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**SEMIANNUAL STATUS REPORT – 2006
DUNN FIELD GROUNDWATER INTERIM REMEDIAL
ACTION – YEAR EIGHT FIRST HALF**

Defense Depot Memphis, Tennessee



Defense Logistics Agency



**MACTEC Engineering and Consulting, Inc.
Project No. 6301-05-0006**



**Air Force Center for Environmental Excellence
Contract No. F41624-03-D-8606
Task Order No. 0080**

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Prepared for:

Air Force Center for Environmental Excellence

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LIST OF ACRONYMS AND ABBREVIATIONS

AFCEE	Air Force Center for Environmental Excellence
BCT	Base Realignment and Closure Cleanup Team
cDCE	cis-1,2-Dichloroethene
CF	Chloroform
CT	Carbon Tetrachloride
CVOC	Chlorinated VOC
DCA	Dichloroethane
DCE	Dichloroethene
DDMT	Defense Depot Memphis, Tennessee
DQE	Data Quality Evaluation
DQO	Data Quality Objective
FB	Field Blank
gpm	Gallons per Minute
IRA	Interim Remedial Action
LCS	Laboratory Control Sample
MACTEC	MACTEC Engineering and Consulting, Inc.
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
µg/L	Micrograms per Liter
O&M	Operation and Maintenance
PCA	Tetrachloroethane
PCE	Tetrachloroethene
PDB	Passive Diffusion Bag
QC	Quality Control
RA SAP	Remedial Action Sampling and Analysis Plan
RL	Reporting Limit
SVOC	Semivolatile Organic Compound
TC	Target Concentration
TCA	Trichloroethane
TCE	Trichloroethene
tDCE	trans-1,2-Dichloroethene
VC	Vinyl Chloride
VOC	Volatile Organic Compound

1.0 INTRODUCTION AND SCOPE OF WORK

MACTEC Engineering and Consulting, Inc., (MACTEC) prepared this Semiannual Status Report – 2006 for the Groundwater Interim Remedial Action (IRA) under Contract No. F41624-03-D-8606, Task Order No. 0080, to the Air Force Center for Environmental Excellence (AFCEE). This report covers the period from 1 January 2006 to 30 June 2006 (Year Eight First Half), for the Groundwater IRA at Dunn Field at the Defense Depot Memphis, Tennessee (DDMT). This report summarizes the operation and maintenance (O&M) activities for the groundwater recovery system and the results of system monitoring.

MACTEC assumed responsibility for O&M of the Groundwater IRA system on 1 January 2004. The O&M objectives are to:

- Maintain system operations through regular field inspections, maintenance, and repairs.
- Monitor system effectiveness through the measurement of water levels and the collection and analysis of system effluent samples and groundwater samples from monitoring wells and recovery wells.

The scope for Groundwater IRA O&M during the reporting period included the following tasks:

- Semimonthly system inspections with repair or replacement of components, as required
- System calibration
- Monthly discharge reports to summarize O&M activities, system status, and performance
- Quarterly water level measurements in recovery wells and monitoring wells
- Quarterly downloads of water level data from pressure transducers in recovery wells and select monitoring wells
- Semiannual volatile organic compound (VOC) analysis of groundwater samples collected from monitoring wells using passive diffusion bag (PDB) samplers and from recovery well samples using wellhead sampling ports (Figure 1-1)
- Quarterly VOC analysis of effluent samples and semiannual semivolatile organic compound (SVOC) and metals analysis of effluent samples in accordance with the wastewater discharge permit

2.0 SYSTEM OPERATIONS ACTIVITIES

Groundwater IRA system operations were evaluated during semimonthly visits and summarized in monthly discharge reports. These reports were submitted to the City of Memphis, in accordance with the wastewater discharge permit, and to the Base Realignment and Closure Cleanup Team (BCT).

2.1 PERFORMANCE

The system had an average operational run time of 97.2 percent for all recovery wells in the first six months of 2006.

Based on semimonthly flowmeter readings, 13,339,224 gallons of groundwater were discharged to the sanitary sewer from 1 January 2006 through 30 June 2006. Based on the average flow, 13,206,941 gallons of groundwater were discharged in the same period. The average operational run time, monthly pumping rate, and total discharge volume for each well are shown in the following tables.

Average Operational Run Times (Percent)

Recovery Well ID	Jan	Feb	Mar	Apr	May	Jun	Average
RW-1	100	100	100	100	100	100	100
RW-1A	100	100	100	100	100	100	100
RW-1B	100	100	100	100	100	100	100
RW-2	100	100	100	100	100	100	100
RW-3	100	100	100	100	100	100	100
RW-4	100	100	100	100	100	100	100
RW-5	100	100	100	100	100	100	100
RW-6	100	100	100	100	100	100	100
RW-7	100	93	0	56.6	94	100	73.9
RW-8	74	100	100	100	100	100	95.7
RW-9	100	100	100	100	100	100	100

**Average Monthly Pumping Rate
(Gallons per Minute) and Total Volume (Gallons)**

Recovery Well ID	Jan	Feb	Mar	Apr	May	Jun	Average Rate	Total Volume (Gallons)
RW-1	0.2	0.2	0.2	0.2	0.2	0.4	0.2	60,768
RW-1A	1.9	1.5	1.6	1.5	1.2	1.3	1.5	390,816
RW-1B	2.6	2.5	2.5	3.0	4.0	2.1	2.8	727,344
RW-2	3.0	2.4	2.4	2.4	2.5	2.5	2.5	661,104
RW-3	5.6	5.6	5.6	5.2	2.0	2.0	4.3	1,124,928
RW-4	3.8	3.1	2.5	3.1	7.5	6.3	4.4	1,144,224
RW-5	1.6	1.5	1.6	3.1	1.5	1.5	1.8	469,008
RW-6	9.2	8.3	8.4	6.5	6.3	10.7	8.2	2,147,904
RW-7	3.5	1.8	0	4.6	5.0	2.0	2.8	646,570
RW-8	3.8	10.6	13.5	10.7	7.8	2.8	8.2	2,085,379
RW-9	7.4	14.3	15.5	8.2	20.4	20.4	14.4	3,748,896
Total	42.6	51.8	53.8	48.5	58.5	52	51.2	13,206,941

2.2 CALIBRATION AND MAINTENANCE

MACTEC conducted one calibration and “major” repairs visit during the reporting period, 14 to 18 April 2006. Numerous minor repairs, adjustments, and operation activities were performed twice monthly during regular O&M visits. The following activities were conducted during the visit on 14 to 18 April 2006.

2.2.1 Site Visit 14 to 18 April 2006

The following activities were conducted during the calibration and “major” repairs visit from 14 to 18 April 2006. The pump impeller in recovery well RW-7 was reconfigured, a cooling sleeve was added to the pump motor, and a contactor and overlay relay were replaced. The pump in recovery well RW-4 was cleaned to remove scaling. The impeller bearings were replaced and other necessary repairs were made to the flowmeters of recovery wells RW-4, RW-7, RW-8, and RW-9. Also, the flowmeter bodies were cleaned. The check valve and level relay were repaired in recovery well RW-2. New wiring was installed in the 4-20 milliamp loop of recovery well RW-2. In addition, all recovery wells flowmeters were re-calibrated. The strainer in recovery well RW-9 was removed. The on-site and remote level and flowrate readings were compared and were within an acceptable range of accuracy. Per Foxboro, manufacturer of the control equipment, changes were made in the controller’s program, and the revised

program was then placed on all controllers. The voltage and amperage were measured at each wellhead and compared to the manufacturers' recommended ranges. Following system maintenance, all measurements were within the acceptable range. All recovery well flowmeters and water level relays were calibrated.

In addition to specific maintenance performed during the site visits, general maintenance was performed during the twice monthly O&M visits. Desiccant packs for transducers were checked semimonthly in all recovery wells and replaced when a change in color was observed.

Selected monitoring well data loggers were downloaded and semiannual sampling and quarterly groundwater level and effluent sampling events were performed from 10 to 14 April 2006. In addition, new latches and keyed-alike locks were installed on the enclosures of all recovery wells.

2.3 MAINTENANCE AT INDIVIDUAL WELLS

Maintenance activities at individual recovery wells are described below. Some recovery wells were stated as 100 percent operational even with significant repairs noted. The convention for determining operational rates for the recovery wells is to assume that the pump is operational until it is observed to be inoperative during a site visit. If a pump is repaired and in operation during a site visit, no downtime is noted. Maintenance activities at each recovery well were as follows:

- RW-1 was 100 percent operational for the first six months of 2006.
- RW-1A was 100 percent operational for the first six months of 2006.
- RW-1B was 100 percent operational for the first six months of 2006.
- RW-2 was 100 percent operational for the first six months of 2006. The door on the well cabinet was repaired in February. The wire in the 4-20 milliamps loop was replaced in April.
- RW-3 was 100 percent operational for the first six months of 2006. Minor repairs were performed on the flowmeter in May and June.
- RW-4 was 100 percent operational for the first six months of 2006. An iron incrustation problem was noted; the pump wet end was found fouled with iron, and the impeller shaft seal was worn. The pump was cleaned in April, and although it currently operates properly, it may need replacement in the near future. The impeller bearings were replaced, and other necessary repairs were made to the flowmeter.
- RW-5 was 100 percent operational for the first six months of 2006. The door on the well cabinet was repaired in February.

- RW-6 was 100 percent operational for the first six months of 2006.
- RW-7 was 73.9 percent operational for the first six months of 2006. The pump was replaced in March, and its electrical components were repaired in April. The pump impeller was reconfigured, a cooling sleeve was added to the pump motor, and a contactor and overlay relay were replaced. The door on the well cabinet was repaired. The impeller bearings were replaced, and other necessary repairs were made to the flowmeter in May.
- RW-8 was 95.7 percent operational for the first six months of 2006. The pump was replaced in January. The door on the well cabinet was repaired. The impeller bearings were replaced, and other necessary repairs were made to the flowmeter in April.
- RW-9 was 100 percent operational for the first six months of 2006. The impeller bearings and a broken impeller in the flowmeter were replaced. Due to frequent clogging, the strainer was removed from the groundwater force main.

3.0 SYSTEM MONITORING ACTIVITIES

The system monitoring activities consisted of water level measurements, sampling and analysis of groundwater from recovery wells and monitoring wells, and sampling and analysis of effluent samples from the recovery system discharge. The activities were performed in accordance with past practice and the *Remedial Action Sampling and Analysis Plan* (RA SAP; MACTEC, 2004). The wells included in the monitoring program are listed in Table 3-1.

3.1 WATER LEVEL MEASUREMENTS

Water levels were measured at 105 wells on 10 and 11 April 2006 to evaluate the system capture zone and groundwater flow direction. The water levels in the 11 recovery wells were not manually measured on 10 and 11 April 2006, but were based on transducer readings obtained on 9 April 2006 (with the exception of RW-07, which had an inoperative pump and was not measured). The water level measurements are shown in Table 3-2 with measurements taken in November 2005.

3.2 GROUNDWATER SAMPLING

3.2.1 Monitoring Wells

Groundwater samples were collected from monitoring wells to evaluate system effectiveness in restricting plume migration. Sampling procedures were performed in general accordance with the *User's Guide for Polyethylene-based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells* (U.S. Geological Survey, 2001) and RA SAP. Groundwater samples from monitoring wells have been collected using PDBs since October 2001. Prior to that time, the samples are believed to have been collected using low-flow sampling methods.

A total of 76 PDB samples were collected from 50 wells. Two samples were collected from 26 wells, as indicated in Table 3-1, to evaluate variations in concentrations over the screened aquifer thickness. In wells containing only a single sample, a PDB was placed near the center of the saturated screen. In wells containing two samples, the upper PDB was placed approximately 1 foot below the top of the screen (or water level if not fully saturated), and the lower PDB was placed approximately 3 feet above the bottom of the screen. PDB sample intervals for each monitoring well are shown in Table 3-3.

PDBs were placed in the wells listed in Table 3-3 on 14 and 19 November 2005 and in wells MW-67 and MW-159 (lower bag only) on 8 December 2005. The sampling technician noticed that the sample port plugs located at the bottom of the PDBs for monitoring well MW-67 and monitoring well MW-159 (lower PDB) had split, which resulted in the PDBs being empty upon retrieval in November 2005. This required reinstallation, equilibration, and re-collection of the samples for these two PDBs. The samples were collected on 8 December 2005, and the PDBs were replaced at that time.

All PDBs were retrieved on 12 and 13 April for the first 2006 semiannual sampling event. Upon removal from each monitoring well, a sample of water from the PDB was transferred to 40-milliliter (ml) vials preserved with hydrochloric acid. The groundwater samples were sent to Environmental Testing and Consulting, Inc., (ETC) for VOC analysis by USEPA Method SW8260B. Following sample collection, new PDBs filled with deionized water were placed in the wells to be retrieved during the next sampling event scheduled for October 2006. Analytical results for the monitoring wells are included in Appendix A, Table A-1.

3.2.2 Recovery Wells

Groundwater samples were collected from 11 recovery wells for comparison to monitoring well sample results, and for evaluation of system effectiveness in removing contaminant mass. Samples were collected from the sample port on each recovery well on 11 and 14 April 2006. The samples were sent to ETC for VOC analysis by USEPA Method SW8260B. Analytical results for the recovery wells are included in Appendix A, Table A-2.

3.3 EFFLUENT SAMPLING

Effluent samples were collected to comply with the City of Memphis Publicly Owned Treatment Works discharge permit requirements, and to estimate contaminant mass removal for the monthly reports. The effluent samples were collected from the groundwater extraction system at a location approximately 200 feet upstream from the final discharge point, a manhole on Person Avenue at the DDMT northern property line.

Effluent samples were collected on 11 April 2006 for analysis of VOCs (USEPA Method SW8260), SVOCs (USEPA Method SW8270C), total metals (USEPA Method SW6010B) and pH (USEPA Method

150.1). Additional effluent samples to support system evaluation were collected on 27 February 2006 for VOCs and pH only. The effluent analytical results are provided in Appendix A, Table A-3.

3.4 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 sources: monitoring wells, recovery wells, and effluent discharge.

Field and laboratory QC samples were collected with the groundwater and effluent samples. The QC samples consisted of trip blanks, field blanks (FBs), and duplicates. Trip blanks were included in coolers delivered from the laboratory. One duplicate and one MS/MSD pair were collected for the effluent sample collected in February 2006. For the April 2006 semiannual sampling event, the QC samples collected are described below:

- Ten duplicates (8 for the monitoring well samples, 1 for the recovery well samples, and 1 for the effluent discharge samples) (1 duplicate for approximately every 10 well samples and 1 duplicate for the effluent discharge sample)
- Two FBs (to represent the quality of the deionized water used to fill PDBs)..
- Five matrix spike/matrix spike duplicate (MS/MSD) samples (1 pair for approximately every 20 samples).

Laboratory quality assurance/QC included surrogate spikes, method blanks, laboratory control samples (LCSs), and MS/MSD analysis. The sampling and analytical methods are described in the RA SAP. The analytical results for the QC samples are included in Appendix A, Table A-4.

Documentation was completed in the field to ensure that the samples collected, labels, chain-of-custody, and request for analysis were in agreement. Custody seals were placed on each cooler before pickup by ETC. Samples were either picked up by ETC by 3 p.m. the day of sampling or the morning after the samples were collected.

4.0 SUMMARY OF MONITORING RESULTS

The results of the semiannual water level measurements and analysis of groundwater and effluent samples for system monitoring are discussed below.

4.1 WATER LEVEL MEASUREMENTS

Water level measurements for 15-16 November 2005 and 10-11 April 2006 are shown with resulting groundwater elevations in Table 3-2. For the most recent water level measurements (April 2006), groundwater elevations in the fluvial aquifer are highest northeast of Dunn Field (244 feet msl at MW-128) and decrease to the west-southwest (210 feet msl at MW-127). The groundwater elevations in the intermediate aquifer ranged from approximately 180 feet msl in MW-38, south of Dunn Field, to 165 feet msl in MW-37, west of Dunn Field. The groundwater elevation in MW-67, which is screened in the Memphis Sand, was approximately 165 feet msl. In general, these observations are consistent with the data from previous water level measurements. The variation in water levels in the fluvial aquifer monitoring wells is primarily due to the elevation of the underlying clay of the Jackson Formation/Upper Claiborne Group. The variation in water levels between wells screened in the intermediate aquifer is likely due to higher water levels near areas of recharge from the overlying fluvial aquifer. The groundwater elevations at monitoring wells screened in the fluvial aquifer were consistent with the November 2005 measurements, with most wells having a variation of less than 1 foot. Wells screened in the intermediate aquifers showed variations of 2 to 8 feet, while MW-67 in the Memphis Sand had a variation of approximately 8 feet. The April 2006 potentiometric surface for the fluvial aquifer is illustrated in Figure 4-1.

The water levels in the recovery wells were not manually measured on 10 and 11 April 2006, but are based on transducer readings obtained on 1 April 2006. For the April 2006 groundwater contours, areas of drawdown were observed at the recovery wells, but the system does not provide complete capture of groundwater flow between the recovery wells. Along the northern Dunn Field boundary, groundwater flows southwest, while farther south on Dunn Field, groundwater generally flows west-northwest. These two flow patterns merge west of Dunn Field in a trough-like area of relatively low flow near MW-165. As groundwater flows into the trough, the combined flow begins to split, with flow north toward MW-40 and southwest toward MW-43. Possible gaps in the underlying clay aquitard near these locations may be resulting in flow downward into the intermediate aquifer.

4.2 ANALYTICAL RESULTS

Analytical results for the semiannual sampling event are presented in Appendix A. Positive results summaries, including analytical results for all constituents detected above the reporting limit in one or more samples, are shown in Table 4-1 for monitoring wells and in Table 4-2 for recovery wells. Analytical results for effluent samples, with the applicable permit limits, are shown in Table 4-3.

MACTEC performed a data quality evaluation (DQE) of the laboratory chemical data packages to qualify data relative to the data quality objectives (DQOs) in accordance with the RA SAP. The complete DQE discussion will be included in the Annual Operations Report. Qualification of the analytical data is shown in the tables and discussed in the following sections.

4.2.1 Groundwater

The following discussion of groundwater analytical results focuses on concentrations detected above the reporting limit for the nine chlorinated VOCs (CVOCs) detected persistently at Dunn Field:

- Carbon tetrachloride (CT)
- Chloroform (CF)
- 1,1-Dichloroethene (DCE)
- cis-1,2-Dichloroethene (cDCE)
- trans-1,2-Dichloroethene (tDCE)
- 1,1,2-Trichloroethane (TCA)
- Trichloroethene (TCE)
- Tetrachloroethene (PCE)
- 1,1,2,2-Tetrachloroethane (PCA)

Vinyl chloride (VC), a significant CVOC degradation product, is also discussed. The analytical results were compared to the maximum contaminant levels (MCLs) and groundwater target concentrations (TCs) from Table 2-21G of the *Dunn Field Record of Decision* (CH2M HILL, 2004), as listed in Table 4-1 and in Table 4-2. The total concentrations for these nine CVOCs, plus VC, in the April 2006 analytical results are presented in Figure 5-2.

4.2.1.1 Monitoring Wells

During the semiannual sampling event, 76 groundwater samples were collected from 50 monitoring wells. Samples were analyzed for VOCs only. The data are usable with qualifications as described below (Table 4-1 and Appendix A-1):

- Twenty-nine samples were “B”-qualified for CF based on FB results. The “B”-qualified data were reported at levels below MCLs and therefore should not adversely impact data quality.
- Carbon disulfide results in two samples and TCE results in one sample were flagged “J” and qualified as estimated based on MS/MSD performance.
- PCE and tDCE results for sample MW-144 were flagged “J” and qualified as estimated because of poor duplicate precision.
- Any result reported below the reporting limit (RL), but above the method detection limit (MDL), was flagged “J” and considered an estimated result (unless overridden by other QC flags).

Analytical results for groundwater samples collected from the monitoring wells are summarized below:

- CT was reported in 12 monitoring wells, with a maximum concentration of 23 micrograms per liter ($\mu\text{g/L}$) in MW-57. The MCL ($5 \mu\text{g/L}$) was exceeded in seven wells. The TC ($3 \mu\text{g/L}$) was exceeded in eight wells.
- CF was reported in eight monitoring wells, with a maximum concentration of $154 \mu\text{g/L}$ in MW-32. The MCL for trihalomethanes ($80 \mu\text{g/L}$) was exceeded in two wells. The TC ($12 \mu\text{g/L}$) was exceeded in five wells.
- DCE was reported in nine monitoring wells, with a maximum concentration of $52.8 \mu\text{g/L}$ in MW-130. The MCL ($7 \mu\text{g/L}$) and the TC ($7 \mu\text{g/L}$) were exceeded in five wells.
- tDCE was detected in 23 monitoring wells, with a maximum concentration of $38.5 \mu\text{g/L}$ in MW-77. The detected concentrations did not exceed the MCL of $100 \mu\text{g/L}$ or TC of $50 \mu\text{g/L}$.
- cDCE was detected in 27 monitoring wells, with a maximum concentration of $154 \mu\text{g/L}$ in MW-77. The MCL ($70 \mu\text{g/L}$) was exceeded in five wells. The TC ($35 \mu\text{g/L}$) was exceeded in 11 wells.
- PCA was detected in 27 monitoring wells, with a maximum concentration of $21,700 \mu\text{g/L}$ in MW-77. An MCL has not been set for PCA. The TC ($2.2 \mu\text{g/L}$) was exceeded in 26 wells.

- PCE was detected in 29 monitoring wells, with a maximum concentration of 114 µg/L in MW-130. The MCL (5 µg/L) was exceeded in 14 wells. The TC (2.5 µg/L) was exceeded in 21 wells.
- TCA was detected in 14 monitoring wells, with a maximum concentration of 29 µg/L in MW-70. The MCL (5 µg/L) was exceeded in eight wells. The TC (1.9 µg/L) was exceeded in 11 wells.
- TCE was detected in 34 monitoring wells, with a maximum concentration of 5,520 µg/L in MW-77. The MCL (5 µg/L) and the TC (5 µg/L) were exceeded in 31 wells.
- VC was detected in one monitoring well (MW-70) at a concentration of 94.2 µg/L. The MCL (2 µg/L) was exceeded. A TC has not been set for VC.

4.2.1.2 Recovery Wells

One groundwater sample was collected from each of the 11 recovery wells. Samples were analyzed for VOCs only. The data are usable with the following qualifications (Table 4-2 and Appendix A-2):

- Any result reported below the RL, but above the MDL, was flagged “J” and considered an estimated result.

Analytical results for groundwater samples collected from the recovery wells are summarized below:

- CT was detected in five recovery wells, with a maximum concentration of 21.4 µg/L in RW-1B. The MCL (5 µg/L) was exceeded in four wells. The TC (3 µg/L) was exceeded in five wells.
- CF was detected in 10 recovery wells, with a maximum concentration of 512 µg/L in RW-1A. The MCL for trihalomethanes (80 µg/L) was exceeded in one well. The TC (12 µg/L) was exceeded in four wells.
- DCE was detected in two recovery wells, with a maximum concentration of 19.5 µg/L in RW-9. The MCL (7 µg/L) and TC (also 7 µg/L) were exceeded in one well.
- tDCE was detected in 10 recovery wells, with a maximum concentration of 32.6 µg/L in RW-8. The detected concentrations did not exceed the MCL of 100 µg/L or the TC of 50 µg/L.
- cDCE was detected in all 11 recovery wells, with a maximum concentration of 151 µg/L in RW-8. The MCL (70 µg/L) was exceeded in one well. The TC (35 µg/L) was exceeded in two wells.
- PCA was detected in nine recovery wells, with a maximum concentration of 264 µg/L in RW-4. An MCL has not been established for PCA. The TC (2.2 µg/L) was exceeded in eight wells.

- PCE was detected in 10 recovery wells, with a maximum concentration of 20.1 µg/L in RW-9. The MCL (5 µg/L) was exceeded in five wells. The TC (2.5 µg/L) was exceeded in nine wells.
- TCA was detected in four recovery wells, with a maximum concentration of 11.8 µg/L in RW-4. The MCL (5 µg/L) was exceeded in one well. The TC (1.9 µg/L) was exceeded in four wells.
- TCE was detected in all 11 recovery wells, with a maximum concentration of 1,080 µg/L in RW-4. The MCL (5 µg/L) and TC (also 5 µg/L) were exceeded in all 11 wells.

4.2.2 Effluent Samples

Effluent discharge samples were collected in February and April 2006. The data are usable with the following qualifications (Table 4-3 and Appendix A-3):

- TCE results in samples Effluent-0206 and Effluent-0406 were flagged “J” and qualified as estimated based on low MS/MSD recoveries.
- Iron and zinc results for sample Effluent-0406 were flagged “J” and qualified as estimated because of poor duplicate precision.
- Any result reported below the RL, but above the MDL, was flagged “J” and considered an estimated result.

The analytical results are compared with the permit discharge limits in Table 4-3. All results except the zinc concentration measured in the 11 April 2006 sample were below the permit limits. The estimated zinc concentration of 0.508 mg/L exceeded the monthly average limit of 0.3 mg/L, but not the daily maximum of 1 mg/L.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SYSTEM OPERATIONS

In the first six months of 2006, the system had an average operational run time of 97.2 percent for all recovery wells. Two recovery wells (RW-7 and RW-8) had downtimes due to pump failure.

Maintenance repairs were required during this reporting period. Repairs became necessary because of normal wear and tear over the past seven years of system operation. Repairs performed on the system from January 2003 through June 2006 are summarized in Table 5-1.

The effluent average discharge rate ranged from 42.6 gallons per minute (gpm) in January to 58.4 gpm in May. The total discharge was approximately 13.3 million gallons, based on the estimated discharges from individual wells, as explained in Section 2.1. The effluent discharge limit for zinc was exceeded in the sample collected on 11 April 2006. The estimated zinc concentration of 0.508 mg/L exceeded monthly average limit of 0.3 mg/L, but not the daily maximum of 1 mg/L.

The constituent mass (total VOCs and TCE) removed by the system is presented in the monthly discharge reports, based on the average monthly discharge flowrate and the latest effluent sample analytical results. The mass removal estimates for January 2006 through June 2006 were based on the effluent samples collected on 30 November 2005, 27 February 2006, and 11 April 2006. Based on the concentrations in the effluent, approximately 16.8 pounds of TCE and 39.7 pounds of total VOCs were removed during this reporting period. The effluent sample collected on 27 February 2006 contained 373.97 µg/L of total VOCs and 153.0 µg/L of TCE. The effluent sample collected on 11 April 2006 contained 310.08 µg/L of total VOCs and 127.0 µg/L of TCE. The total VOC and TCE concentrations measured at the effluent metering station since 1998 are shown in Figure 5-1.

Time trend plots for total VOC and TCE concentrations in each recovery well from 1999 through April 2006 are presented in Appendix B. The average discharge rate for each recovery well from July 2004 through June 2006 is also noted on the plots. One well (RW-5) had very high concentrations from 1998 through 2000 during the initial system operation, but concentrations later decreased. The remaining wells have had relatively stable and generally decreasing concentrations.

The average constituent mass removal rate in grams per day for each recovery well, based on the analytical results and measured discharge rates during April, is shown in the following table. Wells RW-01A, RW-04, and RW-08 accounted for 69 percent and 74 percent of the total mass removal for total VOCs and TCE, respectively. Maintaining the operation of these three wells should be a priority of the groundwater IRA O&M activities.

Average Mass Removal for Recovery Wells

Recovery Well	Flowrate (gpm)	Concentration (µg/L) 11 April 2006		Mass Removal (grams/day)	
		Total VOCs	TCE	Total VOCs	TCE
RW-01	0.2	144.33	52.8	0.16	0.06
RW-01A	1.5	829.09	152.0	6.78	1.24
RW-01B	3.0	122.22	46.1	2.00	0.75
RW-02	2.4	209.84	47.9	2.75	0.63
RW-03	5.2	86.10	49.9	2.44	1.41
RW-04	3.1	1402.45	1080.0	23.70	18.25
RW-05	3.1	196.74	166.0	3.32	2.81
RW-06	6.5	103.05	59.3	3.65	2.10
RW-07	4.7	78.23	40.7	2.00	1.04
RW-08	10.7	665.53	266	38.82	15.51
RW-09	8.2	102.79	40.4	4.59	1.81

5.2 SYSTEM MONITORING

The analytical results for the monitoring wells are summarized in Table 5-2, which shows the nine persistent CVOCs, plus VC, detected above the RL for PDBs in each well. Of the 50 wells sampled in April 2006, 36 wells contained 1 or more of the 9 CVOCs above reporting limits, and 34 wells had concentrations above the MCL or TC. Total CVOC concentrations for the sampled wells are shown in Figure 5-2.

Table 5-2 shows the variation in concentrations in the wells with multiple PDBs. Multiple PDB samplers were limited to 22 recently installed wells and 4 wells (MW-31, MW-68, MW-69, and MW-70) that previously had observable variation in CVOC concentrations with depth.

Of the 22 recently installed wells with multiple PDBs, 12 wells (MW-145, MW-152, MW-153, MW-154, MW-156, MW-165, MW-166, MW-167, MW-168, MW-169, MW-170, and MW-171) had very low

concentrations or little variation with depth. In wells with greater variability, five wells (MW-148, MW-155, MW-158A, MW-159, and MW-168A) had higher concentrations in the shallower samples and five wells (MW-149, MW-150, MW-151, MW-158, and MW-165A) had higher concentrations in the deeper samples.

Of the four wells with previously observed variability, MW-31, MW-69, and MW-70 showed significant differences between PDBs, with higher concentrations reported in the shallower samples collected in April 2006. However, MW-68 had nondetect CVOC results in both the deeper and shallower samples.

Analytical results for the monitoring wells in the Early Implementation of Selected Remedy area are shown in Table 5-3, which also includes the baseline and post-zero-valent-iron injection results. In April 2006, of the three wells on the upgradient edge of the injection area, CVOC concentrations in MW-54 and MW-150 were approximately one-third the baseline concentrations, while MW-160 returned to baseline concentrations. In MW-155, the only monitoring well in the central area of injections, CVOC concentrations were approximately one-third the baseline concentrations. Of the three wells on the downgradient edge of the injection area, CVOC concentrations in MW-158 and MW-158A showed slight increases, while concentrations in MW-159 were less than half the baseline concentrations.

Time trend plots for monitoring wells with constituents detected above MCLs or TCs, along with a discussion of concentration trends, will be included in the Annual Operations Report. Recommendations for sampling locations with single and multiple PDBs also will be provided in the Annual Operations Report.

6.0 REFERENCES

- CH2M HILL, 2004. *Dunn Field Record of Decision Revision 2*. Prepared for the U.S. Army Engineering and Support Center, Huntsville, AL, February 2004.
- MACTEC, 2004. *Remedial Action Sampling and Analysis Plan, Rev. 0*. Prepared for the Air Force Center for Environmental Excellence, September 2004.
- USGS, 2001. *User's Guide for Polyethylene-based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells, Part 1, Deployment, Recovery, Data Interpretation, and Quality Control and Assurance*. Water Resources Investigation Report 01-406. Columbia, SC, 2001.

TABLES

TABLE 3-1

WELL ACTIVITY SUMMARY
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well	Aquifer Screened	Water Level Measurement	Groundwater Samples 11-13 April 2006
MW-02	Fluvial	X	
MW-03	Fluvial	X	
MW-04**	Fluvial	X	
MW-05	Fluvial	X	
MW-06	Fluvial	X	
MW-07	Fluvial	X	S
MW-08	Fluvial	X	
MW-09	Fluvial	X	
MW-10	Fluvial	X	
MW-11	Fluvial	X	
MW-12	Fluvial	X	
MW-13**	Fluvial	X	
MW-14	Fluvial	X	
MW-15	Fluvial	X	
MW-19	Fluvial	X	
MW-28	Fluvial	X	
MW-29	Fluvial	X	
MW-30	Fluvial	X	
MW-31	Fluvial	X	M
MW-32	Fluvial	X	S
MW-33	Fluvial	X	S
MW-34	Intermediate	X	
MW-35	Fluvial	X	
MW-36	Intermediate	X	
MW-37	Intermediate	X	S
MW-38	Intermediate	X	
MW-40 ⁽¹⁾	Transitional	X	S
MW-42	Fluvial	X	
MW-43	Intermediate	X	S
MW-44	Fluvial	X	S
MW-45**	Fluvial	X	
MW-51	Fluvial	X	
MW-53	Fluvial	X	
MW-54	Fluvial	X	S
MW-55**	Fluvial	X	
MW-56	Fluvial	X	
MW-57	Fluvial	X	S
MW-58	Fluvial	X	
MW-59	Fluvial	X	
MW-60	Fluvial	X	
MW-61	Fluvial	X	
MW-62	Fluvial	X	
MW-65	Fluvial	X	
MW-67	Memphis	X	S
MW-68	Fluvial	X	M
MW-69	Fluvial	X	M
MW-70	Fluvial	X	M
MW-71	Fluvial	X	S

TABLE 3-1

WELL ACTIVITY SUMMARY
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well	Aquifer Screened	Water Level Measurement	Groundwater Samples
			11-13 April 2006
MW-73	Fluvial	X	
MW-74	Fluvial	X	
MW-75	Fluvial	X	
MW-76	Fluvial	X	S
MW-77	Fluvial	X	S
MW-78	Fluvial	X	
MW-79	Fluvial	X	S
MW-80	Fluvial	X	
MW-84**	Fluvial	X	
MW-87	Fluvial	X	
MW-89	Intermediate	X	
MW-90	Intermediate	X	
MW-91	Fluvial	X	
MW-95**	Fluvial	X	
MW-126	Fluvial	X	
MW-127	Fluvial	X	
MW-128	Fluvial	X	
MW-129	Fluvial	X	
MW-130	Fluvial	X	S
MW-131	Fluvial	X	
MW-132	Fluvial	X	
MW-133	Fluvial	X	
MW-134	Fluvial	X	
MW-135	Fluvial	X	
MW-144	Fluvial	X	S
MW-145	Fluvial	X	M
MW-147	Fluvial	X	S
MW-148	Fluvial	X	M
MW-149	Fluvial	X	M
MW-150	Fluvial	X	M
MW-151	Fluvial	X	M
MW-152	Fluvial	X	M
MW-153	Fluvial	X	M
MW-154	Fluvial	X	M
MW-155	Fluvial	X	M
MW-156	Fluvial	X	M
MW-157	Fluvial	X	S
MW-158	Fluvial	X	M
MW-158A	Fluvial	X	M
MW-159	Fluvial	X	M
MW-160	Fluvial	X	S
MW-161	Fluvial	X	S
MW-162	Fluvial	X	S
MW-163	Fluvial	X	S
MW-164	Fluvial	X	S
MW-165	Fluvial	X	M
MW-165A	Fluvial	X	M
MW-166	Fluvial	X	M

TABLE 3-1

WELL ACTIVITY SUMMARY
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well	Aquifer Screened	Water Level Measurement	Groundwater Samples
			11-13 April 2006
MW-166A	Fluvial	X	S
MW-167	Fluvial	X	M
MW-168	Fluvial	X	M
MW-168A	Fluvial	X	M
MW-169 ⁽¹⁾	Transitional	X	M
MW-170	Fluvial	X	M
MW-171	Fluvial	X	M
PZ-02	Fluvial	X	
RW-01	Fluvial	X	G
RW-01A	Fluvial	X	G
RW-01B	Fluvial	X	G
RW-02	Fluvial	X	G
RW-03	Fluvial	X	G
RW-04	Fluvial	X	G
RW-05	Fluvial	X	G
RW-06	Fluvial	X	G
RW-07	Fluvial	X	G
RW-08	Fluvial	X	G
RW-09	Fluvial	X	G

Notes:

- ** Indicates a pressure transducer is installed in the monitoring well.
- G Grab samples from recovery well
- M Multiple samples; Permeable Diffusion Bag (PDB) samplers at top and bottom of saturated screened interval (two samples per well).
- S Single sample; one PDB sampler at mid-point of saturated screened intervals
- X Water level measurement obtained
- (1) Aquifer screened at MW-40 and MW-169 listed as "transitional" to indicate the transitional area between the fluvial and intermediate aquifers.

PREPARED/DATE: Daniel H. Howard 8/30/06
 CHECKED/DATE: John M. Smith 10/4/06

TABLE 3-2

WATER LEVEL MEASUREMENTS
SEMI-ANNUAL OPERATIONS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well ID	Aquifer Screened	Top of Casing Elevation (ft, msl)	Groundwater		Groundwater	
			Depth to Water		Depth to Water	
			15-16 November 2005	Elevation (ft, msl)	10-11 April 2006	Elevation (ft, msl)
			(ft, btoc)		(ft, btoc)	
MW-02	Fluvial	292.04	31.56	260.48	30.49	261.55
MW-03	Fluvial	292.35	67.79	224.56	68.58	223.77
MW-04	Fluvial	301.61	74.45	227.16	74.78	226.83
MW-05	Fluvial	304.64	Dry	Dry	Dry	Dry
MW-06	Fluvial	289.11	62.82	226.29	63.64	225.47
MW-07	Fluvial	295.10	66.21	228.89	66.68	228.42
MW-08	Fluvial	292.59	61.64	230.95	62.17	230.42
MW-09	Fluvial	304.32	75.56	228.76	76.00	228.32
MW-10	Fluvial	288.79	63.16	225.63	63.81	224.98
MW-11	Fluvial	299.47	74.71	224.76	74.79	224.68
MW-12	Fluvial	301.30	76.16	225.14	76.40	224.90
MW-13	Fluvial	300.01	72.70	227.31	73.11	226.90
MW-14	Fluvial	302.22	73.61	228.61	74.23	227.99
MW-15	Fluvial	295.12	68.57	226.55	68.91	226.21
MW-19	Fluvial	290.57	85.51	205.06	85.04	205.53
MW-28	Fluvial	294.79 ⁽¹⁾	55.32	— ⁽¹⁾	55.82	— ⁽¹⁾
MW-29	Fluvial	273.22	38.21	235.01	38.77	234.45
MW-30	Fluvial	275.14	46.38	228.76	46.64	228.50
MW-31	Fluvial	290.37	69.81	220.56	69.73	220.64
MW-32	Fluvial	285.38	63.07	222.31	63.32	222.06
MW-33	Fluvial	280.71	55.58	225.13	55.49	225.22
MW-34	Intermediate	299.97	136.80	163.17	130.51	169.46
MW-35	Fluvial	301.65	76.56	225.09	76.85	224.80
MW-36	Intermediate	310.24	153.08	157.16	144.73	165.51
MW-37	Intermediate	284.91	128.22	156.69	120.01	164.90
MW-38	Intermediate	307.45	130.39	177.06	127.00	180.45
MW-40	Transitional ⁽²⁾	262.23	80.64	181.59	77.39	184.84
MW-42	Fluvial	274.83	52.44	222.39	53.32	221.51
MW-43	Intermediate	284.99	126.97	158.02	119.10	165.89
MW-44	Fluvial	269.07	53.99	215.08	54.14	214.93
MW-45	Fluvial	293.22	54.19	239.03	55.02	238.20
MW-49 ⁽³⁾	Fluvial	310.49	78.12	232.37	78.60	231.89
MW-51	Fluvial	275.23	40.38	234.85	40.55	234.68
MW-53	Fluvial	306.38	72.59	233.79	73.45	232.93
MW-54	Fluvial	295.35	79.45	215.90	79.67	215.68
MW-55	Fluvial	292.08	71.15	220.93	70.96	221.12
MW-56	Fluvial	293.60	66.62	226.98	67.27	226.33
MW-57	Fluvial	290.77	62.26	228.51	63.40	227.37
MW-58	Fluvial	290.51	62.72	227.79	63.31	227.20
MW-59	Fluvial	300.13	73.90	226.23	74.21	225.92
MW-60	Fluvial	296.86	70.32	226.54	70.69	226.17
MW-61	Fluvial	294.04	66.89	227.15	67.43	226.61
MW-62	Fluvial	293.65	93.79	199.86	93.23	200.42
MW-65	Fluvial	263.22	13.06	250.16	5.83	257.39
MW-67	Memphis	278.21	121.39	156.82	113.25	164.96
MW-68	Fluvial	291.69	67.57	224.12	67.80	223.89
MW-69	Fluvial	307.02	82.67	224.35	82.84	224.18

TABLE 3-2

WATER LEVEL MEASUREMENTS
SEMI-ANNUAL OPERATIONS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well ID	Aquifer Screened	Top of Casing Elevation (ft, msl)	Groundwater		Groundwater	
			Depth to Water		Depth to Water	
			15-16 November 2005	Elevation (ft, msl)	10-11 April 2006	Elevation (ft, msl)
			(ft, btoc)		(ft, btoc)	
MW-70	Fluvial	304.99	80.46	224.53	80.44	224.55
MW-71	Fluvial	294.40	69.58	224.82	70.68	223.72
MW-73	Fluvial	300.65	74.79	225.86	75.08	225.57
MW-74	Fluvial	303.68	78.59	225.09	78.79	224.89
MW-75	Fluvial	303.61	78.71	224.90	79.96	223.65
MW-76	Fluvial	302.71	83.33	219.38	83.43	219.28
MW-77	Fluvial	304.42	81.63	222.79	81.60	222.82
MW-78	Fluvial	275.00	47.87	227.13	48.05	226.95
MW-79	Fluvial	285.03	70.51	214.52	70.45	214.58
MW-80	Fluvial	273.81	59.06	214.75	59.37	214.44
MW-84	Fluvial	311.15	81.40	229.75	81.74	229.41
MW-87	Fluvial	294.93	69.32	225.61	70.08	224.85
MW-89	Intermediate	303.98	114.15	189.83	111.90	192.08
MW-90	Intermediate	304.19	114.39	189.80	112.31	191.88
MW-91	Fluvial	291.99	66.04	225.95	66.53	225.46
MW-95	Fluvial	259.43	27.99	231.44	27.24	232.19
MW-126	Fluvial	252.22	20.68	231.54	17.11	235.11
MW-127	Fluvial	268.71	57.92	210.79	58.33	210.38
MW-128	Fluvial	284.14	41.33	242.81	40.06	244.08
MW-129	Fluvial	293.01	55.39	237.62	55.78	237.23
MW-130	Fluvial	293.20	54.56	238.64	54.96	238.24
MW-131	Fluvial	300.64	74.46	226.18	74.79	225.85
MW-132	Fluvial	300.73	74.94	225.79	75.18	225.55
MW-133	Fluvial	300.89	75.07	225.82	75.28	225.61
MW-134	Fluvial	300.81	75.22	225.59	75.43	225.38
MW-135	Fluvial	300.53	74.91	225.62	75.10	225.43
MW-144	Fluvial	291.60	73.10	218.50	73.21	218.39
MW-145	Fluvial	284.72	69.29	215.43	69.48	215.24
MW-147	Fluvial	289.72	70.18	219.54	70.38	219.34
MW-148	Fluvial	294.71	77.42	217.29	77.60	217.11
MW-149	Fluvial	287.18	71.71	215.47	71.85	215.33
MW-150	Fluvial	296.81	80.24	216.57 ⁽⁴⁾	80.69	216.12
MW-151	Fluvial	284.27	69.02	215.25	69.12	215.15
MW-152	Fluvial	289.59	74.67	214.92	74.62	214.97
MW-153	Fluvial	279.17	64.79	214.38	64.76	214.41
MW-154	Fluvial	273.81	56.28	217.53	56.31	217.50
MW-155	Fluvial	291.65	75.50	216.15 ⁽⁴⁾	75.94	215.71
MW-156	Fluvial	269.15	55.52	213.63	55.89	213.26
MW-157	Fluvial	286.78	69.47	217.31	69.65	217.13
MW-158	Fluvial	294.07	79.01	215.06	79.10	214.97
MW-158A	Fluvial	293.95	78.85	215.10	79.01	214.94
MW-159	Fluvial	286.33	70.84	215.49	71.27	215.06
MW-160	Fluvial	294.00	77.71	216.29	77.95	216.05
MW-161	Fluvial	296.40	76.94	219.46	77.18	219.22
MW-162	Fluvial	299.70	80.69	219.01	80.84	218.86
MW-163	Fluvial	290.63	72.51	218.12	72.68	217.95
MW-164	Fluvial	287.48	68.60	218.88	68.99	218.49
MW-165	Fluvial	287.06	71.95	215.11	72.16	214.90
MW-165A	Fluvial	287.26	72.26	215.00	72.44	214.82
MW-166	Fluvial	283.44	68.12	215.32	68.31	215.13

TABLE 3-2

**WATER LEVEL MEASUREMENTS
SEMI-ANNUAL OPERATIONS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well ID	Aquifer Screened	Top of Casing Elevation (ft, msl)	Groundwater		Groundwater	
			Depth to Water	Elevation	Depth to Water	Elevation
			15-16 November 2005 (ft, btoc)	10-11 April 2006 (ft, msl)	10-11 April 2006 (ft, btoc)	10-11 April 2006 (ft, msl)
MW-166A	Fluvial	283.45	68.16	215.29	68.31	215.14
MW-167	Fluvial	284.82	69.88	214.94	70.24	214.58
MW-168	Fluvial	283.95	69.05	214.90	69.26	214.69
MW-168A	Fluvial	283.2	68.43	214.77	68.54	214.66
MW-169	Transitional ⁽²⁾	261.90	73.45	188.45	71.86	190.04
MW-170	Fluvial	273.75	57.44	216.31	57.53	216.22
MW-171	Fluvial	271.02	55.11	215.91	55.14	215.88
PZ-02	Fluvial	284.39	41.32	243.07	40.08	244.31
RW-01	Fluvial	295.71	68.88	226.83	68.5 ⁽⁵⁾	227.21
RW-01A	Fluvial	295.42	69.01	226.41	69.5 ⁽⁵⁾	225.92
RW-01B	Fluvial	289.17	63.26	225.91	66.8 ⁽⁵⁾	222.37
RW-02	Fluvial	289.92	64.01	225.91	65.9 ⁽⁵⁾	224.02
RW-03	Fluvial	299.34	73.92	225.42	74.7 ⁽⁵⁾	224.64
RW-04	Fluvial	305.11	80.05	225.06	78.2 ⁽⁵⁾	226.91
RW-05	Fluvial	307.13	82.41	224.72	84.1 ⁽⁵⁾	223.03
RW-06	Fluvial	304.56	80.09	224.47	79.0 ⁽⁵⁾	225.56
RW-07	Fluvial	297.44	72.91	224.53	— ⁽⁶⁾	—
RW-08	Fluvial	292.99	68.67	224.32	72.0 ⁽⁵⁾	220.99
RW-09	Fluvial	290.67	64.55	226.12	66.4 ⁽⁵⁾	224.27

Notes:

ft, msl feet mean sea level

ft, btoc feet below top of casing

The TOC elevation of MW-35 has been revised to be 301.65 ft. (as given in the Well Installation Diagram), rather than the previous 300.46

* ft., which is believed to be in error.

-- Not Measured

(1) The top of casing at MW-28 was lowered on 7 August 2005 due to road construction and is scheduled to be resurveyed.

(2) Aquifer screened at MW-40 and MW-169 listed as "transitional" to indicate the transitional area between the fluvial and intermediate aquifers.

(3) The groundwater level in MW-49 was measured in November 2005 and April 2006, although it is not on the designated list for measurement

(4) The groundwater level in MW-150 and MW-155 could not be measured on 15-16 November 2005, a PDB was encountered prior to reaching groundwater. The wells were measured on 19 November 2005.

(5) The groundwater levels in the recovery wells in April 2006 are from transducer measurements obtained on 9 April 2006, rather than from manual readings.

(6) The pump and transducer at RW-07 were recorded as being inoperative when the April 2006 measurements were made, and the groundwater level was not obtained.

PREPARED/DATE: *David L. Homan* 8/30/06
 CHECKED/DATE: *John M. ...* 11/04/06

TABLE 3-3

PDB SAMPLE INTERVALS - SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Monitoring Well	Date Collected	Measured Well Depth (ft bgs) ⁽¹⁾	Depth to Water (feet btoc) ⁽²⁾	Sample Midpoint Depth Interval - 1 (feet btoc)	Sample Midpoint Depth Interval - 2 (feet btoc)
MW-07	4/12/2006	73.18	66.68	68.9	NI
MW-31	4/12/2006	83.28	69.73	71.6	77.1
MW-32	4/12/2006	68.08	63.32	65.1	NI
MW-33 ⁽³⁾	4/12/2006	62.70	55.49	58.0	NI
MW-37	4/12/2006	184.68	120.01	173.2	NI
MW-40	4/13/2006	95.53	77.39	90.0	NI
MW-43	4/12/2006	171.71	119.10	165.5	NI
MW-44	4/13/2006	74.36	54.14	69.0	NI
MW-54	4/13/2006	97.18	79.67	89.5	NI
MW-57	4/12/2006	70.21	63.40	66.6	NI
MW-67	4/12/2006	>200	113.25	267.5	NI
MW-68	4/12/2006	81.56	67.80	74.5	80.5
MW-69 ⁽³⁾	4/12/2006	95.58	82.84	86.2	90.1
MW-70 ⁽³⁾	4/12/2006	93.73	80.44	83.3	88.8
MW-71	4/12/2006	78.10	70.68	72.3	NI
MW-76	4/12/2006	93.98	83.43	88.2	NI
MW-77	4/12/2006	89.18	81.60	84.9	NI
MW-79	4/13/2006	104.78	70.45	92.0	NI
MW-130	4/12/2006	81.02	54.96	69.5	NI
MW-144 ⁽³⁾	4/12/2006	76.28	73.21	74.4	NI
MW-145	4/13/2006	96.66	69.48	78.6	94.6
MW-147	4/12/2006	77.91	70.38	73.7	NI
MW-148	4/12/2006	87.87	77.60	79.5	85.5
MW-149 ⁽⁴⁾	4/13/2006	99.96	71.85	83.6	98.5
MW-150 ⁽⁴⁾	4/12/2006	91.57	80.69	82.2	90.5
MW-151	4/13/2006	96.69	69.12	78.5	94.5
MW-152 ⁽⁴⁾	4/13/2006	108.82	74.62	92.9	107.9
MW-153	4/13/2006	96.03	64.76	79.1	95.1
MW-154	4/12/2006	66.84	56.31	57.6	65.5
MW-155 ⁽⁴⁾	4/13/2006	95.07	75.94	75.5	93.5
MW-156	4/13/2006	69.41	55.89	57.2	66.8
MW-157	4/12/2006	77.11	69.65	73.3	NI
MW-158	4/13/2006	106.60	79.10	93.1	104.1
MW-158A ⁽³⁾	4/13/2006	93.28	79.01	81.5	91.4
MW-159	4/13/2006	99.31	71.27	81.1	97.1
MW-160	4/12/2006	85.77	77.95	80.8	NI
MW-161	4/12/2006	81.39	77.18	79.9	NI
MW-162	4/12/2006	86.69	80.84	83.7	NI
MW-163	4/13/2006	76.77	72.68	74.9	NI
MW-164	4/12/2006	75.28	68.99	72.6	NI
MW-165	4/13/2006	103.01	72.16	89.9	100.4
MW-165A	4/13/2006	86.40	72.44	73.9	84.5
MW-166	4/13/2006	100.05	68.31	87.3	97.8
MW-166A	4/13/2006	83.29	68.31	75.3	NI
MW-167	4/13/2006	82.68	70.24	72.3	80.7
MW-168	4/13/2006	120.50	69.26	108.6	119.1
MW-168A	4/13/2006	88.22	68.54	76.4	86.9
MW-169	4/13/2006	88.15	71.86	77.4	86.2
MW-170	4/13/2006	79.78	57.53	61.7	77.7
MW-171	4/13/2006	68.32	55.14	57.2	67.5

Notes:

NI Not installed

bgs Below ground surface

btoc Below top of casing

(1) Total depth at MW-07 through MW-130 measured on 21 May 2005; remaining total depths measured 15-17 June 2005; total depth for MW 155 was measured on 19 November 2005.

(2) Water levels measured on 10-11 April 2006.

(3) Due to field adjustments made for water level elevation changes while installing the PDBs, the sample name for MW-33 was 57.7 feet, while the actual mid-point was 58.0 feet; the sample name for MW-69 was 87.4 feet, while the actual mid-point was 86.2 feet, the sample name for MW-70 was 82.8 feet, but the actual mid-point was 83.3 feet; the sample name for MW-158A was 80.8 feet, while the actual mid-point was 81.5 feet.

(4) Because of inaccurate total depth measurements made while setting PDBs, at MW-149, the sample name was 99.6 feet, while the actual mid-point was 98.5 feet; at MW-150, the sample name was 92.7 feet, while the actual mid-point was 90.5 feet; at MW-152, the sample name was 108.9 feet, while the actual mid-point was 107.9 feet; and at MW-155, the sample names were 78.6 and 94.6 feet, while the actual mid-points were 75.5 and 93.5 feet, respectively.

PREPARED/DATE: *Daniel Howard* 8/30/06
 CHECKED/DATE: *John R. Smith* 10/4/06

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis, Tennessee

ANALYTE	Site ID	Maximum Contaminant Level ¹	Target Concentration	MW-007 4/12/2006	MW-031 4/12/2006	MW-031 4/12/2006	MW-031 4/12/2006	MW-033 4/12/2006	MW-037 4/12/2006	MW-040 4/12/2006	MW-043 4/12/2006	MW-044 4/12/2006
1,1,1-Trichloroethane	µg/L	200	—	0.868 J	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	—	2.2	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	5	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	—	—	1.38	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	27.4	23	23	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	—	—	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Bromonitroethane (NEK)	µg/L	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Disulfide	µg/L	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	100	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	—	0.301 B	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethane	µg/L	70	35	<1	0.34 J	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	5	2.5	50.7	1.35	1.35	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethane	µg/L	100	50	<1	1.4	1.4	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	26.5	14.7	14.7	<1	<1	<1	<1	<1	<1
Vinyl Chloride	µg/L	2	—	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:
 Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2-1G

µg/L

micrograms per liter

— Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Phase:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank

data

Methods:

8260B Volatile Organic Compounds

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IBA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis, Tennessee

ANALYTE	Size ID	Maximum Sample Name Sample Date	Target Concentration	MTW-54 (81.5)0406 4/13/2006	MTW-57 (64.6)0406 4/12/2006	MTW-57 (247.5)0406 4/12/2006	MTW-58 (74.5)0406 4/12/2006	MTW-58 (81.5)0406 4/12/2006	MTW-49 (87.4)0406 4/12/2006	MTW-49 (90.1)0406 4/12/2006	MTW-70 (81.8)0406 4/12/2006	MTW-70 (88.8)0406 4/12/2006
		Level ¹										
1,1,1-Trichloroethane	µg/L	200	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	—	2.2	665	<1	<1	<1	<1	5.51	1.15	7670	6750
1,1,2-Trichloroethane	µg/L	5	1.9	3.91	<1	<1	<1	<1	<1	<1	6.15	29
1,1-Dichloroethane	µg/L	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	<1	<1	<1	<1	<1	<1	<1	<1	3.36
1,2-Dichloroethane	µg/L	5	—	<1	<1	<1	<1	<1	<1	<1	<1	0.696 J
2-Butanone (MEK)	µg/L	—	—	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Disulfide	µg/L	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	3	0.944 J	23	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	100	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	1.14 B	3.25 B	<1	0.564 B	<1	<1	<1	1.52 B	1.37 B
cis-1,2-Dichloroethane	µg/L	70	35	19.1	<1	<1	<1	<1	<1	<1	48.1	111
Trichloroethane	µg/L	5	2.5	3.98	2.81	<1	0.696 J	<1	4.72	0.341 J	16.5	11.4
trans-1,2-Dichloroethane	µg/L	100	50	4.38	0.419 J	<1	<1	<1	<1	<1	13	16.6
Trichloroethene	µg/L	5	5	671	18	<1	0.608 J	<1	3.85	<1	2130	1980
Vinyl Chloride	µg/L	2	—	<1	<1	<1	<1	<1	<1	<1	1.82	94.2

Notes:

Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2-21G

µg/L micrograms per liter

— Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Flags:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

Methods:

8260B Volatile Organic Compounds

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Sample Name	Sample Date	Size ID	Maximum Contaminant Levels*	Target Concentration	MW-71 (71.3)0406 4/12/2006	MW-76 (88.3)0406 4/12/2006	MW-77 (84.9)0406 4/12/2006	MW-79 (92.0)0406 4/13/2006	MW-130 (130.0)0406 4/12/2006	MW-144 (144.4)0406 4/12/2006	MW-145 (145.7)0406 4/13/2006	MW-145 (145.9)0406 4/13/2006	MW-147 (147.3)0406 4/12/2006
1,1,1-Trichloroethane	µg/L	200	—	2.2	—	<1	<1	<1	<1	3.78	<1	<1	<1	1.32
1,1,2,2-Tetrachloroethane	µg/L	—	—	2.2	—	26.3	<1	<1	<1	<1	5040	<1	<1	311
1,1,2-Trichloroethane	µg/L	5	1.9	—	—	0.766 J	<1	15.7	<1	<1	9.04	<1	<1	4.36
1,1-Dichloroethane	µg/L	—	—	—	—	<1	<1	<1	<1	2.88	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	—	—	<1	<1	<1	11.4	52.8	<1	<1	<1	1.76
1,2-Dichloroethane	µg/L	5	—	—	—	<1	<1	0.667 J	<1	0.789 J	<1	<1	<1	0.707 J
1,2-Dichloroethane (MEK)	µg/L	—	—	—	—	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone (MEK)	µg/L	—	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Disulfide	µg/L	—	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	3	—	—	16.3	<1	1.12	<1	<1	1.03	<1	<1	0.565 J
Chlorobenzene	µg/L	100	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	—	—	73.5	<1	4.32 B	<1	<1	2.72 B	<1	<1	5.53 B
cis-1,2-Dichloroethane	µg/L	70	35	—	—	10.6	<1	154	<1	<1	83.9	<1	<1	74.8
trans-1,2-Dichloroethane	µg/L	5	2.5	—	—	2.65	<1	48	<1	114	19.9 J	<1	<1	3.61
Trichloroethane	µg/L	100	50	—	—	0.977 J	<1	38.5	<1	<1	7.28 J	<1	<1	14.4
Trichloroethane	µg/L	5	5	—	—	54	7.71	5520	1.94	57.7	2450	<1	<1	106
Vinyl Chloride	µg/L	2	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:
Drinking Water Standards and Health Advisories (USEPA, 2004)
Target Concentration (TC) from Dunn Field ROD, Table 2-210

µg/L
microgram per liter

—
Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Flags:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

Methods:

8260B Volatile Organic Compounds

TABLE 41

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Sample Date	Site ID	Maximum Concentration	Target Concentration	MW-148 4/12/2006	MW-148 4/12/2006	MW-149 4/13/2006	MW-149 4/13/2006	MW-149 4/13/2006	MW-150 4/13/2006	MW-150 4/13/2006	MW-151 4/13/2006	MW-151 4/13/2006	MW-151 4/13/2006	MW-151 4/13/2006	MW-152 4/13/2006	MW-152 4/13/2006
1,1,1-Trichloroethane	µg/L	200	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	—	2.2	—	2.47	0.416 J	11.4	30.3	1090	3940	3940	<1	<1	<1	<1	8.16	8.16
1,1,2-Trichloroethane	µg/L	5	1.9	—	<1	<1	<1	1.23	10.5	5.7	5.7	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	—	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	—	—	—	<10	<10	<10	<10	20.1	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Disulfide	µg/L	—	—	—	<1	<1	<1	<1	0.779 J	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	3	—	<1	<1	<1	12.6	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	100	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	—	0.861 B	<1	50	122	0.871 B	2.09 B	2.09 B	<1	<1	<1	11.4	11.4	17.6 B
cis-1,2-Dichloroethane	µg/L	70	35	—	10.4	<1	3.42	11.3	74.2	54.1	54.1	<1	<1	<1	18.7	18.7	18.7
trans-1,2-Dichloroethane	µg/L	5	2.5	—	2.88	0.351 J	1.3	1.02	4.09	10.1	10.1	<1	<1	<1	11.3	11.3	11.3
Trichloroethane	µg/L	100	50	—	3.18	<1	<1	1.48	8.66	11.1	11.1	<1	<1	<1	9.62	9.62	9.62
Vinyl Chloride	µg/L	5	5	—	21.1	1.12	32.1	57.1	747	1150	1150	<1	<1	<1	8.75	161	161
Vinyl Chloride	µg/L	2	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2-1G

µg/L

micrograms per liter

Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Flags:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

Methods:

E2605 Volatile Organic Compounds

TABLE 4-1
POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Sample Date	Site ID	Maximum Contaminant Level ¹	Target Concentration	MW-152 (92.9)0406 4/13/2006	MW-153 (79.1)0406 4/13/2006	MW-153 (95.1) 0406 4/13/2006	MW-154 (57.9)0406 4/13/2006	MW-154 (65.5)0406 4/13/2006	MW-155 (78.6)0406 4/13/2006	MW-155 (94.6)0406 4/13/2006	MW-156 (57.3)0406 4/13/2006	MW-156 (66.8)1105 4/13/2006
UNIT													
1,1,1-Trichloroethane	µg/L	200	—	—	<1	1.71	1.27	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	—	2.2	—	12.4	<1	<1	<1	<1	1880	581	<1	<1
1,1,2-Trichloroethane	µg/L	5	1.9	—	<1	<1	<1	<1	<1	7.5	7.1	<1	<1
1,1-Dichloroethane	µg/L	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	—	<1	5.4	4.13	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Bromone (MEK)	µg/L	—	—	—	<10	<1	<10	<10	<10	<10	<10	<10	<10
Carbon Disulfide	µg/L	—	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	100	—	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	80	12	—	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethane	µg/L	70	35	—	13.6 B	<1	<1	<1	<1	1.51 B	1.21 B	<1	<1
Tetrachloroethene	µg/L	5	2.5	—	15.6	<1	<1	<1	<1	35.1	29	<1	<1
trans-1,2-Dichloroethane	µg/L	100	50	—	10.4	<1	<1	<1	<1	5.53	5.06	<1	<1
Trichloroethene	µg/L	5	5	—	7.1	<1	<1	<1	<1	8.66	7.06	<1	<1
Vinyl Chloride	µg/L	2	—	—	147	<1	<1	<1	<1	865	572	<1	<1

Notes:

Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2-21G

µg/L micrograms per liter

Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Flags:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

Methods:

8260B Volatile Organic Compounds

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IGA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Sample Name	Sample Date	Set ID	Maximum Contaminant Levels*	Target Concentration	MW-157	MW-158	MW-159 (9.1.0406)	MW-159 (9.1.0406)	MW-159 (8.1.0406)	MW-159 (9.1.0406)	MW-160	MW-161
						4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006
						UNIT							
1,1,1-Trichloroethane	µg/L	200	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	-	2.2	-	-	2.28	3.78	6.36	6.81	43.1	549	23.1	3120
1,1,2-Trichloroethane	µg/L	5	1.9	-	-	<1	<1	<1	6.08	<1	2.5	<1	5.71
1,1-Dichloroethane	µg/L	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	-	-	<1	<1	<1	<1	<1	<1	0.538 J	<1
1,2-Dichloroethane	µg/L	5	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone (MEK)	µg/L	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Carbon Disulfide	µg/L	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	-	-	-	5.61	<1	<1	<1	<1	<1	0.729 J	0.339 J
Chlorobenzene	µg/L	100	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	-	-	10.8	1.8	0.738 B	1.47 B	2.62 B	1.14 B	3.29 B	1.12 B
cis-1,2-Dichloroethane	µg/L	70	35	-	-	9.75	7.74	4.87	49.7	36.4	20.4	45	38.4
trans-1,2-Dichloroethane	µg/L	5	2.5	-	-	1.59	9.28	7.19	4.69	1.71	1.33	13	13
Trichloroethene	µg/L	100	50	-	-	2.2	3.62	2.4	14	7.64	4.14	18.1	5.12
Trichloroethene	µg/L	5	5	-	-	132	76.3	52.6	689	1520	594	278	1470
Vinyl Chloride	µg/L	2	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2-2(G)

µg/L

micrograms per liter

Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Flags:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank

data

Methods:

2260B Volatile Organic Compounds

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IBA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis, Tennessee

ANALYTE	UNIT	Site ID	Maximum Contaminant Level ¹	Target Concentration	MW-162 4/12/2006	MW-163 4/13/2006	MW-164 4/13/2006	MW-165 4/13/2006	MW-165A 4/13/2006	MW-166 4/13/2006	MW-166A 4/13/2006	MW-166 (87.3)0406	MW-166 (87.3)0406	MW-166 (87.3)0406
1,1,1-Trichloroethane	µg/L	200	~	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	~	2.2	~	522	1980	2.6	5.81	1.14	13.4	1.14	13.4	13.4	12.5
1,1,2-Trichloroethane	µg/L	5	1.9	~	0.99 J	4.77	<1	1.51	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	~	~	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	~	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	~	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	~	~	~	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Benzene (MEK)	µg/L	~	~	~	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Disulfide	µg/L	~	~	~	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon tetrachloride	µg/L	5	3	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	100	~	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	~	1.49 B	39.7	9.56	8.65	1.96 B	10.6	1.93	10.6	10.6	8.54
cis-1,2-Dichloroethane	µg/L	70	35	~	31.2	8.58	6.87	8.65	5.72 B	79.3	5.72 B	79.3	79.3	65.8
Tetrachloroethane	µg/L	5	2.5	~	10.5	8.58	0.637 J	0.892 J	3.09	4.41	6.05	4.41	4.41	5.21
trans-1,2-Dichloroethane	µg/L	100	50	~	8.25	3.55	0.974 J	1.64	0.608 J	1.34	0.608 J	1.34	1.34	<1
Trichloroethane	µg/L	5	5	~	3.42	1860	62.9 J	60.4	0.73 J	0.826 J	1.15	0.826 J	1.17	1.17
Vinyl Chloride	µg/L	2	~	~	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:
 Drinking Water Standards and Health Advisories (USEPA, 2004)
 Target Concentration (TC) from Dunn Field ROD, Table 2-21G

µg/L
 micrograms per liter

~
 Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Data:

J
 Estimated result based on QC data or reported below RL

B
 Estimated result possibly biased high or false positive based on blank

data

Methods:

8260B Volatile Organic Compounds

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis, Tennessee

ANALYTE	Sample ID	Maximum Contaminant Level ^a	Target Concentration	MW-166A (75.3)0406 4/13/2006	MW-167 (72.3)0406 4/13/2006	MW-167 (80.7)0406 4/13/2006	MW-168 (108.6)0406 4/13/2006	MW-168 (119.1)0406 4/13/2006	MW-168A (76.4)0406 4/13/2006	MW-168A (86.9)0406 4/13/2006	MW-169 (77.4)0406 4/13/2006
1,1,1-Trichloroethane	µg/L	200	—	<1	<1	<1	<1	<1	13.8	1.66	<1
1,1,2,2-Tetrachloroethane	µg/L	—	2.2	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	5	1.9	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	—	—	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	7	<1	<1	<1	0.903 J	0.842 J	19.4	3.72	<1
1,2-Dichloroethane	µg/L	5	—	<1	<1	<1	<1	<1	<1	<1	<1
2-Bromonitroethane (MBE)	µg/L	—	—	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Disulfide	µg/L	—	—	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	100	—	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethane	µg/L	70	35	2.33	<1	<1	<1	<1	0.937 B	<1	<1
Tetrachloroethane	µg/L	5	2.5	1.86	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethane	µg/L	100	50	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethane	µg/L	5	5	25.8	<1	<1	<1	<1	1	<1	<1
Vinyl Chloride	µg/L	2	—	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2.2.1G

µg/L

micrograms per liter

Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE FLAG:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

Methadone

82608 Volatile Organic Compounds

TABLE 4-1

POSITIVE RESULTS SUMMARY - MONITORING WELLS, APRIL 2006
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IIA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis, Tennessee

ANALYTE	Sample Name	Sample Date	Site ID	Maximum Contaminant Levels	Target Concentration	MW-168A 4/13/2006	MW-169 4/13/2006	MW-170 4/13/2006	MW-171 4/13/2006	MW-170 4/13/2006	MW-171 4/13/2006	MW-171 4/13/2006
1,1,1-Trichloroethane	µg/L	200	---	2.2	---	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	---	---	1.9	---	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	5	---	---	---	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	---	---	---	---	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	7	---	---	---	3.72	2.84	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	---	---	---	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	---	---	---	---	<10	<10	<10	<10	<10	<10	<10
Carbon Disulfide	µg/L	---	---	---	---	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	5	---	---	---	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	100	---	---	---	3.93	3.43	<1	<1	<1	<1	<1
Chloroform	µg/L	80	---	---	---	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethane	µg/L	70	---	---	---	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethane	µg/L	5	---	---	---	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethane	µg/L	100	---	---	---	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	---	---	---	<1	<1	<1	<1	<1	<1	<1
Vinyl Chloride	µg/L	2	---	---	---	<1	<1	<1	<1	<1	<1	<1

Notes:

Drinking Water Standards and Health Advisories (USEPA, 2004)

Target Concentration (TC) from Dunn Field ROD, Table 2-21G

µg/L

micrograms per liter

Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DOE Flags:

J

B

Estimated result based on QC data or reported below RL

Estimated result possibly biased high or false positive based on blank data

Methods:

8260B

Volatile Organic Compounds

PREPARED DATE: 9/29/06
 CHECKED DATE: 10/19/06
 Jody Martin

TABLE 4-2

POSITIVE RESULTS SUMMARY - RECOVERY WELLS, APRIL 2006
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Sample Date	Site ID	Maximum Contaminant Level ¹	Target Concentration	RW-001 4/11/2006	RW-001A 4/11/2006	RW-001B 4/11/2006	RW-003 4/11/2006	RW-04 4/11/2006	RW-05 4/11/2006	RW-06 4/11/2006	RW-07 4/14/2006	RW-08 4/11/2006	RW-09 4/11/2006
1,1,2,2-Tetrachloroethane	µg/L	-	5	2.2	1.78	131	<1	64.7	16	17.2	<1	9.28	195	4.42
1,1,2-Trichloroethane	µg/L	5	7	1.9	<1	3.68	<1	2.72	0.775 J	<1	<1	<1	4.47	<1
1,1-Dichloroethane	µg/L	80	7	-	<1	<1	<1	<1	<1	<1	<1	<1	2.12	19.5
Bromodichloromethane	µg/L	5	3	-	0.754 J	21.4	<1	7.62	3.6	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	80	5	14.3	16.4	47.5	21.4	25.9	1.68	<1	2.06	5.02	10.6	5.82
Chloroform	µg/L	70	35	1.88	5.38	3.62	3.6	56.3	13.7	5.69	16.1	15.5	151	8.95
cis-1,2-Dichloroethene	µg/L	5	2.5	3.26	6.06	0.875 J	3.1	1.4	0.923 J	3.91	19.7	3.33	3.74	20.1
trans-1,2-Dichloroethene	µg/L	100	50	1.01	1.82	46.1	46.1	47.9	1.22	1.94	5.89	4.4	32.6	3.6
Trichloroethene	µg/L	5	5	52.8	1.52	1.52	46.1	47.9	49.9	166	59.3	40.7	266	40.4

Notes:

1. Drinking Water Standards and Health Advisories (USEPA, 2004)

2. Target Concentration (TC) from Dunn Field ROD, Table 2-21G

µg/L micrograms per liter

- Not listed or not analyzed

Results detected at or above reporting limits shown in bold

DQF Flags:

J Estimated result based on QC data or reported below RL

8 Estimated result possibly biased high or false positive based on blank data

UJ Undetected, reporting limit is inaccurate or imprecise

Methods:

8260B Volatile Organic Compounds

PREPARED/DATE: *D. S. H.* 9/29/06
CHECKED/DATE: *J. H. H.* 10/17/06
Judy Heston

TABLE 4-3

EFFLUENT SAMPLE RESULTS
SEMI-ANNUAL OPERATIONS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Sample Site ID Date and Time Collected	Industrial Permit Discharge Limits		EFFLUENT-0206 2/27/2006 12:31	EFFLUENT-0406 4/11/2006
	Monthly Average Maximum Level	Instantaneous Daily Maximum		
pH - E150.1				
pH			6.0	6.5
<u>Volatile Organic Compounds - SW8260B µg/L</u>				
1,1,1-Trichloroethane	10	20	ND	ND
1,1,2,2-Tetrachloroethane	500	1000	82.8	74.9
1,1,2-Trichloroethane	50	100	1.91	1.83
1,1-Dichloroethene	50	100	10.3	7.51
Carbon tetrachloride	20	40	3.26	2.24
Chloroform	100	400	30	21.9
cis-1,2-Dichloroethene	80	100	60.9	50.5
Methylene chloride	10	20	ND	ND
Tetrachloroethene	60	120	17.3	12.6
Toluene	20	40	ND	ND
trans-1,2-Dichloroethene	50	100	14.8	11.6
Trichloroethene	400	800	153 J	127 J
<u>Total Metals - SW6010B µg/L</u>				
Aluminum	1000	2000	-	ND
Arsenic	40	100	-	ND
Barium	NA	NA	-	103
Cadmium	10	20	-	ND
Calcium	NA	NA	-	24,100
Chromium	200	400	-	3.6 J
Cobalt	NA	NA	-	ND
Copper	200	400	-	23
Iron	10,000	20,000	-	588 J
Lead	150	300	-	6.4
Magnesium	NA	NA	-	12,300
Manganese	NA	NA	-	38.4
Mercury	1	2	-	ND
Nickel	100	300	-	8.5
Potassium	NA	NA	-	823
Sodium	NA	NA	-	25,100
Zinc	300	1000	-	508 J
<u>Semi-volatile Organic Compounds - SW8270B µg/L</u>				
Bis (2-ethylhexyl) Phthalate	10	20	-	ND
Di-n-butyl Phthalate	30	60	-	8.53 J
Naphthalene	10	20	-	ND
Phenol	10	20	-	ND

Notes:

- J Estimated quantitation: result below the reporting limit or estimated based on the QC data
 ND Not detected above the reporting limit
 NA Discharge limit not established in agreement
 - Not Analyzed

PREPARED/DATE: 9/29/06CHECKED/DATE: 10/17/06Judy Hartness

TABLE 5-1

SYSTEM REPAIRS, JANUARY 2003 THROUGH DECEMBER 2005
ANNUAL OPERATIONS REPORT - 2005
DUNN FIELD GROUNDWATER IRA - YEAR SEVEN
Defense Depot Memphis, Tennessee

Recovery Well	Year	Percent Operational (%)	REPAIRS / REPLACEMENT						
			Pump	Flowmeter*	Flowmeter Actuator	Pressure Transducer	Level Relay	Flow Relay	Controller
RW-1	2003	67	1	1					
	2004	95		1					
	2005	100	1		1	1	1	1	
	2006	100							
RW-1A	2003	100							
	2004	97							
	2005	100	1		1	1	1		
	2006	100							
RW-1B	2003	100							
	2004	85							
	2005	52	1	1	1	1	1		
	2006	100							
RW-2	2003	100							
	2004	83							
	2005	42	2	1		1	1		
	2006	100							
RW-3	2003	100							
	2004	98		1					
	2005	100			1	1	1		3
	2006	100							
RW-4	2003	75							
	2004	78	1						
	2005	87	1	2			1		2
	2006	100	1	1					
RW-5	2003	100		2					
	2004	95		1					
	2005	55	1	1	2	1	1		1
	2006	100							
RW-6	2003	100							
	2004	97							
	2005	100							
	2006	100							
RW-7	2003	100							
	2004	92	1						
	2005	80	2	2	1				
	2006	73.9	1	1			1		
RW-8	2003	100							
	2004	88	1						
	2005	100							
	2006	95.7	1	1					
RW-9	2003	100	1						
	2004	98		1					
	2005	96	1	2					
	2006	100		1					

* - Does not include frequent cleanings

PREPARED/DATE: *J. Pic* 10/4/06
 CHECKED/DATE: *J. Pic* 10/4/06

TABLE 5-2

**ANALYTICAL RESULTS FOR APRIL 2006 BY SAMPLE INTERVAL
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well	Constituent (µg/L)	PDB Sample Interval ⁽¹⁾	
		1	2
MW07	DCE	27.4	-
	PCE	50.7	-
	TCE	26.5	-
MW-31	DCE	29.6	23
	cDCE	1.56	ND
	PCE	1.22	1.35
	tDCE	1.4	ND
	TCE	14.7	4.99
MW32	PCA	46	-
	TCA	1.28	-
	CT	17.4	-
	CF	154	-
	cDCE	7.62	-
	PCE	2.58	-
	tDCE	1.25	-
MW33	TCE	70	-
MW33	None	ND	-
MW37	None	ND	-
MW40	None	ND	-
MW43	None	ND	-
MW44	None	ND	-
MW54	PCA	605	-
	TCA	3.91	-
	CF	1.14 B	-
	cDCE	19.1	-
	PCE	2.98	-
	tDCE	4.38	-
	TCE	671	-
MW57	CT	23	-
	CF	3.25 B	-
	PCE	2.81	-
	TCE	18	-
MW67	None	ND	-
MW68	None	ND	ND
MW69	PCA	5.51	1.15
	PCE	4.72	ND
	TCE	3.85	ND
MW70	PCA	7670	6750
	TCA	6.15	29
	DCE	ND	3.36
	CF	1.52 B	1.37 B
	cDCE	48.1	111
	PCE	16.5	11.4
	tDCE	12	16.6
	TCE	2130	1980
	VC	1.82	94.2

TABLE 5-2

**ANALYTICAL RESULTS FOR APRIL 2006 BY SAMPLE INTERVAL
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well	Constituent (µg/L)	PDB Sample Interval ⁽¹⁾	
		1	2
MW71	PCA	26.3	-
	CT	16.3	-
	CF	73.5	-
	cDCE	10.6	-
	PCE	2.65	-
	TCE	54	-
MW76	PCA	18.3	-
	PCE	2.36	-
	TCE	7.71	-
MW77	PCA	21700	-
	TCA	15.7	-
	CT	1.12	-
	CF	4.32 B	-
	cDCE	154	-
	PCE	48	-
	tDCE	38.5	-
	TCE	5520	-
MW79	DCE	11.4	-
	TCE	1.94	-
MW130	DCE	52.8	-
	PCE	114	-
	TCE	57.7	-
MW144	PCA	5040	-
	TCA	9.04	-
	CT	1.03	-
	CF	2.72 B	-
	cDCE	83.9	-
	PCE	19.9	-
	tDCE	7.28 J	-
	TCE	2650 J	-
MW145	None	ND	ND
MW147	PCA	311	-
	TCA	4.36	-
	DCE	1.76	-
	CF	5.53 B	-
	cDCE	74.8	-
	PCE	3.61	-
	tDCE	14.4	-
	TCE	106	-
MW148	PCA	2.47	ND
	cDCE	10.4	ND
	PCE	2.88	ND
	tDCE	3.18	ND
	TCE	21.1	1.12
MW149	PCA	11.4	30.3
	TCA	ND	1.23
	CT	10.3	12.6
	CF	50	122
	cDCE	3.42	11.3
	PCE	1.3	1.02
	tDCE	ND	1.48
	TCE	32.1	57.1

TABLE 5-2

**ANALYTICAL RESULTS FOR APRIL 2006 BY SAMPLE INTERVAL
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well	Constituent (µg/L)	PDB Sample Interval ⁽¹⁾	
		1	2
MW150	PCA	1090	2940
	TCA	10.5	5.7
	CF	ND	2.09 B
	cDCE	74.2	54.1
	PCE	4.09	10.1
	tDCE	8.66	11.1
	TCE	747	1150
MW151	CT	ND	4.47
	CF	ND	11.4
	cDCE	ND	1.22
	TCE	ND	8.75
MW152	PCA	8.16	12.4
	CF	1.76 B	1.36 B
	cDCE	18.7	15.6
	PCE	11.3	10.4
	tDCE	9.62	7.1
	TCE	161	147
MW153	DCE	5.4	4.13
MW154	None	ND	ND
MW155	PCA	1880	581
	TCA	7.5	7.1
	CF	1.51 B	1.21 B
	cDCE	35.1	29
	PCE	5.93	5.06
	tDCE	8.66	7.06
MW156	None	ND	ND
MW157	PCA	2.28	-
	CT	5.61	-
	CF	10.8	-
	cDCE	9.75	-
	PCE	1.59	-
	tDCE	2.2	-
	TCE	132	-
MW158	PCA	6.36	3.78
	CF	ND	1B
	cDCE	4.87	7.74
	PCE	7.19	9.28
	tDCE	2.4	3.62
	TCE	52.6	76.3
MW158A	PCA	681	43.1
	TCA	6.08	ND
	CF	1.47 B	2.62 B
	cDCE	49.7	32.6
	PCE	4.69	15
	tDCE	14	13.8
	TCE	689	273

TABLE 5-2

**ANALYTICAL RESULTS FOR APRIL 2006 BY SAMPLE INTERVAL
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well	Constituent (µg/L)	PDB Sample Interval ⁽¹⁾	
		1	2
MW159	PCA	847	549
	TCA	10.4	2.5
	CF	1.22 B	1.14 B
	cDCE	36.4	20.4
	PCE	1.71	1.33
	tDCE	7.64	4.14
	TCE	1520	594
MW160	PCA	23.1	-
	CF	3.29 B	-
	cDCE	45	-
	PCE	13	-
	tDCE	18.1	-
	TCE	278	-
MW161	PCA	2120	-
	TCA	5.71	-
	CF	1.12 B	-
	cDCE	38.4	-
	PCE	13	-
	tDCE	5.12	-
MW162	TCE	1470	-
	PCA	522	-
	CF	1.49 B	-
	cDCE	31.2	-
	PCE	10.5	-
	tDCE	8.25	-
MW163	TCE	342	-
	PCA	1980	-
	TCA	4.77	-
	CF	1.28 B	-
	cDCE	39.7	-
	PCE	8.68	-
MW164	tDCE	3.55	-
	TCE	1860	-
	PCA	2.6	-
	CT	2.99	-
	CF	9.56	-
MW165	cDCE	6.87	-
	TCE	62.9 J	-
	PCA	5.81	8
	TCA	1.51	1.24
	cDCE	8.65	10.9
	PCE	ND	1.27
MW165A	tDCE	1.64	2.07
	TCE	60.4	54.2
	PCA	ND	1.14
	CT	1.16	1.93
	CF	1.96 B	5.72 B
	cDCE	3.09	6.05
	tDCE	ND	1.15
	TCE	48	69.8

TABLE 5-2

**ANALYTICAL RESULTS FOR APRIL 2006 BY SAMPLE INTERVAL
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well	Constituent (µg/L)	PDB Sample Interval ⁽¹⁾	
		1	2
MW166	PCA	13.4	12.5
	CT	10.6	8.54
	CF	79.3	65.8
	cDCE	4.41	5.21
	PCE	1.24	ND
	tDCE	ND	1.17
	TCE	38	35.8
MW166A	PCA	13.6	-
	CT	9.75	-
	CF	57	-
	cDCE	2.33	-
	PCE	1.06	-
	TCE	25.8	-
MW167	None	ND	ND
MW168	None	ND	ND
MW168A	DCE	19.4	3.72
MW169	None	ND	ND
MW170	DCE	2.84	ND
MW171	None	ND	ND

Notes:

(1) Passive Diffusion Bag Sample Interval, refer to Table 3-3 for depth

ND No COCs detected above reporting limits

Bold Concentrations above MCL or Target Concentration (PCA only)

PREPARED/DATE: *Judy Hartman* 9/28/06
 CHECKED/DATE: *John M. [Signature]* 10/4/06

TABLE 5-3
ANALYTICAL RESULTS, EISR AREA
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well ID	Sample Date	Sample Depth	Sample Event	PCE (µg/L)	TCE (µg/L)	Ch-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1,2,2-PCA (µg/L)	1,1,2-TCA (µg/L)	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
UPGRADIENT													
MW-147	8/17/2004	76.1	Baseline	5.3 J	120	57	20	2.2 B	<5.6	56	<5.6	4.3 J	12
	1/27/2005	73.9	1st Post ZVI Injection	3.4	77	48	12	1.2	<1	140	1.8	0.36 J	3.4
	3/22/2005	75.0	2nd Post ZVI Injection	3.4	73	39	15	2.7	<1	180	2.2	0.45 J	3
	6/17/2005	73.7	O&M PDB Sample	4.44	124	65.1	15.9	2.07	<1	251 J	2.62	<1 J	5.94 B
	11/18/2005	73.7	O&M PDB Sample	4.83	121	95	20.5	3.32	<1	185	3.9	1.27	5.1 B
	4/12/2006	73.7	O&M PDB Sample	3.61	106	74.8	14.4	1.76	<1	311	4.36	<1	5.53 B
MW-144	8/12/2004	74.0	Baseline	<250	2800	68 J	<250	<250	<250 J	7700	<250	<250	<250
	1/27/2005	75.0	1st Post ZVI Injection	10 J	2100	69	15	<12	<12	4600	10 J	<12	3.2 J
	3/23/2005	75.0	2nd Post ZVI Injection	13 J	4500	74	15 J	<25	<25	7700	14 J	<25	4.3 J
	6/12/2005	74.4	O&M PDB Sample	<10 J	2610	70.2	14.1	<10	<10	5810	<10 J	<10	<10
	11/14/2005	74.4	O&M PDB Sample	10.2	2280	54.3	<20	<20	<20	4970	14.1 J	<20	<20
	4/12/2006	74.4	O&M PDB Sample	19.9 J	2650	83.9	7.28 J	<1	<1	5040	9.04	1.03	2.72 B
MW-157	8/18/2004	75.5	Baseline	1.9 J	120	11	1.9 J	<6.7	<6.7	5.7 J	<6.7	9.4	14
	1/27/2005	73.4	1st Post ZVI Injection	2	160	13	2.4	<1	<1	3.8	0.33 J	9.9	12
	3/23/2005	73.0	2nd Post ZVI Injection	1.6	200	11	1.9	<1	<1	3.6	0.26 J	5.2	7.5
	6/15/2005	73.3	O&M PDB Sample	1.32	157	10.9	2.58	<1	<1	3.18 B	<1	<1	10.2
	11/17/2005	73.3	O&M PDB Sample	1.49	117	9.35	1.3	<1	<1	2.22	<1	4.56	8.18
	4/12/2006	73.3	O&M PDB Sample	1.59	132	9.75	2.2	<1	<1	2.28	<1	5.61	10.8
MW-148	8/17/2004	86.5	Baseline	3.7	31	13	4.9	<1	<1	0.72 J	<1	0.73 J	0.6 J
	1/27/2005	84.0	1st Post ZVI Injection	4.5	27	12	3.8	<1	<1	0.63 J	<1	0.19 J	0.88 J
	3/22/2005	83.5	2nd Post ZVI Injection	3.3	13	4.8	1.9	<1	<1	0.37 J	<1	<1	0.58 B
	6/17/2005	79.1	O&M PDB Sample	6.44	160	95.2	26.8	<1 J	<1	15.4	1.03	<1 J	3.07 B
	6/17/2005	85.8	O&M PDB Sample	<1	1.17 B	<1	<1	<1	<1	<1 J	<1	<1	<1
	11/18/2005	79.5	O&M PDB Sample	3.93	42	23.2	6.4	<1	<1	2.87	<1	<1	1.3 B
	11/18/2005	85.8	O&M PDB Sample	<1	1.01	<1	<1	<1	<1	<1	<1	<1	<1
	4/12/2006	79.5	O&M PDB Sample	2.88	21.1	10.4	3.18	<1	<1	2.47	<1	<1	0.861 B
	4/12/2006	85.8	O&M PDB Sample	0.351 J	1.12	<1	<1	<1	<1	0.416 J	<1	<1	<1
UPGRADIENT EDGE OF INJECTION ZONE													
MW-160	10/13/2004	82.0	Baseline	12	240	31	17	<10	<10	30	<10	<10	<10
	1/28/2005	81.8	1st Post ZVI Injection	21	290	38	18	<1	<1	53	0.23 J	0.79 J	2.7
	3/22/2005	82.0	2nd Post ZVI Injection	15	190	21	10	<1	<1	29	<1	0.48 J	1.7
	6/17/2005	80.8	O&M PDB Sample	14.7	448	35.7	16.3	<1	<1	35.4	<1	<1 J	2.33 B
	11/18/2005	80.8	O&M PDB Sample	14.7	161	30.8	12.2	<1	<1	13.4	<1	1.01	2.26 B
	4/12/2006	80.8	O&M PDB Sample	13	278	45	18.1	0.538 J	<1	23.1	<1	0.729 J	3.29 B
MW-150	8/18/2004	90.4	Baseline	<250	3000	74 J	<250	<250	<250	8000 J	<250	<250	<250
	1/27/2005	86.0	1st Post ZVI Injection	<20	690	84	22	<20	<20	6700	6.9 J	<20	<20
	3/23/2005	85.5	2nd Post ZVI Injection	6.4 J	2100	52	9.6 J	<20	<20	6600	5.1 J	<20	3.3 J
	6/17/2005	82.2	O&M PDB Sample	<10	983	44.7	<10 J	<10	<10	3050	<10	<10	<10
	6/17/2005	92.7	O&M PDB Sample	<10 J	2060	57	13.8	<10	<10	4790	<10 J	<10	<10
	11/19/2005	82.2	O&M PDB Sample	2.47	639	32.7	5.78	<1	<1	284	11.3	<1	1.36 B
	11/19/2005	92.7	O&M PDB Sample	10.6	1700	64.3	16.7	<10	<10	3080	16.3	<10	<10
	4/12/2006	82.2	O&M PDB Sample	4.09	747	74.2	8.66	<1	<1	1090	10.5	<1	0.871 B
	4/12/2006	92.7	O&M PDB Sample	10.1	1150	54.1	11.1	<1	<1	2940	5.7	0.413 J	2.09 B

TABLE 5-3
ANALYTICAL RESULTS, EISR AREA
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well ID	Sample Date	Sample Depth	Sample Event	PCE (µg/L)	TCE (µg/L)	Ch-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1,2,2-PCA (µg/L)	1,1,2-TCA (µg/L)	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
MW-54	8/14/2004	92.5	Baseline	<100	2200	65 J	<100	<100	<100	2300	<100	<100	<100
	1/27/2005	89.0	1st Post ZVI Injection	<10	300	23	2.9 J	<10	<10	3000	6 J	<10	<10
	3/23/2005	89.5	2nd Post ZVI Injection	5.8 J	1300	41	6.5 J	<8.3	<8.3	2100	6.1 J	<8.3	3 J
	6/17/2005	89.5	O&M PDB Sample	2.77	729	35.8	5.94	<1	<1	1220	3.68	<1 J	1.52 B
	11/18/2005	89.5	O&M PDB Sample	4.42	478J	25.4	4.18	<1	<1	853	3.44	1.3	1.46 B
	4/13/2006	89.5	O&M PDB Sample	2.98	671	19.1	4.38	<1	<1	605	3.91	0.944 J	1.14 B
INJECTION ZONE													
MW-155	8/16/2004	93.7	Baseline	<77	1000	48 J	<77	<77	<77	2100	<77	<77	<77
	10/13/2004	79.0	Baseline	<100	1000	55 J	<100	<100	<100	2000	<100	<100	<100
	10/13/2004	86.8	Baseline	<100	950	35 J	<100	<100	<100	1500	<100	<100	<100
	1/26/2005	87.0	1st Post ZVI Injection	<1	32	1.8	0.29 J	<1	<1	470 J	0.59 J	<1	<1
	3/23/2005	87.0	2nd Post ZVI Injection	0.6 J	550	27	4.5	<2.5	<2.5	690	1.7 J	<2.5	0.68 B
	6/17/2005	78.6	O&M PDB Sample	3.04	1750	67.5	15.1	<1	<1	2220	4.54	<1	1.5 B
	6/17/2005	94.6	O&M PDB Sample	1.01	1410	50.5	10.9	<1	<1	1650	3.24	<1	1.08 B
	11/19/2005	78.6	O&M PDB Sample	11.2	1560	53.9	14.5	<10	<10	3530	9.95J	<10	<10
	11/19/2005	94.6	O&M PDB Sample	8.11	1130	38.5	9.91	<1	<1	1680	7.91	<1	1.64 B
	4/13/2006	78.6	O&M PDB Sample	5.93	865	35.1	8.66	<1	<1	1880	7.5	<1	1.51 B
	4/13/2006	94.6	O&M PDB Sample	5.06	572	29	7.06	<1	<1	581	7.1	<1	1.21 B
DOWNGRADE EDGE OF INJECTION ZONE													
MW-159	10/11/2004	89.0	Baseline	<150	1700	100 J	<150	<150	<150	3500	<150	<150	<150
	1/26/2005	90.5	1st Post ZVI Injection	4 J	830	62	12	<6.2	<6.2	2000 J	6.3	<6.2	2.9 J
	3/24/2005	90.4	2nd Post ZVI Injection	7.1	1700	80	15	<7.1	<7.1	2200	7.8	<7.1	4.2 J
	6/17/2005	81.1	O&M PDB Sample	1.82	691	39.4	9.78	<1	<1	1830	3.27	<1 J	1.04 B
	6/17/2005	97.1	O&M PDB Sample	1.56	531	26.7	6.57	<1	<1	639	1.76	<1 J	1.27 B
	11/19/2005	81.1	O&M PDB Sample	2.33	552	46.7	5.76	<1	<1	421	2.25	0.927	1.6 B
	12/8/2005	97.1	O&M PDB Sample	0.935	120	10.5	1.73	<1	<1	1.25	<1	4.13	12.1
	4/13/2006	81.1	O&M PDB Sample	1.71	1520	36.4	7.64	<1	<1	847	10.4	<1	1.22 B
	4/13/2006	97.1	O&M PDB Sample	1.33	594	20.4	4.14	<1	<1	549	2.5	<1	1.14 B
MW-158	10/9/2004	92.5	Baseline	1.2	20	2.2	1.1	<1	<1	15	<1	<1	0.47 B
	10/13/2004	99.0	Baseline	1.8	30	3	1.3	<1	<1	21	<1	<1	0.29 J
	1/25/2005	96.0	1st Post ZVI Injection	2.3	33	3.1	1.3 J	<1.4	<1.4	24	<1.4	<1.4	0.38 J
	3/21/2005	98.5	2nd Post ZVI Injection	3.3	30	3.3	1.6	<1	<1	11	<1	<1	0.41 B
	6/17/2005	93.1	O&M PDB Sample	3.67	30.7	5.13	2.32	<1	<1	4.39	<1	<1	<1
	6/17/2005	104.1	O&M PDB Sample	1.93	32	5.16	2.52	<1	<1	3.74	<1	<1	<1
	11/18/2005	93.1	O&M PDB Sample	6.05	77.8	9.31	3.38	<1	<1	5.54	<1	<1	1.07 B
	11/18/2005	104.1	O&M PDB Sample	5.05	74.6	7.17	2.99	<1	<1	5.44	<1	<1	<1
	4/13/2006	93.1	O&M PDB Sample	7.19	52.6	4.87	2.4	<1	<1	6.36	<1	<1	0.738 B
	4/13/2006	104.1	O&M PDB Sample	9.28	76.3	7.74	3.62	<1	<1	3.78	<1	<1	1 B
MW-158A	10/10/2004	80.0	Baseline	<20	340	27	9 J	<20	<20	560	<20	<20	<20
	10/12/2004	86.0	Baseline	5.7J	360	43	17	<15	<15	270	<15	<15	<15
	1/24/2005	85.0	1st Post ZVI Injection	3.2	58	11	4.3	<2	<2	77	<2	<2	0.88 J
	3/21/2005	85.0	2nd Post ZVI Injection	12	200	33	15	<1	<1	96	0.24 J	0.55 J	2.4
	6/16/2005	80.8	O&M PDB Sample	2.32	470	37.1	9.54	<1 J	<1	736	2.5	<1	1.12 B
	6/16/2005	91.4	O&M PDB Sample	5.63	185	28	7.26	<1	<1	193	<1 J	<1	1.28 B
	11/18/2005	80.8	O&M PDB Sample	<10	492	38	<10	<10	<10	844	4.5	<10	<10
	11/18/2005	91.4	O&M PDB Sample	17.8	374	45.5	13.6	<10	<10	64.4	<10	<10	3.47 B
	4/13/2006	80.8	O&M PDB Sample	4.69	689	49.7	14	<1	<1	681	<1	<1	1.47 B
	4/13/2006	91.4	O&M PDB Sample	15	273	32.6	13.8	<1	<1	43.1	<1	<1	2.62 B

TABLE 5-3
ANALYTICAL RESULTS, EISR AREA
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

Well ID	Sample Date	Sample Depth	Sample Event	PCE (µg/L)	TCE (µg/L)	Ch-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1,1,2-PCE (µg/L)	1,1,2-TCA (µg/L)	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
DOWNGRADIENT													
MW-149	8/18/2004	98.7	Baseline	1.6 J	38	3.8 J	<5	<5	<5	27 J	<5	12	110
	1/27/2005	91.0	1st Post ZVI Injection	1.8	45	4	0.81 J	<1	<1	37	0.87 J	14	140
	4/12/2005	91.4	2nd Post ZVI Injection	1.6	35	3.1	0.63 J	<1	<1	27	0.64 J	16	79
	6/17/2005	83.6	O&M PDB Sample	1.01	23.1	2.57	<1 J	<1	<1	18.1	<1 J	10.7	64
	6/17/2005	99.6	O&M PDB Sample	<1 J	68.1	20.4	2.37	<1	<1	50.4	1.66	15.7	167
	11/19/2005	83.6	O&M PDB Sample	1.84	44.5	4.36	0.894	<1	<1	29.2	0.83	15.1	102
	11/19/2005	99.6	O&M PDB Sample	2.13	75.4	16.6	2.21	<1	<1	38.3	1.62	22	159
	4/13/2006	83.6	O&M PDB Sample	1.3	32.1	3.42	<1	<1	<1	11.4	<1	10.3	50
	4/13/2006	99.6	O&M PDB Sample	1.02	57.1	11.3	1.48	<1	<1	30.3	1.23	12.6	122
MW-166	11/18/2004	92.4	Baseline	0.79 J	12	4.3	0.49 J	<1	<1	4.2	0.32 J	0.83 J	30
	1/27/2005	92.5	1st Post ZVI Injection	0.68 J	10	3.4	0.41 J	<1	<1	3.7	<1	2.9	24
	3/23/2005	90.6	2nd Post ZVI Injection	0.87 J	11	2.6	0.63 J	<1	<1	3.5	<1	1.9	11
	6/17/2005	87.3	O&M PDB Sample	<1	6.27	1.27	<1	<1	<1	<1	<1	1.68	9.01
	6/17/2005	97.8	O&M PDB Sample	<1	5.78	1.51	<1	<1	<1	1.2	<1	<1	1.03 B
	11/19/2005	87.3	O&M PDB Sample	0.498	6.67	3.43	<1	<1	<1	1.48	<1	1.17	7.54
	11/19/2005	97.8	O&M PDB Sample	0.561	6.92	2.49	0.438	<1	<1	0.822	<1	<1	5.27
	4/13/2006	87.3	O&M PDB Sample	1.24	38	4.41	0.826 J	<1	<1	13.4	<1	10.6	79.3
	4/13/2006	97.8	O&M PDB Sample	<1	35.8	5.21	1.17	<1	<1	12.5	<1	8.54	65.8
MW-166A	11/19/2004	75.7	Baseline	0.24 J	5.2	0.77 J	<1	<1	<1	1.4	<1	<1	13 B
	1/27/2005	96.5	1st Post ZVI Injection	0.8 J	19	2.6	0.52 J	<1	<1	3.9	<1	6.1	37
	3/23/2005	75.8	2nd Post ZVI Injection	0.9 J	24	2.8	0.65 J	<1	<1	3.9	<1	8.3	38
	6/17/2005	75.3	O&M PDB Sample	<1 J	19.8	3.08	<1 J	<1	<1	3.08	<1	6.91	31.3
	11/19/2005	75.3	O&M PDB Sample	0.516	17.6	1.89	0.482	<1	<1	1.89	<1	3.5	17.2
	4/13/2006	75.3	O&M PDB Sample	1.06	25.8	2.33	<1	<1	<1	13.6	<1	9.75	57
MW-151	8/16/2004	95.1	Baseline	<1	2.2	0.22 J	<1	<1	<1	<1	<1	2.7	3.3
	1/25/2005	80.0	1st Post ZVI Injection	0.4 J	6.3	0.92 J	<1	<1	<1	0.23 J	<1	4.7	10
	3/22/2005	87.0	2nd Post ZVI Injection	0.48 J	7.2	0.96 J	0.25 J	<1	<1	0.28 J	<1	5.3	11
	6/17/2005	78.5	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	6/17/2005	94.5	O&M PDB Sample	<1	1.31	<1	<1	<1	<1	<1	<1	<1 J	2.69 B
	11/19/2005	78.5	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	11/19/2005	94.5	O&M PDB Sample	0.415	4.67 B	1	<1	<1	<1	<1	<1	4.78	8.04
	4/13/2006	78.5	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4/13/2006	94.5	O&M PDB Sample	<1	8.75	1.22	<1	<1	<1	<1	<1	4.47	11.4
MW-165	11/21/2004	96.0	Baseline	2.3 J	64	7.1 J	<9.1	<9.1	<9.1	24	<9.1	11	140
	1/25/2005	95.2	1st Post ZVI Injection	1.8 J	48	10	1.3 J	<2	<2	8.9	0.74 J	8	64
	3/21/2005	96.1	2nd Post ZVI Injection	2.1	53	11	2.2	<1	<1	12	0.55 J	7.8	58
	6/16/2005	89.9	O&M PDB Sample	<1	37.2	6.22	1.13	<1	<1	21.8	1.16	1.67	77
	6/16/2005	100.4	O&M PDB Sample	<1	28.1	7.64	2.49	<1	<1	12.3	<1 J	<1	26.5
	11/18/2005	89.9	O&M PDB Sample	0.916	46.5	8.06	0.991	<1	<1	21.8	1.48	2.68	65.4
	11/18/2005	100.4	O&M PDB Sample	1.04	42.3	7.75	1.64 J	<1	<1	21.2	1.58	<1	1.01 B
	4/13/2006	89.9	O&M PDB Sample	0.892 J	60.4	8.65	1.64	<1	<1	5.81	1.51	<1	<1
	4/13/2006	100.4	O&M PDB Sample	1.27	54.2	10.9	2.07	<1	<1	8	1.24	<1	<1

TABLE 5-3

**ANALYTICAL RESULTS, EISR AREA
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well ID	Sample Date	Sample Depth	Sample Event	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1,1,2-PCA (µg/L)	1,1,2-TCA (µg/L)	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
MW-165A	11/18/2004	79.5	Baseline	1.3 J	69	13	1.7 J	<1	<1	7.8	<1	6.4	24
	1/24/2005	79.0	1st Post ZVI Injection	1.1 J	53	9.3	1.3 J	<1	<1	5.4	<1	6.9	15
	3/21/2005	78.0	2nd Post ZVI Injection	1.4	64	10	1.8	<1	<1	5.5	0.37 J	9.8	24
	6/16/2005	73.9	O&M PDB Sample	<1	17.9	1.83	<1	<1	<1	<1 J	<1	<1 J	3.7 B
	6/16/2005	84.5	O&M PDB Sample	<1	46.7	6.05	<1 J	<1	<1	12	<1	4.63	48.5
	11/18/2005	73.9	O&M PDB Sample	<1	28.5	2.41	<1	<1	<1	<1	<1	1.35	3.52 B
	11/18/2005	84.5	O&M PDB Sample	0.955	88.7	13.5	1.31	<1	<1	4.42	<1	6.69	12.7
	4/13/2006	73.9	O&M PDB Sample	<1	48	3.09	0.73 J	<1	<1	<1	<1	1.16	1.96 B
	4/13/2006	84.5	O&M PDB Sample	0.608 J	69.8	6.05	1.15	<1	<1	1.14	<1	1.93	5.72 B
MW-152	8/15/2004	107.4	Baseline	5.4	76	9.2	4.1	<3.3	<3.3	11	<3.3	2.1 J	0.97 J
	10/10/2004	98.5	Baseline	4 J	70	6.9	3.4 J	<5	<5	<5	<5	<5	<5
	10/11/2004	91.3	Baseline	3.1 J	78	7.7	4.6 J	<5	<5	15	<5	<5	<5
	10/14/2004	98.8	Baseline	5.9	92	9	4.1 J	<5	<5	12	<5	<5	<5
	10/14/2004	91.3	Baseline	-	-	-	-	-	-	-	-	-	-
	1/26/2005	99.0	1st Post ZVI Injection	7.8	110	14	6.6	<1	<1	9.3 J	<1	0.39 J	1.5
	3/22/2005	101.0	2nd Post ZVI Injection	5.8	59	10	5.1	<1	<1	6.5	<1	0.24 J	0.98 B
	6/16/2005	92.9	O&M PDB Sample	1.06	17.6	2.97	1.12	<1	<1	5.32	<1	<1	<1
	6/16/2005	108.9	O&M PDB Sample	1.74	19.3	4.22	1.87	<1	<1	3.4	<1	<1	<1
	11/18/2005	92.9	O&M PDB Sample	11.7	159	29	13.5	<1	<1	12	<1	1	2.19 B
	11/18/2005	108.9	O&M PDB Sample	5.27	71	12.2	4.43	<1	<1	4.95	<1	<1	1.08 B
	4/13/2006	92.9	O&M PDB Sample	11.3	161	18.7	9.62	<1	<1	8.16	<1	<1	1.76 B
	4/13/2006	108.9	O&M PDB Sample	10.4	147	15.6	7.1	<1	<1	12.4	<1	<1	1.36 B
MW-145	8/16/2004	95.2	Baseline	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	1/27/2005	86.0	1st Post ZVI Injection	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	3/23/2005	90.0	2nd Post ZVI Injection	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	6/16/2005	78.6	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	6/16/2005	94.6	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	11/17/2005	78.6	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	11/17/2005	94.6	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4/13/2006	78.6	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW-167	11/21/2004	78.0	Baseline	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.1 B
	1/25/2005	77.0	1st Post ZVI Injection	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.47 J
	3/22/2005	77.6	2nd Post ZVI Injection	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.82 B
	6/16/2005	72.3	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	6/16/2005	80.7	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	11/18/2005	72.3	O&M PDB Sample	<1	0.961	<1	<1	<1	<1	2.67	<1	<1	<1
	11/18/2005	80.7	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	4/13/2006	72.3	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW-79	4/13/2006	80.7	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	8/13/2004	100.0	Baseline	1.7	14	1.9	1.6	7.6 B	<1	<1	<1	0.77 J	<1
	1/26/2005	92.5	1st Post ZVI Injection	1.2	7.5	1	1.1	9.1	<1	<1	<1	0.22 J	<1
	3/22/2005	92.5	2nd Post ZVI Injection	1.2	16	2.4	2.3	10	<1	<1	<1	0.3 J	0.28 B
	6/16/2005	92.0	O&M PDB Sample	1.17	9.99	1.59	1.28	13.1	<1	<1	<1	<1	<1
	11/18/2005	92.0	O&M PDB Sample	1.01	3.69	<1	<1	16.6	<1	<1	<1	<1	<1
	4/13/2006	92.0	O&M PDB Sample	<1	1.94	<1	<1	11.4	<1	<1	<1	<1	<1

TABLE 5-3

**ANALYTICAL RESULTS, EISR AREA
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IIA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee**

Well ID	Sample Date	Sample Depth	Sample Event	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1,2,2-PCA (µg/L)	1,1,2-TCA (µg/L)	Carbon Tetrachloride (µg/L)	Chloroform (µg/L)
MW-168	11/19/2004	115.9	Baseline	<1	0.71 J	<1	<1	1.9	<1	<1	<1	<1	<1
	1/26/2005	113.0	1st Post ZVI Injection	<1	0.53 J	<1	<1	1.7	<1	<1	<1	<1	<1
	3/21/2005	113.7	2nd Post ZVI Injection	<1	0.5 J	<1	<1	1.6	<1	<1	<1	<1	<1
	6/16/2005	108.6	O&M PDB Sample	<1	<1 J	<1	<1	<1 J	<1	<1	<1	<1	<1
	6/16/2005	119.1	O&M PDB Sample	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	11/18/2005	108.6	O&M PDB Sample	<1	<1	<1	<1	0.858	<1	<1	<1	<1	<1
	11/18/2005	119.1	O&M PDB Sample	<1	<1	<1	<1	0.889	<1	<1	<1	<1	<1
	4/13/2006	108.6	O&M PDB Sample	<1	<1	<1	<1	0.905 J	<1	<1	<1	<1	<1
	4/13/2006	119.1	O&M PDB Sample	<1	<1	<1	<1	0.842 J	<1	<1	<1	<1	<1
MW-168A	11/17/2004	80.0	Baseline	1.1	0.36 J	<1	<1	11	<1	<1	<1	<1	0.6 B
	1/25/2005	81.0	1st Post ZVI Injection	0.8 J	0.49 J	<1	<1	10	<1	<1	<1	<1	0.52 J
	3/21/5	81.3	2nd Post ZVI Injection	0.98 J	0.52 J	<1	<1	11	<1	<1	<1	<1	0.55 B
	6/16/2005	76.4	O&M PDB Sample	<1 J	<1 J	<1	<1	19.3	<1	<1	<1	<1	<1 B
	6/16/2005	86.9	O&M PDB Sample	<1 J	<1	<1	<1	6.12	<1	<1	<1	<1	<1
	11/18/2005	76.4	O&M PDB Sample	0.888	<1	<1	<1	27.6	<1	<1	<1	0.825	0.883 B
	11/18/2005	86.9	O&M PDB Sample	<1	<1	<1	<1	7.56	<1	<1	<1	<1	<1
	4/13/2006	76.4	O&M PDB Sample	<1	1	<1	<1	19.4	<1	<1	<1	<1	0.957 B
	4/13/2006	86.9	O&M PDB Sample	<1	<1	<1	<1	3.72	<1	<1	<1	<1	<1

Notes:

µg/L micrograms per liter

- Not analyzed

Results equal to or above reporting limit shown in bold type

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

R Unusable data

E Estimated result; concentration exceeds calibration range

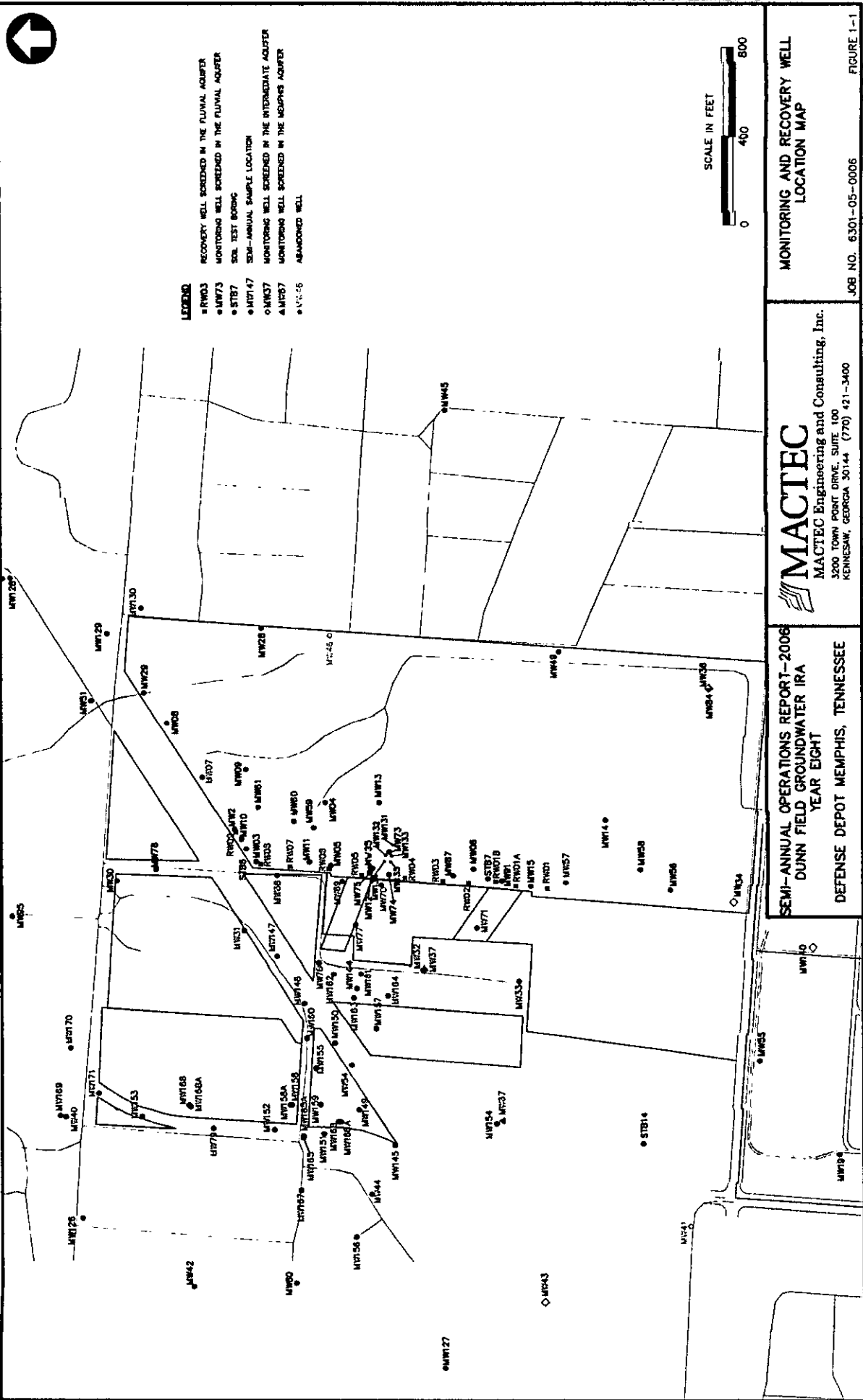
Method:

SW8260B Volatile Organic Compounds

PREPARED/DATE *Judy Hartman 9/29/06*
 CHECKED/DATE *J. Hartman 10/14/06*

FIGURES

J:\ODMT\0841 2006 SEMI-Annual Report\WM-LOCATION-REV-3.dwg - Layout1 11/14/2006 1:21pm ralexand



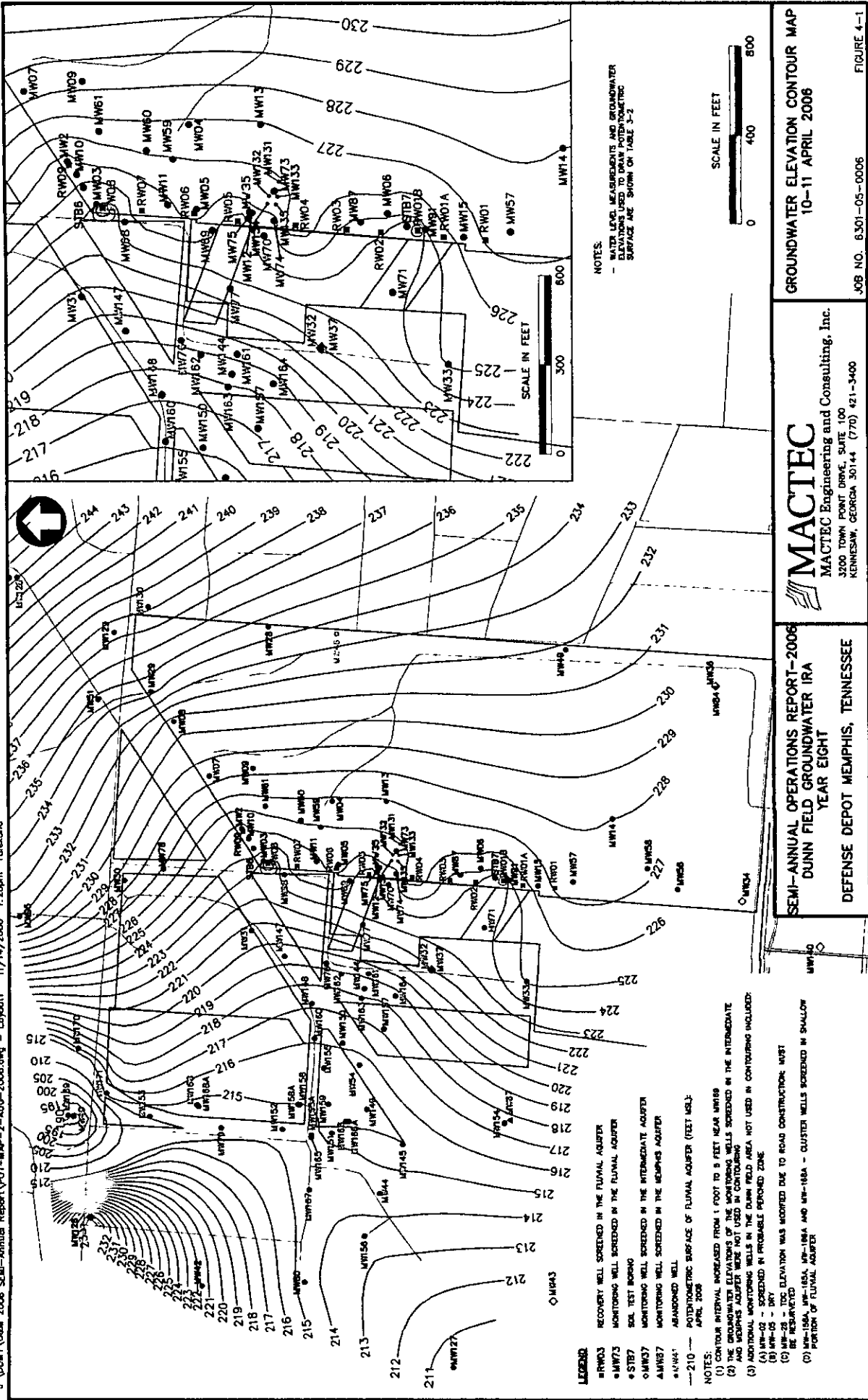
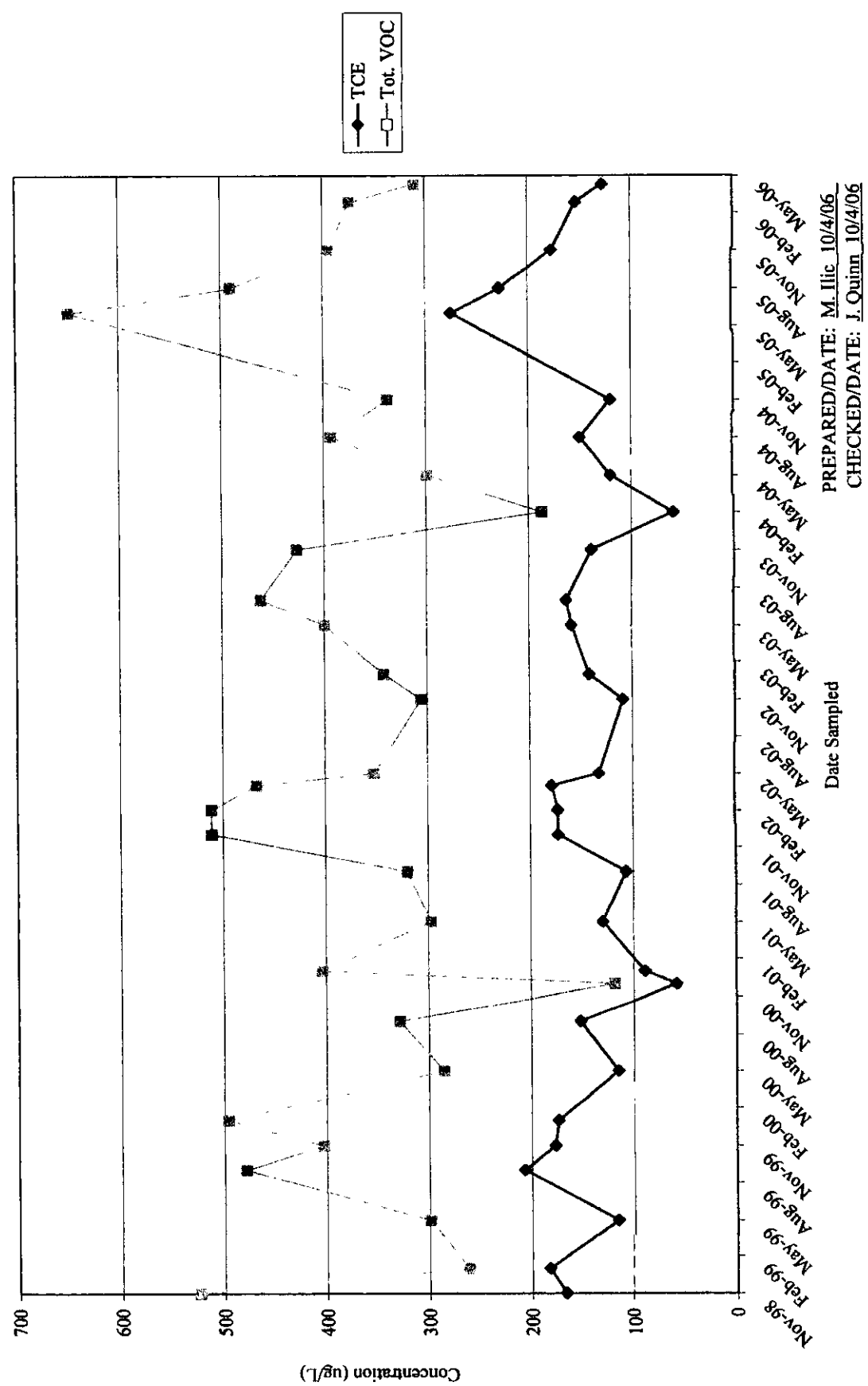
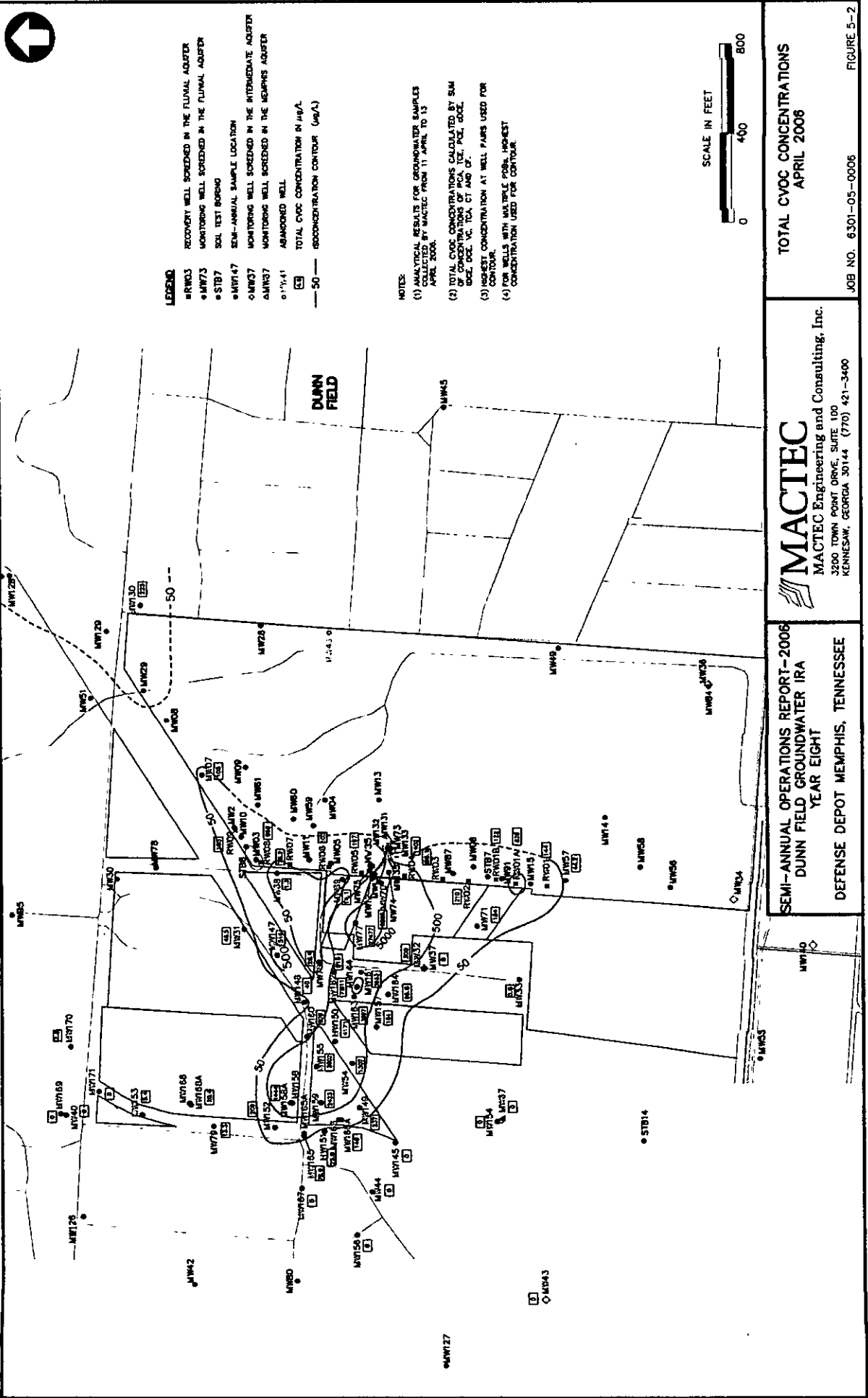


FIGURE 5-1

TCE AND TOTAL VOC CONCENTRATIONS IN EFFLUENT
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis, Tennessee





APPENDIX A

RESULTS OF LABORATORY ANALYSIS

- A-1 Monitoring Wells**
- A-2 Recovery Wells**
- A-3 Effluent Samples**
- A-4 Quality Control Samples**

APPENDIX A-1

MONITORING WELLS

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

ANALYTE	Site ID Sample Name	MW-007 MW-07 (68.9)0406	MW-031 MW-31 (71.6)0406	MW-031 MW-31 (77.1)0406	MW-032 MW-32 (65.1)0406	MW-033 MW-33 (57.7)0406	MW-037 MW-37 (173.2)0406	MW-040 MW-40 (90.0)0406	MW-043 MW-43 (165.5)0406
	Sample Date	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006
UNIT									
1,1,1-Trichloroethane	µg/L	0.868 J	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<1	<1	<1	46	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	<1	<1	<1	1.28	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	1.38	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	27.4	29.6	23	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	17.4	0.562 J	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	1.32	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	0.501 B	<1	<1	154	<1	<1	<1	<1
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	1.56	<1	7.62	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	50.7	1.22	1.35	2.58	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	<1	<1	<1	1.25	<1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	26.4	14.7	4.99	70	<1	<1	<1	<1
Vinyl acetate	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

µg/L

micrograms per liter

DQE Flag:

J Estimated result based on QC data or reported below RL

B Estimated result possibly biased high or false positive based on blank data

UJ Undetected, reporting limit is inaccurate or imprecise

Methods:

SW8260B Volatile Organic Compounds

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs;
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

Sample Name	MW-70 MW-70 (82.9)0406	MW-70 MW-70 (88.3)0406	MW-70 MW-70 (72.3)0406	MW-76 MW-76 (88.3)0406	MW-77 MW-77 (84.9)0406	MW-79 MW-79 (92.0)0406	MW-130 MW-130(69.5)0406	MW-144 MW-144(74.9)0406
Sample Date	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006
ANALYTE	UNIT							
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	3.78	<1
1,1,2,2-Tetrachloroethane	µg/L	7670	26.3	0.766 J	21700	<1	<1	5040
1,1,2-Trichloroethane	µg/L	6.15	29	<1	15.7	<1	<1	9.04
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	2.88	<1
1,1-Dichloroethane	µg/L	<1	3.36	<1	<1	11.4	52.8	<1
1,2-Dichloroethane	µg/L	<1	0.696 J	<1	0.667 J	<1	0.789 J	<1
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L	<10	<10	<10	<10	<10	<10	<10
Acetone	µg/L	<10	<1	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	16.3	<1	1.12	<1	<1	1.03
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	1.52 B	73.5	<1	4.32 B	<1	<1	2.72 B
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	48.1	10.6	<1	154	<1	<1	83.9
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<2	<2	<2	<2	<2	<2	<2
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	16.5	2.65	<1	48	<1	114	199 J
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	12	0.977 J	<1	38.5	<1	<1	7.28 J
trans-1,2-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L	2130	54	<1	5520	1.94	57.7	2650
Trichloroethene	µg/L	<10	<10	<10	<10	<10	<10	<10
Vinyl acetate	µg/L	<182	94.2	<1	<1	<1	<1	<1
Vinyl chloride	µg/L	1.82	<1	<1	<1	<1	<1	<1

Notes: micrograms per liter
µg/L

DOE FLAG:

Estimated result based on QC data or repo
Estimated result possibly biased high or low
Undetected, reporting limit is inaccurate or

Methods:

Volatile Organic Compounds
SW8260B

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

ANALYTE	UNIT	Site ID	MW-145	MW-145	MW-145	MW-147	MW-148	MW-148	MW-149	MW-149	MW-150
Sample Name	Sample Date	MW-145	MW-145	MW-145	MW-147	MW-148	MW-148	MW-148	MW-149	MW-149	MW-150
		4/13/2006	4/13/2006	4/13/2006	4/12/2006	4/12/2006	4/12/2006	4/12/2006	4/13/2006	4/13/2006	4/12/2006
1,1,1-Trichloroethane	µg/L	<1	<1	<1	1.32	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<1	<1	<1	311	<1	<1	<1	<1	<1	1090
1,1,2-Trichloroethane	µg/L	<1	<1	<1	4.36	<1	<1	<1	<1	<1	10.5
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	<1	<1	<1	1.76	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<1	<1	<1	0.707 J	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	20.1
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	0.565 J	<1	<1	<1	<1	<1	0.779 J
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	5.53 B	0.861 B	<1	<1	<1	<1	0.871 B
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	<1	<1	74.8	10.4	<1	<1	<1	<1	74.2
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	3.61	2.88	0.351 J	1.3	1.02	4.09	<1
Toluene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	<1	<1	<1	14.4	3.18	<1	<1	<1	8.66	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	106	21.1	1.12	32.1	57.1	747	<1
Vinyl acetate	µg/L	<10	<10	<10	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:
µg/L

micrograms per liter

DQE Flag:

J Estimated result based on QC data or repo
B Estimated result possibly biased high or fa
UJ Undetected, reporting limit is inaccurate o

Methods:

SW8260B Volatile Organic Compounds

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

ANALYTE	Site ID	MW-150	MW-151	MW-151	MW-151	MW-152	MW-152	MW-153	MW-153	MW-153	MW-154
Sample Name	MW-150(92-790406)	MW-151 (78.5)0406	MW-151 (94.5)0406	MW-151 (108.9)0406	MW-152 (92.9)0406	MW-152 (108.9)0406	MW-153 (79.1)0406	MW-153 (95.1) 0406	MW-154(57.6)0406		
Sample Date	4/12/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/12/2006	
UNIT											
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	2940	<1	<1	<1	8.16	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	5.7	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1	5.4	<1	4.13	<1	<1
1,2-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	0.413 J	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	2.09 B	<1	11.4	1.36 B	1.76 B	<1	<1	<1	<1	<1
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	54.1	<1	1.22	15.6	18.7	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	10.1	<1	<1	10.4	11.3	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	11.1	<1	<1	7.1	9.62	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	1150	<1	8.75	147	161	<1	<1	<1	<1	<1
Vinyl acetate	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

µg/L micrograms per liter

DQE Flags:

J Estimated result based on QC data or repo

B Estimated result possibly biased high or fa

UJ Undetected, reporting limit is inaccurate o

Methods:

SW8260B Volatile Organic Compounds

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

ANALYTE	Unit	Site ID	MW-154	MW-155	MW-156	MW-157	MW-158	MW-159
Sample Name	Sample Date	MW-154(65.5)0406	MW-155(78.6)0406	MW-156(94.6)0406	MW-157(73.3)0406	MW-158(93.1)0406	MW-159(104.1)0406	
		4/12/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<1	1880	581	<1	<1	6.36	3.78
1,1,2-Trichloroethane	µg/L	<1	7.5	7.1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L	<10	<10	<10	<10	<10	<10	<10
Acetone	µg/L	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	1.51 B	1.21 B	<1	<1	0.738 B	1 B
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	35.1	29	<1	<1	4.87	7.74
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	5.93	5.06	<1	<1	7.19	9.28
Toluene	µg/L	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	<1	8.66	7.06	<1	<1	2.4	3.62
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	865	572	<1	<1	52.6	76.3
Vinyl acetate	µg/L	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1	<1

Notes:

µg/L micrograms per liter

DQE Flags:

J Estimated result based on QC data or repo

B Estimated result possibly biased high or fa

UJ Undetected, reporting limit is inaccurate o

Methods:

SW8260B Volatile Organic Compounds

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

ANALYTE	Site ID	MW-158A	MW-159	MW-159	MW-159	MW-160	MW-161	MW-162	MW-163
Sample Name	MW-158A (80.8)0406	MW-158A (91.4)0406	MW-159 (81.1)0406	MW-159 (97.1)0406	MW-160 (80.8)0406	MW-161 (75.9)0406	MW-162 (83.7)0406	MW-163 (74.9)0406	
Sample Date	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	
UNIT									
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	681	43.1	847	549	2120	522	1980	4.77
1,1,2-Trichloroethane	µg/L	6.08	<1	10.4	2.5	5.71	0.99 J	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	1.47 B	2.62 B	1.22 B	1.14 B	1.12 B	1.49 B	1.28 B	<1
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethane	µg/L	49.7	32.6	36.4	20.4	38.4	31.2	39.7	<1
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethane	µg/L	4.69	15	1.71	1.33	13	10.5	8.68	<1
Toluene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	14	13.8	7.64	4.14	5.12	8.25	3.55	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	689	273	1520	594	1470	342	1860	<10
Vinyl acetate	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

µg/L micrograms per liter

DQE Flag:

J Estimated result based on QC data or repo

B Estimated result possibly biased high or fa

UJ Undetected, reporting limit is inaccurate o

Methods:

SW8260B Volatile Organic Compounds

050006.03

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

[illegible]

Notes: micrograms per liter

DOE Flap:

Estimated result based on QC data or repo
Estimated result possibly biased high or fa
Undetected, reporting limit is inaccurate o

Methods:
SSW8260B
Volatile Organic Compounds

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis,
Tennessee

ANALYTE	Site ID	MW-167	MW-167	MW-168	MW-168	MW-168A	MW-168A	MW-169	MW-169
Sample Name	MW-167 (72.3)0406	MW-167 (80.7)0406	MW-168 (108.6)0406	MW-168 (119.1)0406	MW-168A (76.4)0406	MW-168A (86.9)0406	MW-169 (77.4)0406	MW-169 (86.2)0406	
Sample Date	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	
UNIT									
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	13.8	1.66	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	0.905 J	0.842 J	19.4	3.72	<1	<1
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Acetone	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	0.957 B	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	1	<1	<1	<1
Vinyl acetate	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

µg/L micrograms per liter

DOE Flags:

J Estimated result based on QC data or repo

B Estimated result possibly biased high or low

UJ Undetected, reporting limit is inaccurate or

Methods:

SW8260B Volatile Organic Compounds

050006.03

TABLE A-1

MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
 SEMI-ANNUAL STATUS REPORT - 2006
 DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
 Defense Depot Memphis,
 Tennessee

ANALYTE	UNIT	Site ID		MW-170		MW-171		MW-171	
		Sample Name	Sample Date	MW-170 (61-70406)	MW-170 (77-70406)	MW-171 (57-20406)	MW-171 (57-20406)	MW-171 (57-20406)	MW-171 (57-20406)
1,1,1-Trichloroethane	µg/L		4/13/2006	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L			<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	µg/L			<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L			<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L			2.84	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L			<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	µg/L			<1	<1	<1	<1	<1	<1
2-Butanone (MEK)	µg/L			<10	<10	<10	<10	<10	<10
2-Hexanone	µg/L			<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	µg/L			<10	<10	<10	<10	<10	<10
Acetone	µg/L			<1	<1	<1	<1	<1	<1
Benzene	µg/L			<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L			<1	<1	<1	<1	<1	<1
Bromoform	µg/L			<1	<1	<1	<1	<1	<1
Bromomethane	µg/L			<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L			<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L			<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L			<1	<1	<1	<1	<1	<1
Chloroethane	µg/L			<1	<1	<1	<1	<1	<1
Chloroform	µg/L			<1	<1	<1	<1	<1	<1
Chloromethane	µg/L			<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L			<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L			<1	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L			<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L			<1	<1	<1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L			<1	<1	<1	<1	<1	<1
Methylene chloride	µg/L			<1	<1	<1	<1	<1	<1
m-Xylene & p-Xylene	µg/L			<2	<2	<2	<2	<2	<2
o-Xylene	µg/L			<1	<1	<1	<1	<1	<1
Styrene	µg/L			<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L			<1	<1	<1	<1	<1	<1
Toluene	µg/L			<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L			<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L			<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L			<1	<1	<1	<1	<1	<1
Vinyl acetate	µg/L			<10	<10	<10	<10	<10	<10
Vinyl chloride	µg/L			<1	<1	<1	<1	<1	<1

Notes:
µg/L

micrograms per liter

DQE Flags:

- J Estimated result based on QC data or replicate
 B Estimated result possibly biased high or low
 UJ Undetected, reporting limit is inaccurate or flag

Methods:

SW8260B Volatile Organic Compounds

PREPARED/DATE: 9/29/06
 CHECKED/DATE: 10/14/06

APPENDIX A-2

RECOVERY WELLS

TABLE A-2

RECOVERY WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	UNIT	Site ID	RW-001	RW-001A	RW-001B	RW-002
		Sample Name	RW-01-0406	RW-01A-0406	RW-01B-0406	RW-02-0406
		Sample Date	4/11/2006	4/11/2006	4/11/2006	4/11/2006
1,1,1-TRICHLOROETHANE	µg/L		<1	<1	<1	<1
1,1,2,2-TETRACHLOROETHANE	µg/L		1.78	131	<1	64.7
1,1,2-TRICHLOROETHANE	µg/L		<1	3.68	<1	2.72
1,1-DICHLOROETHANE	µg/L		<1	<1	<1	<1
1,1-DICHLOROETHENE	µg/L		<1	<1	<1	<1
1,2-DICHLOROETHANE	µg/L		<1	<1	<1	<1
1,2-DICHLOROPROPANE	µg/L		<1	<1	<1	<1
2-BUTANONE (MEK)	µg/L		<10	<10	<10	<10
2-HEXANONE	µg/L		<10	<10	<10	<10
4-METHYL-2-PENTANONE	µg/L		<10	<10	<10	<10
ACETONE	µg/L		<10	<10	<10	<10
BENZENE	µg/L		<1	<1	<1	<1
BROMODICHLOROMETHANE	µg/L		<1	0.754 J	<1	<1
BROMOFORM	µg/L		<1	<1	<1	<1
BROMOMETHANE	µg/L		<1	<1	<1	<1
CARBON DISULFIDE	µg/L		<1	<1	<1	<1
CARBON TETRACHLORIDE	µg/L		14.3	16.4	21.4	7.62
CHLOROBENZENE	µg/L		<1	<1	<1	<1
CHLOROETHANE	µg/L		<1	<1	<1	<1
CHLOROFORM	µg/L		69.3	512	47.5	25.9
CHLOROMETHANE	µg/L		<1	<1	<1	<1
CIS-1,2-DICHLOROETHYLENE	µg/L		1.88	5.38	3.62	56.5
CIS-1,3-DICHLOROPROPENE	µg/L		<1	<1	<1	<1
DIBROMOCHLOROMETHANE	µg/L		<1	<1	<1	<1
ETHYLBENZENE	µg/L		<1	<1	<1	<1
M, P Xylenes	µg/L		<2	<2	<2	<2
METHYLENE CHLORIDE	µg/L		<1	<1	<1	<1
O-XYLENE (1,2-DIMETHYLBENZENE)	µg/L		<1	<1	<1	<1
STYRENE	µg/L		<1	<1	<1	<1
TERT-BUTYL METHYL ETHER	µg/L		<1	<1	<1	<1
TETRACHLOROETHYLENE(PCE)	µg/L		3.26	6.06	3.6	1.4
TOLUENE	µg/L		<1	<1	<1	<1
TRANS-1,2-DICHLOROETHENE	µg/L		1.01	1.82	0.875 J	3.1
TRANS-1,3-DICHLOROPROPENE	µg/L		<1	<1	<1	<1
TRICHLOROETHYLENE (TCE)	µg/L		52.8	152	46.1	47.9
VINYL ACETATE	µg/L		<10	<10	<10	<10
VINYL CHLORIDE	µg/L		<1	<1	<1	<1

Notes:

µg/L micrograms per liter

DQE Flags:

J

Estimated result based on QC data or reported below RL

B

Estimated result possibly biased high or false positive based on blank data

UJ

Undetected, reporting limit is inaccurate or imprecise

Methods:

SW8260B Volatile Organic Compounds

TABLE A-2

RECOVERY WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	UNIT	Site ID	RW-003	RW-04	RW-005	RW-006
		Sample Name Sample Date	RW-03-0406 4/11/2006	RW-04-0406 4/11/2006	RW-05-0406 4/11/2006	RW-06-0406 4/11/2006
1,1,1-TRICHLOROETHANE	µg/L		<1	<1	<1	<1
1,1,2,2-TETRACHLOROETHANE	µg/L		16	264	17.2	<1
1,1,2-TRICHLOROETHANE	µg/L		0.775 J	11.8	<1	<1
1,1-DICHLOROETHANE	µg/L		<1	<1	<1	<1
1,1-DICHLOROETHENE	µg/L		<1	<1	<1	<1
1,2-DICHLOROETHANE	µg/L		<1	<1	<1	<1
1,2-DICHLOROPROPANE	µg/L		<1	<1	<1	<1
2-BUTANONE (MEK)	µg/L		<10	<10	<10	<10
2-HEXANONE	µg/L		<10	<10	<10	<10
4-METHYL-2-PENTANONE	µg/L		<10	<10	<10	<10
ACETONE	µg/L		<10	<10	<10	<10
BENZENE	µg/L		<1	<1	<1	<1
BROMODICHLOROMETHANE	µg/L		<1	<1	<1	<1
BROMOFORM	µg/L		<1	<1	<1	<1
BROMOMETHANE	µg/L		<1	<1	<1	<1
CARBON DISULFIDE	µg/L		<1	<1	<1	<1
CARBON TETRACHLORIDE	µg/L		3.6	0.698 J	<1	<1
CHLOROBENZENE	µg/L		<1	<1	<1	<1
CHLOROETHANE	µg/L		<1	<1	<1	<1
CHLOROFORM	µg/L		1.68	2.75	<1	2.06
CHLOROMETHANE	µg/L		<1	<1	<1	<1
CIS-1,2-DICHLOROETHYLENE	µg/L		13.7	30	5.69	16.1
CIS-1,3-DICHLOROPROPENE	µg/L		<1	<1	<1	<1
DIBROMOCHLOROMETHANE	µg/L		<1	<1	<1	<1
ETHYLBENZENE	µg/L		<1	<1	<1	<1
M, P Xylenes	µg/L		<2	<2	<2	<2
METHYLENE CHLORIDE	µg/L		<1	<1	<1	<1
O-XYLENE (1,2-DIMETHYLBENZENE)	µg/L		<1	<1	<1	<1
STYRENE	µg/L		<1	<1	<1	<1
TERT-BUTYL METHYL ETHER	µg/L		<1	<1	<1	<1
TETRACHLOROETHYLENE(PCE)	µg/L		0.928 J	8.25	5.91	19.7
TOLUENE	µg/L		<1	<1	<1	<1
TRANS-1,2-DICHLOROETHENE	µg/L		1.22	5.65	1.94	5.89
TRANS-1,3-DICHLOROPROPENE	µg/L		<1	<1	<1	<1
TRICHLOROETHYLENE (TCE)	µg/L		49.9	1080	166	59.3
VINYL ACETATE	µg/L		<10	<10	<10	<10
VINYL CHLORIDE	µg/L		<1	<1	<1	<1

Notes:

µg/L micrograms per liter

DQE Flags:

J

Estimated result based on QC data or reported below RL

B

Estimated result possibly biased high or false positive
based on blank data

UJ

Undetected, reporting limit is inaccurate or imprecise

Methods:

SW8260B Volatile Organic Compounds

TABLE A-2

RECOVERY WELL SAMPLE ANALYTICAL RESULTS - VOCs
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Site ID Sample Name Sample Date	RW-007 RW-07-0406 4/14/2006	RW-008 RW-08-0406 4/11/2006	RW-009 RW-09-0406 4/11/2006
		UNIT		
1,1,1-TRICHLOROETHANE	µg/L	<1	<1	<1
1,1,2,2-TETRACHLOROETHANE	µg/L	9.28	195	4.42
1,1,2-TRICHLOROETHANE	µg/L	<1	4.47	<1
1,1-DICHLOROETHANE	µg/L	<1	<1	<1
1,1-DICHLOROETHENE	µg/L	<1	2.12	19.5
1,2-DICHLOROETHANE	µg/L	<1	<1	<1
1,2-DICHLOROPROPANE	µg/L	<1	<1	<1
2-BUTANONE (MEK)	µg/L	<10	<10	<10
2-HEXANONE	µg/L	<10	<10	<10
4-METHYL-2-PENTANONE	µg/L	<10	<10	<10
ACETONE	µg/L	<10	<10	<10
BENZENE	µg/L	<1	<1	<1
BROMODICHLOROMETHANE	µg/L	<1	<1	<1
BROMOFORM	µg/L	<1	<1	<1
BROMOMETHANE	µg/L	<1	<1	<1
CARBON DISULFIDE	µg/L	<1	<1	<1
CARBON TETRACHLORIDE	µg/L	<1	0.755 J	<1
CHLOROBENZENE	µg/L	<1	<1	<1
CHLOROETHANE	µg/L	<1	<1	<1
CHLOROFORM	µg/L	5.02	10.6	5.82
CHLOROMETHANE	µg/L	<1	<1	<1
CIS-1,2-DICHLOROETHYLENE	µg/L	15.5	151	8.95
CIS-1,3-DICHLOROPROPENE	µg/L	<1	<1	<1
DIBROMOCHLOROMETHANE	µg/L	<1	<1	<1
ETHYLBENZENE	µg/L	<1	<1	<1
M, P Xylenes	µg/L	<2	<2	<2
METHYLENE CHLORIDE	µg/L	<1	<1	<1
O-XYLENE (1,2-DIMETHYLBENZENE)	µg/L	<1	<1	<1
STYRENE	µg/L	<1	<1	<1
TERT-BUTYL METHYL ETHER	µg/L	<1	<1	<1
TETRACHLOROETHYLENE(PCE)	µg/L	3.33	3.74	20.1
TOLUENE	µg/L	<1	<1	<1
TRANS-1,2-DICHLOROETHENE	µg/L	4.4	32.6	3.6
TRANS-1,3-DICHLOROPROPENE	µg/L	<1	<1	<1
TRICHLOROETHYLENE (TCE)	µg/L	40.7	266	40.4
VINYL ACETATE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<1	<1	<1

Notes:

µg/L micrograms per liter

DQE Flags:

J

Estimated result based on QC data or reported below RL

B

Estimated result possibly biased high or false positive based on blank data

UJ

Undetected, reporting limit is inaccurate or imprecise

Methods:

SW8260B Volatile Organic Compounds

PREPARED/DATE:

CHECKED/DATE:

[Signature] 9/29/06
[Signature] 10/4/06

*Semiannual Status Report – 2006
Dunn Field Groundwater IRA – Year Eight First Half
MACTEC Project No. 6301-05-0006*

*7 December 2006
Revision 1*

APPENDIX A-3

EFFLUENT SAMPLES

EFFLUENT SAMPLE RESULTS SUMMARY
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Site ID	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
	Sample Name Sample Date	Effluent-0206 2/27/2006	Effluent DUP-0206 2/27/2006	Effluent-0406 4/11/2006	Effluent-DUP-0406 4/11/2006
	Unit				
TOTAL METALS:					
ALUMINUM	mg/L	—	—	<0.1	<0.1
ANTIMONY	mg/L	—	—	<0.01	<0.01
ARSENIC	mg/L	—	—	<0.01	<0.01
BARIUM	mg/L	—	—	0.103	0.105
BERYLLIUM	mg/L	—	—	<0.001	<0.001
CADMIUM	mg/L	—	—	<0.002	<0.002
CALCIUM	mg/L	—	—	24.1	24.1
CHROMIUM, TOTAL	mg/L	—	—	0.0036 J	0.0058
COBALT	mg/L	—	—	<0.01	<0.01
COPPER	mg/L	—	—	0.023	0.0387
IRON	mg/L	—	—	0.588 J	2.72 J
LEAD	mg/L	—	—	0.0064	0.0088
MAGNESIUM	mg/L	—	—	12.3	12.3
MANGANESE	mg/L	—	—	0.0384	0.045
NICKEL	mg/L	—	—	0.0085	0.0093
POTASSIUM	mg/L	—	—	0.823	0.835
SELENIUM	mg/L	—	—	<0.01	<0.01
SILVER	mg/L	—	—	<0.005	<0.005
SODIUM	mg/L	—	—	25.1	24.6
THALLIUM	mg/L	—	—	<0.02	<0.02
VANADIUM	mg/L	—	—	<0.01	<0.01
ZINC	mg/L	—	—	0.508 J	0.095 J
MERCURY	mg/L	—	—	<0.0002	<0.0002
VOLATILE ORGANIC COMPOUNDS:					
1,1,1-TRICHLOROETHANE	µg/L	<1	<1	<1	<1
1,1,2,2-TETRACHLOROETHANE	µg/L	82.8	91.6	74.9	67.8
1,1,2-TRICHLOROETHANE	µg/L	1.91	2.08	1.83	1.8
1,1-DICHLOROETHANE	µg/L	<1	<1	<1	<1
1,1-DICHLOROETHENE	µg/L	10.3	9.62	7.51	6.5
1,2,4-TRICHLOROBENZENE	µg/L	<1	<1	<1	<1
1,2-DIBROMO-3-CHLOROPROPANE	µg/L	<5	<5	<5	<5
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	µg/L	<1	<1	<1	<1
1,2-DICHLOROBENZENE	µg/L	<1	<1	<1	<1
1,2-DICHLOROETHANE	µg/L	<1	<1	<1	<1
1,2-DICHLOROPROPANE	µg/L	<1	<1	<1	<1
1,3-DICHLOROBENZENE	µg/L	<1	<1	<1	<1
1,4-DICHLOROBENZENE	µg/L	<1	<1	<1	<1
2-BUTANONE (MEK)	µg/L	<10	<10	<10	<10
2-HEXANONE	µg/L	<10	<10	<10	<10
ACETONE	µg/L	<10	<10	<10	<10
BENZENE	µg/L	<1	<1	<1	<1
BROMOCHLOROMETHANE	µg/L	<1	<1	<1	<1
BROMODICHLOROMETHANE	µg/L	<1	<1	<1	<1
BROMOFORM	µg/L	<1	<1	<1	<1
BROMOMETHANE	µg/L	<1	<1	<1	<1
CARBON DISULFIDE	µg/L	<1	<1	<1	<1
CARBON TETRACHLORIDE	µg/L	3.26	3.26	2.24	2.17
CHLOROBENZENE	µg/L	<1	<1	<1	<1
CHLOROETHANE	µg/L	<1	<1	<1	<1
CHLOROFORM	µg/L	30	28.4	21.9	21.9
CHLOROMETHANE	µg/L	<1	<1	<1	<1
CIS-1,2-DICHLOROETHYLENE	µg/L	60.9	61.4	50.5	51.2
CIS-1,3-DICHLOROPROPENE	µg/L	<1	<1	<1	<1
DIBROMOCHLOROMETHANE	µg/L	<1	<1	<1	<1
ETHYLBENZENE	µg/L	<1	<1	<1	<1
M,P-XYLENES	µg/L	<2	<2	<2	<2
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	µg/L	<10	<10	<10	<10
METHYLENE CHLORIDE	µg/L	<1	<1	<1	<1
O-XYLENE (1,2-DIMETHYLBENZENE)	µg/L	<1	<1	<1	<1
STYRENE	µg/L	<1	<1	<1	<1
TETRACHLOROETHYLENE(PCE)	µg/L	17.3	17.9	12.6	11.7
TOLUENE	µg/L	<1	<1	<1	<1
TRANS-1,2-DICHLOROETHENE	µg/L	14.8	14.5	11.6	11.6
TRANS-1,3-DICHLOROPROPENE	µg/L	<1	<1	<1	<1
TRICHLOROETHYLENE (TCE)	µg/L	153 J	156 J	127 J	129 J
VINYL CHLORIDE	µg/L	<1	<1	<1	<1

TABLE A-3

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EFFLUENT SAMPLE RESULTS SUMMARY
SEMI-ANNUAL STATUS REPORT - 2006
DUNN FIELD GROUNDWATER IRA - YEAR EIGHT FIRST HALF
Defense Depot Memphis, Tennessee

ANALYTE	Site ID	EFFLUENT	EFFLUENT	EFFLUENT	EFFLUENT
	Sample Name	Effluent-0206	Effluent DUP-0206	Effluent-0406	Effluent-DUP-0406
	Sample Date	2/27/2006	2/27/2006	4/11/2006	4/11/2006
	Unit				
SEMI-VOLATILE ORGANIC COMPOUNDS:					
2,4,5-TRICHLOROPHENOL	µg/L	--	--	<10	<10
2,4,6-TRICHLOROPHENOL	µg/L	--	--	<10	<10
2,4-DICHLOROPHENOL	µg/L	--	--	<10	<10
2,4-DIMETHYLPHENOL	µg/L	--	--	<10	<10
2,4-DINITROPHENOL	µg/L	--	--	<50	<50
2,4-DINITROTOLUENE	µg/L	--	--	<10	<10
2,6-DINITROTOLUENE	µg/L	--	--	<10	<10
2-CHLORONAPHTHALENE	µg/L	--	--	<10	<10
2-CHLOROPHENOL	µg/L	--	--	<10	<10
2-METHYLNAPHTHALENE	µg/L	--	--	<10	<10
2-METHYLPHENOL (O-CRESOL)	µg/L	--	--	<10	<10
2-NITROANILINE	µg/L	--	--	<50	<50
2-NITROPHENOL	µg/L	--	--	<10	<10
3,3'-DICHLOROBENZIDINE	µg/L	--	--	<50	<50
3-METHYLPHENOL	µg/L	--	--	<10	<10
3-NITROANILINE	µg/L	--	--	<50	<50
4,6-DINITRO-2-METHYLPHENOL	µg/L	--	--	<50	<50
4-BROMOPHENYL PHENYL ETHER	µg/L	--	--	<10	<10
4-CHLORO-3-METHYLPHENOL	µg/L	--	--	<10	<10
4-CHLOROANILINE	µg/L	--	--	<10	<10
4-CHLOROPHENYL PHENYL ETHER	µg/L	--	--	<10	<10
4-NITROANILINE	µg/L	--	--	<50	<50
4-NITROPHENOL	µg/L	--	--	<50	<50
ACENAPHTHENE	µg/L	--	--	<10	<10
ACENAPHTHYLENE	µg/L	--	--	<10	<10
ANTHRACENE	µg/L	--	--	<10	<10
BENZO(A)ANTHRACENE	µg/L	--	--	<10	<10
BENZO(A)PYRENE	µg/L	--	--	<10	<10
BENZO(B)FLUORANTHENE	µg/L	--	--	<10	<10
BENZO(G,H,I)PERYLENE	µg/L	--	--	<10	<10
BENZO(K)FLUORANTHENE	µg/L	--	--	<10	<10
BENZYL BUTYL PHTHALATE	µg/L	--	--	<10	<10
BIS(2-CHLOROETHOXY) METHANE	µg/L	--	--	<10	<10
BIS(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ET)	µg/L	--	--	<10	<10
BIS(2-CHLOROISOPROPYL) ETHER	µg/L	--	--	<10	<10
BIS(2-ETHYLHEXYL) PHTHALATE	µg/L	--	--	<10	<10
CHRYSENE	µg/L	--	--	<10	<10
DIBENZ(A,H)ANTHRACENE	µg/L	--	--	<10	<10
DIBENZOFURAN	µg/L	--	--	<10	<10
DIETHYL PHTHALATE	µg/L	--	--	<10	<10
DIMETHYL PHTHALATE	µg/L	--	--	<10	<10
DI-N-BUTYL PHTHALATE	µg/L	--	--	<10	<10
DI-N-OCTYLPHTHALATE	µg/L	--	--	<10	<10
FLUORANTHENE	µg/L	--	--	<10	<10
FLUORENE	µg/L	--	--	<10	<10
HEXACHLOROBENZENE	µg/L	--	--	<10	<10
HEXACHLOROBUTADIENE	µg/L	--	--	<10	<10
HEXACHLOROCYCLOPENTADIENE	µg/L	--	--	<50	<50
HEXACHLOROETHANE	µg/L	--	--	<10	<10
INDENO(1,2,3-C,D)PYRENE	µg/L	--	--	<10	<10
ISOPHORONE	µg/L	--	--	<10	<10
NAPHTHALENE	µg/L	--	--	<10	<10
NITROBENZENE	µg/L	--	--	<10	<10
N-NITROSODI-N-PROPYLAMINE	µg/L	--	--	<10	<10
N-NITROSODIPHENYLAMINE	µg/L	--	--	<10	<10
PENTACHLOROPHENOL	µg/L	--	--	<10	<10
PHENANTHRENE	µg/L	--	--	<10	<10
PHENOL	µg/L	--	--	<10	<10
PYRENE	µg/L	--	--	<10	<10

Notes:

mg/L milligrams per liter
µg/L micrograms per liter

DQE Flags:

J Estimated result based on QC data or reported below RL
B Estimated result possibly biased high or false positive based on blank data
R Unusable data

Methods:

SW6010B/SW7470A Metals
SW8260B Volatile Organic Compounds (VOCs)
SW8270C Semi-Volatile Organic Compounds (SVOCs)

PREPARED/DATE
CHECKED/DATE

9/29/02
10/4/02

*Semiannual Status Report -- 2006
Dunn Field Groundwater IRA -- Year Eight First Half
MACTEC Project No. 6301-05-0006*

*7 December 2006
Revision 1*

APPENDIX A-4

QUALITY CONTROL SAMPLES

APPENDIX B

TIME TREND PLOTS FOR RECOVERY WELLS

FIGURE B-1

TIME TREND PLOTS FOR RECOVERY WELLS
SEMI-ANNUAL STATUS REPORT - 2006
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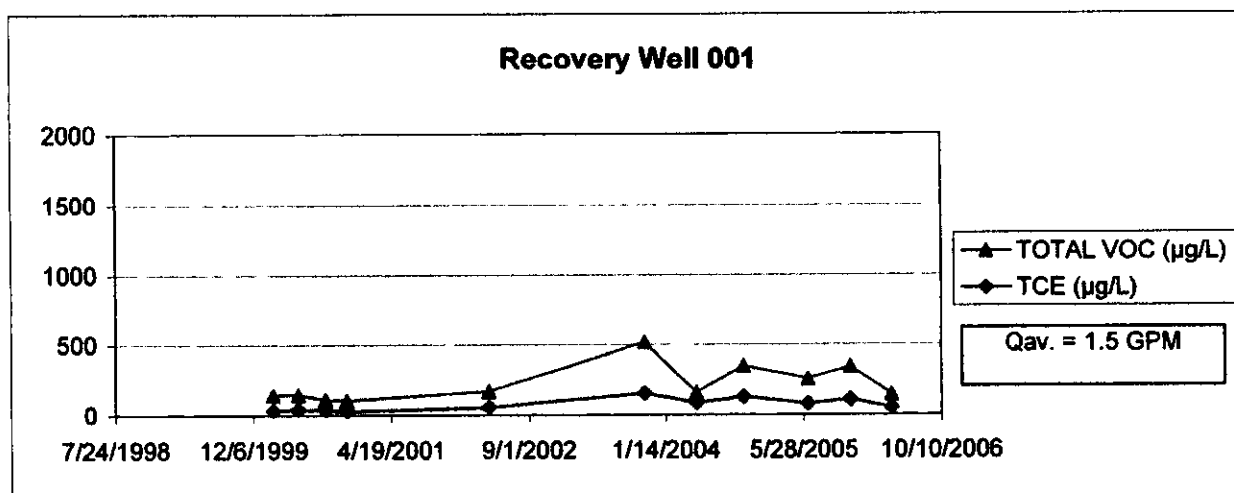
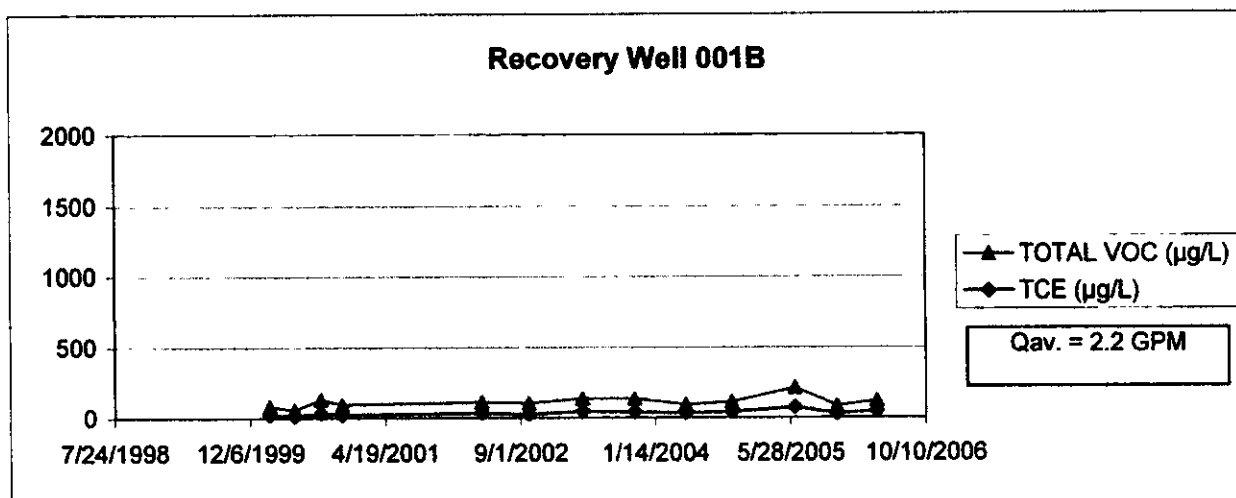
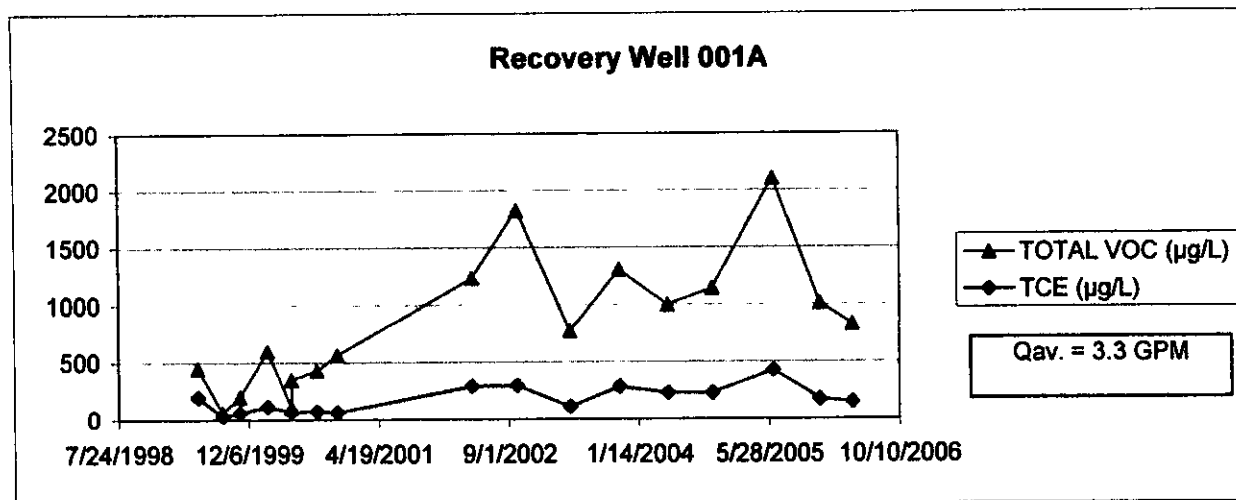


FIGURE B-1

**TIME TREND PLOTS FOR RECOVERY WELLS
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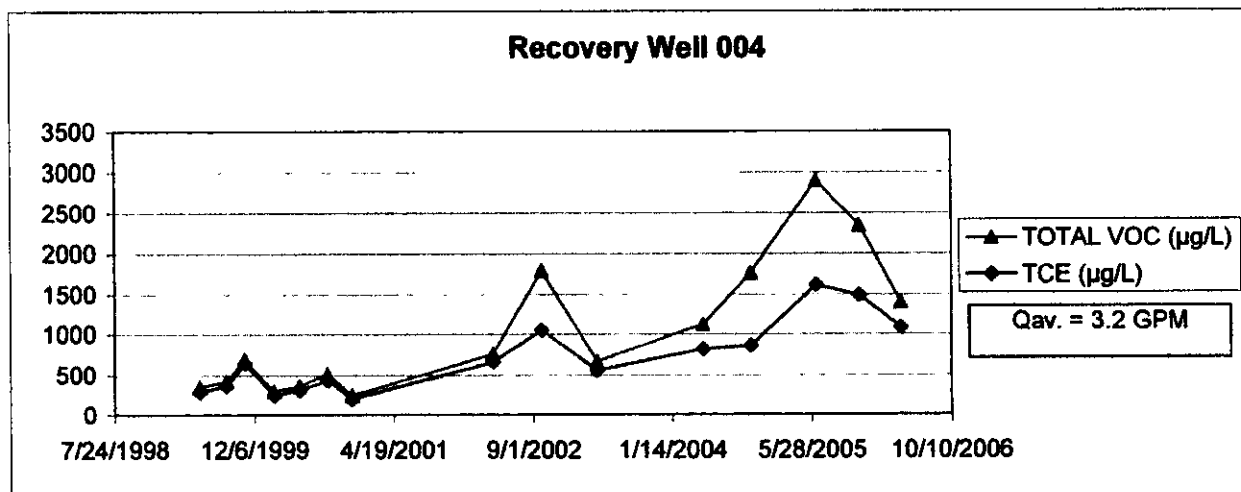
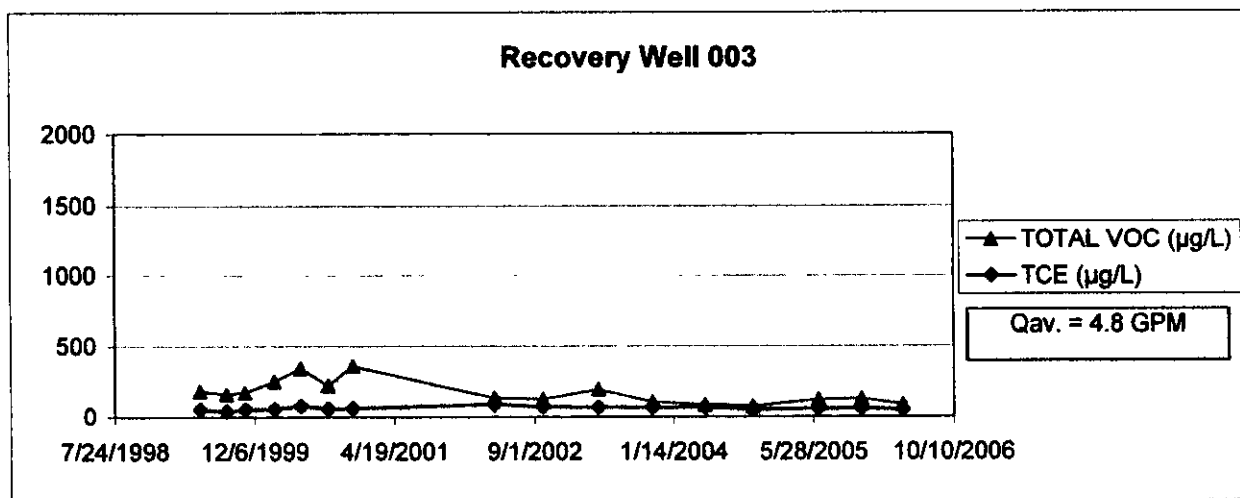
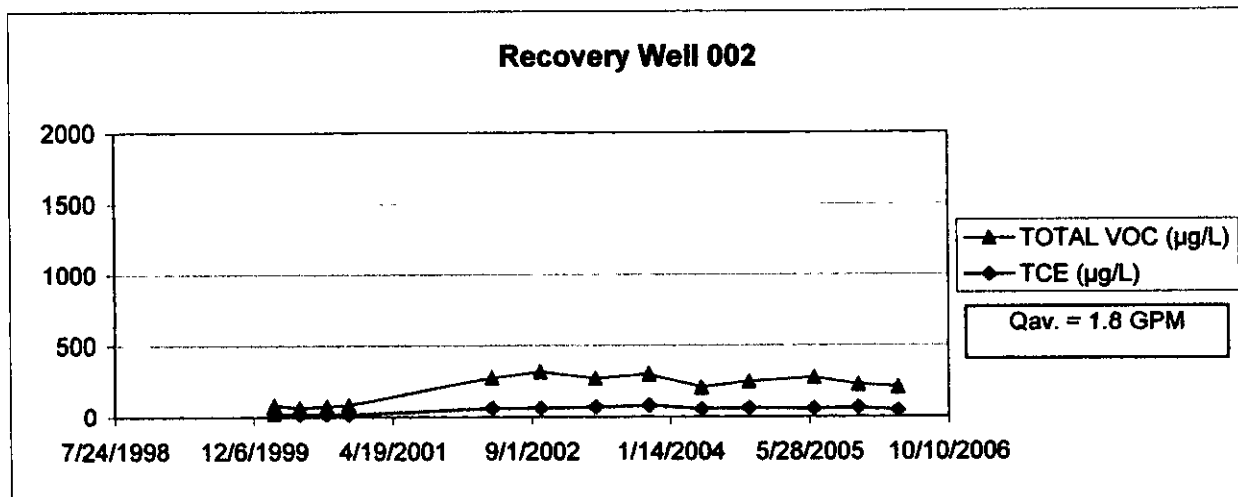


FIGURE B-1

TIME TREND PLOTS FOR RECOVERY WELLS
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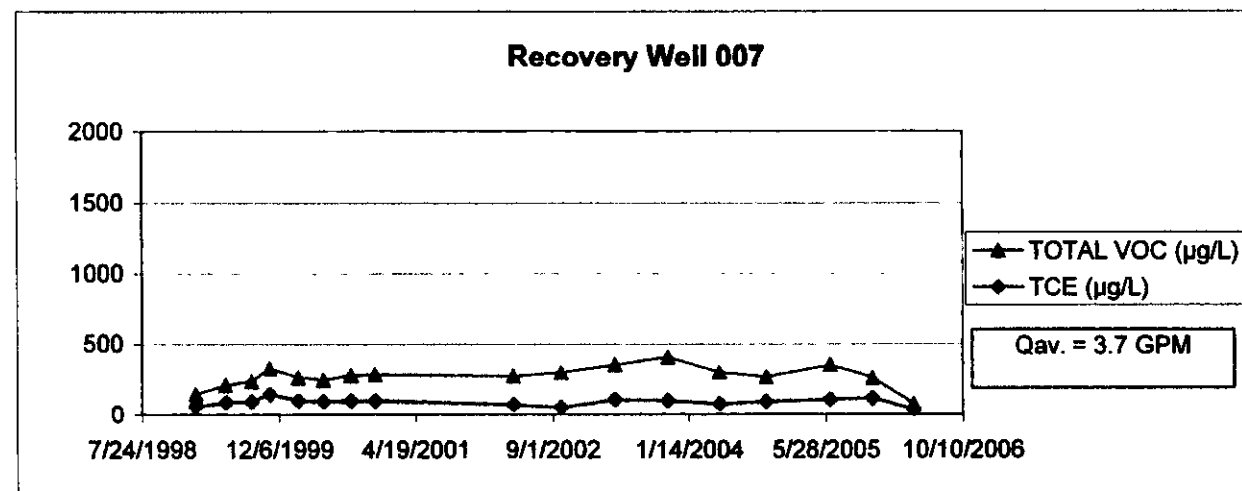
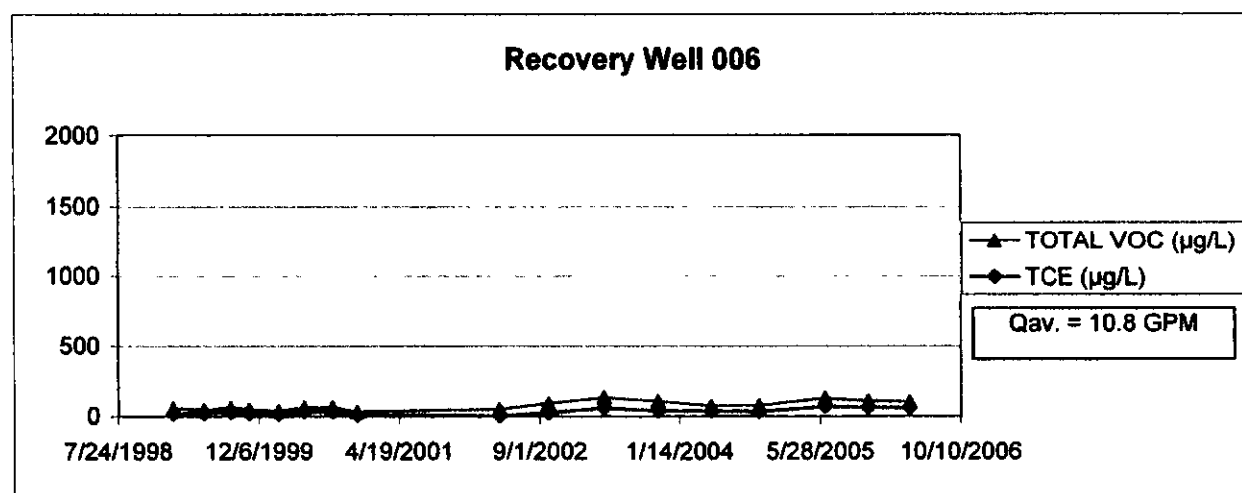
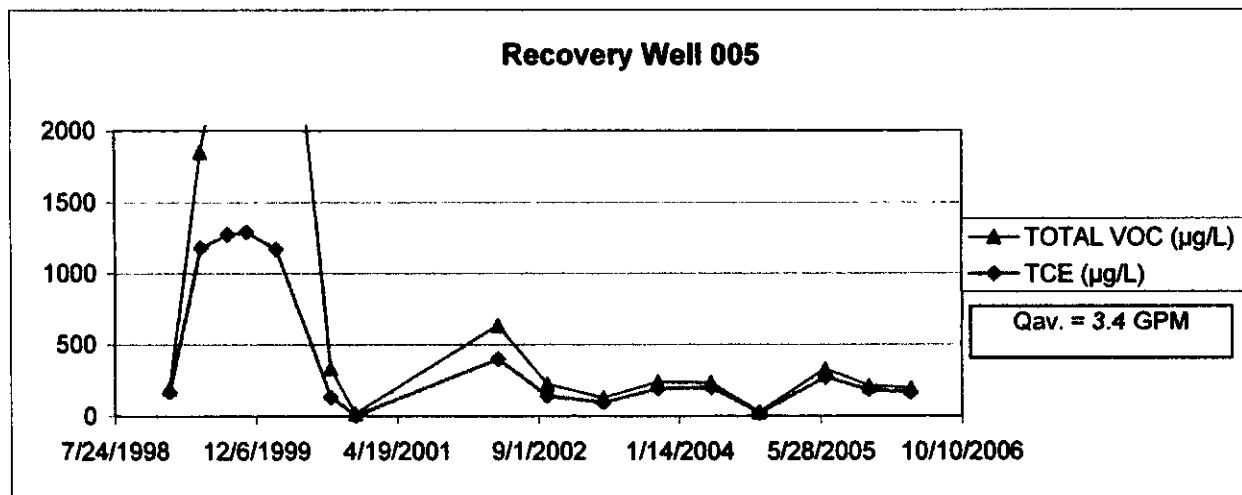
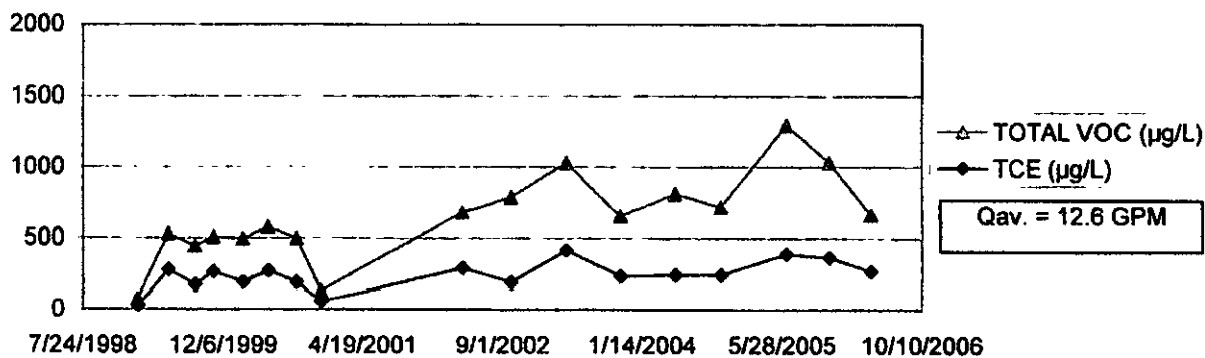
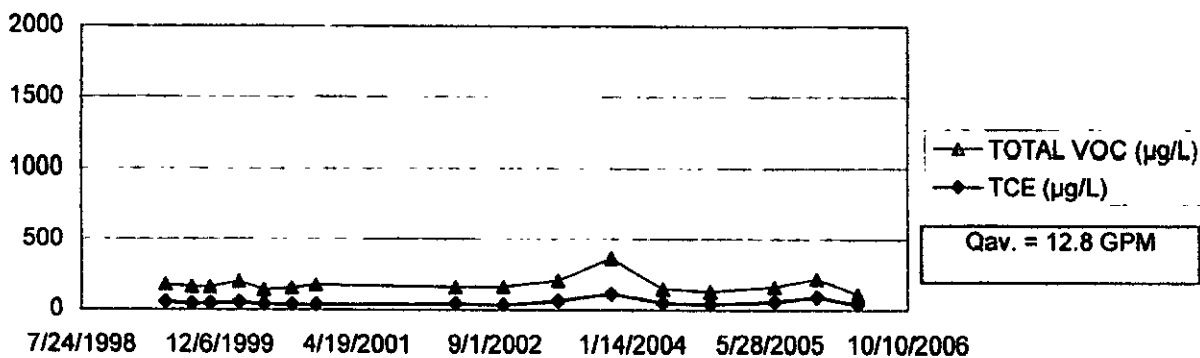


FIGURE B-1

**TIME TREND PLOTS FOR RECOVERY WELLS
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Recovery Well 008**Recovery Well 009**

PREPARED/DATE: *Ph. M. L. / 8/30/06*
 CHECKED/DATE: *Samuel Howard / 10/4/06*

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE