



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 934



Memorandum

To: Brian Renaghan, CIV AFCEE/EXA
Mike Dobbs, DES-DDC-EE

From: Lance Hines
Tom Holmes

Date: 31 March 2008

Re: January 2008 Long-term Monitoring
Main Installation
Defense Depot Memphis, Tennessee
FA8903-04-D-8722-0043

engineering-environmental Management, Inc (e2M) has prepared this report to present the results of the January 2008 Long-term Monitoring (LTM) for the Main Installation (MI) at Defense Depot Memphis, Tennessee (DDMT). This work was performed for the Defense Logistics Agency under Contract FA8903-04-D-8722, Task Order 0043 to the Air Force Center for Environmental Excellence.

Remedial Action Objectives (RAOs) for the MI include restoration of groundwater quality to levels at or less than maximum contaminant levels (MCLs). This RAO is to be met by enhanced bioremediation in the treatment areas and by monitored natural attenuation (MNA) outside those areas.

LTM is being performed in accordance with the LTM plan in Appendix B of *Main Installation Final Remedial Design, Rev. 1* (CH2MHILL, 2004) and the recommendations in the *Annual Long-Term Monitoring Report, Main Installation, Rev. 1* (MACTEC, 2006). Groundwater sampling was performed in accordance with the *Remedial Action Sampling and Analysis Plan (RA SAP)* (MACTEC, 2005). The LTM wells were classified as boundary, background, performance or sentinel wells and assigned quarterly, semiannual, annual or biennial sampling frequencies. Updated well classifications and sample frequencies were provided in the July 2007 LTM report dated 21 January 2008. The current well classification and sample frequency, and the completed and planned sample events for all LTM wells are shown on Table 1.

The field activities consisted of quarterly groundwater sampling of designated LTM wells (27 existing wells). The well locations are shown on Figure 1.

FIELD ACTIVITIES

Water Level Measurements

Groundwater levels were measured on 7 January 2008 at the MI. Measurements were made using Solinst Model 101 water level meters with electronic sensors and tapes graduated in 0.01-foot increments. The water level measurements are shown on Table 2.

Groundwater Sampling

e²M collected groundwater samples from 27 of the 28 designated monitoring wells on 8 and 9 January 2008. One well (MW-213) was dry at the time of sampling, as it has been since installation.

Groundwater samples were collected from 26 wells using bladder pumps and low-flow purging methods. Dedicated Teflon® bladders and Teflon®-lined polyethylene tubing were used for each of these wells. The pumping rate at each well was set such that the water levels would not decline more than 1.2 inches (0.1 foot). One monitoring well (MW-212) was sampled with a bailer. A pump could not be used in this well due to the slow recharge and thin saturated layer.

Water quality parameters were measured at approximately 3 to 10 minute intervals during purging using a flow-through cell with a Horiba U-22XD. Well MW-212, which was sampled with a bailer, had stabilization parameters collected using the same instrumentation. A sampling cup was filled from the bailer and a set of stabilization parameters were collected for every well volume. The units were calibrated each morning prior to sampling, and if abnormal readings were observed during the day, the instruments were recalibrated in the field. All measurements were recorded on the field sampling forms.

Purging continued at each well for up to two hours in order to meet the stabilization criteria: three successive readings within 0.1 for pH, 10 millivolts for oxygen reduction potential (ORP), 3 percent for specific conductance, 10 percent for dissolved oxygen (DO) and <20 nephelometric turbidity units (NTU) for turbidity. Temperature was also measured and recorded but was not used as a stabilization parameter. Samples were collected when stabilization criteria were met or the field team leader approved the variance from the criteria. The final stabilization measurements are shown on Table 3. The following samples were collected without meeting the stabilization criteria:

- Samples were collected by bailer from MW-212 with an out-of-range turbidity after the well had three well volumes bailed.

Samples were sent to Kemron Environmental Services in Marietta, Ohio, for laboratory analysis. The samples were analyzed for volatile organic compounds (VOCs) by method 8260B.

IDW Management

The waste generated during groundwater sampling in January 2008 was classified as either non-investigative waste or IDW. Non-investigative waste, such as packaging materials, personal protective equipment, disposable sampling supplies, and other inert refuse, was collected, containerized, and transported to a designated collection bin for disposal at a municipal landfill.

The groundwater from purging was collected and stored in a 500 gallon plastic tank. When the tank is full, a sample will be collected and after approval from the City of Memphis the water will be pumped to the sanitary sewer.

SUMMARY OF FINDINGS

The groundwater elevation contour map (Figure 2) is similar to previous groundwater maps. Groundwater flow near TTA-1 is to the east and northeast, with an approximate gradient of 0.003 ft/ft (MW-22 to MW-199B). The groundwater flow near TTA-2 is to the

west-southwest, with an approximate gradient of 0.009 (MW-92 to MW-26). The gradient in the 'window' is 0.021 (MW-38 to MW-140).

Analytical Results

A total of 27 groundwater samples were collected from LTM wells in January 2007. The complete analytical results are presented in Appendix A. Table 4 lists the analytical results for all constituents detected above the RL in one or more samples. A total of nine VOCs were detected above RLs in the October 2007 samples.

The analytical results for the primary groundwater contaminants are summarized below:

Tetrachloroethene (PCE) was reported in 21 wells with a maximum concentration of 198 µg/L in MW-208A. The MCL (5 µg/L) was exceeded in 19 wells.

Trichloroethene (TCE) was reported in 23 wells with a maximum concentration of 109 µg/L in MW-207B. The MCL (5 µg/L) was exceeded in 16 wells.

cis 1,2-Dichloroethene (cDCE) was reported in five wells with a maximum concentration of 58.6 µg/L in MW-203B. The MCL (70 µg/L) was not exceeded.

Carbon Tetrachloride (CT) was reported in three wells with a maximum concentration of 57.3 µg/L in MW-217. The MCL (5 µg/L) was exceeded in two wells.

Chloroform (CF) was reported in eight wells with a maximum concentration of 10.6 µg/L in MW-207A. The MCL (80 µg/L for total trihalomethanes) was not exceeded.

The analytical results for other contaminants are summarized as follows:

1, 2-Dichloroethane was reported in two wells with a maximum concentration of 1.06 µg/L in MW-219. The MCL (5 µg/L) was not exceeded.

1,1,2,2-Tetrachloroethane (PCA) was reported in three wells with a maximum concentration of 1.61 µg/L in MW-218.

1,2,3-Trichloropropane was reported in MW-217 with a concentration of 2.2 µg/L.

Carbon disulfide was reported in MW-203A with a concentration of 1.77 µg/L.

CONCLUSIONS AND RECOMMENDATIONS

The concentrations of PCE and TCE in the January 2008 LTM samples are shown on Figure 3. The analytical results were similar to the results for previous LTM samples, as shown on Table 5.

Proposed classifications for the 28 monitoring wells installed on the Main Installation in March-April 2007 (MW-203 through MW- 219) and at Dunn Field in August 2007 (MW-229) are listed on Table 6. Criteria for monitoring well classifications were established in the LTM Plan (Table 4-1). Twenty-one wells are proposed as Performance wells based on their location within contaminant plumes. Six wells are proposed as Sentinel wells based on their location in the fluvial or intermediate aquifer within or adjacent to the window to the intermediate aquifer. One well (MW-219) is proposed as a Boundary well based on its location along the Main Installation boundary.

Sample frequency for these wells is also shown on Table 6, in accordance with the guidelines in the LTM Plan (Section 5.2). Based on the well locations and past analytical results, 24 of the 28 wells are proposed for semiannual sampling based on CVOC concentrations at or above MCLs. CVOCs have not been detected above reporting limits in MW-211, MW-216 and MW-229 and annual sampling is proposed at those wells.

Although only two samples have been collected at MW-229, the results are similar to those at MW-36, which this well replaced. No sample frequency is proposed at MW-213 since it has been dry since installation; it will be checked during each LTM event and sampled when sufficient water is present.

TABLES

- | | |
|---|--|
| 1 | LTM Sample Schedule |
| 2 | Water Level Measurements |
| 3 | Well Stabilization Summary |
| 4 | Analytical Results Summary, VOCs |
| 5 | Past Analytical Results for New Wells, PCE and TCE |
| 6 | Proposed Well Classification and Sample Frequency |

TABLE 1
LTM SAMPLE SCHEDULE
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

Well ID	Well Type	Current Sample Frequency(1)	Biennial Oct-06	QTR Jan-07	SA Apr-07	QTR Jul-07	Annual Oct-07	QTR Jan-08	SA Apr-08	QTR Jul-08	Biennial Oct-08
MW16	Background	Biennially	X	-	-	-	-	-	-	-	P
MW19	Background	Biennially	X	-	-	-	-	-	-	-	P
MW21	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
MW22	Boundary	Biennially	X	-	-	-	-	-	-	-	P
MW23	Boundary	Biennially	X	-	-	-	-	-	-	-	P
MW24	Boundary	Biennially	X	-	-	-	-	-	-	-	P
MW25A	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW26	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW34	Sentinel	Annually	X	-	-	-	X	-	-	-	P
MW36 (2)	Sentinel	Annually	X	-	-	-	-	-	-	-	-
MW38	Sentinel	Annually	X	-	-	-	X	-	-	-	P
MW39	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW39A	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW50	Boundary	Biennially	X	-	-	-	-	-	-	-	P
MW52	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW53	Background	Biennially	X	-	-	-	-	-	-	-	P
MW55	Background	Biennially	X	-	-	-	-	-	-	-	P
MW62	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW63A	Sentinel	Annually	X	-	-	-	X	-	-	-	P
MW63B	Sentinel	Annually	X	-	-	-	X	-	-	-	P
MW64	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW66A	Background	Biennially	X	-	-	-	-	-	-	-	P
MW85	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
MW86	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW88	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW89	Sentinel	Annually	X	-	-	-	X	-	-	-	P
MW90	Sentinel	Semiannually	X	-	X	-	X	-	P	-	P
MW92	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW93	Boundary	Annually	X	-	-	-	X	-	-	-	P
MW94A	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW96	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW97	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW98	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW99	Background	Annually	X	-	-	-	X	-	-	-	P
MW100B	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW101	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
MW102B	Boundary	Annually	X	-	-	-	X	-	-	-	P
MW103	Performance	Annually	X	-	-	-	X	-	-	-	P
MW104	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW107T	Sentinel	Annually	X	-	-	-	-	-	P	-	P
MW107B	Sentinel	Annually	X	-	-	-	X	-	P	-	P
MW108	Sentinel	Semiannually	X	-	X	-	X	-	P	-	P
MW113	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW115	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
MW125	Performance	Semiannually	X	-	X	-	X	-	P	-	P
MW140	Sentinel	Annually	X	-	-	-	X	-	-	-	P
MW141	Sentinel	Semiannually	X	-	X	-	X	-	P	-	P
MW142	Performance	Annually	X	-	-	-	X	-	-	-	P
MW143	Background	Biennially	X	-	-	-	-	-	-	-	P
MW-197A	Performance	Semiannually	X	X	X	X	X	-	P	-	P
MW-197B	Performance	Semiannually	X	X	X	X	X	-	P	-	P
MW-198	Performance	Semiannually	X	X	X	X	X	-	P	-	P
MW-199A	Sentinel	Annually	X	X	X	X	X	-	-	-	P
MW-199B	Performance	Semiannually	X	X	X	X	X	-	P	-	P
MW-200	Performance	Semiannually	X	X	X	X	X	-	P	-	P
MW-202A	Sentinel	Semiannually	X	X	X	X	X	-	P	-	P
MW-202B	Sentinel	Semiannually	X	X	X	X	X	-	P	-	P
MW-203A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-203B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-204A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-204B	Performance	TBD	-	-	X	X	X	X	P	-	P

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MW-205A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-205B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-206A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-206B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-207A	Sentinel	TBD	-	-	X	X	X	X	P	-	P
MW-207B	Sentinel	TBD	-	-	X	X	X	X	P	-	P
MW-208A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-208B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-209A	Sentinel	TBD	-	-	X	X	X	X	P	-	P
MW-209B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-210A	Sentinel	TBD	-	-	X	X	X	X	P	-	P
MW-210B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-211	Sentinel	TBD	-	-	X	X	X	X	P	-	P
MW-212	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-213	Performance	TBD	-	-	X	X	NS	NS	P	-	P
MW-214A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-214B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-215A	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-215B	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-216	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-217	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-218	Performance	TBD	-	-	X	X	X	X	P	-	P
MW-219	Boundary	TBD	-	-	X	X	X	X	P	-	P
MW-229 (2)	Sentinel	TBD	-	-	-	-	X	X	P	-	P
DR1-1	Performance	Annually	X	-	-	-	X	-	-	-	P
DR1-1A	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR1-2	Performance	Annually	X	-	-	-	X	-	-	-	P
DR1-3	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
DR1-4	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR1-5	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR1-5A	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR1-6	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR1-6A	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR1-7	Performance	Annually	X	-	-	-	X	-	-	-	P
DR1-8	Performance	Annually	X	-	-	-	X	-	-	-	P
DR2-1	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
DR2-2	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR2-3	Performance	Semiannually	X	-	X	-	X	-	P	-	P
DR2-4	Performance	Annually	X	-	-	-	X	-	-	-	P
DR2-5	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
DR2-6	Performance	Semiannually	X	-	X	-	X	-	P	-	P
IW-01	Performance	Semiannually	EBT	-	-	-	-	-	-	-	-
IW-06	Performance	Annually	X	-	-	-	X	-	-	-	P
PZ-03	Performance	Annually	X	-	-	-	X	-	-	-	P
PZ-06	Performance	Annually	X	-	-	-	X	-	-	-	P
PZ-07	Performance	Annually	X	-	-	-	NS	-	-	-	-

Notes:

- 1) Sample frequency established in Annual LongTerm Monitoring Report (MACTEC, 2006) and updated in July 2007 LTM Report (e²M, 2008).
 - 2) In August 2007, MW-36 was abandoned and MW-229 was installed as a replacement.
- X: Sample collected
P: Sample planned
-: Sample not planned or collected
EBT: Well included in EBT sampling program, not sampled for LTM
NS: Sample planned but not collected (In Oct-2007:PZ-06 was blocked and MW-213 was dry)
TBD: Sample frequency to be determined following initial year of quarterly monitoring

TABLE 2
WATER LEVEL MEASUREMENTS
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Top of Casing Elevation (ft, msl)	Top of Screen Elevation (ft, msl)	Depth to Water	Groundwater Elevation
				7-Jan-2008 (ft, btoc)	7-Jan-2008 (ft, msl)
MW-16	Fluvial	299.86	242.26	58.80	241.06
MW-19	Fluvial	290.57	207.47	86.92	203.65
MW-22	Fluvial	298.04	202.64	95.34	202.70
MW-23	Fluvial	298.99	197.79	97.63	201.36
MW-24	Fluvial	299.51	202.21	104.65	194.86
MW-25A	Fluvial	269.88	196.88	71.54	198.34
MW-26	Fluvial	303.69	206.09	99.50	204.19
MW-34	Intermediate	299.97	163.37	135.62	164.35
MW-38	Intermediate	307.45	167.55	132.20	175.25
MW-39	Fluvial	296.28	200.78	102.44	193.84
MW-39A	Fluvial	298.45	150.53	102.65	195.80
MW-50	Fluvial	298.82	183.82	85.73	213.09
MW-52	Fluvial	279.26	185.26	79.53	199.73
MW-53	Fluvial	306.38	233.88	74.11	232.27
MW-55	Fluvial	292.08	228.08	71.74	220.34
MW-62	Fluvial	293.65	207.65	94.04	199.61
MW-63A	Fluvial/Intermediate	305.96	165.96	105.79	200.17
MW-63B	Fluvial/Intermediate	305.78	190.78	105.72	200.06
MW-64	Fluvial	304.21	202.21	107.12	197.09
MW-66A	Fluvial	284.22	209.60	78.42	205.80
MW-86	Fluvial	304.35	206.85	96.39	207.96
MW-88	Fluvial	305.15	223.15	79.99	225.16
MW-89	Intermediate	303.98	156.98	115.69	188.29
MW-90	Intermediate	304.19	189.19	116.00	188.19
MW-92	Fluvial	304.41	211.41	95.16	209.25
MW-93	Fluvial	294.08	202.08	100.29	193.79
MW-94A	Fluvial	303.00	193.38	107.65	195.35
MW-96	Fluvial	289.02	213.52	81.88	207.14
MW-97	Fluvial	297.44	199.94	97.83	199.61
MW-98	Fluvial	294.43	157.43	98.20	196.23
MW-99	Fluvial	285.33	193.83	86.18	199.15
MW-100B	Fluvial	291.06	183.56	89.85	201.21
MW-103	Fluvial	301.35	231.35	69.71	231.64
MW-104	Fluvial	295.76	225.26	63.27	232.49

TABLE 2
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 Main Installation - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Top of Casing		Top of Screen		Depth to	Groundwater
		Elevation		Elevation		Water	Elevation
		(ft, msl)	(ft, msl)	(ft, msl)	(ft, msl)	7-Jan-2008 (ft, btoc)	(ft, msl)
MW-107	Fluvial/Intermediate	304.92	176.92	110.38	194.54		
MW-108	Fluvial/Intermediate	303.07	143.07	108.80	194.27		
MW-113	Fluvial	304.81	208.81	97.13	207.68		
MW-125	Fluvial	291.35	197.35	89.96	201.39		
MW-140	Intermediate	298.12	73.52	138.81	159.31		
MW-141	Intermediate	303.71	155.01	113.66	190.05		
MW-142	Fluvial	291.18	206.18	92.79	198.39		
MW-143	Fluvial	290.56	212.06	—	—		
MW-197A	Fluvial	291.26	129.30	94.29	196.97		
MW-197B	Fluvial	291.03	196.88	94.20	196.83		
MW-198	Fluvial	291.50	201.47	94.99	196.51		
MW-199A	Intermediate	301.53	155.45	110.28	191.25		
MW-199B	Fluvial	301.73	197.12	106.04	195.69		
MW-200	Fluvial	300.18	196.98	104.73	195.45		
MW-202A	Intermediate	299.23	122.73	123.90	175.33		
MW-203A	Fluvial	290.59	147.65	92.80	197.79		
MW-202B	Intermediate	299.51	180.42	123.40	176.11		
MW-203B	Fluvial	290.51	197.68	92.73	197.78		
MW-204A	Fluvial	292.21	158.95	95.40	196.81		
MW-204B	Fluvial	292.32	197.83	95.40	196.92		
MW-205A	Fluvial	291.93	150.96	95.71	196.22		
MW-205B	Fluvial	291.82	194.82	95.50	196.32		
MW-206A	Fluvial	299.92	172.58	104.60	195.32		
MW-206B	Fluvial	299.90	203.18	104.59	195.31		
MW-207A	Fluvial	303.78	154.13	109.41	194.37		
MW-207B	Fluvial	303.83	195.58	109.02	194.81		
MW-208A	Fluvial	301.50	118.05	106.50	195.00		
MW-208B	Fluvial	301.79	195.13	106.55	195.24		
MW-209A	Fluvial	298.05	109.07	104.82	193.23		
MW-209B	Fluvial	298.49	196.17	102.75	195.74		
MW-210A	Intermediate	289.66	112.60	99.29	190.37		
MW-210B	Fluvial	289.29	192.33	92.62	196.67		
MW-211	Intermediate	303.74	137.48	110.81	192.93		
MW-212	Fluvial	295.34	209.69	98.79	196.55		

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Main Installation - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Top of Casing	Top of Screen	Depth to	Groundwater
		Elevation	Elevation	Water	Elevation
		(ft, msl)	(ft, msl)	7-Jan-2008	(ft, msl)
				(ft, btoc)	
MW-213	Fluvial	293.83	216.92	DRY	--
MW-214A	Fluvial	303.61	184.53	104.45	199.16
MW-214B	Fluvial	303.70	202.13	104.13	199.57
MW-215A	Fluvial	304.50	175.75	109.14	195.36
MW-215B	Fluvial	304.56	199.15	109.76	194.80
MW-216	Fluvial	297.34	197.41	97.48	199.86
MW-217	Fluvial	304.18	202.39	107.12	197.06
MW-218	Fluvial	305.60	206.69	103.55	202.05
MW-219	Fluvial	294.90	197.16	91.96	202.94
MW-229	Intermediate	311.77	123.34	152.02	159.75
DR1-1	Fluvial	293.09	171.42	91.75	201.34
DR1-1A	Fluvial	293.13	203.79	91.67	201.46
DR1-2	Fluvial	290.08	192.28	89.85	200.23
DR1-4	Fluvial	292.78	186.50	91.93	200.85
DR1-5	Fluvial	294.50	169.28	92.91	201.59
DR1-5A	Fluvial	294.61	204.88	92.99	201.62
DR1-6	Fluvial	292.98	177.14	91.66	201.32
DR1-6A	Fluvial	293.14	202.32	91.74	201.40
DR1-7	Fluvial	289.15	180.86	90.26	198.89
DR1-8	Fluvial	290.02	197.37	88.99	201.03
DR2-2	Fluvial	304.37	225.37	81.71	222.66
DR2-3	Fluvial	303.44	210.44	97.24	206.20
DR2-4	Fluvial	303.47	215.47	94.43	209.04
DR2-6	Fluvial	304.70	210.10	101.38	203.32
PZ-03	Fluvial	298.51	189.61	102.94	195.57
PZ-06	Fluvial	302.74	213.34	78.10	224.64
PZ-07	Fluvial	304.72	203.42	7.92	296.80
IW-6	Fluvial	291.94	192.94	90.40	201.54

TABLE 3
WELL STABILIZATION SUMMARY
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

Well ID	Sample Date	Sample Method	Sample Time	Sample Pump Depth ft, btoc	Water Depth ft, btoc	Purge Rate mL/min	Volume Purged Liters	pH	Temp °C	Specific Conductivity mS/cm	DO mg/L	ORP mV	Turbidity NTUs
MW-203A	1/8/2008	DP	8:30	150.5	92.65	280	6.16	6.07	18.02	0.319	1.89	98.1	-0.13
MW-203B	1/8/2008	DP	12:25	100.3	92.58	100	3.48	6.43	19.92	0.518	3.29	93.0	17.00
MW-204A	1/8/2008	DP	10:40	139.0	95.25	240	6.60	6.15	18.64	0.431	7.61	158.2	-1.83
MW-204B	1/8/2008	DP	8:50	100.5	95.36	120	4.28	6.02	18.75	0.388	5.00	141.0	19.20
MW-205A	1/8/2008	DP	13:43	147.0	95.46	400	18.24	6.18	18.72	0.348	6.63	1.7	-3.49
MW-205B	1/8/2008	DP	10:45	103.1	95.41	60	3.02	6.00	19.68	0.340	6.28	204.0	10.60
MW-206A	1/8/2008	DP	12:30	134.8	104.46	400	8.00	6.08	18.64	0.320	8.60	160.3	-2.39
MW-206B	1/8/2008	DP	8:15	107.9	104.82	200	4.42	6.00	17.15	0.291	6.50	177.0	0.00
MW-207A	1/8/2008	DP	11:03	157.2	109.69	400	16.26	5.82	5.82	0.553	2.68	4.2	-3.42
MW-207B	1/8/2008	DP	12:05	115.6	108.31	200	3.62	5.88	18.09	0.162	6.92	210.0	0.00
MW-208A	1/8/2008	DP	11:20	191.0	106.4	280	7.80	6.07	18.8	0.321	9.48	150.2	3.88
MW-208B	1/8/2008	DP	9:00	114.2	106.9	160	3.22	6.09	16.42	0.197	7.98	183.0	4.40
MW-209A	1/8/2008	DP	9:38	185.3	104.96	115	9.20	5.92	17.21	0.227	9.62	123.0	-2.19
MW-209B	1/8/2008	DP	14:15	108.3	102.45	80	3.00	5.68	20.4	0.100	8.06	232.0	2.40
MW-210A	1/8/2008	DP	9:33	184.5	99.15	200	8.00	6.29	18.22	0.307	15.79	167.4	1.58
MW-210B	1/8/2008	DP	13:15	104.5	92.45	45	3.14	5.94	18.92	0.230	6.97	202.0	11.50
MW-211	1/8/2008	DP	12:23	174.0	110.93	132	8.58	5.85	18.66	0.419	4.16	74.8	12.10
MW-212	1/8/2008	B	14:11	NA	98.86	NA	3.90	6.51	17.93	0.116	9.14	106.0	OR
MW-213	1/8/2008	*	13:22	*	92.11	*	*	*	*	*	*	*	*
MW-214A	1/8/2008	DP	13:12	126.6	104.55	228	6.84	5.78	19.07	0.310	5.09	99.2	4.12
MW-214B	1/8/2008	DP	11:25	109.6	104.51	200	3.14	5.92	18.81	0.300	4.63	182.0	0.00
MW-215A	1/8/2008	DP	14:02	136.3	108.75	230	4.60	5.80	19.38	0.315	5.02	125.4	-2.99
MW-215B	1/8/2008	DP	14:36	114.4	109.82	320	8.00	5.87	19.18	0.331	6.47	134.7	12.00
MW-216	1/8/2008	DP	9:35	107.4	97.39	120	3.26	6.12	18.68	0.495	7.68	193.0	15.60
MW-217	1/8/2008	DP	9:40	111.0	107.32	200	3.72	5.82	18.08	0.193	5.36	220.0	10.60
MW-218	1/8/2008	DP	10:35	108.2	103.75	160	3.36	5.99	18.38	0.231	4.81	157.0	0.00
MW-219	1/8/2008	DP	13:15	105.2	92.02	200	3.74	6.09	18.1	0.269	4.59	220.0	0.00
MW-229	1/8/2008	DP	8:28	199.0	151.51	280	10.88	6.78	17.47	0.302	1.25	-121.9	1.23

DP: Dedicated bladder pump, low flow sampling

B: Baller

*: not enough water in well for sample.

NA: Not available

DO: Dissolved Oxygen

ORP: Oxygen Reduction Potential

btoc: below top of casing

mL/min: milliliters per minute

°C: degrees Celsius

mS/cm: millisiemens per centimeter

mg/L: milligrams per liter

mV: millivolts

OR: Out of range

TABLE 4
ANALYTICAL RESULTS SUMMARY, VOCs
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

WELL ID	MW-203A	MW-203A DUP	MW-203B	MW-204A	MW-204B	MW-205A
FIELD ID	MW-203A-LQ-6	MW-203A DUP	MW-203B-LQ-6	MW-204A-LQ-6	MW-204B-LQ-6	MW-205A-LQ-6
LAB ID	L08010178-08	L08010178-16	L08010178-01	L08010178-09	L08010178-02	L08010178-10
Date	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008
parm_syn	Method	Units				
1,1,2,2-Tetrachloroethane	8260B	ug/L	<0.5	<0.5	0.734	<0.5
1,2,3-Trichloropropane	8260B	ug/L	<1	<1	<1	<1
1,2-Dichloroethane	8260B	ug/L	<0.5	<0.5	<0.5	<0.5
Carbon disulfide	8260B	ug/L	1.77	<1	<1	<1
Carbon tetrachloride	8260B	ug/L	<1	<1	<1	<1
Chloroform	8260B	ug/L	0.172 J	<0.3	<0.3	0.165 J
cis-1,2-Dichloroethene	8260B	ug/L	0.972 J	58.6	0.922 J	3.12
Tetrachloroethene	8260B	ug/L	108	9.39	42.7	153
Trichloroethene	8260B	ug/L	1.93	6.31	1.12	6.14

<: Not detected above Reporting Limit (RL)
J: Estimated Result

TABLE 4
ANALYTICAL RESULTS SUMMARY, VOCs
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

WELL ID	MW-205B	MW-206A	MW-206B	MW-207A	MW-207B	MW-207B DUP
FIELD ID	MW-205B-LQ-6	MW-206A-LQ-6	MW-206B-LQ-6	MW-207A-LQ-6	MW-207B-LQ-6	MW-207B DUP
LAB ID	L08010178-03	L08010178-11	L08010208-01	L08010208-13	L08010208-02	L08010208-11
Date	1/8/2008	1/8/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008
parm_syn	Method	Units				
1,1,2,2-Tetrachloroethane	8260B	ug/L	<0.5	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	8260B	ug/L	<1	<1	<1	<1
1,2-Dichloroethane	8260B	ug/L	<0.5	<0.5	<0.5	<0.5
Carbon disulfide	8260B	ug/L	<1	<1	<1	<1
Carbon tetrachloride	8260B	ug/L	<1	0.44 J	1.13	1.16
Chloroform	8260B	ug/L	0.146 J	0.147 J	1.26	1.26
cis-1,2-Dichloroethene	8260B	ug/L	26.4	0.688 J	<1	<1
Tetrachloroethene	8260B	ug/L	82.3	69.5	13	12.9
Trichloroethene	8260B	ug/L	9.75	11.7	109	112

<: Not detected above Reporting Limit (RL)
J: Estimated Result

TABLE 4
ANALYTICAL RESULTS SUMMARY, VOCs
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

WELL ID	MW-208A	MW-208B	MW-209A	MW-209B	MW-210A	MW-210B
FIELD ID	MW-208A-LQ-6	MW-208B-LQ-6	MW-209A-LQ-6	MW-209B-LQ-6	MW-210A-LQ-6	MW-210B-LQ-6
LAB ID	L08010178-12	L08010208-03	L08010208-14	L08010178-04	L08010178-13	L08010178-05
Date	1/8/2008	1/9/2008	1/9/2008	1/8/2008	1/8/2008	1/8/2008
parm_syn	Method	Units	Units	Units	Units	Units
1,1,2,2-Tetrachloroethane	8260B	ug/L	<0.5	0.395 J	<0.5	<0.5
1,2,3-Trichloropropane	8260B	ug/L	<1	<1	<1	<1
1,2-Dichloroethane	8260B	ug/L	<0.5	<0.5	<0.5	<0.5
Carbon disulfide	8260B	ug/L	<1	<1	<1	<1
Carbon tetrachloride	8260B	ug/L	<1	<1	<1	<1
Chloroform	8260B	ug/L	0.221 J	<0.3	0.131 J	0.149 J
cis-1,2-Dichloroethene	8260B	ug/L	0.56 J	0.932 J	<1	0.529 J
Tetrachloroethene	8260B	ug/L	198	1.68	0.357 J	19.8
Trichloroethene	8260B	ug/L	8.45	13.2	23.3	8.46
				11.7	5.55	

<: Not detected above Reporting Limit (RL)
J: Estimated Result

TABLE 4
ANALYTICAL RESULTS SUMMARY, VOCs
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

WELL ID	MW-211	MW-212	MW-214A	MW-214B	MW-215A	MW-215B
FIELD ID	MW-211-LQ-6	MW-212-LQ-6	MW-214A-LQ-6	MW-214B-LQ-6	MW-215A-LQ-6	MW-215B-LQ-6
LAB ID	L08010208-15	L08010208-06	L08010208-16	L08010208-07	L08010208-17	L08010208-18
Date	1/9/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008
parm_syn	Method	Units				
1,1,2,2-Tetrachloroethane	8260B	ug/L	<0.5	0.279 J	0.223 J	0.172 J
1,2,3-Trichloropropane	8260B	ug/L	<1	<1	<1	<1
1,2-Dichloroethane	8260B	ug/L	<0.5	<0.5	<0.5	<0.5
Carbon disulfide	8260B	ug/L	<1	<1	<1	<1
Carbon tetrachloride	8260B	ug/L	0.635 J	0.575 J	0.552 J	0.856 J
Chloroform	8260B	ug/L	<0.3	2.02	1.68	0.61
cis-1,2-Dichloroethene	8260B	ug/L	<1	<1	<1	<1
Tetrachloroethene	8260B	ug/L	<1	7.29	7.01	4.71
Trichloroethene	8260B	ug/L	43.9	3.65	10.2	1.36

<: Not detected above Reporting Limit (RL)
J: Estimated Result

TABLE 4
ANALYTICAL RESULTS SUMMARY, VOCs
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

WELL ID	MW-216	MW-217	MW-218	MW-219	MW-229	MW-229 DUP
FIELD ID	MW-216-LQ-6	MW-217-LQ-6	MW-218-LQ-6	MW-219-LQ-6	MW-229-LQ-6	MW-229 DUP
LAB ID	L08010178-06	L08010208-08	L08010208-09	L08010208-10	L08010208-19	L08010208-20
Date	1/8/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008
parm_syn	Method	Units				
1,1,2,2-Tetrachloroethane	8260B	ug/L	1.61	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	8260B	ug/L	<1	<1	<1	<1
1,2-Dichloroethane	8260B	ug/L	0.565	1.06	<0.5	<0.5
Carbon disulfide	8260B	ug/L	<1	<1	<1	<1
Carbon tetrachloride	8260B	ug/L	15	<1	<1	<1
Chloroform	8260B	ug/L	2.58	<0.3	<0.3	<0.3
cis-1,2-Dichloroethene	8260B	ug/L	0.352 J	0.875 J	<1	<1
Tetrachloroethene	8260B	ug/L	17.2	48	<1	<1
Trichloroethene	8260B	ug/L	42.5	3.74	<1	<1

<: Not detected above Reporting Limit (RL)
J: Estimated Result

TABLE 5
PAST ANALYTICAL RESULTS FOR NEW WELLS, PCE AND TCE
JANUARY 2008 LTM SUMMARY REPORT
Main Installation - Defense Depot Memphis, Tennessee

Well ID	Apr-07		Jul-07		Oct-07		Jan-08	
	PCE	TCE	PCE	TCE	PCE	TCE	PCE	TCE
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-203A	62.6	1.27	69.1 J	1.46	86.8	1.69	108	1.93
MW-203B	38.4	8.97	21.1	7.68	13.9	7.92	9.39	6.31
MW-204A	38.8	1.19	36.2	1.17	37	1.06	42.7	1.12
MW-204B	26.3	2.37	17.2	4.88	19	4.7	24.5	3.2
MW-205A	102	3.69	180	5.84	145	6.25	153	6.14
MW-205B	129	7.2	149	9.22	100	8.74	82.3	9.75
MW-206A	76.6	9.81	99.2	10.1	76.4	12.4	114	12
MW-206B	57.2	8.94	77.5	11	64.9	11	69.5	11.7
MW-207A	7.92	21.4	8.32	18.6	10.3	21.6	10.5	24.3
MW-207B	35.7	12.1	32.5	17.6	23.7	62	13	109
MW-208A	174 J	8.12	193	8.26	163	8.44	198	8.45
MW-208B	3.42	18.4	2.8	15.7	3.02	15	1.68	13.2
MW-209A	0.326 J	0.576 J	<1	0.487 J	<1	0.404 J	<1	0.467 J
MW-209B	<1	6.4	<1	7.2	<1	14.8	0.357 J	11.7
MW-210A	38.2	5.85	36.1	6.05	28.8	5.63	23.3	5.55
MW-210B	32.4	7.29	24.4	8.42	21	10.7	19.8	8.46
MW-211	<1	0.536 J	<1	0.576 J	<1	0.436 J	0.502 J	0.602 J
MW-212	<1	34.4	<1	47.9	0.516 J	41.7	<1	43.9
MW-213	Dry		Dry		Dry		Dry	
MW-214A	8.83	5.59	6.81	4.49	6.99	4.11	7.29	3.65
MW-214B	6.4	4.24	6	3.83	4.89	3.06	5.44	2.88
MW-215A	5.81	7.82	5.58	8.12	6.95	7.79	7.01	10.2
MW-215B	4.36	1.52	4.39	1.53	4.49	1.47	4.71	1.36
MW-216	<1	<1	<1	<1	<1	<1	<1	<1
MW-217	18.4	29.5	25.4	40.6 J	31.3	39.4	31.7	35.9
MW-218	17.7	44.2	16.7	47.6	18.5	42.8	17.2	42.5
MW-219	16.3	1.72	27.6	2.79	33.9	3.37	48	3.74
MW-229	-	-	-	-	<1	0.321 J	<1	<1

Notes

PCE: tetrachloroethene

TCE: trichloroethene

J: estimated value

< : less than the reporting limit

- : not sampled

TABLE 6
 PROPOSED WELL CLASSIFICATION AND SAMPLE FREQUENCY
 JANUARY 2008 LTM SUMMARY REPORT
 Main Installation - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Proposed Well Type	Proposed Sample Frequency
MW-203A	Fluvial/Intermediate	Performance	Semiannually
MW-203B	Fluvial	Performance	Semiannually
MW-204A	Fluvial	Performance	Semiannually
MW-204B	Fluvial	Performance	Semiannually
MW-205A	Fluvial/Intermediate	Performance	Semiannually
MW-205B	Fluvial	Performance	Semiannually
MW-206A	Fluvial	Performance	Semiannually
MW-206B	Fluvial	Performance	Semiannually
MW-207A	Fluvial/Intermediate	Sentinel	Semiannually
MW-207B	Fluvial/Intermediate	Sentinel	Semiannually
MW-208A	Fluvial/Intermediate	Performance	Semiannually
MW-208B	Fluvial	Performance	Semiannually
MW-209A	Intermediate	Sentinel	Semiannually
MW-209B	Fluvial	Performance	Semiannually
MW-210A	Intermediate	Sentinel	Semiannually
MW-210B	Fluvial	Performance	Semiannually
MW-211	Intermediate	Sentinel	Annually
MW-212	Fluvial	Performance	Semiannually
MW-213	Fluvial	Performance	TBD
MW-214A	Fluvial/Intermediate	Performance	Semiannually
MW-214B	Fluvial	Performance	Semiannually
MW-215A	Fluvial/Intermediate	Performance	Semiannually
MW-215B	Fluvial	Performance	Semiannually
MW-216	Fluvial	Performance	Annually
MW-217	Fluvial	Performance	Semiannually
MW-218	Fluvial	Performance	Semiannually
MW-219	Fluvial	Boundary	Semiannually
MW-229	Intermediate	Sentinel	Annually

Figures

- 1 Well Location Map
- 2 Groundwater Elevation Map
- 3 PCE/TCE Concentration Map



Figure 1

WELL LOCATION MAP
JANUARY 2008 LTM
SUMMARY REPORT
MAIN INSTALLATION
DEFENSE DEPOT
MEMPHIS, TENNESSEE

934 20

Projection: NAD 1927 StatePlane Tennessee
Unit: Feet

0 250 500 1,000
Feet



Date: March 2008
Edition: Rev 0



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Figure 2
GROUNDWATER
ELEVATION
MAP

JANUARY 2008 LTM
SUMMARY REPORT
MAIN INSTALLATION
DEFENSE DEPOT
MEMPHIS, TENNESSEE

934 21

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 250 500 1,000
Feet



Date: March 2008
Revision: Rev 2



Notes:
Water level measurements made 1/7/2008.



Figure 3
PCE/TCE
CONCENTRATION
MAP

**JANUARY 2008 LTM
SUMMARY REPORT**



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Appendix A

Results of Laboratory Analyses

APPENDIX A
COMPLETE ANALYTICAL RESULTS
JANUARY 2008 LTM SUMMARY REPORT
Defense Depot Memphis, Tennessee

WELL ID	MW-203A	MW-203A DUP	MW-203B	MW-204A	MW-204B	MW-205A	MW-205B
FIELD ID	MW-203A-LQ-6	MW-203A DUP	MW-203B-LQ-6	MW-204A-LQ-6	MW-204B-LQ-6	MW-205A-LQ-6	MW-205B-LQ-6
LAB ID	L08010178-08	L08010178-18	L08010178-01	L08010178-09	L08010178-02	L08010178-10	L08010178-03
Date	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008
perm_syn	units						
1,1,1,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	0.734	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropene	ug/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	ug/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	ug/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,4-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1-Chlorohexane	ug/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1
2-Hexanone	ug/L	<10	<10	<10	<10	<10	<10
4-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1
Acetone	ug/L	<10	<10	<10	<10	<10	<10
Benzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromobenzene	ug/L	<1	<1	<1	<1	<1	<1
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	ug/L	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	1.77	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	<1	<1	<1	<1
Chlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	0.172 J	0.158 J	<0.3	<0.3	0.185 J	0.146 J
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	0.972 J	0.978 J	58.6	0.822 J	2.3	3.12
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Isopropylbenzene	ug/L	<1	<1	<1	<1	<1	<1
m,p-Xylene	ug/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	ug/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	ug/L	<5	<5	<5	<5	<5	<5
Methylene chloride	ug/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	ug/L	<10	<10	<10	<10	<10	<10
Naphthalene	ug/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene	ug/L	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	ug/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1
Tetrachloroethane	ug/L	108	109	9.39	42.7	24.5	153
Toluene	ug/L	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1
Trichloroethane	ug/L	1.93	1.93	6.31	1.12	6.14	9.75
Trichlorodifluoromethane	ug/L	<1	<1	<1	<1	<1	<1
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1

< Not detected above Reporting Limit (RL)

J: Estimated Result

APPENDIX A
COMPLETE ANALYTICAL RESULTS
JANUARY 2006 LTM SUMMARY REPORT
Defense Depot Memphis, Tennessee

	WELL ID	MW-206A	MW-206B	MW-207A	MW-207B	MW-207B DUP	MW-208A	MW-208B
	FIELD ID	MW-206A-LQ-6	MW-206B-LQ-6	MW-207A-LQ-6	MW-207B-LQ-6	MW-207B DUP	MW-208A-LQ-6	MW-208B-LQ-6
	LAB ID	L08010178-11	L08010208-01	L08010208-13	L08010208-02	L08010208-11	L08010178-12	L08010208-03
	Date	1/8/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008	1/8/2008	1/9/2008
perm_syn	units							
1,1,1,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.385 J
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	0.303 J	<1	<1	<1	<1
1,1-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	ug/L	<2	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,4-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1-Chlorohexane	ug/L	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	ug/L	<10	<10	<10	<10	<10	<10	<10
4-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
Acetone	ug/L	<10	<10	<10	<10	<10	<10	<10
Benzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoforn	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	<1	0.44 J	1.16	1.13	<1	<1
Chlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	0.174 J	0.147 J	10.6	1.28	1.28	0.221 J	<0.3
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	0.717 J	0.688 J	0.382 J	<1	<1	0.58 J	0.932 J
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Heptachlorobutadiene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Isopropylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
m,p-Xylene	ug/L	<2	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	ug/L	<10	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	ug/L	<5	<5	<5	<5	<5	<5	<5
Methylene chloride	ug/L	<1	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	ug/L	<10	<10	<10	<10	<10	<10	<10
Naphthalene	ug/L	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	114	69.5	10.5	12.9	13	198	1.68
Toluene	ug/L	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ug/L	12	11.7	24.3	112	109	8.45	13.2
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1

< Not detected above Reporting Limit (RL)
J: Estimated Result

APPENDIX A
COMPLETE ANALYTICAL RESULTS
JANUARY 2008 LTM SUMMARY REPORT
Defense Depot Memphis, Tennessee

WELL ID	MW-208A	MW-208B	MW-210A	MW-210B	MW-211	MW-212	MW-214A	MW-214B
FIELD ID	MW-208A-LQ-6	MW-208B-LQ-6	MW-210A-LQ-6	MW-210B-LQ-6	MW-211-LQ-6	MW-212-LQ-6	MW-214A-LQ-6	MW-214B-LQ-6
LAB ID	L08010208-14	L08010178-04	L08010178-13	L08010178-05	L08010208-15	L08010208-08	L08010208-16	L08010208-07
Date	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008	1/8/2008
parm_syn	units							
1,1,1,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.279 J	0.392 J
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	ug/L	<2	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,4-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1-Chlorohexane	ug/L	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	ug/L	<10	<10	<10	<10	<10	<10	<10
4-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
Acetone	ug/L	<10	<10	<10	<10	<10	<10	<10
Benzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	<1	0.474 J	<1	<1	0.635 J	0.575 J	0.959 J
Chlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	ug/L	0.131 J	0.198 J	0.149 J	0.14 J	0.214 J	2.02	1.44
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	<1	<1	0.757 J	0.529 J	<1	<1	<1
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Isopropylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
m,p-Xylene	ug/L	<2	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	ug/L	<10	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	ug/L	1.46 J	<5	<5	0.663 J	<5	1.5 J	0.843 J
Methylene chloride	ug/L	<1	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	ug/L	<10	<10	<10	<10	<10	<10	<10
Naphthalene	ug/L	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	ug/L	<1	0.357 J	23.3	19.6	0.502 J	<1	7.29
Toluene	ug/L	<1	<1	<1	<1	<1	<1	5.44
trans-1,2-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	ug/L	0.467 J	11.7	5.55	8.46	0.602 J	43.9	3.65
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	<1	<1	2.88
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1

< Not detected above Reporting Limit (RL)

J: Estimated Result

APPENDIX A
COMPLETE ANALYTICAL RESULTS
JANUARY 2008 LTM SUMMARY REPORT
Defense Depot Memphis, Tennessee

WELL ID	MW-215A	MW-215B	MW-216	MW-217	MW-218	MW-219	MW-229	MW-229 DUP
FIELD ID	MW-215A-LQ-6	MW-215B-LQ-6	MW-216-LQ-6	MW-217-LQ-6	MW-218-LQ-6	MW-219-LQ-6	MW-229-LQ-6	MW-229 DUP
LAB ID	L08010208-17	L08010208-18	L08010178-06	L08010208-08	L08010208-09	L08010208-10	L08010208-19	L08010208-20
Date	1/9/2008	1/9/2008	1/8/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008	1/9/2008
units								
parm_syn								
1,1,1,2-Tetrachloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	ug/L	0.223 J	0.172 J	<0.5	0.625	1.81	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropene	ug/L	<1	<1	<1	2.2	<1	<1	<1
1,2,4-Trichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropene	ug/L	<2	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	ug/L	<0.5	<0.5	<0.5	0.303 J	0.565	1.06	<0.5
1,2-Dichloropropene	ug/L	<1	<1	<1	<1	0.399 J	<1	<1
1,3,5-Trimethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,4-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.189 J	0.175 J
1-Chlorohexane	ug/L	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
2-Hexanone	ug/L	<10	<10	<10	<10	<10	<10	<10
4-Chlorotoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
Acetone	ug/L	<10	<10	<10	<10	<10	<10	<10
Benzene	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromobenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoforn	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	ug/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	ug/L	0.552 J	0.856 J	<1	57.3	15	<1	<1
Chlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Chloroforn	ug/L	1.68	0.61	<0.3	7.43	2.58	<0.3	<0.3
Chloromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	ug/L	<1	<1	<1	2.43	0.352 J	0.875 J	<1
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	ug/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Heptachlorobutadiene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Isopropylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
m,p-Xylene	ug/L	<2	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	ug/L	<10	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	ug/L	1.81 J	<5	<5	<5	<5	<5	<5
Methylene chloride	ug/L	<1	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	ug/L	<10	<10	<10	<10	<10	<10	<10
Naphthalene	ug/L	<1	<1	<1	<1	<1	<1	<1
n-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
n-Propylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
o-Xylene	ug/L	<1	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	ug/L	<1	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Styrene	ug/L	<1	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	ug/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethane	ug/L	7.01	4.71	<1	31.7	17.2	48	<1
Toluene	ug/L	<1	<1	<1	<1	<1	0.852 J	0.636 J
trans-1,2-Dichloroethene	ug/L	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	ug/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethane	ug/L	10.2	1.36	<1	35.9	42.5	3.74	<1
Trichlorofluoromethane	ug/L	<1	<1	<1	<1	0.641 J	<1	<1
Vinyl acetate	ug/L	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	<1	<1	<1	<1	<1	<1	<1

<: Not detected above Reporting Limit (RL)
J: Estimated Result

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE