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THE MEMPHIS DEPOT
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COVER SHEET

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MAIN INSTALLATION SOURCE AREA EVALUATION

Defense Depot Memphis, Tennessee

Defense Logistics Agency

Air Force Center for Engineering and the Environment
Contract No. FA8903-04-D-8722
Task Order No. 0016

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1.0 Introduction

engineering-environmental Management, Inc (e^2M) has prepared this report of the Source Area Evaluation for the Main Installation (MI) at the Defense Depot Memphis, Tennessee (DDMT) to propose compliance well networks and additional soil investigation to assess potential source areas for the identified groundwater plumes. This work was performed for the Defense Logistics Agency under Contract FA8903-04-D-8722, Task Order 0016 to the Air Force Center for Environmental Excellence.

Remedial Action Objectives (RAOs) for the MI include restoration of groundwater quality to levels at or less than maximum contaminant levels (MCLs). This RAO is to be met by enhanced bioremediation treatment (EBT) in the treatment areas and by monitored natural attenuation (MNA) outside those areas. Well installation and long term monitoring (LTM), performed as part of the MNA component of the MI Remedial Action (RA), has identified additional groundwater plumes that may require treatment in order to meet the RAOs.

Compliance with the RAO is to be demonstrated for each groundwater plume on the MI. Compliance well networks (CWNs) are to be designated for each plume within 18 months of initiating injections in the treatment areas, which began 11 September 2006. The *Remedial Action Work Plan, Main Installation* (RAWP) (MACTEC, 2005) states that the *operating properly and successfully* (OPS) metric for the MNA component will be evaluated through demonstration of specified criteria from groundwater monitoring results. The RAWP also lists criteria for implementing contingency actions related to the MNA component based on groundwater monitoring results (e.g., chlorinated volatile organic compound [CVOC] concentrations persist or CVOCs are detected in sentinel wells).

2.0 Compliance Well Networks

As part of the MI RA, additional monitoring wells have been installed to further delineate the plumes and to aid development of CWNs. Nine monitoring wells were installed in August 2006 in accordance with the recommendations in the *Annual Long-Term Monitoring Report, Main Installation, Revision 1* (MACTEC, 2006). The findings were described in *Well Installation and October 2006 Long-term Monitoring* (e^2M, 2007a). Twenty-seven monitoring wells were installed in March and April 2007 at locations finalized during the February 2007 BRAC Cleanup Team (BCT) meeting. The findings were described in *Phase 2 Well Installation and April 2007 Long-term Monitoring* (e^2M, 2007b).

Isoconcentration maps for tetrachloroethene (PCE) and trichloroethene (TCE) from the latest annual LTM sampling event in October 2007 are shown on Figures 1 and 2. Seven groundwater plumes have been identified based on the PCE and TCE isopleths and data from past LTM events. The plume designations are shown on Figures 1 and 2 and are listed with the primary source CVOCs below.

Plume	CVOC
TTA-1 North	PCE
TTA-1 South	PCE, TCE
TTA-2	PCE, CT
West-Central	PCE
Sentinel	PCE
Bldg 835	TCE
North-Central	TCE

There are four wells (MW-25A, MW-52, MW-97 and PZ-03) outside the designated plumes that have CVOC concentrations above MCLs in samples collected since the MI RA began. Further delineation of CVOC impacts at these wells is not planned at this time.

Isoconcentration maps for the primary CVOCs in the individual plumes are shown on Figures 3 through 10. The maps are based on the EBT sample results from September 2007 and the LTM sample results from October 2007.The proposed CWNs for each plume are shown on the figures and listed below.

Plume	Core Wells	Perimeter Wells
TTA-1 North	MW-21, MW-100B, PMW21 wells	DR1-2, DR1-8, MW-219, PMW21-05
TTA-1 South	DR1-6, DR1-6A, MW-101, PMW101 wells	DR1-1, DR1-3, DR1-4, MW-22
TTA-2	DR2-1, DR2-6, MW-92, MW-113, PMW85 and PMW92 wells	DR2-2, DR2-3, DR2-4, MW-26, MW-64, MW-88, MW-217, MW-218
West-Central	MW-39/39A, MW-197A/B, MW-205A/B, MW-208A	MW-94A, MW-98, MW-108, MW-203A/B, MW-204A/B, MW-207A/B, MW-209A/B, MW-210A/B
Bldg 835	MW-62, MW199B, MW-212	MW-108, MW-198, MW-207A/B, MW-209B, MW-213 (dry)
North-Central	MW-104	MW-103
Sentinel	MW-90, MW-141	MW-107, MW-108, MW-199A, MW-202A/B, MW-211

3.0 Source Area Review

This source area review for additional soil investigation was limited to plumes with maximum CVOC concentrations greater than 100 micrograms per liter (µg/L) since that was the criteria used to select plumes for EBT in the MI RA. CVOCs detected within the North-Central and Sentinel Plumes have been below 100 µg/L, thus eliminating these two plumes from further evaluation. In addition, the Sentinel plume is considered to be a result of CVOC migration from

the fluvial aquifer. Monitoring wells MW-90 and MW-141, which are the core wells that comprise this plume, are screened in the intermediate aquifer, below the clay layer present in this area. Remediation of the adjacent groundwater plumes should also address the Sentinel Plume.

The source area evaluation was performed for five groundwater plumes on the MI: TTA-1 North; TTA-1 South; TTA-2; West-Central, and Building 835. The following sections provide background information on past operations and previous soil sample results. Maps of the plume areas with isopleths for primary CVOCs and previously identified sites (Screening Sites, Remedial Investigation Sites and Early Removal Sites) are shown on Figures 11 through 14. The CVOC isopleths for TTA-1 and TTA-2 plumes (Figures 11 and 12) are based on baseline EBT samples from August 2006 and LTM samples from October 2006 because of changes in the plumes due to the EBT. The CVOC isopleths for the West-Central and Building 835 plumes (Figures 13 and 14) are based on recent sample results (September and October 2007).

Several reports were utilized to obtain information as part of this evaluation. These reports included the:

- *Environmental Baseline Survey Report* (EBS) (Woodward-Clyde, 1996);
- *BRAC Cleanup Plan Version 11* (BCP) (e^2M, 2008);
- *Screening Sites Letter Reports* (CH2M Hill, 1998);
- *Remedial Investigation Sites Letter Reports* (CH2M Hill, 1998);
- *BRAC Parcel Summary Report* (CH2M Hill, 1998);
- *BRAC Sampling Program Report* (CH2M Hill, 1997);
- *Remediation Report, Removal Actions in Parcels 35 and 28 (Old Paint Shop and Maintenance Area)* (Jacobs-Sverdrup, 2000);
- *Summary Report, On Site Remedial Activities at the Defense Depot Memphis)* (O.H. Materials Company, 1986);
- *Main Installation Remedial Investigation* (MI RI) (CH2M Hill, 2000); and
- *Memphis Depot, Main Installation, Target Treatment Areas 1 and 2 Review and Recommendations for Source Identification and Investigation* (Noblis, 2007).

Figures from the MI RI showing Land Cover and Site Locations and Sample Locations for the areas of interest are included in Appendix A. Site descriptions for each of the sites referenced below from the 2004 RCRA Corrective Action Permit Application are included in Appendix B.

3.1 TTA-1

Groundwater analytical data collected during LTM in TTA-1 has differentiated two distinct lobes (TTA-1 North and TTA-1 South), which merge into a single plume downgradient to the northeast. Both plumes contain elevated concentrations of TCE and PCE with TTA-1 South containing slightly higher concentrations. TTA-1 North is located near the central section of Building 1089 and north of former Buildings 1084 and 1085. TTA-1 South is located a few hundred feet southeast of TTA-1 North, on the west side of Building 1088 and the southern

section of Building 972. Building locations, site locations and CVOC isopleths for the TTA-1 plume are shown on Figure 11.

3.1.1 TTA-1 North

Building 1084

Building 1084, a wood-framed structure with metal and fiberglass siding, was used as a former maintenance shop and a wood shop, and for pesticide storage. Building 1084 had a pit area which drained into the subsurface via a subsurface pipe and gravel sump. During BRAC sampling in 1996, a subsurface soil sample (SB-15) was collected southeast of the building at location C(35.2). Soil samples were collected at three intervals: 0 to 4, 4 to 7 and 7 to 10 feet below ground surface. Methylene chloride was the only VOC detected in the soil samples; results were below reporting limits (RLs) at estimated concentrations of 0.002 mg/kg to 0.004 mg/kg.

Building 1084 was designated Early Removal Site 87. Removal actions were performed in 2000 and consisted of building demolition and excavation of the sump and surrounding soil. The sump excavation was 7 by 9 feet and 5 feet deep. Confirmation soil samples were collected from the excavation walls and floor; the only VOC detected was acetone at concentrations near the RL (0.0089 to 0.013 mg/kg).

Building 1085

Building 1085, a former maintenance shed and lubrication shop located south of Building 1084, was designated Early Removal Site 88. Removal actions were performed in 2000 and consisted of removal of the concrete slab and hydraulic vehicle lift and excavation of a 1000-gallon used oil underground storage tank (UST). Following removal of the vehicle lift, soil was excavated from each of the two hydraulic cylinder locations; excavation continued until the soil appeared visually clean. The area east of the lift was then excavated to remove a suspected hydraulic fluid UST. The hydraulic UST was not observed but a 1000-gallon waste oil UST with approximately 800 gallons of fluid was discovered. The waste oil UST, designated Early Removal Site 29, was believed to have been removed earlier. The waste oil was pumped out and the tank was removed; soil confirmation samples were collected from the sidewalls and floor. The fluid removed from the UST contained the following VOCs: benzene at 300 mg/l; PCE at 51,000 mg/L; TCE at 17,400 mg/L and vinyl chloride at 200 mg/l. Confirmation soil samples contained low concentrations of acetone, PCE, TCE and 1,2-dichloroethene below industrial screening standards.

BRAC surface soil sample A(35.2) was collected east of Building 1086 and sample B(35.2) was collected near the former location of Building 1085. The samples were not analyzed for VOCs.

Building 1086

Building 1086 was utilized as a former paint shop and storage area. Paint spray booths in the building were designated No Further Action Site (NFA) 30. A sump was noted in the building

during the EBS and a sediment sample A(35.3) was collected from the sump during BRAC sampling but it was not analyzed for VOCs. TPH was not detected above RLs in the sediment sample. No soil samples adjacent to Building 1086 were identified.

The removal action performed at Building 1086 in 2000 consisted of decontamination by vacuuming interior building surfaces followed by pressure washing. Confirmation samples were collected to verify decontamination. Dust collected during decontamination of this and other buildings (1087 through 1091) was classified as hazardous for lead and was disposed off-site.

Building 1089

Building 1089 was used to store acids, paints and cleaning solvents associated with sandblasting operations. Small object sandblasting was performed in two bays located on the north end of the building. The building and surrounding area was designated as MI RI Screening Site 89. The screening site sampling program consisted of surface soil samples at 8 locations and subsurface soil samples (3-5 and 8-10 feet) at 4 locations. All samples were submitted for analysis of VOCs and other analytes. The only VOCs detected were methylene chloride and acetone at estimated concentrations below the RL. Metals (lead, chromium, arsenic and zinc) were present at elevated concentrations and a removal action was recommended

The removal action performed at Building 1089 in 2000 consisted of removal of sand blast shields, compressor tank and sand blast debris, vacuuming interior building surfaces and pressure washing. Confirmation samples were collected to verify decontamination. In addition, soil on the south end of Building 1089 and a smaller area on the west side of the building was excavated to a depth of 1 foot. Confirmation samples did not exceed industrial screening standards for metals and PAHs.

Mallory Avenue Ground Scar

The Mallory Avenue Ground Scar was identified in aerial photographs taken between 1949 and 1953 by the United States Army Corp of Engineers Topographic Engineering Center (TEC). The location was designated TEC Site 93 and was located along the facility boundary between the north end of Building 1089 and the intersection of Perry Road and East Mallory Avenue. The nature of the ground disturbance was not determined. One surface soil sample was collected in 1998 for target compound list/target analyte list (TCL/TAL). CVOCs were not detected.

3.1.2 TTA-1 South

Building 970

Building 970 was an open building with railroad tracks along the east side and was used to store hardware and other supplies. During the EBS, oil leaks and staining were observed on the concrete floor of the building near an oil fired generator; absorbent was reported applied to the oily areas and the residue disposed. Historically, herbicides, pesticides and waste oil containing

PCPs were sprayed on the railroad tracks. The BRAC sampling program at Building 970 (Parcel 26) was limited to concrete wipe sampling

Buildings 972

Building 972 was an open storage building for hardware and other supplies. The building was later converted to a closed building for storage and handling of packing materials. Flammable substances, solvents and waste oil were stored in the northern end of the building. During the EBS, oil staining was observed at various locations on the floor of the building. Based on the potential for spills and leaks to surrounding soils, the northern section was designated MI RI Screening Site 84. The screening site sampling program consisted of surface soil samples at 10 locations and subsurface soil samples (0-1, 4-6, 8-10 and 18-20 feet) at 4 locations. All samples were submitted for analysis of VOCs and other analytes. The only VOCs detected above reporting limits were acetone (up to 0.14 mg/kg) and methyl ethyl ketone (up to 0.019 mg/kg); TCE (0.01J mg/kg) was detected below RLs in one boring (SB84C).

Building 995

Building 995 was a small building located south of Building 972 and used for metals handling and steel storage. A minor gasoline spill occurred northwest of the building in 1993 with cleanup and confirmation sampling by the DDMT Spill Team. Petroleum hydrocarbon concentrations in soil samples were below the Tennessee cleanup level for soils. No CVOCs were detected in soil samples collected adjacent to Building 995.

Building 1087

Building 1087 was a drive-through paint spray booth and drying oven used primarily for stock primer and enamel spray painting. Painting operations were conducted from the 1950s to 1985, when painting operations were moved to Building 1086. A water cascade booth in Building 1087 was used to remove paint from the air during operation. Water was supplied through a water tank and was re-circulated for a period of time and then disposed. Procedures for waste water disposal are not known. The paint spray booth was designated as Screening Site 31. The screening site sampling program consisted of surface soil samples at 6 locations and subsurface soil samples (0-1, 4-6 and 8-10 feet) at 2 locations (east and west of the concrete pad south of Building 1087). All samples were submitted for analysis of VOCs and other analytes. Acetone, methylene chloride and toluene were detected near or below RLs.

The removal action performed at Building 1087 in 2000 consisted of decontamination by vacuuming interior building surfaces followed by pressure washing. Ventilation ductwork was flushed and cleaned. Confirmation samples were collected to verify decontamination. In addition, soil on the east and west sides of Building 1087 were excavated to a depth of 1 foot. Final confirmation samples were below industrial screening standards for metals and PAHs.

Building 1088

Building 1088, built in 1953, was used for sandblasting. Hoppers to collect dust from sandblasting were located in a corrugated steel shed with a gravel floor adjacent to Building 1088. The dust was transferred to 55-gallon drums that were stored in the waste drum storage area, an open-sided metal roof shed with a gravel floor, located immediately south of Building 1088. The sandblasting waste accumulation area was designated as Remedial Investigation Site 32 and the sandblasting drum storage area was designated as Screening Site 33. Prior to the use of Building 1088 and the hopper system, sandblasting operations were conducted in an open area adjacent to Building 1087.

The Remedial Investigation Site 32 sampling program consisted of surface soil samples at 7 locations and subsurface soil samples (3-5 and 8-10 feet) at 1 location. Only one surface soil sample was submitted for analysis of VOCs. No VOCs were detected.

The Screening Site 33 sampling program consisted of surface soil samples at 9 locations and subsurface soil samples (0-1, 4-6 and 8-10 feet) at 3 locations. All samples were submitted for analysis of VOCs and other analytes. Acetone, methylene chloride and toluene were detected near or below RLs.

The removal action performed at Building 1088 in 2000 consisted of decontamination by vacuuming interior building surfaces followed by pressure washing. Ventilation ductwork was flushed and cleaned. Dust and filters were removed from the baghouse outside the building. Sandblasting grit was removed from hoppers and a floor sump located on the east side of the building. Confirmation samples were collected to verify decontamination. In addition, soil on the west side of Building 1088 and on the southeast between Buildings 1087 and 1088 was excavated to a depth of 1 foot. Final confirmation samples were below industrial screening standards for metals and PAHs.

Buildings 1090 and 1091

Buildings 1090 and 1091 were used to store paint thinner, lubricating oil, P-19 preservation oil, and corrosion preservation compound. During the removal action in 2000, the interior of these buildings were vacuumed and pressure washed. No soil samples were collected.

3.2 TTA-2

The TTA-2 plume is an irregularly shaped area with elevated concentrations of PCE, TCE, carbon tetrachloride and chloroform. In previous maps, separate plumes were drawn for TTA-2 and Building 360 (MW-64). Following installation of wells MW-217 and MW-218 in March-April 2007, it was decided the Building 360 plume was likely a downgradient extension of the TTA-2 plume. Several buildings located within TTA-2 were used for maintenance and equipment storage. Many of the buildings located on the north edge of TTA-2 were demolished when the main entrance to the Depot Business Park was constructed by the DRC in 1999. The Memphis Police Department recently constructed a district police department along the eastern

portion of TTA-2 along Truitt Street. Building locations, site locations and CVOC isopleths for the TTA-2 plume are shown on Figure 12.

Buildings 260, 261 and 263

Buildings 260, 261 and 263 are located in close proximity to one another in the central area of TTA-2. Building 260, built in 1952, was used as a Facility Engineer Maintenance Shop and for maintenance activities. The building once contained a satellite drum area, a Safety-Kleen parts washing unit, three spray paint booths and a sign shop. Building 261, which adjoins Building 260, was constructed in 1942 and utilized for vehicle storage and maintenance. Building 263, built in 1964, measures 20 by 40 feet and is surrounded by an asphalt parking lot. The building was used to store small containers of petroleum, oil and lubricants, which were dispensed to maintenance staff and not used in the building area. No spills or releases are reported at this location. Building 263 was designated Screening Site 68.

The Screening Site 68 sampling program consisted of subsurface soil samples (5-6 and 9-10 feet) at 2 locations. The samples were analyzed for PAHs only and no analytes were detected above background levels.

Building 265

Building 265 was used in conjunction with Building 260 as the Facility Engineer Maintenance Shop. It was built in 1942 and housed several engineering shops. During the EBS, a floor drain was identified toward the eastern side of the building which connected to the sanitary sewer. A sediment sample A(4.13) was collected from the sump located beneath the floor drain during BRAC Sampling in 1997. The sample was not analyzed for VOCs. The petroleum hydrocarbons concentration was 1410 mg/kg.

Building T-267

Building T-267, Pesticide Shop, was used for the storage and mixing of pesticides and herbicides prior to application by the Depot Entomology Division. Rinse water from pesticide and herbicide spraying operations was disposed on the ground in this area until 1980.The building, demolished in 1987, was located north of Building 274 and west of Building 263. Building T-267 was designated Remedial Investigation Site 58.

The Remedial Investigation Site 58 sampling program consisted of surface soil samples at 9 locations. Only one sample (SS58C) was analyzed for VOCs. PCE was detected at a concentration of 0.013 mg/kg.

Building 270

Building 270 was built in 1958 and was used for various purposes. It housed the Facility Installation Services Group, a maintenance shop and administrative offices. No hazardous or petroleum based products were stored at this location.

Building 272

Building 272, built in 1942, was used primarily as a lumber shed. A standby generator was located adjacent to the building for backup power. One surface soil sample A(5.1) was collected southwest of Building 272 as part of the BRAC Sampling Program (Parcel 5). The sample was adjacent to a bin filled with bark. The sample was not analyzed for VOCs.

Building 251

Building 251 was built in 1942 and demolished in 1999 when Memphis Depot Parkway was constructed. It was utilized as a thrift shop and for dry goods storage and contained a small engine/equipment repair shop. During the EBS, a sump/small waste oil tank was identified toward the south end of the building. A sediment sample A(4.12) was collected from this sump during BRAC Sampling in 1997. The sample was not analyzed for VOCs. The petroleum hydrocarbons concentration was 1,460 mg/kg.

Building 252

Building 252 was the physical fitness center, built in 1942 and demolished in 1999. No hazardous or petroleum based products were stored at this location. The RI did not show any soil samples at this location.

Building 253

Building 253, Vehicle Maintenance Shop, was located on the northern edge of the facility engineering maintenance yard. It was built in 1952 and was demolished in 1999 for the Memphis Depot Parkway. Operations consisted mainly of motor pool services including oil changes, lubrication, and vehicle washing. Safety-Kleen parts washing units were located inside the building but no releases were recorded. A 5,000-gallon UST for No. 4 fuel oil was installed at this location in 1952 and removed in 1996. Building 253 was designated Screening Site 66.

The Screening Site 66 sampling program consisted of one surface soil sample and subsurface soil samples (0-1, 3-5, 8-10, 18-20 and 38-40 feet) at 3 locations. All samples were submitted for analysis of VOCs and other analytes. Surface soil samples contained chloroform (SB66A) and PCE (SS66A) at estimated concentrations below the RL. Subsurface samples from SB66A contained carbon tetrachloride at 0.019 mg/kg (18-20 feet) and chloroform at 0.03 mg/kg (8-10 feet) and 0.043 mg/kg (18-20 feet). Boring SB66A was located approximately 100 feet north of Building 263.

Building 254

Building 254, built in 1944 and demolished in 1999, was used for storage of equipment, heating fuel, POL and antifreeze. A 1,100-gallon gasoline UST located in the northwest corner of the building was removed in 1989. A 5-gallon diesel fuel spill was reported in the southwest corner of the building. During the EBS, drums of hydraulic fluid and motor oil were observed to have leaked onto the floor of the building. The RI did not show any soil samples at this location.

Buildings 256 and 257

Fuel dispensing and storage was conducted at Building 256, a pump house, and 257, the main gas station for DDMT. Both buildings were demolished in 1999. Fuel dispensing operations began in 1942. Several USTs and ASTs for gasoline storage and dispensing were located at Building 257: two steel 12,000-gallon USTs were installed in 1942 and removed in 1986; a steel 20,000-gallon UST was installed in 1951 and removed in 1986; a steel 2,580-gallon UST was installed in 1951 and removed in 1989; two fiberglass USTs (18,000- and 20,000-gallon) were installed in 1984 and removed in 1998; and two 1,000-gallon ASTs for gasoline and diesel were installed in 1992 and removed in 1999. Small gasoline spills were reported in 1990 and 1993. The Building 257 area was designated Screening Site 67.

The Screening Site 67 sampling program consisted of surface soil samples at 2 locations and subsurface soil samples (0-1, 3-5, 8-10, 18-20 and 38-40 feet) at 2 locations. All samples were submitted for analysis of VOCs and other analytes. Benzene, ethylbenzene and xylene were detected in subsurface samples from SB67A. No CVOCs were detected in surface or subsurface samples.

Building 271

Building 271 was used as a pro shop for the golf course. The RI did not show any soil samples at this location.

Building 273

Building 273 was a 10 by 50-foot metal building used as a mixing area for golf course pesticide and herbicide spray operations and for storage of gasoline and fertilizer. The building was designated Remedial Investigation Site 59.

The Remedial Investigation Site 59 sampling program consisted of surface soil samples at 10 locations and subsurface soil samples (3-5 and 8-10 feet) at 2 locations. Only two surface samples (SS59H and SS59J) were submitted for analysis of VOCs. PCE was detected in these samples at estimated concentrations of 0.004 and 0.073 mg/kg and TCE was detected in one sample at an estimated concentration of 0.003 mg/kg.

Building 274

The area was used for storage of electrical transformers prior to construction of the cafeteria, Building 274 in 1989. The Former PCB Transformer Storage Area was designated Remedial Investigation Site 48.

The Remedial Investigation Site 48 sampling program consisted of surface soil samples at 5 locations. All samples were submitted for analysis of VOCs and other analytes. No CVOCs were detected in the samples.

Building 360

Building 360 was built in 1996 as a general purpose warehouse. No waste management, storage or utilization of hazardous materials has been reported within this building.
One surface soil sample A(34.2) was collected near Building 360 as part of the BRAC Sampling Program (Parcel 34). The sample was collected to provide information on the presence of PCBs and pesticides in surface soil. The sample was not analyzed for VOCs.

3.3 West-Central

The West-Central Plume is a broad area of elevated PCE concentrations in groundwater approximately1500 feet northeast of TTA-1. The eastern end of the plume is at the former location of Buildings 873 and 875 and the central area is near Building 770. Building locations, site locations and CVOC isopleths for the West-central plume are shown on Figure 13.

Building 770

Building 770 was a vehicle maintenance shop built in 1952. Antifreeze, paints, solvents and various petroleum products were stored in the building and three spray paint booths were present. Liquids were stored in several drum satellite areas that were located throughout the building. Prior to 1969, the building was used to clean and preserve heavy equipment before it was shipped overseas. An oil/water separator and floor drain were located within the building; the oil/water separator was pumped out quarterly.

Several spills were reported at this location including a 50-gallon spill of PCB containing liquid in 1990, a 55-gallon spill of petroleum in 1991 and a small oil spill in 1993. All contaminated material from the spills was removed and no further action was required.

Several storage tanks, underground (UST) and aboveground (AST), were removed from this location including:

- A 440-gallon gasoline UST in 1989;
- Two 1,000-gallon used motor oil USTs in 1989;
- An 11,155-gallon diesel AST in 1994;
- An 11,155-gallon fuel oil AST in 1994; and
- A 10,000-gallon heating oil tank in 1994.

The two 1,000-gallon used motor oil USTs, which were located on the west side of Building 770, were designated Remedial Investigation Site 34. The Remedial Investigation Site 34 sampling program consisted of surface soil samples at 6 locations and subsurface soil samples (3-5, 8-10, 13-15 and 18-20 feet) at 3 locations. All samples were submitted for analysis of VOCs and other

analytes. TCE was detected at estimated concentrations (0.002 to 0.007 mg/kg) below the RL in SB-34A. Acetone and methylene chloride were also detected at concentration near the RL in several samples.

Two surface soil samples were collected near Building 770 as part of the BRAC Sampling Program (Parcel 24). The samples were associated with open storage area X03 which was used for storage of flammable materials in 55-gallon drums until 1988. The samples were not analyzed for VOCs.

Building 873

Building 873, an open sided warehouse built in 1942 and demolished in 2002, was used to store hazardous materials such as chlorinated solvents, corrosives, petroleum, oil and lubricants (POL). The southern end of the building and the gravel area east of the building was utilized as a material recoupment area, which involved repacking hazardous and nonhazardous materials from leaking containers. The recoupment area, which operated from 1942 to 1986, was identified as Remediation Investigation Site 27. Eleven spills were recorded at or near Building 873 from 1990 to 1993. Spills ranged from leaking bottles of corrosives to a 60-gallon spill of TCE. Records indicate that contaminated material from the various spills was removed or excavated and properly disposed.

In 1985, O. H. Materials performed a remedial action at Building 873 which consisted of recouping approximately 60,000 gallons of hazardous and POL materials from damaged drums and organizing the recoup area for product compatibility, storage requirements and prevention of environmental damage. Drums and containers in the approximately 2.5 to 3 acres east of the southern end of the building were repackaged or disposed. Surface soil samples were collected on a grid over this outdoor storage area; sample analysis was limited to pesticides, PCBs and metals.

The Remedial Investigation Site 27 sampling program consisted of surface soil samples at 10 locations and subsurface soil samples (1-2, 3-5 and 8-10 feet) at 5 locations. All samples were submitted for analysis of VOCs and other analytes. TCE was detected at an estimated concentration (0.001 mg/kg) below the RL in one surface soil sample (SS27F) near the southeast corner of Building 873. No VOCs were detected above RLs in subsurface soil samples.

Building 875

Building 875 was also an open-sided warehouse built in 1942 and demolished in 2002; the building was used to store hazardous materials including acids, POL, chlorine, and solvents. In addition, a 1,000-gallon heating oil UST located on the east side Building 875 was closed in place in 1994. No release was documented from this tank.

A surface soil sample and subsurface soil samples (0-4, 4-7 and 7-10 feet) were collected at one location (A25.2) east of the north-central section of Building 875 as part of the BRAC Sampling Program (Parcel 25). The samples were submitted for analysis of VOCs and other analytes. No VOCs were detected above reporting limits.

Building 865

Building 865, located north of former Buildings 873 and 875, was built in 1988 and used to store hazardous materials and as a recoupment area for re-packaging of leaking containers. The Building 865 Recoupment Area was designated Screening Site 28. The Screening Site 28 sampling program consisted of surface soil samples at 5 locations and subsurface soil samples (0-1, 3-5 and 8-10 feet) at 3 locations. All samples were submitted for analysis of VOCs and other analytes. The only VOCs detected in surface and subsurface soil samples were acetone, MEK and methylene chloride at low concentrations (0.002 to 0.16 mg/kg).

Railroad Tracks

Railroad tracks throughout the MI were used to transport materials to warehouses and storage areas. Pesticides and herbicides were applied to the railroad tracks on a regular basis for weed and pest control, and a mix of waste oil and pentachlorophenol (PCP) was also reportedly used for weed control in the 1970s. The railroad ties were traditionally pressure treated with PCP and other heavy hydrocarbon residues contained PAHs. Leaks of POL and various chemicals were also reported along the railroad tracks. Screening Sites 70 (various chemical leaks) and 71 (herbicide application) were designated to include all of the railroad tracks.

The Screening Site 70/71 sampling program consisted of surface soil samples at 70 locations uniformly distributed over the railroad tracks and subsurface soil samples (3-5 and 8-10 feet) at 10 locations. All samples were submitted for analysis of VOCs and other analytes. The only VOC detected in the screening site subsurface soil samples was TCE at an estimated concentration of 0.004 mg/kg at 8-10 feet in SB70B located at the northeast corner of building 873.

Building 765

Building 765, Fuel Oil Building, was located at the southern end of the main section of railroad tracks in the central MI. A 12,000-gallon diesel fuel AST at this location was removed in 1994. The former AST was designated Screening Site 81.

The Screening Site 81 sampling program consisted of surface soil samples at 3 locations and subsurface soil samples (0-1, 4-6 and 9-11 feet) at 1 location. Only one of the surface soil samples was analyzed for VOCs. No VOCs were detected in the soil sample.

Building 783 and 793

Buildings 783 and 793 were igloo type buildings built in 1942 and used for storage of flammable items and ordnance materials. The buildings, which were also used for material recoupment, were designated Screening Site 82. Building 783 was demolished in 2002.

The Screening Site 82 sampling program consisted of surface soil samples at 8 locations and subsurface soil samples (0-1, 4-6 or 5-7, 9-10.5 and 18-20 feet) at 4 locations. The soil borings

for subsurface samples were located adjacent to drains. All samples were submitted for analysis of VOCs and other analytes. No VOCs were detected above RLs.

3.4 Building 835

The Building 835 Plume located in the western portion of the MI contains elevated concentrations of TCE. The plume is orientated along the southern edge of the elevated clay plateau that is present in the northwest corner of the MI. Building locations, site locations and CVOC isopleths for the Building 835 plume are shown on Figure 14.

Building 835

Building 835 was built in 1988 was used to store various hazardous materials including acids, based, flammables, photo chemicals, and pesticides. Thirteen spills of various materials (battery acid, hydrochloric acid, sulfuric acid, herbicide, muriatic acid, and transmission fluid) were reported from 1991 to 1995. The releases were not significant enough to warrant a removal or remedial action. A spill of lubricating oil and engine oil was reported outside the building in 1993 but the location and quantity is not known.

Surface and subsurface soil samples (0-4, 4-7 and 7-10 feet) were collected at two locations (A32.1) and (B32.1) north of Building 835 as part of the BRAC Sampling Program (Parcel 32). The samples were submitted for analysis of VOCs and other analytes. No VOCs were detected above reporting limits.

Building 737/Pentachlorophenol Dip Tank Area

Building 737, located approximately 800 feet east of Building 835, was used to treat wood products, primarily pallets, with PCP from 1952 until approximately 1971. The pallets were allowed to drip-dry on rollers adjacent to the dip vat and then set out to dry in the vicinity of Building 737. Remedial activities were performed by O.H. Materials in 1985. The PCP dip vat (5500-gallon capacity) and associated PCP 12,000-gallon underground storage tank (UST) were removed. The UST excavation was approximately 20 by 22 feet and 15 feet deep. Although the UST was sound, significant leakage occurred at joints in lines leading from the UST to the dip vat. The area of the dip vat and rollers were excavated to depths of 5 to 14 feet. Soils associated with the dip vat and UST were excavated in most areas until the concentration of total dioxins and furans was below 200 parts per billion. In the drying areas around Building 737, approximately 3 to 6 inches of soil was excavated (scraped). Two Screening Sites were designated in this area: 42 - Former PCP Dip Vat Area and 43 - Former Underground PCP Tank Area.

A temporary wash water treatment system was constructed on the west side of Building 737 so that rinsate generated during decontamination activities could be contained and treated. The treatment system was also used to treat rainwater that became contaminated with PCPs. The treatment system consisted of a 12,000-gallon portable pool with a vinyl liner, pumps, medium capacity carbon cell, and associated piping. An area immediately north of Building 737 was used

to stage contaminated soil generated during removal of the PCP UST. These areas were designated No Further Action Sites: 44 – Former Wastewater Treatment Area and 45 – Former Contaminated Soil Staging Area.

The Screening Site 42 sampling program consisted of surface soil samples at 5 locations and subsurface soil samples (8-10, 18-20, 28-30 and 38-40 feet) at 2 locations. All samples were submitted for analysis of VOCs and other analytes. No VOCs were detected above RLs.

The Screening Site 43 sampling program consisted of surface soil samples at 5 locations and subsurface soil samples (8-10, 18-20, 28-30 and 38-40 feet) at 2 locations. All samples were submitted for analysis of VOCs and other analytes. No VOCs were detected above RLs.

Railroad Tracks

Railroad tracks throughout the MI were used to transport materials to warehouses and storage areas. Pesticides and herbicides were applied to the railroad tracks on a regular basis for weed and pest control, and a mix of waste oil and pentachlorophenol (PCP) was also reportedly used for weed control in the 1970s. The railroad ties were traditionally pressure treated with PCP and other heavy hydrocarbon residues contained PAHs. Leaks of POL and various chemicals were also reported along the railroad tracks. Screening Sites 70 (various chemical leaks) and 71 (herbicide application) were designated to include all of the railroad tracks.

The Screening Site 70/71 sampling program consisted of surface soil samples at 70 locations uniformly distributed over the railroad tracks and subsurface soil samples (3-5 and 8-10 feet) at 10 locations. All samples were submitted for analysis of VOCs and other analytes. NO VOCS were detected in samples collected in the vicinity of Building 835.

4.0 Soil Investigation

4.1 Investigation Procedure

A membrane interface probe (MIP) investigation will be conducted within the suspected source areas for the primary groundwater plumes at the Main Installation. A MIP investigation conducted by CH2M Hill at Dunn Field was successful in delineating source areas and the planned MI investigation will be performed in the same manner. The following information was modified from the *Dunn Field Remedial Design Investigation Work Plan* (CH2M Hill, 2005).

The MIP is a screening tool with semi-quantitative capabilities acting as an interface between the CVOCs in the subsurface and gas phase detectors at the surface. The MIP uses a direct push probing or cone penetration testing (CPT) system to advance a sensor through a soil column while collecting continuous data on CVOC concentrations in gas phase. The MIP system is comprised of a down-hole heating element that raises subsurface temperatures and volatilizes organic contaminants. The volatilized CVOCs permeate across a membrane at the probe tip and are brought to the surface in an inert carrier gas stream for analysis. MIP rigs are typically equipped with a flame ionization detector (FID), photoionization detector (PID), electron capture

detector (ECD), and a gas chromatograph (GC). The ECD analyzes the mass of a smaller set of organic chemicals that generally represent the CVOCs, which are the target of the MI investigation. PID, FID, and ECD data, as well as the response from a soil conductivity detector, are collected continuously during advancement. The three detectors will be used to simultaneously evaluate and correlate the results obtained from each detector. The instrument response will be plotted versus depth to evaluate the concentration of CVOCs at each location.

A total of 265 proposed MIP locations are planned for the MI source investigation; locations are discussed in the following sections. Each MIP point will be advanced from the ground surface to the top of the fluvial sands. Borings will be terminated at the base of the loess and underlying transition zone (30 to 35 feet bgs) based on adjacent borings or when the electrical conductivity readings suggest that the MIP has begun to penetrate the fluvial sands.

As at Dunn Field, the overall strategy is to characterize the magnitude and extent of elevated CVOCs (PCE, TCE, carbon tetrachloride [CT] and chloroform) in soil by using the semi-quantitative MIP instrument. Soil samples will be collected adjacent to select MIP locations using a standard DPT; confirmation samples will be collected and analyzed by the laboratory with expedited (3-day) analysis for evaluation of the MIP results.

The MIP data and soil analyses will be used to identify the source areas for the MI groundwater plumes. Correlative soil sample intervals will be selected based on MIP response. The MIP operator will be directed by e^2M field personnel during the investigation to advance the DPT at the desired location(s) and collect confirmatory samples at the desired elevation(s). The objective will be to collect the soil samples at locations representing the full range of CVOC responses (based on the ECD, PID, and FID results) and expected soil concentrations. The completed MIP and DPT points will be filled to ground surface with bentonite-grout slurry.

4.2 Sample Locations

4.2.1 TTA-1 North

None of the identified sites overlay the TTA-1 North plume and available soil sample results do not indicate potential source areas for additional investigation. Concentrations of CVOCs in MW-219 indicate the potential for off-site contribution to the plume, but the area of highest concentrations (above 100 µg/L) appears to begin near the facility fence west of Building 1089 and the primary source is assumed to be on DDMT.

A 40-foot by 40-foot sampling grid (TTA-1N-A) is proposed to cover an area of 120 feet by 280 feet overlying the plume. Although Early Removal Site 29 is approximately 400 feet south of the TTA-1 North plume, the presence of 1,000 gallon UST with high concentrations of PCE and TCE for an unknown period indicates a high potential for release. A 30-foot by 30-foot sampling grid (TTA-1N-B) is proposed to cover an area of 60 feet by 90 feet over the area. The MIP sample locations are shown Figure 15.

4.2.2 TTA-1 South

Based on the distribution of PCE and TCE in the TTA-1 South plume, there appear to be two source areas. Wells in the southern area have high TCE concentrations and moderate PCE concentrations while those in the northern area have high PCE concentrations and low TCE concentrations.

Building 1087 is at the apparent upgradient edge of the southern part of the plume, and the painting operations and potential for wastewater discharges make it a potential source area. A 40-foot by 40-foot sampling grid (TTA-1S-A) is proposed to cover an area of 80 feet by 120 feet between Buildings 1087 and 972. An additional line of 4 MIP borings will be located at 40-foot intervals between Buildings 1087 and 1088. A second 40-foot by 40-foot sampling grid (TTA-1S-B) is proposed to cover an area of 80 feet by 240 feet between Buildings 972 and 970. The MIP sample locations are shown Figure 15.

4.2.3 TTA-2

The distribution of PCE and carbon tetrachloride (CT) in TTA-2 also suggest two or more source areas. While PCE concentrations are elevated throughout most of the plume area, CT concentrations are primarily in the northwestern plume area (near Buildings 260, 261 and 263).

A 40-foot by 40-foot sampling grid (TTA-2-A) is proposed to cover an area of 240 feet by 360 feet from the east side of Building 265 to the west overlying the area of highest PCE concentrations. A second 40-foot by 40-foot sampling grid (TTA-2-B) is proposed to cover an area of 160 feet by 240 feet on the west side of Buildings 260 and 261 to the north to include the location of boring SB66A which had chloroform detected in soil samples. The MIP sample locations are shown Figure 16.

4.2.4 West Central

None of the identified sites overlay the West-Central plume although past activities in Building 873 (demolished) and the surrounding area provide a potential source area. A 50-foot by 50-foot sampling grid is proposed to cover an area of 500 feet by 250 feet from the west side of Building 873 to the east overlying the upgradient area of highest PCE concentrations. The MIP sample locations are shown Figure 17.

4.2.5 Building 835

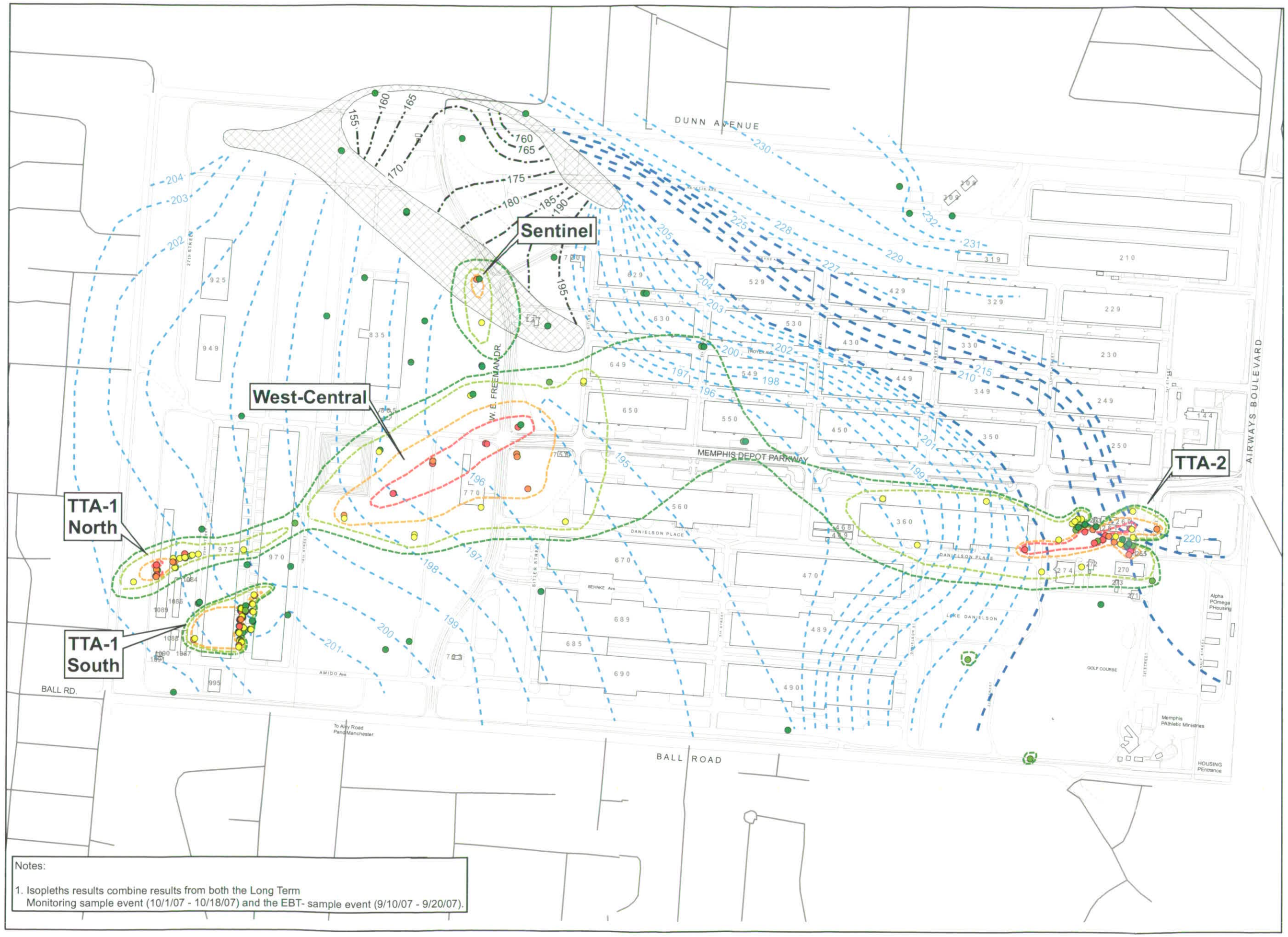
None of the identified sites overlay the Building 835 plume and there is little information on potential source areas. A 50-foot by 50-foot sampling grid is proposed to cover an area of 250 feet by 250 feet northwest of Building 835 overlying the upgradient area of highest TCE concentrations. The MIP sample locations are shown Figure 18.

4.2.6 Sample Summary

The estimated locations for MIP boring and the number of soil samples are summarized below.

Plume Area	MIP Locations	Soil Samples
TTA-1 North A	36	9
TTA-1 North B	37	9
TTA-1 South A	55	14
TTA-1 South B	35	9
West Central	66	16
Building 835	36	9
Total	**265**	**66**

Figures



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT- sample event (9/10/07 - 9/20/07).

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Figure 1

MI GROUNDWATER PLUMES - PCE OCTOBER 2007

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

PCE Ranges
ug/L
- 0 - 5
- 5 - 10
- 10 - 50
- 50 - 100
- 100 - 300

PCE Isopleth
ug/L
- 5
- 10
- 50
- 100
- Potentiometric surface of the Fluvial Aquifer 1-ft. contour
- Potentiometric surface of the Fluvial Aquifer 5-ft. contour
- Potentiometric surface of the Intermediate Aquifer 5-ft. contour
- Clay Elevation Exceeds Groundwater Elevation

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 200 400 800
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

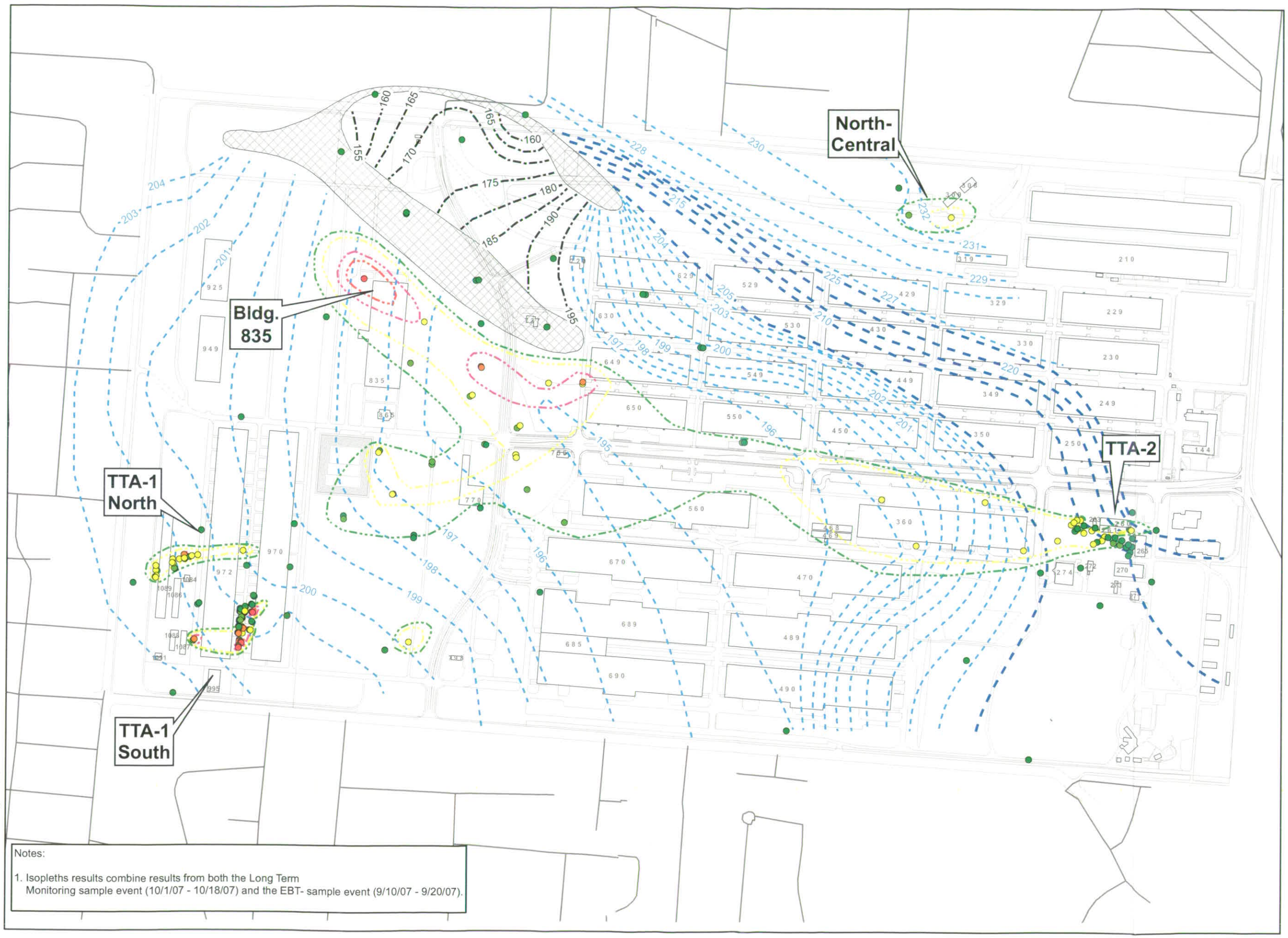

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Figure 2

MI GROUNDWATER PLUMES - TCE OCTOBER 2007

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

TCE Ranges
ug/L
- 0 - 5
- 5 - 10
- 10 - 50
- 50 - 100
- 100 - 300

TCE Isopleth
ug/L
- 5
- 10
- 50
- 100
- Potentiometric surface of the Fluvial Aquifer 1-ft. contour
- Potentiometric surface of the Fluvial Aquifer 5-ft. contour
- Potentiometric surface of the Intermediate Aquifer 5-ft. contour
- Clay Elevation Exceeds Groundwater Elevation

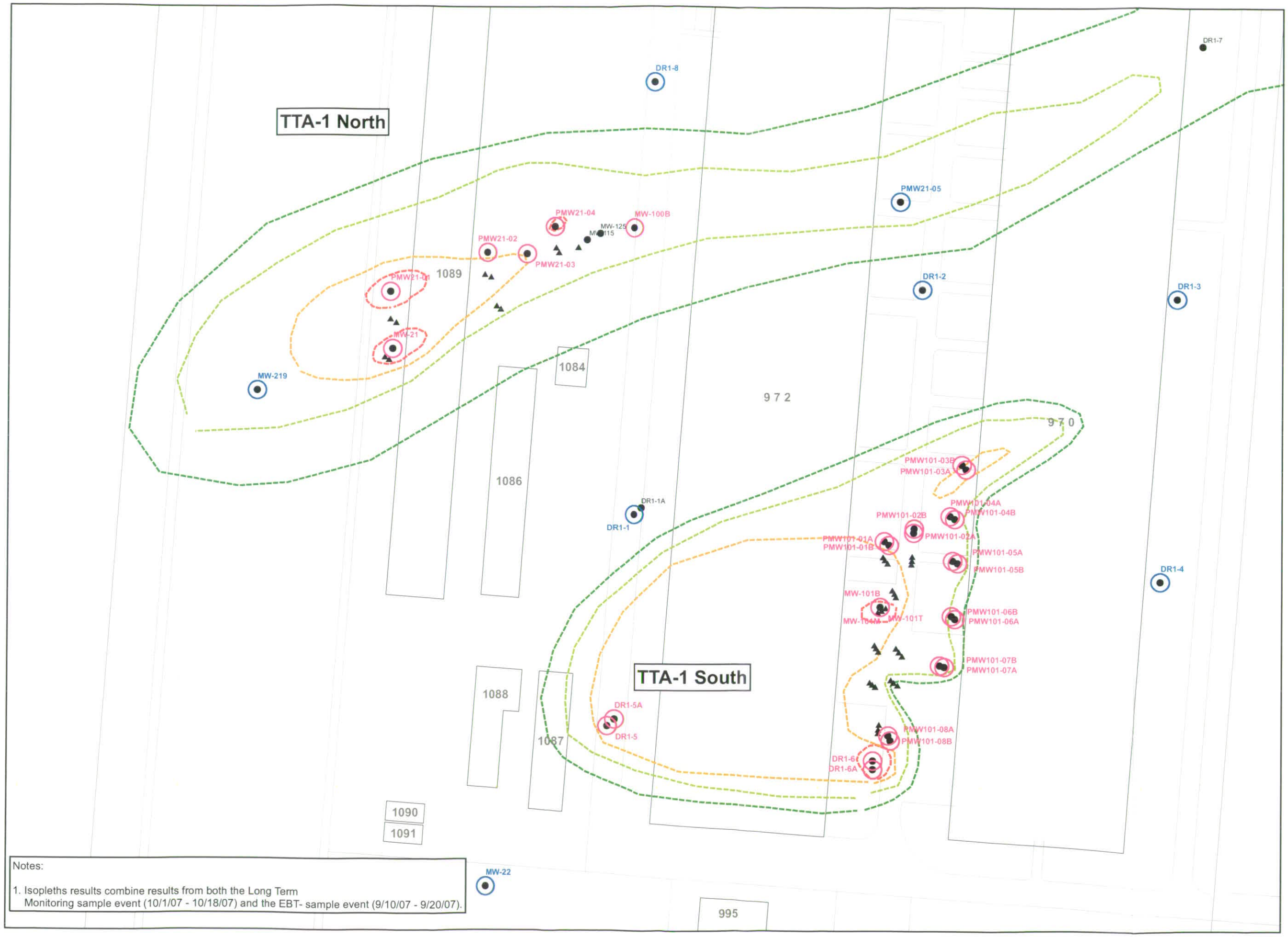
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 200 400 800
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

\320\2016\MI Source Area Investigation\GIS



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT- sample event (9/10/07 - 9/20/07).

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Figure 3

TTA-1 NORTH AND SOUTH PLUMES
CWNs, PCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- ▲ Injection Well
- ● Monitoring Well

PCE Isopleth ug/L

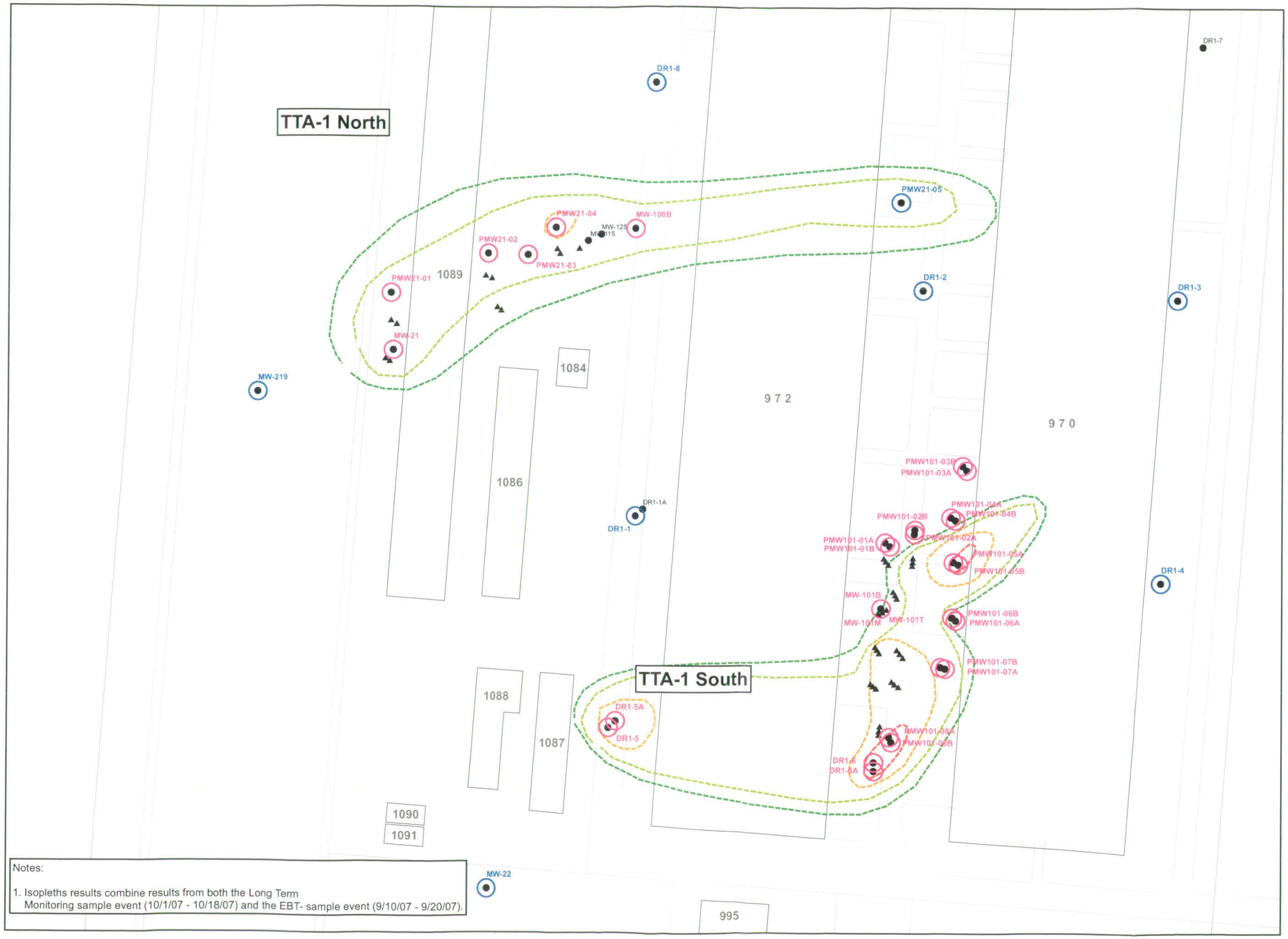
- 5
- 10
- 50
- 100

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT- sample event (9/10/07 - 9/20/07).

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Figure 4

TTA-1 NORTH AND SOUTH PLUMES
CWNs, TCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- Injection Well
- Monitoring Well

TCE Isopleth
ug/L

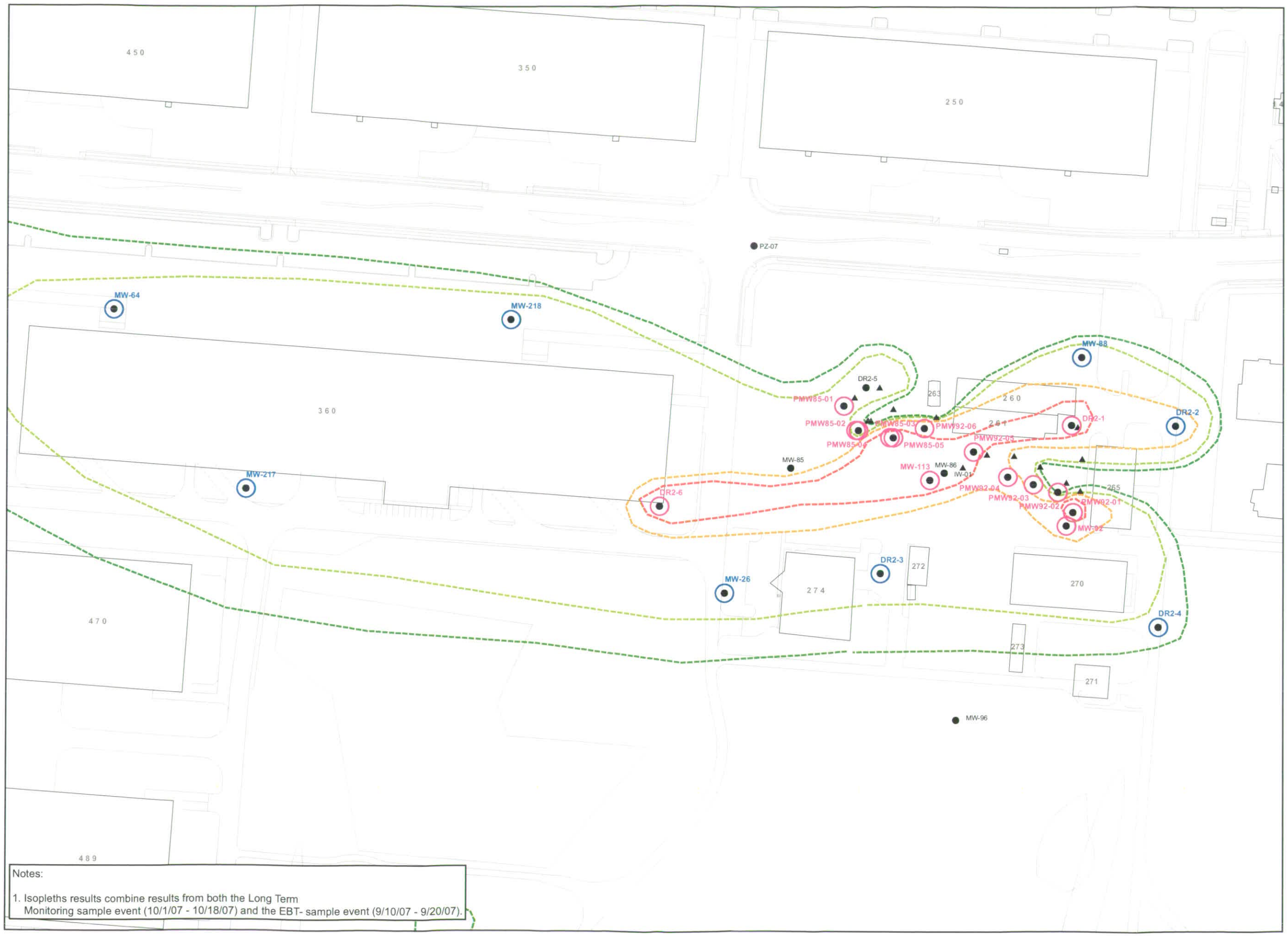
- 5
- 10
- 50
- 100

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT- sample event (9/10/07 - 9/20/07).

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Figure 5

TTA-2 PLUME CWN, PCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- ▲ Injection Well
- ● Monitoring Well

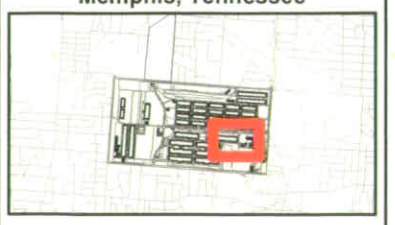
PCE Isopleth ug/L

- 5
- 10
- 50
- 100

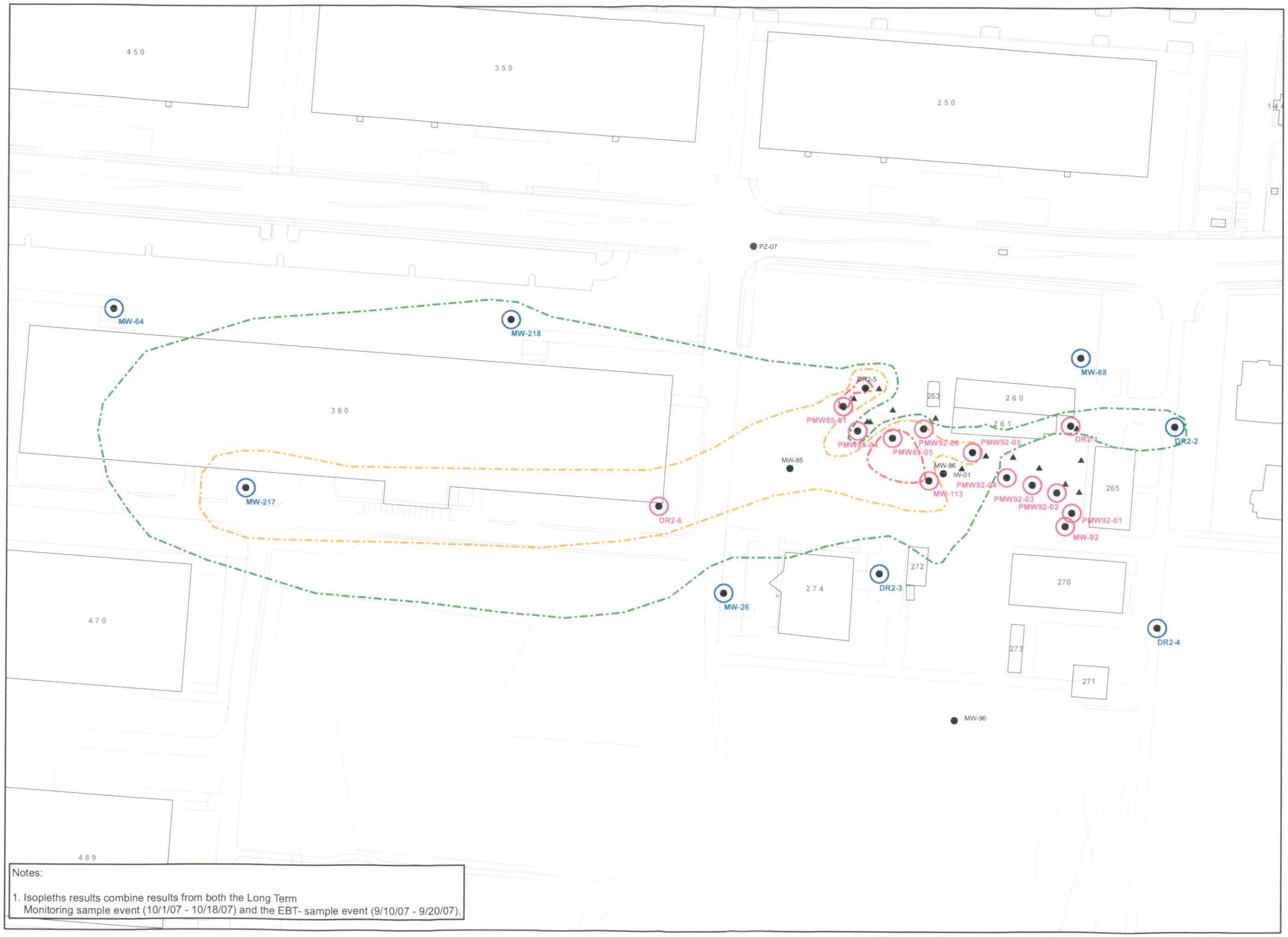
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200 250
Feet

Installation Location
Memphis, Tennessee



Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT- sample event (9/10/07 - 9/20/07).

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Figure 6

TTA-2 PLUME CWN, CT ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- Injection Well
- Monitoring Well

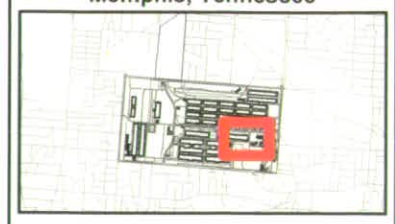
CT Isopleth ug/L

- 10
- 50
- 100

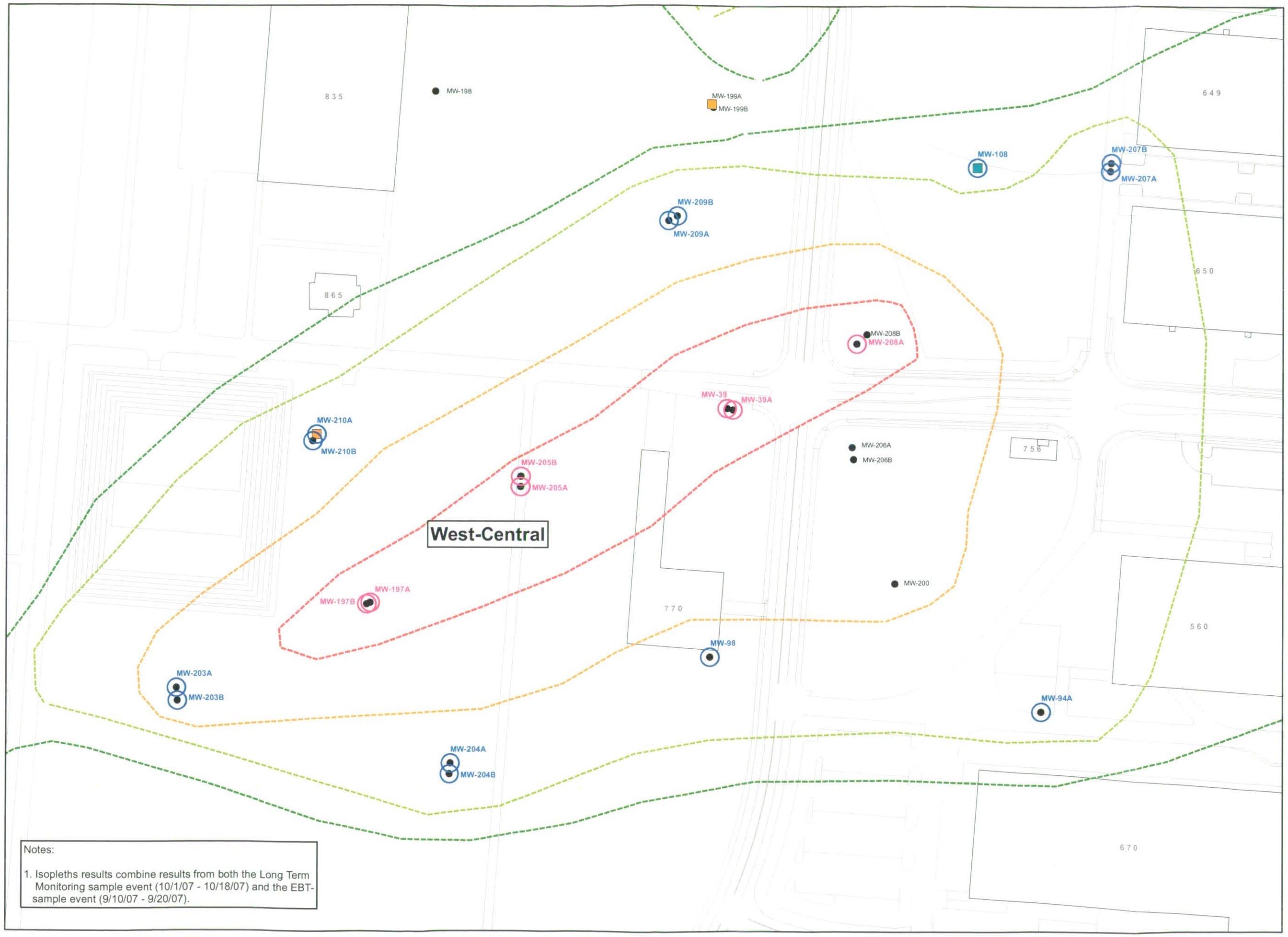
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200 250
Feet

Installation Location
Memphis, Tennessee



Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT-sample event (9/10/07 - 9/20/07).

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Figure 7

WEST-CENTRAL PLUME CWN, PCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer

PCE Isopleth

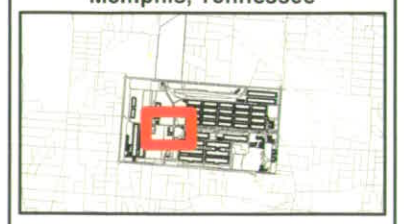
ug/L

- 5
- 10
- 50
- 100

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200 250
Feet

Installation Location
Memphis, Tennessee



Date: March 2008
Edition: Rev 0

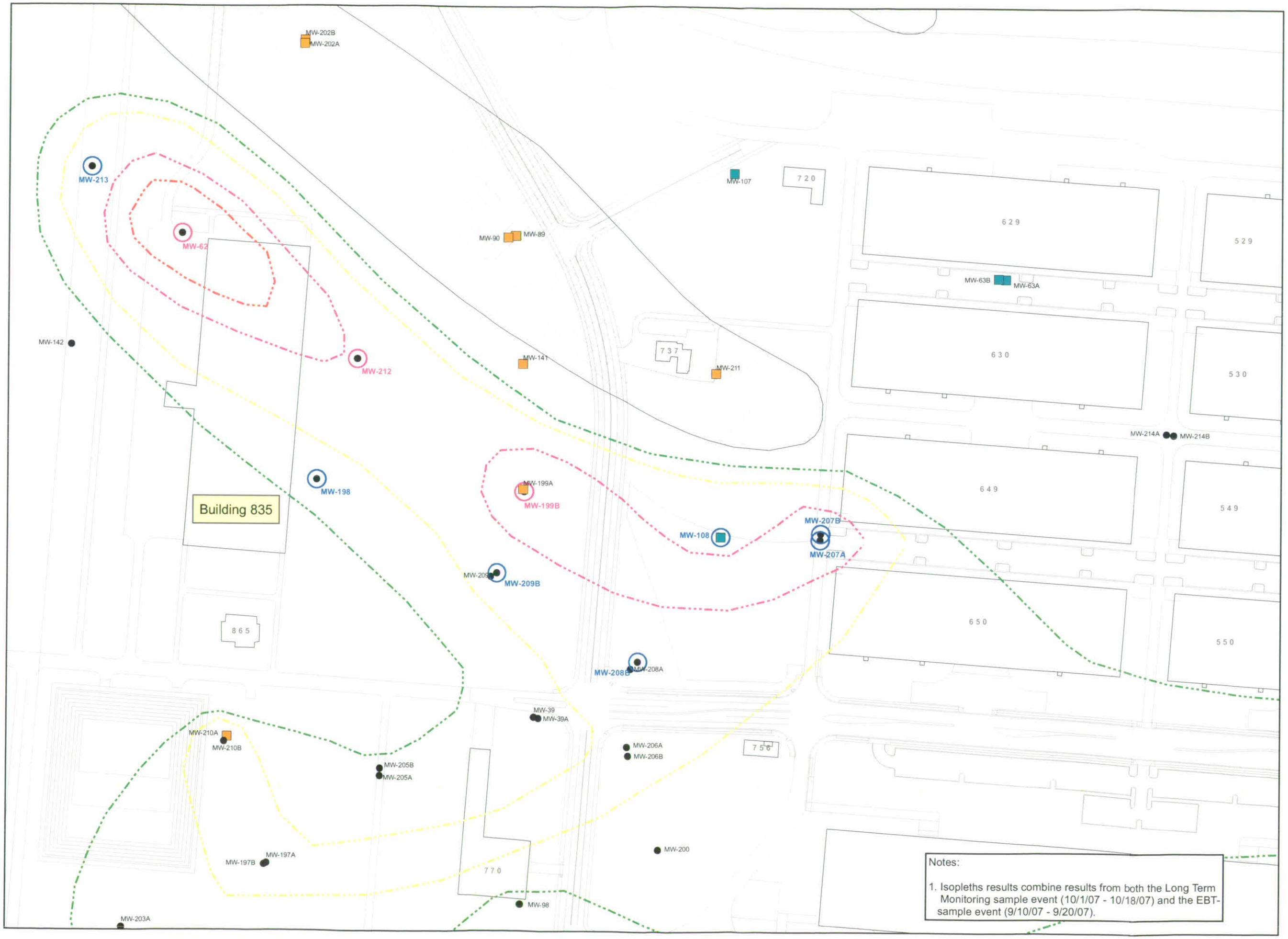


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Figure 8

BUILDING 835 PLUME CWN, TCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer

TCE Isopleth

ug/L

- 5
- 10
- 50
- 100
- ClayArea *Clay Elevation Exceeds Groundwater Elevation*

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 150 300

Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT-sample event (9/10/07 - 9/20/07).

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Figure 9

NORTH-CENTRAL PLUME CWN, TCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend
- CORE
- PERIMETER
- Monitoring Well Screened in the Fluvial Aquifer

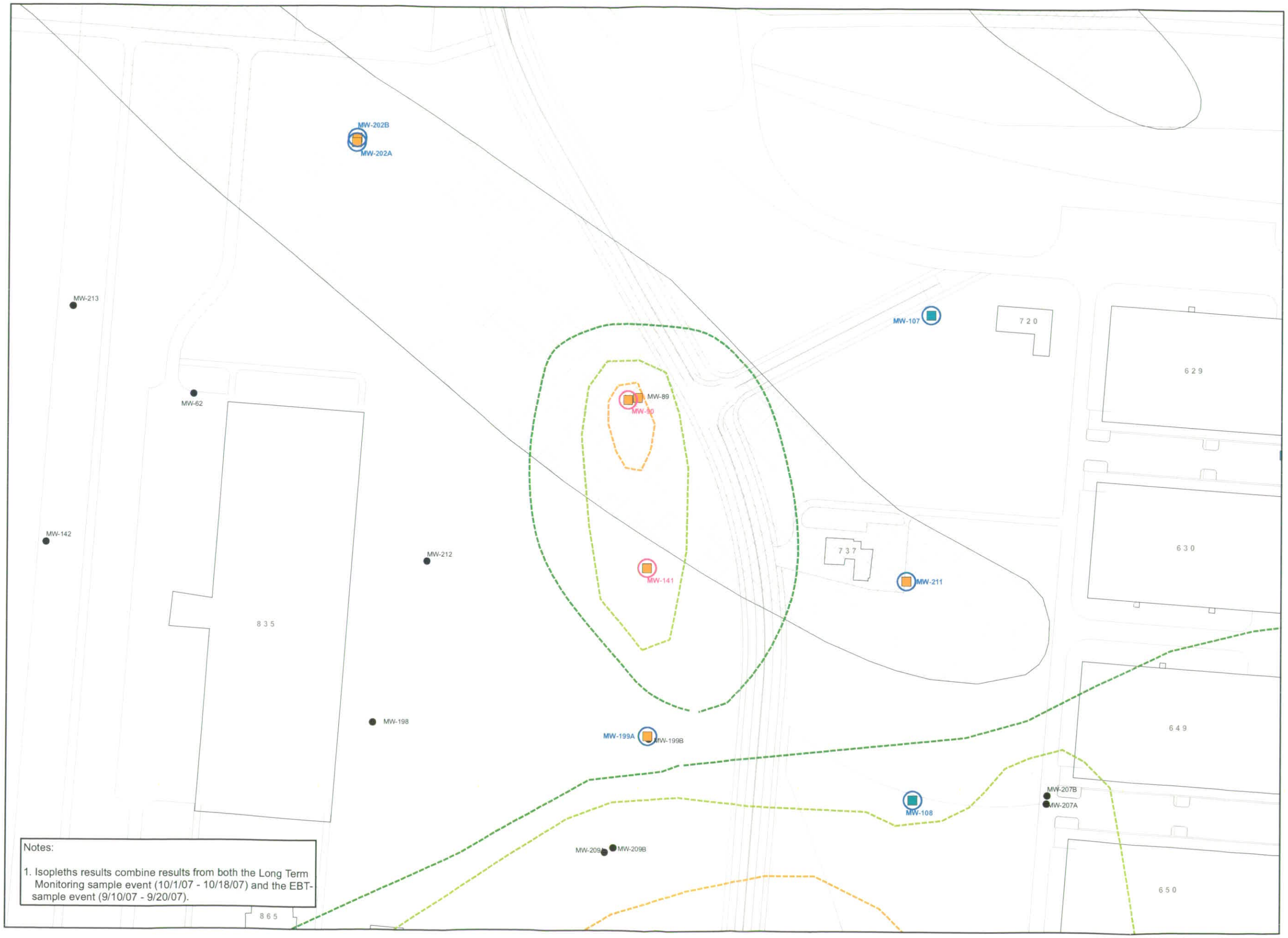
TCE Isopleth
ug/L
- 5
- 10

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 100 200 300 400
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT-sample event (9/10/07 - 9/20/07).

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Figure 10

SENTINEL PLUME CWN, PCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- CORE
- PERIMETER
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer

PCE Isopleth

ug/L

- 5
- 10
- 50
- 100
- ClayArea *Clay Elevation Exceeds Groundwater Elevation*

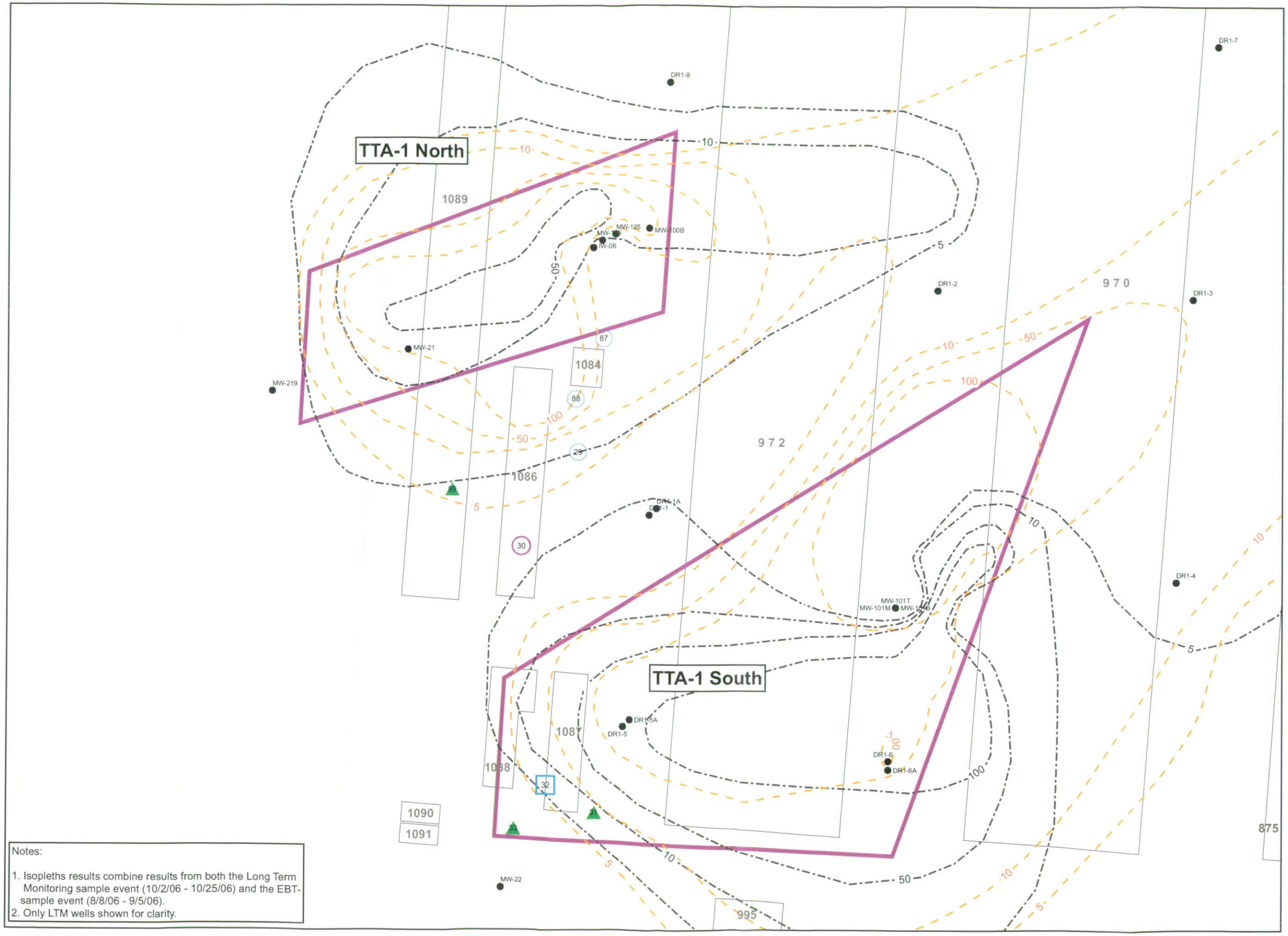
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200 250 300

Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/2/06 - 10/25/06) and the EBT-sample event (8/8/06 - 9/5/06).
2. Only LTM wells shown for clarity.

\3202\016\MI Source Area Investigation\GIS

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Figure 11

TTA-1 PLUMES SOURCE REVIEW, PCE and TCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- Early Removal Site
- Feasibility Study Site
- No Further Action Site
- Remedial Investigation Site
- Screening Site
- TEC Site
- Monitoring Well Screened in the Fluvial Aquifer
- Areas of Potential Source
- PCE Isopleth (ug/L)
- TCE Isopleth (ug/L)

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

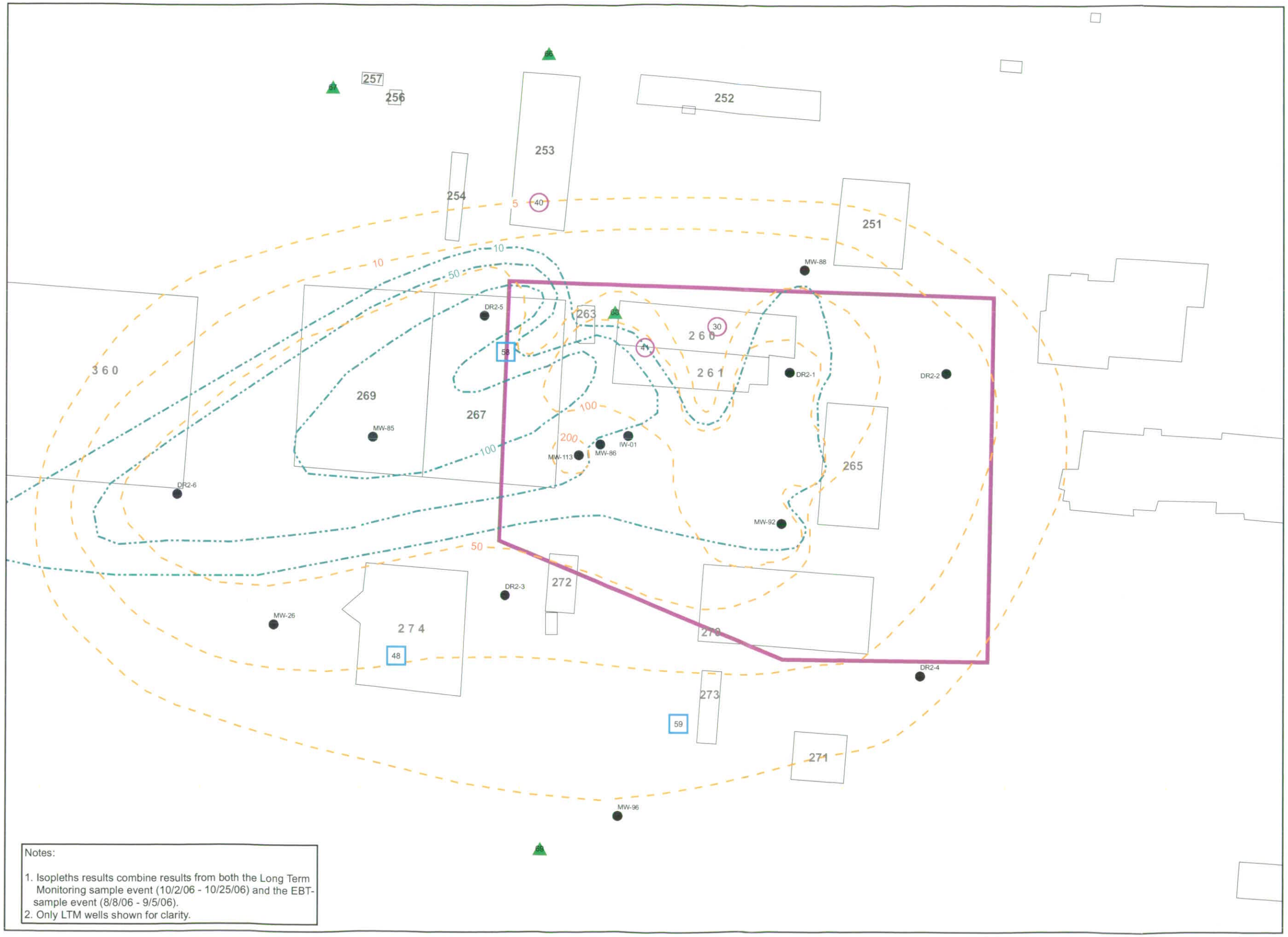

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Figure 12

TTA-2 PLUME SOURCE REVIEW, PCE and CT ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

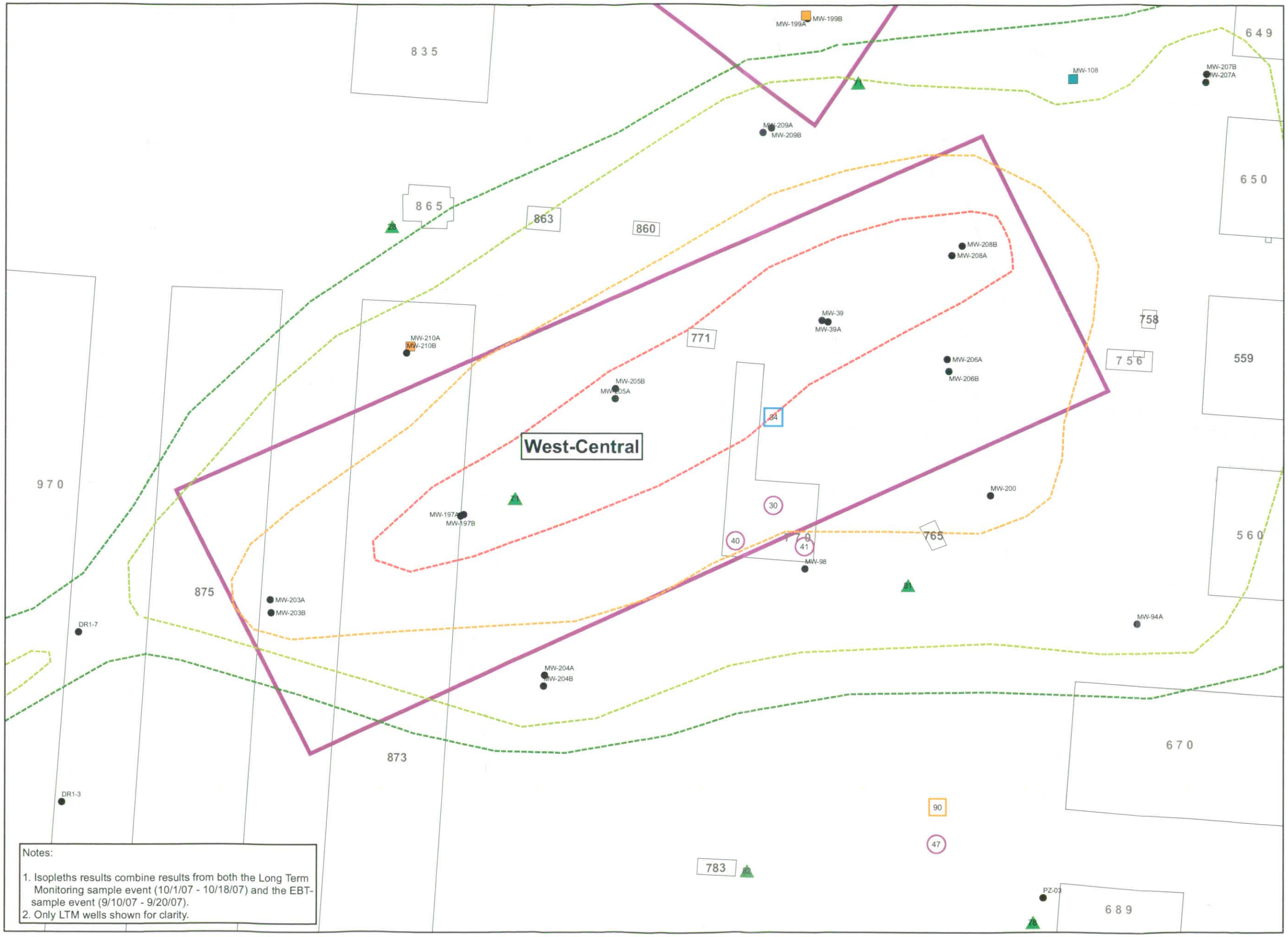
- No Further Action Site
- Remedial Investigation Site
- Screening Site
- Monitoring Well Screened in the Fluvial Aquifer
- Areas of Potential Source
- PCE Isopleth (ug/L)
- CT Isopleth (ug/L)

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT-sample event (9/10/07 - 9/20/07).
2. Only LTM wells shown for clarity.

\3202\016\MI Source Area Investigation\GIS

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Figure 13

WEST-CENTRAL PLUME SOURCE REVIEW, PCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- No Further Action Site
- Remedial Investigation Site
- Screening Site
- TEC Site
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer
- Areas of Potential Source

PCE Isopleth

ug/L

- 5
- 10
- 50
- 100

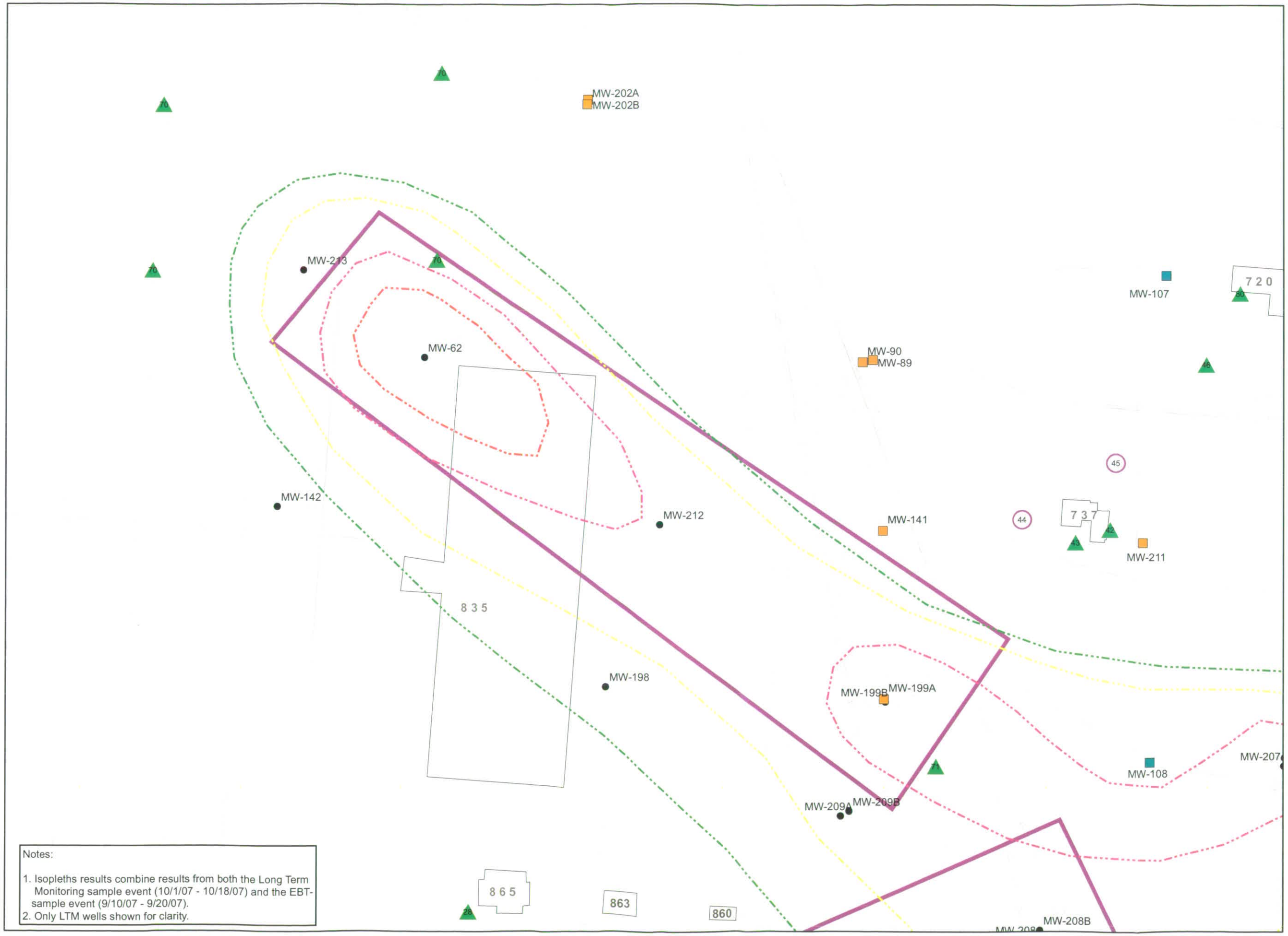
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200

Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT-sample event (9/10/07 - 9/20/07).
2. Only LTM wells shown for clarity.

N
W E
S

Figure 14

BUILDING 835
PLUME SOURCE REVIEW, TCE ISOPLETHS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- No Further Action Site
- Screening Site
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer

TCE Isopleth
ug/L

- 5
- 10
- 50
- 100
- Areas of Potential Source

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

\3202\016\MI Source Area Investigation\GIS

Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/2/06 - 10/25/06) and the EBT-sample event (8/8/06 - 9/5/06).
2. Only LTM wells shown for clarity.

\3202\016\MI Source Area Investigation\GIS

N
W E
S

Figure 15

TTA-1 SAMPLE LOCATIONS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

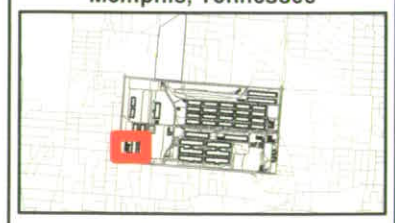
- Proposed Sample Location
- Sample Grid
- Early Removal Site
- No Further Action Site
- Remedial Investigation Site
- Screening Site
- Monitoring Well Screened in the Fluvial Aquifer
- Areas of Potential Source
- PCE Isopleth (ug/L)
- TCE Isopleth (ug/L)

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

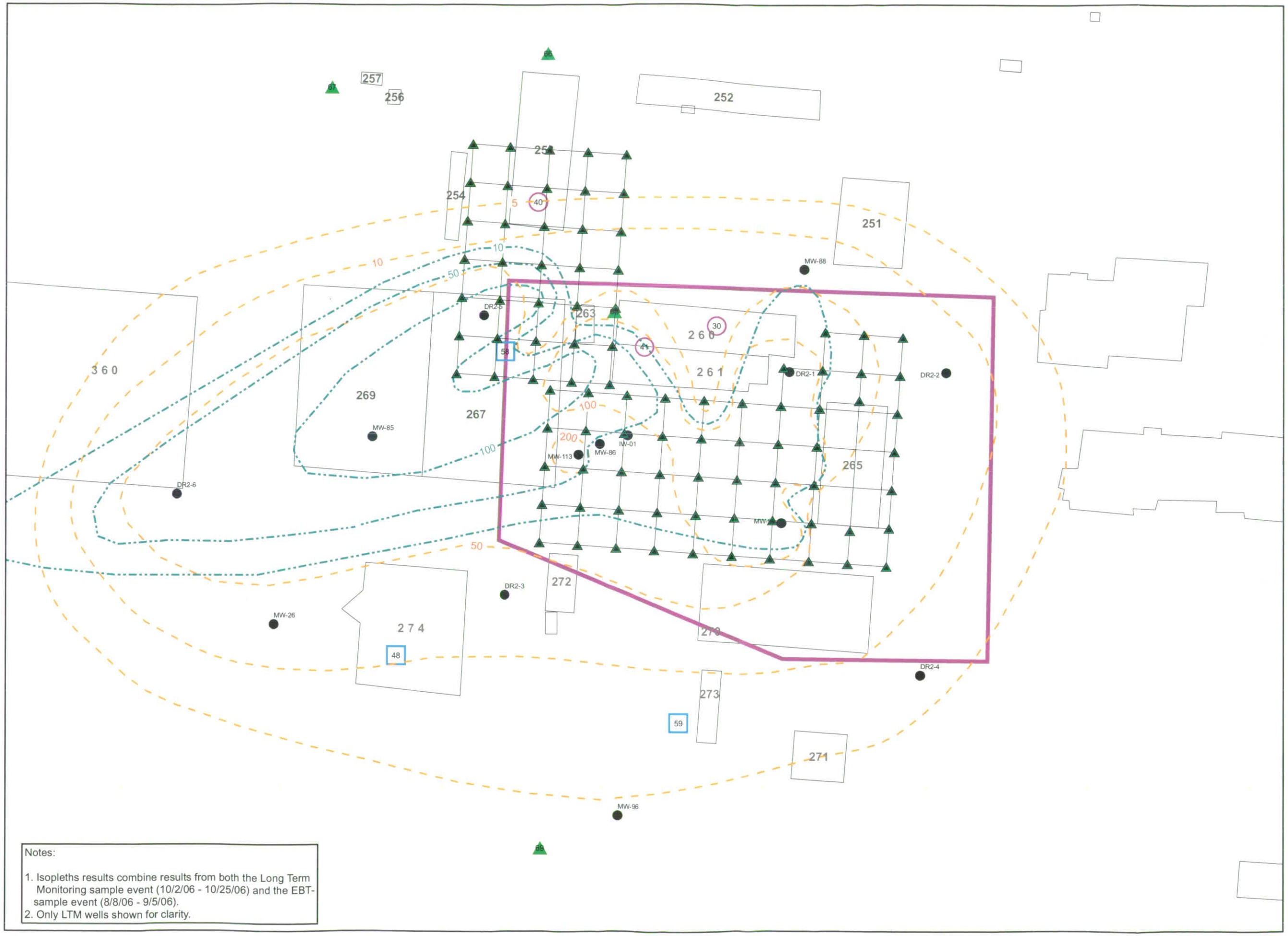
0 50 100 150 200

Feet

Installation Location
Memphis, Tennessee



Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/2/06 - 10/25/06) and the EBT-sample event (8/8/06 - 9/5/06).
2. Only LTM wells shown for clarity.

\3202\016\MI Source Area Investigation\GIS

N
W E
S

Figure 16

TTA-2 SAMPLE LOCATIONS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

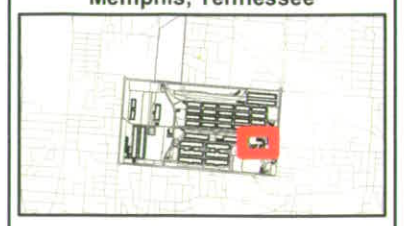
Legend

- Proposed Sample Location
- Sample Grid
- No Further Action Site
- Remedial Investigation Site
- Screening Site
- Monitoring Well Screened in the Fluvial Aquifer
- Areas of Potential Source
- PCE Isopleth (ug/L)
- CT Isopleth (ug/L)

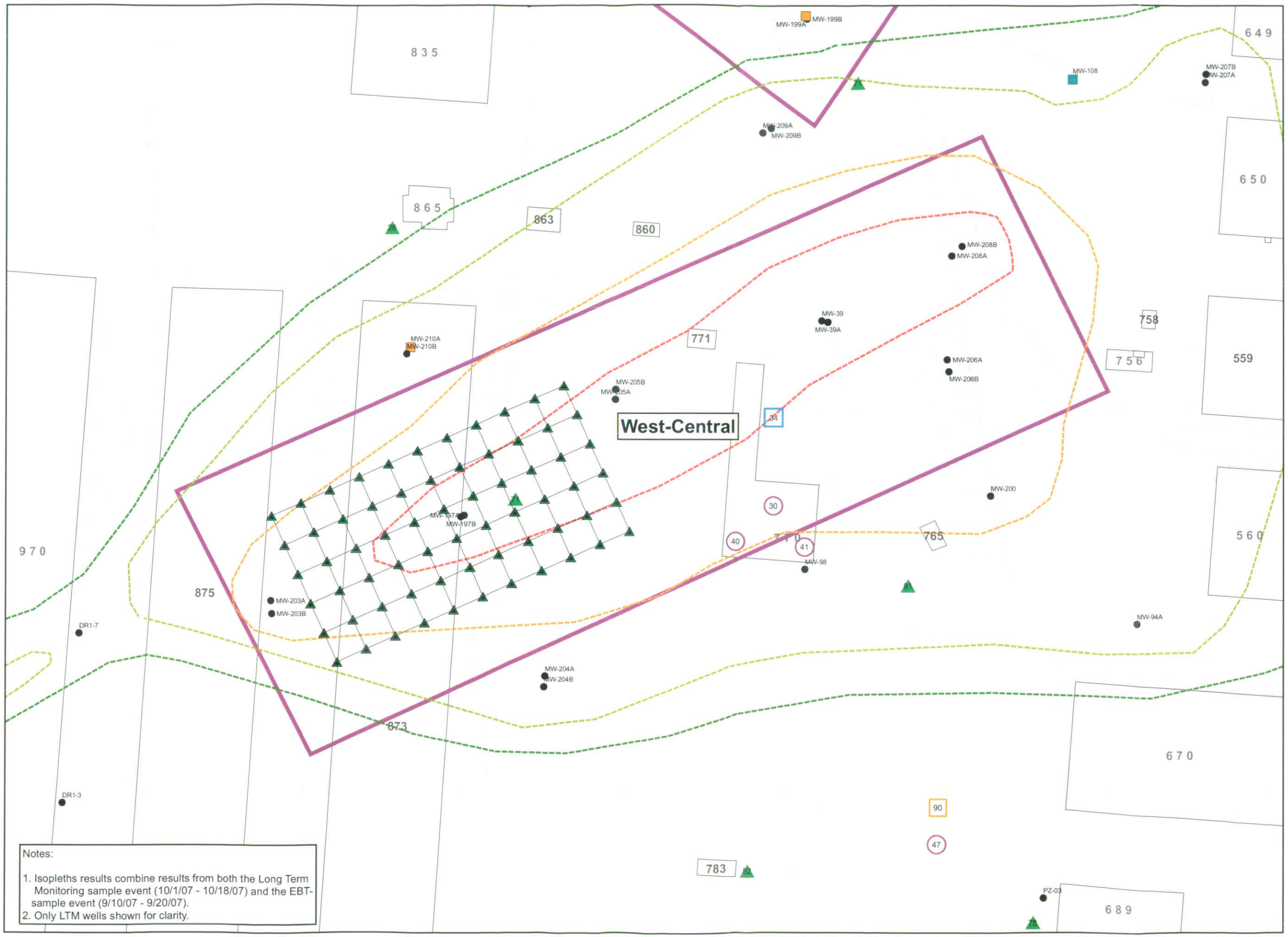
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150
Feet

Installation Location
Memphis, Tennessee



Date: March 2008
Edition: Rev 0



Notes:

1. Isopleths results combine results from both the Long Term Monitoring sample event (10/1/07 - 10/18/07) and the EBT-sample event (9/10/07 - 9/20/07).
2. Only LTM wells shown for clarity.

N
W E
S

Figure 17

WEST-CENTRAL PLUME SAMPLE LOCATIONS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- Proposed Sample Location
- Sample Grid
- No Further Action Site
- Remedial Investigation Site
- Screening Site
- TEC Site
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer

PCE Isopleth

ug/L

- 5
- 10
- 50
- 100
- Areas of Potential Source

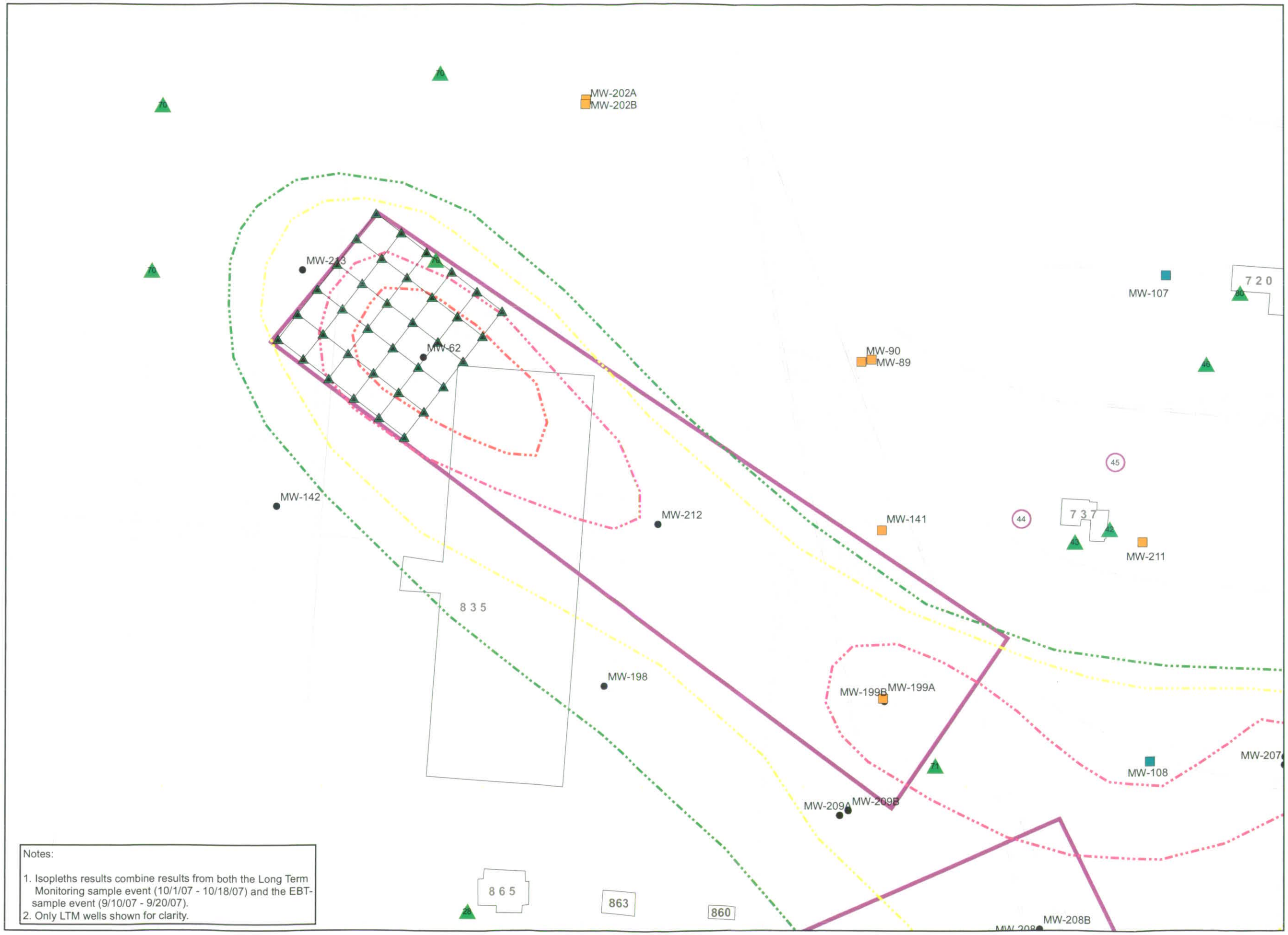
Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

\3202\016\MI Source Area Investigation\GIS



\3202\016\MI Source Area Investigation\GIS

N
W E
S

Figure 18

BUILDING 835 SAMPLE LOCATIONS

MAIN INSTALLATION
SOURCE AREA EVALUATION

DEFENSE DEPOT
MEMPHIS, TENNESSEE

Legend

- Proposed Sample Location
- Sample Grid
- No Further Action Site
- Screening Site
- Monitoring Well Screened in the Fluvial Aquifer
- Monitoring Well Screened in the Transition Zone
- Monitoring Well Screened in the Intermediate Aquifer
- Areas of Potential Source

TCE Isopleth

ug/L

- 5
- 10
- 50
- 100

Projection: NAD 1927 StatePlane Tennessee
Units: Feet

0 50 100 150 200
Feet

Installation Location
Memphis, Tennessee

Date: March 2008
Edition: Rev 0

Appendix A

Site Locations and Sample Locations

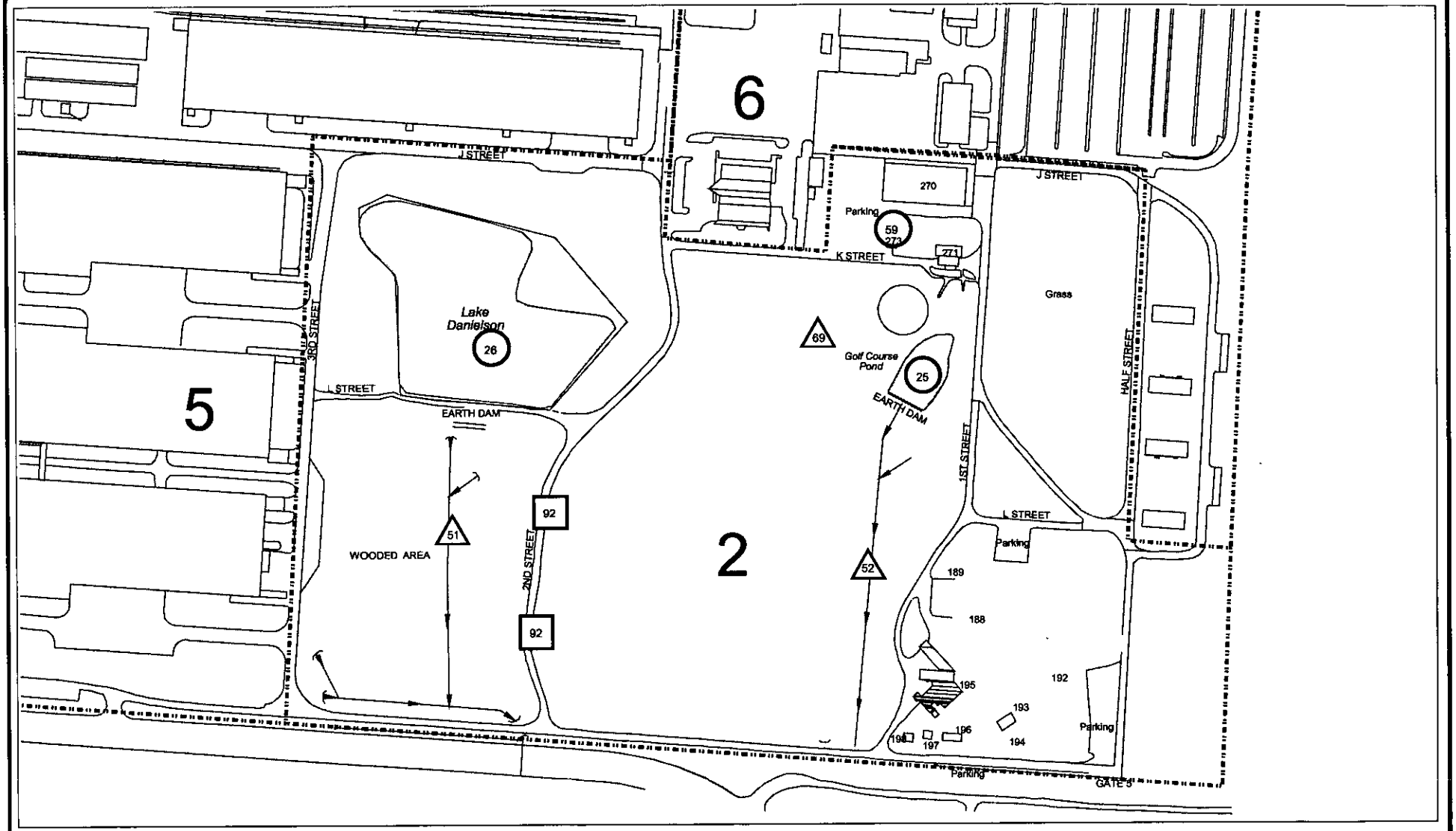


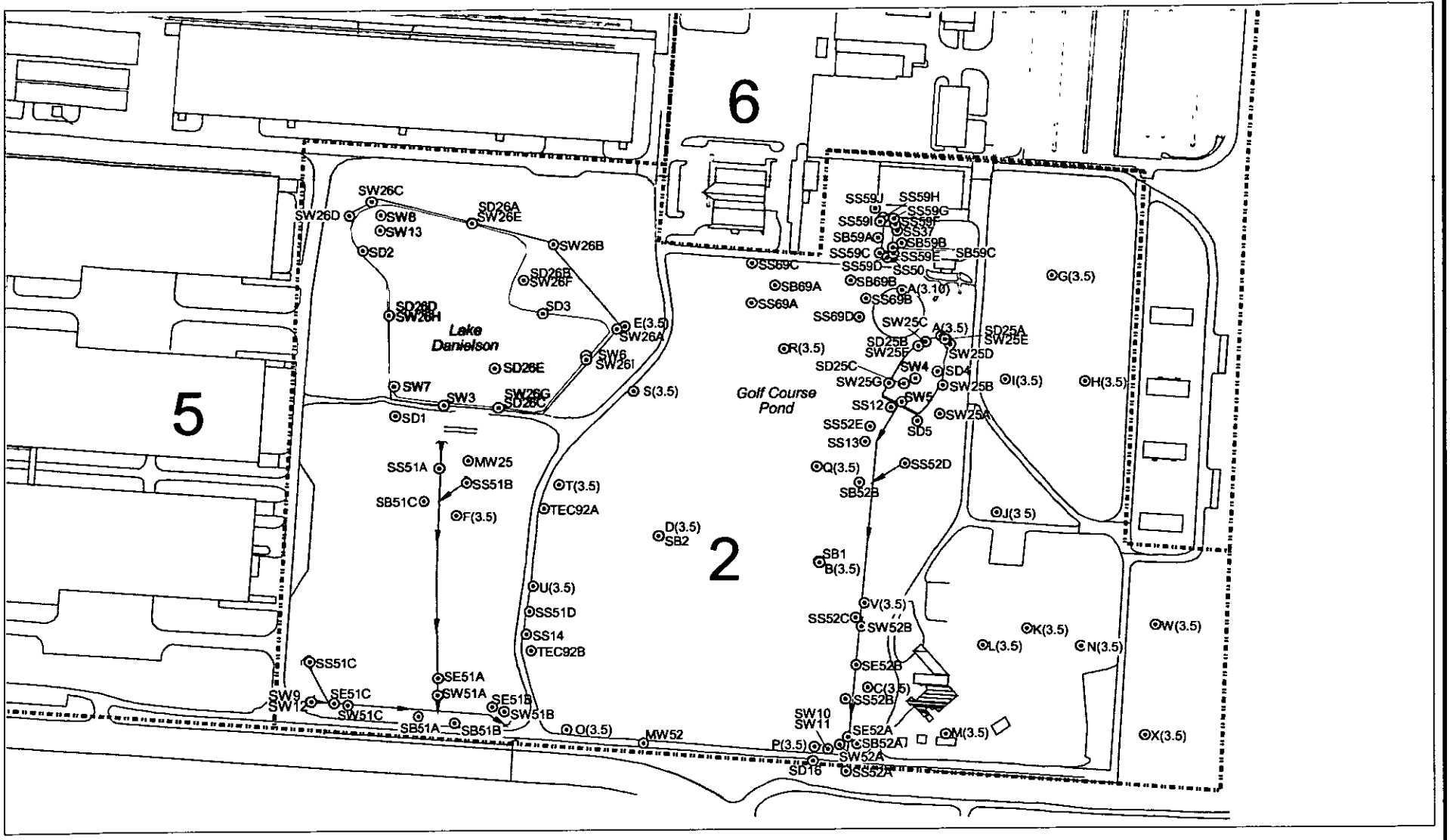
FIGURE 12-1
FU2 LAND COVER AND SITE LOCATIONS
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\Thor\Cart1\ddm\fu2_sepest.apr 6/13/99

12-35

933 42



Sample Loctations
Functional Unit Boundary
Surface Water Bodies
Base Features
Buildings

N

0 150 300 Feet

SCALE IS APPROXIMATE

FIGURE 12-2
SAMPLE LOCATIONS IN FU2
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\ThorCart1\ddm\fu2_sepest.apr 6/13/99

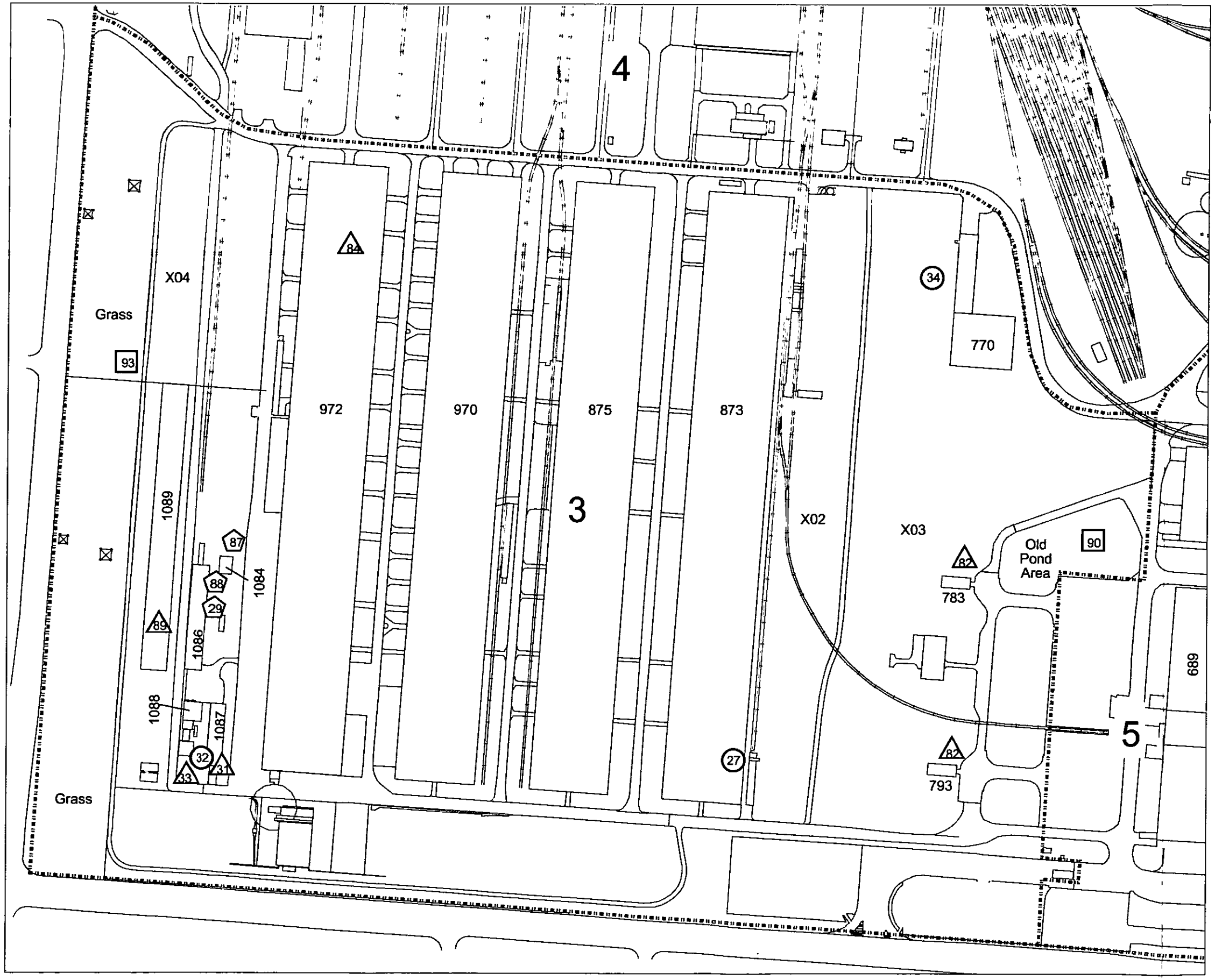
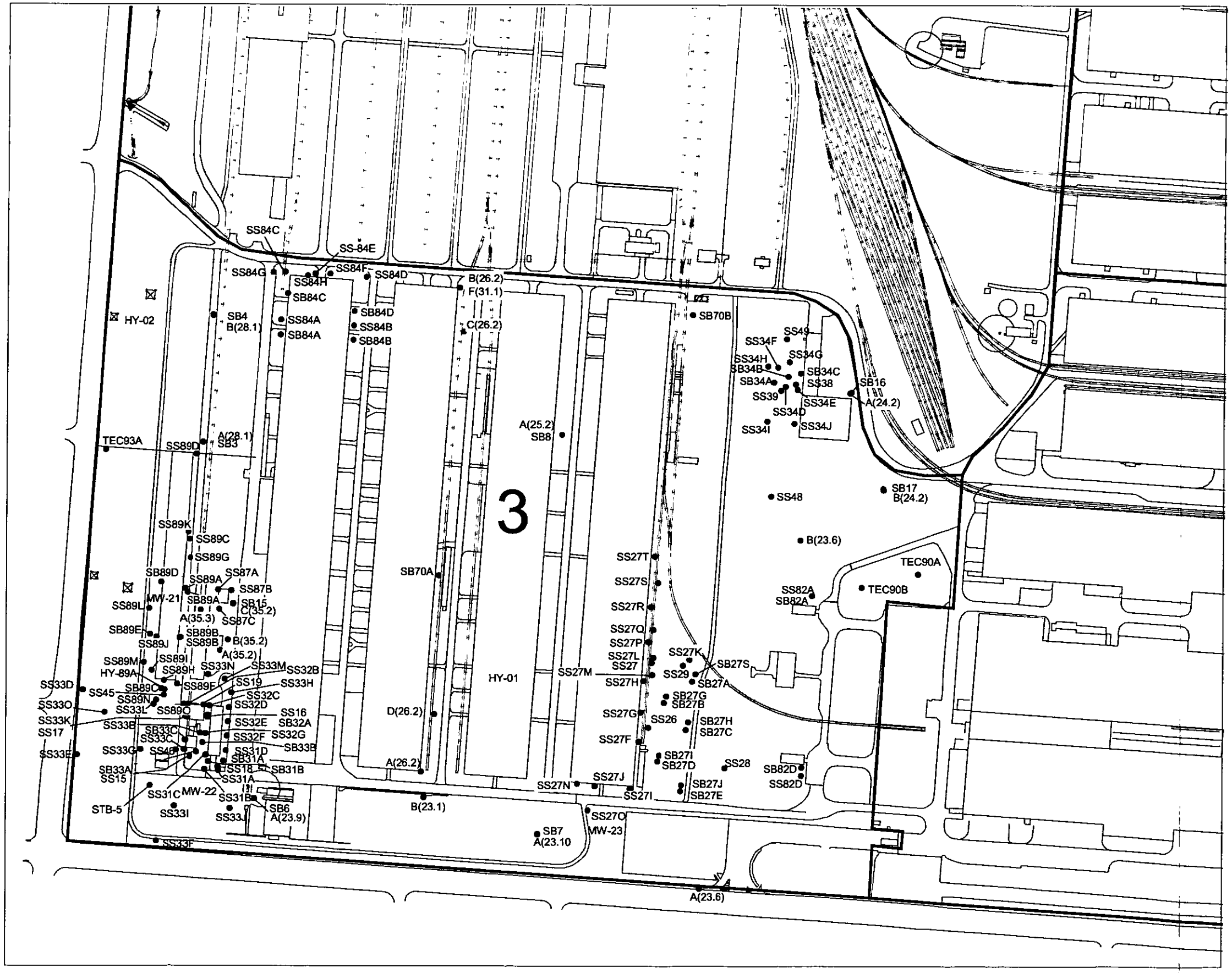


FIGURE 16-1
FU3 LAND COVER AND SITE LOCATIONS
MEMPHIS DEPOT MAIN INSTALLATION RI

RDD \\Thor\Cart1\ddmt\ddmfu.apr 8/11/99

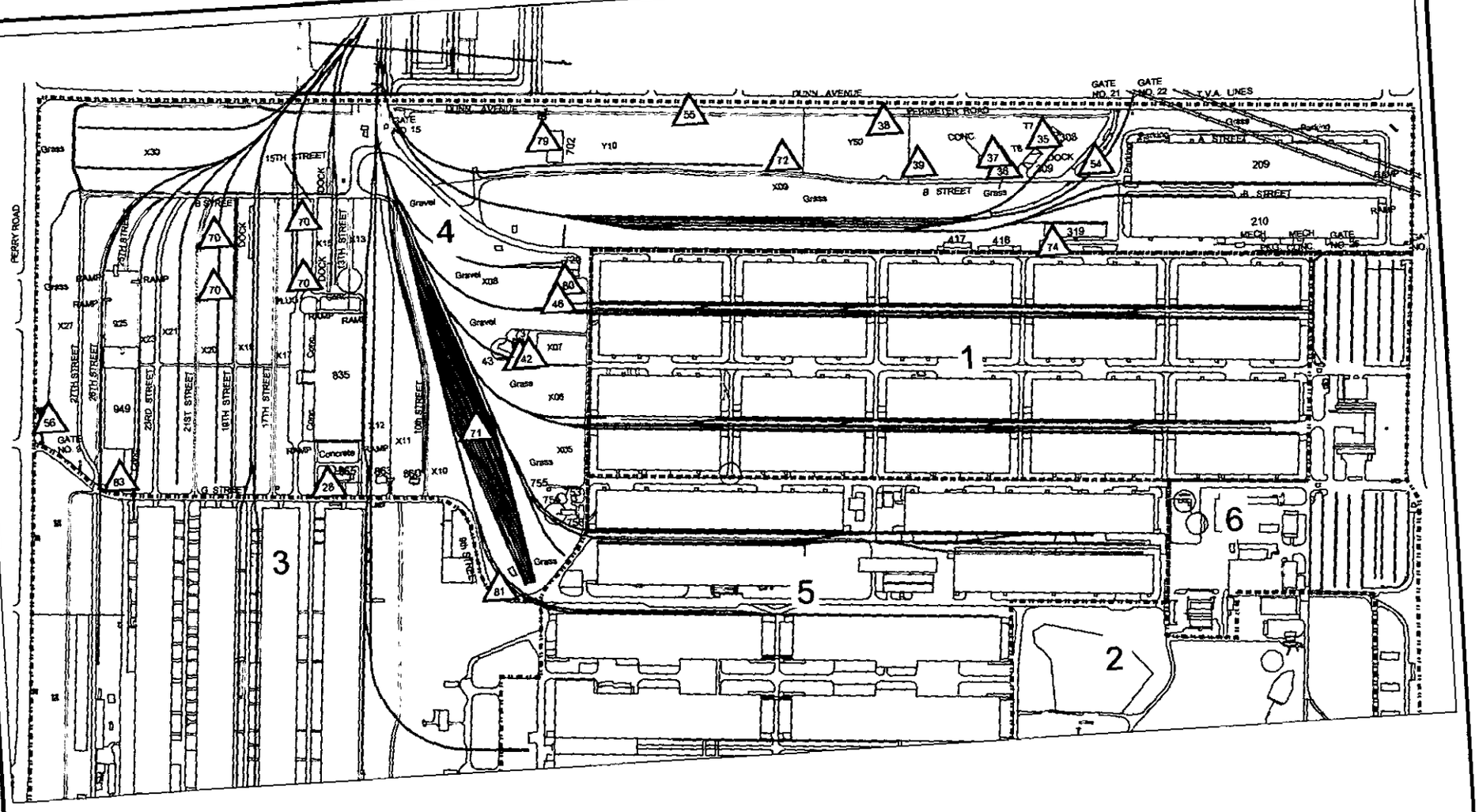
CH2MHILL



RDD \\ThorCart1\ddmf\ddmffu apr 5/7/89

FIGURE 16-2
SAMPLE LOCATIONS IN FUNCTIONAL UNIT 3
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL



Investigation Site

Screening Site

Functional Unit Boundary
Base Features
Buildings

0 400 800 Feet

SCALE IS APPROXIMATE

N

FIGURE 20-1
FU4 LAND COVER AND SITE LOCATIONS
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\Thor\Carl1\ddmtf\fu4_samplelocs.apr 7/7/99

20-45

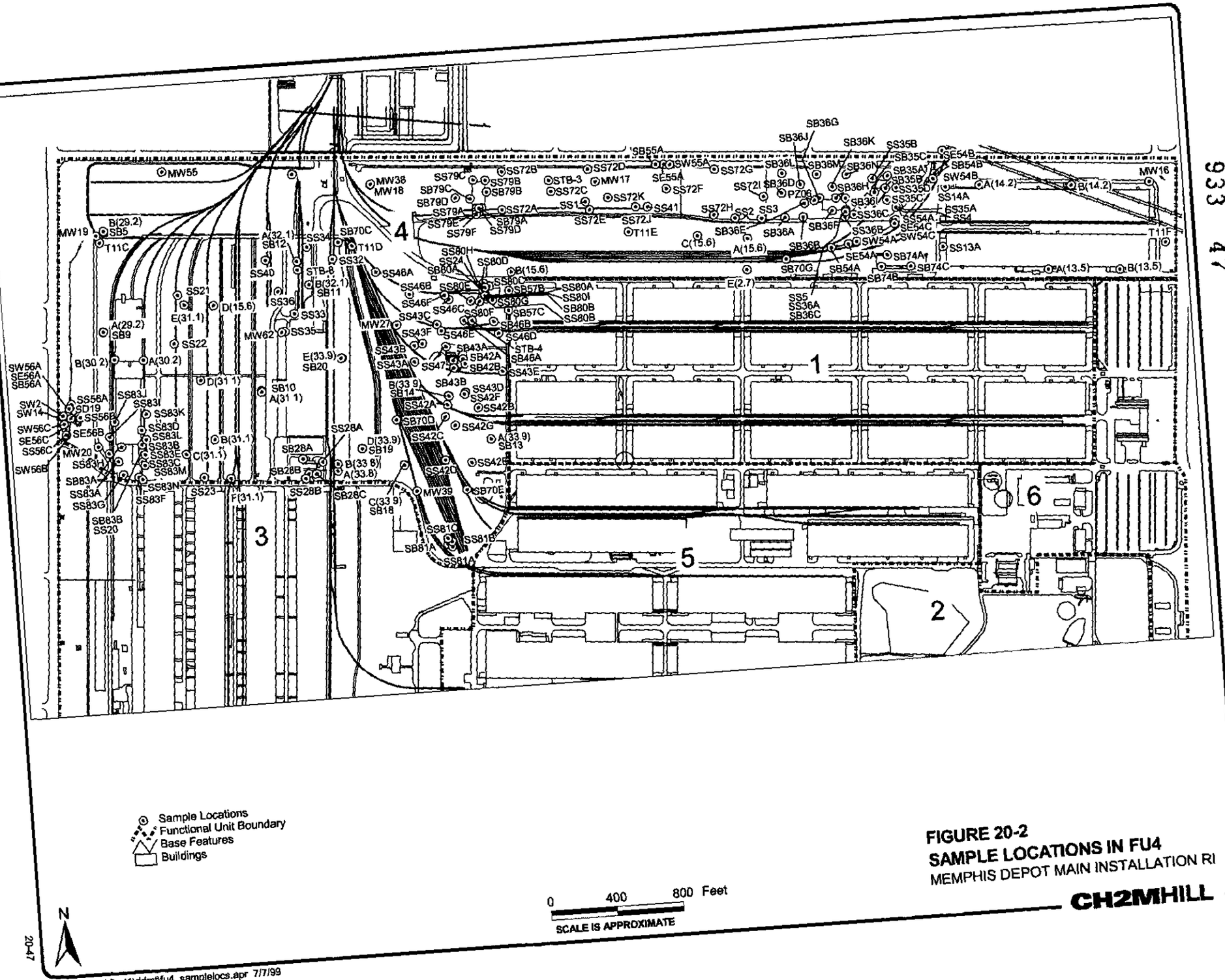


FIGURE 20-2
SAMPLE LOCATIONS IN FU4
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\Thor\Cart1\ddmt\fu4_samplelocs.apr 7/7/99

20-47

933 47

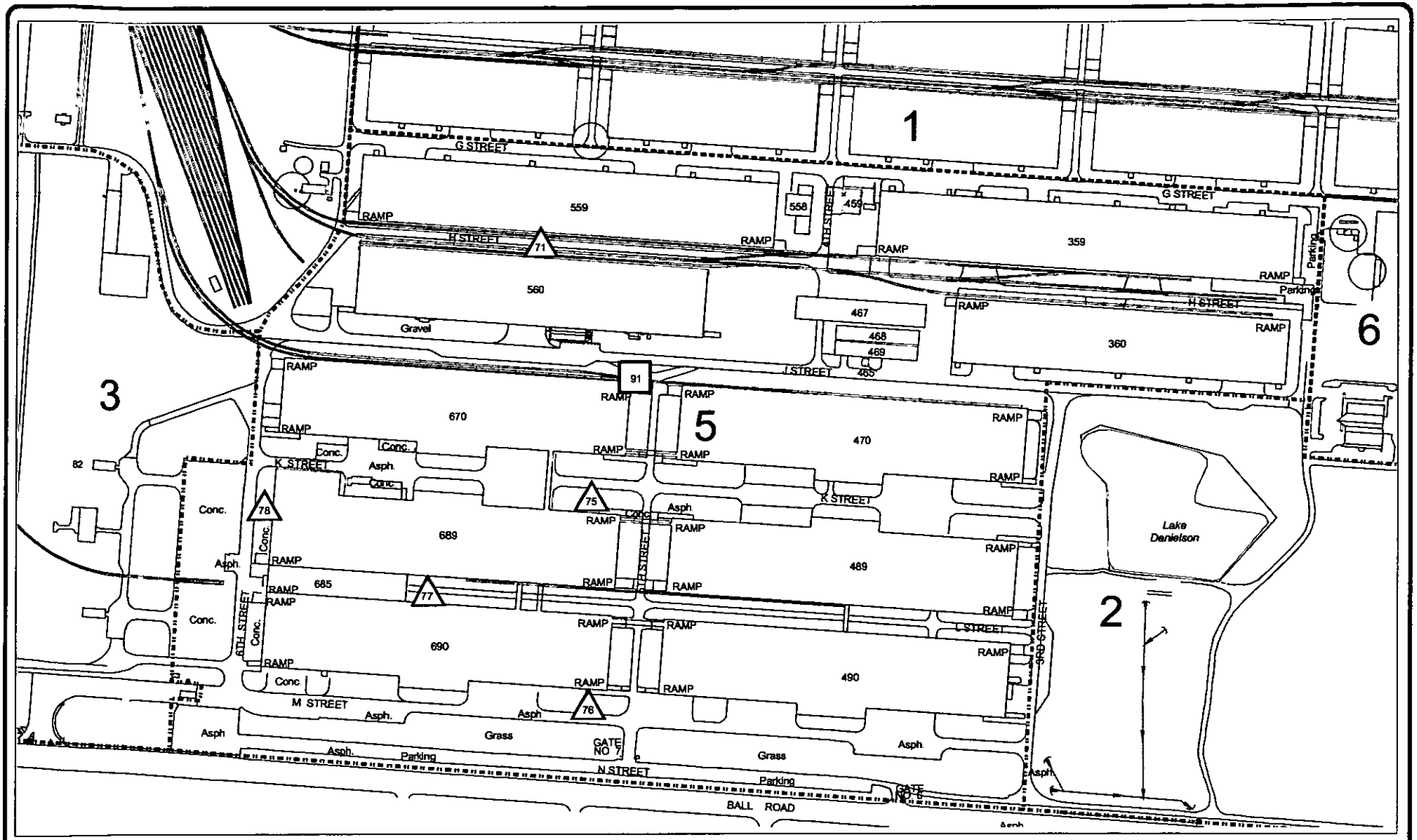


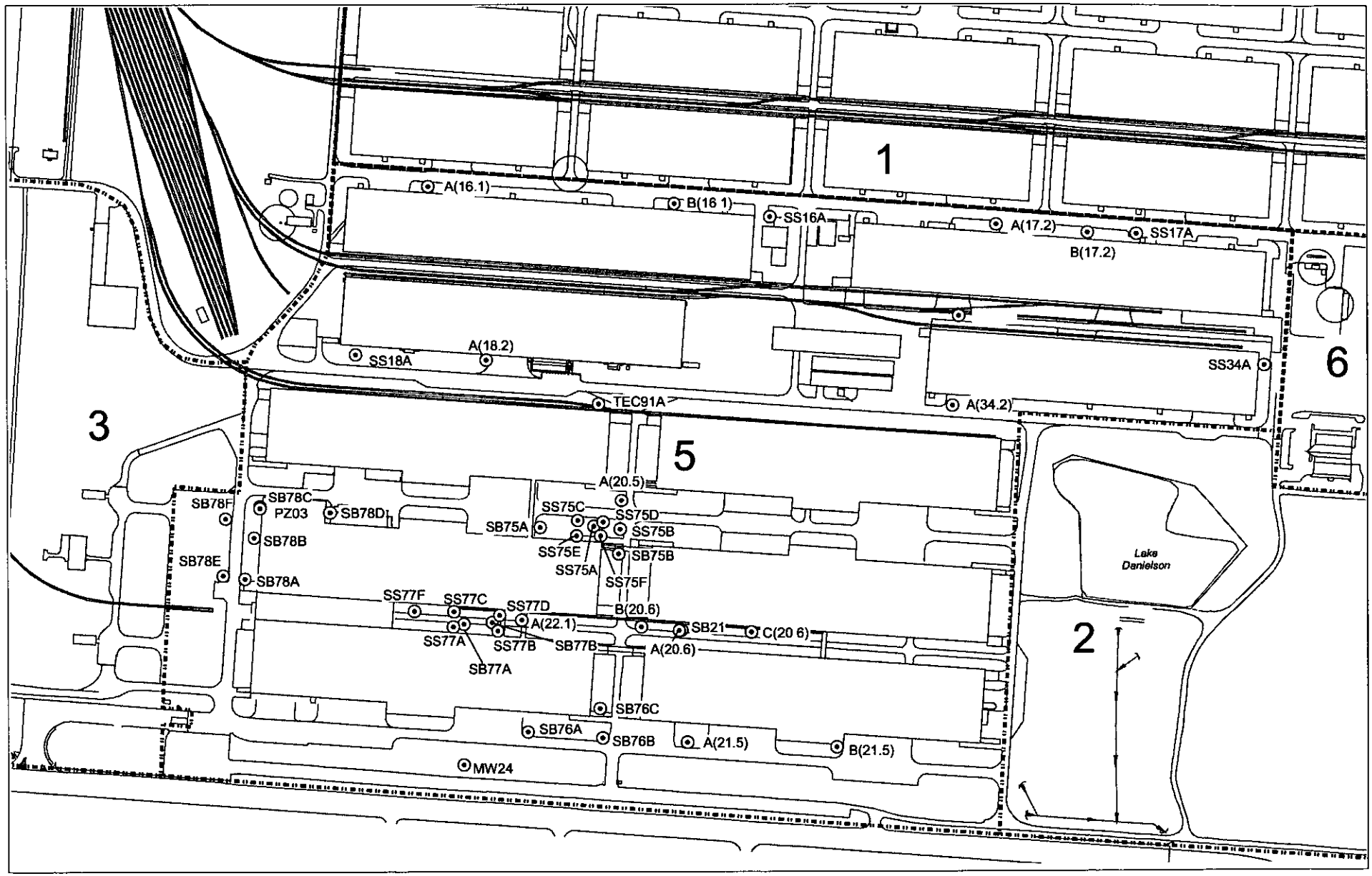
FIGURE 24-1

FU5 LAND COVER AND SITE LOCATIONS

MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\Thor\Carl1\ddmtt\fu5_samplelocs.apr 7/7/99



Sample Locations
Functional Unit Boundary
Surface Water Body
Base Features
Buildings

N

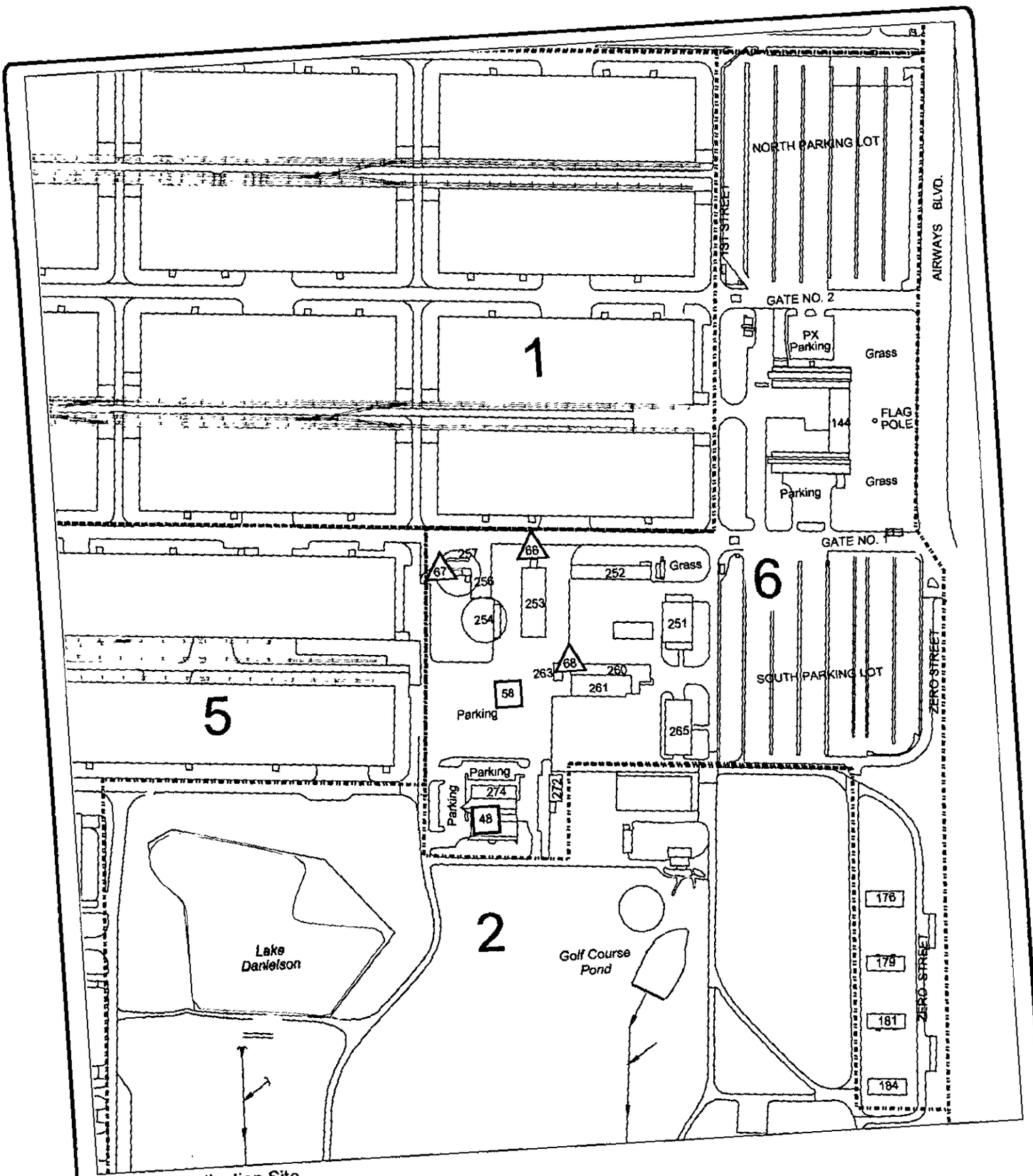
0 200 400 Feet

SCALE IS APPROXIMATE

FIGURE 24-2
SAMPLE LOCATIONS IN FU5
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\Thor\Cart1\ddmt\fu5_samplelocs.apr 7/7/99



Investigation Site

58 Remedial Investigation Site

66 Screening Site

Functional Unit Boundary

Surface Water Body

Base Features

Buildings

N

0 150 300 Feet

SCALE IS APPROXIMATE

FIGURE 28-1
FU6 LAND COVER AND SITE LOCATIONS
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

28-25

RDD \\ThorCart1\ddmt\fu6_samplelocs.apr 7/7/99

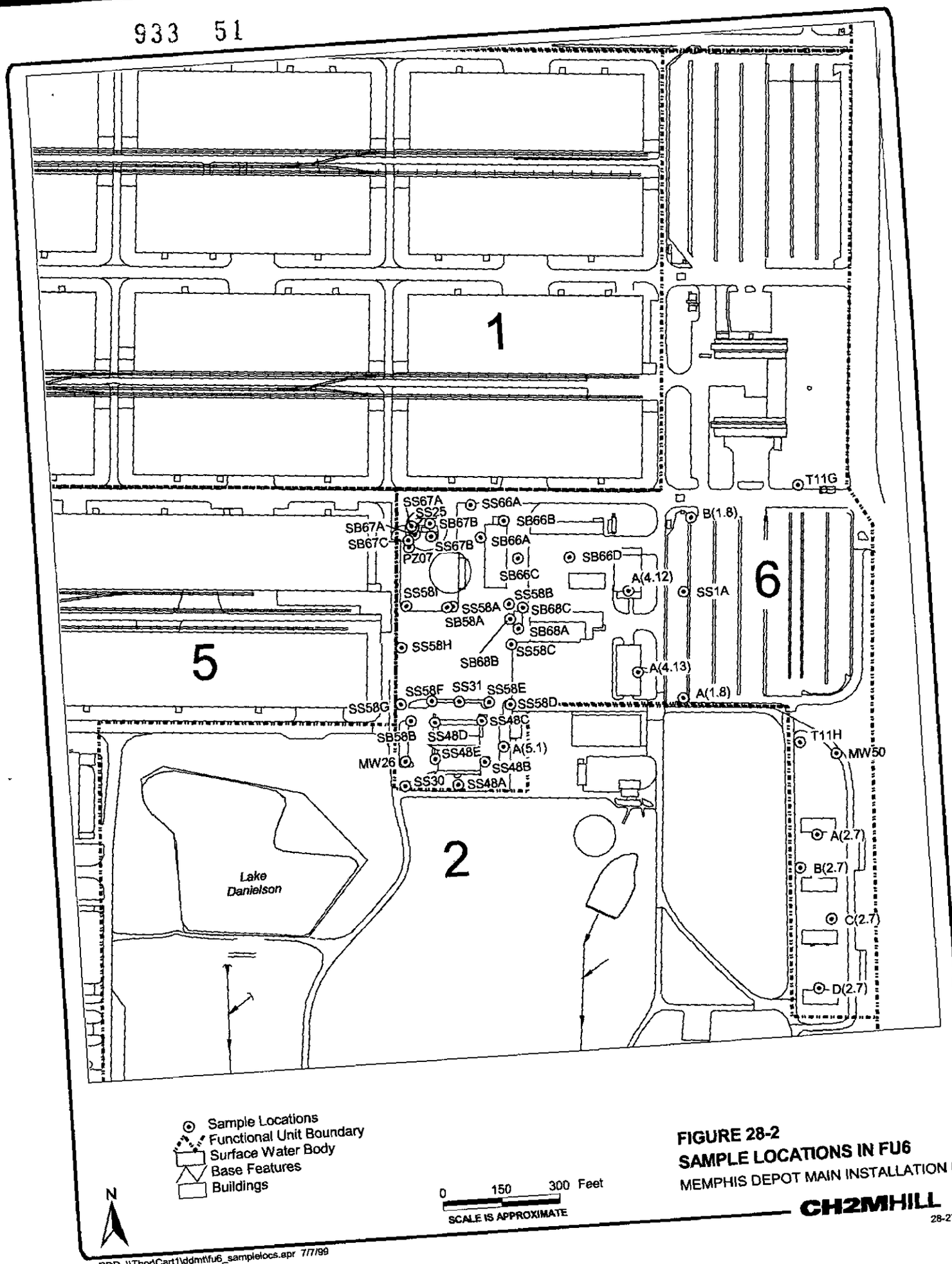


FIGURE 28-2
SAMPLE LOCATIONS IN FU6
MEMPHIS DEPOT MAIN INSTALLATION RI

CH2MHILL

RDD \\Thor\Cart1\ddmt\fu6_samplelocs.apr 7/7/99

Appendix B

Site Descriptions

SWMU/AOC Assessment Report

UNIT NUMBER: 27

UNIT NAME: Former Recoup Area

TYPE OF UNIT: Hazardous Material and Waste Handling Area

UNIT LOCATION: The unit is located at the southeast corner of Building S-873, which is in the southwest portion of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Gravel area, which includes Building S-873, an open-sided, metal-roofed shed.

FUNCTION OF UNIT: Prior to the construction of Building S-873, an open-sided metal-roofed shed in 1987/88, an area encompassing the southeast corner of the building and the gravel parking area to the east was used for repackaging damaged and leaking containers of hazardous and non-hazardous materials.

DATE(S) OF OPERATION: 1942 to about 1987

DESCRIPTION OF WASTES (include hazardous constituents if known): Unknown, however, a wide variety of both hazardous and non-hazardous solids and liquids were handled at the site.

HAS A RELEASE OCCURRED? (X) Yes ( ) No ( ) Suspected ( ) Unknown

RELEASE DATA: Pesticide contaminated soil (resulting from previous spills) was removed in 1985.

MEDIA AFFECTED: Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: Contaminated soil was removed in 1985 as part of pre- Remedial Investigation activities. No further action is required for this site; however, it is located in Functional Unit 2 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS:

REFERENCES:

Summary Report, On-Site Remedial Activities at the DDMT, February 1986
RFA Report, January 1990
Main Installation RI Report; Section 16.3.1, page 16-3
Main Installation RI Report; Section 19.1.3.2, page 19-5
Main Installation RI Report; Section 19.2.2, page 19-6
BRAC Clean-up Plan; Section 3.4.4, page 3-54
Main Installation Record of Decision - Rev. 2; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 28

UNIT NAME: Recoup Area Building

TYPE OF UNIT: Hazardous Materials and Waste Handling Area

UNIT LOCATION: The unit was located in Building 865 in the west-central portion of the Main Installation. The site is within Functional Unit 4 and CERCLA Operable Unit 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The building was concrete block construction with a poured concrete floor that had a chemical-resistant coating. All of the hazardous materials-handling areas were bermed to contain spills.

FUNCTION OF UNIT: The purpose of the unit was to store damaged or leaking containers of hazardous materials. There were separate bays for each waste type, until they could be repackaged as a product or waste. The repackaging was also performed in the "work room" at the unit.

DATE(S) OF OPERATION: 1986 to 1997

DESCRIPTION OF WASTES (include hazardous constituents if known): A wide variety of hazardous materials or wastes were potentially handled at the DDMT facility.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: The Main Installation CERCLA Remedial Investigation Report indicated that groundwater beneath subparcel 32.3, which includes Unit 28, contains VOCs.

MEDIA AFFECTED: Groundwater, Soil (potentially)

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: No further action is required for this site; however, it is located in Functional Unit 4 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: Designated as "No Further Action" in the RFA

REFERENCES:

RFA Report, January 1990; page 28 of 60
Main Installation RI Report, January 2000; Section 20.3.10, page 20-7
Main Installation RI Report, January 2000; Section 23.1.3.2, page 23-7, 23-8
Main Installation RI Report, January 2000; Section 23.2.1, page 23-7
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.4, page 3-73, 3-74
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 10, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 29

UNIT NAME: Former Underground Waste Oil Storage Tank

TYPE OF UNIT: Waste Collection Unit

UNIT LOCATION: The unit is located near the northeast corner of B-1086. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: 1000-gallon underground waste oil tank. The unit was associated with a former vehicle grease rack.

FUNCTION OF UNIT: Likely waste engine oil collection

DATE(S) OF OPERATION: Unknown, probably 1940's to 1950's

DESCRIPTION OF WASTES (include hazardous constituents if known): Waste (used) motor oil and lubricants.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: The UST was believed to have been removed previously, but it was found during the removal of an adjacent hydraulic lift. Approximately 800 gallons of fluid was in the tank. The tank and surrounding soil were excavated and disposed as special waste at an off-site facility; the liquid was TCLP hazardous due to lead, pesticides and VOCs and was shipped to an off-site RCRA-permitted facility for disposal. The Main Installation Remedial Investigation Report indicated that groundwater beneath subparcel 35.2, which includes Unit 29, contains VOCs.

MEDIA AFFECTED: Groundwater, Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: The tank was located and removed during a CERCLA Removal Action in 2000; the contaminated soils were disposed as special waste and the tank contents were disposed as RCRA hazardous waste. This unit is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This unit overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS:

REFERENCES:

RFA Report, January 1990; page 29 of 60
Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-76
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 31

UNIT NAME: Former Paint Spray Booth

TYPE OF UNIT: Waste Collection System

UNIT LOCATION: The filter area was located on the back wall of the spray booth in Building 1087. Building 1087 is at the southwest corner of the main installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The water wash system had a tank from which water was pumped to filter bags and used to remove paint from the air as it blew through the filters. The water was usually recirculated for a period of time and then disposed.

FUNCTION OF UNIT: Remove paint residue from air using wash water and filters.

DATE(S) OF OPERATION: Unknown – 1997. Building was demolished in 1997.

DESCRIPTION OF WASTES (include hazardous constituents if known): Wastewater containing used paint residue.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: Elevated levels of lead were detected in parcel 35.4, which includes Unit 31, as documented in the Main Installation Remedial Investigation. The MI Remedial Investigation also indicated that groundwater beneath subparcel 35.4 contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: Building 1087 was decontaminated by vacuuming to remove free dust and pressure washing. The surface soil outside the building was excavated to a depth of one foot and replaced with clean backfill. The excavated soil was disposed off-site as special waste. This CERCLA Removal Action was completed in 2000.

No further action is required for this site; however, it is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This unit overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS:

REFERENCES:

RFA Report, January 1990; page 31 of 60
Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-77
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 32

UNIT NAME: Sandblasting Waste Accumulation Area

TYPE OF UNIT: Waste Collection Area

UNIT LOCATION: The unit is located in the southeastern corner of the main installation, adjacent to Building 1088 (sandblasting area). The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit consisted of a corrugated steel shed with a gravel floor. There were three hoppers to collect the dust from sandblasting operations and direct it into 55-gallon drums. The drums were open and rested on wood pallets. When the drums were full, they were placed in the sandblasting Drum Storage Area (SWMU NO. 33) until the wastes were analyzed for EP Toxic metals and disposed of offsite. Prior to the use of B-1088 and the Hopper System, sandblasting operations were performed on the open ground in the general vicinity of B-1087.

FUNCTION OF UNIT: Collection and temporary storage of dust/particulates from sandblasting operations.

DATE(S) OF OPERATION: Unknown; sandblasting occurred since the 1940's; Building 1088 was demolished in 1997.

DESCRIPTION OF WASTES (include hazardous constituents if known): Sandblasting grit, paint chips and metals

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: Soil with elevated levels of lead, chromium, arsenic, and PAHs were removed from this area in August 2000. The Main Installation Remedial Investigation indicated that groundwater beneath subparcel 35.5, which includes Unit 32, contains VOCs.

MEDIA AFFECTED: Groundwater, Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: Building 1088 was decontaminated by vacuuming to remove free dust and pressure washing. The surface soil outside the building was excavated to a depth of one foot and replaced with clean backfill. The excavated soil was disposed off-site as special waste. This CERCLA Removal Action was completed in 2000.

No further action is required for this site; however, it is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This unit overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS:

REFERENCES:

RFA Report, January 1990; page 32 of 60
Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-77, 3-78
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 33

UNIT NAME: Sandblasting Waste Drum Storage Area

TYPE OF UNIT: Waste Accumulation Area

UNIT LOCATION: The unit is located just south of Building B-1088 (sandblasting area) in the southwest corner of the main installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit consisted of an open-sided, metal roof shed with a gravel floor. There were approximately 33 drums stored at the unit during the RFA in 1990. The drums were stacked in a double high row approximately 25 feet long and 4 feet wide. The drums were sealed and rested on pallets with another set of pallets between the rows. The drums had been accumulating for approximately two years. At the time of the RFA, all drums were in good condition.

FUNCTION OF UNIT: Storage of dust/particulates from sandblasting operations.

DATE(S) OF OPERATION: Unknown – 1997. Building was demolished in 1997.

DESCRIPTION OF WASTES (include hazardous constituents if known): Sandblasting grit, paint chips, and metals.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: The MI RI indicated that groundwater beneath subparcel 35.4, which includes Unit 33, contains VOCs.

MEDIA AFFECTED: Groundwater, Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: The surface soil in this area was excavated to a depth of one foot and replaced with clean backfill. The excavated soil was disposed off-site as special waste. This CERCLA Removal Action was completed in 2000.

No further action is required for this site; however, it is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This unit overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: Designated as "No Further Action" in the RFA

REFERENCES:

RFA Report, January 1990; page 33 of 60
Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-77
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 34

UNIT NAME: Building 770 Underground Waste Oil Storage Tanks (2)

TYPE OF UNIT: Underground Waste Oil Storage Tank

UNIT LOCATION: The unit was located in the vehicle maintenance shop, in the west central area of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Two 1,000-gallon underground steel tanks.

FUNCTION OF UNIT: Storage of waste motor oil from vehicles.

DATE(S) OF OPERATION: 1960's – 1989.

DESCRIPTION OF WASTES (include hazardous constituents if known): Waste motor oil and lubricants.

HAS A RELEASE OCCURRED? (X) Yes ( ) No ( ) Suspected ( ) Unknown

RELEASE DATA: The Main Installation Remedial Investigation indicated that surface soil samples at Unit 34 contained metals, and SVOCs above screening criteria and/or background levels. The investigation also indicated that groundwater beneath subparcel 24.3, which includes Unit 34, contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: The underground storage tanks were removed in 1989. This unit is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS:

REFERENCES:
RFA Report, January 1990; page 34 of 60
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.1.3.3, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-67
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40
Main Installation RI Report, January 2000; Section 16.3.3, page 16-4

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 42

UNIT NAME: Former PCP Dip Vat Area

TYPE OF UNIT: Above-Ground Storage Tank

UNIT LOCATION: The unit was located in the northwest portion of the main installation, adjacent to Building S-737. The site is within Functional Unit 4 and CERCLA Operable Unit 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit consisted of a large, above-ground, open-top tank of unknown capacity.

FUNCTION OF UNIT: The tank contained a Pentachlorophenol (PCP) solution used to treat (preserve) wood pallets. The pallets were dipped into the tank, then removed and placed into a Drip tank which was part of the unit. The pallets were allowed to drip dry in the Drip Tank for a short period of time. Material in the Drip Tank drained back into the vat.

DATE(S) OF OPERATION: 1942 until late 1970's; peak operation 1965. The dip vat was removed in 1986.

DESCRIPTION OF WASTES (include hazardous constituents if known): Pentachlorophenol (PCP), dioxins, and furans which are in PCP.

HAS A RELEASE OCCURRED? (X) Yes ( ) No ( ) Suspected ( ) Unknown

RELEASE DATA: Soil samples collected beneath this unit in 1985 contained high levels of dioxins and furans. The Main Installation Remedial Investigation indicates that groundwater beneath subparcel 33.9, which includes Unit 42, contains VOCs.

MEDIA AFFECTED: Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: In 1986, the dip vat was removed and the soil was excavated to a depth of 10 feet. Soil with PCP concentrations greater than 200 ppb remained beneath the excavated area. The excavation was backfilled with clean soil and with gravel or concrete placed on top of the clean fill.

No further remedial action is required for this unit. This unit is located in Functional Unit 4 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS:

REFERENCES:

Summary Report, On-Site Remedial Activities at the DDMT, February 1986
RFA Report, January 1990; page 44 of 60
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 23.2.1, page 23-7
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-75
Main Installation RI Report, January 2000; Section 20.3.11, page 20-7
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 43

UNIT NAME: Former Underground PCP Tank Area

TYPE OF UNIT: Underground Storage Tank

UNIT LOCATION: The unit was located just south of Building 737. The site is within Functional Unit 4 and CERCLA Operable Unit 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit consisted of an underground, steel tank of unknown capacity.

FUNCTION OF UNIT: The tank was used to store PCP until it was needed in the Dip Vat. The material was then pumped to the Dip Vat.

DATE(S) OF OPERATION: 1942 until 1985

DESCRIPTION OF WASTES (include hazardous constituents if known): Pentachlorophenol (PCP) which contains dioxins and furans.

HAS A RELEASE OCCURRED? (X) Yes ( ) No ( ) Suspected ( ) Unknown

RELEASE DATA: Soil samples collected adjacent to the unit in 1985 contained high levels of dioxins and furans. The Main Installation Remedial Investigation indicates that groundwater beneath subparcel 33.9, which includes Unit 43, contains VOCs. Soils conatins residual concentrations of PCP greater than 200 parts per billion (ppb).

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: The tank was brought above ground in 1986 and drained into drums. The soil around the unit was excavated to a depth of 10 to 15 feet, 20 feet wide and 22 feet long. The pumps and lines were also removed. The excavation was backfilled with clean soil and with gravel or concrete placed on top of the clean fill.

No further remedial action is required for this unit. This unit is located in Functional Unit 4 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: This area was originally identified as a SWMU; however, based on regulatory guidance, it likely would be designated as an AOC.

REFERENCES:
Summary Report, On-Site Remedial Activities at the DDMT, February 1986
RFA Report, January 1990; page 46 of 60
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 23.2.1, page 23-7
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-75
Main Installation RI Report, January 2000; Section 20.3.11, page 20-7
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 44

UNIT NAME: Former Wastewater Treatment Unit Area

TYPE OF UNIT: Wastewater Treatment

UNIT LOCATION: The unit was located just west of Building S-737. The site is within Functional Unit 4 and CERCLA Operable Unit 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit consisted of drums which contained activated carbon.

FUNCTION OF UNIT: Activated carbon was used as a temporary and final treatment for rainwater mixed with PCP-contaminated oil which had accumulated in the Dip Vat, rinsewater from equipment decontamination, and from clean-up operations of the pesticide shop.

DATE(S) OF OPERATION: 1985

DESCRIPTION OF WASTES (include hazardous constituents if known): PCP oil, dioxins and furans mixed with rainwater.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No ( ) Suspected (X) Unknown

RELEASE DATA: Soil samples, taken to a depth of 12 and 18 inches below the unit after use, indicated no contamination.

MEDIA AFFECTED: N/A

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: No further action is required for this site; however, it is located in Functional Unit 4 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: Designated as "No Further Action" in the RFA. This unit was originally identified as a SWMU; however, based on regulatory guidance, it likely would not be designated as such.

REFERENCES:

Summary Report, On-Site Remedial Activities at the DDMT, February 1986
RFA Report, January 1990; page 47 of 60
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 23.2.1, page 23-7
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-74
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 45

UNIT NAME: Former Contaminated Soil Staging Area

TYPE OF UNIT: Storage Area

UNIT LOCATION: The unit was located to the northwest of Building S-737. The site is within Functional Unit 4 of the CERCLA Operable Unit 4 portion of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit consisted of a gravel area approximately 200 feet by 100 feet. There were 39 roll-off containers with a capacity of 24 to 30 cubic yards resting on the gravel.

FUNCTION OF UNIT: The containers were filled with contaminated soil and were staged in this area until an off-site disposal site could be found. The roll-offs were covered and lined with plastic, and the seams were filled with a foam material. The roll-offs were removed to an approved hazardous waste disposal facility in 1988.

DATE(S) OF OPERATION: 1986 to 1988

DESCRIPTION OF WASTES (include hazardous constituents if known): PCP, dioxins and furan-contaminated soil.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No ( ) Suspected (X) Unknown

RELEASE DATA: Soil samples, taken to a depth of 12 and 18 inches below the unit after use, indicated no contamination.

MEDIA AFFECTED: N/A

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: No further action is required for this site; however, it is located in Functional Unit 4 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: Designated as "No Further Action" in the RFA. This unit was originally identified as a SWMU; however, based on regulatory guidance, it likely would not be designated as such.

REFERENCES:

Summary Report, On-Site Remedial Activities at the DDMT, February 1986
RFA Report, January 1990; page 48 of 60
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 23.2.1, page 23-7
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-75
Main Installation RI Report, January 2000; Section 20.3.11, page 20-7
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 48

UNIT NAME: Former PCB Transformer Storage Area

TYPE OF UNIT: Storage Area

UNIT LOCATION: The unit is located just north of the golf course and east of Building S-360. The site is within Functional Unit 6 of the CERCLA Operable Unit 3 portion of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Dimensions unknown.

FUNCTION OF UNIT: The unit was used to store at least two electrical transformers.

DATE(S) OF OPERATION: Unknown, but the transformers were discovered in 1981 and removed prior to construction of the new cafeteria (Building 274) on the site in 1989.

DESCRIPTION OF WASTES (include hazardous constituents if known): PCB-contaminated oil, less than 50 ppm.

HAS A RELEASE OCCURRED? (X) Yes ( ) No ( ) Suspected ( ) Unknown

RELEASE DATA: Tests of the transformer fluid indicated less than 50 ppm of PCBs. PCBs and dieldrin were detected in surface soil samples in 1997 and soils were excavated later in 1997. PCBs were not detected in two soil samples collected adjacent to this unit during the 1990 RI. The Main Installation Remedial Investigation indicated that groundwater beneath subparcel 5.2, which includes Unit 48, contains VOCs.

MEDIA AFFECTED: Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: Site remediation by removal of surface soil was completed in 1998. This unit is located in Functional Unit 6 on the Main Installation for which the selected CERCLA remedy includes land use controls. This unit overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This site is not considered to be a source of chlorinated VOCs in groundwater.

REFERENCES:

RFA Report, January 1990; page 51 of 60
Post Removal Report: Contaminated Soil Remediation, Cafeteria Building, March 1999
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 31.2, page 31-5,6
Main Installation RI Report, January 2000; Section 28.3.1, page 28-4
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-66
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 17, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 58

AREA NAME: Pesticides, Herbicides (Pad 267)

AREA LOCATION: This area was the site of Building T-267, the Pesticide Shop and is located north of current Building 274. The site is within Functional Unit 6 and CERCLA Operable Unit 3 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: 150-ft by 200-ft building was demolished in 1987; the area is now a parking lot.

DATE(S) OF RELEASE(S) (if known): The shop was believed to have operated from the 1940s until the mid-1980s

DESCRIPTION OF CONTAMINANTS: Pesticides/herbicides

RELEASE DATA: Rinse water from pesticide and herbicide spraying operations was disposed of on the ground in this area until 1980. The specific disposal location is unknown. After that time, the rinse water was held for the mixing of later batches. Past pesticide and herbicide spray operations at the Depot generally included 2,4-Dichlorophenoxyacetic acid (2,4-D) on grassy areas, Monuron on railroad track areas, Pyrethrum in textile warehouses, Hy-Var-X in gravel areas, and Phostoxin (aluminum phosphide) for stack and transit fumigation. The Main Installation Remedial Investigation indicated that groundwater beneath subparcel 4.9, which includes Area 58, contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located in Functional Unit 6 on the Main Installation for which the selected CERCLA remedy includes land use controls. This area overlies a groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, based upon regulatory guidance, the suspected contaminated area would be an AOC.

REFERENCES:

Installation Assessment of the DDMT, July 1982
Main Installation RI Report, January 2000; Section 28.3.2, page 28-4
Main.Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 31.2, page 31-5, 31-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-64
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 19, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 59

UNIT NAME: Pesticides/Cleaners (Building 273)

TYPE OF UNIT: Product Storage Area

UNIT LOCATION: Building 273 is located north of the Main Installation golf course. The site is within Functional Unit 2 and CERCLA Operable Unit 3 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Building 273 is a 10-ft by 50-ft metal building.

FUNCTION OF UNIT: The building was used as a mixing area for golf course pesticide and herbicide spray operations and to store gasoline and fertilizers..

DATE(S) OF OPERATIONS: The operations are believed to have occurred from the 1940s to the mid-1980s.

DESCRIPTION OF WASTES (include hazardous constituents if known) : Pesticides and herbicides

HAS A RELEASE OCCURRED? ( ) Yes ( ) No ( ) Suspected (X) Unknown

RELEASE DATA: Surface soil samples indicated the presence of dieldrin and PCE above screening criteria and/or background values. The Main Installation Remedial Investigation indicates that groundwater beneath subparcel 4.10, which includes area 59, contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This unit is located in Functional Unit 2 on the Main Installation for which the selected CERCLA remedy includes land use controls. This site overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this unit would not be considered a SWMU based upon regulatory guidance.

REFERENCES:

Main Installation RI Report, January 2000; Section 12.3.3, page 12-5
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 15.2, page 15-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-64
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 9, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 66

AREA NAME: POL (Area) (Building 253)

AREA LOCATION: Area 66 was the area associated with the vehicle maintenance shop (Building 253) located in the facility engineering maintenance yard. The site is within Functional Unit 6 and CERCLA Operable Unit 3 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The vehicle maintenance shop measured approximately 50 ft by 125 ft. A 5,000 gallon underground storage tank storing No. 4 fuel oil was installed at this site.

DATE(S) OF RELEASE(S) (if known): Dates of potential release(s) is unknown. The UST was installed in 1952 and removed in 1996. The shop has been demolished.

DESCRIPTION OF CONTAMINANTS: Petroleum products, antifreeze, and No. 4 fuel oil.

RELEASE DATA: During the Main Installation Remedial Investigation, one surface soil and soils from three soil boring locations to a depth of 40 feet were sampled. Only PAHs were detected. The remedial investigation indicated that groundwater beneath subparcel 4.11, which includes site 66, contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This unit is located in Functional Unit 6 on the Main Installation for which the selected CERCLA remedy includes land use controls. The unit overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, based upon regulatory guidance, the suspected contaminated area would be an AOC.

REFERENCES:

Main Installation RI Report, January 2000; Section 28.3.2, page 28-4
Main Installation RI Report, January 2000; Table 1-2, page 1-14
Main Installation RI Report, January 2000; Section 31.2, page 31-5, 31-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Table 3-6; page 54 of 77
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 67

AREA NAME: MOGAS (Area) (Building 257)

AREA LOCATION: Building 257 was located east of Building 359 at the intersection of G and 2nd Streets. The site is within Functional Unit 6 and CERCLA Operable Unit 3 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Several underground and aboveground tanks for fuel dispensing and storage were located at Building 257. There were four steel underground tanks originally: a 20,000-gallon tank, two 12,000-gallon tanks and a 2,580-gallon tank, These were replaced with two 18,000 to 20,000-gallon fiberglass USTs. There were two 1.000-gallon aboveground tanks.

DATE(S) OF RELEASE(S) (if known): Fuel dispensing operations began in 1942. The steel USTs were installed in 1942 and 1951 and were removed in 1986 and 1989, and replaced with fiberglass USTs, which were removed in 1998. The ASTs were moved during recent road construction. Building 257 was demolished in 1999.

DESCRIPTION OF CONTAMINANTS: Motor fuels and antifreeze.

RELEASE DATA: Several minor spills were reported for this building with appropriate response and disposal. According to the initial remedial investigation in 1990, one surface soil sample taken of west of Building 257 contained PAHs, dieldrin and metals. During the Main Installation Remedial Investigation, additional surface soils and two soil borings to a depth of 40 feet were sampled. This site is not considered to be a source of chlorinated VOCs in groundwater.

MEDIA AFFECTED: Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located in Functional Unit 6 on the Main Installation for which the selected CERCLA remedy includes land use controls. This area overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, based upon regulatory guidance, the suspected contaminated area would be an AOC.

REFERENCES:

Main Installation RI Report, January 2000; Section 28.3.4, page 28-4, 28-5
Main Installation RI Report, January 2000; Table 1-2, page 1-14
Main Installation RI Report, January 2000; Section 31.2, page 31-5, 31-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.4, page 3-32, 3-33
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 68

AREA NAME: POL (Area) Building 263

AREA LOCATION: The site is located 500 ft southwest of Gate 1 and west of Building 260. The site is within Functional Unit 6 and CERCLA Operable Unit 3 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Building 263 measures approximately 20 ft by 40 ft and is surrounded by a large expanse of asphalt pavement. The building was used to store small containers of POLs, which were reported dispensed to the POL staff and not used in the site area.

DATE(S) OF RELEASE(S) (if known): The site was used from the 1940s until the DDMT was closed. There were no reported releases.

DESCRIPTION OF CONTAMINANTS: Unknown

RELEASE DATA: N/A

MEDIA AFFECTED: N/A

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located in Functional Unit 6 on the Main Installation for which the selected CERCLA remedy includes land use controls. This area overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this area would not be considered an AOC based upon regulatory guidance.

REFERENCES:

Main Installation RI Report, January 2000; Section 28.3.5, page 28-5
Main Installation RI Report, January 2000; Table 1-2, page 1-14
Main Installation RI Report, January 2000; Section 31.2, page 31-5, 31-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-63
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 70

AREA NAME: POL, Various Chemical Leaks (railroad tracks 1, 2, 3, 4, 5, & 6) (Areas)

AREA LOCATION: Railroad tracks are located throughout the Main Installation. The area includes sections of several Functional Units and CERCLA Operable Units 2, 3 and 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Railroad tracks throughout the Main Installation.

DATE(S) OF RELEASE(S) (if known): Unknown.

DESCRIPTION OF CONTAMINANTS: POL, various chemicals.

RELEASE DATA: Railroad operations were the main means of transporting materials to the warehouses for storage. Throughout the MI, railroad tracks historically were sprayed with pesticides, herbicides, and waste oil containing PCP. Surface and subsurface soil samples along the railroad tracks detected elevated concentrations of PAHs.

MEDIA AFFECTED: Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located throughout the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, based upon regulatory guidance, the suspected contaminated area would be an AOC.

REFERENCES:

Main Installation Record of Decision, Rev. 2, February 2001; Section 20.3.14 page 20-8
Main Installation RI Report, January 2000; Table 1-2, page 1-14
Main Installation RI Report, January 2000
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 71

AREA NAME: Herbicide (all railroad tracks) (Surface Application Areas)

AREA LOCATION: Railroad tracks are located throughout the Main Installation. The area includes sections of several Functional Units and CERCLA Operable Units 2, 3 and 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Railroad tracks throughout the Main Installation.

DATE(S) OF RELEASE(S) (if known): Unknown.

DESCRIPTION OF CONTAMINANTS: Pesticides, herbicides.

RELEASE DATA: Throughout the MI, railroad tracks historically were sprayed with pesticides, herbicides, and waste oil containing PCP. Surface and subsurface soil sampling investigations along the railroad tracks detected elevated concentrations of PAHs.

MEDIA AFFECTED: Soil

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located throughout the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this area would not be considered an AOC based upon regulatory guidance.

REFERENCES:
Main Installation Record of Decision, Rev. 2, February 2001; Section 20.3.14 page 20-8
Main Installation RI Report, January 2000; Table 1-2, page 1-14
Main Installation RI Report, January 2000
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 81

UNIT NAME: Fuel Oil AST (Building 765)

TYPE OF UNIT: Above Ground Storage Tank

UNIT LOCATION: Site 81, Fuel Oil Building 765, was located approximately 2,200 ft east of the western boundary and 2,350 ft south of the northern boundary of the installation. The site is within Functional Unit 4 and CERCLA Operable Unit 4 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: The unit was a 12,000-gallon diesel fuel aboveground storage tank; removed in 1994.

FUNCTION OF UNIT: Diesel fuel oil storage tank.

DATE(S) OF OPERATION: Unknown – 1994

DESCRIPTION OF WASTES (include hazardous constituents if known): Petroleum Constituents Suspected

HAS A RELEASE OCCURRED? ( ) Yes ( ) No ( ) Suspected (X) Unknown

RELEASE DATA: N/A

MEDIA AFFECTED: N/A

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located in Functional Unit 4 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this area would not be considered an AOC based upon regulatory guidance.

REFERENCES:

Main Installation RI Report, January 2000; Section 20.3.13, page 20-8
Main Installation RI Report, January 2000; Table 1-2, page 1-14
Main Installation RI Report, January 2000; Section 23.2.1, page 23-7, 23-8
Main Installation RI Report, January 2000; Section 20.2.1.3, page 20-3
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-58, 3-59
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Table 3-6, page 49 of 77
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 82

UNIT NAME: Flammables (Buildings 783 and 793) Storage

TYPE OF UNIT: Product Storage Area

UNIT LOCATION: These buildings are located in the Southwest Open Area of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: While the general dimensions of Buildings 783 and 793 are unknown, the buildings have interior floors constructed of concrete and sloped to the north and south walls. Along these walls are drains that lead to the exterior of the buildings (on the eastern side).

FUNCTION OF UNIT: Buildings 783 and 793 previously were designated as storage areas for flammable items and ordnance material.

DATE(S) OF OPERATION: Unknown. Building 783 was demolished in 2002.

DESCRIPTION OF WASTES (include hazardous constituents if known): N/A

HAS A RELEASE OCCURRED? ( ) Yes ( ) No ( ) Suspected (X) Unknown

RELEASE DATA: N/A

MEDIA AFFECTED: N/A

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this area would not be considered an AOC based upon regulatory guidance.

REFERENCES:

Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 16.1.1, page 16-1
Main Installation RI Report, January 2000; Section 16.3.5, page 16-4
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-52,53
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 84

UNIT NAME: Flammables, Solvents, Waste Oil (Building 972)

TYPE OF UNIT: Product Storage Area

UNIT LOCATION: Building 972 is located in the Southwest Open Area of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: This area was a large, open shed storage building which was converted to a closed building for the storage and handling of packing material.

FUNCTION OF UNIT: Storage areas for flammables, solvents and waste oil.

DATE(S) OF OPERATION: Unknown.

DESCRIPTION OF WASTES (include hazardous constituents if known): N/A

HAS A RELEASE OCCURRED? ( ) Yes ( ) No ( ) Suspected (X) Unknown

RELEASE DATA: Small operational spills were cleaned when they occurred. Oil stained areas were observed in the building during the EBS visual inspection. The area was designated as a screening site because of the potential that stored materials may have been released to the surrounding soils. The Main Installation Remedial Investigation indicates that groundwater beneath subparcel 27.2, which includes site 84, contains VOCs.

MEDIA AFFECTED: N/A

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: This area is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this area would not be considered an AOC based upon regulatory guidance.

REFERENCES:

Main Installation RI Report, January 2000; Section 16.3.5, page 16-4
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
Main Installation RI Report, January 2000; Section 16.1.1, page 16-1
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-70
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 87

UNIT NAME: DDT, Banned Pesticides (Building 1084) (Storage)

TYPE OF UNIT: Product Storage Area

UNIT LOCATION: Building 1084 is located in the Southwest Open Area of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Building dimensions are unknown.

FUNCTION OF UNIT: Storage of DDT and other pesticides.

DATE(S) OF OPERATION: Unknown origination date to 2000.

DESCRIPTION OF WASTES (include hazardous constituents if known): DDT and other pesticides.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: The MI RI indicated that groundwater beneath subparcel 35.2, which includes site 87, contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: Building 1084 was demolished and the debris was disposed off-site at a solid waste landfill. A concrete sump beneath the building was excavated; the contaminated soil was disposed off-site as special waste. This CERCLA Removal Action was completed in 2000.

This area is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This area overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, based upon regulatory guidance, the suspected contaminated area would be an AOC.

REFERENCES:

Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-76
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40
Main Installation RI Report, January 2000; Section 16.1.1, page 16-1

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

UNIT NUMBER: 88

UNIT NAME: POL (Building 1085)

TYPE OF UNIT: Product Storage Area

UNIT LOCATION: Building 1085 is located in the Southwest Open Area of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Concrete slab approximately 10 feet by 30 feet with hydraulic lift

FUNCTION OF UNIT: Concrete grease rack and storage area for POLs.

DATE(S) OF OPERATION: Unknown origination date to 2000.

DESCRIPTION OF WASTES (include hazardous constituents if known): POLs.

HAS A RELEASE OCCURRED? ( ) Yes ( ) No (X) Suspected ( ) Unknown

RELEASE DATA: The Main Installation Remedial Investigation indicates that groundwater beneath subparcel 35.2, which includes site 88, contains VOCs.

MEDIA AFFECTED: Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: The concrete slab and hydraulic lift were removed during a CERCLA Removal Action in 2000; the contaminated soils were disposed offsite as special waste and the lift and cylinders were cleaned and disposed as scrap metal. The concrete debris was disposed offsite as construction debris.

This area is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This area overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, for purposes of the RCRA Corrective Action Permit Renewal, this unit would not be considered a SWMU based upon regulatory guidance.

REFERENCES:

Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-76
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40
Main Installation RI Report, January 2000; Section 16.1.1, page 16-1

DATE PREPARED: March 18, 2004

SWMU/AOC Assessment Report

AREA NUMBER: 89

AREA NAME: Acids (Building 1089) (Spill Area)

AREA LOCATION: Building 1089 is located in the Southwest Open Area of the Main Installation. The site is within Functional Unit 3 and CERCLA Operable Unit 2 portion of the Main Installation.

GENERAL DIMENSIONS AND PHYSICAL DESCRIPTION: Area outside southern portion of Building 1089.

DATE(S) OF RELEASE(S) (if known): Unknown.

DESCRIPTION OF CONTAMINANTS: Acids, paints and cleaning solvents.

RELEASE DATA: According to the initial Remedial Investigation at DDMT, spills reportedly have occurred at this site; however, specific spill information has not been identified. Surface soil sampling indicated the presence of lead, arsenic, and chromium. The Main Installation Remedial Investigation indicated that groundwater beneath subparcel 28.2, which includes site 89, contains VOCs.

MEDIA AFFECTED: Soil, Groundwater

STATUS OF REMEDIAL INVESTIGATION OR REMEDIAL ACTION: Building 1089 was decontaminated by vacuuming to remove free dust and pressure washing. The surface soil in areas outside the southern end of the building were excavated to a depth of one foot and replaced with clean backfill. The excavated soil was disposed off-site as special waste. This CERCLA Removal Action was completed in 2000.

This area is located in Functional Unit 3 on the Main Installation for which the selected CERCLA remedy includes land use controls. This area overlies the groundwater treatment area of Functional Unit 7, Groundwater at the Main Installation, where enhanced bioremediation was selected as the CERCLA remedy.

COMMENTS: This unit/area was identified during the CERCLA Remedial Investigation and was not formally designated as a SWMU or AOC. However, based upon regulatory guidance, the suspected contaminated area would be an AOC.

REFERENCES:

Final Engineering Evaluation/Cost Analysis Old Paint Shop and Maintenance Areas Parcels 35 and 28, August 1999
Remediation Report Removal Action in Parcels 35 and 28 (Old Paint Shop and Maintenance Area), September 2000
Main Installation RI Report, January 2000; Section 16.3.6, page 16-4, 16-5
Main Installation RI Report, January 2000; Table 1-2, page 1-13
Main Installation RI Report, January 2000; Section 19.1.3.2, page 19-5
Main Installation RI Report, January 2000; Section 19.2.2, page 19-6
Main Installation RI Report, January 2000; Section 16.1.1, page 16-1
BRAC Clean-up Plan, Rev. 2, Version 7, December 2003; Section 3.4.6, page 3-71
Main Installation Record of Decision, Rev. 2, February 2001; Section 2.11.1, page 2-40

DATE PREPARED: March 18, 2004

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