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THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 1027

HDR | e²M

Memorandum

To: John Hill, CIV AFCEE/EXA
Mike Dobbs, DES-DDC-EE

From: John Sperry
Tom Holmes

Date: 17 March 2010

Re: **October 2009 Semiannual Monitoring Report**
Dunn Field – Groundwater IRA, Year 11
Defense Depot Memphis, Tennessee
FA8903-08-D-8771-0019

HDR|e²M has prepared this report to present the results of the October 2009 Interim Remedial Action (IRA) semiannual monitoring event on Dunn Field at the Defense Depot Memphis, Tennessee (DDMT). This work was performed for the Defense Logistics Agency under Contract FA89031-08-D-8771, Task Order 0019 to the Air Force Center for Engineering and the Environment.

This report is limited to semiannual groundwater monitoring. System discharge samples were not collected; IRA operations ceased following shutdown of all recovery wells in January 2009.

Nine volatile organic compounds (VOCs) have been persistently detected in the fluvial aquifer during past sampling events: carbon tetrachloride; chloroform (CF); 1,1-dichloroethene (DCE); cis-1,2-dichloroethene; trans-1,2-dichloroethene;1,1,2-trichlorothane; trichloroethene (TCE); tetrachloroethene; and 1,1,2,2-tetrachlorothane (TeCA). Historically, three primary VOC plumes were observed at Dunn Field: a northern plume, a west-northwest plume (central) plume, and west-southwest (southern) plume. Mixing and intermingling of the plumes occurred due to the groundwater extraction system and natural groundwater gradient; the plumes merge west of Dunn Field.

The IRA Record of Decision for groundwater at Dunn Field was signed in April 1996 with the objectives of hydraulic containment to: (1) prevent further contaminate plume migration; and (2) reduce containment mass in groundwater. The groundwater recovery system was installed in two phase between 1998 and 2001 and consists of 11 fluvial screened recovery wells (RWs) located along the western boundary of Dunn Field.

Groundwater sample results from the 2008 IRA semiannual monitoring events demonstrated that fluvial soil vapor extraction (FSVE) operations were having a significant impact in reducing chlorinated volatile organic compound (CVOC) concentrations in groundwater. Individual CVOC concentrations in recovery wells and monitoring wells on Dunn Field were generally below 50 micrograms per liter (µg/L), the goal for the Source Areas groundwater remedy. Following approval of the BRAC Cleanup Team (BCT), recovery wells RW-5 through RW-9 were shutdown on 9 June 2008 and RW-1 through RW-4 were shutdown on 23 January 2009.

FIELD ACTIVITIES

The field activities consisted of water level measurements in monitoring wells in the Dunn Field area and sampling and analysis of groundwater from designated monitoring wells. The monitoring wells to be sampled in the IRA semiannual events for 2009 were revised to incorporate the Off Depot long term monitoring (LTM) wells, as recommended in the *Annual Operations Report-2008, Dunn Field Groundwater Interim Remedial Action-Year Ten (HDR|e²M, 2009)* and approved at the BCT meeting on 9 April 2009. The total number of wells to be sampled in the IRA semiannual event was 84 in April and 69 in October 2009. The difference is due to wells abandoned in July 2009 during Off Depot remedial action (RA) and wells included in Off Depot performance monitoring. The wells in the IRA monitoring program for October 2009 are listed in Table 1 and the well locations are shown on Figure 1.

Groundwater samples were collected from monitoring wells using passive diffusion bags where the saturated screened interval was 5 feet or greater and by low-flow sampling with bladder pumps for other wells. Samples were not collected from recovery wells, because the wells were not in operation and the monitoring wells provided sufficient distribution. Sampling was performed in accordance with the *Remedial Action Sampling and Analysis Plan* (MACTEC, 2005) and the *User's Guide for Polyethylene-based Passive Diffusion Bag Samplers to Obtain Volatile Organic Compound Concentrations in Wells* (U.S. Geological Survey, 2001).

Water Level Measurements

Groundwater levels were measured at 124 monitoring wells on 12 October 2009. This water level sweep encompassed both the IRA wells and the Off Depot Performance Monitoring wells. Measurements were made using Solinist Model 101 water level meters with electronic sensors and tapes graduated in 0.01-foot increments. Measurements were not made in two of the planned monitoring wells: MW-68 was buried under a large number of used tires and MW-78 was damaged. The water level measurements are shown on Table 2.

Groundwater Sampling

When the IRA system was operating, groundwater samples were collected to evaluate system effectiveness in restricting plume migration and contaminant mass. Groundwater sampling is now being transitioned to meet the Off Depot LTM requirements to monitor plume migration and overall effectiveness of RAs in reducing groundwater concentration to below maximum contaminant levels.

HDR|e²M collected groundwater samples from 68 of 69 designated monitoring wells on 13 to 15 October 2009. The samples were sent to Microbac Laboratories in Marietta, Ohio for VOC analysis by USEPA Method SW8260B.

A sample could not be collected from MW-78. During the pre-sampling inspection in September 2009, MW-78 was covered by brush and debris. While removing the brush, City of Memphis personnel dislodged the well pad and the well cap. A new cap was installed and the well was surged and approximately 7 well volumes were removed by bailer on 21 September 2009; the well pad was replaced on 23 September. The well was not sampled in October 2009 due to concern for cross-contamination while the well cap was off. MW-78 will be sampled during the next event.

HDR|e²M measured water levels in the wells to be sampled approximately one month prior to sample collection. If saturated thickness of the well screen was greater than 5 feet, a passive diffusion bag (PDB) was installed, if not already present. Where necessary, PDBs already in the well were lowered such that the midpoint depth was 2 feet below the water depth. If the saturated thickness was less than 5 feet, the well was selected for low-flow sampling. Based on water levels, 56 wells were selected for sampling with PDBs and 12 wells were selected for low-flow sampling.

Passive Diffusion Bag Sampling

Samples were collected using PDBs in 56 monitoring wells on 13 to 15 October. PDBs were placed in 34 wells that have been sampled using low flow techniques in the past and 11 new monitoring wells. The PDBs were placed in these wells on 14 and 15 September 2009. PDB sample depths are shown on Table 3. Water quality parameters were not measured prior to sampling wells with PDBs.

Upon removal from each monitoring well, a sample of water from the PDB was transferred to 40-milliliter vials preserved with hydrochloric acid. Following sample collection at wells to be sampled during the next Off Depot LTM event, a single, new PDB was filled with deionized water and placed in the middle of the saturated section of well screen.

Low Flow Sampling

Groundwater samples were collected from 12 monitoring wells on 13 to 15 October using bladder pumps and low-flow purging methods. Dedicated Teflon® bladders and Teflon®-lined polyethylene tubing were used at each of these wells.

Water quality parameters were measured at approximately 5 to 10 minute intervals during purging using a flow-through cell with an YSI 600XLM and a LaMotte 2020e turbidity meter. 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, 3 percent for specific conductance, 10 percent for dissolved oxygen and less than 20 nephelometric turbidity units for turbidity. Temperatures were also measured and recorded, but were 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. Upon completion of purging at each monitoring well, water samples were transferred to 40-milliliter vials preserved with hydrochloric acid.

The final stabilization measurements are shown on Table 4. Stabilization criteria were met at all wells.

IDW Management

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

The groundwater from purging was collected in 5-gallon buckets with lids and added to the FSVE condensate water fractionation tank on Dunn Field. The waste water was sampled on 3 November 2009; a discharge request was sent to the City of Memphis on 12 November and was approved the same day. The water was pumped into the IRA conveyance line on 16 and 17 November 2009. A total of 17,436 gallons of condensate and purge water was discharged.

SUMMARY OF MONITORING RESULTS

Water Level Measurements

Water level measurements collected on 12 October 2009 are shown with resulting groundwater elevations on Table 2. Groundwater elevations in the fluvial aquifer are highest northeast of Dunn Field and decrease to the southwest. Groundwater levels in fluvial aquifer wells were approximately 1 to 2 feet lower in October 2009 compared to April 2009. Water levels in intermediate aquifer wells were more variable; the water levels in October 2009 were 0.5 to 6.5 feet higher than in April 2009.

The groundwater elevation contour map (Figure 2) is similar to previous groundwater maps. Groundwater flow is generally to the west on Dunn Field.

Analytical Results

Groundwater samples were collected from 68 monitoring wells in October 2009 and analyzed for VOCs only. The complete analytical results are presented in Appendix A. Table 5 lists the analytical results for the primary CVOCs historically detected at Dunn Field and all other VOCs detected above the reporting limit (RL) in one or more samples. A summary of the primary CVOC results is provided on Table 6. Total CVOC concentrations are shown on Figure 3, which also includes results for the ODPM sampling in October 2009.

CONCLUSIONS

Analytical results demonstrate continued reduction in the Off Depot CVOC plume due to the Source Areas RA on Dunn Field, including continuing operation of the FSVE system. Time trend plots for selected monitoring wells on Dunn Field and in the Off Depot area west of Dunn Field are provided in Appendices B and C.

Dunn Field Monitoring Wells

CVOC concentrations have decreased or remained at low levels in most on-site wells. As shown on Figure 3, all monitoring wells on Dunn Field have total CVOC concentrations below 50 µg/L except for a few wells on the northern property line (MW-07, MW-220 and MW-230) and two wells near loess treatment area 4 (TA-4) (MW-15 and MW-57). CVOC concentrations for individual constituents are below 50 µg/L in all Dunn Field monitoring wells, except MW-07, MW-57 and MW-230.

Several monitoring wells at the north end of Dunn Field show the influence of the plume migrating on to Dunn Field from the northeast. The trend plot for MW-7 (Appendix B) shows CVOC concentrations have been relatively stable in wells upgradient of the identified Source Areas on Dunn Field.

The trend plots for two wells near TA-1 on the north end of Dunn Field, MW-03 and MW-220 (Appendix B) show slight recent increases in CVOC concentrations, following large

decreases after FSVE start-up. MW-220 had the highest DCE concentration detected in the October 2009 IRA samples (Table 6); DCE was not detected at significant concentrations in Dunn Field soil samples and is considered an indicator of the off-site plume.

The highest total CVOC concentrations for monitoring wells on Dunn Field, other than the wells on the northern property line, was 91.2 µg/L at MW-57 west of TA-4. The trend plots for three wells in the TA-4 area are included in Appendix B (MW-15, MW-57 and MW-227). The trend plot for MW-57 shows generally decreasing trends for CVOCs except for CF in the last two samples. The trend plot for well MW-15, also west of TA-4, shows a slight increase in concentrations after a large decrease following FSVE start-up. The trend plot for MW-227 does not show recent increases.

Trend plots for wells near TA-2 (MW-74 and MW-222) and TA-3 (MW-06) show that concentrations have remained low in these areas.

Off Depot Monitoring Wells

Concentrations continue to decrease in most wells in the Off Depot area west of Dunn Field. Most monitoring wells with high concentrations in the central plume are included in the Off Depot performance monitoring and are discussed in that report.

There has been some increase in total CVOC concentrations in a few wells between Dunn Field and the railroad tracks. MW-32 and MW-184 increased from 8.87 µg/L and 10.55 µg/L, respectively, in April 2009 to 345 µg/L and 232 µg/L in October 2009. MW-32 had the highest concentration of CF and several other CVOCs in the October 2009 samples (Table 6). Trend plots for MW-32, MW-71, MW-144 and MW-184 are included in Appendix C. Both MW-32 and MW-184, located on the south side of the central groundwater plume had increases in TCE and CF concentrations in the October 2009 samples. Well MW-71, southeast of MW-32 closer to Dunn Field, had continued low concentrations of CF (3.79 µg/L) and TCE (2.23 µg/L). Well MW-144 on the north side of the central plume had TCE (173 µg/L) and TeCA (301 µg/L) well below historical concentrations. The presence of CF as the main CVOC in MW-32 and MW-184 indicates contaminant migration from the TA-3 and TA-4 where CF has been more predominant. The results may reflect increased contaminant flux to groundwater associated with increased condensate and lower vapor extraction rates in the SVE-G near TA-4.

Intermediate Aquifer Wells

IRA semiannual monitoring included seven wells installed in the intermediate aquifer west of Dunn Field (MW-37, MW-43, MW-231, MW-234, MW-237, MW-239, and MW-240). Primary CVOCs were detected above RLs in three wells: MW-237 had DCE at 1.77 µg/L, MW-239 had TeCA at 0.605 µg/L and MW-240 had TCE at 1.73 µg/L.

RECOMMENDATIONS

Based on continued reduction in groundwater concentrations, HDR|e^{2}M will proceed with the IRA system removal as approved by the BCT. Pumps have already been removed from the wells; equipment and system controls will be removed from the pump houses and control building. The well houses and control building will be scrapped or demolished and the recovery wells will be abandoned in accordance with Memphis Shelby County Health Department requirements.

Modifications, including increased condensate removal, will be made to the FSVE system to increase vapor extraction in TA-4.

Beginning in 2010, groundwater monitoring on Dunn Field and the Off Depot area will be performed through the LTM Plan in the *Off Depot Groundwater Final Remedial Design, Rev. 1* (CH2M HILL, 2008). The first LTM event will be conducted in March 2010.

TABLES

TABLE 1
WELL ACTIVITY SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Water Level Collected	Sample Technique
MW-03	Fluvial	X	LF
MW-04	Fluvial	X	S
MW-05	Fluvial	X	LF
MW-06	Fluvial	X	S
MW-07	Fluvial	X	S
MW-08	Fluvial	X	--
MW-10	Fluvial	X	LF
MW-13	Fluvial	X	S
MW-14	Fluvial	X	S
MW-15	Fluvial	X	S
MW-19	Fluvial	X	--
MW-28	Fluvial	X	--
MW-31	Fluvial	X	S
MW-32	Fluvial	X	S
MW-33	Fluvial	X	S
MW-34	Intermediate	X	--
MW-37	Intermediate	X	S
MW-38	Intermediate	X	--
MW-42	Fluvial	X	--
MW-43	Intermediate	X	S
MW-44	Fluvial	X	S
MW-45	Fluvial	X	--
MW-51	Fluvial	X	S
MW-53	Fluvial	X	--
MW-55	Fluvial	X	--
MW-57	Fluvial	X	S
MW-58	Fluvial	X	LF
MW-62	Fluvial	X	--
MW-65	Fluvial	X	S
MW-67	Memphis	X	S
MW-68	Fluvial	--	S
MW-69	Fluvial	X	S
MW-71	Fluvial	X	S
MW-74	Fluvial	X	S
MW-75	Fluvial	X	S
MW-78	Fluvial	X	NS
MW-80	Fluvial	X	--
MW-87	Fluvial	X	S
MW-89	Intermediate	X	--
MW-90	Intermediate	X	--
MW-91	Fluvial	X	LF
MW-126	Fluvial	X	--
MW-127	Fluvial	X	--
MW-128	Fluvial	X	S
MW-129	Fluvial	X	--
MW-130	Fluvial	X	S
MW-132	Fluvial	X	LF
MW-134	Fluvial	X	LF
MW-144	Fluvial	X	S
MW-145	Fluvial	X	S

1027 9

TABLE 1
WELL ACTIVITY SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Water Level Collected	Sample Technique
MW-147	Fluvial	X	S
MW-153	Fluvial	X	S
MW-154	Fluvial	X	S
MW-167	Fluvial	X	S
MW-169	Fluvial/Intermediate	X	S
MW-170	Fluvial	X	S
MW-171	Fluvial	X	S
MW-172	Fluvial	X	LF
MW-174	Fluvial	X	S
MW-175	Fluvial	X	--
MW-176	Fluvial	X	S
MW-178	Fluvial	X	S
MW-179	Fluvial	X	S
MW-180	Fluvial	X	S
MW-182	Fluvial	X	S
MW-184	Fluvial	X	LF
MW-185	Fluvial	X	S
MW-186	Fluvial	X	S
MW-187	Fluvial	X	S
MW-190	Fluvial	X	S
MW-220	Fluvial	X	LF
MW-221	Fluvial	X	S
MW-222	Fluvial	X	S
MW-223	Fluvial	X	S
MW-224	Fluvial	X	S
MW-225	Fluvial	X	S
MW-226	Fluvial	X	S
MW-227	Fluvial	X	S
MW-228	Fluvial	X	LF
MW-229	Fluvial	X	--
MW-230	Fluvial	X	LF
MW-231	Intermediate	X	S
MW-234	Intermediate	X	S
MW-235	Fluvial	X	S
MW-237	Intermediate	X	S
MW-239	Intermediate	X	S
MW-240	Intermediate	X	S
MW-1-TDEC	Fluvial	X	--
MW-2-TDEC	Fluvial	X	--
MW-3-TDEC	Fluvial	X	--

Notes.

S Single PDB sample at mid-point of saturated screened interval.

LF Sample collected using low-flow purging methods

NS Sample planned but not collected

-- Not sampled, water level only well

TABLE 2
WATER LEVEL MEASUREMENTS
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Top of Casing Elevation (ft, msl)	Top of Screen Elevation (ft, msl)	Depth to Water 3-Apr-2009 (ft, btoc)	Groundwater Elevation 3-Apr-2009 (ft, msl)	Depth to Water 19-Oct-2009 (ft, btoc)	Groundwater Elevation 19-Oct-2009 (ft, msl)
MW-03	Fluvial	292 35	226.85	66 18	226.17	64.72	227.63
MW-04	Fluvial	301 61	241.61	73.98	227.63	72.34	229.27
MW-05	Fluvial	304 64	244.64	78.39	226.25	76.90	227.74
MW-06	Fluvial	289.11	238.11	62.59	226.52	60.78	228.33
MW-07	Fluvial	295.10	228.10	65.78	229.32	64 37	230.73
MW-08	Fluvial	292.59	236.09	61.51	231.08	60 29	232.30
MW-10	Fluvial	288 79	230.19	--	--	59.80	228.99
MW-13	Fluvial	300.01	234.01	72.52	227.49	70 80	229.21
MW-14	Fluvial	302.22	237 22	74.43	227.79	73 39	228.83
MW-15	Fluvial	295.12	231.72	68 41	226.71	66.64	228.48
MW-19	Fluvial	290.57	207.47	87.09	203.48	86.65	203.92
MW-28	Fluvial	294.79	240.49	56.02	238.77	54.66	240.13
MW-31	Fluvial	290 37	226.27	69.06	221.31	67 38	222.99
MW-32	Fluvial	285.38	232.68	62.91	222.47	61 51	223.87
MW-33	Fluvial	280.71	236.11	55.85	224.86	54.18	226.53
MW-34	Intermediate	299.97	163.37	131.63	168.34	134.95	165.02
MW-37	Intermediate	284.91	119.21	119.81	165.10	125.36	159.55
MW-38	Intermediate	307 45	167.55	129.09	178.36	130.49	176.96
MW-42	Fluvial	274 83	225.83	56.36	218.47	55.00	219.83
MW-43	Intermediate	284.99	123.49	119.45	165.54	124.07	160.92
MW-44	Fluvial	269 07	205.07	55.50	213 57	53.62	215.45
MW-45	Fluvial	293 22	235.22	54.97	238.25	54.24	238.98
MW-51	Fluvial	275 23	220.23	40.25	234.98	39.22	236.01
MW-53	Fluvial	306.38	233.88	73.28	233.10	73.03	233.35
MW-54	Fluvial	295 35	210.85	81.07	214.28	78.85	216.50
MW-55	Fluvial	292 08	228.08	70.29	221 79	70.22	221.86
MW-57	Fluvial	290.77	230.77	63.61	227 16	62.24	228.53
MW-58	Fluvial	290 51	233.51	63.61	226 90	62.63	227.88
MW-62	Fluvial	293 65	207.65	93.85	199 80	93.92	199.73
MW-65	Fluvial	263.22	222.42	2.07	261.15	5.10	258.12
MW-67	Memphis	278 21	18.21	112 22	165 99	118 48	159.73
MW-68	Fluvial	291.69	219.19	66.10	225.59	--	--
MW-69	Fluvial	307.02	224.94	81.40	225.62	79.85	227.17
MW-70	Fluvial	304.99	224 18	79 31	225 68	77 66	227.33
MW-71	Fluvial	294 40	228.90	69 11	225.29	67.38	227.02
MW-74	Fluvial	303 68	233 68	77 56	226.12	75 88	227.80
MW-75	Fluvial	303.61	232.61	77 57	226.04	75.95	227.66
MW-76	Fluvial	302.71	229.71	83 58	219.13	81.59	221.12
MW-77	Fluvial	304.42	236.42	80.72	223.70	81.23	223.19
MW-78	Fluvial	275.00	230.50	47.33	227 67	--	--
MW-79	Fluvial	285 03	202.53	71.60	213 43	69.82	215.21
MW-80	Fluvial	273 81	220.81	60.45	213 36	58.64	215.17
MW-87	Fluvial	294 93	231.93	68 70	226.23	66.86	228.07
MW-89	Intermediate	303 98	156.98	113.95	190.03	114.44	189.54
MW-90	Intermediate	304.19	189.19	114.44	189.75	114.84	189 35
MW-91	Fluvial	291.99	236 99	65.57	226.42	63.75	228 24
MW-126	Fluvial	252.22	236.22	13 77	238.45	14.78	237.44
MW-127	Fluvial	268 71	208.71	59 74	208.97	58.80	209.91
MW-128	Fluvial	284 14	229.39	39 28	244.86	39 30	244.84
MW-129	Fluvial	293 01	228.01	55 60	237 41	54.45	238.56
MW-130	Fluvial	293.20	233 70	55.11	238.09	53 84	239.36
MW-132	Fluvial	300.73	227.23	74.72	226.01	73.04	227.69
MW-134	Fluvial	300.81	225.81	--	--	72.72	228.09
MW-144	Fluvial	291 60	235.10	74 05	217 55	71 95	219.65

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TABLE 2
WATER LEVEL MEASUREMENTS
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Top of Casing Elevation (ft, msl)	Top of Screen Elevation (ft, msl)	Depth to Water 3-Apr-2009 (ft, btoc)	Groundwater Elevation 3-Apr-2009 (ft, msl)	Depth to Water 19-Oct-2009 (ft, btoc)	Groundwater Elevation 19-Oct-2009 (ft, msl)
MW-145	Fluvial	284 72	204.72	70 84	213 88	69.81	214.91
MW-147	Fluvial	289 72	229.72	70.30	219 42	68.33	221.39
MW-148	Fluvial	294 71	224.71	78.55	216 16	76 33	218.38
MW-149	Fluvial	287 18	205.78	73.22	213 96	71 14	216 04
MW-150	Fluvial	296.81	225.61	88.15	208 66	79 89	216.92
MW-151	Fluvial	284.27	207 27	70.35	213 92	68 35	215.92
MW-152	Fluvial	289.59	198.59	75.88	213 71	74 01	215 58
MW-153	Fluvial	279.17	203.17	65.66	213.51	64.12	215.05
MW-154	Fluvial	273.81	220.81	57.82	215 99	57.58	216.23
MW-155	Fluvial	291.65	214 65	77 29	214 36	75 17	216 48
MW-157	Fluvial	286.78	229.78	71 11	215.67	68.84	217.94
MW-158	Fluvial	294 07	203 06	80 24	213.83	78.24	215.83
MW-158A	Fluvial	293 95	216.03	80 14	213.81	78.18	215.77
MW-159	Fluvial	286 33	205 89	72 55	213.78	70.39	215.94
MW-160	Fluvial	294 00	228.13	79 21	214.79	76.11	217.89
MW-161	Fluvial	296.40	234.60	77.59	218.81	75.61	220.79
MW-162	Fluvial	299 70	233.39	81.22	218 48	79.19	220.51
MW-163	Fluvial	290 63	234.42	73.66	216.97	71.46	219.17
MW-164	Fluvial	287 48	231.86	69.73	217 75	67 72	219 76
MW-165	Fluvial	287.06	198.43	73.72	213 34	71.40	215.66
MW-165A	Fluvial	287.26	215.96	73.55	213 71	71 58	215 68
MW-166	Fluvial	283.44	199.59	69.60	213 84	66 90	216 54
MW-166A	Fluvial	283.45	215 15	69.61	213.84	67.07	216.38
MW-167	Fluvial	284.82	214.68	71.54	213 28	69 60	215 22
MW-169	Fluvial/Intermediate	261.90	194.12	79.89	182 01	75.60	186.30
MW-170	Fluvial	273 75	214.14	58 48	215.27	56.71	217.04
MW-171	Fluvial	270 69	217.72	56 15	214.54	54.44	216.25
MW-172	Fluvial	300 28	232.28	72 89	227.39	71.33	228.95
MW-174	Fluvial	296 56	229.56	69.63	226.93	67.92	228.64
MW-175	Fluvial	291.63	224.13	64.70	226 93	72 85	218.78
MW-176	Fluvial	299 68	223.68	73.44	226.24	71 65	228 03
MW-178	Fluvial	300.26	224 26	75.51	224.75	71 74	228 52
MW-179	Fluvial	301.16	224 16	75.64	225.52	72.93	228.23
MW-180	Fluvial	296.14	224 14	69.74	226.40	68 24	227 90
MW-182	Fluvial	275 40	213.40	64.15	211.25	63 62	211.78
MW-184	Fluvial	283.12	225 12	65.64	217 48	63 65	219 47
MW-185	Fluvial	256 71	171 71	76.15	180 56	75.49	181 22
MW-186	Fluvial	256 31	108 31	79 85	176.46	82 18	174.13
MW-187	Fluvial	302.74	226.74	75 21	227.53	72.43	230.31
MW-190	Fluvial	297 32	219.32	78.71	218.61	76.74	220.58
MW-220	Fluvial	293 29	228.35	66.43	226 86	64.92	228.37
MW-221	Fluvial	301 52	228.40	75 33	226 19	73 91	227.61
MW-222	Fluvial	303.82	229 64	76 84	226.98	75 50	228.32
MW-223	Fluvial	303.00	229 13	76.51	226 49	74 51	228 49
MW-224	Fluvial	304.13	230.42	77.41	226 72	75 74	228 39
MW-225	Fluvial	304 52	229.54	78.75	225 77	76.46	228.06
MW-226	Fluvial	303 19	228.97	76.34	226.85	70 70	232.49
MW-227	Fluvial	299 70	236.06	72 56	227.14	70.84	228.86
MW-228	Fluvial	301 65	237.56	74 37	227.28	72.74	228.91
MW-229	Intermediate	311.77	123.34	--	--	151 76	160 01
MW-230	Fluvial	286.57	227 32	54.81	231 76	53.27	233 30
MW-231	Intermediate	289.18	121 43	125 25	163 93	129 47	159 71
MW-232	Intermediate	285 18	135.13	119.71	165.47	124 90	160.28
MW-234	Intermediate	291 50	124 91	126.31	165.19	131.70	159 80

TABLE 2
WATER LEVEL MEASUREMENTS
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	Aquifer	Top of Casing Elevation (ft, msl)	Top of Screen Elevation (ft, msl)	Depth to Water 3-Apr-2009 (ft, btoc)	Groundwater Elevation 3-Apr-2009 (ft, msl)	Depth to Water 19-Oct-2009 (ft, btoc)	Groundwater Elevation 19-Oct-2009 (ft, msl)
MW-235	Fluvial	264.00	213 41	56.22	207.78	56.64	207.36
MW-237	Intermediate	289 18	122.73	124 90	164.28	128.93	160.25
MW-239	Intermediate	288.44	122.97	123.58	164.86	127 81	160.63
MW-240	Intermediate	259.28	172.71	76 89	182.39	76.32	182.96
MW-241	Fluvial	292.82	219.57	NI	--	75.25	217.57
MW-242	Fluvial	295.40	222.20	NI	--	78.85	216.55
MW-243	Fluvial	292.26	211.56	NI	--	76 27	215.99
MW-244	Fluvial	288.72	212 39	NI	--	72.68	216.04
MW-245	Fluvial	290 13	205.40	NI	--	74.40	215.73
MW-246	Fluvial	288.17	202 97	NI	--	72.51	215.66
MW-247	Fluvial	285.70	205.70	NI	--	70.02	215.68
MW-248	Fluvial	275.45	207 94	NI	--	59.87	215.58
MW-249	Fluvial	285 53	207.49	NI	--	69.73	215.80
MW-250	Intermediate	289 66	120 96	NI	--	130.03	159.63
MW-251	Intermediate	285 83	125.63	NI	--	126.00	159.83
MW-1-TDEC	Fluvial	275.83	NA	--	--	27 19	248 64
MW-2-TDEC	Fluvial	272.13	NA	24.31	247.82	24.50	247.63
MW-3-TDEC	Fluvial	265.28	NA	7.90	257.38	9.53	255.75

Notes:

ft, msl	feet mean sea level
ft, btoc	feet below top of casing
--	Not Measured
NA	Not Available
NI	Not Installed

TABLE 3
PDB SAMPLE INTERVALS
OCTOBER 2009 IRA SEMI-ANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Monitoring Well	Date Collected	Top of Screen Depth (ft, btoc)	Screen Length (ft)	Depth to Water (ft, btoc)	Sample Depth[1] (ft, btoc)
MW-04	10/14/2009	60.00	20.00	72.38	76.50
MW-06	10/13/2009	51.00	20.00	60.69	66.44
MW-07	10/13/2009	67.00	10.00	64.38	75.14
MW-13	10/14/2009	66.00	15.00	70.81	76.30
MW-14	10/13/2009	65 00	15.00	73.42	76.50
MW-15	10/13/2009	63.40	15.00	66.66	73.10
MW-31	10/14/2009	64 10	15.00	67.25	76.95
MW-32	10/14/2009	52.70	15.00	61.50	66.84
MW-33	10/14/2009	44.60	15 00	54 07	59 15
MW-37	10/14/2009	165.70	15.00	125.12	173.25
MW-43	10/15/2009	161.50	10.00	123 66	167.25
MW-44	10/15/2009	64.00	10 00	53 42	69.75
MW-51	10/15/2009	55.00	10 00	39.13	60.00
MW-57	10/13/2009	60 00	10 00	62.26	68.32
MW-65	10/15/2009	40 80	10.00	3 83	43.00
MW-67	10/15/2009	260.00	15.00	117.96	268.25
MW-68	10/14/2009	72.50	10.00	64 59	78 25
MW-69	10/14/2009	82.08	10 00	79.91	89 64
MW-71	10/14/2009	65.50	10.00	67.29	74.28
MW-74	10/14/2009	70.00	20 00	75 81	83 20
MW-75	10/14/2009	71 00	20 00	75.95	83.80
MW-87	10/13/2009	63 00	15 00	66.81	73.12
MW-128	10/15/2009	54.75	20 00	39.03	64.50
MW-130	10/15/2009	59.50	20.00	53.70	70.25
MW-144	10/14/2009	56.79	20.00	71.86	75 70
MW-145	10/15/2009	80 14	20 00	68.69	90.75
MW-147	10/14/2009	60 25	20.00	68.24	79.35
MW-153	10/14/2009	76.09	20.00	63.93	86.75
MW-154	10/15/2009	53.26	10 00	57.54	61.45
MW-167	10/15/2009	70.53	15.00	69 58	80.07
MW-169	10/14/2009	68.05	20.00	75.31	87.06
MW-170	10/14/2009	59 84	20 00	56.55	70.91
MW-171	10/14/2009	53 30	15 00	54.23	63.75
MW-174	10/13/2009	67.00	10.00	68.91	72.75
MW-176	10/13/2009	76 00	10.00	71 60	81.00
MW-178	10/14/2009	76.00	10.00	71.72	81.00
MW-179	10/14/2009	77.00	10.00	73 00	82.00
MW-180	10/13/2009	72.00	10.00	69.31	77 00
MW-182	10/15/2009	62.00	10.00	63.46	68.00
MW-185	10/14/2009	85.00	10.00	75 33	90 00
MW-186	10/14/2009	148.00	10 00	82.09	153.00
MW-187	10/14/2009	76.00	10 00	73.34	81.00
MW-190	10/14/2009	78.00	10 00	76.66	83.20
MW-221	10/13/2009	73 12	15 00	73 85	81 20
MW-222	10/14/2009	74 18	15.00	75 55	82.50
MW-223	10/14/2009	73.87	15.00	74 40	82.00
MW-224	10/14/2009	73 71	15.00	75.74	82.50
MW-225	10/13/2009	74.98	15 00	76.40	83 50
MW-226	10/14/2009	74 22	15.00	74.69	82.20
MW-227	10/13/2009	63.64	15 00	70.84	75 00
MW-231	10/14/2009	167.75	25 50	129.29	190.00
MW-234	10/14/2009	166.59	10.20	131 70	172.00
MW-235	10/15/2009	50 59	10 20	54.60	58.00
MW-237	10/15/2009	166 45	10.20	128.59	177.00
MW-239	10/15/2009	165.47	10 20	128 09	171.00
MW-240	10/14/2009	86.57	10.20	76.03	92.00

Notes:
bgs Below ground surface
btoc Below top of casing
PDB passive diffision bag
1) Sample depth is to PDB mid-point

TABLE 4
WELL STABILIZATION SUMMARY
OCTOBER 2009 IRA SEMI-ANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	Sample Date	Method	Time	Sample Pump Depth ft, btoc	Water Depth ft, btoc	Purge Rate ml/min	Volume Purged L	pH	Temp °C	Specific Conductivity mS/cm	DO mg/L	ORP mV	Turbidity NTUs
MW-3	10/13/2009	low flow	13:07	73.15	64 78	140	3.5	6.0	23.8	0.411	2 9	122	9.2
MW-5	10/13/2009	low flow	11:36	83.09	77.00	60	4.0	6 8	18.4	0.370	9.8	116	15 6
MW-10	10/15/2009	low flow	10:40	66.00	60.45	100	5.0	6.3	24.1	0.343	8.9	85	17.0
MW-58	10/15/2009	low flow	13 09	67 25	62 65	280	25 6	5.8	18.0	0.202	8.3	167	19.5
MW-91	10/14/2009	low flow	10:50	62 00	63.80	280	3.6	5.9	17.6	0 279	6.6	121	8.5
MW-132	10/14/2009	low flow	14:21	83.95	73 04	160	5.6	5.6	28.8	0.239	4 1	143	4.7
MW-134	10/15/2009	low flow	9:09	78.15	72 72	80	4.0	5.8	22.1	0 263	1 9	121	18.1
MW-172	10/14/2009	low flow	8 44	76.10	71.31	60	3.0	6.1	21.6	0 271	8.2	105	10.9
MW-184	10/14/2009	low flow	16:12	85.78	63.95	200	4.0	5.9	16.6	0.352	9 2	153	11 0
MW-220	10/13/2009	low flow	15:07	77.60	64.99	180	5.4	6.0	27.8	0 423	1 2	139	0 9
MW-228	10/14/2009	low flow	10.00	77 00	72.81	200	4.0	5.8	29.3	0 250	4.4	114	15 0
MW-230	10/14/2009	low flow	15.15	82.50	53.35	160	3.2	5 9	17 5	0.297	4.8	144	15 2

Notes:

ft, btoc	feet below top of casing	mV	millivolts
mL/min	milliliters per minute	NTUs	nephelometric turbidity units
L	liters	DO	Dissolved Oxygen
°C	degrees Celsius	ORP	Oxidation Reduction Potential
mS/cm	milliSiemens per centimeter		
mg/L	milligrams per liter		

1027 14

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date	Units	MCL	TC	MW-03 L09100378-18 10/13/2009	MW-04 L09100378-24 10/14/2009	MW-05 L09100378-19 10/13/2009	MW-06 L09100378-01 10/13/2009	MW-07 L09100378-02 10/13/2009	MW-10 L09100412-18 10/15/2009	MW-13 L09100378-25 10/14/2009
1,1,2,2-Tetrachloroethane		µg/L	--	2.2	<0.5	<0.5	<0.5	**3.96**	<0.5	**14.6**	<0 5
1,1,2-Trichloroethane		µg/L	5	1.9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene		µg/L	7	7	**13.4**	<1	<1	<1	**24**	**1.07**	<1
1,2-Dichloroethane		µg/L	5	--	<0.5	<0.5	<0.5	<0.5	0 28 F	<0 5	<0 5
Carbon tetrachloride		µg/L	5	3	<1	<1	<1	<1	<1	<1	<1
Chloroform		µg/L	80	12	<0 3	0 294 F	0.227 F	**5.48**	0.263 F	**1.15**	0 187 F
cis-1,2-Dichloroethene		µg/L	70	35	0 47 F	<1	<1	**3.78**	0 441 F	0.733 F	<1
Tetrachloroethene		µg/L	5	2 5	**10.1**	<1	<1	<1	**62.8**	**3.19**	<1
trans-1,2-Dichloroethene		µg/L	100	50	<1	<1	<1	<1	<1	<1	<1
Trichloroethene		µg/L	5	5	**10.4**	<1	<1	**2.44**	**40.4**	**6.79**	<1
Vinyl chloride		µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs					34.4	0 294	0.227	15.7	128	27 5	0 187
1,1,1-Trichloroethane		µg/L	200	--	<1	<1	<1	<1	0.715 F	<1	<1
1,1-Dichloroethane		µg/L	--	--	0 317 F	<1	<1	<1	**1.24**	<1	<1
1,4-Dichlorobenzene		µg/L	75	--	<0 5	<0.5	<0.5	<0 5	<0.5	<0.5	<0.5
Acetone		µg/L	--	--	<10	5.95 F	<10	3.57 F	**16.7**	3.25 F	5 86 F
Chlorobenzene		µg/L	100	--	<0.5	<0 5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:
µg/L. micrograms per liter
-- . Not Listed
MCL Maximum Contaminant Level
TC. Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags
F· Concentration below RL but above MDL
J: Analyte positively identified, but quantitation estimated.
Q: Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

Method:
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date / Units	MCL	TC	MW-14 L09100378-03 10/13/2009	MW-15 L09100378-04 10/13/2009	MW-31 L09100378-26 10/14/2009	MW-32 L09100378-27 10/14/2009	MW-33 L09100378-28 10/14/2009	MW-37 L09100378-29 10/14/2009	MW-43 L09100412-01 10/15/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2.2	<0.5	**24.5**	<0.5	**16.2**	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L	5	1.9	<1	0 905 F	<1	0 873 F	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	<1	**28.8**	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	--	<0.5	**0.861**	<0.5	**0.925**	<0.5	<0.5	<0.5
Carbon tetrachloride	µg/L	5	3	0 939 F	**2.97**	<1	**20.2**	<1	<1	<1
Chloroform	µg/L	80	12	<0.3	**31.1 M**	0.161 F	**176**	<0 3	<0.3	<0.3
cis-1,2-Dichloroethene	µg/L	70	35	<1	**1.69**	0.273 F	**10.3**	<1	<1	<1
Tetrachloroethene	µg/L	5	2.5	<1	**1.13**	**41.2**	**5.41**	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	100	50	<1	0 332 F	<1	**1.97**	<1	<1	<1
Trichloroethene	µg/L	5	5	<1	**27**	**29**	**113**	<1	<1	<1
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				0.939	90.5	99.4	345	0	0	0
1,1,1-Trichloroethane	µg/L	200	--	<1	<1	0.547 F	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	**1.13**	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0.5	<0.5	0.157 F	<0.5	<0.5	<0.5
Acetone	µg/L	--	--	2.54 F	3.05 F	**16.7**	**25.4**	**18.6**	**16.5**	**19.1**
Chlorobenzene	µg/L	100	--	<0 5	<0 5	<0.5	<0 5	<0 5	<0 5	<0 5

Notes:
µg/L: micrograms per liter
-- : Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags:
F: Concentration below RL but above MDL
J: Analyte positively identified, but quantitation estimated
Q: Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
<: Analyte not detected above RL

Method:
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date / Units	MCL	TC	MW-44 L09100412-02 10/15/2009	MW-51 L09100412-03 10/15/2009	MW-57 L09100378-07 10/13/2009	MW-58 L09100412-39 10/15/2009	MW-65 L09100412-04 10/15/2009	MW-67 L09100412-05 10/15/2009	MW-68 L09100378-30 10/14/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2.2	<0 5	<0.5	<0 5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L	5	1.9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	**15**	<1	<1	<1	<1	**1.16**
1,2-Dichloroethane	µg/L	5	--	<0.5	<0 5	<0.5	<0.5	<0.5	<0 5	<0.5
Carbon tetrachloride	µg/L	5	3	0 822 F	<1	0.9 F	0 81 F	<1	<1	<1
Chloroform	µg/L	80	12	0.213 F	0.231 F	**67.4**	0.149 F	<0 3	<0.3	0 159 F
cis-1,2-Dichloroethene	µg/L	70	35	<1	<1	**1.48**	<1	<1	<1	<1
Tetrachloroethene	µg/L	5	2.5	<1	**2.3**	0.841 F	0.309 F	<1	<1	**1.55**
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	0.31 F	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	<1	**10.4**	**20.3**	<1	<1	<1	**1.16**
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				1.04	27 9	91.2	1 27	0	0	4.03
1,1,1-Trichloroethane	µg/L	200	--	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/L	--	--	**17**	5.29 F	**15.9**	3.17 F	4 65 F	**17**	**18.6**
Chlorobenzene	µg/L	100	--	<0 5	<0.5	<0.5	<0.5	<0 5	<0.5	<0.5

Notes:
µg/L: micrograms per liter
-- Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags:
F: Concentration below RL but above MDL
J: Analyte positively identified, but quantitation estimated.
Q Quality control criteria failed, further review required
M. Concentration estimated due to matrix effect
< Analyte not detected above RL

Method:
8260B. Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date / Units	MCL	TC	MW-69 L09100378-31 10/14/2009	MW-71 L09100378-32 10/14/2009	MW-74 L09100378-33 10/14/2009	MW-75 L09100378-34 10/14/2009	MW-87 L09100378-08 10/13/2009	MW-91 L09100378-58 10/14/2009	MW-128 L09100412-06 10/15/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2.2	<0.5	**7.97**	0 364 F	<0.5	**7.09**	**0.678**	<0 5
1,1,2-Trichloroethane	µg/L	5	1 9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	--	<0.5	<0 5	<0 5	<0.5	<0.5	<0.5	<0 5
Carbon tetrachloride	µg/L	5	3	<1	0.301 F	<1	<1	<1	0 479 F	<1
Chloroform	µg/L	80	12	<0.3	**3.79**	**0.628**	**0.383**	**0.471**	**1.83**	<0.3
cis-1,2-Dichloroethene	µg/L	70	35	<1	<1	<1	<1	0 391 F	<1	<1
Tetrachloroethene	µg/L	5	2.5	0.271 F	<1	0 495 F	0 526 F	<1	0.494 F	<1
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	<1	**2.23**	**2.34**	<1	0.778 F	0.567 F	<1
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				0.271	14.3	3.83	0.909	8 73	4 05	0
1,1,1-Trichloroethane	µg/L	200	--	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0 5	<0 5	<0.5	<0.5	<0 5	<0.5
Acetone	µg/L	--	--	**21**	**19.2**	9.11 F	5.92 F	2.92 F	<10	4.46 F
Chlorobenzene	µg/L	100	--	<0.5	<0.5	<0.5	<0 5	<0 5	<0 5	<0 5

Notes:
µg/L: micrograms per liter
-- : Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags:
F: Concentration below RL but above MDL
J: Analyte positively identified, but quantitation estimated.
Q: Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
<: Analyte not detected above RL

Method:
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID Lab ID Date Units	MCL	TC	MW-130 L09100412-07 10/15/2009	MW-132 L09100378-59 10/14/2009	MW-134 L09100412-19 10/15/2009	MW-144 L09100378-35 10/14/2009	MW-145 L09100412-10 10/15/2009	MW-147 L09100378-36 10/14/2009	MW-153 L09100378-37 10/14/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2 2	<0.5	<0.5	<0 5	**301**	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	µg/L	5	1 9	<1	<1	<1	0.661 F	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	**29**	<1	<1	<1	<1	<1	**2.99**
1,2-Dichloroethane	µg/L	5	--	0.362 F	<0 5	<0.5	<0.5	<0 5	<0 5	<0 5
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	0 206 F	<0.3	0.128 F	**0.501**	<0.3	<0 3	<0.3
cis-1,2-Dichloroethene	µg/L	70	35	0 856 F	<1	<1	**6.81**	<1	<1	<1
Tetrachloroethene	µg/L	5	2.5	**68.5**	0.303 F	0.501 F	**1.4**	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	<1	0 676 F	<1	<1	<1
Trichloroethene	µg/L	5	5	**61.7**	<1	0 262 F	**173**	<1	0.313 F	<1
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				161	0 303	0 891	484	0	0.313	2.99
1,1,1-Trichloroethane	µg/L	200	--	**2.95**	<1	<1	<1	<1	<1	0 416 F
1,1-Dichloroethane	µg/L	--	--	**1.41**	<1	<1	<1	<1	<1	0 309 F
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0 5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/L	--	--	**16.7**	<10	2.7 F	**17.9**	**17.5**	**18.1**	**15.2**
Chlorobenzene	µg/L	100	--	<0.5	<0.5	<0 5	<0.5	<0.5	<0.5	<0.5

Notes:
µg/L: micrograms per liter
-- : Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags:
F: Concentration below RL but above MDL
J: Analyte positively identified, but quantitation estimated.
Q: Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
<: Analyte not detected above RL

Method:
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date / Units	MCL	TC	MW-154 L09100412-11 10/15/2009	MW-167 L09100412-12 10/15/2009	MW-169 L09100378-38 10/14/2009	MW-170 L09100378-39 10/14/2009	MW-171 L09100378-40 10/14/2009	MW-172 L09100378-60 10/14/2009	MW-174 L09100378-09 10/13/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2 2	<0 5	<0.5	<0.5	<0 5	<0.5	<0.5	0.315 F
1,1,2-Trichloroethane	µg/L	5	1.9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	5	--	<0.5	<0.5	<0 5	<0.5	<0.5	<0.5	<0 5
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	<1	0.674 F	0.988 F
Chloroform	µg/L	80	12	<0.3	<0.3	<0 3	<0.3	<0.3	<0 3	**1.54**
cis-1,2-Dichloroethene	µg/L	70	35	<1	<1	0 547 F	<1	<1	<1	<1
Tetrachloroethene	µg/L	5	2.5	<1	<1	<1	<1	<1	0.296 F	0.591 F
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	<1	<1	<1	<1	<1	<1	0.485 F
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				0	0	0.547	0	0	0.97	3.92
1,1,1-Trichloroethane	µg/L	200	--	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	µg/L	75	--	<0 5	0.346 F	**0.762**	<0.5	<0 5	<0.5	<0.5
Acetone	µg/L	--	--	**19.4**	**18.3**	6.46 F	**14**	**19.5**	<10	2 66 F
Chlorobenzene	µg/L	100	--	<0 5	<0.5	**3.04**	<0.5	<0 5	<0.5	<0.5

Notes:
µg/L: micrograms per liter
-- : Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags
F: Concentration below RL but above MDL
J: Analyte positively identified, but quantitation estimated
Q: Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
< Analyte not detected above RL

Method
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date	Units	MCL	TC	MW-176 L09100378-10 10/13/2009	MW-178 L09100378-41 10/14/2009	MW-179 L09100378-42 10/14/2009	MW-180 L09100378-11 10/13/2009	MW-182 L09100412-13 10/15/2009	MW-184 L09100378-61 10/14/2009	MW-185 L09100378-43 10/14/2009
1,1,2,2-Tetrachloroethane		µg/L	--	2.2	<0 5	<0.5	<0.5	<0 5	<0 5	**5.06**	<0.5
1,1,2-Trichloroethane		µg/L	5	1 9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene		µg/L	7	7	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		µg/L	5	--	<0.5	<0.5	<0 5	<0.5	<0.5	0.484 F	<0.5
Carbon tetrachloride		µg/L	5	3	<1	<1	<1	<1	<1	**13.4**	<1
Chloroform		µg/L	80	12	<0.3	**0.602**	<0.3	0 154 F	<0 3	**117**	<0.3
cis-1,2-Dichloroethene		µg/L	70	35	<1	<1	<1	<1	<1	**5.61**	<1
Tetrachloroethene		µg/L	5	2.5	<1	0 263 F	0.281 F	<1	<1	**4.98**	<1
trans-1,2-Dichloroethene		µg/L	100	50	<1	<1	<1	<1	<1	**1.63**	<1
Trichloroethene		µg/L	5	5	<1	<1	<1	<1	<1	**84**	<1
Vinyl chloride		µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs					0	0.865	0 281	0 154	0	232	0
1,1,1-Trichloroethane		µg/L	200	--	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane		µg/L	--	--	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene		µg/L	75	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone		µg/L	--	--	2 65 F	5.15 F	6.96 F	4.31 F	6.57 F	<10	4 01 F
Chlorobenzene		µg/L	100	--	<0 5	<0 5	<0.5	<0.5	<0 5	<0.5	<0.5

Notes
µg/L: micrograms per liter
-- : Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags:
F: Concentration below RL but above MDL
J Analyte positively identified, but quantitation estimated.
Q: Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
<: Analyte not detected above RL

Method:
8260B Volatile Organic Compounds

10.27.21

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date / Units	MCL	TC	MW-186 L09100378-44 10/14/2009	MW-187 L09100412-14 10/15/2009	MW-190 L09100378-45 10/14/2009	MW-220 L09100378-20 10/13/2009	MW-221 L09100378-12 10/13/2009	MW-222 L09100378-48 10/14/2009	MW-223 L09100378-49 10/14/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2.2	<0.5	<0.5	**28.1**	<0.5	<0 5	<0.5	0.227 F
1,1,2-Trichloroethane	µg/L	5	1.9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	<1	<1	**33.1**	<1	<1	<1
1,2-Dichloroethane	µg/L	5	--	<0 5	<0.5	<0.5	<0.5	<0 5	<0.5	<0.5
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	<0 3	0.162 F	0.135 F	0.184 F	<0 3	0.269 F	**0.551**
cis-1,2-Dichloroethene	µg/L	70	35	<1	<1	0.547 F	<1	<1	<1	<1
Tetrachloroethene	µg/L	5	2.5	<1	0.253 F	0.588 F	**19**	<1	<1	0 319 F
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	**1.83**	<1	**27.6**	**18.7**	<1	**1.04**	**4.01**
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				1.83	0.415	57.0	71 0	0	1 31	5 11
1,1,1-Trichloroethane	µg/L	200	--	<1	<1	<1	0.438 F	<1	<1	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	<1	0.868 F	<1	<1	<1
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0.5	<0 5	<0.5	<0.5	<0 5	<0.5
Acetone	µg/L	--	--	3 55 F	3.91 F	4.19 F	<10	5.13 F	7 27 F	7.69 F
Chlorobenzene	µg/L	100	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0 5	<0 5

Notes
µg/L micrograms per liter
--. Not Listed
MCL Maximum Contaminant Level
TC: Target Concentration
MDL. Method Detection Limit
RL Reporting Limit
Results detected at or above RL shown in bold

DQE Flags.
F· Concentration below RL but above MDL
J· Analyte positively identified, but quantitation estimated.
Q· Quality control criteria failed, further review required
M. Concentration estimated due to matrix effect
<. Analyte not detected above RL

Method
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID Lab ID Date Units	MCL	TC	MW-224 L09100378-50 10/14/2009	MW-225 L09100378-13 10/13/2009	MW-226 L09100378-51 10/14/2009	MW-227 L09100378-14 10/13/2009	MW-228 L09100378-62 10/14/2009	MW-230 L09100378-63 10/14/2009	MW-231 L09100378-52 10/14/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2.2	<0.5	**2.47**	<0.5	<0.5	<0.5	<0 5	<0.5
1,1,2-Trichloroethane	µg/L	5	1 9	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	<1	<1	<1	<1	**28.1**	<1
1,2-Dichloroethane	µg/L	5	–	<0.5	<0.5	<0.5	<0.5	<0.5	0.428 F	<0.5
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	0 627 F	<1	<1
Chloroform	µg/L	80	12	<0.3	0.198 F	0.184 F	**0.322**	<0.3	0.188 F	<0.3
cis-1,2-Dichloroethene	µg/L	70	35	<1	<1	<1	<1	<1	0.886 F	<1
Tetrachloroethene	µg/L	5	2.5	0.451 F	0.566 F	0.75 F	0.267 F	0 399 F	**88.4**	<1
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	<1	**11**	<1	<1	<1	**83.5**	<1
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1	<1	<1
Total Primary CVOCs				0.451	14.2	0.934	0.589	1 03	202	0
1,1,1-Trichloroethane	µg/L	200	–	<1	<1	<1	<1	<1	0.994 F	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	<1	<1	<1	**1.68**	<1
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0.5	<0.5	<0 5	<0.5	<0 5	<0.5
Acetone	µg/L	--	--	5 18 F	6 18 F	8.38 F	<10	<10	<10	4.05 F
Chlorobenzene	µg/L	100	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0 5	<0.5

Notes:
µg/L. micrograms per liter
-- : Not Listed
MCL. Maximum Contaminant Level
TC. Target Concentration
MDL· Method Detection Limit
RL· Reporting Limit
Results detected at or above RL shown in bold

DQE Flags:
F: Concentration below RL but above MDL
J· Analyte positively identified, but quantitation estimated.
Q. Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
<: Analyte not detected above RL

Method:
8260B: Volatile Organic Compounds

TABLE 5
ANALYTICAL RESULTS SUMMARY
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte	Well ID / Lab ID / Date / Units	MCL	TC	MW-234 L09100378-53 10/14/2009	MW-235 L09100412-15 10/15/2009	MW-237 L09100412-16 10/15/2009	MW-239 L09100412-17 10/15/2009	MW-240 L09100378-54 10/14/2009
1,1,2,2-Tetrachloroethane	µg/L	--	2.2	<0.5	<0.5	<0.5	**0.605**	<0.5
1,1,2-Trichloroethane	µg/L	5	1.9	<1	<1	<1	<1	<1
1,1-Dichloroethene	µg/L	7	7	<1	<1	**1.77**	0.899 F	<1
1,2-Dichloroethane	µg/L	5	--	<0.5	<0.5	<0.5	<0 5	<0.5
Carbon tetrachloride	µg/L	5	3	<1	<1	<1	<1	<1
Chloroform	µg/L	80	12	<0 3	<0 3	<0.3	<0.3	<0.3
cis-1,2-Dichloroethene	µg/L	70	35	<1	<1	<1	0.278 F	0.86 F
Tetrachloroethene	µg/L	5	2 5	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	100	50	<1	<1	<1	<1	<1
Trichloroethene	µg/L	5	5	<1	<1	<1	<1	**1.73**
Vinyl chloride	µg/L	2	--	<1	<1	<1	<1	<1
Total Primary CVOCs				0	0	1.77	1 78	2.59
1,1,1-Trichloroethane	µg/L	200	--	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	--	--	<1	<1	0 283 F	<1	<1
1,4-Dichlorobenzene	µg/L	75	--	<0.5	<0 5	<0.5	<0.5	<0.5
Acetone	µg/L	--	--	<10	5 37 F	4.56 F	3 96 F	<10
Chlorobenzene	µg/L	100	--	<0 5	<0.5	<0 5	<0.5	<0.5

Notes:
µg/L: micrograms per liter
-- Not Listed
MCL: Maximum Contaminant Level
TC: Target Concentration
MDL: Method Detection Limit
RL: Reporting Limit
Results detected at or above RL shown in bold

DQE Flags
F: Concentration below RL but above MDL
J Analyte positively identified, but quantitation estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
<: Analyte not detected above RL

Method
8260B: Volatile Organic Compounds

TABLE 6
SUMMARY OF PRIMARY CVOC RESULTS
OCTOBER 2009 IRA SEMI-ANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

VOC Analyte	MCL (µg/L)	TC (µg/L)	Number of Locations with Analyte Above RL	Maximum Concentrations (µg/L)	Location of Maximum Concentration	Number of Locations with Analyte Above MCL	Number of Locations with Analyte Above TC
1,1,2,2-Tetrachloroethane	--	2.2	12	301	MW-144	--	10
1,1,2-Trichloroethane	5	1.9	0	--	--	--	--
1,1-Dichloroethene	7	7	10	33.1	MW-220	7	7
1,2-Dichloroethane	5	--	2	0 925	MW-32	0	--
Carbon tetrachloride	5	3	3	20.2	MW-32	2	2
Chloroform	80	12	16	176	MW-32	2	3
cis-1,2-Dichloroethene	70	35	6	10.3	MW-32	0	0
Tetrachloroethene	5	2.5	13	88.4	MW-230	7	9
trans-1,2-Dichloroethene	100	50	2	1.97	MW-32	0	0
Trichloroethene	5	5	23	173	MW-144	14	14
Vinyl chloride	2	--	0	--	--	--	--

Notes:
µg/L micrograms per liter
-- not listed
RL reporting limit
MCL Maximum Contaminant Level
TC Target Concentration

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FIGURES

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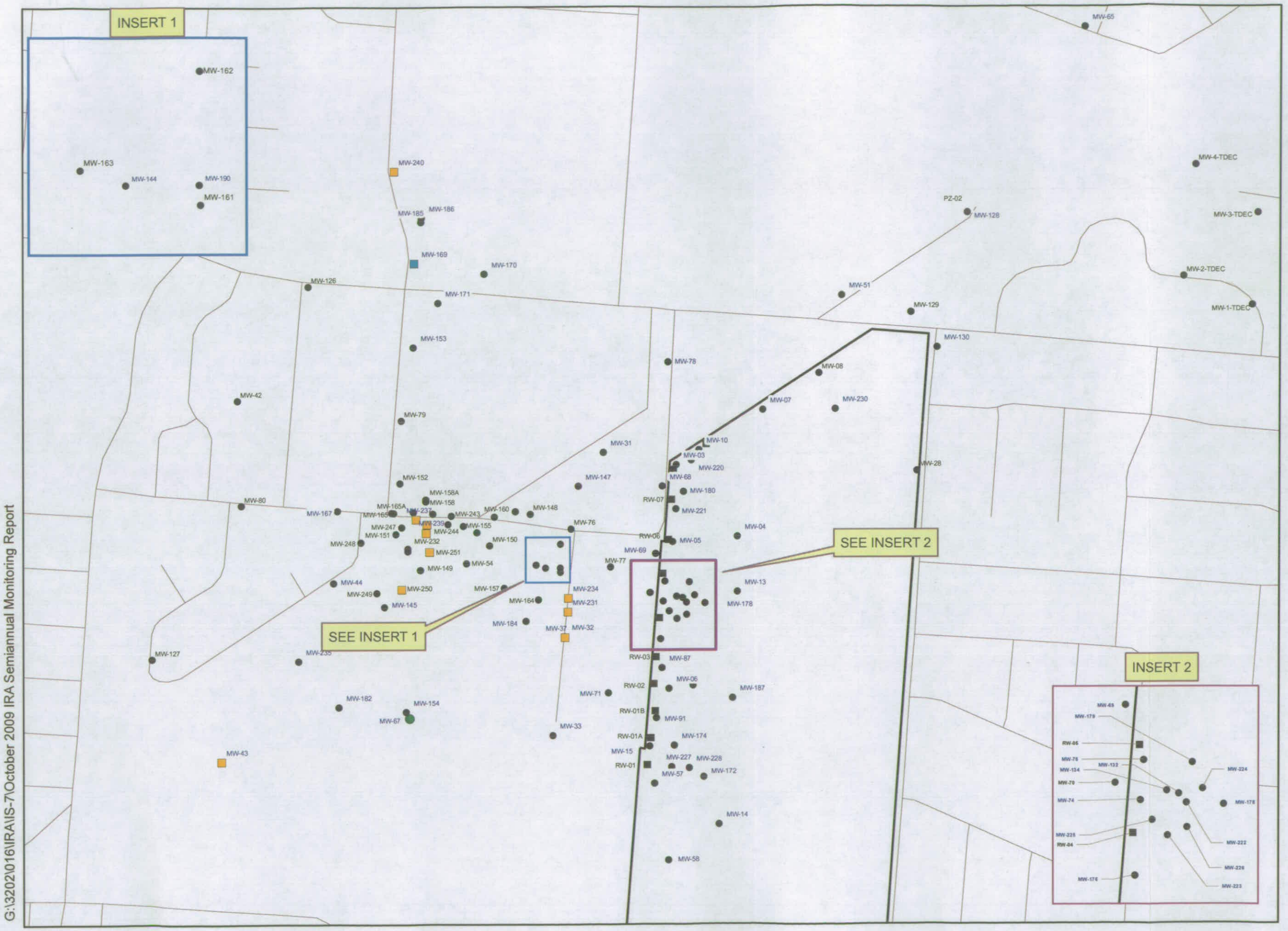

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Figure 1

WELL LOCATION MAP

OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT

DUNN FIELD
DEFENSE DEPOT
MEMPHIS, TENNESSEE

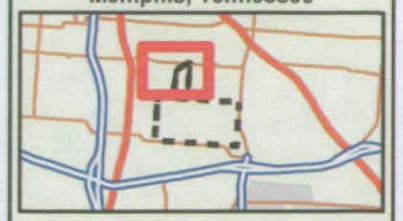
Legend

- Monitoring Well Screened in the Fluvial Aquifer
- Recovery Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Intermediate Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Memphis Aquifer
- MW-33 IRA Sample Location October 2009
- Dunn Field Boundary

0 150 300 450 600

Feet

Installation Location
Memphis, Tennessee



Date: February 2010
Edition: Rev 0

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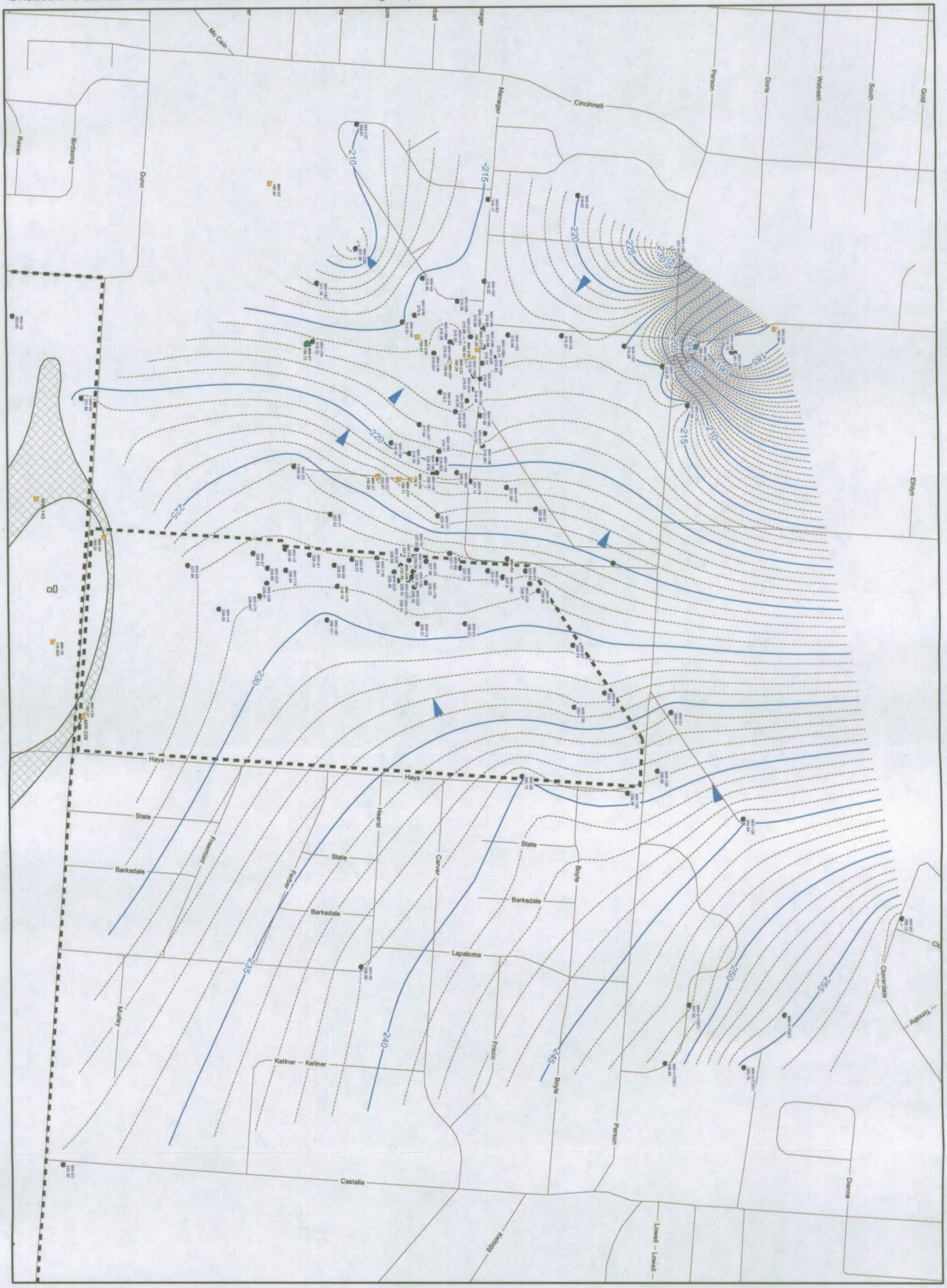

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Figure 2

GROUNDWATER ELEVATION MAP

OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT

DUNN FIELD
DEFENSE DEPOT
MEMPHIS, TENNESSEE

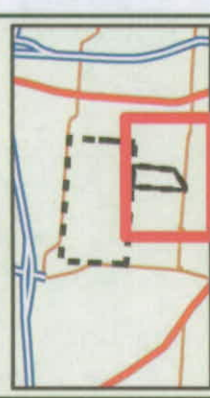
Legend

- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Intermediate Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Memphis Aquifer
- Dunn Field Boundary
- *Clay Elevation Exceeds Groundwater Elevation*
- MW-03 100.12 Blue non-italics: value used for groundwater contours

Groundwater Contours

- 1-ft Contour
- 5-ft Contour
- Groundwater Flow Direction

0 200 400 600 800
Feet



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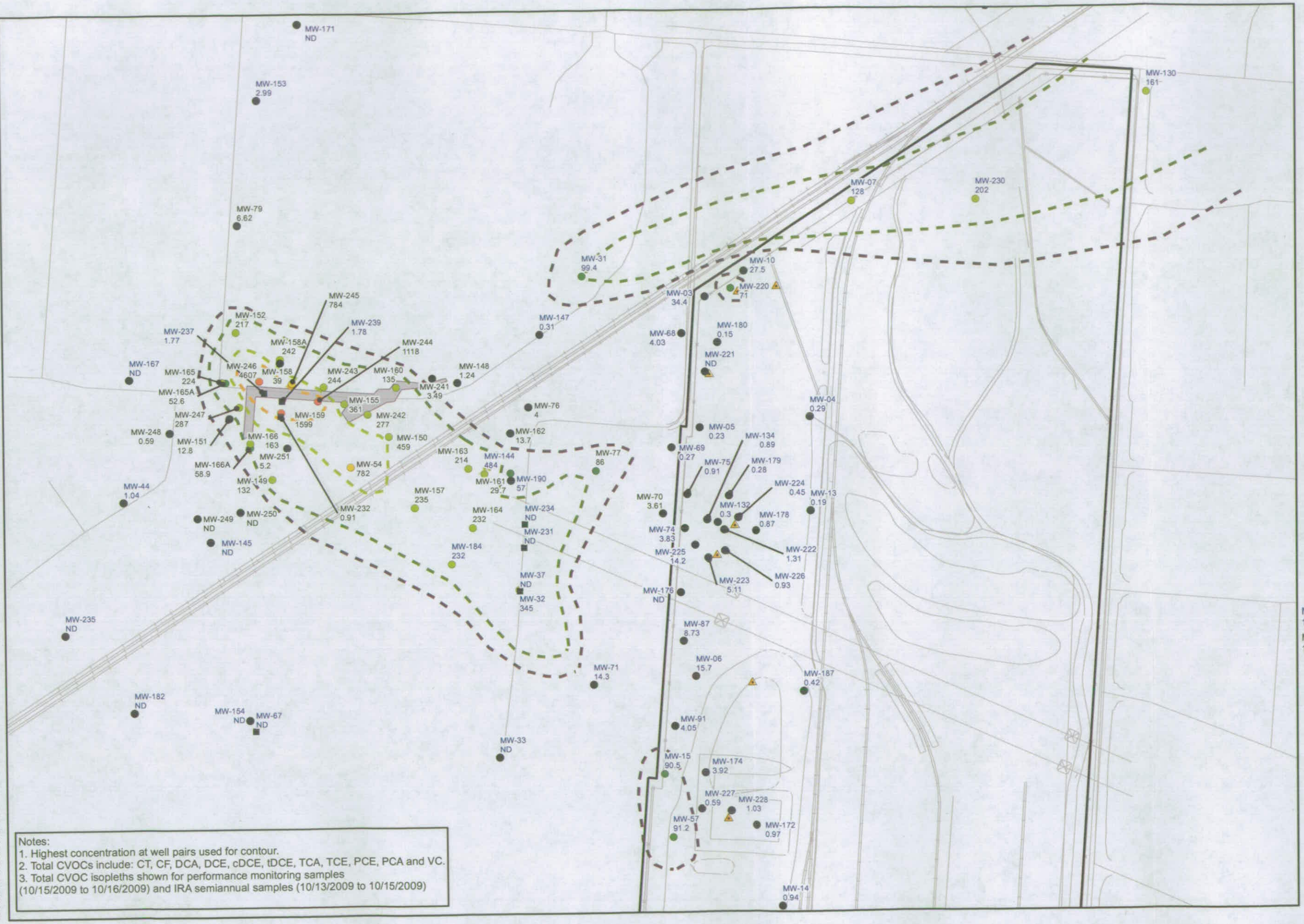
Edition: Rev 0



Notes:
1. Highest concentration at well pairs used for contour.
2. Total CVOCs include: CT, CF, DCA, DCE, cDCE, tDCE, TCA, TCE, PCE, PCA and VC.
3. Total CVOC isopleths shown for performance monitoring samples (10/15/2009 to 10/16/2009) and IRA semiannual samples (10/13/2009 to 10/15/2009)

N
W E
S

Figure 3

TOTAL CVOC CONCENTRATIONS

OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT

DUNN FIELD
DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

CVOCs Fluvial Wells
ug/L
- 0 - 50
- 50 - 100
- 100 - 500
- 500 - 1000
- 1000 - 5000

Total CVOC Isopleth (ug/L)
- 50
- 100
- 500
- 1000

CVOCs Non-Fluvial Wells
ug/L
- 0 - 50

SVE -Soil Vapor Extraction Point

Original Dunn Field Property Boundary

MW-05 100 Blue: IRA Sample Event

MW-249 100 Black: Off Depot Performance Monitoring Sample Event

0 100 200 300
Feet

Installation Location
Memphis, Tennessee

Date: February 2010
Edition: Rev 0

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APPENDICES

A Results of Laboratory Analyses

B Time Trend Plots for Selected Dunn Field Wells

C Time Trend Plots for Selected Off Depot Wells

Appendix A

Results of Laboratory Analyses

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID / Sample ID / Lab ID / Date	Units	MW-03 MW-03-IS-7 L09100378-18 10/13/2009	MW-03 DUP-1 MW-03 DUP-1-IS- L09100378-22 10/13/2009	MW-04 MW-04-IS-7 L09100378-24 10/14/2009	MW-05 MW-05-IS-7 L09100378-19 10/13/2009	MW-06 MW-06-IS-7 L09100378-01 10/13/2009	MW-07 MW-07-IS-7 L09100378-02 10/13/2009
1,1,1,2-Tetrachloroethane		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
1,1,1-Trichloroethane		µg/L	<1	<1	<1	<1	<1	0 715 F
1,1,2,2-Tetrachloroethane		µg/L	<0.5	<0 5	<0 5	<0 5	3 96	<0 5
1,1,2-Trichloroethane		µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane		µg/L	0 317 F	<1	<1	<1	<1	1 24
1,1-Dichloroethene		µg/L	13 4	13 3	<1	<1	<1	24
1,1-Dichloropropene		µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane		µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane		µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		µg/L	<0.5	<0 5	<0 5	<0 5	<0.5	0.28 F
1,2-Dichloropropane		µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane		µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0.4
1,4-Dichlorobenzene		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1-Chlorohexane		µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane		µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene		µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone		µg/L	<10	<10	<10	<10	<10 Q	<10 Q
4-Chlorotoluene		µg/L	<1 Q	<1 Q	<1	<1 Q	<1	<1
Acetone		µg/L	<10	<10	5.95 F	<10	3 57 F	16 7
Benzene		µg/L	<0.4	<0 4	<0 4	<0 4	<0.4	<0 4
Bromobenzene		µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane		µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane		µg/L	<0.5	<0 5	<0 5	<0.5	<0 5	<0 5
Bromoform		µg/L	<1	<1	<1	<1	<1	<1
Bromomethane		µg/L	<1	<1	<1	<1	<1 Q	<1 Q
Carbon disulfide		µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride		µg/L	<1	<1	<1	<1	<1	<1
Chlorobenzene		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
Chloroethane		µg/L	<1	<1	<1	<1	<1	<1
Chloroform		µg/L	<0.3	<0 3	0.294 F	0 227 F	5 48	0 263 F
Chloromethane		µg/L	<1	<1	<1	<1	0 281 F	<1
cis-1,2-Dichloroethene		µg/L	0 47 F	0 519 F	<1	<1	3 78	0 441 F
cis-1,3-Dichloropropene		µg/L	<0 5	<0 5	<0.5	<0 5	<0 5	<0.5
Dibromochloromethane		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane		µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane		µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene		µg/L	<0.6	<0 6	<0 6	<0 6	<0.6	<0 6
Isopropylbenzene		µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene		µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)		µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)		µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride		µg/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)		µg/L	<10	<10	<10	<10	<10	<10
Naphthalene		µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene		µg/L	<1	<1	<1	<1	<1	<1
o-Xylene		µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene		µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Styrene		µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene		µg/L	10.1	9 58	<1	<1	<1	62 8
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	10 4	10 3	<1	<1	2 44	40 4
Trichlorofluoromethane		µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate		µg/L	<5	<5	<5 Q	<5	<5 Q	<5 Q
Vinyl chlonde		µg/L	<1	<1	<1	<1	<1	<1

Notes.
µg/L micrograms per liter
RL Reporting Limit

DQE Flags.
F. Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M. Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

	Well ID	MW-10	MW-13	MW-14	MW-14 DUP-2	MW-15	MW-31
	Sample ID	MW-10-IS-7	MW-13-IS-7	MW-14-IS-7	MW-14 DUP-2-IS-	MW-15-IS-7	MW-31-IS-7
	Lab ID	L09100412-18	L09100378-25	L09100378-03	L09100378-15	L09100378-04	L09100378-26
	Date	10/15/2009	10/14/2009	10/13/2009	10/13/2009	10/13/2009	10/14/2009
Analyte (SW8260B)	Units						
1,1,1,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	0.547 F
1,1,2,2-Tetrachloroethane	µg/L	14 6	<0 5	<0 5	<0 5	24 5	<0 5
1,1,2-Trichloroethane	µg/L	<1	<1	<1	<1	0 905 F	<1
1,1-Dichloroethane	µg/L	<1	<1	<1	<1	<1	1 13
1,1-Dichloroethene	µg/L	1 07	<1	<1	<1	<1	28 8
1,1-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	0 861	<0 5
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene	µg/L	<0 5	<0 5	<0.5	<0 5	<0 5	<0 5
1-Chlorohexane	µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone	µg/L	<10	<10	<10 Q	<10	<10 Q	<10
4-Chlorotoluene	µg/L	<1	<1 Q	<1	<1 Q	<1	<1 Q
Acetone	µg/L	3 25 F	5 86 F	2 54 F	2 55 F	3.05 F	16 7
Benzene	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene	µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Bromoform	µg/L	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1 Q	<1	<1 Q	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	0 939 F	0.764 F	2.97	<1
Chlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	1.15	0 187 F	<0 3	<0 3	31 1 M	0 161 F
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	0.733 F	<1	<1	<1	1.69	0 273 F
cis-1,3-Dichloropropene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane	µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene	µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride	µg/L	<1	<1	<1	0 258 F	<1	<1
MIBK (methyl isobutyl ketone)	µg/L	<10	<10	<10	<10	<10	<10
Naphthalene	µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene	µg/L	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	3 19	<1	<1	<1	1 13	41 2
Toluene	µg/L	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	<1	<1	<1	<1	0 332 F	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	6 79	<1	<1	<1	27	29
Trichlorofluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate	µg/L	<5	<5	<5 Q	<5	<5 Q	<5
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1

Notes
µg/L micrograms per liter
RL Reporting Limit

DQE Flags
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID / Sample ID / Lab ID / Date	Units	MW-32 / MW-32-IS-7 / L09100378-27 / 10/14/2009	MW-33 / MW-33-IS-7 / L09100378-28 / 10/14/2009	MW-37 / MW-37-IS-7 / L09100378-29 / 10/14/2009	MW-43 / MW-43-IS-7 / L09100412-01 / 10/15/2009	MW-44 / MW-44-IS-7 / L09100412-02 / 10/15/2009	MW-51 / MW-51-IS-7 / L09100412-03 / 10/15/2009
1,1,1,2-Tetrachloroethane		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane		µg/L	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		µg/L	16 2	<0 5	<0 5	<0 5	<0 5	<0.5
1,1,2-Trichloroethane		µg/L	0 873 F	<1	<1	<1	<1	<1
1,1-Dichloroethane		µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene		µg/L	<1	<1	<1	<1	<1	15
1,1-Dichloropropene		µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane		µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane		µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		µg/L	0 925	<0 5	<0 5	<0 5	<0 5	<0 5
1,2-Dichloropropane		µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane		µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene		µg/L	0 157 F	<0 5	<0 5	<0 5	<0.5	<0 5
1-Chlorohexane		µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane		µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene		µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone		µg/L	<10	<10	<10	<10	<10	<10
4-Chlorotoluene		µg/L	<1 Q	<1 Q	<1 Q	<1	<1	<1
Acetone		µg/L	25 4	18 6	16 5	19 1	17	5 29 F
Benzene		µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0.4
Bromobenzene		µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane		µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
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	20 2	<1	<1	<1	0 822 F	<1
Chlorobenzene		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane		µg/L	<1	<1	<1	<1	<1	<1
Chloroform		µg/L	176	<0.3	<0 3	<0 3	0 213 F	0 231 F
Chloromethane		µg/L	<1	<1	0 464 F	<1	<1	<1
cis-1,2-Dichloroethene		µg/L	10.3	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene		µg/L	<0 5	<0.5	<0 5	<0 5	<0.5	<0.5
Dibromochloromethane		µg/L	<0 5	<0 5	<0.5	<0 5	<0 5	<0 5
Dibromomethane		µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane		µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene		µg/L	<0 6	<0.6	<0 6	<0 6	<0.6	<0 6
Isopropylbenzene		µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene		µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)		µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)		µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride		µg/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)		µg/L	<10	<10	<10	<10	<10	<10
Naphthalene		µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene		µg/L	<1	<1	<1	<1	<1	<1
o-Xylene		µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene		µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Styrene		µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene		µg/L	5 41	<1	<1	<1	<1	2.3
Toluene		µg/L	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene		µg/L	1.97	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene		µg/L	<1	<1	<1	<1	<1	<1
Trichloroethene		µg/L	113	<1	<1	<1	<1	10 4
Trichlorofluoromethane		µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate		µg/L	<5	<5	<5	<5	<5	<5
Vinyl chloride		µg/L	<1	<1	<1	<1	<1	<1

Notes
µg/L: micrograms per liter
RL Reporting Limit

DQE Flags
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
<, Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

	Well ID	MW-57	MW-58	MW-65	MW-67	MW-68	MW-69
	Sample ID	MW-57-IS-7	MW-58-IS-7	MW-65-IS-7	MW-67-IS-7	MW-68-IS-7	MW-69-IS-7
	Lab ID	L09100378-07	L09100412-39	L09100412-04	L09100412-05	L09100378-30	L09100378-31
	Date	10/13/2009	10/15/2009	10/15/2009	10/15/2009	10/14/2009	10/14/2009
Analyte (SW8260B)	Units						
1,1,1,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
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-Dichloroethene	µg/L	<1	<1	<1	<1	1.16	<1
1,1-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
1-Chlorohexane	µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone	µg/L	<10 Q	<10	<10	<10	<10	<10
4-Chlorotoluene	µg/L	<1	<1	<1	<1	<1 Q	<1 Q
Acetone	µg/L	15 9	3 17 F	4 65 F	17	18 6	21
Benzene	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene	µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Bromoform	µg/L	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1 Q	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	0.9 F	0 81 F	<1	<1	<1	<1
Chlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	67 4	0 149 F	<0 3	<0 3	0 159 F	<0 3
Chloromethane	µg/L	<1	<1	<1	<1	<1	0 517 F
cis-1,2-Dichloroethene	µg/L	1 48	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane	µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene	µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	µg/L	<10	<10	<10	<10	<10	3 17 F
Methyl t-butyl ether (MTBE)	µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	µg/L	<10	<10	<10	<10	<10	<10
Naphthalene	µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene	µg/L	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	0 841 F	0 309 F	<1	<1	1 55	0 271 F
Toluene	µg/L	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	0 31 F	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
Trichloroethene	µg/L	20.3	<1	<1	<1	1 16	<1
Trichlorofluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate	µg/L	<5 Q	<5	<5 Q	<5 Q	<5	<5
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1

Notes
µg/L micrograms per liter
RL Reporting Limit

DQE Flags
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID / Sample ID / Lab ID / Date	Units	MW-71 MW-71-IS-7 L09100378-32 10/14/2009	MW-71 DUP-3 MW-71 DUP-3-IS- L09100378-55 10/14/2009	MW-74 MW-74-IS-7 L09100378-33 10/14/2009	MW-75 MW-75-IS-7 L09100378-34 10/14/2009	MW-87 MW-87-IS-7 L09100378-08 10/13/2009	MW-91 MW-91-IS-7 L09100378-58 10/14/2009
1,1,1,2-Tetrachloroethane		µg/L	<0 5	<0 5	<0 5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane		µg/L	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		µg/L	7 97	8.08	0 364 F	<0.5	7 09	0.678
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-Dichloroethene		µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene		µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane		µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane		µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		µg/L	<0 5	<0.5	<0 5	<0 5	<0 5	<0 5
1,2-Dichloropropane		µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene		µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane		µg/L	<0 4	<0 4	<0 4	<0 4	<0.4	<0.4
1,4-Dichlorobenzene		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1-Chlorohexane		µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane		µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene		µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone		µg/L	<10	<10	<10	<10	<10 Q	<10
4-Chlorotoluene		µg/L	<1	<1	<1 Q	<1	<1	<1
Acetone		µg/L	19 2	18.4	9 11 F	5 92 F	2 92 F	<10
Benzene		µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene		µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane		µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane		µg/L	<0 5	<0 5	<0 5	<0.5	<0 5	<0 5
Bromoform		µg/L	<1	<1	<1	<1	<1	<1
Bromomethane		µg/L	<1	<1	<1	<1 Q	<1 Q	<1
Carbon disulfide		µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride		µg/L	0 301 F	0 468 F	<1	<1	<1	0 479 F
Chlorobenzene		µg/L	<0.5	<0 5	<0 5	<0 5	<0.5	<0 5
Chloroethane		µg/L	<1	<1	<1	<1	<1	<1
Chloroform		µg/L	3 79	3 98	0 628	0 383	0 471	1 83
Chloromethane		µg/L	0 436 F	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene		µg/L	<1	<1	<1	<1	0 391 F	<1
cis-1,3-Dichloropropene		µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane		µg/L	<0 5	<0 5	<0 5	<0 5	<0.5	<0.5
Dibromomethane		µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane		µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene		µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0.6
Isopropylbenzene		µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene		µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)		µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)		µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride		µg/L	0 268 F	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)		µg/L	<10	<10	<10	<10	<10	<10
Naphthalene		µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene		µg/L	<1	<1	<1	<1	<1	<1
o-Xylene		µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene		µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Styrene		µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene		µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene		µg/L	<1	<1	0 495 F	0 526 F	<1	0 494 F
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	2 23	2.25	2 34	<1	0 778 F	0.567 F
Trichlorofluoromethane		µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate		µg/L	<5 Q	<5 Q	<5	<5	<5 Q	<5 Q
Vinyl chloride		µg/L	<1	<1	<1	<1	<1	<1

Notes.
µg/L. micrograms per liter
RL Reporting Limit

DQE Flags:
F· Concentration below RL but above MDL
J. Analyte positively identified, but the quantitation is estimated.
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

1027 37

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID / Sample ID / Lab ID / Date / Units	MW-128 MW-128-IS-7 L09100412-06 10/15/2009 µg/L	MW-130 MW-130-IS-7 L09100412-07 10/15/2009 µg/L	MW-132 MW-132-IS-7 L09100378-59 10/14/2009 µg/L	MW-134 MW-134-IS-7 L09100412-19 10/15/2009 µg/L	MW-144 MW-144-IS-7 L09100378-35 10/14/2009 µg/L	MW-145 MW-145-IS-7 L09100412-10 10/15/2009 µg/L
1,1,1,2-Tetrachloroethane		<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane		<1	2.95	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		<0 5	<0 5	<0 5	<0 5	301	<0 5
1,1,2-Trichloroethane		<1	<1	<1	<1	0 661 F	<1
1,1-Dichloroethane		<1	1 41	<1	<1	<1	<1
1,1-Dichloroethene		<1	29	<1	<1	<1	<1
1,1-Dichloropropene		<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene		<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane		<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene		<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene		<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane		<2	<2	<2	<2	<2	<2
1,2-Dibromoethane		<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene		<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		<0 5	0 362 F	<0 5	<0 5	<0 5	<0 5
1,2-Dichloropropane		<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene		<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene		<1	<1	<1	<1	<1	<1
1,3-Dichloropropane		<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene		<0 5	<0 5	<0 5	<0.5	<0 5	<0 5
1-Chlorohexane		<1	<1	<1	<1	<1	<1
2,2-Dichloropropane		<1	<1	<1	<1	<1	<1
2-Chlorotoluene		<1	<1	<1	<1	<1	<1
2-Hexanone		<10	<10	<10	<10	<10	<10
4-Chlorotoluene		<1	<1	<1	<1	<1	<1
Acetone		4 46 F	16 7	<10	2 7 F	17 9	17 5
Benzene		<0 4	<0 4	<0 4	<0 4	0 18 F	<0 4
Bromobenzene		<1	<1	<1	<1	<1	<1
Bromochloromethane		<1	<1	<1	<1	<1	<1
Bromodichloromethane		<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
Bromoform		<1	<1	<1	<1	<1	<1
Bromomethane		<1	<1	<1	<1	<1 Q	<1
Carbon disulfide		<1	<1	<1	<1	<1	<1
Carbon tetrachloride		<1	<1	<1	<1	<1	<1
Chlorobenzene		<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane		<1	<1	<1	<1	<1	<1
Chloroform		<0 3	0 206 F	<0 3	0 128 F	0 501	<0 3
Chloromethane		<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene		<1	0 856 F	<1	<1	6 81	<1
cis-1,3-Dichloropropene		<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane		<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane		<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane		<1	<1	<1	<1	<1	<1
Ethylbenzene		<1	<1	<1	<1	<1	<1
Hexachlorobutadiene		<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene		<1	<1	<1	<1	<1	<1
m-,p-Xylene		<2	<2	<2	<2	<2	<2
MEK (2-Butanone)		<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)		<5	<5	<5	<5	<5	<5
Methylene chloride		<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)		<10	<10	<10	<10	<10	<10
Naphthalene		<1	<1	<1	<1	<1	<1
n-Butylbenzene		<1	<1	<1	<1	<1	<1
n-Propylbenzene		<1	<1	<1	<1	<1	<1
o-Xylene		<1	<1	<1	<1	<1	<1
p-Isopropyltoluene		<1	<1	<1	<1	<1	<1
sec-Butylbenzene		<1	<1	<1	<1	<1	<1
Styrene		<1	<1	<1	<1	<1	<1
tert-Butylbenzene		<1	<1	<1	<1	<1	<1
Tetrachloroethene		<1	68 5	0 303 F	0 501 F	1 4	<1
Toluene		<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene		<1	<1	<1	<1	0 676 F	<1
trans-1,3-Dichloropropene		<1	<1	<1	<1	<1	<1
Trichloroethene		<1	61.7	<1	0 262 F	173	<1
Trichlorofluoromethane		<1	<1	<1	<1	<1	<1
Vinyl acetate		<5 Q	<5	<5 Q	<5	<5	<5 Q
Vinyl chloride		<1	<1	<1	<1	<1	<1

Notes
µg/L: micrograms per liter
RL: Reporting Limit

DQE Flags
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID Sample ID Lab ID Date Units	MW-147 MW-147-IS-7 L09100378-36 10/14/2009 µg/L	MW-147 DUP-4 MW-147 DUP-4-IS-7 L09100378-56 10/14/2009 µg/L	MW-153 MW-153-IS-7 L09100378-37 10/14/2009 µg/L	MW-154 MW-154-IS-7 L09100412-11 10/15/2009 µg/L	MW-167 MW-167-IS-7 L09100412-12 10/15/2009 µg/L	MW-169 MW-169-IS-7 L09100378-38 10/14/2009 µg/L
1,1,1,2-Tetrachloroethane		<0 5	<0 5	<0 5	<0 5	<0.5	<0 5
1,1,1-Trichloroethane		<1	<1	0 416 F	<1	<1	<1
1,1,2,2-Tetrachloroethane		<0 5	<0 5	<0 5	<0.5	<0.5	<0 5
1,1,2-Trichloroethane		<1	<1	<1	<1	<1	<1
1,1-Dichloroethane		<1	<1	0.309 F	<1	<1	<1
1,1-Dichloroethene		<1	<1	2 99	<1	<1	<1
1,1-Dichloropropene		<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene		<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane		<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene		<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene		<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane		<2	<2	<2	<2	<2	<2
1,2-Dibromoethane		<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene		<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
1,2-Dichloropropane		<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene		<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene		<1	<1	<1	<1	<1	<1
1,3-Dichloropropane		<0 4	<0 4	<0.4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene		<0.5	<0.5	<0.5	<0.5	0.346 F	0 762
1-Chlorohexane		<1	<1	<1	<1	<1	<1
2,2-Dichloropropane		<1	<1	<1	<1	<1	<1
2-Chlorotoluene		<1	<1	<1	<1	<1	<1
2-Hexanone		<10	<10	<10	<10	<10	<10
4-Chlorotoluene		<1	<1	<1	<1	<1	<1
Acetone		18 1	16 4	15 2	19.4	18.3	6 46 F
Benzene		<0.4	<0 4	<0 4	<0 4	<0 4	<0.4
Bromobenzene		<1	<1	<1	<1	<1	<1
Bromochloromethane		<1	<1	<1	<1	<1	<1
Bromodichloromethane		<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Bromoform		<1	<1	<1	<1	<1	<1
Bromomethane		<1 Q	<1	<1 Q	<1	<1	<1 Q
Carbon disulfide		<1	<1	<1	<1	<1	<1
Carbon tetrachloride		<1	<1	<1	<1	<1	<1
Chlorobenzene		<0 5	<0.5	<0.5	<0 5	<0 5	3 04
Chloroethane		<1	<1	<1	<1	<1	<1
Chloroform		<0 3	<0 3	<0.3	<0 3	<0 3	<0 3
Chloromethane		<1	<1	0 437 F	<1	<1	<1
cis-1,2-Dichloroethene		<1	<1	<1	<1	<1	0 547 F
cis-1,3-Dichloropropene		<0 5	<0.5	<0.5	<0 5	<0 5	<0 5
Dibromochloromethane		<0.5	<0 5	<0 5	<0 5	<0.5	<0.5
Dibromomethane		<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane		<1	<1	<1	<1	<1	<1
Ethylbenzene		<1	<1	<1	<1	<1	<1
Hexachlorobutadiene		<0 6	<0 6	<0.6	<0 6	<0 6	<0 6
Isopropylbenzene		<1	<1	<1	<1	<1	<1
m-,p-Xylene		<2	<2	<2	<2	<2	<2
MEK (2-Butanone)		<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)		<5	<5	<5	<5	<5	<5
Methylene chloride		<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)		<10	<10	<10	<10	<10	<10
Naphthalene		<1	<1	<1	<1	<1	<1
n-Butylbenzene		<1	<1	<1	<1	<1	<1
n-Propylbenzene		<1	<1	<1	<1	<1	<1
o-Xylene		<1	<1	<1	<1	<1	<1
p-Isopropyltoluene		<1	<1	<1	<1	<1	<1
sec-Butylbenzene		<1	<1	<1	<1	<1	<1
Styrene		<1	<1	<1	<1	<1	<1
tert-Butylbenzene		<1	<1	<1	<1	<1	<1
Tetrachloroethene		<1	<1	<1	<1	<1	<1
Toluene		<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene		<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene		<1	<1	<1	<1	<1	<1
Trichloroethene		0 313 F	<1	<1	<1	<1	<1
Trichlorofluoromethane		<1	<1	<1	<1	<1	<1
Vinyl acetate		<5	<5 Q	<5	<5 Q	<5 Q	<5
Vinyl chloride		<1	<1	<1	<1	<1	<1

Notes:
µg/L: micrograms per liter
RL: Reporting Limit

DQE Flags:
F: Concentration below RL but above MDL
J: Analyte positively identified, but the quantitation is estimated
Q: Quality control criteria failed, further review required
M: Concentration estimated due to matrix effect
<: Analyte not detected above RL

1027 39

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

	Well ID	MW-170	MW-171	MW-172	MW-174	MW-176	MW-178
	Sample ID	MW-170-IS-7	MW-171-IS-7	MW-172-IS-7	MW-174-IS-7	MW-176-IS-7	MW-178-IS-7
	Lab ID	L09100378-39	L09100378-40	L09100378-60	L09100378-09	L09100378-10	L09100378-41
	Date	10/14/2009	10/14/2009	10/14/2009	10/13/2009	10/13/2009	10/14/2009
Analyte (SW8260B)	Units						
1,1,1,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	0 315 F	<0 5	<0 5
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-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/L	<0 4	<0 4	<0.4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene	µg/L	<0 5	<0.5	<0 5	<0 5	<0 5	<0.5
1-Chlorohexane	µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone	µg/L	<10	<10	<10	<10 Q	<10 Q	<10
4-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
Acetone	µg/L	14	19 5	<10	2 66 F	2 65 F	5 15 F
Benzene	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene	µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<0 5	<0 5	<0 5	<0.5	<0.5	<0.5
Bromoform	µg/L	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1 Q	<1 Q	<1	<1 Q	<1 Q	<1 Q
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	0 674 F	0 988 F	<1	<1
Chlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	<0 3	<0 3	<0 3	1 54	<0 3	0 602
Chloromethane	µg/L	0 364 F	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
Dibromochloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane	µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene	µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	µg/L	<10	2 5 F	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	µg/L	<10	<10	<10	<10	<10	<10
Naphthalene	µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene	µg/L	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	0 296 F	0 591 F	<1	0 263 F
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	0 485 F	<1	<1
Trichlorofluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate	µg/L	<5	<5	<5 Q	<5 Q	<5 Q	<5
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1

Notes:
µg/L: micrograms per liter
RL Reporting Limit

DQE Flags
F Concentration below RL but above MDL
J: Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Well ID	MW-179	MW-180	MW-180 DUP-5	MW-182	MW-184	MW-185
Sample ID	MW-179-IS-7	MW-180-IS-7	W-180 DUP-5-IS	MW-182-IS-7	MW-184-IS-7	MW-185-IS-7
Lab ID	L09100378-42	L09100378-11	L09100378-16	L09100412-13	L09100378-61	L09100378-43
Date	10/14/2009	10/13/2009	10/13/2009	10/15/2009	10/14/2009	10/14/2009
Analyte (SW8260B) / Units						
1,1,1,2-Tetrachloroethane µg/L	<0 5	<0 5	<0.5	<0.5	<0 5	<0 5
1,1,1-Trichloroethane µg/L	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane µg/L	<0 5	<0 5	<0 5	<0 5	5 06	<0.5
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-Dichloroethene µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane µg/L	<0 5	<0 5	<0 5	<0 5	0 484 F	<0.5
1,2-Dichloropropane µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
1-Chlorohexane µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone µg/L	<10	<10 Q	<10	<10	<10	<10
4-Chlorotoluene µg/L	<1	<1	<1 Q	<1	<1	<1
Acetone µg/L	6 96 F	4 31 F	5 04 F	6 57 F	<10	4 01 F
Benzene µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane µg/L	<0.5	<0.5	<0 5	<0 5	<0.5	<0.5
Bromoform µg/L	<1	<1	<1	<1	<1	<1
Bromomethane µg/L	<1 Q	<1 Q	<1	<1	<1	<1 Q
Carbon disulfide µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride µg/L	<1	<1	<1	<1	13 4	<1
Chlorobenzene µg/L	<0 5	<0 5	<0.5	<0.5	<0 5	<0.5
Chloroethane µg/L	<1	<1	<1	<1	<1	<1
Chloroform µg/L	<0.3	0 154 F	0 161 F	<0 3	117	<0 3
Chloromethane µg/L	<1	<1	<1	0.286 F	<1	<1
cis-1,2-Dichloroethene µg/L	<1	<1	<1	<1	5 61	<1
cis-1,3-Dichloropropene µg/L	<0 5	<0 5	<0 5	<0 5	<0.5	<0 5
Dibromochloromethane µg/L	<0 5	<0 5	<0.5	<0.5	<0 5	<0 5
Dibromomethane µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone) µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE) µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride µg/L	<1	<1	<1	0 26 F	<1	<1
MIBK (methyl isobutyl ketone) µg/L	<10	<10	<10	<10	<10	<10
Naphthalene µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene µg/L	<1	<1	<1	<1	<1	<1
o-Xylene µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene µg/L	<1	<1	<1	<1	<1	<1
Styrene µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene µg/L	0 281 F	<1	<1	<1	4,98	<1
Toluene µg/L	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene µg/L	<1	<1	<1	<1	1,63	<1
trans-1,3-Dichloropropene µg/L	<1	<1	<1	<1	<1	<1
Trichloroethene µg/L	<1	<1	<1	<1	84	<1
Trichlorofluoromethane µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate µg/L	<5	<5 Q	<5	<5	<5 Q	<5
Vinyl chloride µg/L	<1	<1	<1	<1	<1	<1

Notes:
µg/L micrograms per liter
RL Reporting Limit

DQE Flags
F. Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q. Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

	Well ID	MW-186	MW-187	MW-190	MW-220	MW-221	MW-222
	Sample ID	MW-186-IS-7	MW-187-IS-7	MW-190-IS-7	MW-220-IS-7	MW-221-IS-7	MW-222-IS-7
	Lab ID	L09100378-44	L09100412-14	L09100378-45	L09100378-20	L09100378-12	L09100378-48
	Date	10/14/2009	10/15/2009	10/14/2009	10/13/2009	10/13/2009	10/14/2009
Analyte (SW8260B)	Units						
1,1,1,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane	µg/L	<1	<1	<1	0 438 F	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0 5	<0 5	28 1	<0 5	<0 5	<0 5
1,1,2-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	<1	0 868 F	<1	<1
1,1-Dichloroethene	µg/L	<1	<1	<1	33 1	<1	<1
1,1-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1-Chlorohexane	µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone	µg/L	<10	<10	<10	<10	<10 Q	<10
4-Chlorotoluene	µg/L	<1	<1	<1	<1 Q	<1	<1
Acetone	µg/L	3 55 F	3 91 F	4 19 F	<10	5 13 F	7.27 F
Benzene	µg/L	<0 4	<0 4	<0.4	<0 4	<0 4	<0 4
Bromobenzene	µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Bromoform	µg/L	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1 Q	<1	<1	<1	<1 Q	<1 Q
Carbon disulfide	µg/L	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	<0 3	0 162 F	0 135 F	0 184 F	<0 3	0 269 F
Chloromethane	µg/L	0 298 F	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	<1	0 547 F	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0.5
Dibromomethane	µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene	µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	µg/L	<10	<10	<10	<10	<10	<10
Naphthalene	µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene	µg/L	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	0 253 F	0 588 F	19	<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 83	<1	27 6	18 7	<1	1 04
Trichlorofluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate	µg/L	<5	<5	<5	<5	<5 Q	<5
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1

Notes:
µg/L micrograms per liter
RL Reporting Limit

DQE Flags
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID Sample ID Lab ID Date Units	MW-223 MW-223-IS-7 L09100378-49 10/14/2009 µg/L	MW-224 MW-224-IS-7 L09100378-50 10/14/2009 µg/L	MW-225 MW-225-IS-7 L09100378-13 10/13/2009 µg/L	MW-225 DUP-6 W-225 DUP-6-IS L09100378-17 10/13/2009 µg/L	MW-226 MW-226-IS-7 L09100378-51 10/14/2009 µg/L	MW-227 MW-227-IS-7 L09100378-14 10/13/2009 µg/L
1,1,1,2-Tetrachloroethane		<0.5	<0.5	<0.5	<0.5	<0 5	<0 5
1,1,1-Trichloroethane		<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane		0 227 F	<0 5	2 47	1 98	<0 5	<0 5
1,1,2-Trichloroethane		<1	<1	<1	<1	<1	<1
1,1-Dichloroethane		<1	<1	<1	<1	<1	<1
1,1-Dichloroethene		<1	<1	<1	<1	<1	<1
1,1-Dichloropropene		<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene		<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane		<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene		<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene		<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane		<2	<2	<2	<2	<2	<2
1,2-Dibromoethane		<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene		<1	<1	<1	<1	<1	<1
1,2-Dichloroethane		<0 5	<0.5	<0 5	<0 5	<0 5	<0.5
1,2-Dichloropropane		<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene		<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene		<1	<1	<1	<1	<1	<1
1,3-Dichloropropane		<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene		<0 5	<0 5	<0.5	<0 5	<0 5	<0.5
1-Chlorohexane		<1	<1	<1	<1	<1	<1
2,2-Dichloropropane		<1	<1	<1	<1	<1	<1
2-Chlorotoluene		<1	<1	<1	<1	<1	<1
2-Hexanone		<10	<10	<10 Q	<10	<10	<10
4-Chlorotoluene		<1	<1	<1	<1 Q	<1	<1 Q
Acetone		7 69 F	5 18 F	6.18 F	6 09 F	8 38 F	<10
Benzene		<0.4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene		<1	<1	<1	<1	<1	<1
Bromochloromethane		<1	<1	<1	<1	<1	<1
Bromodichloromethane		<0.5	<0 5	<0 5	<0 5	<0 5	<0.5
Bromoform		<1	<1	<1	<1	<1	<1
Bromomethane		<1 Q	<1 Q	<1 Q	<1	<1 Q	<1
Carbon disulfide		<1	<1	<1	<1	<1	<1
Carbon tetrachloride		<1	<1	<1	<1	<1	<1
Chlorobenzene		<0 5	<0.5	<0 5	<0.5	<0 5	<0 5
Chloroethane		<1	<1	<1	<1	<1	<1
Chloroform		0 551	<0 3	0 198 F	0 255 F	0.184 F	0.322
Chloromethane		<1	<1	0 255 F	0 442 F	<1	0 329 F
cis-1,2-Dichloroethene		<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene		<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane		<0.5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane		<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane		<1	<1	<1	<1	<1	<1
Ethylbenzene		<1	<1	<1	<1	<1	<1
Hexachlorobutadiene		<0 6	<0.6	<0 6	<0 6	<0.6	<0 6
Isopropylbenzene		<1	<1	<1	<1	<1	<1
m-,p-Xylene		<2	<2	<2	<2	<2	<2
MEK (2-Butanone)		<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)		<5	<5	<5	<5	<5	<5
Methylene chloride		<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)		<10	<10	<10	<10	<10	<10
Naphthalene		<1	<1	<1	<1	<1	<1
n-Butylbenzene		<1	<1	<1	<1	<1	<1
n-Propylbenzene		<1	<1	<1	<1	<1	<1
o-Xylene		<1	<1	<1	<1	<1	<1
p-Isopropyltoluene		<1	<1	<1	<1	<1	<1
sec-Butylbenzene		<1	<1	<1	<1	<1	<1
Styrene		<1	<1	<1	<1	<1	<1
tert-Butylbenzene		<1	<1	<1	<1	<1	<1
Tetrachloroethene		0 319 F	0 451 F	0 566 F	0 649 F	0.75 F	0 267 F
Toluene		<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene		<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene		<1	<1	<1	<1	<1	<1
Trichloroethene		4 01	<1	11	10 7	<1	<1
Trichlorofluoromethane		<1	<1	<1	<1	<1	<1
Vinyl acetate		<5	<5	<5 Q	<5	<5	<5
Vinyl chloride		<1	<1	<1	<1	<1	<1

Notes:
µg/L. micrograms per liter
RL. Reporting Limit

DQE Flags:
F· Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q. Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

Analyte (SW8260B)	Well ID / Sample ID / Lab ID / Date / Units	MW-228 / MW-228-IS-7 / L09100378-62 / 10/14/2009 / µg/L	MW-230 / MW-230-IS-7 / L09100378-63 / 10/14/2009 / µg/L	MW-231 / MW-231-IS-7 / L09100378-52 / 10/14/2009 / µg/L	MW-234 / MW-234-IS-7 / L09100378-53 / 10/14/2009 / µg/L	MW-235 / MW-235-IS-7 / L09100412-15 / 10/15/2009 / µg/L	MW-237 / MW-237-IS-7 / L09100412-16 / 10/15/2009 / µg/L
1,1,1,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,1-Trichloroethane	µg/L	<1	0 994 F	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1,1,2-Trichloroethane	µg/L	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	1 68	<1	<1	<1	0 283 F
1,1-Dichloroethene	µg/L	<1	28.1	<1	<1	<1	1 77
1,1-Dichloropropene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/L	<2	<2	<2	<2	<2	<2
1,2-Dibromoethane	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	µg/L	<0 5	0 428 F	<0 5	<0 5	<0 5	<0 5
1,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
1,4-Dichlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
1-Chlorohexane	µg/L	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	µg/L	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
2-Hexanone	µg/L	<10	<10	<10	<10	<10	<10
4-Chlorotoluene	µg/L	<1	<1	<1	<1	<1	<1
Acetone	µg/L	<10	<10	4 05 F	<10	5 37 F	4 56 F
Benzene	µg/L	<0 4	<0 4	<0 4	<0 4	<0 4	<0 4
Bromobenzene	µg/L	<1	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Bromoform	µg/L	<1	<1	<1	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	0 527 F	<1	<1	<1
Carbon tetrachloride	µg/L	0 627 F	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Chloroethane	µg/L	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	<0 3	0 188 F	<0 3	<0 3	<0 3	<0 3
Chloromethane	µg/L	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	<1	0 886 F	<1	<1	<1	<1
cis-1,3-Dichloropropene	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromochloromethane	µg/L	<0 5	<0 5	<0 5	<0 5	<0 5	<0 5
Dibromomethane	µg/L	<1	<1	<1	<1	<1	<1
Dichlorodifluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0 6	<0 6	<0 6	<0 6	<0 6	<0 6
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1	<1
m-,p-Xylene	µg/L	<2	<2	<2	<2	<2	<2
MEK (2-Butanone)	µg/L	<10	<10	<10	<10	<10	<10
Methyl t-butyl ether (MTBE)	µg/L	<5	<5	<5	<5	<5	<5
Methylene chloride	µg/L	<1	<1	<1	<1	<1	<1
MIBK (methyl isobutyl ketone)	µg/L	<10	<10	<10	<10	<10	<10
Naphthalene	µg/L	<1	<1	<1	<1	<1	<1
n-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
n-Propylbenzene	µg/L	<1	<1	<1	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	µg/L	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Styrene	µg/L	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	µg/L	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	0 399 F	88 4	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1	0 255 F
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	83 5	<1	<1	<1	<1
Trichlorofluoromethane	µg/L	<1	<1	<1	<1	<1	<1
Vinyl acetate	µg/L	<5 Q	<5 Q	<5	<5 Q	<5	<5
Vinyl chloride	µg/L	<1	<1	<1	<1	<1	<1

Notes:
µg/L micrograms per liter
RL Reporting Limit

DQE Flags:
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

TABLE A-1
MONITORING WELL SAMPLE ANALYTICAL RESULTS - VOCs
OCTOBER 2009 IRA SEMIANNUAL MONITORING REPORT
Dunn Field - Defense Depot Memphis, Tennessee

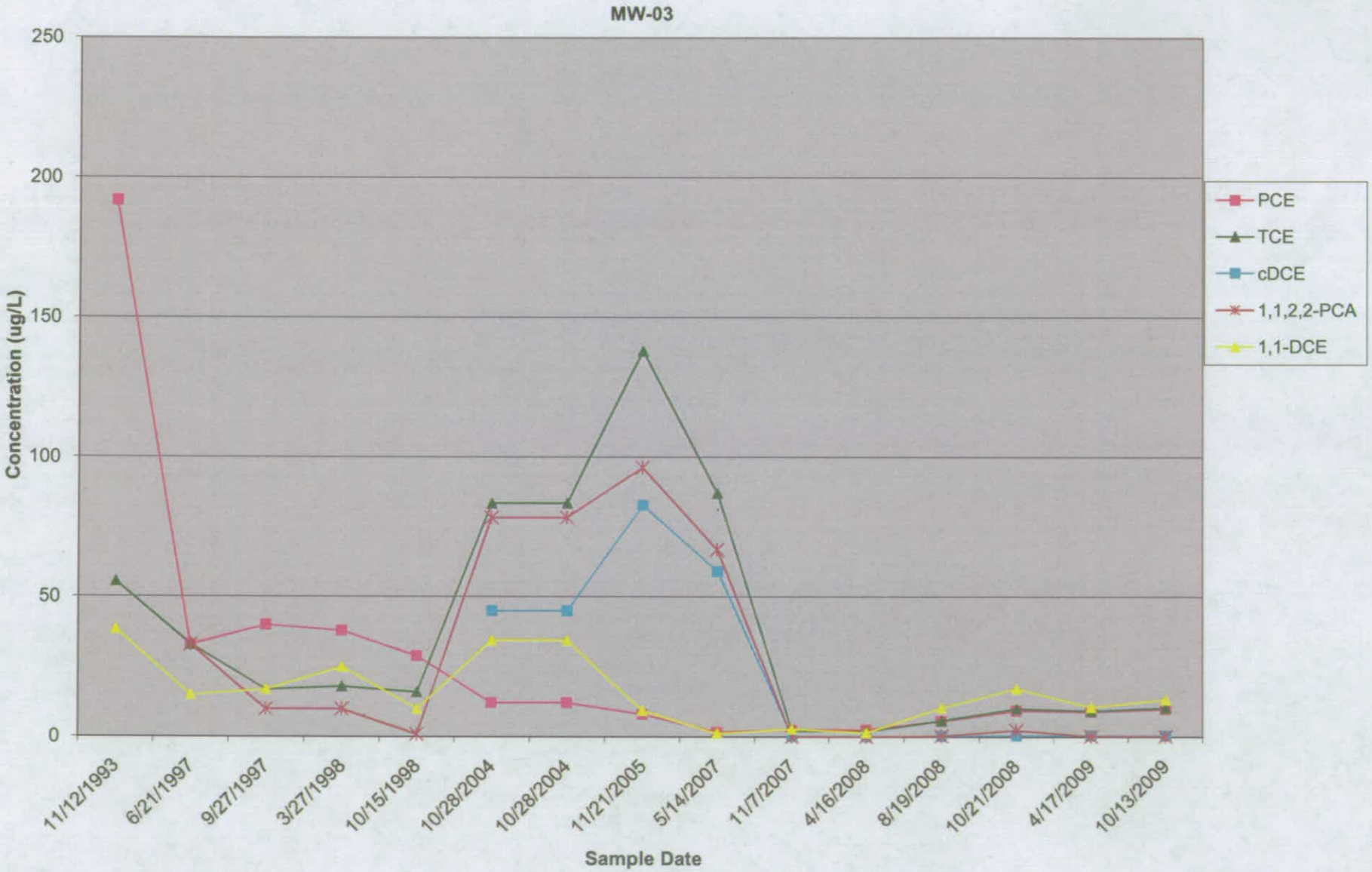
	Well ID	MW-239	MW-240	MW-240 DUP-7
	Sample ID	MW-239-IS-7	MW-240-IS-7	W-240 DUP-7-IS-7
	Lab ID	L09100412-17	L09100378-54	L09100378-57
	Date	10/15/2009	10/14/2009	10/14/2009
Analyte (SW8260B)	Units			
1,1,1,2-Tetrachloroethane	µg/L	<0 5	<0 5	<0.5
1,1,1-Trichloroethane	µg/L	<1	<1	<1
1,1,2,2-Tetrachloroethane	µg/L	0 605	<0 5	<0 5
1,1,2-Trichloroethane	µg/L	<1	<1	<1
1,1-Dichloroethane	µg/L	<1	<1	<1
1,1-Dichloroethene	µg/L	0.899 F	<1	<1
1,1-Dichloropropene	µg/L	<1	<1	<1
1,2,3-Trichlorobenzene	µg/L	<1	<1	<1
1,2,3-Trichloropropane	µg/L	<1	<1	<1
1,2,4-Trichlorobenzene	µg/L	<1	<1	<1
1,2,4-Trimethylbenzene	µg/L	<1	<1	<1
1,2-Dibromo-3-chloropropane	µg/L	<2	<2	<2
1,2-Dibromoethane	µg/L	<1	<1	<1
1,2-Dichlorobenzene	µg/L	<1	<1	<1
1,2-Dichloroethane	µg/L	<0 5	<0.5	<0 5
1,2-Dichloropropane	µg/L	<1	<1	<1
1,3,5-Trimethylbenzene	µg/L	<1	<1	<1
1,3-Dichlorobenzene	µg/L	<1	<1	<1
1,3-Dichloropropane	µg/L	<0 4	<0.4	<0 4
1,4-Dichlorobenzene	µg/L	<0.5	<0 5	<0 5
1-Chlorohexane	µg/L	<1	<1	<1
2,2-Dichloropropane	µg/L	<1	<1	<1
2-Chlorotoluene	µg/L	<1	<1	<1
2-Hexanone	µg/L	<10	<10	<10
4-Chlorotoluene	µg/L	<1	<1	<1
Acetone	µg/L	3 96 F	<10	3 79 F
Benzene	µg/L	<0 4	<0 4	<0 4
Bromobenzene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<0 5	<0 5	<0 5
Bromoform	µg/L	<1	<1	<1
Bromomethane	µg/L	<1	<1	<1
Carbon disulfide	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<0.5	<0 5	<0 5
Chloroethane	µg/L	<1	<1	<1
Chloroform	µg/L	<0.3	<0 3	<0 3
Chloromethane	µg/L	<1	<1	<1
cis-1,2-Dichloroethene	µg/L	0 278 F	0 86 F	0 9 F
cis-1,3-Dichloropropene	µg/L	<0 5	<0 5	<0 5
Dibromochloromethane	µg/L	<0.5	<0 5	<0 5
Dibromomethane	µg/L	<1	<1	<1
Dichlorodifluoromethane	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<0 6	<0 6	<0 6
Isopropylbenzene	µg/L	<1	<1	<1
m-,p-Xylene	µg/L	<2	<2	<2
MEK (2-Butanone)	µg/L	<10	<10	<10
Methyl t-butyl ether (MTBE)	µg/L	<5	<5	<5
Methylene chloride	µg/L	<1	<1	<1
MIBK (methyl isobutyl ketone)	µg/L	<10	<10	<10
Naphthalene	µg/L	<1	<1	<1
n-Butylbenzene	µg/L	<1	<1	<1
n-Propylbenzene	µg/L	<1	<1	<1
o-Xylene	µg/L	<1	<1	<1
p-Isopropyltoluene	µg/L	<1	<1	<1
sec-Butylbenzene	µg/L	<1	<1	<1
Styrene	µg/L	<1	<1	<1
tert-Butylbenzene	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
trans-1,2-Dichloroethene	µg/L	<1	<1	<1
trans-1,3-Dichloropropene	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	1 73	1 64
Trichlorofluoromethane	µg/L	<1	<1	<1
Vinyl acetate	µg/L	<5	<5 Q	<5
Vinyl chloride	µg/L	<1	<1	<1

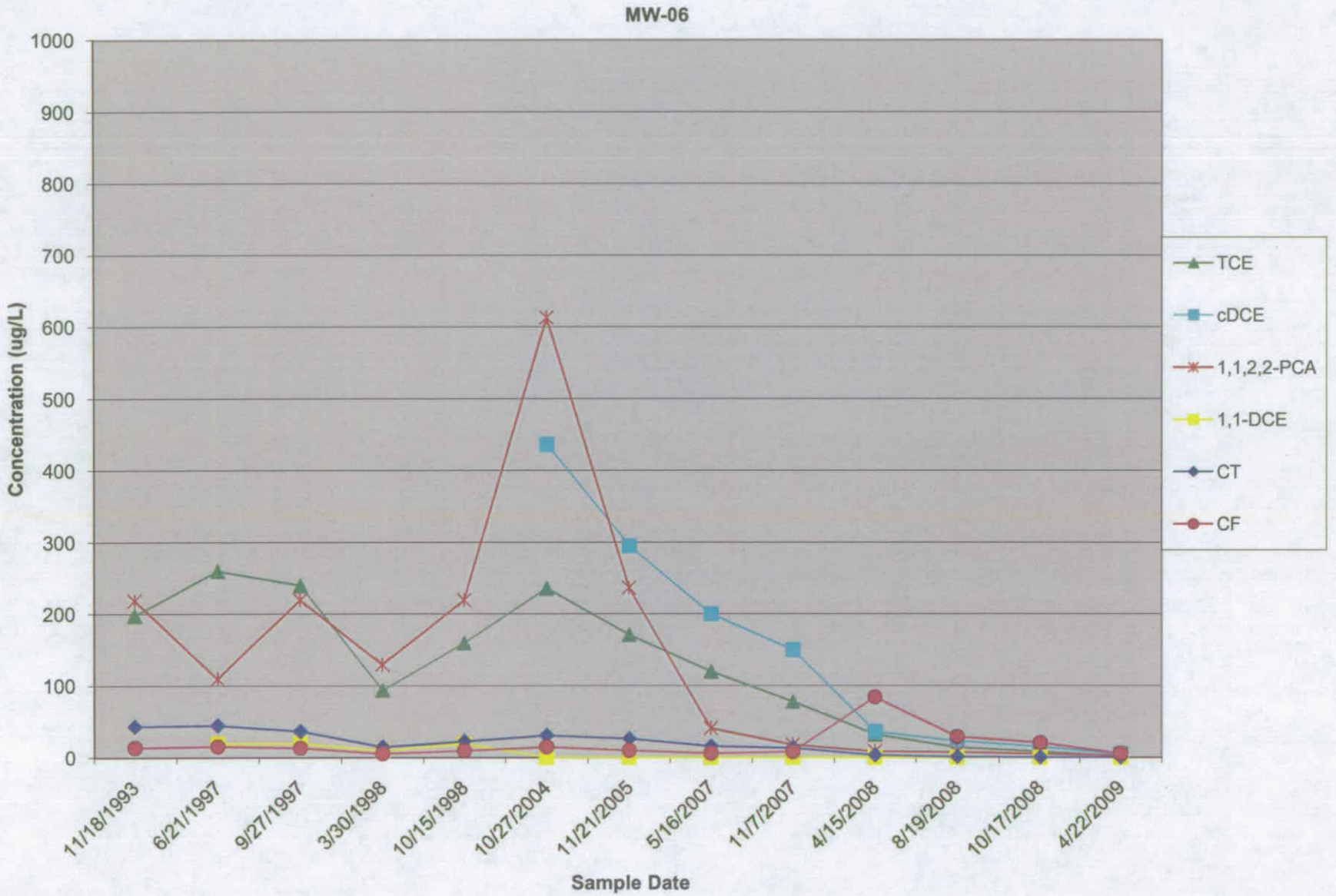
Notes.
µg/L micrograms per liter
RL Reporting Limit

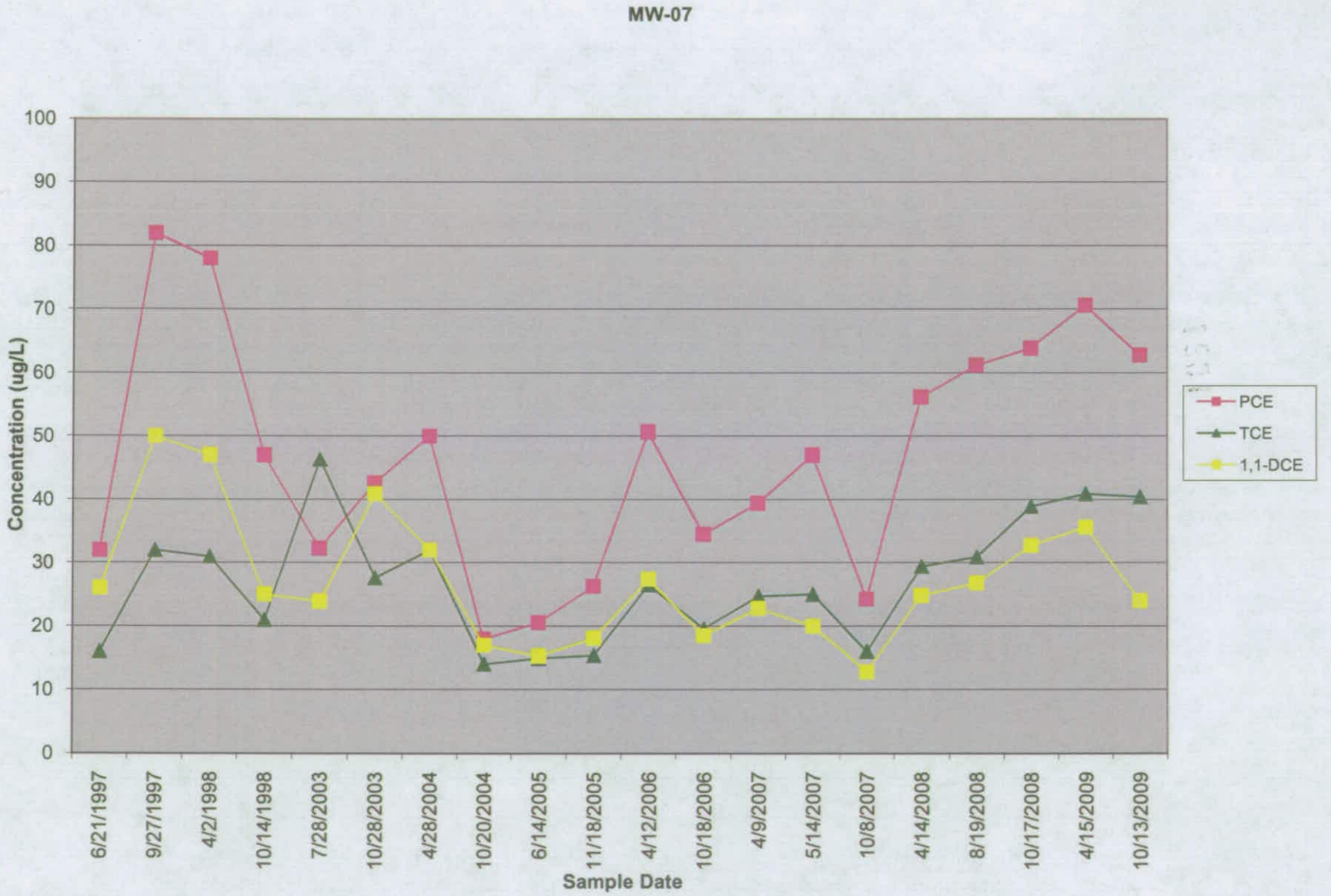
DQE Flags
F Concentration below RL but above MDL
J Analyte positively identified, but the quantitation is estimated
Q Quality control criteria failed, further review required
M Concentration estimated due to matrix effect
< Analyte not detected above RL

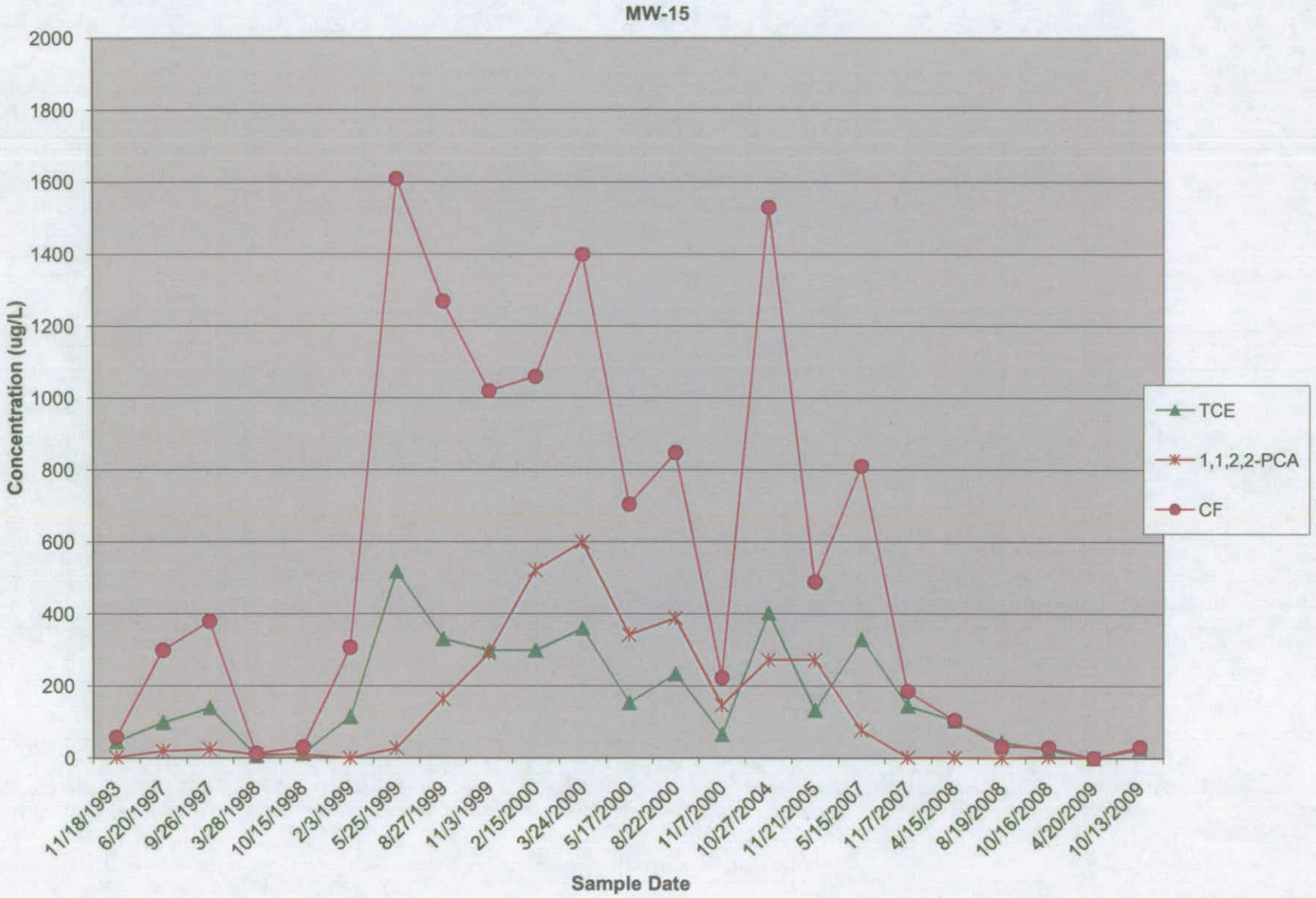
Appendix B

Time Trend Plots for Selected Dunn Field Wells

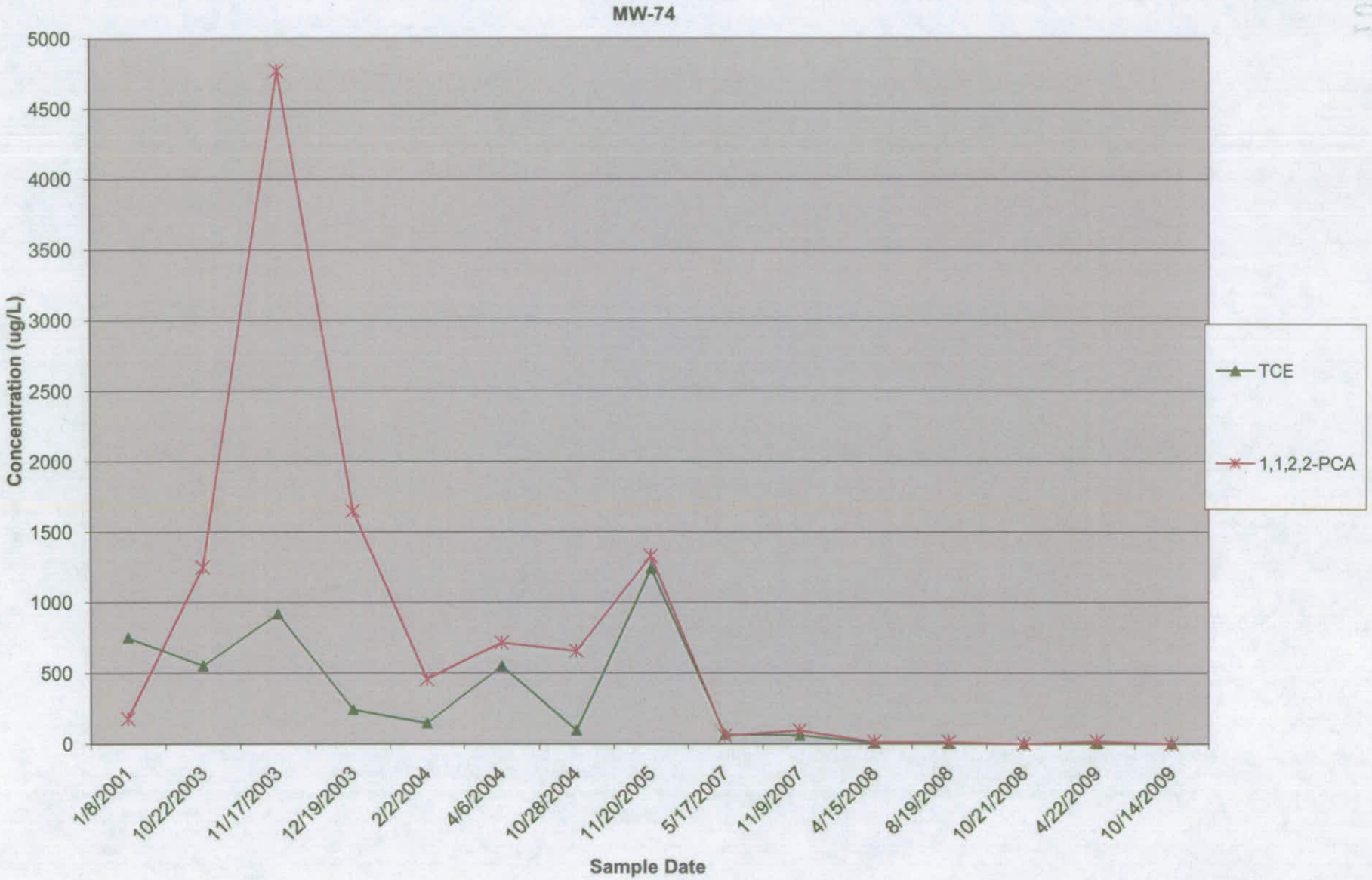

MW-03
250
200
150
100
50
0
Concentration (ug/L)
11/12/1993
6/21/1997
9/27/1997
3/27/1998
10/15/1998
10/28/2004
10/28/2004
11/21/2005
5/14/2007
11/7/2007
4/16/2008
8/19/2008
10/21/2008
4/17/2009
10/13/2009
Sample Date
PCE
TCE
cDCE
1,1,2,2-PCA
1,1-DCE

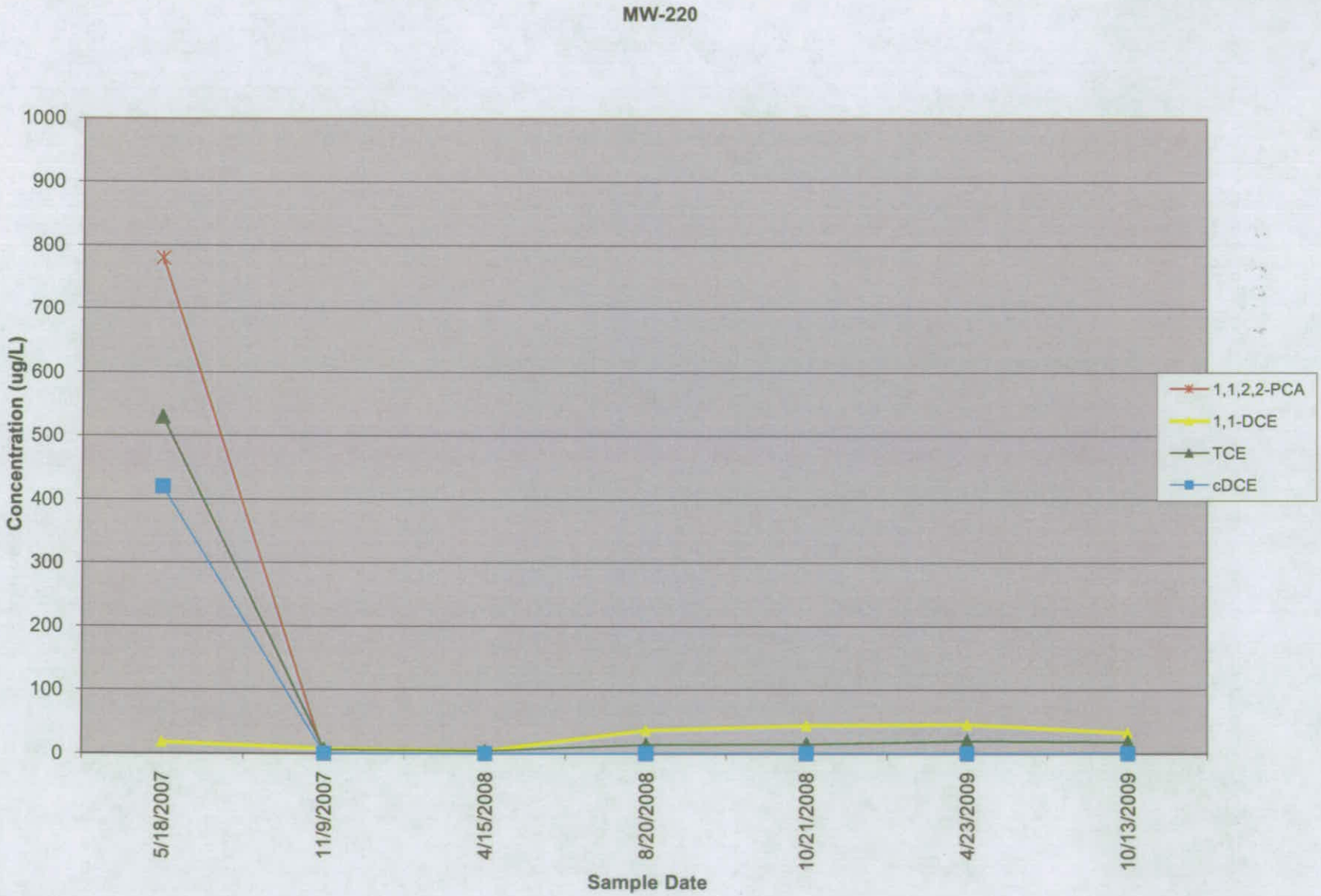

MW-06
Concentration (ug/L)
1000
900
800
700
600
500
400
300
200
100
0
11/18/1993
6/21/1997
9/27/1997
3/30/1998
10/15/1998
10/27/2004
11/21/2005
5/16/2007
11/7/2007
4/15/2008
8/19/2008
10/17/2008
4/22/2009
Sample Date
TCE
cDCE
1,1,2,2-PCA
1,1-DCE
CT
CF

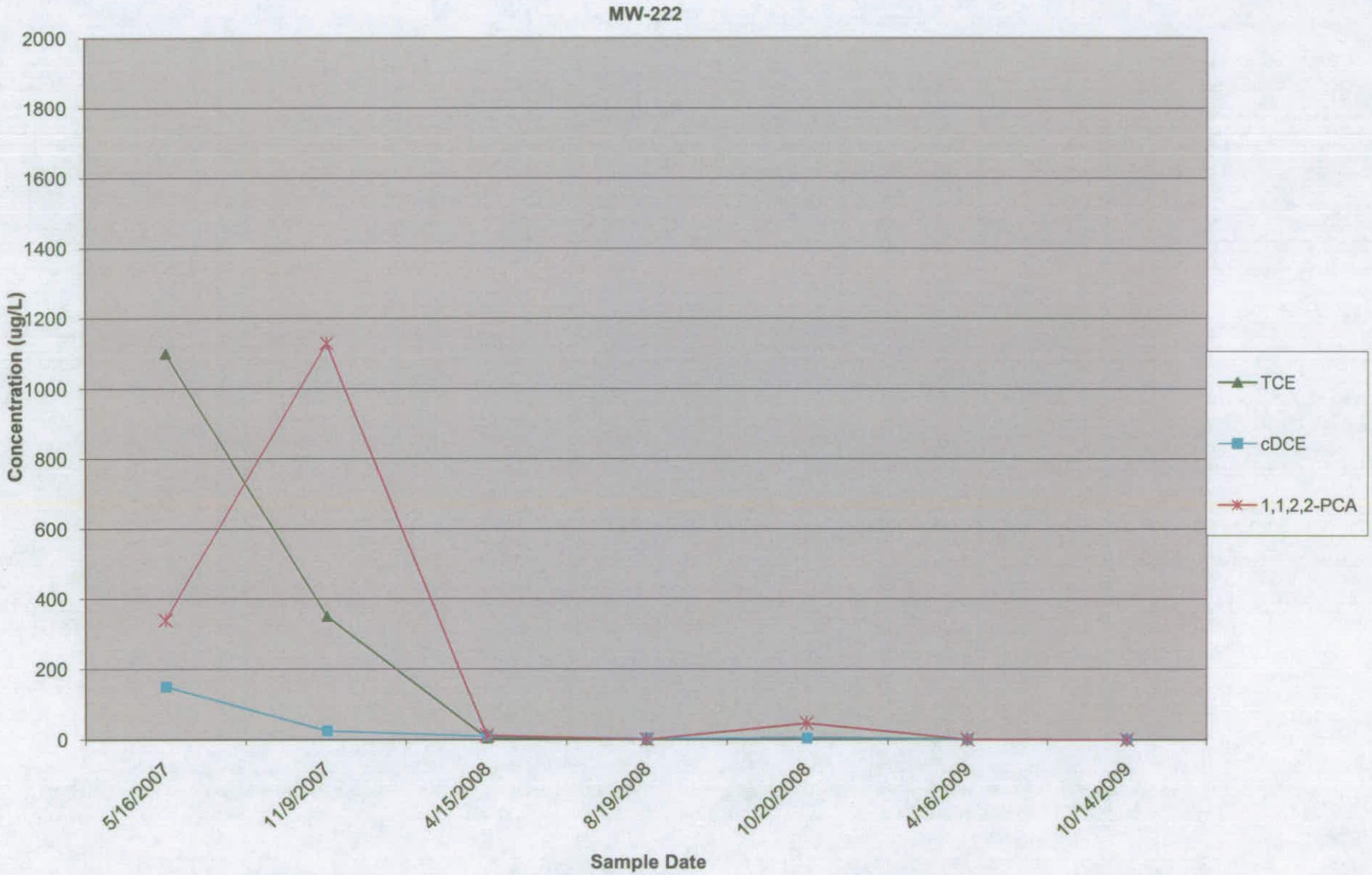

MW-07
Concentration (ug/L)
100
90
80
70
60
50
40
30
20
10
0
6/21/1997
9/27/1997
4/2/1998
10/14/1998
7/28/2003
10/28/2003
4/28/2004
10/20/2004
6/14/2005
11/18/2005
4/12/2006
10/18/2006
4/9/2007
5/14/2007
10/8/2007
4/14/2008
8/19/2008
10/17/2008
4/15/2009
10/13/2009
Sample Date
PCE
TCE
1,1-DCE

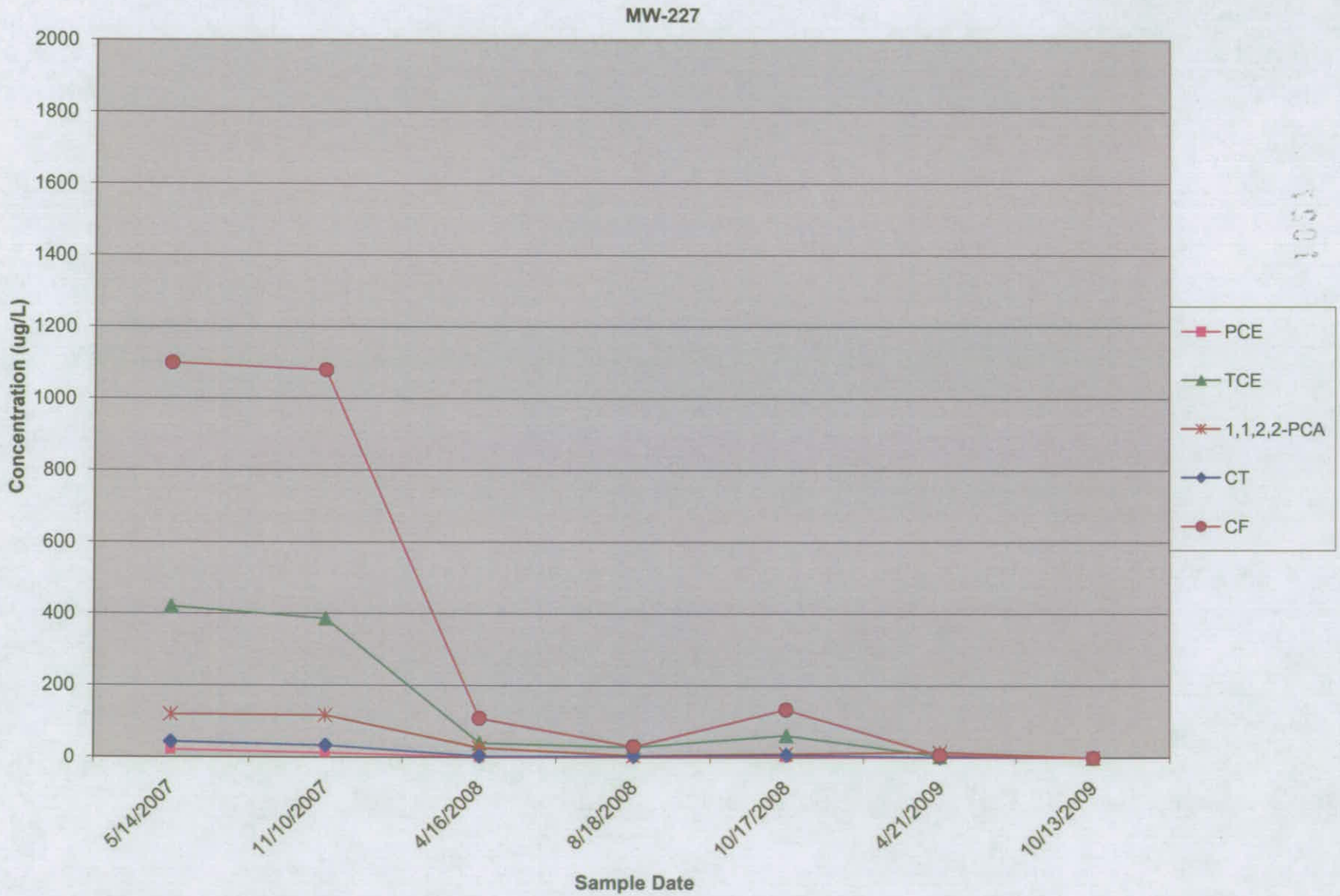

MW-15
Concentration (ug/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
11/18/1993
6/20/1997
9/26/1997
3/28/1998
10/15/1998
2/3/1999
5/25/1999
8/27/1999
11/3/1999
2/15/2000
3/24/2000
5/17/2000
8/22/2000
11/7/2000
10/27/2004
11/21/2005
5/15/2007
11/7/2007
4/15/2008
8/19/2008
10/16/2008
4/20/2009
10/13/2009
Sample Date
TCE
1,1,2,2-PCA
CF

MW-57
PCE
TCE
CT
CF
Concentration (ug/L)
0
50
100
150
200
250
Sample Date
3/15/1999
2/16/2000
5/17/2000
8/22/2000
11/7/2000
10/3/2001
4/10/2002
10/1/2002
4/8/2003
10/28/2003
4/29/2004
10/21/2004
10/28/2004
6/14/2005
11/18/2005
4/12/2006
10/20/2006
4/10/2007
5/15/2007
10/5/2007
4/14/2008
8/19/2008
10/17/2008
4/15/2009
10/13/2009


MW-74
Concentration (ug/L)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1/8/2001
10/22/2003
11/17/2003
12/19/2003
2/2/2004
4/6/2004
10/28/2004
11/20/2005
5/17/2007
11/9/2007
4/15/2008
8/19/2008
10/21/2008
4/22/2009
10/14/2009
Sample Date
TCE
1,1,2,2-PCA


MW-220
1000
900
800
700
600
500
400
300
200
100
0
Concentration (ug/L)
5/18/2007
11/9/2007
4/15/2008
8/20/2008
10/21/2008
4/23/2009
10/13/2009
Sample Date
1,1,2,2-PCA
1,1-DCE
TCE
cDCE

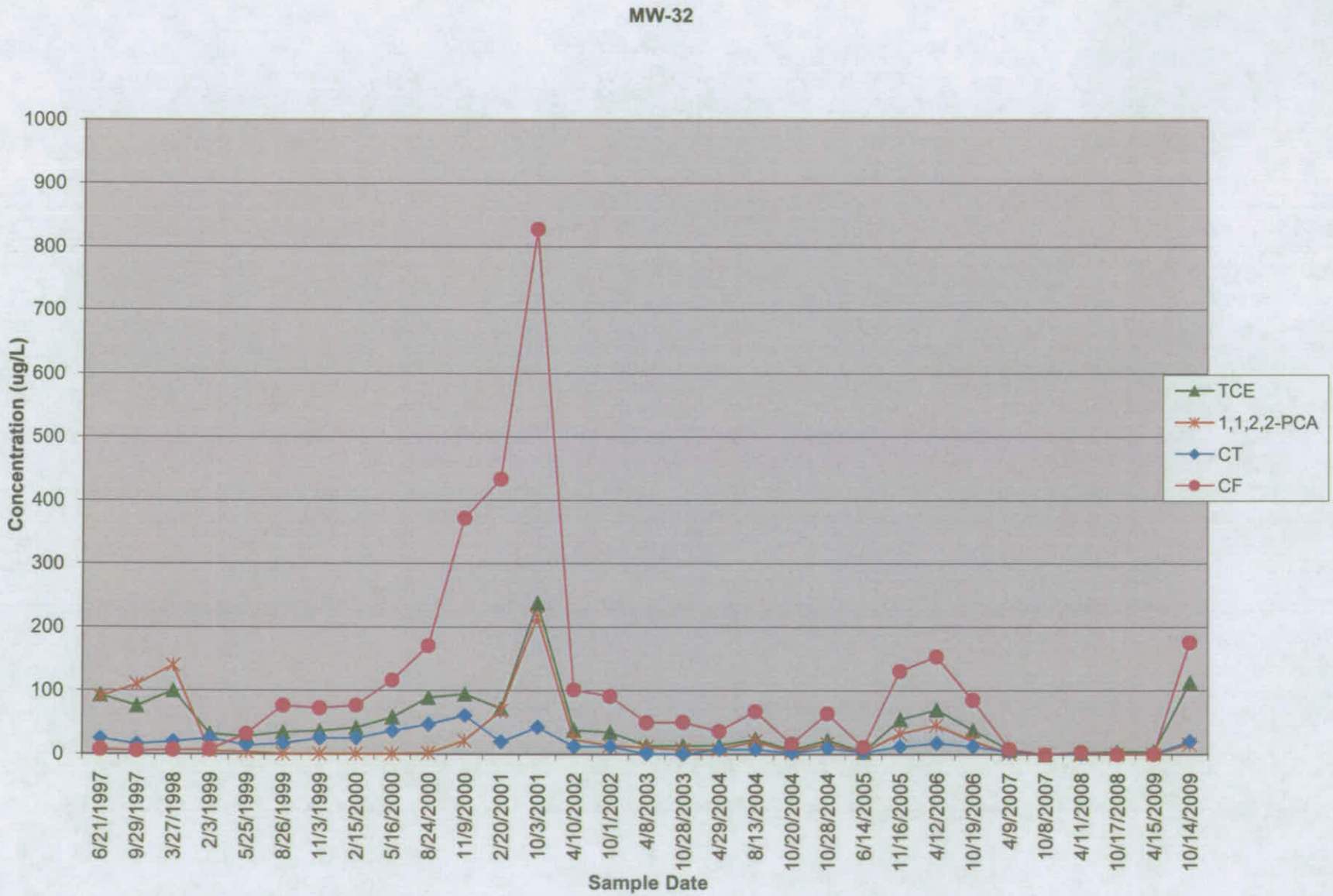

MW-222
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Concentration (ug/L)
5/16/2007
11/9/2007
4/15/2008
8/19/2008
10/20/2008
4/16/2009
10/14/2009
Sample Date
TCE
cDCE
1,1,2,2-PCA

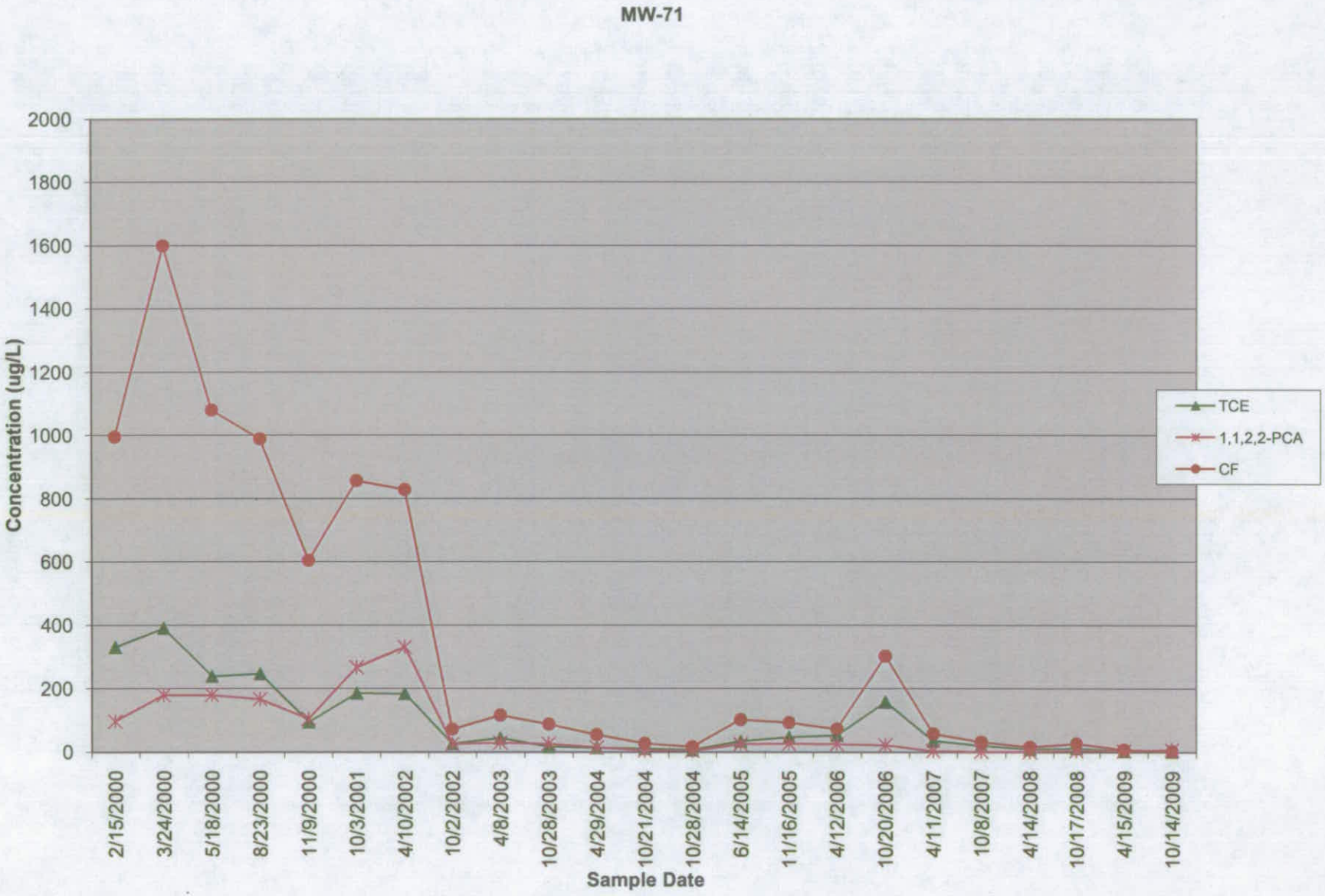

MW-227
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Concentration (ug/L)
5/14/2007
11/10/2007
4/16/2008
8/18/2008
10/17/2008
4/21/2009
10/13/2009
Sample Date
PCE
TCE
1,1,2,2-PCA
CT
CF

1027 54

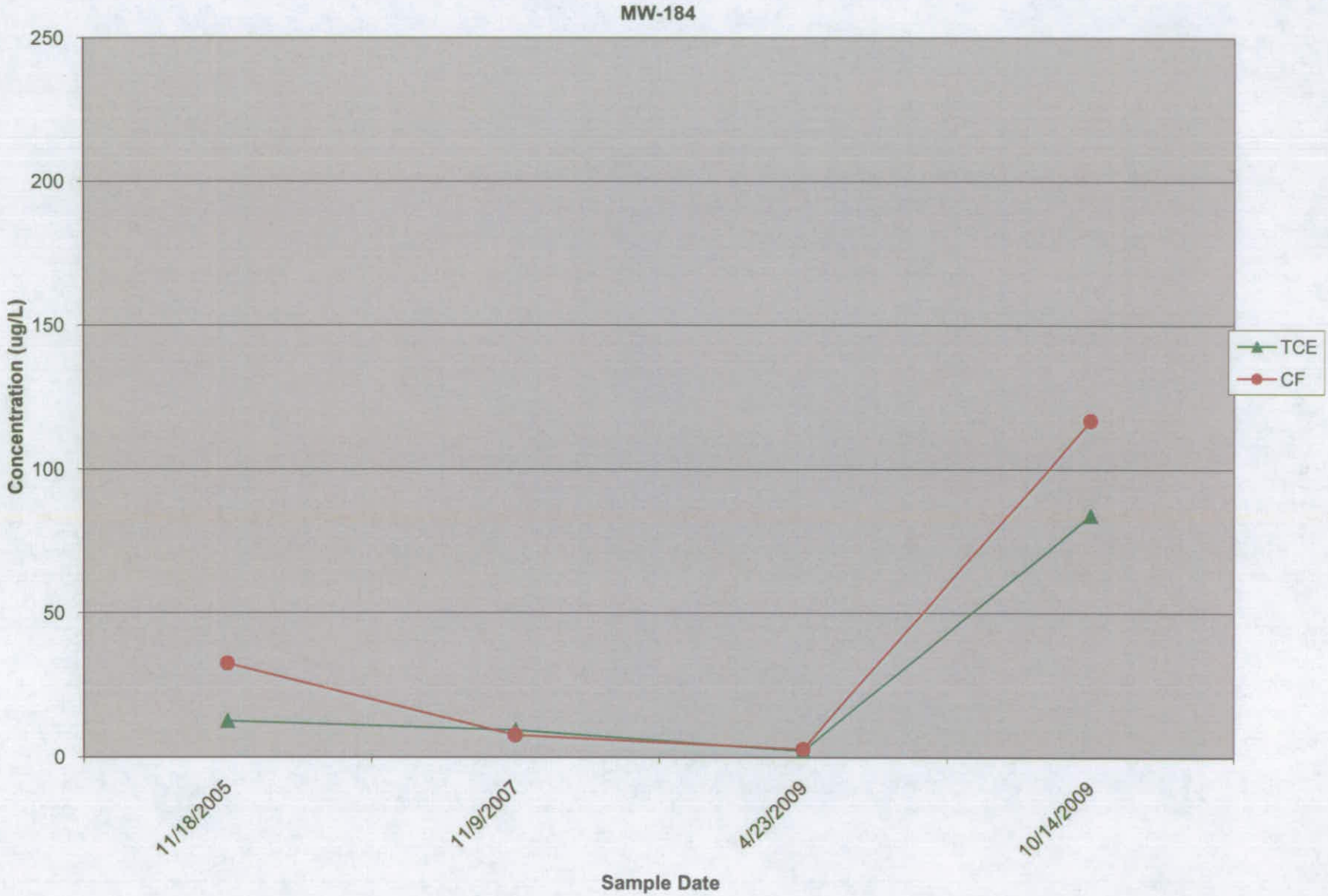
Appendix C

Time Trend Plots for Selected Off Depot Wells


MW-32
Concentration (ug/L)
1000
900
800
700
600
500
400
300
200
100
0
6/21/1997
9/29/1997
3/27/1998
2/3/1999
5/25/1999
8/26/1999
11/3/1999
2/15/2000
5/16/2000
8/24/2000
11/9/2000
2/20/2001
10/3/2001
4/10/2002
10/1/2002
4/8/2003
10/28/2003
4/29/2004
8/13/2004
10/20/2004
10/28/2004
6/14/2005
11/16/2005
4/12/2006
10/19/2006
4/9/2007
10/8/2007
4/11/2008
10/17/2008
4/15/2009
10/14/2009
Sample Date
TCE
1,1,2,2-PCA
CT
CF


MW-71
Concentration (ug/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
2/15/2000
3/24/2000
5/18/2000
8/23/2000
11/9/2000
10/3/2001
4/10/2002
10/2/2002
4/8/2003
10/28/2003
4/29/2004
10/21/2004
10/28/2004
6/14/2005
11/16/2005
4/12/2006
10/20/2006
4/11/2007
10/8/2007
4/14/2008
10/17/2008
4/15/2009
10/14/2009
Sample Date
TCE
1,1,2,2-PCA
CF


MW-144
15000
12500
10000
7500
5000
2500
0
Concentration (ug/L)
6/9/2004
8/12/2004
10/27/2004
1/27/2005
3/23/2005
6/15/2005
11/14/2005
4/12/2006
4/27/2006
10/19/2006
4/10/2007
10/8/2007
4/11/2008
4/15/2009
10/14/2009
Sample Date
TCE
1,1,2,2-PCA


MW-184
250
200
150
100
50
0
Concentration (ug/L)
11/18/2005
11/9/2007
4/23/2009
10/14/2009
Sample Date
TCE
CF

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE