	<4
Trichloroethene	5	0.56	**14**	**13**	<1	<1	<4

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive
based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-034 4/28/2004 16:25 142-144	MW-034 4/28/2004 16:30 147-149	MW-034 4/28/2004 16:35 152-154	MW-036 4/28/2004 14:40 192.9-194.9
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	<4	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<4	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<4	<1	<1	<1
1,1-Dichloroethane	NA	810	<4	<1	<1	<1
1,1-Dichloroethene	7	340	<4	<1	<1	<1
1,2-Dichloroethane	5	0.12	<4	<1	<1	<1
1,2-Dichloroethene (total)						
2-Butanone (MEK)	NA	1900	5.4 J	5.1 J	5.7 J	4.9 J
Acetone	NA	610	170 J	19 J	13 J	30 J
Benzene	5	0.34	<4	<1	<1	<1
Bromodichloromethane	NA	0.18	<4	<1	<1	<1
Bromoform	NA	8.5	<4	<1	<1	<1
Carbon disulfide	NA	1000	<4	<1	<1	0.42 J
Carbon tetrachloride	5	0.17	<4	0.19 J	<1	<1
Chlorobenzene	100	110	<4	<1	<1	<1
Chlorodibromomethane	NA	0.13	<4	<1	<1	<1
Chloroform	80	6.2	1.2 J	1.2	1.2	<1
cis-1,2-Dichloroethene	70	61	<4	<1	<1	<1
Ethylbenzene	700	2.9	<4	<1	<1	0.23 J
Methylene chloride	NA	4.3	3 J	<1	<1	<1
Tetrachloroethene	5	0.66	<4	<1	<1	<1
Toluene	1000	720	<4	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<4	<1	<1	<1
Trichloroethene	5	0.56	<4	0.39 J	0.29 J	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive
based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth; USEPA Region 9 PRGs	MW-036 4/28/2004 14:45 197.9-199.9	MW-036 4/28/2004 14:50 202.9-204.9	MW-037 4/29/2004 11:50 170.5-172.5
Volatile Organic Compounds SW8260B/5030B (µg/L)					
1,1,1-Trichloroethane	200	3200	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1
1,1-Dichloroethene	7	340	<1	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1
1,2-Dichloroethene (total)					
2-Butanone (MEK)	NA	1900	5.3 J	5.6 J	5.6 J
Acetone	NA	610	20 J	21 J	12 J
Benzene	5	0.34	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1
Carbon disulfide	NA	1000	0.41 J	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1
Chlorobenzene	100	110	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1
Chloroform	80	6.2	<1	<1	<1
cis-1,2-Dichloroethene	70	61	<1	<1	<1
Ethylbenzene	700	2.9	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	<1
Toluene	1000	720	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1
Trichloroethene	5	0.56	<1	<1	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth USEPA Region 9 PRGs	MW-037 4/29/2004 11:55 175.5-177.5	MW-037 4/29/2004 12:00 180-182.5	MW-040 4/29/2004 14:30 87.9-89.9	MW-040 4/29/2004 14:35 91.9-93.9	MW-042 4/29/2004 16:35 54.4-56.4
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	340	<1	<1	<1	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)							
2-Butanone (MEK)	NA	1900	5.9 J	5.1 J	4.4 J	5.2 J	5.3 J
Acetone	NA	610	11 J	13 J	15 J	19 J	12 J
Benzene	5	0.34	<1	<1	0.24 J	0.32 J	<1
Bromodichloromethane	NA	0.18	<1	<1	0.94 J	<1	<1
Bromoform	NA	8.5	<1	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	<1	<1
Chlorobenzene	100	110	<1	<1	1.2	1.2	<1
Chlorodibromomethane	NA	0.13	<1	<1	0.91 J	<1	<1
Chloroform	80	6.2	<1	<1	0.38 J	<1	<1
cis-1,2-Dichloroethene	70	61	<1	<1	<1	<1	<1
Ethylbenzene	700	2.9	<1	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	<1	<1	<1
Toluene	1000	720	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1	<1	<1
Trichloroethene	5	0.56	<1	<1	<1	<1	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive
based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-043 4/29/2004 9:50 163-165	MW-043 4/29/2004 21:55 168-170	MW-043/MWDUP-3 4/29/2004 12:00 N/A	MW-044 4/29/2004 16:50 64-66
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1	<1
1,1-Dichloroethene	7	340	<1	<1	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1	<1
1,2-Dichloroethene (total)						
2-Butanone (MEK)	NA	1900	5.3 J	5.8 J	5 J	4.9 J
Acetone	NA	610	20 J	13 J	12 B	36 J
Benzene	5	0.34	<1	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	1.3
Chlorobenzene	100	110	<1	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1	<1
Chloroform	80	6.2	<1	<1	<1	0.91 J
cis-1,2-Dichloroethene	70	61	<1	<1	<1	0.35 J
Ethylbenzene	700	2.9	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	<1	<1
Toluene	1000	720	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1	<1
Trichloroethene	5	0.56	<1	<1	<1	0.75 J

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-044 4/29/2004 16:55 69-71	MW-051 4/29/2004 16:00 58-60	MW-051 4/29/2004 16:05 63-65	MW-054 4/29/2004 15:25 85.6-87.6	MW-054 4/29/2004 15:30 90.6-92.6
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	ND	0.33 J	0.36 J	<50	<67
1,1,2,2-Tetrachloroethane	NA	0.055	ND	ND	ND	**1300**	**2000**
1,1,2-Trichloroethane	5	0.19	ND	ND	ND	<50	<67
1,1-Dichloroethane	NA	810	<1	<1	<1	<50	<67
1,1-Dichloroethene	7	340	<1	**17**	**21**	<50	<67
1,2-Dichloroethane	5	0.12	<1	<1	<1	<50	<67
1,2-Dichloroethene (total)							
2-Butanone (MEK)	NA	1900	3.7 J	6.4 J	6.2 J	<250	<330
Acetone	NA	610	23 J	11 J	10 J	83 J	<330
Benzene	5	0.34	<1	<1	<1	<50	<67
Bromodichloromethane	NA	0.18	<1	<1	<1	<50	<67
Bromoform	NA	8.5	<1	<1	<1	<50	<67
Carbon disulfide	NA	1000	<1	<1	<1	<50	<67
Carbon tetrachloride	5	0.17	0.85 J	<1	<1	<50	<67
Chlorobenzene	100	110	<1	<1	<1	<50	<67
Chlorodibromomethane	NA	0.13	<1	<1	<1	<50	<67
Chloroform	80	6.2	0.42 J	<1	<1	<50	<67
cis-1,2-Dichloroethene	70	61	<1	<1	<1	49 J	64 J
Ethylbenzene	700	2.9	<1	<1	<1	<50	<67
Methylene chloride	NA	4.3	<1	<1	<1	<50	50 J
Tetrachloroethene	5	0.66	<1	1.3	0.5 J	<50	<67
Toluene	1000	720	<1	<1	<1	<50	<67
trans-1,2-Dichloroethene	100	120	<1	<1	<1	38 J	54 J
Trichloroethene	5	0.56	0.35 J	**5.3**	**5.5**	**1400**	**2000**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive
based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

832 37

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth USEPA Region 9 PRGs	MW-056 4/28/2004 16:55 67.2-69.2	MW-057 4/29/2004 9:00 64.5-66.5	MW-057 4/29/2004 9:05 67-69	MW-057/MWDUP-4 4/29/2004 12:00 67-69	MW-058 4/28/2004 17:10 64.5-66.5
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	<2	<3.3	<1.7	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<2	<3.3	<1.7	<1	<1
1,1,2-Trichloroethane	5	0.19	<2	<3.3	<1.7	<1	<1
1,1-Dichloroethane	NA	810	<2	<3.3	<1.7	<1	<1
1,1-Dichloroethene	7	340	<2	<3.3	<1.7	<1	<1
1,2-Dichloroethane	5	0.12	<2	<3.3	<1.7	<1	0.22 J
1,2-Dichloroethene (total)							
2-Butanone (MEK)	NA	1900	6 J	6.3 J	5.4 J	4.6 J	5.1 J
Acetone	NA	610	13 B	17 B	13 B	10 J	11 J
Benzene	5	0.34	<2	<3.3	<1.7	<1	<1
Bromodichloromethane	NA	0.18	<2	<3.3	<1.7	<1	<1
Bromoform	NA	8.5	<2	<3.3	<1.7	<1	<1
Carbon disulfide	NA	1000	<2	<3.3	<1.7	<1	<1
Carbon tetrachloride	5	0.17	<2	**33**	**25**	**24**	<1
Chlorobenzene	100	110	<2	<3.3	<1.7	<1	<1
Chlorodibromomethane	NA	0.13	<2	<3.3	<1.7	<1	<1
Chloroform	80	6.2	22	11	5.7	5.5	1.1
cis-1,2-Dichloroethene	70	61	<2	<3.3	<1.7	<1	<1
Ethylbenzene	700	2.9	<2	<3.3	<1.7	<1	<1
Methylene chloride	NA	4.3	<2	<3.3	0.6 B	<1	<1
Tetrachloroethene	5	0.66	<2	5	3.5	4.1	<1
Toluene	1000	720	<2	<3.3	<1.7	<1	<1
trans-1,2-Dichloroethene	100	120	<2	<3.3	0.46 J	0.99 J	<1
Trichloroethene	5	0.56	1 J	**48**	**31**	**35**	0.41 J

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-067 4/29/2004 9:20 261-263	MW-067 4/29/2004 9:30 266-268
Volatile Organic Compounds SW8260B/5030B (µg/L)				
1,1,1-Trichloroethane	200	3200	<1	ND
1,1,2,2-Tetrachloroethane	NA	0.055	<1	ND
1,1,2-Trichloroethane	5	0.19	<1	<1
1,1-Dichloroethane	NA	810	<1	<1
1,1-Dichloroethene	7	340	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1
1,2-Dichloroethene (total)				
2-Butanone (MEK)	NA	1900	5.2 J	5.8 J
Acetone	NA	610	11 J	12 J
Benzene	5	0.34	<1	<1
Bromodichloromethane	NA	0.18	<1	<1
Bromoform	NA	8.5	<1	<1
Carbon disulfide	NA	1000	<1	<1
Carbon tetrachloride	5	0.17	<1	<1
Chlorobenzene	100	110	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1
Chloroform	80	6.2	<1	<1
cis-1,2-Dichloroethene	70	61	<1	<1
Ethylbenzene	700	2.9	<1	<1
Methylene chloride	NA	4.3	<1	<1
Tetrachloroethene	5	0.66	<1	<1
Toluene	1000	720	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1
Trichloroethene	5	0.56	<1	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-067 4/29/2004 9:35 271-273	MW-068 4/29/2004 10:50 69-71	MW-068 4/29/2004 10:55 73-75	MW-068 4/29/2004 11:00 78-80
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	NA	0.055	ND	**0.85 J**	ND	ND
1,1,2-Trichloroethane	5	0.19	<1	<2.5	<1	<1
1,1-Dichloroethane	NA	810	<1	<2.5	<1	<1
1,1-Dichloroethene	7	340	<1	<2.5	<1	1.5
1,2-Dichloroethane	5	0.12	<1	<2.5	<1	<1
1,2-Dichloroethene (total)				<2.5		
2-Butanone (MEK)	NA	1900	5.7 J	6.1 J	6.3 J	5.8 J
Acetone	NA	610	12 J	130 J	14 J	22 J
Benzene	5	0.34	<1	<2.5	<1	<1
Bromodichloromethane	NA	0.18	<1	<2.5	<1	<1
Bromoform	NA	8.5	<1	<2.5	<1	<1
Carbon disulfide	NA	1000	<1	<2.5	<1	<1
Carbon tetrachloride	5	0.17	<1	<2.5	0.21 J	<1
Chlorobenzene	100	110	<1	<2.5	<1	<1
Chlorodibromomethane	NA	0.13	<1	<2.5	<1	<1
Chloroform	80	6.2	<1	0.78 J	0.59 J	<1
cis-1,2-Dichloroethene	70	61	<1	<2.5	<1	<1
Ethylbenzene	700	2.9	<1	<2.5	<1	<1
Methylene chloride	NA	4.3	<1	0.94 B	<1	<1
Tetrachloroethene	5	0.66	<1	<2.5	0.32 J	2.1
Toluene	1000	720	<1	<2.5	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<2.5	<1	<1
Trichloroethene	5	0.56	<1	1 J	<1	1.4

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-069 4/29/2004 8:40 86-88	MW-069 4/29/2004 91-93	MW-069/MWDUP-5 4/29/2004 12:00 91-93	MW-070 4/29/2004 12:05 85.8-87.8
Volatile Organic Compounds SW8260B/5030B (ug/L)						
1,1,1-Trichloroethane	200	3200	ND	ND	ND	<250
1,1,2,2-Tetrachloroethane	NA	0.055	ND	ND	ND	**8500**
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<250
1,1-Dichloroethane	NA	810	<1	<1	<1	<250
1,1-Dichloroethene	7	340	<1	<1	<1	<250
1,2-Dichloroethane	5	0.12	<1	<1	<1	<250
1,2-Dichloroethene (total)						
2-Butanone (MEK)	NA	1900	5.2 J	5.9 J	4.9 J	<250
Acetone	NA	610	11 B	13 J	10 J	390 J
Benzene	5	0.34	<1	<1	<1	<250
Bromodichloromethane	NA	0.18	<1	<1	<1	<250
Bromoform	NA	8.5	<1	<1	<1	<250
Carbon disulfide	NA	1000	<1	<1	<1	<250
Carbon tetrachloride	5	0.17	<1	<1	<1	<250
Chlorobenzene	100	110	<1	<1	<1	<250
Chlorodibromomethane	NA	0.13	<1	<1	<1	<250
Chloroform	80	6.2	<1	<1	<1	<250
cis-1,2-Dichloroethene	70	61	<1	<1	<1	**120 J**
Ethylbenzene	700	2.9	<1	<1	<1	<250
Methylene chloride	NA	4.3	<1	<1	<1	<250
Tetrachloroethene	5	0.66	0.55 J	ND	<1	<250
Toluene	1000	720	<1	<1	<1	<250
trans-1,2-Dichloroethene	100	120	<1	<1	<1	<250
Trichloroethene	5	0.56	0.47 J	<1	<1	**3700**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-070 4/29/2004 12:10 90.8-92.8	MW-071 4/29/2004 23:35 71-73	MW-071 4/29/2004 11:40 74.4-76.4	MW-076 4/29/2004 11:05 86-88
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	<200	<2	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	**6900**	**16**	**3.8**	**3.6**
1,1,2-Trichloroethane	5	0.19	<200	<2	<1	<1
1,1-Dichloroethane	NA	810	<200	<2	<1	<1
1,1-Dichloroethene	7	340	<200	<2	<1	<1
1,2-Dichloroethane	5	0.12	<200	<2	<1	<1
1,2-Dichloroethene (total)					<1	<1
2-Butanone (MEK)	NA	1900	<200	6 J	5.8 J	6.4 J
Acetone	NA	610	330 J	13 J	7.3 R	12 J
Benzene	5	0.34	<200	<2	<1	<1
Bromodichloromethane	NA	0.18	<200	<2	<1	<1
Bromoform	NA	8.5	<200	<2	<1	<1
Carbon disulfide	NA	1000	<200	<2	<1	<1
Carbon tetrachloride	5	0.17	<200	7.8	<1	<1
Chlorobenzene	100	110	<200	<2	<1	<1
Chlorodibromomethane	NA	0.13	<200	<2	<1	<1
Chloroform	80	6.2	<200	56	17	0.21 J
cis-1,2-Dichloroethene	70	61	**110 J**	0.98 J	0.48 J	ND
Ethylbenzene	700	2.9	<200	<2	<1	<1
Methylene chloride	NA	4.3	<200	1.2 B	<1	<1
Tetrachloroethene	5	0.66	<200	0.54 J	0.31 J	1.4
Toluene	1000	720	<200	<2	<1	<1
trans-1,2-Dichloroethene	100	120	<200	<2	<1	<1
Trichloroethene	5	0.56	**2200**	**15**	**6.9**	4

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-076 4/29/2004 91-93	MW-077 4/29/2004 12:20 82-84	MW-077 4/29/2004 12:25 85.6-87.6	MW-077/MWDUP-6 4/29/2004 12:00 85.6-87.6
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	<1	<620	<500	<500
1,1,2,2-Tetrachloroethane	NA	0.055	**10**	**15000**	**15000**	**15000**
1,1,2-Trichloroethane	5	0.19	<1	<620	<500	<500
1,1-Dichloroethane	NA	810	<1	<620	<500	<500
1,1-Dichloroethene	7	340	<1	<620	<500	<500
1,2-Dichloroethane	5	0.12	<1	<620	<500	<500
1,2-Dichloroethene (total)			<1	<620		
2-Butanone (MEK)	NA	1900	5.7 J	<3100	<2500	<2500
Acetone	NA	610	7.3 R	<3100	400 J	340 J
Benzene	5	0.34	<1	<620	<500	<500
Bromodichloromethane	NA	0.18	<1	<620	<500	<500
Bromoform	NA	8.5	<1	<620	<500	<500
Carbon disulfide	NA	1000	<1	<620	<500	<500
Carbon tetrachloride	5	0.17	<1	<620	<500	<500
Chlorobenzene	100	110	<1	<620	<500	<500
Chlorodibromomethane	NA	0.13	<1	<620	<500	<500
Chloroform	80	6.2	0.23 J	<620	<500	<500
cis-1,2-Dichloroethene	70	61	0.95 J	**170 J**	**160 J**	**130 J**
Ethylbenzene	700	2.9	<1	<620	<500	<500
Methylene chloride	NA	4.3	<1	<620	<500	<500
Tetrachloroethene	5	0.66	0.86 J	<620	<500	<500
Toluene	1000	720	<1	<620	<500	<500
trans-1,2-Dichloroethene	100	120	0.44 J	<620	<500	<500
Trichloroethene	5	0.56	**10**	**5400**	**5000**	**4600**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-078 4/29/2004 10:25 47-49	MW-078 4/29/2004 10:30 52-54	MW-078 4/29/2004 10:35 57-59	MW-078 4/29/2004 10:40 62-64
Volatile Organic Compounds SW8260B/5030B (µg/L)						
1,1,1-Trichloroethane	200	3200	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	**5.2**	**4**	**3.1**	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1	<1
1,1-Dichloroethene	7	340	<1	<1	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1	<1
1,2-Dichloroethene (total)					<1	<1
2-Butanone (MEK)	NA	1900	5.6 J	5.3 J	5.5 J	5.7 J
Acetone	NA	610	11 J	9.5 J	10 J	10 J
Benzene	5	0.34	<1	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	<1
Chlorobenzene	100	110	<1	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1	<1
Chloroform	80	6.2	<1	<1	<1	<1
cis-1,2-Dichloroethene	70	61	<1	<1	<1	<1
Ethylbenzene	700	2.9	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	<1	<1
Toluene	1000	720	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	0.7 J	0.69 J	<1	<1
Trichloroethene	5	0.56	0.36 J	0.28 J	0.26 J	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth / USEPA Region 9 PRGs	MW-079 4/29/2004 14:45 84-86	MW-079 4/29/2004 14:50 89-91	MW-079 4/29/2004 14:55 94-96	MW-079 4/29/2004 15:00 99-101	MW-080 4/29/2004 17:10 59.9-61.9
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	340	**9.4**	**8.9**	**10**	**12**	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)							
2-Butanone (MEK)	NA	1900	4.8 J	3.7 J	5.6 J	5 J	5.1 J
Acetone	NA	610	44 J	53 J	23 J	31 J	12 J
Benzene	5	0.34	<1	<1	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	<1	<1
Chlorobenzene	100	110	<1	<1	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1	<1	<1
Chloroform	80	6.2	<1	<1	0.21 J	<1	<1
cis-1,2-Dichloroethene	70	61	1.7	1.6	1	0.56 J	<1
Ethylbenzene	700	2.9	<1	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1	<1
Tetrachloroethene	5	0.66	1.7	1.5	1.8	2.1	<1
Toluene	1000	720	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	2 J	1.8 J	0.91 J	0.51 J	<1
Trichloroethene	5	0.56	12	**11**	**8.3**	**5.8**	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

		Sample Site ID	MW-080	MW-080	MW-080/MWDUP-7
		Date Collected	4/29/2004 17:15	4/29/2004 17:20	4/29/2004 12:00
		Depth	64.9-66.9	69.9-71.9	69.9-71.9
	MCL Drinking Water Standard	USEPA Region 9 PRGs			
Volatile Organic Compounds SW8260B/5030B (ug/L)					
1,1,1-Trichloroethane	200	3200	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1
1,1-Dichloroethene	7	340	<1	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1
1,2-Dichloroethene (total)					
2-Butanone (MEK)	NA	1900	5.5 J	4.9 J	4.4 J
Acetone	NA	610	13 J	18 J	34 J
Benzene	5	0.34	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1
Bromoform	NA	8.5	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1
Chlorobenzene	100	110	<1	<1	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1
Chloroform	80	6.2	<1	<1	<1
cis-1,2-Dichloroethene	70	61	<1	<1	<1
Ethylbenzene	700	2.9	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	<1
Toluene	1000	720	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1
Trichloroethene	5	0.56	<1	<1	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive
based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-095 4/29/2004 16:10 42-44	MW-095 4/29/2004 16:15 47-49	MW-095 4/29/2004 16:20 52-54	MW-095 4/29/2004 16:25 57-59	MW-126 4/29/2004 14:15 17.2-19.2
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<1	<1
1,1-Dichloroethane	NA	810	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	340	<1	<1	<1	<1	<1
1,2-Dichloroethane	5	0.12	<1	<1	<1	<1	<1
1,2-Dichloroethene (total)				<1	<1		
2-Butanone (MEK)	NA	1900	5.4 J	5.1 J	4.9 J	4.8 J	4.9 J
Acetone	NA	610	15 J	14 J	18 J	15 R	8.2 R
Benzene	5	0.34	<1	<1	<1	<1	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<1	<1
Bromoform	NA	8.5	2.4 J	<1	<1	<1	<1
Carbon disulfide	NA	1000	<1	<1	<1	<1	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	<1	<1
Chlorobenzene	100	110	<1	<1	<1	<1	<1
Chlorodibromomethane	NA	0.13	0.79 J	<1	<1	<1	<1
Chloroform	80	6.2	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	70	61	<1	<1	<1	<1	<1
Ethylbenzene	700	2.9	<1	<1	<1	<1	<1
Methylene chloride	NA	4.3	<1	<1	<1	<1	<1
Tetrachloroethene	5	0.66	<1	<1	<1	<1	<1
Toluene	1000	720	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1	<1	<1
Trichloroethene	5	0.56	<1	<1	<1	<1	<1

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive
based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID / Date Collected / Depth USEPA Region 9 PRGs	MW-126 4/29/2004 14:20 22.2-24.2	MW-127 4/29/2004 17:00 61.2-63.2	MW-127 4/29/2004 17:05 66.2-68.2	MW-128 4/29/2004 15:35 56-58	MW-128 4/29/2004 15:50 61-63
Volatile Organic Compounds SW8260B/5030B (µg/L)							
1,1,1-Trichloroethane	200	3200	<1	<1	<1	4.8 J	<1
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<1	<1	<11	<1
1,1,2-Trichloroethane	5	0.19	<1	<1	<1	<11	<1
1,1-Dichloroethane	NA	810	<1	<1	<1	<11	<1
1,1-Dichloroethene	7	340	<1	<1	<1	**310**	5.1
1,2-Dichloroethane	5	0.12	<1	<1	<1	<11	<1
1,2-Dichloroethene (total)				<1	<1		
2-Butanone (MEK)	NA	1900	4.3 J	4.7 J	6 J	6.9 J	6 J
Acetone	NA	610	9.8 R	11 R	27 J	29 J	10 R
Benzene	5	0.34	<1	<1	<1	<11	<1
Bromodichloromethane	NA	0.18	<1	<1	<1	<11	<1
Bromoform	NA	8.5	<1	<1	<1	<11	<1
Carbon disulfide	NA	1000	<1	<1	<1	<11	<1
Carbon tetrachloride	5	0.17	<1	<1	<1	<11	<1
Chlorobenzene	100	110	<1	<1	<1	<11	<1
Chlorodibromomethane	NA	0.13	<1	<1	<1	<11	<1
Chloroform	80	6.2	<1	<1	<1	<11	<1
cis-1,2-Dichloroethene	70	61	<1	<1	<1	<11	<1
Ethylbenzene	700	2.9	<1	<1	<1	<11	<1
Methylene chloride	NA	4.3	<1	<1	<1	7.4 B	<1
Tetrachloroethene	5	0.66	<1	<1	<1	<11	0.15 J
Toluene	1000	720	<1	<1	<1	<11	<1
trans-1,2-Dichloroethene	100	120	<1	<1	<1	<11	<1
Trichloroethene	5	0.56	<1	<1	<1	**38**	1.3

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	USEPA Region 9 PRGs	Sample Site ID	MW-128/MWDUP-8	MW-128	MW-128	MW-129	MW-129
			Date Collected	4/29/2004 12:00	4/29/2004 15:45	4/29/2004 15:50	4/29/2004 17:50	4/29/2004 17:55
			Depth	61-63	66-68	71-73	66.3-68.3	71.3-73.3
Volatile Organic Compounds SW8260B/5030B (µg/L)								
1,1,1-Trichloroethane	200	3200		<1	<1	<1	1.8	2
1,1,2,2-Tetrachloroethane	NA	0.055		<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5	0.19		<1	<1	<1	<1	<1
1,1-Dichloroethane	NA	810		<1	<1	<1	2.5	2.6
1,1-Dichloroethene	7	340		3.8	2.3	2.2	**26**	**27**
1,2-Dichloroethane	5	0.12		<1	<1	<1	0.26 J	0.29 J
1,2-Dichloroethene (total)								
2-Butanone (MEK)	NA	1900		5.8 J	5.6 J	6.2 J	5.5 J	5.6 J
Acetone	NA	610		11 J	16 R	31 J	9 R	8.8 R
Benzene	5	0.34		<1	<1	ND	<1	<1
Bromodichloromethane	NA	0.18		<1	<1	ND	<1	<1
Bromoform	NA	8.5		<1	<1	ND	<1	<1
Carbon disulfide	NA	1000		<1	<1	ND	<1	<1
Carbon tetrachloride	5	0.17		<1	<1	ND	<1	<1
Chlorobenzene	100	110		<1	<1	ND	<1	<1
Chlorodibromomethane	NA	0.13		<1	<1	ND	<1	<1
Chloroform	80	6.2		<1	<1	ND	<1	<1
cis-1,2-Dichloroethene	70	61		<1	<1	ND	0.27 J	<1
Ethylbenzene	700	2.9		<1	<1	ND	<1	<1
Methylene chloride	NA	4.3		<1	<1	ND	<1	<1
Tetrachloroethene	5	0.66		<1	0.18 J	ND	**7.1**	**9.6**
Toluene	1000	720		<1	<1	ND	<1	<1
trans-1,2-Dichloroethene	100	120		<1	<1	ND	<1	<1
Trichloroethene	5	0.56		1.6	1	0.59 J	**11**	**11**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	USEPA Region 9 PRGs	Sample Site ID: MW-129 Date Collected: 4/29/2004 18:00 Depth: 76.3-78.3	Sample Site ID: MW-130 Date Collected: 4/29/2004 17:30 Depth: 60.5-62.5
Volatile Organic Compounds SW8260B/5030B (µg/L)				
1,1,1-Trichloroethane	200	3200	1.9	3.5
1,1,2,2-Tetrachloroethane	NA	0.055	<1	<3.3
1,1,2-Trichloroethane	5	0.19	<1	<3.3
1,1-Dichloroethane	NA	810	2.4	2.4 J
1,1-Dichloroethene	7	340	**25**	**41**
1,2-Dichloroethane	5	0.12	0.32 J	<3.3
1,2-Dichloroethene (total)				
2-Butanone (MEK)	NA	1900	5.6 J	5.5 J
Acetone	NA	610	7.9 R	9.2 R
Benzene	5	0.34	<1	<3.3
Bromodichloromethane	NA	0.18	<1	<3.3
Bromoform	NA	8.5	<1	<3.3
Carbon disulfide	NA	1000	<1	<3.3
Carbon tetrachloride	5	0.17	<1	<3.3
Chlorobenzene	100	110	<1	<3.3
Chlorodibromomethane	NA	0.13	<1	<3.3
Chloroform	80	6.2	<1	<3.3
cis-1,2-Dichloroethene	70	61	<1	<3.3
Ethylbenzene	700	2.9	<1	<3.3
Methylene chloride	NA	4.3	<1	<3.3
Tetrachloroethene	5	0.66	**18**	**88**
Toluene	1000	720	<1	<3.3
trans-1,2-Dichloroethene	100	120	<1	<3.3
Trichloroethene	5	0.56	**12**	**58**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 5

POSITIVE SUMMARY TABLE – GROUNDWATER
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	MCL Drinking Water Standard	Sample Site ID Date Collected Depth USEPA Region 9 PRGs	MW-130 4/29/2004 17:35 65.5-67.5	MW-130 4/29/2004 17:40 70.5-72.5	MW-130 4/29/2004 17:45 75.5-77.5
Volatile Organic Compounds SW8260B/5030B (µg/L)					
1,1,1-Trichloroethane	200	3200	3.7 J	4.4	3.9 J
1,1,2,2-Tetrachloroethane	NA	0.055	<5	<4	<4
1,1,2-Trichloroethane	5	0.19	<5	<4	<4
1,1-Dichloroethane	NA	810	2.8 J	3 J	3.1 J
1,1-Dichloroethene	7	340	**52**	**55**	**57**
1,2-Dichloroethane	5	0.12	<5	<4	<4
1,2-Dichloroethene (total)					
2-Butanone (MEK)	NA	1900	6.5 J	5.7 J	5.5 J
Acetone	NA	610	31 J	15 J	30 J
Benzene	5	0.34	<5	<4	<4
Bromodichloromethane	NA	0.18	<5	<4	<4
Bromoform	NA	8.5	<5	<4	<4
Carbon disulfide	NA	1000	<5	<4	<4
Carbon tetrachloride	5	0.17	<5	<4	<4
Chlorobenzene	100	110	<5	<4	<4
Chlorodibromomethane	NA	0.13	<5	<4	<4
Chloroform	80	6.2	<5	<4	<4
cis-1,2-Dichloroethene	70	61	<5	<4	<4
Ethylbenzene	700	2.9	<5	<4	<4
Methylene chloride	NA	4.3	<5	<4	<4
Tetrachloroethene	5	0.66	**120**	**120**	**120**
Toluene	1000	720	<5	<4	<4
trans-1,2-Dichloroethene	100	120	<5	<4	<4
Trichloroethene	5	0.56	**75**	**76**	**74**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above practical quantitation limit
MCL - Maximum Contamiant Level
PRG - Preliminary Remediation Goals - Tap Water, EPA Region 9.

TABLE 6

POSTITIVE SUMMARY TABLE
RECOVERY WELLS
May 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	Sample Site ID Date Collected Depth	Maximum Contaminant Level (MCL) Primary Drinking Water Standard	USEPA Region 9 PRGs-Tap Water 1-Oct-02	RW-001 5/4/2004 16:00 N/A	RW-001A 5/4/2004 N/A	RW-001B 5/4/2004 16:21 N/A
Volatile Organic Compounds - SW8260B/SW5030B (µg/L)						
1,1,1-Trichloroethane		200	3200	<3.3	<25	<1.7
1,1,2,2-Tetrachloroethane		NA	0.055	<3.3	**110**	1.4 J
1,1,2-Trichloroethane		5	0.19	<3.3	<25	<1.7
1,1-Dichloroethane		NA	810	<3.3	<25	<1.7
1,1-Dichloroethene		7	340	<3.3	<25	<1.7
1,2-Dichloroethene (total)				<3.3	<25	<1.7
Acetone		NA	610	3.3 J	<25	1.1 J
Carbon tetrachloride		5	0.17	**15**	**24 J**	**15**
Chloroform		80	6.2	45	**580**	25
cis-1,2-Dichloroethene		70	61	<3.3	9 J	11
Methylene chloride		NA	4.3	1.8 J	17 J	<1.7
Tetrachloroethene		5	0.66	7.3	10 J	2.8
trans-1,2-Dichloroethene		100	120	2.9 J	18 J	2 j
Trichloroethene		5	0.56	**87**	**230**	**36**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG if no MCL is available
ND - Not Detected above practical quantitation limit

TABLE 6

POSTITIVE SUMMARY TABLE
RECOVERY WELLS
May 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	Sample Site ID Date Collected Depth	Maximum Contaminant Level (MCL) Primary Drinking Water Standard	USEPA Region 9 PRGs-Tap Water 1-Oct-02	RW-002 5/4/2004 16:28 N/A	RW-003 5/4/2004 16:37 N/A	RW-004 5/4/2004 16:47 N/A
Volatile Organic Compounds - SW8260B/SW5030B (µg/L)						
1,1,1-Trichloroethane		200	3200	<2.9	<2.9	<25
1,1,2,2-Tetrachloroethane		NA	0.055	**67**	<2.9	**250**
1,1,2-Trichloroethane		5	0.19	1.9 J	<2.9	<25
1,1-Dichloroethane		NA	810	<2.9	<2.9	<25
1,1-Dichloroethene		7	340	<2.9	<2.9	<25
1,2-Dichloroethene (total)				<2.9		
Acetone		NA	610	<2.9	<2.9	<25
Carbon tetrachloride		5	0.17	**6.5**	4.3	<25
Chloroform		80	6.2	13	1.2 J	<25
cis-1,2-Dichloroethene		70	61	55	6.9	26
Methylene chloride		NA	4.3	1.7 J	1.5 J	<25
Tetrachloroethene		5	0.66	1.2 J	1.1 J	7.3 J
trans-1,2-Dichloroethene		100	120	4.4 J	2.9 J	19 J
Trichloroethene		5	0.56	**57**	**68**	**820**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG if no MCL is available
ND - Not Detected above practical quantitation limit

TABLE 6

POSTITIVE SUMMARY TABLE
RECOVERY WELLS
May 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	Sample Site ID Date Collected Depth	Maximum Contaminant Level (MCL) Primary Drinking Water Standard	USEPA Region 9 PRGs-Tap Water 1-Oct-02	RW-005 5/4/2004 16:59 N/A	DUP-5-04-04 5/4/2004 12:00 N/A	RW-006 5/4/2004 17:07 N/A
Volatile Organic Compounds - SW8260B/SW5030B (µg/L)						
1,1,1-Trichloroethane		200	3200	<8	<8	<1.2
1,1,2,2-Tetrachloroethane		NA	0.055	**14**	**12**	<1.2
1,1,2-Trichloroethane		5	0.19	<8	<8	<1.2
1,1-Dichloroethane		NA	810	<8	<8	<1.2
1,1-Dichloroethene		7	340	<8	<8	<1.2
1,2-Dichloroethene (total)						
Acetone		NA	610	<8	11 J	4 J
Carbon tetrachloride		5	0.17	<8	<8	<1.2
Chloroform		80	6.2	<8	1.9 J	1.8
cis-1,2-Dichloroethene		70	61	6.6 J	7.1 J	11
Methylene chloride		NA	4.3	<8	<8	<1.2
Tetrachloroethene		5	0.66	6.4 J	7 J	20
trans-1,2-Dichloroethene		100	120	6.3 J	5.9 J	3.8 J
Trichloroethene		5	0.56	**200**	**200**	**39**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG if no MCL is available
ND - Not Detected above practical quantitation limit

TABLE 6

POSTITIVE SUMMARY TABLE
RECOVERY WELLS
May 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

	Sample Site ID Date Collected Depth	Maximum Contaminant Level (MCL) Primary Drinking Water Standard	USEPA Region 9 PRGs-Tap Water 1-Oct-02	RW-007 5/4/2004 17:19 N/A	RW-008 5/12/2004 11:25 N/A	RW-009 5/4/2004 17:27 N/A
Volatile Organic Compounds - SW8260B/SW5030B (µg/L)						
1,1,1-Trichloroethane		200	3200	<5	<13	0.85 J
1,1,2,2-Tetrachloroethane		NA	0.055	**160**	**350**	**6.2**
1,1,2-Trichloroethane		5	0.19	<5	<13	<2
1,1-Dichloroethane		NA	810	<5	<13	0.96 J
1,1-Dichloroethene		7	340	<5	**8.8 J**	**31**
1,2-Dichloroethene (total)					**180**	<2
Acetone		NA	610	<5	<13	4.6 J
Carbon tetrachloride		5	0.17	<5	<13	0.8 J
Chloroform		80	6.2	3 J	14	10
cis-1,2-Dichloroethene		70	61	42	**160**	9
Methylene chloride		NA	4.3	<5	<13	<2
Tetrachloroethene		5	0.66	3.3 J	11 J	35
trans-1,2-Dichloroethene		100	120	12 J	28	4.1 J
Trichloroethene		5	0.56	**79**	**240**	**49**

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
NA - Not Applicable
Bold and Box - Exceeds MCL or PRG if no MCL is available
ND - Not Detected above practical quantitation limit

Table 7
MAXIMUM CONCENTRATIONS AND VARIATION WITH DEPTH
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

Well	VOC	PDB Sample Interval[1]			
		1	2	3	4
MW-07	1,1,1-Trichloroethane	ND	1.5	~	~
	1,1-Dichloroethane	1.1	1.5	~	~
	1,1-Dichloroethene	22	32	~	~
	Chloroform	8	ND	~	~
	Tetrachloroethene	28	50	~	~
	Trichloroethene	18	32	~	~
MW-08	1,1-Dichloroethene	1.3	~	~	~
MW-09	Chloroform	2.2	~	~	~
	Toluene	8.1	~	~	~
MW-29	1,1,1-Trichloroethane	2.7	2.6	2.8	~
	1,1-Dichloroethane	1.4	1.3	1.2	~
	1,1-Dichloroethene	24	24	24	~
	Tetrachloroethene	27	28	29	~
	Trichloroethene	29	29	31	~
MW-31	1,1-Dichloroethene	40	33	~	~
	Tetrachloroethene	2.2	ND	~	~
	Trichloroethene	16	12	~	~
MW-32	1,1,2,2-Tetrachloroethane	8.1	~	~	~
	Carbon tetrachloride	8.2	~	~	~
	Chloroform	37	~	~	~
	cis-1,2-Dichloroethene	2	~	~	~
	Trichloroethene	14	~	~	~
MW-34	Chloroform	ND	ND	1.2	1.2
MW-40	Chlorobenzene	1.2	1.2	ND	ND
MW-44	Carbon tetrachloride	1.3	ND	~	~
	1,1-Dichloroethene	ND	ND	~	~
	Tetrachloroethene	ND	ND	~	~
	Trichloroethene	ND	ND	~	~
MW-51	1,1-Dichloroethene	17	21	~	~
	Tetrachloroethene	1.3	ND	~	~
	Trichloroethene	5.3	5.5	~	~
MW-54	1,1,2,2-Tetrachloroethane	1300	2000	~	~
	Trichloroethene	1400	2000	~	~
MW-56	Chloroform	22	~	~	~
MW-57	Carbon tetrachloride	33	25	~	~
	Chloroform	11	5.7	~	~
	Tetrachloroethene	5	3.5	~	~
	Trichloroethene	48	31	~	~
MW-58	Chloroform	1.1	~	~	~
MW-68	1,1-Dichloroethene	ND	ND	1.5	~
	Tetrachloroethene	ND	ND	2.1	~
	Trichloroethene	ND	ND	1.4	~
MW-70	1,1,2,2-Tetrachloroethane	8500	6900	~	~
	Trichloroethene	3700	2200	~	~
MW-71	1,1,2,2-Tetrachloroethane	16	3.8	~	~
	Carbon tetrachloride	7.8	8.2	~	~
	Chloroform	56	17	~	~
	Trichloroethene	15	6.9	~	~
MW-76	1,1,2,2-Tetrachloroethane	3.6	10	~	~
	Tetrachloroethene	1.4	ND	~	~
	Trichloroethene	4	10	~	~
MW-77	1,1,2,2-Tetrachloroethane	15000	15000	~	~
	Trichloroethene	5400	5000	~	~

Table 7
MAXIMUM CONCENTRATIONS AND VARIATION WITH DEPTH
April 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

Well	VOC	PDB Sample Interval[1]			
		1	2	3	4
MW-78	1,1,2,2-Tetrachloroethane	5.2	4	3.1	ND
MW-79	1,1-Dichloroethene	9.4	8.9	10	12
	cis-1,2-Dichloroethene	1.7	1.6	1	ND
	Tetrachloroethene	1.7	1.5	1.8	2.1
	Trichloroethene	12	11	8.3	5.8
MW-128	1,1-Dichloroethene	310	5.1	2.3	2.2
	Trichloroethene	38	1.3	1	ND
MW-129	1,1,1-Trichloroethane	1.8	2	1.9	~
	1,1-Dichloroethane	2.5	2.6	2.4	~
	1,1-Dichloroethene	26	27	25	~
	Tetrachloroethene	7.1	9.6	18	~
	Trichloroethene	11	11	12	~
MW-130	1,1,1-Trichloroethane	3.5	ND	4.4	ND
	1,1-Dichloroethene	41	52	55	57
	Tetrachloroethene	88	120	120	120
	Trichloroethene	58	75	76	74

Notes:
1 - Passive Diffusion Bag Sample Interval, refer to Table 3.2 for depth
ND - Not Detected above the reporting limit

PREPARED BY/DATE: JLP 10/27/04
CHECKED BY/DATE: JMQ 10/27/04

TABLE 8
POSTITIVE SUMMARY TABLE - EFFLUENT SAMPLES
February and May 2004 Semi-Annual Sampling Event
Year Six Event 1
Dunn Field - Memphis

Sample Site ID Date Collected	Industrial Permit Discharge Limits Monthly Average Maximum Level	 Instantaneous Daily Maximum	EFF-02-21-04 2/21/2004 15:20	EFF-05-24-04 5/24/2004 13:56
Volatile Organic Compounds - SW8260B ug/L				
1,1,1-Trichloroethane	10	20	ND	ND
1,1,2,2-Tetrachloroethane	500	1000	43	54
1,1-Dichloroethene	50	100	6.5	8.1
Acetone	Not Applicable	Not Applicable	3.3 R	5.9 B
Carbon tetrachloride	20	40	4.1	7.1
Chloroform	100	400	42	61
cis-1,2-Dichloroethene	80	100	14	20
Methylene chloride	10	20	2.6 B	3.2 B
Tetrachloroethene	60	120	14	16
trans-1,2-Dichloroethene	50	100	2.5	3.9 J
Trichloroethene	400	800	59	120
Metals - SW6010B ug/L				
Aluminum	1000	2000	Not Analyzed	0 J
Arsenic	40	100	Not Analyzed	3.3 B
Barium	Not Applicable	Not Applicable	Not Analyzed	104
Cadmium	10	20	Not Analyzed	0.3 B
Calcium	Not Applicable	Not Applicable	Not Analyzed	21800
Iron	10,000	20,000	Not Analyzed	118 B
Magnesium	Not Applicable	Not Applicable	Not Analyzed	10800 J
Manganese	Not Applicable	Not Applicable	Not Analyzed	78.2
Potassium	Not Applicable	Not Applicable	Not Analyzed	900 B
Selenium	Not Applicable	Not Applicable	Not Analyzed	4.5 J
Silver	Not Applicable	Not Applicable	Not Analyzed	0 J
Sodium	Not Applicable	Not Applicable	Not Analyzed	23300
Thallium	Not Applicable	Not Applicable	Not Analyzed	5.3 B
Zinc	300	1000	Not Analyzed	36.5
Mercury			Not Analyzed	1.1
Semi-volatile Organic Compounds - SW8270B ug/L				
2,4-Dinitrophenol	Not Applicable	Not Applicable	Not Analyzed	0 J
4,6-Dinitro-2-methylphenol	Not Applicable	Not Applicable	Not Analyzed	0 J
4-Nitrophenol	Not Applicable	Not Applicable	Not Analyzed	0 J

Notes:
J = Estimated quantitation: result below the Practical Quantitation Limit.
B = Estimated quanitation: possibly biased high or false positive based upon blank data or professional judgement.
R = Data Rejected based on quality control data
Bold and Box - Exceeds MCL or PRG
ND - Not Detected above the practical quantitation limit

FIGURES

LEGEND

- ■ RW03 RECOVERY WELL
- • MW53 MONITORING WELL
- ▲ MW-144 NEW DUNN FIELD WELL LOCATIONS

NOTE: WELLS SAMPLED ARE SHOWN IN GREEN.

600 0 600 1200
SCALE IN FEET

MONITORING WELL AND RECOVERY WELL LOCATIONS

SEMI-ANNUAL SUMMARY REPORT Y6S1
DUNN FIELD
DEFENSE DEPOT MEMPHIS, TENNESSEE

MACTEC

MACTEC Engineering and Consulting
2100 Riverchase Center, Suite 450
Birmingham, Alabama 35244 205-733-7600

Project No. 6301-03-0015
Figure No. 1
Drawn: BAW
Checked:

SCALE:
1"=600'

DUNN FIELD

DUNN AVENUE

LEGEND:

- • MONITORING WELL LOCATION
- 224.04 GROUNDWATER ELEVATION - FLUVIAL AQUIFER
- • GROUNDWATER ELEVATION - INTERMEDIATE AQUIFER
- —222— POTENTIOMETRIC SURFACE CONTOUR
- —LF— LIMITED TO NO FLOW BOUNDARY
- —LF— INFERRED LIMITED TO NO FLOW BOUNDARY
- CLAY ELEVATION EXCEEDS GROUNDWATER ELEVATION

GROUNDWATER ELEVATION MAP, APRIL 2004

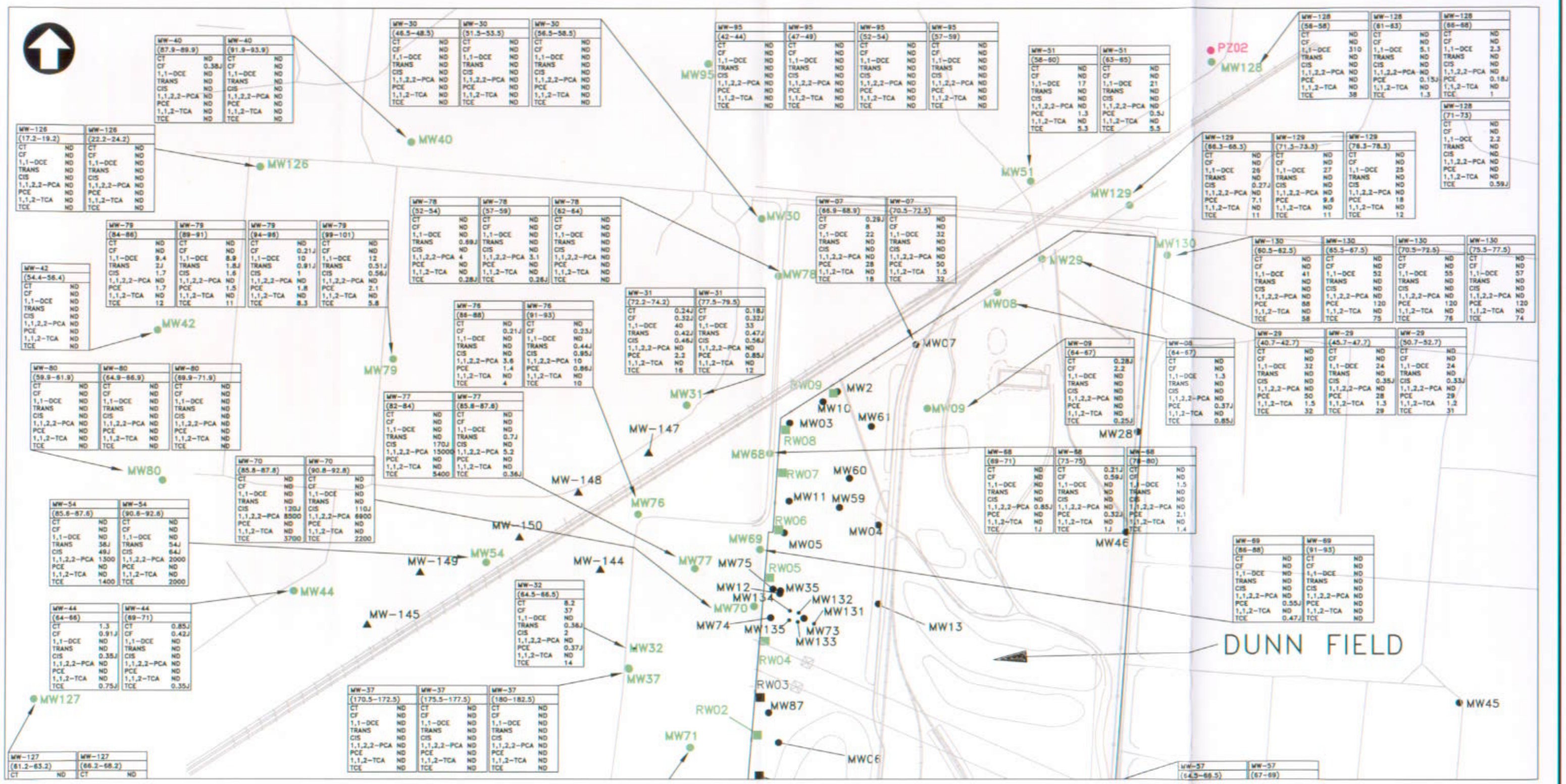
SEMI ANNUAL SUMMARY REPORT Y6S1
DUNN FIELD
DEFENSE DEPOT MEMPHIS, TENNESSEE

MACTEC

MACTEC Engineering and Consulting
2100 Riverchase Center, Suite 450
Birmingham, Alabama 35244 205-733-7600

Project No. 6301-03-0015
Figure No. 2
Drawn: BAW
Checked: JMQ

SCALE: 1"=600'



MW-40 (87.9-89.9)	
CT	ND
CF	0.38J
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-40 (91.9-93.9)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-30 (46.5-48.5)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-30 (51.5-53.5)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-30 (56.5-58.5)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-95 (42-44)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-95 (47-49)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-95 (52-54)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-95 (57-59)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-51 (58-60)	
CT	ND
CF	ND
1,1-DCE	17
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	1.3
1,1,2-TCA	ND
TCE	5.3

MW-51 (63-65)	
CT	ND
CF	ND
1,1-DCE	21
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	0.5J
1,1,2-TCA	ND
TCE	5.5

MW-128 (56-58)	
CT	ND
CF	ND
1,1-DCE	310
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	38

MW-128 (61-63)	
CT	ND
CF	ND
1,1-DCE	5.1
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	0.15J
1,1,2-TCA	ND
TCE	1.3

MW-128 (66-68)	
CT	ND
CF	ND
1,1-DCE	2.3
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	0.18J
1,1,2-TCA	ND
TCE	1

MW-128 (71-73)	
CT	ND
CF	ND
1,1-DCE	2.2
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	0.59J

MW-129 (66.3-68.3)	
CT	ND
CF	ND
1,1-DCE	26
TRANS	ND
CIS	0.27J
1,1,2,2-PCA	ND
PCE	7.1
1,1,2-TCA	ND
TCE	11

MW-129 (71.3-73.3)	
CT	ND
CF	ND
1,1-DCE	27
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	9.6
1,1,2-TCA	ND
TCE	11

MW-129 (76.3-78.3)	
CT	ND
CF	ND
1,1-DCE	25
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	18
1,1,2-TCA	ND
TCE	12

MW-130 (60.5-62.5)	
CT	ND
CF	ND
1,1-DCE	41
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	88
1,1,2-TCA	ND
TCE	58

MW-130 (65.5-67.5)	
CT	ND
CF	ND
1,1-DCE	52
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	120
1,1,2-TCA	ND
TCE	75

MW-130 (70.5-72.5)	
CT	ND
CF	ND
1,1-DCE	55
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	120
1,1,2-TCA	ND
TCE	76

MW-130 (75.5-77.5)	
CT	ND
CF	ND
1,1-DCE	57
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	120
1,1,2-TCA	ND
TCE	74

MW-126 (17.2-19.2)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-126 (22.2-24.2)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-78 (52-54)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	0.69J
CIS	ND
1,1,2,2-PCA	4
PCE	ND
1,1,2-TCA	ND
TCE	0.28J

MW-78 (57-59)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	5.1
PCE	ND
1,1,2-TCA	ND
TCE	0.26J

MW-78 (62-64)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-07 (66.9-68.9)	
CT	0.29J
CF	8
1,1-DCE	22
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	28
1,1,2-TCA	ND
TCE	18

MW-07 (70.5-72.5)	
CT	ND
CF	ND
1,1-DCE	32
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	50
1,1,2-TCA	1.5
TCE	32

MW-79 (84-86)	
CT	ND
CF	ND
1,1-DCE	9.4
TRANS	2J
CIS	1.7
1,1,2,2-PCA	ND
PCE	1.7
1,1,2-TCA	ND
TCE	12

MW-79 (89-91)	
CT	ND
CF	ND
1,1-DCE	8.9
TRANS	1.8J
CIS	1.6
1,1,2,2-PCA	ND
PCE	1.5
1,1,2-TCA	ND
TCE	11

MW-79 (94-96)	
CT	0.21J
CF	ND
1,1-DCE	10
TRANS	0.91J
CIS	1
1,1,2,2-PCA	ND
PCE	1.8
1,1,2-TCA	ND
TCE	8.3

MW-79 (99-101)	
CT	ND
CF	ND
1,1-DCE	12
TRANS	0.51J
CIS	0.56J
1,1,2,2-PCA	ND
PCE	2.1
1,1,2-TCA	ND
TCE	5.8

MW-42 (54.4-56.4)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-76 (86-88)	
CT	ND
CF	0.21J
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	3.6
PCE	1.4
1,1,2-TCA	ND
TCE	4

MW-76 (91-93)	
CT	ND
CF	0.23J
1,1-DCE	ND
TRANS	0.44J
CIS	0.95J
1,1,2,2-PCA	10
PCE	0.86J
1,1,2-TCA	ND
TCE	10

MW-31 (72.2-74.2)	
CT	0.24J
CF	0.32J
1,1-DCE	40
TRANS	0.42J
CIS	0.46J
1,1,2,2-PCA	ND
PCE	2.3
1,1,2-TCA	ND
TCE	16

MW-31 (77.5-79.5)	
CT	0.18J
CF	0.32J
1,1-DCE	33
TRANS	0.47J
CIS	0.56J
1,1,2,2-PCA	ND
PCE	0.85J
1,1,2-TCA	ND
TCE	12

MW-09 (64-67)	
CT	0.28J
CF	2.2
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	0.25J

MW-08 (64-67)	
CT	ND
CF	ND
1,1-DCE	1.3
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	0.37J
1,1,2-TCA	ND
TCE	0.65J

MW-29 (40.7-42.7)	
CT	ND
CF	ND
1,1-DCE	32
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	50
1,1,2-TCA	1.5
TCE	32

MW-29 (45.7-47.7)	
CT	ND
CF	ND
1,1-DCE	24
TRANS	ND
CIS	0.35J
1,1,2,2-PCA	ND
PCE	28
1,1,2-TCA	1.3
TCE	29

MW-29 (50.7-52.7)	
CT	ND
CF	ND
1,1-DCE	24
TRANS	ND
CIS	0.33J
1,1,2,2-PCA	ND
PCE	29
1,1,2-TCA	1.2
TCE	31

MW-80 (59.9-61.9)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-80 (64.9-66.9)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-80 (69.9-71.9)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-77 (82-84)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	170J
1,1,2,2-PCA	15000
PCE	ND
1,1,2-TCA	ND
TCE	5400

MW-77 (85.8-87.8)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	0.7J
CIS	ND
1,1,2,2-PCA	5.2
PCE	ND
1,1,2-TCA	ND
TCE	0.36J

MW-70 (85.8-87.8)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	120J
1,1,2,2-PCA	8500
PCE	ND
1,1,2-TCA	ND
TCE	3700

MW-70 (90.8-92.8)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	110J
1,1,2,2-PCA	6900
PCE	ND
1,1,2-TCA	ND
TCE	2200

MW-54 (85.6-87.6)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	38J
CIS	49J
1,1,2,2-PCA	1300
PCE	ND
1,1,2-TCA	ND
TCE	1400

MW-54 (90.6-92.6)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	54J
CIS	64J
1,1,2,2-PCA	2000
PCE	ND
1,1,2-TCA	ND
TCE	2000

MW-44 (64-66)	
CT	1.3
CF	0.91J
1,1-DCE	ND
TRANS	ND
CIS	0.35J
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	0.75J

MW-44 (69-71)	
CT	0.85J
CF	0.42J
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	0.35J

MW-32 (64.5-66.5)	
CT	8.2
CF	37
1,1-DCE	ND
TRANS	0.38J
CIS	2
1,1,2,2-PCA	ND
PCE	0.37J
1,1,2-TCA	ND
TCE	14

MW-37 (170.5-172.5)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-37 (175.5-177.5)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-37 (180-182.5)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-68 (69-71)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	0.85J
PCE	ND
1,1,2-TCA	ND
TCE	1J

MW-68 (73-75)	
CT	0.21J
CF	0.59J
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	0.32J
1,1,2-TCA	ND
TCE	1J

MW-68 (78-80)	
CT	ND
CF	ND
1,1-DCE	1.5
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	2.1
1,1,2-TCA	ND
TCE	1.4

MW-69 (86-88)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	0.55J
1,1,2-TCA	ND
TCE	0.47J

MW-69 (91-93)	
CT	ND
CF	ND
1,1-DCE	ND
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	ND
1,1,2-TCA	ND
TCE	ND

MW-127 (61.2-63.2)	
CT	ND

MW-127 (66.2-68.2)	
CT	ND

MW-57 (64.5-66.5)	

MW-57 (67-69)	

LEGEND

- ■ RW03 RECOVERY WELL
- • MW53 MONITORING WELL
- ▲ MW-144 NEW DUNN FIELD WELL LOCATIONS

MW-07 (66.9-68.9)	
CT	0.29J
CF	8
1,1-DCE	22
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	28
1,1,2-TCA	ND
TCE	18

Sample Depth in Feet
CT = Carbon Tetrachloride
CF = Chloroform
1,1-DCE = 1,1-Dichlorothene
TRANS = Trans 1,2-Dichloroethene
CIS = Cis 1,2-Dichloroethene
1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane
PCE = Tetrachloroethene
1,1,2-TCA = 1,1,2-Trichloroethane
TCE = Trichloroethylene

NOTE: WELLS SAMPLED ARE SHOWN IN GREEN.

300 0 300 600
SCALE IN FEET

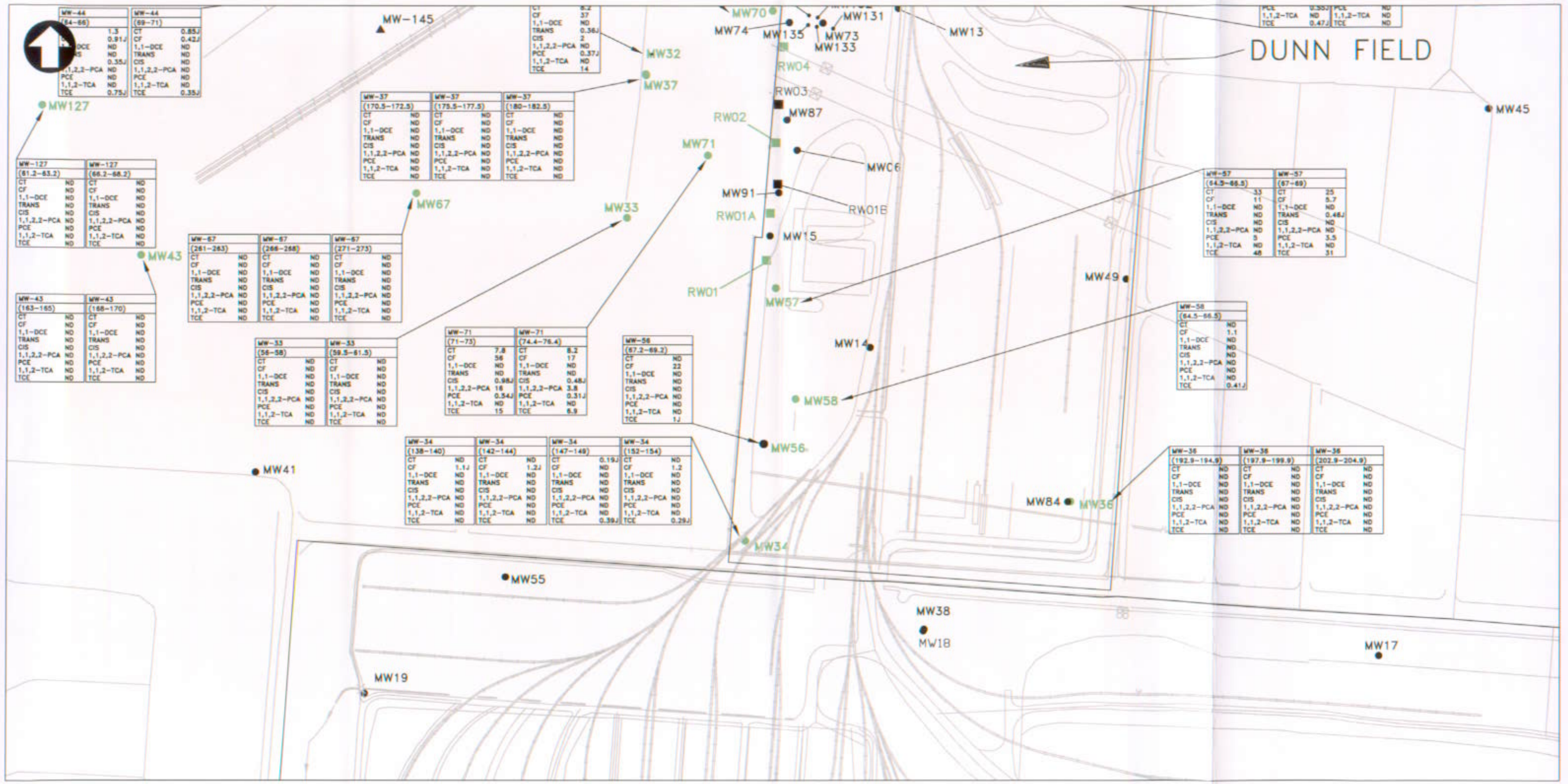
VOC CONCENTRATIONS, NORTH MONITORING WELLS

SEMI-ANNUAL SUMMARY REPORT Y6S1
DUNN FIELD
DEFENSE DEPOT MEMPHIS, TENNESSEE

MACTEC
MACTEC Engineering and Consulting
2100 Riverchase Center, Suite 450
Birmingham, Alabama 35244 205-733-7600

Project No. 6301-03-0015
Figure No. 3
Drawn: BAW
Checked:

SCALE: 1"=300'



LEGEND

- ■ RW03 RECOVERY WELL
- • MW53 MONITORING WELL
- ▲ MW-144 NEW DUNN FIELD WELL LOCATIONS

MW-07 (66.9-68.9)	
CT	0.29J
CF	8
1,1-DCE	22
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	28
1,1,2-TCA	ND
TCE	18

Sample Depth in Feet
CT = Carbon Tetrachloride
CF = Chloroform
1,1-DCE = 1,1-Dichlorothene
TRANS = Trans 1,2-Dichloroethene
CIS = Cis 1,2-Dichloroethene
1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane
PCE = Tetrachloroethene
1,1,2-TCA = 1,1,2-Trichloroethane
TCE = Trichloroethylene

NOTE: WELLS SAMPLED ARE SHOWN IN GREEN.

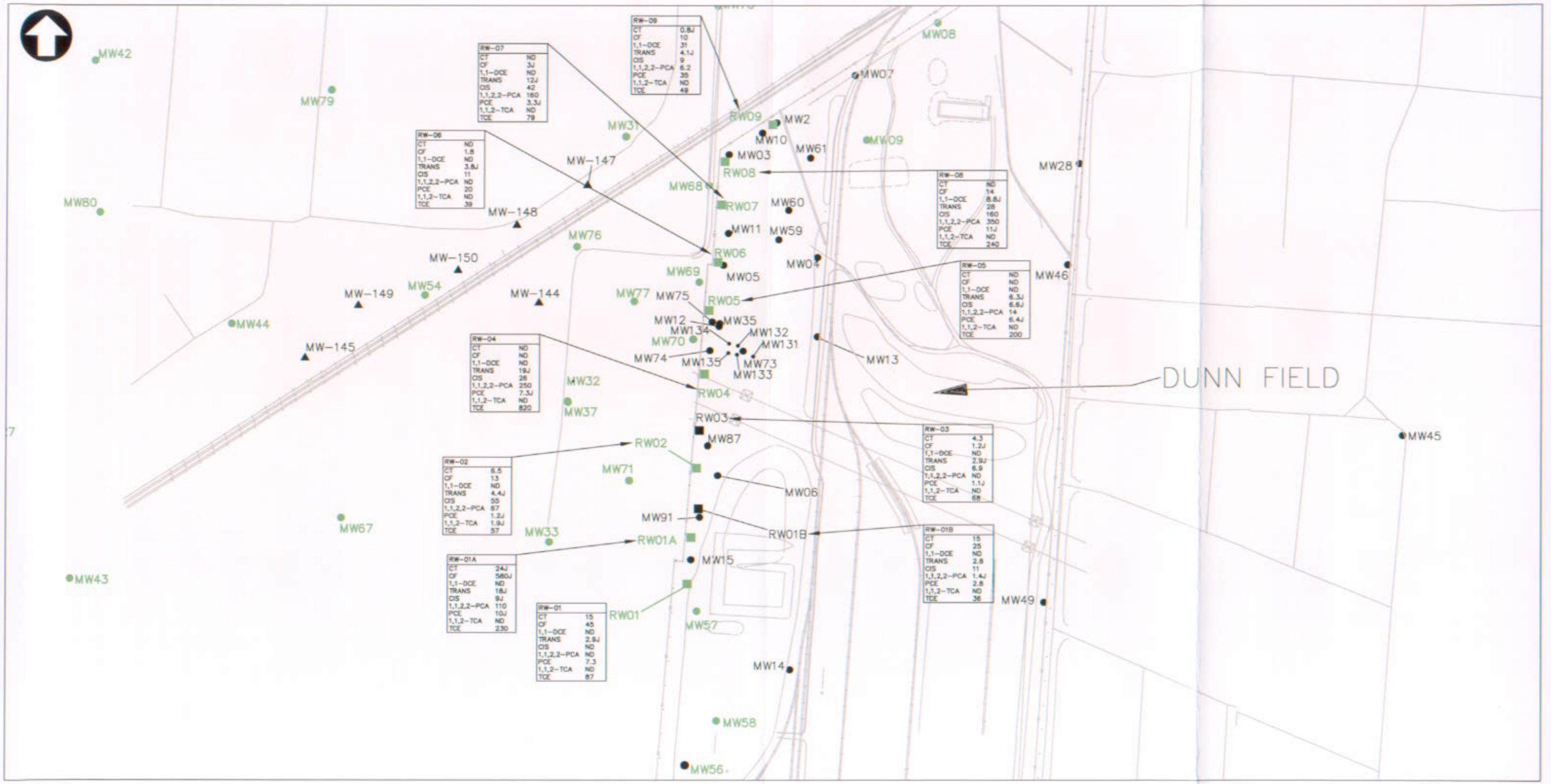
VOC CONCENTRATIONS, SOUTH MONITORING WELLS

SEMI-ANNUAL SUMMARY REPORT Y6S1
DUNN FIELD
DEFENSE DEPOT MEMPHIS, TENNESSEE

MACTEC
MACTEC Engineering and Consulting
2100 Riverchase Center, Suite 450
Birmingham, Alabama 35244 205-733-7600

Project No. 6301-03-0015
Figure No. 4
Drawn: BAW
Checked:

SCALE: 1"=300'



LEGEND

- ■ RW03 RECOVERY WELL
- • MW53 MONITORING WELL
- ▲ MW-144 NEW DUNN FIELD WELL LOCATIONS

NOTE: WELLS SAMPLED ARE SHOWN IN GREEN.

MW-07 (66.9-68.9)	
CT	0.29J
CF	8
1,1-DCE	22
TRANS	ND
CIS	ND
1,1,2,2-PCA	ND
PCE	28
1,1,2-TCA	ND
TCE	18

Sample Depth in Feet
CT = Carbon Tetrachloride
CF = Chloroform
1,1-DCE = 1,1-Dichlorothene
TRANS = Trans 1,2-Dichloroethene
CIS = Cis 1,2-Dichloroethene
1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane
PCE = Tetrachloroethene
1,1,2-TCA = 1,1,2-Trichloroethane
TCE = Trichloroethylene

VOC CONCENTRATIONS, RECOVERY WELLS

SEMI-ANNUAL SUMMARY REPORT Y6S1
DUNN FIELD
DEFENSE DEPOT MEMPHIS, TENNESSEE

MACTEC

MACTEC Engineering and Consulting
2100 Riverchase Center, Suite 450
Birmingham, Alabama 35244 205-733-7600

Project No. 6301-03-0015
Figure No. 5
Drawn: BAW
Checked:

SCALE: 1"=300'

APPENDIX A

SYSTEM LAYOUT AND OPERATION AND MAINTENANCE MONTHLY REPORTS

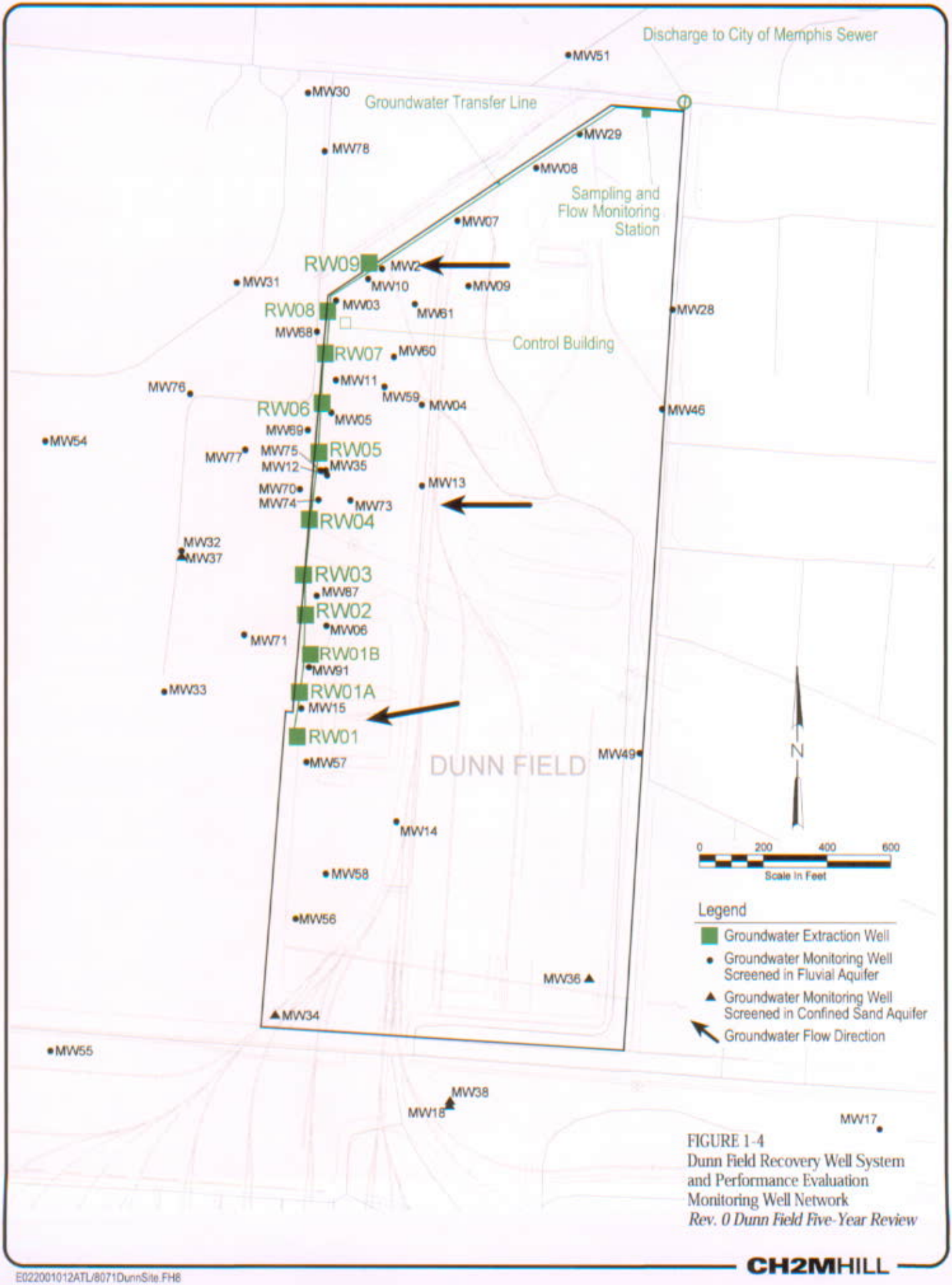


FIGURE 1-4
Dunn Field Recovery Well System
and Performance Evaluation
Monitoring Well Network
Rev. 0 Dunn Field Five-Year Review

January 2004 Monthly Discharge Report
Groundwater Recovery System
Dunn Field, Memphis Depot, Tennessee
MACTEC Project No. 6301-03-0015

Groundwater Recovery System Operation - January 2004

Duration of System Operation: 1-Jan-04 to 31-Jan-04

Data Collection Activities:

A baseline water level collection event was performed on January 7, 2004. Additional water levels were collected on January 22, 2004 Upgraded software for the data logger has been installed and contact with the data logger has been re-established. Data downloaded in January 2004 is unusable

System Operational Notes:

Site visits were performed on a weekly basis either for general system observations or to make repairs. With the exception of the repair items noted below, the system was observed to be operating normally.

Recovery Well Operational Notes:

General Summary:

Recovery well RW-4 and the flow meters at wells RW-3 and RW-9 were not operating properly as of January 1, 2004. The remainder of the system was observed to be operational for the duration of the month

Alarm Summary.

A low-flow alarm condition was noted on RW-1 This was the only alarm noted.

Maintenance Summary.

Repaired and replaced the Foxboro micro-controller for RW- 4 The well was successfully re-started on January 29, 2004. Flow meters at RW-3 and RW-9 were repaired on January 29 2004 Additionally, light bulbs and/or colored lenses were replaced in the control cabinets of the recovery wells.

Upcoming Maintenance for February:

Re-calibrate the data logger. Data downloaded in January 2003 is unusable

Replace run lights on select cabinets at the recovery wells

Total January 2004 Effluent Discharge Volume: 2639563 **Gallons** January 1 through January 31

January 2004 Average Discharge Flow Rate	59 6 GPM
January 2004 Maximum Discharge Flow Rate	65.2 GPM
January 2004 Minimum Discharge Flow Rate	58.8 GPM

Note - Flow rates for the wells with non-functional flow meters (RW-3 and RW-9) were based on historical average values.

Explanations for deviations from 100% recovery well operation run times are provided in the above "Recovery Well Operational Notes" section The tracking of each recovery well's operation was conducted manually as a check to the telemetry operation. Recordings were compiled to estimate each well's performance using recorded flow rates, totalized discharged volume and low level cycling to yield the following recovery well operational run time percentages:

Well I.D.	%Run Time	Average Flow Rate (GPM)	Total Flow (GPM)
RW-1	100	0 1	4464
RW-1A	100	3 6	160704
RW-1B	100	1.5	66960
RW-2	100	2 2	98208
RW-3	100	2 0	89280
RW-4	6	0 5	1339
RW-5	100	3.3	147312
RW-6	100	8 8	392832
RW-7	100	9 2	410688
RW-8	100	13 9	620496
RW-9	100	14 5	647280

System Effluent Samples Collected: System Effluent Sample was collected by Jacobs in November 2003 The next scheduled sample will be in late February 2003. A summary of the previously collected effluent samples prepared by Jacobs is attached.

Contaminant Mass Removal: Mass removal is calculated based on daily flow rates and the most recent analytical data. Cumulative amounts reflect contaminant removal since initial system startup.

January: 3.02 lbs TCE; 9.31 lbs Total VOCs

Cumulative: 205.53 lbs TCE; 519.18 lbs Total VOCs

Total System Effluent through 31 January 04 169,449,689 **Gallons**

Prepared by: WWP
Checked by: JMD

February 2004 Monthly Discharge Report
Groundwater Recovery System
Dunn Field, Memphis Depot, Tennessee
MACTEC Project No. 6301-03-0015

Groundwater Recovery System Operation - February 2004

Duration of System Operation: 1-Feb-04 to 29-Feb-04

Data Collection Activities:

Data was downloaded from the data logger on a weekly basis The data was downloaded from the transducers in the monitoring wells on 2-12-2004.

System Operational Notes:

Site visits were performed on a weekly basis either for general system observations or to make repairs. With the exception of the repair items noted below, the system was observed to be operating normally

Recovery Well Operational Notes

General Summary:

Recovery Well # 4 shut down on 12 February 2004 - the microcontroller was found to be non-functional and an electrical short was found between the control panel and pump. Recovery Well #8 was temporarily off-line on 2-21-2004. The well re-started automatically and was noted as operational on 2-26-2004 during the next site visit.

Alarm Summary:

A low-flow alarm condition was noted on RW-1 Recovery Well #4 was noted to both low flow and low-low level alarms on 2-21-2004. This was the only alarm noted

Maintenance Summary:

Attempted to re-start Recovery Well #4 on 2-26-2004 Microcontroller observed to be non-functional Pump pulled on March 1, 2004, new pump/motor ordered. The microcontroller was sent to the manufacturer for re-evaluation and repair or replacement

Upcoming Maintenance for March:

Re-calibrate the data logger Data remains unusable.

Replace pump and electrical wiring in Recovery Well #4 Pending evaluation from Foxboro, the microcontroller will also be repaired or replaced Tentatively scheduled for the week of 15 March 2004

Total February 2004 Effluent Discharge Volume:	**2,368,368**	**Gallons**	February 1 through February 29
February 2004 Average Discharge Flow Rate	56 7 GPM		
February 2004 Maximum Discharge Flow Rate	58 GPM		
February 2004 Minimum Discharge Flow Rate	42 5 GPM		

Explanations for deviations from 100% recovery well operation run times are provided in the above "Recovery Well Operational Notes" section. The tracking of each recovery well's operation was conducted manually as a check to the telemetry operation Recordings were compiled to estimate each well's performance using recorded flow rates, totalized discharged volume and low level cycling to yield the following recovery well operational run time percentages:

Well I.D.	%Run Time	Average Flow Rate (GPM)	Total Flow (Gallons)
RW-1	100	1 0	41760
RW-1A	100	3 6	149041
RW-1B	100	1 4	58464
RW-2	100	2 1	87696
RW-3	100	0 1	4176
RW-4	38	0 4	15827
RW-5	100	3 2	133632
RW-6	100	7.9	331783
RW-7	100	9 2	384192
RW-8	97	13 4	560461
RW-9	100	14 4	601344

System Effluent Samples Collected: A system effluent sample was collected on February 21, 2004. A summary of the previously collected effluent samples prepared by Jacobs is attached with the updated data is attached. The preliminary data has been included in the attached table, there we no exceedances.

Contaminant Mass Removal: Mass removal is calculated based on daily flow rates and the most recent analytical data Cumulative amounts reflect contaminant removal since initial system startup

February: 2.27 lbs TCE; 7.03 lbs Total VOCs

Cumulative: 207.80lbs TCE; 526.22 lbs Total VOCs

Total System Effluent through 29 February 2004 **172,628,044** **Gallons**

Prepared by: WWP 3-09-2004
Checked by: JMD 3-10-2004

March 2004 Monthly Discharge Report
Groundwater Recovery System
Dunn Field, Memphis Depot, Tennessee
MACTEC Project No. 6301-03-0015

Groundwater Recovery System Operation - March 2004

Duration of System Operation:	1-Mar-04 31-Mar-04

Data Collection Activities:

Field operational data was recorded during site visits as noted below.

System Operational Notes:

Site visits were performed on March 1-3, 16 and 25, 2004; either for general system observations or to make repairs. With the exception of the repair items noted below, the system was observed to be operating normally

Recovery Well Operational Notes

General Summary:

Recovery Well # 4 pump, motor and microcontroller were replaced on March 16, 2004. The pump was removed and noted to require repair on March 2, 2004. The microcontroller was re-sent to the manufacturer for repair on March 2, 2004. Recovery Well #8 was cycling on and off and shut down on March 16, 2004. The pump and motor for RW-8 were replaced on March 25, 2004. RW-5 was noted to have been shut down March 2 through 16, 2004, due to a microcontroller issue.

Alarm Summary:

A low-flow alarm condition was noted on RW-1 and RW-9 during the 16 and 25 site visits. RW-8 was noted to have a low-flow alarm on the March 16th Site Visit.

Maintenance Summary:

The pump from Recovery Well # 4 was pulled on March 2, 2004; new pump/motor ordered. The microcontroller was re-sent to the manufacturer for repair. The new equipment was installed on March 16, 2004. The pump and motor were pulled from Recovery Well # 8 on March 17, 2004 and determined to be non-operational, a new pump/motor were installed on March 25, 2004

Upcoming Activities for April:

Collect semi-annual groundwater samples.

Total March 2004 Effluent Discharge Volume:	2,398,032	**Gallons**	March 1 through March 31, 2004
March 2004 Average Discharge Flow Rate	53.7 GPM		
March 2004 Maximum Discharge Flow Rate	62.3 GPM		
March 2004 Minimum Discharge Flow Rate	46.2 GPM		

Explanations for deviations from 100% recovery well operation run times are provided in the above "Recovery Well Operational Notes" section. The tracking of each recovery well's operation was conducted manually as a check to the telemetry operation. Recordings were compiled to estimate each well's performance using recorded flow rates, totalized discharged volume and low level cycling to yield the following recovery well operational run time percentages.

Well I.D.	%Run Time	Average Flow Rate (GPM)	Total Flow (Gallons)
RW-1	100	1.0	44,640
RW-1A	100	3.7	165,168
RW-1B	100	1.5	66,960
RW-2	100	2.1	93,744
RW-3	100	0.1	4,464
RW-4	51.6	1.2	53,568
RW-5	58.1	1.9	84,816
RW-6	100	8.3	370,512
RW-7	100	9.3	415,152
RW-8	71	10.2	455,328
RW-9	100	14.5	647,280

System Effluent Samples Collected: The most recent system effluent sample was collected on February 21, 2004. A summary of the previously collected effluent samples prepared by Jacobs is attached with the updated data. The preliminary data has been included in the attached table; there we no exceedances.

Contaminant Mass Removal: Mass removal is calculated based on daily flow rates and the most recent analytical data. Cumulative amounts reflect contaminant removal since initial system startup.

March: 1.19 lbs TCE; 3.75 lbs Total VOCs

Cumulative: 208.98 lbs TCE; 529.97 lbs Total VOCs

Total System Effluent through 31 March 2004	**175,026,076**	**Gallons**

Prepared by: WWP 4-09-2004
Checked by: JMD 4-09-2004

April 2004 Monthly Discharge Report
Groundwater Recovery System
Dunn Field, Memphis Depot, Tennessee
MACTEC Project No. 6301-03-0015

Groundwater Recovery System Operation - April 2004

Duration of System Operation:	1-Apr-04 30-Apr-04

Data Collection Activities:

Field operational data was recorded during site visits as noted below Static water levels were collected on April 6-7, 2004 Passive diffusive bags samples were placed in the wells on April 7, 2004 and retrieved on April 29 and 30, 2004. The semi-annual samples were collected from the recovery wells on May 4, 2004

System Operational Notes:

Recovery Well # 8 was noted to require electrical diagnostics due to excessive cycling and the thermal overload circuit breaker requiring to be reset In addition, flow meters for wells RW-1, RW-3, and RW-5 were noted as requiring repair These recovery wells were observed to be functioning and the historical average flow rates were used to determine the monthly flow rates.

Recovery Well Operational Notes

General Summary:

Recovery Well #8 was cycling on and off and shut down on April 16, 2004. It was restarted on April 28, 2004 and again on April 30, 2004 The cycling was traced to an electrical short that was causing the thermal overload circuit to trip The circuit was then required to be manually reset.

Alarm Summary:

A low-flow alarm conditon was noted on RW-1 and RW-4 during the April 7th site visit and again on RW-1 on the April 30th site visit.

Maintenance Summary:

Re-started RW-8 after the thermal overload circuit breaker tripped on multiple occasions

Upcoming Activities for May:

Evaluate flow meters for repair or replacement and collect quarterly effluent sample

Total April 2004 Effluent Discharge Volume:	2,134,512	Gallons	April 1 through April 31, 2004
April 2004 Average Discharge Flow Rate	49 4 GPM		
April 2004 Maximum Discharge Flow Rate	63 5 GPM		
April 2004 Minimum Discharge Flow Rate	40 3 GPM		

Explanations for deviations from 100% recovery well operation run times are provided in the above "Recovery Well Operational Notes" section. The tracking of each recovery well's operation was conducted manually as a check to the telemetry operation Recordings were compiled to estimate each well's performance using recorded flow rates, totalized discharged volume and low level cycling to yield the following recovery well operational run time percentages:

Well I.D.	%Run Time	Average Flow Rate (GPM)	Total Flow (Gallons) - Based on Average Flow Rate During
RW-1	100	1 0	44,640
RW-1A	100	4 3	191,952
RW-1B	100	1 6	71,424
RW-2	100	2 0	89,280
RW-3	100	0.1	4,464
RW-4	100	3 0	133,920
RW-5	100	3 2	142,848
RW-6	100	8 1	361,584
RW-7	100	9 4	419,616
RW-8	65	7 3	325,872
RW-9	100	9 5	424,080

System Effluent Samples Collected :	The most recent system effluent sample was collected on February 21, 2004 A summary of the previously collected effluent samples prepared by Jacobs is attached with the updated data The preliminary data has been included in the attached table, there we no exceedances.
Contaminant Mass Removal:	Mass removal is calculated based on daily flow rates and the most recent analytical data. Cumulative amounts reflect contaminant removal since initial system startup. **March: 1.0 lbs TCE; 3.20 lbs Total VOCs** **Cumulative: 201.03 lbs TCE; 533.31 lbs Total VOCs**

Total System Effluent through 30 April 2004	177,160,588	Gallons

Prepared by GFB 5-07-2004
Checked by: JMD 5-10-2004

Submitted: 10-May-04

MAY 2004 Monthly Discharge Report
Groundwater Recovery System
Dunn Field, Memphis Depot, Tennessee
MACTEC Project No. 6301-03-0015

Groundwater Recovery System Operation - May 2004

Duration of System Operation: 1-May-04 to 31-May-04

Data Collection Activities:
The semi-annual sampling event of the recovery wells was performed on May 4, 2004. The semi-annual sample from RW- 8 was collected on May 6, 2004 following electrical repairs. The semi-annual system effluent sample was collected on May 24, 2004. It should be noted that RW-8 was not operational on May 24, 2004. A routine site visit was performed on May 20, 2004.

System Operational Notes:

RW-8 was noted to require electrical diagnostics due to excessive cycling and an apparent short-circuit that was causing the thermal overload breaker to trip. In addition, flow meters for wells RW-1, RW-3, and RW-5 were noted as requiring replacement. These recovery wells remain operational and were observed to be functioning during the site visits and the historical average flow rates were used to determine the monthly flow rates. Bulbs for the run light need replacing in RW-6 and RW-9.

Recovery Well Operational Notes

General Summary:

RW- 8 experienced down-time during May 2004 due to electrical short-circuiting. RW-1 experienced down time due to the thermal overload breaker being tripped. The remaining wells operated the remainder of the month.

Alarm Summary:
The following low-flow alarm conditions were noted. RW-1, RW-4 and RW-8 on May 20th. RW-1 and RW-8 on the May 24th.

Maintenance Summary.
Recovery Well # 8 was diagnosed with an electrical short between the thermal overload switch breaker and the pump motor. The wiring harness on the pump was determined to have a short and was replaced on May 6, 2004. Recovery Well # 8 went down on May 18, 2004 due to a faulty thermal overload switch. The part was ordered and is scheduled for replacement June 1, 2004.

Upcoming Activities for June
Replace the thermal overload switch in RW #8. Replace flow meters in Wells RW-1 RW-3 and RW-5, light bulbs for run lights for RW-6 and RW-9 and record monthly recovery well data. A planned system shut-down will occur on or about June 21, 2004 to allow for an evaluation of the potentiometric surface under non-pumping conditions. A system calibration will also be performed in conjunction with the system shut-down.

Total May 2004 Effluent Discharge Volume:	2,367,650	**Gallons** May 1 through May 31, 2004
May 2004 Average Discharge Flow Rate	55 GPM	
May 2004 Maximum Discharge Flow Rate	62.5 GPM	
May 2004 Minimum Discharge Flow Rate	49.2 GPM	

In addition to the 2,365,200 gallons of extracted groundwater, a total of 2,450 gallons of well development water from the Main Installation was discharged to the sanitary sewer system during the month of May.

Explanations for deviations from 100% recovery well operation run times are provided in the above "Recovery Well Operational Notes" section. The tracking of each recovery well's operation was conducted manually as a check to the telemetry operation. Recordings were compiled to estimate each well's performance using recorded flow rates, totalized discharged volume and low level cycling to yield the following recovery well operational run time percentages.

Well I.D.	%Run Time	Average Flow Rate (GPM)	Total Flow (Gallons) - Based on Average Flow Rate During Operational Period
RW-1	65	0.6	26,784
RW-1A	100	4.2	187,488
RW-1B	100	1.6	71,424
RW-2	100	2.1	93,744
RW-3	100	0.1	4,464
RW-4	100	3.2	142,848
RW-5	100	3.2	142,848
RW-6	100	9.8	437,472
RW-7	100	9.3	415,152
RW-8	65	6.1	272,304
RW-9	100	14.8	660,672

System Effluent Samples Collected
The most recent system effluent sample was collected on May 24, 2004. A summary of the previously collected effluent samples prepared by Jacobs is attached with the updated data. The preliminary data has been included in the attached table, there were no exceedances.

Contaminant Mass Removal:
Mass removal is calculated based on daily flow rates and the most recent analytical data. Cumulative amounts reflect contaminant removal since initial system startup.

May: 1.49 lbs TCE; 4.37 lbs Total VOCs

Cumulative: 211.5 lbs TCE; 537.7 lbs Total VOCs

Total System Effluent through 31 May 2004 179,617,086 **Gallons**

Prepared by: GFB 6-07-2004
Checked by: JMD 6-10-2004

JUNE 2004 Monthly Discharge Report
Groundwater Recovery System
Dunn Field, Memphis Depot, Tennessee
MACTEC Project No. 6301-03-0015

Groundwater Recovery System Operation - June 2004

Duration of System Operation:	1-Jun-04 30-Jun-04

Data Collection Activities:
Field operational data was recorded during the site visits as noted below The system was shut down from June 22 to June 25 to evaluate the effect of the groundwater recovery system on the potentiometric surface. Static water levels were collected on June 21-22 to serve as baseline measurements prior to the system shutdown (June 22) The final set of water level measurements were collected after stabilization (approximately 72 hours) of the water levels in the recovery wells. The system was re-started on June 25

System Operational Notes:
RW-8 was not operational on June 7, 2004, a damaged wire at the motor lead was identified and repaired on June 8 In addition, flow meters for wells RW-1, RW-3, and RW-5 were replaced on June 23 & 24. These recovery wells remained operational and were observed to be functioning during the site visits prior to replacement of the flow meters. The historical average flow rates were used to determine the monthly flow rates. A new current relay was installed in RW-8 on June 29 See comments above regarding the system shut-down.

Recovery Well Operational Notes

General Summary:

RW-8 experienced down-time during June 2004 due to electrical short-circuiting and was repaired on June 8. RW-1, 3 & 5 flow meters were replaced June 23-24 and all flow meters were calibrated June 28-29

Alarm Summary:
The following low-flow alarm conditions were noted RW-1, on June 11th and 22nd.

Maintenance Summary:
Recovery Well # 8 was diagnosed with an electrical short between the thermal overload switch breaker and the pump motor The wiring harness on the pump was determined to have a short and was replaced on June 8, 2004 Recovery Well # 8 thermal overload switch was replaced June 1st and the current relay was replaced June 29th Recovery wells # 1, 3 & 5 flow meters were replaced June 23-24 and all of the system flow meters calibrated June 28-29 Prior to and during the system shut-down the pressure transducers and flow meters were calibrated as part of the annual system calibration. The pressure transducer in RW#1 calibrated within manufactures specifications but the readings collected during the system shut-down exhibited variability

Upcoming Activities for July

Replace the current relay in RW #1, evaluate the pressure transducer in RW#1, perform a system shut-down on/or about July 19 to allow for relocation of the effluent line due to the Hays Road construction

Total June 2004 Effluent Discharge Volume:	2,323,161	**Gallons**	June 1 through June 30, 2004
June 2004 Average Discharge Flow Rate	53 54		
June 2004 Maximum Discharge Flow Rate	68 4 GPM		
June 2004 Minimum Discharge Flow Rate	0 0 GPM		

In addition to the 2,312,991 gallons of extracted groundwater, a total of 10,170 gallons of well development water from the Main Installation was discharged to the sanitary sewer system during the month of June

Explanations for deviations from 100% recovery well operation run times are provided in the above "Recovery Well Operational Notes" section The tracking of each recovery well's operation was conducted manually as a check to the telemetry operation Recordings were compiled to estimate each well's performance using recorded flow rates totalized discharged volume and low level cycling to yield the following recovery well operational run time percentages

Well I.D.	%Run Time	Average Flow Rate (GPM)	Total Flow (Gallons) - Based on Average Flow Rate During Operational Period
RW-1	89	0 9	38,016
RW-1A	89	3 8	162,720
RW-1B	89	1 4	60,912
RW-2	89	1 8	79,056
RW-3	89	0 2	9,279
RW-4	89	3 1	135,360
RW-5	89	2 8	122,400
RW-6	89	9 3	401,184
RW-7	89	8 2	353,520
RW-8	64	8 9	384,192
RW-9	89	13 1	566,352

System Effluent Samples Collected	The most recent system effluent sample was collected on May 24, 2004 A summary of the previously collected effluent samples prepared by Jacobs is attached with the updated data The preliminary data has been included in the attached table, there were no exceedances
Contaminant Mass Removal:	Mass removal is calculated based on daily flow rates and the most recent analytical data Cumulative amounts reflect contaminant removal since initial system startup **June: 2.35 lbs TCE; 5.86 lbs Total VOCs** **Cumulative: 213.9 lbs TCE; 543.6 lbs Total VOCs**
Total System Effluent through 30 June 2004	**181,940,247** **Gallons**

Prepared by GFB 7-07-2004
Checked by WWP 7-09-2004

APPENDIX B

INDUSTRIAL WASTEWATER DISCHARGE AGREEMENT PERMIT NO. S-NN3.0097

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

» » » Intent and Purpose « « «

The City of Memphis in enacting the revised Sewer Use Ordinance deemed it necessary to identify certain significant contributors to the municipal sewer system and regulate the significant contributors on the discharge quantity and characteristics which would be permitted to be discharged into the municipal wastewater system. The basis for the values shown in the following sections are primarily to comply with the State of Tennessee and the Environmental Protection Agency regulations and to preserve the integrity of the publicly owned treatment works.

The agreement serves as a firm understanding between the user and the City for a specified period of time not to exceed five (5) years. The parameters which have been identified in this document reflect the best estimate of the user as to the characteristics of his discharge and will remain in effect until modified by amendments to the discharge agreement. The allowable levels for each parameter are determined by limitations imposed by the Sewer Use Ordinance and for compounds, not specifically limited by the Sewer Use Ordinance or EPA Categorical limitations, the best professional judgement of the City staff engineers and chemists. Primary in the determination is the protection of the integrity of the publicly owned treatment works. Accordingly, tables of guidance for criteria influent levels for specific incompatible wastes have been developed and are part of the Sewer Use Ordinance.

Willful failure of an industrial user to report significant changes in operations which affect wastewater constituents and characteristics can result in the revoking of his discharge agreement. If a public sewer becomes obstructed or damaged because of any substances improperly discharged into it, D D S P- D (Memphis) if responsible for such discharge shall be billed and shall pay for all the expenses incurred by the City in cleaning out, repairing, or rebuilding the sewer.

According to Section 33-173 of the Sewer Use Ordinance, violations of the Discharge Agreement and the Sewer Use Ordinance requirements may result in civil penalties up to ten thousand dollars ($10,000) for each day during which the acts or omission continues or occurs.

Each industrial user discharging compounds regulated by the pretreatment program or other programs identified by the Environmental Protection Agency (EPA) must also pretreat to the point as required by the EPA. In addition to this, the State of Tennessee has identified certain allowable levels for incompatibles entering a publicly owned treatment works. The pretreatment values set by the City are listed in Table 1 and Table 2, Section 33-104 of the Sewer Use Ordinance.

Wastewater discharge agreements are issued to a specific user for a specific operation. A wastewater discharge agreement shall not be reassigned or transferred or sold to a new owner, new user different premises, or a new or changed operation which will significantly affect wastewater characteristics, Section 33-85 of the Sewer Use Ordinance.

The industrial user shall comply with the record-keeping requirements outlined in the general pretreatment Standards in part 403.12 (o) of the Federal Regulations and Section 33-83(f) of the Sewer Use ordinance.

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

» » » Intent and Purpose « « «

According to Section 33-110 of the Sewer Use Ordinance, the Industrial User shall notify the Control Authority immediately in the event of spill, bypass, upset and slug or accidental discharges, including any discharges that would violate a prohibition under Section 33-103, with procedures for the follow-up written notification within five days. The Control Authority will evaluate the Industrial User every two years or as needed for slug discharge control plan, if not required then, the Industrial User shall submit a signed statement stating that there is no potential nor any need for developing such a plan. However, if required then the Control Authority will attach a copy of the plan to this Agreement.

Whereas, Chapter 33 of the Code of Ordinances of the City of Memphis requires that "dischargers to the municipal wastewater treatment facilities designated by the approving authority as requiring agreements shall not discharge to the system without said agreement"; and

Whereas, D D S P- D (Memphis) located at 2163 Airways Blvd, Bldg 144 desires to discharge to the Memphis sewer system; and

Whereas, D D S P- D (Memphis) agrees to comply with all requirements specified in Chapter 33 of the Code of Ordinances and any revision thereof.

Now therefore, D D S P- D (Memphis) is granted the right to discharge the wastewater of such characteristics and volume as described in this wastewater discharge permit into the City of Memphis sewer system from May 01, 2003 to April 30, 2008.

Signed by:

Rodney Thomas

City of Memphis

Authorized Industrial User Representative:

JOHN P. DE BACK

DOD BRAC ENVIRONMENTAL COORDINATOR

John P. DeBack

D D S P- D (Memphis)

City Of Memphis
Industrial Wastewater Discharge Agreement

S	N	N	3	097
DDSP-D MEMPHIS				

Start Date	Expiration Date
May 01, 2003	April 30, 2008

A.1	Corporate Name	D D S P- D (Memphis)		
	Corporate Address	2163 Airways Blvd, Bldg 144		
		Memphis	TN	38114
A.2	Company Name	D D S P- D (Memphis)		
	Mailing Address	2163 Airways Blvd, Bldg 144		
		Memphis	TN	38114
A.3	Facility Name	D D S P- D (Memphis)		
	Facility Address	2163 Airways Blvd, Bldg 144		
		Memphis	TN	38114
A.4	Contact Official	John De Back		
	Title	B R A C Environmental Coordinator		
	Phone	(901) 544-0622		
A.5	Signing Official	John De Back		
	Title	B R A C Environmental Coordinator		
	Signee Address	2163 Airways Blvd, Bldg 144		
		Memphis	TN	38114

A.6 I certify that the information contained in this industrial wastewater discharge agreement consisting of twenty two pages (and any appendices) is familiar to me and to the best of my knowledge and belief, such information is true, complete and correct.

John D De Back May 01, 2003

Authorized Industrial User Representative: Signature/Date

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

SECTION B - FACILITY OPERATIONAL CHARACTERISTICS

B.1 Description of manufacturing or service activities

The operation to be permitted is a ground water recovery system located in an open area, Dunn Field, adjacent to the northern perimeter of the DDMT main installation. The DDMT facility is currently being closed with the intent of transferring much of the facility to private ownership. Manufacturing of goods does not occur in the Dunn Field portion of the facility.

*Note: The ground water (GW) recovery and discharge system will operate on a continual basis once the system is completely operational. The federal government will operate and maintain the system.

B.2 Standard Industrial Classification(s)

a. 9711 b. c. d. e. f.

B.3 Weekly days of operation are 7 days/Week (GW)

B.4 The hours of operation and the number of employees per shift.

	Times		Number of Employees		
Shift	Start	Stop	Weekday	Saturday	Sunday
Day	8:00 am	5:00 pm	1		
Evening					
Night					

B.5 Is production operation subject to seasonal variation? No

If so, complete the following:

a. Seasonal maximum wastewater discharged into the municipal sewer system is _____ gallons/day, during the months of _____

b. Seasonal minimum wastewater discharged into the municipal sewer system is _____ gallons/day, during the months of _____

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.6 Description of other operational schedule characteristics / scheduled shutdown

No operational variations are currently planned. The pumping rate may be altered based on the hydraulic capacity of the city sewer collection system, if required.

This discharge agreement application is for the following groundwater recovery system:

* One 40 - gpm wells
* One 50 - gpm wells
* Five 60 - gpm wells

This seven well groundwater recovery system will result in a total estimated discharge flow of 390 gpm (0.562 mgd) .

Requests for permits for additional wells beyond the seven identified may be submitted in the future, if required. The ground water design currently requires up to seventeen total wells to be installed in up to two phases.

B.7 Description of operational variables and frequency of occurrances which may result in unusual discharges

Fluctuations in the discharge of the system may occur due to changes in ground water conditions. The discharges described in Section B.6 are expected to be maximum discharges.

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.8 Raw Materials

Type	Quantity	Units
N / A		

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.9 Catalysts, Intermediates

Type	Quantity	Units
N / A		

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.10 Principal Products

Type	Quantity	Units
No Manufacturing Activities		

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.11 Byproducts and Waste Products

Type	Quantity	Units
None		

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.12 Components of Non-contact Cooling Water

Type	Quantity	Units
N / A		

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

B.13 The person (or position) on the plant site who shall be contacted for emergency situations during plant operating hours.

Name	John De Back
Title	B R A C Environmental Coordinator
Phone	(901)-544-0622

B.14 The person(s) who shall be contacted at any time during emergency situations.

Name	Phone
John De Back - B R A C Environ. Coordinator	(901)-544-0622

B.15 Description of spill prevention controls and counter measure plans / accidental and slug discharges

A spill of any material or contaminated stormwater run-off as a result of an excavation of hazardous materials or any wastewater other than recovered groundwater shall not be discharged into the sanitary sewer without a written approval from the City of Memphis.

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

SECTION C - WATER USAGE CHARACTERISTICS

C.1 MLG&W Account number(s) 124708000

C.4 f. & C.5 a. - Recovered ground water only

C.2 MLG&W Billing address (if different from A.3)

C.3 Annual water usage by source:

From	Million Gallons Per Year
a. Public water supply	
b. Private well	
c. Surface stream	

C.4 Daily average water consumption:

In	Gallons Per Day
a. Process (industrial)	
b. Non-contact cooling	
c. Boiler Feed	
d. Product	
e. Domestic/Sanitary	
f. Other	561,600

C.5 Daily average water discharge:

To	Gallons Per Day
a. Wastewater sewer	561,600
b. Storm drain	
c. Waste hauler	
d. Evaporative loss	
e. Product	

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

D.3 Priority Pollutants and other substances that may be present in the wastewater discharge

(See Appendix A for complete listing.)

PAGE 1 OF 2 Ground Water with a flow of 561,600 gallons / day

Parameter	PPN	Class	Daily Average (Monthly Average) Maximum Level mg/l	Daily Average (Monthly Average) Maximum Level lbs/day	Instantaneous (One Day) Maximum Level mg/l	Instantaneous (One Day) Maximum Level lbs/day
1,1,1-trichloroethane	11	Volat	0.010	0.047	0.020	0.094
1,1,2,2-tetrachloroethane	15	Volat	0.500	2.342	1.000	4.684
1,1,2-trichloroethane	14	Volat	0.050	0.234	0.100	0.468
1,1-dichloroethene		Volta	0.050	0.234	0.100	0.468
Aluminum		Metal	1.000	4.684	2.000	9.367
Arsenic	115	Metal	0.040	0.187	0.100	0.468
Bis (2-ethylhexyl) Phthalate	66	Semiv	0.010	0.047	0.020	0.094
Cadmium (total)	118	Metal	0.010	0.047	0.020	0.094
Carbon Tetrachloride (tetrachlor-)	6	Volat	0.020	0.094	0.040	0.187
Chloroform (trichloromethane)	23	Volat	0.100	0.468	0.200	0.937
Chromium (total)	119	Metal	0.200	0.937	0.400	1.873
Cis-1,2-dichloroethene		Volat	0.080	0.375	0.100	0.468
Copper (total)	120	Metal	0.200	0.937	0.400	1.873
Di-n-butyl Phthalate	68	Semiv	0.030	0.141	0.060	0.281
Iron		Metal	10.000	46.837	20.000	93.675
Lead (total)	122	Metal	0.150	0.703	0.300	1.405
Mercury	123	Metal	0.001	0.005	0.002	0.009
Methylene Chloride (dichlorometh-)	44	Volat	0.010	0.047	0.020	0.094
Naphthalene	55	Semiv	0.010	0.047	0.020	0.094
Nickel (total)	124	Metal	0.100	0.468	0.300	1.405
Phenol	65	Semiv	0.010	0.047	0.020	0.094
Tetrachloroethylene (perc- & Tet-)	85	Semiv	0.060	0.281	0.120	0.562
Toluene	86	Volat	0.020	0.094	0.040	0.187
Trans-1,2-dichloroethene		Volat	0.050	0.234	0.100	0.468
Trichloroethylene (trichloroethe-)	87	Volat	0.400	1.873	0.800	3.747

City Of Memphis Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

D.3 Priority Pollutants and other substances that may be present in the wastewater discharge

(See Appendix A for complete listing.)

PAGE 2 OF 2 Ground Water with a flow of 561,600 gallons / day

Parameter	PPN	Class	Daily Average (Monthly Average) Maximum Level mg/l	Daily Average (Monthly Average) Maximum Level lbs/day	Instantaneous (One Day) Maximum Level mg/l	Instantaneous (One Day) Maximum Level lbs/day
Zinc (total)	128	Metal	0.300	1.405	1.000	4.684

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

D.4 The person or laboratory responsible for wastewater sampling and analysis

The name of the laboratory will be provided once a contract is in place, the groundwater recovery system (described in B . 6) is installed, and sampling begins.

D.5 Type and description of wastewater metering and sampling facilities

A continuous direct reading meter, flow totalizer, and sampling tap will be provided just prior to the discharge pipe leaving DDMT property.

D.6 Any batch wastewater discharges? No

If yes, describe type, volume, strength and time of discharges

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

D.7 Is wastewater treated prior to discharge into the municipal sewer system? No

If yes, complete the following:

a. Description of unit processes used and wastewater quality before and after treatment

b. Description of production characteristics and any persistent or normal operational problems which may affect treatment system operations

c. Description of quality testing or process control methodology which shall ensure acceptable treatment levels

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

SECTION E - SEWER FLOW PLAN, SITE PLAN AND PROCESS SCHEMATICS

E.1 The area of plant site in acres 64.11

E.2 Sewer flow plan or list of outlets, size and flow

PART 1 OF 3

The proposed layout of the groundwater recovery wells and piping system are shown on the figure provided in Attachment 2. Groundwater from the recovery wells will be combined into a common pipeline, conveyed and discharged (i.e., single discharge) into the sewer manhole located at Rozelle Street on the South side of Cane Creek (as shown on the Attachment 2 figure).

Initially, the groundwater discharge rates will be approximately 830 gpm. Each well will be brought on line by discharging flow from an 8-hour period into a holding tank. The groundwater in the holding tank will be analyzed to confirm concentrations are below the proposed discharge limits, prior to discharge to the sewer system.

City Of Memphis
Industrial Wastewater Discharge Agreement

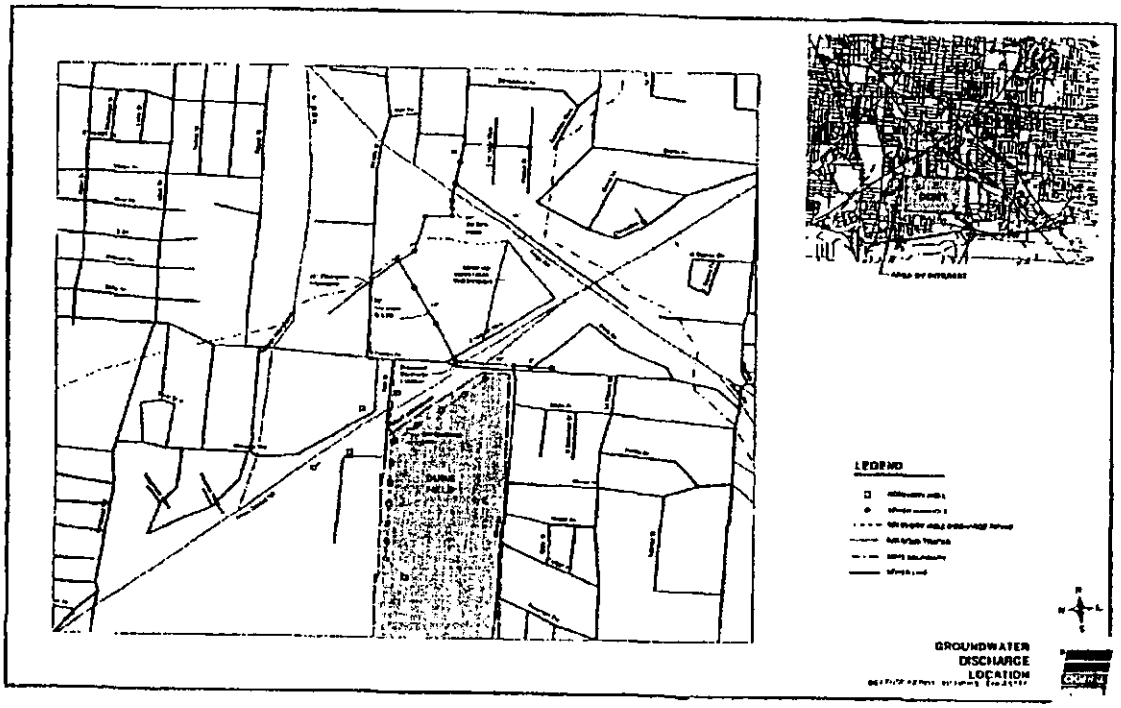
S-NN3-097
DDSP-D MEMPHIS

SECTION E - SEWER FLOW PLAN, SITE PLAN AND PROCESS SCHEMATICS

E.1 The area of plant site in acres 64.11

E.2 Sewer flow plan or list of outlets, size and flow

PART 3 OF 3



City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

E.3 Plan indicating major structures and locations of hazardous materials and certain sewer appurtenances

PART 1 OF 1

See attached plan.

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

E.5 Diagram and description of areas with quantified acreage where storm waters (run-off) are discharged into the municipal sewer system

Storm water total acreage 0.00

PART 1 OF 1

No storm water is being discharged into the sanitary sewer.

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

SECTION F - SELF-MONITORING SCHEDULE PART 1 OF 1

F.1 The self monitoring requirements to be performed and/or reported to the City of Memphis.

All monitoring records should be kept on file for a minimum of 3 years.

According to Section 33-83 of the Sewer Use Ordinance, if sampling performed by an Industrial User indicates a violation, the User shall notify the Control Authority within 24 hours of becoming aware of the violation. The User shall repeat the sampling and analysis and submit the results of the repeated analysis to the City within 30 days after becoming aware of the violation or sooner if so directed by the City Authorized representatives.

If any pollutant is monitored more frequently than required, using EPA approved methods, the results of this monitoring shall be included in the report.

A. SELF-MONITORING REQUIREMENT:

1) Continuous flow monitoring of the final discharge (Groundwater).

2) One (1) grab sample shall be collected semi-annually in May and November with analyses for:

pH
VOCs (SW846 Method 8240)
SVOCs (SW846 Method 8270)
TAL Metals (EPA 200 Series)

B. REPORTING REQUIREMENT:

1. Monthly reports include the total volume dishcarged be sent by the 10th of each month.

2. Semi-annual Reports detailing all analyses of samples collected shall be submitted in June & December.

The above reports shall be submitted to:

Mr. Akil AL-Chokhachi
City of Memphis
2303 North Second Street
Memphis, Tennessee 38127-7500

The Monthly volumes discharged shall be sent to :

Sewer Fee Billing Department
Room 622, City Hall
125 Mid-America Mall
Memphis, TN 38103

A spill of any material or contaminated stormwater run-off as a result of an excavation of hazardous materials or any wastewater other than recovered groundwater shall not be discharged into the sanitary sewer without a written approval from the City ofMemphis.

City Of Memphis
Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

SECTION G - COMPLIANCE SCHEDULE PART 1 OF 1

G.1 The compliance schedule as required to meet categorical pretreatment standards and other requirements required by the City of Memphis pretreatment program.

None required

City Of Memphis Industrial Wastewater Discharge Agreement

S-NN3-097
DDSP-D MEMPHIS

SECTION H - HAZARDOUS MATERIALS PART 1 OF 1

H.1 All hazardous, toxic, noxious or malodorous materials used, produced or formed as by-product or waste.

NOT APPLICABLE FOR DDMT INSTALLATION

DUNN FIELD:

Historically, Dunn Field was used as a burial area on DDMT. The individual burial sites within Dunn Field have the following suspected buried contaminants:

thiodiglycol
arsenic
chloroform
ammonia hydroxide
acetic acid
ammonia salts
metals
orthotoluidine dihydrochloride
VOCs
SVOCs
methyl bromide
nitric acid PAHs
trichloroacetic acid
sulphuric acid
hydrochloric acid
lead
pesticides

APPENDIX C

RESULTS OF LABORATORY ANALYSES

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-007	MW-007	MW-008	MW-009	MW-029	MW-029	MW-029
	Date Collected	4/28/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004
	Time Collected	16:10	16:15	15:45	15:55	15:10	15:15	15:20
	Depth	66.9-68.9	70.5-72.5	65-67	76.5-78.5	40.7-42.7	45.7-47.7	50.7-52.7
	Parent Sample							
LABNAME	RESUNIT							
1,1,1-Trichloroethane	ug/L	0.94 J	1.5	<1	<1	2.7	2.6	2.8
1,1,2,2-Tetrachloroethane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	1.1	1.5	<1	<1	1.4	1.3	1.2
1,1-Dichloroethene	ug/L	22	32	1.3	<1	24	24	24
1,2-Dichloroethane	ug/L	0.23 J	0.41 J	<1	<1	0.22 J	<1	0.23 J
1,2-Dichloropropane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
2-Butanone (MEK)	ug/L	6.1 J	4.8 J	5.8 J	6.1 J	5.9 J	5.7 J	5 J
2-Hexanone	ug/L	<5 J	<6.2 J	<5 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5	<6.2	<5	<5	<5	<5	<5
Acetone	ug/L	12 J	12 J	11 J	15 J	12 J	12 J	13 J
Benzene	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1.2 J	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1 J	<1.2	<1 J	<1 J	<1 J	<1 J	<1 J
Carbon disulfide	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	0.29 J	<1.2	<1	0.28 J	<1	<1	<1
Chlorobenzene	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Chlorodibromomethane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Chloroform	ug/L	8	<1.2	<1	2.2	<1	<1	<1
Chloromethane	ug/L	<1	<1.2	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	<1	<1.2	<1	<1	0.4 J	0.35 J	0.33 J
cis-1,3-Dichloropropene	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1.2	<1	<1	<1	<1 J	<1
Methylene chloride	ug/L	<1	<1.2	0.4 B	0.45 B	<1	<1	<1
m-Xylene & p-Xylene	ug/L	<2	<2.5	<2	<2	<2	<2	<2
o-Xylene	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	28	50	0.37 J	<1	27	28	29
Toluene	ug/L	<1	<1.2	<1	8.1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	<1	<1.2 J	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<1	<1.2	<1	<1	<1	<1	<1
Trichloroethene	ug/L	18	32	0.85 J	0.25 J	29	29	31
Vinyl acetate	ug/L	<2	<2.5	<2	<2	<2	<2	<2
Vinyl chloride	ug/L	<1	<1.2	<1	<1	<1	<1	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-030	MW-030	MW-030	MW-031	MW-031	MW-032	MW-033
	Date Collected	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	10:10	10:15	10:20	15:10	15:15	11:45	11:20
	Depth	46.5-48.5	51.5-53.5	56.5-58.5	72.2-74.2	77.5-79.5	64.5-66.5	56-58
	Parent Sample							
LABNAME	RESUNIT							
1,1,1-Trichloroethane	ug/L	<1	<1	<1	0.74 J	0.54 J	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	<1	<1	<1	<1	<1	8.1	<1
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	0.4 J	0.39 J	<1	<1
1,1-Dichloroethene	ug/L	<1	<1	<1	40	33	<1	<1
1,2-Dichloroethane	ug/L	<1	<1	<1	0.28 J	0.23 J	<1	<1
1,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	ug/L	5 J	5.9 J	5.9 J	5.8 J	5.7 J	6 J	6.1 J
2-Hexanone	ug/L	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5	<5	<5	<5	<5	<5	<5
Acetone	ug/L	14 J	11 J	11 J	30 J	32 J	15 J	11 J
Benzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	0.24 J	0.18 J	8.2	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Chlorodibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	<1	<1	0.32 J	0.32 J	37	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	<1	<1	<1	0.46 J	0.56 J	2	<1
cis-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	ug/L	<2	<2	<2	<2	<2	<2	<2
o-Xylene	ug/L	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	<1	<1	<1	2.2	0.85 J	0.37 J	<1
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	<1	<1	<1	0.42 J	0.47 J	0.36 J	<1
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ug/L	<1	<1	<1	16	12	14	<1
Vinyl acetate	ug/L	<2	<2	<2	<2	<2	<2	<2
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-033	MW-034	MW-034	MW-034	MW-034	MW-036	MW-036	MW-036
	Date Collected	4/29/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004	4/28/2004
	Time Collected	11:25	16:20	16:25	16:30	16:35	14:40	14:45	14:50
	Depth	59.5-61.5	138-140	142-144	147-149	152-154	192.9-194.9	197.9-199.9	202.9-204.9
	Parent Sample								
LABNAME	RESUNIT								
1,1,1-Trichloroethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
2-Butanone (MEK)	ug/L	6.9 J	5 J	5.4 J	5.1 J	5.7 J	4.9 J	5.3 J	5.6 J
2-Hexanone	ug/L	<5 J	<20 J	<20 J	<5 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5	<20 J	<20 J	<5	<5	<5	<5	<5
Acetone	ug/L	11 J	170 J	170 J	19 J	13 J	30 J	20 J	21 J
Benzene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Bromoform	ug/L	<1	<4 J	<4 J	<1 J	<1 J	<1 J	<1 J	<1 J
Bromomethane	ug/L	<1 J	<4	<4	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	<1	<4	<4	<1	<1	0.42 J	0.41 J	<1
Carbon tetrachloride	ug/L	<1	<4	<4	0.19 J	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Chlorodibromomethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Chloroethane	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Chloroform	ug/L	<1	1.1 J	1.2 J	1.2	1.2	<1	<1	<1
Chloromethane	ug/L	<1	<4 J	<4 J	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<4	<4	<1	<1	0.23 J	<1	<1
Methylene chloride	ug/L	<1	3.1 B	3 J	<1	<1	<1	<1	<1 J
m-Xylene & p-Xylene	ug/L	<2	<8	<8	<2	<2	<2	<2	<2
o-Xylene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Toluene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	<1	<4 J	<4 J	<1 J	<1 J	<1 J	<1 J	<1 J
trans-1,3-Dichloropropene	ug/L	<1	<4	<4	<1	<1	<1	<1	<1
Trichloroethene	ug/L	<1	<4	<4	0.39 J	0.29 J	<1	<1	<1
Vinyl acetate	ug/L	<2	<8	<8	<2	<2	<2	<2	<2
Vinyl chloride	ug/L	<1	<4	<4	<1	<1	<1	<1	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-037	MW-037	MW-037	MW-040	MW-040	MW-042	MW-043	MW-043	MW-044	MW-044	MW-051	MW-051	MW-054
	Date Collected	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	11:50	11:55	12:00	14:30	14:35	16:35	9:50	21:55	16:50	16:55	16:00	16:05	15:25
	Depth	170.5-172.5	177.5-179.5	180-182.5	87.9-89.9	91.9-93.9	54.4-56.4	163-165	168-170	64-66	69-71	58-60	63-65	85.6-87.6
	Parent Sample													
LABNAME	RESUNIT													
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.33 J	0.36 J	<50
1,1,2,2-Tetrachloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1300
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
1,1-Dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
1,1-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	17	21	<50
1,2-Dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
1,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
2-Butanone (MEK)	ug/L	5.6 J	5.9 J	5.1 J	4.4 J	5.2 J	5.3 J	5.3 J	5.8 J	4.9 J	3.7 J	6.4 J	6.2 J	<250 J
2-Hexanone	ug/L	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<250 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5	<5	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5	<5	<5	<250
Acetone	ug/L	12 J	11 J	13 J	15 J	19 J	12 J	20 J	13 J	36 J	23 J	11 J	10 J	83 J
Benzene	ug/L	<1	<1	<1	0.24 J	0.32 J	<1	<1	<1	<1	<1	<1	<1	<50
Bromodichloromethane	ug/L	<1	<1	<1	0.94 J	<1	<1	<1	<1	<1	<1	<1	<1	<50
Bromoform	ug/L	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<50
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1 J	<1 J	<1 J	<50
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	1.3	0.85 J	<1	<1	<50
Chlorobenzene	ug/L	<1	<1	<1	1.2	1.2	<1	<1	<1	<1	<1	<1	<1	<50
Chlorodibromomethane	ug/L	<1	<1	<1	0.91 J	<1	<1	<1	<1	<1	<1	<1	<1	<50
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1 J	<1 J	<1 J	<50
Chloroform	ug/L	<1	<1	<1	0.38 J	<1	<1	<1	<1	0.91 J	0.42 J	<1	<1	<50
Chloromethane	ug/L	<1	<1	<1 J	<1 J	<1 J	<1	<1	<1	<1	<1	<1	<1	<50 J
cis-1,2-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	0.35 J	<1	<1	<1	49 J
cis-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
Methylene chloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
m-Xylene & p-Xylene	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<100
o-Xylene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
Tetrachloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.3	0.5 J	<50
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
trans-1,2-Dichloroethene	ug/L	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1	<1	<1	38 J
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50
Trichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	0.75 J	0.35 J	5.3	5.5	1400
Vinyl acetate	ug/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<100
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<50

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-054	MW-056	MW-057	MW-057	MW-058	MW-067	MW-067	MW-067	MW-068	MW-068	MW-068	MW-069	MW-069
	Date Collected	4/29/2004	4/28/2004	4/29/2004	4/29/2004	4/28/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	15:30	16:55	9:00	9:05	17:10	9:20	9:30	9:35	10:50	10:55	11:00	8:40	8:45
	Depth	90.6-92.6	67 2-69 2	64 5-66 5	67-69	64 5-66.5	261-263	266-268	271-273	69-71	73-75	78-80	86-88	91-93
	Parent Sample													
LABNAME	RESUNIT													
1,1,1-Trichloroethane	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	2000	<2	<3.3	<1.7	<1	<1	<1	<1	0.85 J	<1	<1	<1	<1
1,1,2-Trichloroethane	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	1.5	<1	<1
1,2-Dichloroethane	ug/L	<67	<2	<3.3	<1.7	0.22 J	<1	<1	<1	<2.5	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	<67	<2	<3 3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
2-Butanone (MEK)	ug/L	<330 J	6 J	6.3 J	5.4 J	5.1 J	5.2 J	5 8 J	5.7 J	6.1 J	6.3 J	5.8 J	5.2 J	5.9 J
2-Hexanone	ug/L	<330 J	<10 J	<17 J	<8.4 J	<5 J	<5 J	<5 J	<5 J	<12 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<330 J	<10 J	<17 J	<8.4 J	<5	<5 J	<5 J	<5	<12	<5	<5	<5 J	<5
Acetone	ug/L	<330 J	13 B	17 B	13 B	11 J	11 J	12 J	12 J	130 J	14 J	22 J	11 B	13 J
Benzene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Bromodichloromethane	ug/L	<67	<2	<3 3	<1 7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Bromoform	ug/L	<67 J	<2	<3 3	<1 7	<1 J	<1 J	<1 J	<1 J	<2.5 J	<1 J	<1 J	<1	<1 J
Bromomethane	ug/L	<67	<2 J	<3.3 J	<1.7 J	<1 J	<1	<1	<1 J	<2.5 J	<1 J	<1 J	<1 J	<1 J
Carbon disulfide	ug/L	<67	<2	<3 3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<67	<2	33	25	<1	<1	<1	<1	<2.5	0.21 J	<1	<1	<1
Chlorobenzene	ug/L	<67	<2	<3 3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Chlorodibromomethane	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Chloroethane	ug/L	<67	<2 J	<3 3 J	<1.7 J	<1 J	<1	<1	<1 J	<2.5 J	<1 J	<1 J	<1 J	<1 J
Chloroform	ug/L	<67	22	11	5.7	1 1	<1	<1	<1	0 78 J	0 59 J	<1	<1	<1
Chloromethane	ug/L	<67 J	<2	<3.3	<1 7	<1	<1 J	<1 J	<1	<2.5	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	64 J	<2	<3.3	<1 7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	<67	<2	<3 3	<1 7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Ethylbenzene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Methylene chloride	ug/L	50 J	<2	<3 3	0.6 B	<1	<1	<1	<1	0.94 B	<1	<1	<1	<1
m-Xylene & p-Xylene	ug/L	<130	<4	<6.7	<3.3	<2	<2	<2	<2	<5	<2	<2	<2	<2
o-Xylene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Styrene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Tetrachloroethene	ug/L	<67	<2	5	3.5	<1	<1	<1	<1	<2.5	0.32 J	2.1	0.55 J	<1
Toluene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	54 J	<2	<3.3	0.46 J	<1	<1 J	<1 J	<1	<2.5	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<67	<2	<3.3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1
Trichloroethene	ug/L	2000	1 J	48	31	0.41 J	<1	<1	<1	1 J	<1	1.4	0.47 J	<1
Vinyl acetate	ug/L	<130	<4	<6 7	<3.3	<2	<2	<2	<2	<5	<2	<2	<2	<2
Vinyl chloride	ug/L	<67	<2	<3 3	<1.7	<1	<1	<1	<1	<2.5	<1	<1	<1	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-070	MW-070	MW-071	MW-071	MW-076	MW-076	MW-077	MW-077	MW-078	MW-078	MW-078	MW-078	MW-079
	Date Collected	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	12:05	12:10	23.35	11:40	11:05	11:10	12:20	12:25	10:25	10:30	10:35	10:40	14:45
	Depth	85 8-87.8	90.8-92.8	71-73	74.4-76.4	86-88	91-93	82-84	85.6-87.6	47-49	52-54	57-59	62-64	84-86
	Parent Sample													
LABNAME	RESUNIT													
1,1,1-Trichloroethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	8500	6900	16	3.8	3.6	10	15000	15000	5.2	4	3.1	<1	<1
1,1,2-Trichloroethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	9.4
1,2-Dichloroethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
2-Butanone (MEK)	ug/L	<1200 J	<1000 J	6 J	5.8 J	6 4 J	5.7 J	<3100 J	<2500 J	5.6 J	5.3 J	5.5 J	5.7 J	4.8 J
2-Hexanone	ug/L	<1200 J	<1000 J	<10 J	<5 J	<5 J	<5 J	<3100 J	<2500 J	<5 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<1200 J	<1000 J	<10 J	<5 J	<5 J	<5 J	<3100 J	<2500	<5 J	<5 J	<5 J	<5	<5
Acetone	ug/L	390 J	330 J	13 J	7.3 R	12 J	7.3 R	<3100 J	400 J	11 J	9.5 J	10 J	10 J	44 J
Benzene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Bromoform	ug/L	<250	<200	<2 J	<1	<1 J	<1	<620 J	<500	<1 J	<1 J	<1 J	<1 J	<1 J
Bromomethane	ug/L	<250 J	<200 J	<2 J	<1	<1 J	<1	<620 J	<500	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<250	<200	7.8	8.2	<1	<1	<620	<500	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Chlorodibromomethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Chloroethane	ug/L	<250 J	<200 J	<2 J	<1	<1 J	<1	<620	<500	<1	<1	<1	<1	<1
Chloroform	ug/L	<250	<200	56	17	0.21 J	0.23 J	<620	<500	<1	<1	<1	<1	<1
Chloromethane	ug/L	<250	<200	<2	<1	<1	<1	<620	<500 J	<1 J	<1 J	<1 J	<1	<1
cis-1,2-Dichloroethene	ug/L	120 J	110 J	0 98 J	0 48 J	<1	0,95 J	170 J	160 J	<1	<1	<1	<1	1.7
cis-1,3-Dichloropropene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Methylene chloride	ug/L	<250	<200	1.2 B	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	ug/L	<500	<400	<4	<2	<2	<2	<1200	<1000	<2	<2	<2	<2	<2
o-Xylene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Styrene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	<250	<200	0.54 J	0.31 J	1.4	0.86 J	<620	<500	<1	<1	<1	<1	1.7
Toluene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	<250	<200	<2	<1	<1	0.44 J	<620	<500 J	0.7 J	0.69 J	<1 J	<1 J	2 J
trans-1,3-Dichloropropene	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1
Trichloroethene	ug/L	3700	2200	15	6 9	4	10	5400	5000	0.36 J	0.28 J	0.26 J	<1	12
Vinyl acetate	ug/L	<500	<400	<4	<2	<2	<2	<1200	<1000	<2	<2	<2	<2	<2
Vinyl chloride	ug/L	<250	<200	<2	<1	<1	<1	<620	<500	<1	<1	<1	<1	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-079	MW-079	MW-079	MW-080	MW-080	MW-080	MW-095	MW-095	MW-095	MW-095	MW-126	MW-126	MW-127
	Date Collected	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	14:50	14:55	15:00	17:10	17:15	17:20	16:10	16:15	16:20	16:25	14:15	14:20	17:00
	Depth	89-91	94-96	99-101	59.9-61.9	64.9-66.9	69.9-71.9	42-44	47-49	52-54	57-59	17.2-19.2	22.2-24.2	61.2-63.2
	Parent Sample													
LABNAME	RESUNIT													
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
1,1-Dichloroethene	ug/L	8.9	10	12	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
1,2-Dichloroethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
1,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
2-Butanone (MEK)	ug/L	3.7 J	5.6 J	5 J	5.1 J	5.5 J	4.9 J	5.4 J	5.1 J	4.9 J	4.8 J	4.9 J	4.3 J	4.7 J
2-Hexanone	ug/L	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5	<5	<5	<5	<5 J	<5 J	<5	<5	<5	<5 J	<5 J	<5 J	<5 J
Acetone	ug/L	53 J	23 J	31 J	12 J	13 J	18 J	15 J	14 J	18 J	15 R	8.2 R	9.8 R	11 R
Benzene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Bromoform	ug/L	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	2.4 J	<1 J	<1 J	<1 J	<1	<1	<1
Bromomethane	ug/L	<1	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1	<1	<1
Carbon disulfide	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Chlorodibromomethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	0.79 J	<1	<1	<1 J	<1	<1	<1
Chloroethane	ug/L	<1	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1	<1	<1
Chloroform	ug/L	<1	0.21 J	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Chloromethane	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	1.6	1	0.56 J	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Methylene chloride	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
m-Xylene & p-Xylene	ug/L	<2	<2	<2	<2	<2 J	<2 J	<2	<2	<2	<2 J	<2	<2	<2
o-Xylene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Tetrachloroethene	ug/L	1.5	1.8	2.1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Toluene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	1.8 J	0.91 J	0.51 J	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Trichloroethene	ug/L	11	8.3	5.8	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1
Vinyl acetate	ug/L	<2	<2	<2	<2	<2 J	<2 J	<2	<2	<2	<2 J	<2	<2	<2
Vinyl chloride	ug/L	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<1	<1 J	<1	<1	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MW-127	MW-128	MW-128	MW-128	MW-128	MW-129	MW-129	MW-129	MW-130	MW-130	MW-130	MW-130	MWDUP-1
	Date Collected	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	17:05	15:35	15:40	15:45	15:50	17:50	17:55	18:00	17:30	17:35	17:40	17:45	12:00
	Depth	66 2-68.2	56-58	61-63	66-68	71-73	66.3-68.3	71.3-73.3	76.3-78.3	60.5-62.5	65.5-67.5	70.5-72.5	75.5-77.5	N/A
	Parent Sample													
LABNAME	RESUNIT													
1,1,1-Trichloroethane	ug/L	<1	4.8 J	<1	<1	<1	1.8	2	1.9	3.5	3.7 J	4.4	3.9 J	2.6
1,1,2,2-Tetrachloroethane	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
1,1,2-Trichloroethane	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
1,1-Dichloroethane	ug/L	<1	<11	<1	<1	<1	2.5	2.6	2.4	2.4 J	2.8 J	3 J	3.1 J	1.2
1,1-Dichloroethene	ug/L	<1	310	5.1	2.3	2.2	26	27	25	41	52	55	57	22
1,2-Dichloroethane	ug/L	<1	<11	<1	<1	<1	0.26 J	0 29 J	0.32 J	<3.3	<5	<4	<4	<1
1,2-Dichloropropane	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
2-Butanone (MEK)	ug/L	6 J	6.9 J	6 J	5 6 J	6.2 J	5.5 J	5.6 J	5.6 J	5.5 J	6.5 J	5.7 J	5.5 J	5.4 J
2-Hexanone	ug/L	<5 J	<56 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<17 J	<25 J	<20 J	<20 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5 J	<56 J	<5 J	<5 J	<5 J	<5 J	<5 J	<5 J	<17 J	<25	<20	<20	<5
Acetone	ug/L	27 J	29 J	10 R	16 R	31 J	9 R	8.8 R	7.9 R	9.2 R	31 J	15 J	30 J	11 B
Benzene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Bromodichloromethane	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Bromoform	ug/L	<1 J	<11 J	<1	<1	<1 J	<1	<1	<1	<3.3	<5	<4	<4	<1
Bromomethane	ug/L	<1 J	<11 J	<1	<1	<1 J	<1	<1	<1	<3.3	<5	<4	<4	<1
Carbon disulfide	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Carbon tetrachloride	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Chlorobenzene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3 3	<5	<4	<4	<1
Chlorodibromomethane	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Chloroethane	ug/L	<1 J	<11 J	<1	<1	<1 J	<1	<1	<1	<3.3	<5	<4	<4	<1
Chloroform	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Chloromethane	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5 J	<4 J	<4 J	<1 J
cis-1,2-Dichloroethene	ug/L	<1	<11	<1	<1	<1	0.27 J	<1	<1	<3.3	<5	<4	<4	0.39 J
cis-1,3-Dichloropropene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Ethylbenzene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Methylene chloride	ug/L	<1	7.4 B	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
m-Xylene & p-Xylene	ug/L	<2	<22	<2	<2	<2	<2	<2	<2	<6.7	<10	<8	<8	<2
o-Xylene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Styrene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Tetrachloroethene	ug/L	<1	<11	0.15 J	0.18 J	<1	7.1	9.6	18	88	120	120	120	28
Toluene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
trans-1,2-Dichloroethene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5 J	<4 J	<4 J	<1 J
trans-1,3-Dichloropropene	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1
Trichloroethene	ug/L	<1	38	1.3	1	0.59 J	11	11	12	58	75	76	74	29
Vinyl acetate	ug/L	<2	<22	<2	<2	<2	<2	<2	<2	<6.7	<10	<8	<8	<2
Vinyl chloride	ug/L	<1	<11	<1	<1	<1	<1	<1	<1	<3.3	<5	<4	<4	<1

Volatile Organic Compounds
Monitoring Wells

	Sample Site ID	MWDUP-2	MWDUP-3	MWDUP-4	MWDUP-5	MWDUP-6	MWDUP-7	MWDUP-8	TB-COOLK636	TB-COOLK650
	Date Collected	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004	4/29/2004
	Time Collected	12:00	12:00	12:00	12:00	12:00	12:00	12:00		
	Depth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Parent Sample									
LABNAME	RESUNIT									
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	7	<1	<1	<1	15000	<1	<1	<1	<1
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<1	<1	<1	<1	<500	<1	3.8	<1	<1
1,2-Dichloroethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
1,2-Dichloropropane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
2-Butanone (MEK)	ug/L	5.5 J	5 J	4.6 J	4.9 J	<2500 J	4.4 J	5.8 J	<5 J	<5 J
2-Hexanone	ug/L	<5 J	<5 J	<5 J	<5 J	<2500 J	<5 J	<5 J	<5 J	<5 J
4-Methyl-2-pentanone (MIBK)	ug/L	<5	<5	<5 J	<5 J	<2500	<5 J	<5 J	<5 J	<5 J
Acetone	ug/L	16 J	12 B	10 J	10 J	340 J	34 J	11 J	<5 J	<5 J
Benzene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Bromodichloromethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Bromoform	ug/L	<1	<1	<1 J	<1 J	<500	<1 J	<1 J	<1 J	<1 J
Bromomethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Carbon disulfide	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Carbon tetrachloride	ug/L	6.1	<1	24	<1	<500	<1	<1	<1	<1
Chlorobenzene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Chlorodibromomethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Chloroethane	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Chloroform	ug/L	31	<1	5.5	<1	<500	<1	<1	<1	<1
Chloromethane	ug/L	<1 J	<1 J	<1 J	<1 J	<500 J	<1 J	<1 J	<1 J	<1 J
cis-1,2-Dichloroethene	ug/L	2.2	<1	<1	<1	130 J	<1	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Methylene chloride	ug/L	<1	<1	<1	<1	<500	<1	<1	1.7 B	1.3 B
m-Xylene & p-Xylene	ug/L	<2	<2	<2	<2	<1000	<2	<2	<2	<2
o-Xylene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Tetrachloroethene	ug/L	0.35 J	<1	4.1	<1	<500	<1	<1	<1	<1
Toluene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	0.98 J	<1 J	0.99 J	<1 J	<500 J	<1 J	<1 J	<1 J	<1 J
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1
Trichloroethene	ug/L	13	<1	35	<1	4600	<1	1.6	<1	<1
Vinyl acetate	ug/L	<2	<2	<2	<2	<1000	<2	<2	<2	<2
Vinyl chloride	ug/L	<1	<1	<1	<1	<500	<1	<1	<1	<1

Volatile Organic Compounds
Recovery Wells

	Sample Site ID	DUP-5-04-04	RW-001	RW-001A	RW-001B	RW-002	RW-003	RW-004	RW-005	RW-006	RW-007	RW-008	RW-009	TB-05-04-04	TB-05-12-04
	Date Collected	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/4/2004	5/12/2004	5/4/2004	5/4/2004	5/12/2004
	Time Collected	12:00	16:00	16:13	16:21	16:28	16:37	16:47	16:59	17:07	17:19	11:25	17:27		15:15
	Depth	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Parent Sample														RW-008
LABNAME	RESUNIT														
1,1,1-Trichloroethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	0.85 J	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	12	<3.3	110	1.4 J	67	<2.9	250	14	<1.2	160	350	6.2	<1	<1
1,1,2-Trichloroethane	ug/L	<8	<3.3	<25	<1.7	1.9 J	<2.9	<25	<8	<1.2	<5		<2	<1	
1,1-Dichloroethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	0.96 J	<1	<1
1,1-Dichloroethene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	8.8 J	31	<1	<1
1,2-Dichloroethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
1,2-Dichloropropane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
2-Butanone (MEK)	ug/L	<40 J	<17 J	<120 J	<8.4 J	<14 J	<14 J	<120 J	<40 J	<6.2 J	<25 J	<130	<10 J	<5 J	0.92 J
2-Hexanone	ug/L	<40 J	<17 J	<120 J	<8.4 J	<14 J	<14 J	<120 J	<40 J	<6.2 J	<25 J	<67	<10 J	<5 J	<5
4-Methyl-2-pentanone (MIBK)	ug/L	<40 J	<17 J	<120 J	<8.4 J	<14 J	<14 J	<120 J	<40 J	<6.2 J	<25 J		<10 J	<5 J	
Acetone	ug/L	11 J	3.3 J	<120 J	1.1 J	<14 J	<14 J	<120 J	<40 J	4 J	<25 J	<67	4.6 J	<5 J	1.1 J
Benzene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
Bromodichloromethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
Bromoform	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8 J	<1.2 J	<5 J		<2 J	<1	
Bromomethane	ug/L	<8 J	<3.3 J	<25 J	<1.7 J	<2.9 J	<2.9 J	<25 J	<8 R	<1.2 R	<5 R		<2 R	<1 J	
Carbon disulfide	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
Carbon tetrachloride	ug/L	<8	15	24 J	15	6.5	4.3	<25	<8	<1.2	<5	<13	0.8 J	<1	<1
Chlorobenzene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
Chlorodibromomethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
Chloroethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25 R	<8 R	<1.2 R	<5 R	<13	<2 R	<1	<1
Chloroform	ug/L	1.9 J	45	580 J	25	13	1.2 J	<25	<8	1.8	3 J	14	10	<1	<1
Chloromethane	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
cis-1,2-Dichloroethene	ug/L	7.1 J	<3.3	9 J	11	55	6.9	26	6.6 J	11	42	160	9	<1	<1
cis-1,3-Dichloropropene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
Ethylbenzene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
Methylene chloride	ug/L	<8	1.8 J	17 J	<1.7	1.7 J	1.5 J	<25	<8	<1.2	<5	<13	<2	<1	0.67 J
m-Xylene & p-Xylene	ug/L	<16	<6.7	<50	<3.3	<5.7	<5.7	<50	<16	<2.5	<10	<27	<4	<2	<2
o-Xylene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
Styrene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
Tetrachloroethene	ug/L	7 J	7.3	10 J	2.8	1.2 J	1.1 J	7.3 J	6.4 J	20	3.3 J	11 J	35	<1	<1
Toluene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1
trans-1,2-Dichloroethene	ug/L	5.9 J	2.9 J	18 J	2 J	4.4 J	2.9 J	19 J	6.3 J	3.8 J	12 J	28	4.1 J	<1 J	<1
trans-1,3-Dichloropropene	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5		<2	<1	
Trichloroethene	ug/L	200	87	230	36	57	68	820	200	39	79	240	49	<1	<1
Vinyl acetate	ug/L	<16	<6.7	<50	<3.3	<5.7	<5.7	<50	<16	<2.5	<10		<4	<2	
Vinyl chloride	ug/L	<8	<3.3	<25	<1.7	<2.9	<2.9	<25	<8	<1.2	<5	<13	<2	<1	<1

	Sample Site ID	EFF-02-21-04	EFF-05-24-04	TB 5-24-04	TB-02-21-04
	Date Collected	2/21/2004	5/24/2004	5/24/2004	2/21/2004
	Time Collected	15:20	13:56		
	Depth	N/A	N/A	N/A	N/A
	Parent Sample			EFF 05-24-04	EFF 02-21-04
LABNAME	RESUNIT				
1,1,1-Trichloroethane	ug/L	<2.5	<4	<1 J	<1
1,1,2,2-Tetrachloroethane	ug/L	43	54	<1 J	<1
1,1,2-Trichloroethane	ug/L	<2.5	<4	<1 J	<1
1,1-Dichloroethane	ug/L	<2.5	<4	<1 J	<1
1,1-Dichloroethene	ug/L	6.5	8.1	<1 J	<1
1,2-Dichloroethane	ug/L	<2.5	<4	<1 J	<1
1,2-Dichloropropane	ug/L	<2.5	<4	<1 J	<1
2-Butanone (MEK)	ug/L	<12 J	<20 J	<5 J	0.7 J
2-Hexanone	ug/L	<12	<20	<5 J	<5
4-Methyl-2-pentanone (MIBK)	ug/L	<12	<20	<5 J	<5
Acetone	ug/L	3.3 R	5.9 B	1 B	1.8 R
Benzene	ug/L	<2.5	<4	<1 J	<1
Bromodichloromethane	ug/L	<2.5	<4	<1 J	<1
Bromoform	ug/L	<2.5	<4	<1 J	<1
Bromomethane	ug/L	<2.5	<4	<1 J	<1
Carbon disulfide	ug/L	<2.5	<4	<1 J	<1
Carbon tetrachloride	ug/L	4.1	7.1	<1 J	<1
Chlorobenzene	ug/L	<2.5	<4	<1 J	<1
Chlorodibromomethane	ug/L	<2.5			<1
Chloroethane	ug/L	<2.5	<4	<1 J	<1
Chloroform	ug/L	42	61	<1 J	<1
Chloromethane	ug/L	<2.5	<4	<1 J	<1
cis-1,2-Dichloroethene	ug/L	14	20	<1 J	<1
cis-1,3-Dichloropropene	ug/L	<2.5	<4	<1 J	<1
Ethylbenzene	ug/L	<2.5	<4	<1 J	<1
Methylene chloride	ug/L	2.6 B	3.2 B	<1 J	6.7 B
m-Xylene & p-Xylene	ug/L	<5	<8	<2 J	<2
o-Xylene	ug/L	<2.5	<4	<1 J	<1
Styrene	ug/L	<2.5	<4	<1 J	<1
Tetrachloroethene	ug/L	14	16	<1 J	<1
Toluene	ug/L	<2.5	<4	<1 J	<1
trans-1,2-Dichloroethene	ug/L	2.5	3.9 J	<1 J	<1
trans-1,3-Dichloropropene	ug/L	<2.5	<4	<1 J	<1
Trichloroethene	ug/L	59	120	<1 J	<1
Vinyl acetate	ug/L	<5	<8	<2 J	<2
Vinyl chloride	ug/L	<2.5	<4	<1 J	<1

Semi-Volatile Organic Compounds
System Effluent Samples

		Sample Site ID	EFF-02-21-04	EFF-05-24-04	TB 5-24-04	TB-02-21-04
		Date Collected	2/21/2004	5/24/2004	5/24/2004	2/21/2004
		Time Collected	15:20	13:56		
		Parent Sample			EFF 05-24-04	EFF 02-21-04
LABNAME	RESUNIT					
2,4,5-Trichlorophenol	ug/L			<5		
2,4,6-Trichlorophenol	ug/L			<5		
2,4-Dichlorophenol	ug/L			<5		
2,4-Dimethylphenol	ug/L			<5		
2,4-Dinitrophenol	ug/L			<25 J		
2,4-Dinitrotoluene	ug/L			<5		
2,6-Dinitrotoluene	ug/L			<5		
2-Chloronaphthalene	ug/L			<5		
2-Chlorophenol	ug/L			<5		
2-Methylnaphthalene	ug/L			<2		
2-Methylphenol	ug/L			<5		
2-Nitroaniline	ug/L			<25		
2-Nitrophenol	ug/L			<5		
3,3'-Dichlorobenzidine	ug/L			<10		
3-Nitroaniline	ug/L			<25		
4,6-Dinitro-2-methylphenol	ug/L			<10 J		
4-Bromophenyl phenyl ether	ug/L			<5		
4-Chloro-3-methylphenol	ug/L			<5		
4-Chloroaniline	ug/L			<5		
4-Chlorophenyl phenyl ether	ug/L			<5		
4-Methylphenol	ug/L			<5		
4-Nitroaniline	ug/L			<25		
4-Nitrophenol	ug/L			<25 J		
Acenaphthene	ug/L			<5		
Acenaphthylene	ug/L			<5		
Anthracene	ug/L			<5		
Benzo(a)anthracene	ug/L			<5		
Benzo(a)pyrene	ug/L			<5		
Benzo(b)fluoranthene	ug/L			<5		
Benzo(ghi)perylene	ug/L			<5		
Benzo(k)fluoranthene	ug/L			<5		
Benzoic acid	ug/L			<25 J		
Benzyl alcohol	ug/L			<5		
bis(2-Chloroethoxy)methane	ug/L			<5		
bis(2-Chloroethyl) ether	ug/L			<5		
bis(2-Chloroisopropyl) ether	ug/L			<5		
bis(2-Ethylhexyl) phthalate	ug/L			2.3 J		
Butyl benzyl phthalate	ug/L			<5		
Chrysene	ug/L			<5		
Dibenz(a,h)anthracene	ug/L			<5		
Dibenzofuran	ug/L			<5		

Semi-Volatile Organic Compounds
System Effluent Samples

	Sample Site ID	EFF-02-21-04	EFF-05-24-04	TB 5-24-04	TB-02-21-04
	Date Collected	2/21/2004	5/24/2004	5/24/2004	2/21/2004
	Time Collected	15:20	13:56		
	Parent Sample			EFF 05-24-04	EFF 02-21-04
LABNAME	RESUNIT				
Diethyl phthalate	ug/L		<5		
Dimethyl phthalate	ug/L		<5		
Di-n-butyl phthalate	ug/L		<5		
Di-n-octyl phthalate	ug/L		<5		
Fluoranthene	ug/L		<5		
Fluorene	ug/L		<5		
Hexachlorobenzene	ug/L		<5		
Hexachlorobutadiene	ug/L		<5		
Hexachlorocyclopentadiene	ug/L		<10		
Hexachloroethane	ug/L		<5		
Indeno(1,2,3-cd)pyrene	ug/L		<5		
Isophorone	ug/L		<5		
Naphthalene	ug/L		<5		
Nitrobenzene	ug/L		<5		
N-Nitrosodi-n-propylamine	ug/L		<5		
N-Nitrosodiphenylamine	ug/L		<5		
Pentachlorophenol	ug/L		<25		
Phenanthrene	ug/L		<5		
Phenol	ug/L		<5		
Pyrene	ug/L		<5		

Metals
System Effluent Samples

Sample Site ID		EFF-02-21-04	EFF-05-24-04	TB 5-24-04	TB-02-21-04
Date Collected		2/21/2004	5/24/2004	5/24/2004	2/21/2004
Time Collected		15:20	13:56		
Depth		N/A	N/A	N/A	N/A
Parent Sample				EFF 05-24-04	EFF 02-21-04
LABNAME	RESUNIT				
Aluminum	ug/L		<200 J		
Antimony	ug/L		<10		
Arsenic	ug/L		3.3 B		
Barium	ug/L		104		
Beryllium	ug/L		<1		
Cadmium	ug/L		0.3 B		
Calcium	ug/L		21800		
Chromium	ug/L		6.8		
Cobalt	ug/L		<7		
Copper	ug/L		<5		
Iron	ug/L		118 B		
Lead	ug/L		<3		
Magnesium	ug/L		10800 J		
Manganese	ug/L		78.2		
Nickel	ug/L		<7		
Potassium	ug/L		900 B		
Selenium	ug/L		4.5 J		
Silver	ug/L		<3 J		
Sodium	ug/L		23300		
Thallium	ug/L		5.3 B		
Vanadium	ug/L		<5		
Zinc	ug/L		36.5		
Mercury	ug/L		1.1		

APPENDIX D

QUALITY CONTROL AND DATA QUALITY EVALUATION

APPENDIX D

QUALITY CONTROL AND DATA QUALITY EVALUATION

FIELD QUALITY CONTROL

The field QC program for the collection of samples for the Dunn Field O&M included specific procedures for the collection of groundwater and effluent samples as described in the Remedial Action Sampling and Analysis Plan (RA SAP) (MACTEC, 2004). Sample bottles met USEPA requirements for environmentally clean containers. Sample labels were pre-printed to facilitate sample tracking from the field through the laboratory to the final report.

Field QC samples were collected to evaluate sampling technique and decontamination procedures. These samples included field duplicates, trip blanks, and field equipment blanks. Documentation of the sampling was performed in the field to ensure that the sample collected, labeling, chain-of-custody, and request for analysis were in agreement. Custody seals were placed on each cooler before shipment by common carrier.

LABORATORY QUALITY CONTROL

The laboratory QC program, including sample handling, laboratory control, and reporting, is fully documented in the RA SAP. Sample handling includes documentation of sample receipt, placement in storage, lab personnel using the sample, and disposal. The laboratory control consists of instrument calibration and maintenance, laboratory control samples (LCS), method blanks and matrix spikes. Reporting of the laboratory control data was planned prior to the collection of the data, allowing the laboratory to place the appropriate information into the data package so that the data quality evaluation (DQE) could be performed in a timely manner.

DATA QUALITY EVALUATION

The objective of the DQE was to provide a review of the chemical data packages submitted by the laboratory and to qualify that data relative to the data quality objectives stated in the RA SAP (MACTEC, 2004). The DQE consisted of review of laboratory QC data and field QC parameters, and flagging of the data as usable, usable with qualification, or unusable.

The data quality relative to laboratory analyses was evaluated using the criteria stated in the RA SAP (MACTEC, 2004) for each analytical method performed. The following information was reviewed:

- Sample Integrity
- Sample Completeness
- Sample Holding Times
- Laboratory Methods for Extraction and Analysis
- Method Accuracy and Precision (Matrix Spike/Matrix Spike Duplicate)
- Laboratory Performance Criteria (Blanks, LCS Recoveries)
- Instrument Calibrations

Field QC parameters were evaluated through field duplicates, field blanks, field documentation, and shipping criteria.

The DQE was summarized by use of flags that indicate to the reviewer that the data being considered has been qualified using the established criteria. The specific reason for the qualification is documented on the evaluation forms maintained in the project file.

Effluent Samples

Effluent samples were collected from the SVE system at Dunn Field in February and May of 2004. Trip blanks were collected at each event to assist in assessing field and shipment conditions. Samples were analyzed for volatile organic compounds (VOCs) for both samples and for semi-volatile organic compounds (SVOCs) and metals for the May sample. Most of the data are usable without qualification, a small portion of the data are usable with qualification, and a small percentage of the data are unusable (as described in the following tables).

VOCs by SW8260B

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
2-Butanone for Trip Blank (02/21/04); trans-1,2-Dichloroethene for EFF-05-24-04	J	Analytes of interest were reported at concentrations below the practical quantitation limit (PQL) but greater than the method detection limit (MDL). Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
2-Butanone for EFF-05-24-04 and Trip Blank (05/24/04)	J	Initial calibration verification (ICV) recovery exceeded acceptance limits. Data are considered usable with qualification.
Acetone for EFF-02-21-04 and Trip Blank (02/21/04)	R	Continuing calibration verification (CCV) percent difference exceeded 40 percent. Data are rejected as unusable.
2-Butanone for EFF-02-21-04 and Trip Blank (02/21/04)	J	CCV percent difference exceeded acceptance limits. Data are considered usable with qualification.
Acetone for EFF-05-24-04 and Trip Blank (05/24/04); Methylene chloride for EFF-02-21-04, EFF-05-24-04, and Trip Blank (02/21/04)	B	Analytes of interest were detected in method blanks associated with these samples. Data are considered usable with qualification.
Acetone for EFF-05-24-04; Methylene chloride for EFF-02-21-04	B	Analytes of interest were detected in trip blanks associated with these samples. Data are considered usable with qualification.

SVOCs by SW8270C

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
bis(2-Ethylhexyl)phthalate for EFF-05-24-04	J	Analytes of interest were reported at concentrations below the PQL but greater than the MDL. Data are considered usable with qualification.
Benzoic acid, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, and 4-nitrophenol for EFF-05-24-04	J	ICV recovery exceeded acceptance limits. Data are considered usable with qualification.

Metals by SW6010B/7470A

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
Arsenic, Cadmium, Iron, Potassium, and Thallium for EFF-05-24-04	B	Analytes of interest were detected in method blanks associated with these samples. Data are considered usable with qualification.

Passive-Diffusive Bag Sampler (PDBS) Groundwater Samples

Eighty-six groundwater and eight field duplicate samples were collected from thirty-six monitoring wells at the SVE system at Dunn Field. In addition, trip blanks were collected to assist in assessing field and shipment conditions. Samples were analyzed VOCs. Most of the data are usable without qualification, a small portion of the data are usable with qualification, and a small percentage of the data are unusable (as described in the following tables).

VOCs by SW8260B

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
VOC results for MW-81 (64.9'-66.9'), MW-81 (69.9'-71.9'), and MW-95 (57'-59') (unless overridden)	J	Samples were received by the laboratory at an elevated pH. Data are considered usable with qualification.
Acetone for MW-54 (85.6'-87.6'), MW-70 (85.8'-87.8'), MW-70 (90.8'-92.8'), MW-77 (85.6'-87.6'), MW-128 (56'-58'), MW-130 (60.5'-62.5'), MW-130 (70.5'-72.5'), and MWDUP-6; Benzene for MW-40 (87.9'-89.9') and MW-40 (91.9'-93.9'); Bromodichloromethane for MW-40 (87.9'-89.9'); 2-Butanone for MW-07 (70.5'-72.5'), MW-34 (138'-140'), MW-34 (142'-144'), MW-36 (192.9'-194.9'), MW-40 (87.9'-89.9'), MW-44 (64'-66'), MW-44 (69'-71'), MW-56 (67.2'-69.2'), MW-57 (64.5'-66.5'), MW-57 (67'-69'), MW-68 (69'-71'), MW-71 (71'-73'), MW-79 (84'-86'), MW-79 (89-91), MW-81 (69.9'-71.9'), MW-95 (52'-54'), MW-95 (57'-59'), MW-126 (17.2'-19.2'), MW-126 (22.2'-24.2'), MW-127 (61.2'-63.2'), MW-128 (56'-58'), MW-130 (60.5'-62.5'), MW-130 (65.5'-67.5'), MW-130 (70.5'-72.5'), MW-130 (75.5'-77.5'), MWDUP-4, MWDUP-5, and MWDUP-7; Carbon disulfide for MW-36 (192.9'-194.9') and MW-36 (197.9'-199.9'); Carbon tetrachloride for MW-07 (66.9'-68.9'), MW-09 (76.5'-78.5'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-34 (147-149), MW-44 (69'-71'), and MW-68 (73'-75');	J	Analytes of interest were reported at concentrations below the PQL but greater than the MDL. Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
Chloroform for MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-34 (138'-140'), MW-34 (142'-144'), MW-40 (87.9'-89.9'), MW-44 (64'-66'), MW-44 (69'-71'), MW-68 (69'-71'), MW-68 (73'-75'), MW-76 (86'-88'), MW-76 (91'-93'), and MW-79 (94'-96');		
cis-1,2-Dichloroethene for MW-29 (40.7'-42.7'), MW-29 (45.7'-47.7'), MW-29 (50.7'-52.7'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-44 (64'-66'), MW-54 (85.6'-87.6'), MW-54 (90.6'-92.6'), MW-70 (85.8'-87.8'), MW-70 (90.8'-92.8'), MW-71 (71'-73'), MW-71 (74.4'-76.4'), MW-76 (91'-93'), MW-77 (82'-84'), MW-77 (85.6'-87.6'), MW-79 (99'-101'), MW-129 (66.3'-68.3'), MWDUP-1, and MWDUP-6; Dibromochloromethane for MW-40 (87.9'-89.9') and MW-95 (42'-44'); 1,1-Dichloroethane for MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-130 (60.5'-62.5'), MW-130 (65.5'-67.5'), MW-130 (70.5'-72.5'), and MW-130 (75.5'-77.5'); 1,2-Dichloroethane for MW-07 (66.9'-68.9'), MW-07 (70.5'-72.5'), MW-29 (40.7'-42.7'), MW-29 (50.7'-52.7'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-58 (64.5'-66.5'), MW-129 (66.3'-68.3'), MW-129 (71.3'-73.3'), and MW-129 (76.3'-78.3'); Ethylbenzene for MW-36 (192.9'-194.9'); Methylene chloride for MW-54 (90.6'-92.6'); 1,1,2,2-Tetrachloroethane for MW-68 (69'-71'); Tetrachloroethene for MW-08 (65'-67'), MW-31 (77.5'-79.5'), MW-32 (64.5'-66.5'), MW-51 (63'-65'), MW-68 (73'-75'), MW-69 (86'-88'), MW-71 (71'-73'), MW-71 (74.4'-76.4'), MW-76 (91'-93'), MW-128 (61'-63'), MW-128 (66'-68'), and MWDUP-2; trans-1,2-Dichloroethene for MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-32 (64.5'-66.5'), MW-54 (85.6'-87.6'), MW-54 (90.6'-92.6'), MW-57 (67'-69'), MW-76 (91'-93'), MW-78 (47'-49'), MW-78 (52'-54'), MW-79 (94'-96'), MW-79 (99'-101'), MWDUP-2, and MWDUP-4; 1,1,1-Trichloroethane for MW-07 (66.9'-68.9'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'),	J	Analytes of interest were reported at concentrations below the PQL but greater than the MDL. Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
MW-51 (58'-60'), MW-51 (63'-65'), MW-128 (56'-58') MW-130 (65.5'-67.5'), and MW-130 (75.5'-77.5'); Trichloroethene for MW-08 (65'-67'), MW-09 (76.5'-78.5'), MW-34 (147-149), MW-34 (152'-154'), MW-44 (64'-66'), MW-44 (69'-71'), MW-56 (67.2'-69.2'), MW-58 (64.5'-66.5'), MW-68 (69'-71'), MW-69 (86'-88'), MW-78 (47'-49'), MW-78 (52'-54'), MW-78 (57'-59'), and MW-128 (71'-73')		
Acetone, 2-Butanone, and 2-Hexanone for MW-07 (66.9'-68.9'), MW-08 (65'-67'), MW-09 (76.5'-78.5'), MW-29 (40.7'-42.7'), MW-29 (45.7'-47.7'), MW-29 (50.7'-52.7'), MW-30 (46.5'-48.5'), MW-30 (51.5'-53.5'), MW-30 (56.5'-58.5'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-32 (64.5'-66.5'), MW-33 (56'-58'), MW-33 (59.5'-61.5'), MW-44 (69'-71'), MW-51 (58'-60'), MW-51 (63'-65'), MW-58 (64.5'-66.5'), MW-67 (271'-273'), MW-68 (69'-71'), MW-68 (73'-75'), MW-68 (78'-80'), MW-69 (91'-93'), MW-70 (85.8'-87.8'), MW-70 (90.8'-92.8'), MW-71 (71'-73'), MW-76 (86'-88'), MW-79 (94'-96'), MW-79 (99'-101'), MW-80 (59.9'-61.9'), MW-81 (64.9'-66.9'), MW-81 (69.9'-71.9'), MW-95 (42'-44'), MW-95 (47'-49'), MW-95 (52'-54'), MW-127 (66.2'-68.2'), MW-128 (56'-58'), MW-128 (71'-73'); Acetone, 2-Butanone, 2-Hexanone, and trans-1,2-Dichloroethene for MW-07 (70.5'-72.5'), MW-34 (138'-140'), MW-34 (142'-144'), MW-34 (147'-149'), MW-34 (152'-154'), MW-36 (192.9'-194.9'), MW-36 (197.9'-199.9'), MW-36 (202.9'-204.9'), MW-37 (170.5'-172.5'), MW-37 (175.5'-177.5'), MW-37 (180'-182.5'), MW-40 (87.9'-89.9'), MW-40 (91.9'-93.9'), MW-42 (54.4'-56.4'), MW-43 (163'-165'), MW-43 (168'-170'), MW-44 (64'-66'), MW-54 (85.6'-87.6'), MW-54 (90.6'-92.6'), MW-67 (261'-263'), MW-67 (266'-268'), MW-77 (82'-84'), MW-77 (85.6'-87.6'), MW-78 (47'-49'), MW-78 (52'-54'), MW-78 (57'-59'), MW-78 (62'-64'), MW-79 (84'-86'),	J	ICV recovery exceeded acceptance limits. Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
MW-79 (89'-91'), MW-130 (65.5'-67.5'), MW-130 (70.5'-72.5'), MW-130 (75.5'-77.5'), MWDUP-2, MWDUP-4, MWDUP-5, MWDUP-6, MWDUP-7, MWDUP-8, Trip Blank (K636), Trip Blank (K650); 2-Butanone, 2-Hexanone, and trans-1,2-Dichloroethene for MWDUP-1 and MWDUP-3; 2-Butanone and 2-Hexanone for MW-56 (67.2'-69.2'), MW-57 (64.5'-66.5'), MW-57 (67'-69'), MW-69 (86'-88'), MW-71 (74.4'-76.4'), MW-76 (91'-93'), MW-95 (57'-59'), MW-126 (17.2'-19.2'), MW-126 (22.2'-24.2'), MW-127 (61.2'-63.2'), MW-128 (61'-63'), MW-128 (66'-68'), MW-129 (66.3'-68.3'), MW-129 (71.3'-73.3'), MW-129 (76.3'-78.3'), MW-130 (60.5'-62.5')		
Acetone for MW-71 (74.4'-76.4'), MW-76 (91'-93'), MW-95 (57'-59'), MW-126 (17.2'-19.2'), MW-126 (22.2'-24.2'), MW-127 (61.2'-63.2'), MW-128 (61'-63'), MW-128 (66'-68'), MW-129 (66.3'-68.3'), MW-129 (71.3'-73.3'), MW-129 (76.3'-78.3'), MW-130 (60.5'-62.5')	R	CCV percent difference exceeded 40 percent. Data are rejected as unusable.
Acetone and Bromoform for MW-07 (70.5'-72.5'), MW-34 (147'-149'), MW-34 (152'-154'), MW-36 (192.9'-194.9'), MW-36 (197.9'-199.9'), MW-36 (202.9'-204.9'), MW-37 (170.5'-172.5'), MW-37 (175.5'-177.5'), MW-42 (54.4'-56.4'), MW-43 (163'-165'), MW-43 (168'-170'), MW-44 (64'-66'), MW-78 (62'-64'), MW-79 (84'-86'), and MW-79 (89'-91');	J	CCV percent difference exceeded acceptance limits. Data are considered usable with qualification.
Acetone, Bromoform, and Bromomethane for MW-77 (82'-84'); Acetone, Bromomethane, 2-Butanone, and Hexanone for MW-07 (66.9'-68.9'), MW-08 (65'-67'), MW-09 (76.5'-78.5'), MW-29 (40.7'-42.7'), MW-29 (45.7'-47.7'), MW-29 (50.7'-52.7'), MW-30 (46.5'-48.5'), MW-30 (51.5'-53.5'), MW-30 (56.5'-58.5'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-32 (64.5'-66.5'), MW-33 (56'-58'), and MW-33 (59.5'-61.5'); Acetone, 2-Butanone, Chloromethane, and 2-	J	CCV percent difference exceeded acceptance limits. Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
Hexanone for MW-54 (85.6'-87.6'), MW-77 (85.6'-87.6'), MW-130 (65.5'-67.5'), MW-130 (70.5'-72.5'), MW-130 (75.5'-77.5'), MWDUP-2, and MWDUP-6; Bromoform, Bromomethane, Chloroethane, and 2-Hexanone for MW-44 (69'-71'), MW-51 (58'-60'), MW-51 (63'-65'), MW-58 (64.5'-66.5'), MW-67 (271'-273'), MW-68 (69'-71'), MW-68 (73'-75'), MW-68 (78'-80'), MW-69 (91'-93'), MW-79 (94'-96'), MW-79 (99'-101'), MW-80 (59.9'-61.9'), MW-81 (64.9'-66.9'), MW-81 (69.9'-71.9'), MW-95 (42'-44'), MW-95 (47'-49'), and MW-95 (52'-54'); Bromoform, Bromomethane, and Chloroethane for MW-71 (71'-73'), MW-76 (86'-88'), MW-127 (66.2'-68.2'), MW-128 (56'-58'), and MW-128 (71'-73'); Bromoform and Chloromethane for MW-34 (138'-140'), MW-34 (142'-144'), MW-37 (180'-182.5'), MW-40 (87.9'-89.9'), MW-40 (91.9'-93.9'), MW-54 (90.6'-92.6'), MW-67 (261'-263'), MW-67 (266'-268'), MW-78 (47'-49'), MW-78 (52'-54'), MW-78 (57'-59'), MWDUP-4, MWDUP-5, MWDUP-7, MWDUP-8, Trip Blank (K636), and Trip Blank (K650); Bromomethane, Chloroethane, and 2-Hexanone for MW-56 (67.2'-69.2'), MW-57 (64.5'-66.5'), MW-57 (67'-69'), MW-69 (86'-88'), MW-70 (85.8'-87.8'), and MW-70 (90.8'-92.8'); 2-Butanone, Chloromethane, and 2-Hexanone for MWDUP-1 and MWDUP-3; 2-Butanone and 2-Hexanone for MW-71 (74.4'-76.4'), MW-76 (91'-93'), MW-95 (57'-59'), MW-126 (17.2'-19.2'), MW-126 (22.2'-24.2'), MW-127 (61.2'-63.2'), MW-128 (61'-63'), MW-128 (66'-68'), MW-129 (66.3'-68.3'), MW-129 (71.3'-73.3'), MW-129 (76.3'-78.3'), and MW-130 (60.5'-62.5')		
Acetone for MW-56 (67.2'-69.2'), MW-57 (64.5'-66.5'), MW-57 (67'-69'), MW-69 (86'-88'), MWDUP-1, and MWDUP-3; Methylene chloride for MW-08 (65'-67'), MW-34 (138'-140'), MW-34 (142'-144'), MW-	B	Analytes of interest were detected in method blanks associated with these samples. Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
68 (69'-71'), MW-71 (71'-73'), MW-128 (56'-58'), Trip Blank (K636), and Trip Blank (K650)		
Acetone, 2-Butanone, 2-Hexanone, and 4-Methyl-2-pentanone for MW-71 (71'-73'), MW-76 (86'-88'), MW-127 (66.2'-68.2'), MW-128 (56'-58'), MW-128 (71'-73'); 2-Butanone, 2-Hexanone, and 4-Methyl-2-pentanone for MW-34 (138'-140'), MW-34 (142'-144'), MW-37 (180'-182.5'), MW-40 (87.9'-89.9'), MW-40 (91.9'-93.9'), MW-54 (90.6'-92.6'), MW-56 (67.2'-69.2'), MW-57 (64.5'-66.5'), MW-57 (67'-69'), MW-67 (261'-263'), MW-67 (266'-268'), MW-69 (86'-88'), MW-70 (85.8'-87.8'), MW-70 (90.8'-92.8'), MW-77 (82'-84'), MW-78 (47'-49'), MW-78 (52'-54'), MW-78 (57'-59'); 2-Butanone and 2-Hexanone for MW-07 (66.9'-68.9'), MW-07 (70.5'-72.5'), MW-08 (65'-67'), MW-09 (76.5'-78.5'), MW-29 (40.7'-42.7'), MW-29 (45.7'-47.7'), MW-29 (50.7'-52.7'), MW-30 (46.5'-48.5'), MW-30 (51.5'-53.5'), MW-30 (56.5'-58.5'), MW-31 (72.2'-74.2'), MW-31 (77.5'-79.5'), MW-32 (64.5'-66.5'), MW-33 (56'-58'), MW-33 (59.5'-61.5'), MW-34 (147'-149'), MW-34 (152'-154'), MW-36 (192.9'-194.9'), MW-36 (197.9'-199.9'), MW-36 (202.9'-204.9'), MW-37 (170.5'-172.5'), MW-37 (175.5'-177.5'), MW-42 (54.4'-56.4'), MW-43 (163'-165'), MW-43 (168'-170'), MW-44 (64'-66'), MW-78 (62'-64'), MW-79 (84'-86'), MW-79 (89'-91'); 2-Hexanone and 4-Methyl-2-pentanone for MW-71 (74.4'-76.4'), MW-76 (91'-93'), MW-95 (57'-59'), MW-126 (17.2'-19.2'), MW-126 (22.2'-24.2'), MW-127 (61.2'-63.2'), MW-128 (61'-63'), MW-128 (66'-68'), MW-129 (66.3'-68.3'), MW-129 (71.3'-73.3'), MW-129 (76.3'-78.3'), MW-130 (60.5'-62.5'); 2-Hexanone for MW-44 (69'-71'), MW-51 (58'-60'), MW-51 (63'-65'), MW-54 (85.6'-87.6'), MW-77 (85.6'-87.6'), MW-58 (64.5'-66.5'), MW-67 (271'-273'), MW-68 (69'-71'), MW-68 (73'-75'), MW-68 (78'-	J	LCS/LCSD recoveries were below acceptance limits. Data are considered usable with qualification.

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
80'), MW-69 (91'-93'), MW-79 (94'-96'), MW-79 (99'-101'), MW-80 (59.9'-61.9'), MW-81 (64.9'-66.9'), MW-81 (69.9'-71.9'), MW-95 (42'-44'), MW-95 (47'-49'), MW-95 (52'-54'), MW-130 (65.5'-67.5'), MW-130 (70.5'-72.5'), MW-130 (75.5'-77.5'), MWDUP-1, MWDUP-2, MWDUP-3, MWDUP-6		
Acetone for MW-32 (64.5'-66.5') and MW-70 (90.8'-92.8'); 2-Hexanone for MW-68 (69'-71')	J	MS/MSD recoveries were below acceptance limits. Data are considered usable with qualification.
Methylene chloride for MW-08 (65'-67'), MW-09 (76.5'-78.5'), MW-34 (138'-140'), MW-34 (142'-144'), MW-57 (67'-69'), MW-68 (69'-71'), MW-71 (71'-73'), and MW-128 (56'-58')	B	Analytes of interest were detected in trip blanks associated with these samples. Data are considered usable with qualification.
trans-1,2-Dichloroethene for MW-32 (64.5'-66.5'), MW-57 (67'-69'), MW-80 (69.9'-71.9'), MWDUP-2, MWDUP-4, and MWDUP-7	J	Field duplicate precision was outside acceptance limits. Data are considered usable with qualification.

Recovery Well Groundwater Samples

Eleven groundwater and one field duplicate samples were collected from recovery wells at the SVE system at Dunn Field. In addition, trip blanks were collected to assist in assessing field and shipment conditions. Samples were analyzed VOCs. Most of the data are usable without qualification, a small portion of the data are usable with qualification, and a small percentage of the data are unusable (as described in the following tables).

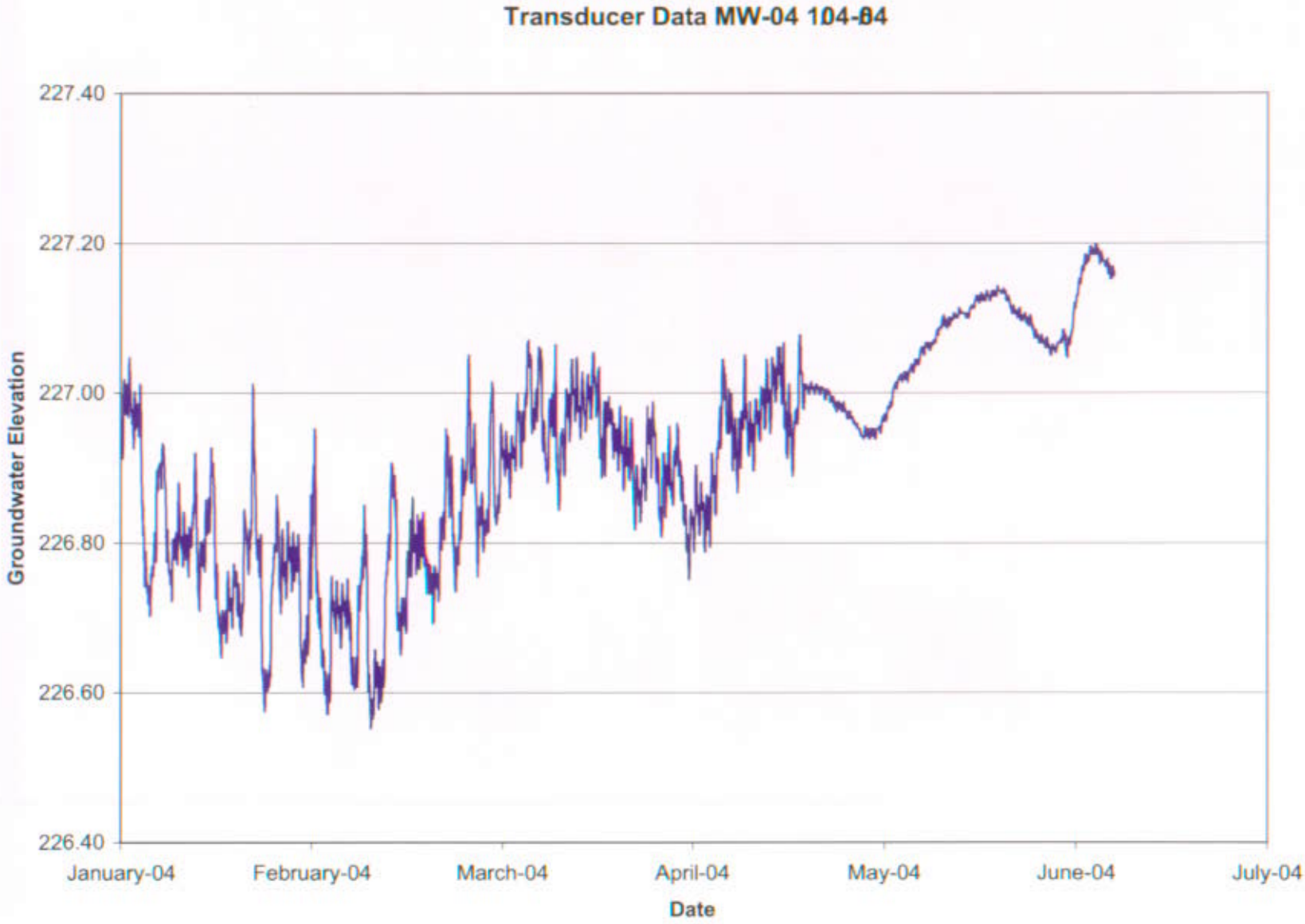
VOCs by SW8260B

Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
Acetone for RW-1, RW-1B, RW-6, RW-9, DUP, and TB-05-12-04; 2-Butanone for TB-05-12-04; Carbon tetrachloride for RW-1A and RW-9; Chloroform for RW-3, RW-7, and DUP; cis-1,2-Dichloroethene for RW-1A, RW-5, and DUP;	J	Analytes of interest were reported at concentrations below the PQL but greater than the MDL. Data are considered usable with qualification.

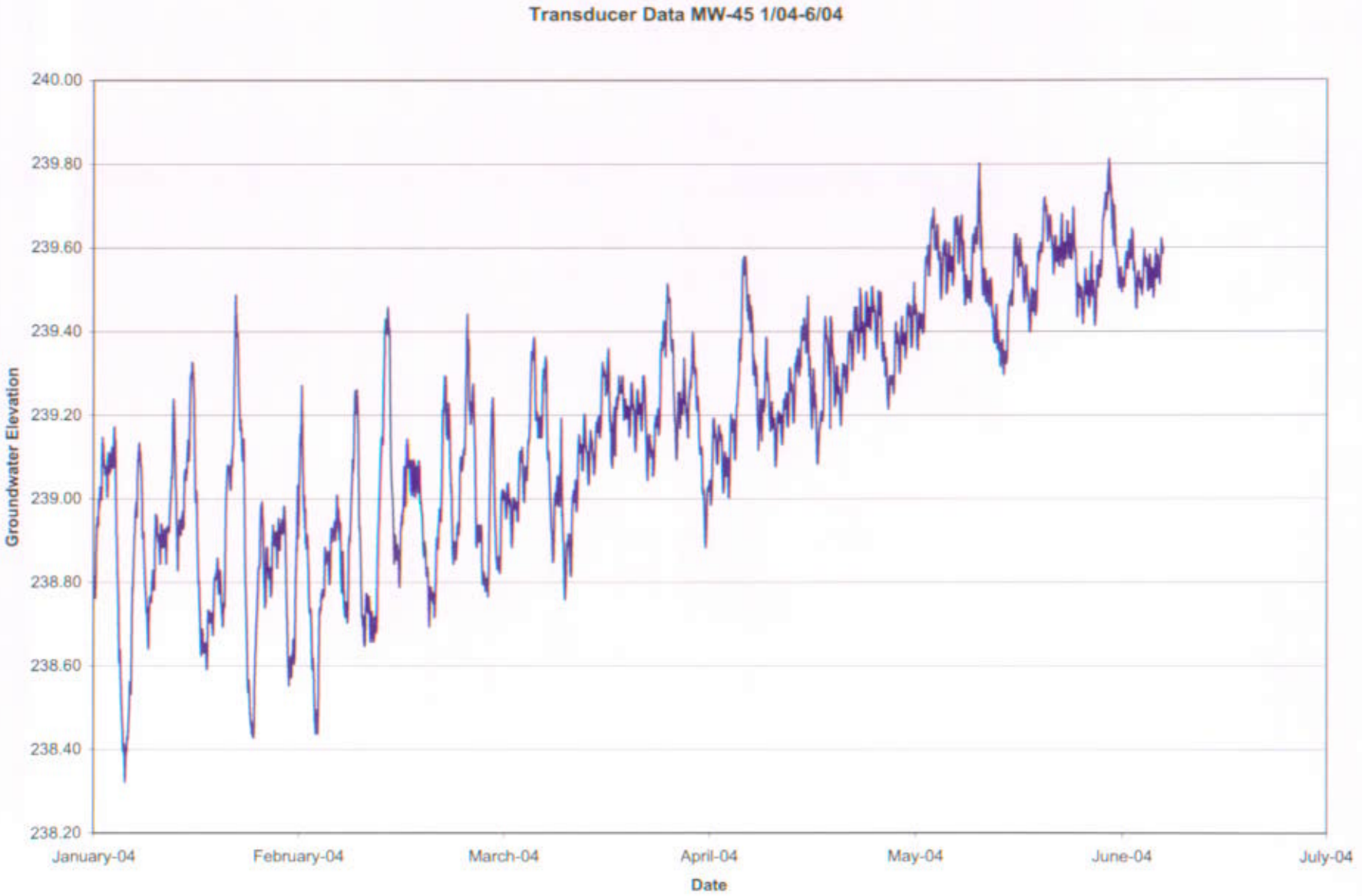
Affected Analyte(s)/Sample(s)	Qualification	Reason for Qualification
1,1-Dichloroethane and 1,1,1-Trichloroethane for RW-9; 1,1-Dichloroethene for RW-8; Methylene chloride for RW-1, RW-1A, RW-2, RW-3, and TB-05-12-04; 1,1,2,2-Tetrachloroethane for RW-1B; Tetrachloroethene for RW-1A, RW-2, RW-3, RW-4, RW-5, RW-7, RW-8, and DUP; trans-1,2-Dichloroethene for RW-1, RW-1A, RW-4, RW-5, and DUP; 1,1,2-Trichloroethane for RW-2		
Acetone, 2-Butanone, 2-Hexanone, and trans-1,2-Dichloroethene for RW-1, RW-1A, RW-1B, RW-2, RW-3, RW-4, RW-5, RW-6, RW-7, RW-9, DUP, and Trip Blank	J	ICV recovery exceeded acceptance limits. Data are considered usable with qualification.
Acetone and Bromomethane for RW-5, RW-6, RW-7, and RW-9	R	CCV percent difference exceeded 40 percent. Data are rejected as unusable.
Acetone and Bromoform for RW-5, RW-6, RW-7, and RW-9; Bromomethane, 2-Butanone, 2-Hexanone, and 4-Methyl-2-pentanone for RW-1, RW-1A, RW-1B, RW-2, RW-3, RW-4, DUP, and Trip Blank	J	CCV percent difference exceeded acceptance limits. Data are considered usable with qualification.
Bromomethane and Chloroethane for RW-5, RW-6, RW-7, and RW-9	J	LCS/LCSD recoveries were above acceptance limits. Data are considered usable with qualification.
Acetone, 2-Butanone, 2-Hexanone, and 4-Methyl-2-pentanone for RW-5, RW-6, RW-7, and RW-9; 2-Butanone, 2-Hexanone, and 4-Methyl-2-pentanone for RW-1, RW-1A, RW-1B, RW-2, RW-3, RW-4, DUP, and Trip Blank	J	LCS/LCSD recoveries were below acceptance limits. Data are considered usable with qualification.
Chloroethane, Chloroform, and Vinyl chloride for RW-1A	J	MS/MSD recoveries were above acceptance limits. Data are considered usable with qualification.
2-Hexanone for RW-1A	J	MS/MSD recoveries were below acceptance limits. Data are considered usable with qualification.

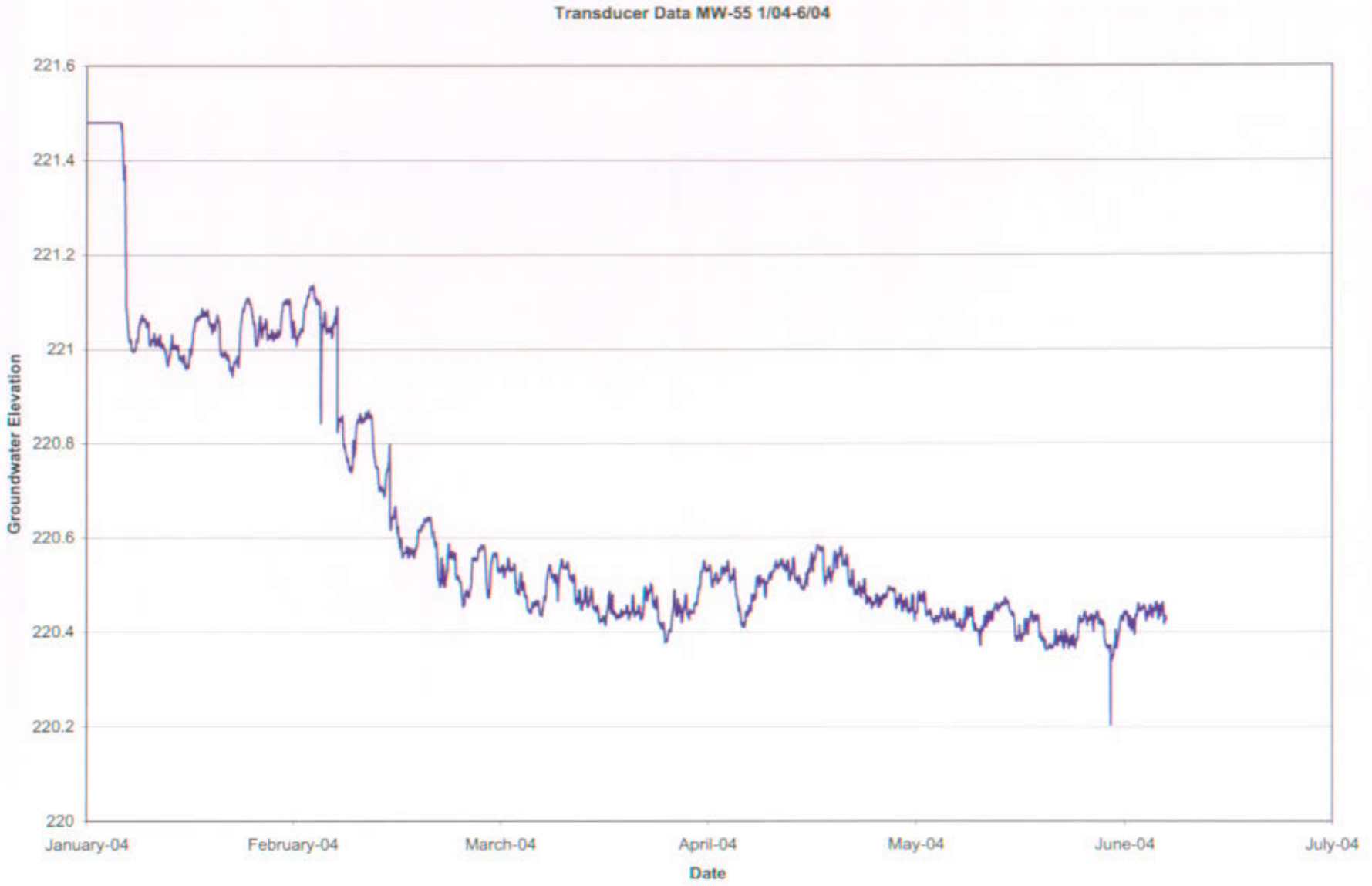
APPENDIX E

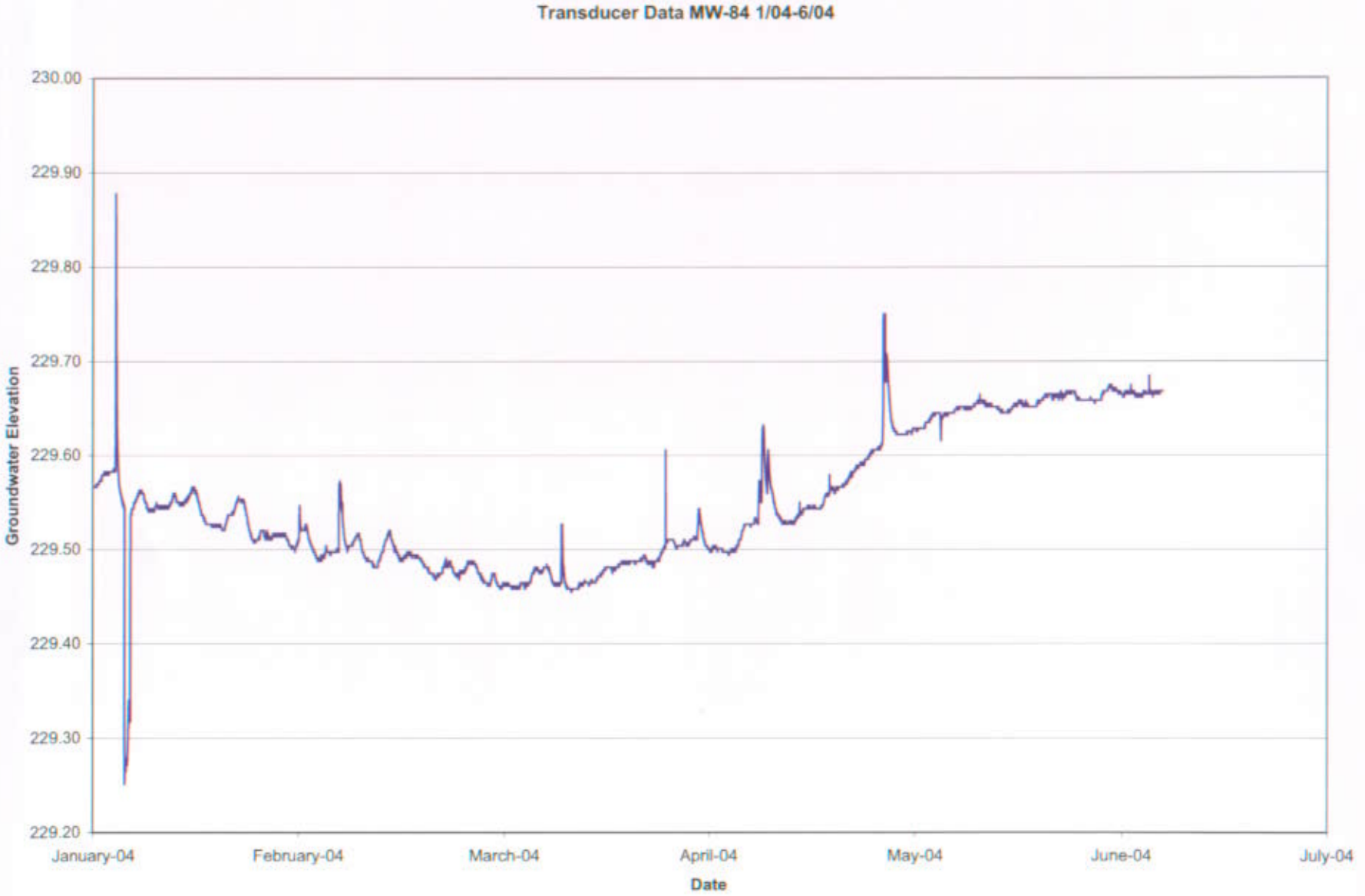
PRESSURE TRANSDUCER DATA FOR SELECTED MONITORING WELLS

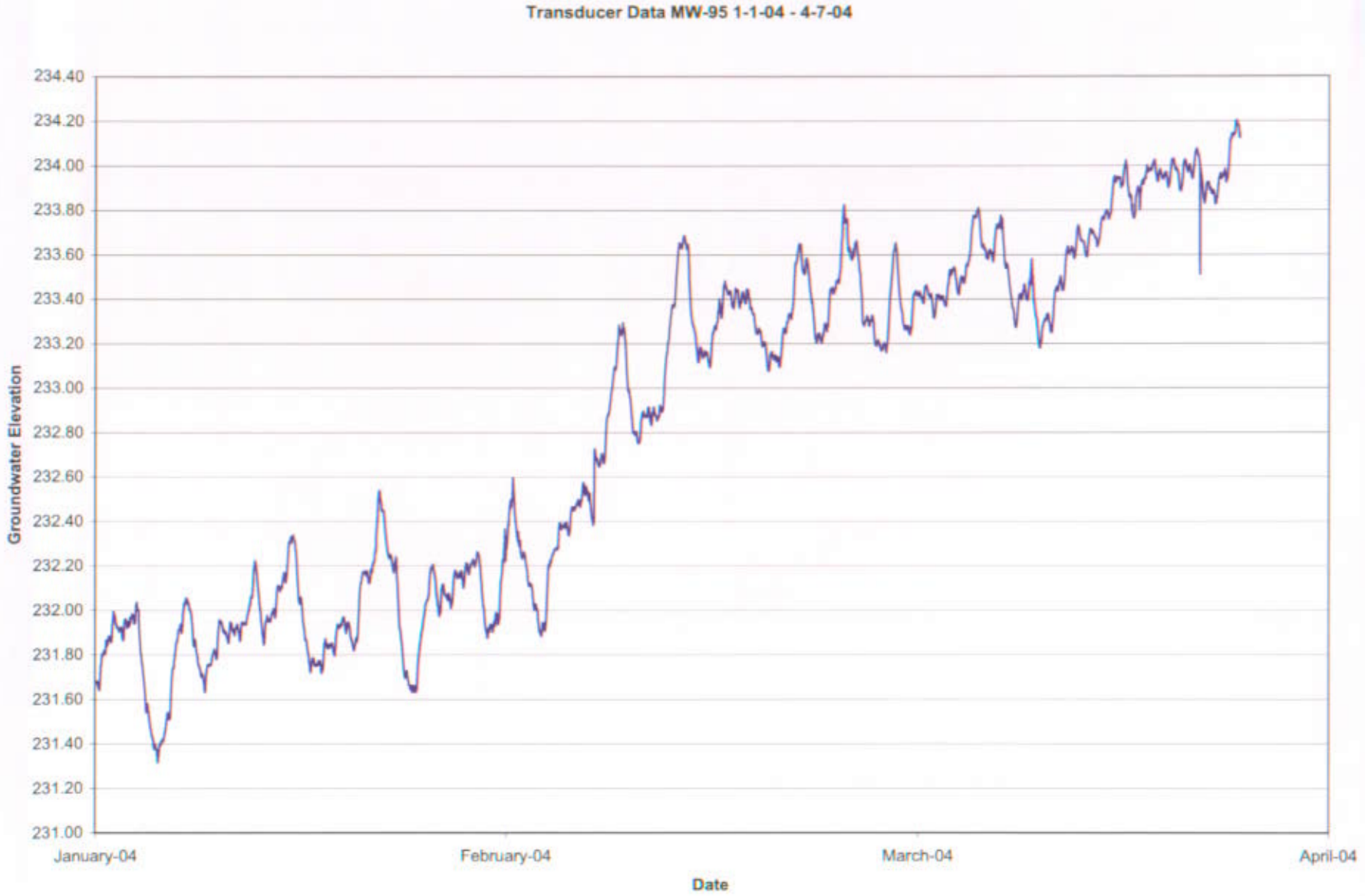

Transducer Data MW-04 104-84
227.40
227.20
227.00
226.80
226.60
226.40
Groundwater Elevation
January-04
February-04
March-04
April-04
May-04
June-04
July-04
Date


Transducer Data MW-13 1/04-6/04
228.00
227.80
227.60
227.40
227.20
227.00
226.80
226.60
Groundwater Elevation
January-04
February-04
March-04
April-04
May-04
June-04
July-04
Date


Transducer Data MW-45 1/04-6/04
240.00
239.80
239.60
239.40
239.20
239.00
238.80
238.60
238.40
238.20
Groundwater Elevation
January-04
February-04
March-04
April-04
May-04
June-04
July-04
Date


Transducer Data MW-55 1/04-6/04
Groundwater Elevation
221.6
221.4
221.2
221
220.8
220.6
220.4
220.2
220
January-04
February-04
March-04
April-04
May-04
June-04
July-04
Date


Transducer Data MW-84 1/04-6/04
230.00
229.90
229.80
229.70
229.60
229.50
229.40
229.30
229.20
Groundwater Elevation
January-04
February-04
March-04
April-04
May-04
June-04
July-04
Date


Transducer Data MW-95 1-1-04 - 4-7-04
Groundwater Elevation
234.40
234.20
234.00
233.80
233.60
233.40
233.20
233.00
232.80
232.60
232.40
232.20
232.00
231.80
231.60
231.40
231.20
231.00
January-04
February-04
March-04
April-04
Date

FINAL PAGE

HQ ACC RADAR SITE

FINAL PAGE