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CORRECTIVE ACTION COMPLETION REPORT

3d Inf Div (Mech)

for the
Corrective Actions
at the
Old Property Disposal (PDO) Yard
Hunter Army Airfield, Georgia

Prepared for

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract No. DACA21-02-D-0004
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CORRECTIVE ACTION COMPLETION REPORT
FOR THE
CORRECTIVE ACTIONS
AT THE
OLD PROPERTY DISPOSAL (PDO) YARD
HUNTER ARMY AIRFIELD, GEORGIA

REGULATORY AUTHORITY
RESOURCE CONSERVATION AND RECOVERY ACT
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Prepared by

Science Applications International Corporation
151 Lafayette Drive
Oak Ridge, TN 37830

May 2008

The undersigned certifies that I am a qualified groundwater scientist who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completions of accredited university courses, to enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction.

REGISTERED PROFESSIONAL ENGINEER
22851
P.A. STOLL

5/15/08

Patricia A. Stoll, P.E.
Project Manager
SAIC

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CONTENTS

List of Appendices

ACRONYMS

AMSL	above mean sea level
AST	aboveground storage tank
BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene and xylenes
CAP	Corrective Action Plan
GCI	Geo-Cleanse International, Inc.
GA EPD	Georgia Environmental Protection Division
HAAF	Hunter Army Airfield
IDW	investigation-derived waste
JP	jet propulsion
MCL	maximum contaminant level
MNA	monitored natural attenuation
PCE	tetrachloroethene
PDO	Old Property Disposal
RL	remedial level
TCE	trichloroethene
VOC	volatile organic compound

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1.0 INTRODUCTION

This document represents the Corrective Action Completion Report for the corrective actions being conducted at the Old Property Disposal (PDO) Yard (HAA-12) at Hunter Army Airfield (HAAF), Georgia. The PDO Yard is located near the northwestern boundary of HAAF and has been used as a storage facility for used oil and off-specification jet propulsion (JP)-4 fuel, for scrap metal storage, and as a temporary (i.e., 90-day) storage facility for hazardous waste. The PDO Yard consists of a fenced parcel containing approximately 0.955 acre (Figure 1). Before 1998, the PDO Yard contained three aboveground storage tanks (ASTs) within a bermed area located in the southeastern corner of the fenced area. The ASTs were two 20,000-gal tanks for storage of used oil and one 18,000-gal tank for storage of off-specification JP-4. These tanks were removed in 1998 and replaced with three new ASTs set in a concrete-lined containment area on the northwestern side of the fenced PDO Yard area.

The Resource Conservation and Recovery Act facility investigation report (Metcalf & Eddy 1999) concluded that shallow groundwater at the PDO Yard was contaminated with benzene and tetrachloroethene (PCE) in two separate areas. Neither benzene nor PCE was detected in any of the deep monitoring wells at the site. Soil, sediment, and surface water were not considered media of concern. Upon evaluation of several remedial technologies, the Corrective Action Plan (CAP) (SAIC 2000) recommended monitored natural attenuation (MNA) for the benzene plume and Geo-Cleanse® chemical oxidation treatment for the PCE plume. The Georgia Environmental Protection Division (GA EPD) approved the CAP in correspondence dated July 25, 2000.

As concluded in the First Corrective Action Progress Report (SAIC 2001a), the initial chemical oxidation phase of the corrective action produced positive results by reducing the PCE concentrations in groundwater in the “source area”; however, the PCE concentrations in two downgradient wells located near the edge of the “residual area” continued to exceed the remedial level (RL) of 5 µg/L. These two areas are shown in Figure 2. As a result of the First Corrective Action Progress Report, three additional injection wells were installed in the vicinity of MW1-22 and MW27, and a supplemental phase of Geo-Cleanse® injection was conducted in the vicinity of these wells in May 2001. The Second Corrective Action Progress Report (SAIC 2001b) concluded that a polishing step was necessary to further treat the PCE plume because the PCE concentrations in three wells continued to exceed the RL of 5 µg/L.

The First Corrective Action Progress Report discussed the results of the baseline sampling events for both plumes and described the installation and startup of the Geo-Cleanse® chemical oxidation system for the treatment plume. The Second Corrective Action Progress Report discussed the supplemental chemical oxidation treatment activities that took place between March and September 2001 with respect to the PCE plume and the results of the first semiannual sampling event in September 2001 for the MNA of the benzene plume. The Third Corrective Action Progress Report (SAIC 2002) discussed the polishing step for chemical oxidation treatment with respect to the PCE plume and the results of the second semiannual sampling event for the MNA of the benzene plume. The Fourth, Fifth, Sixth, Seventh, and Eighth Corrective Action Progress Reports (SAIC 2003a, SAIC 2003b, SAIC 2004a, SAIC 2004b, SAIC 2005) discussed the semiannual sampling events for the MNA of the benzene plume and the post-corrective-action PCE sampling events. The results of the semiannual sampling for both the PCE plume and benzene plume presented in the Eighth Corrective Action Progress Report indicated that the RL for both constituents had been achieved in October 2004.

As indicated in the CAP, the purpose of the corrective action was to achieve RLs in groundwater at the site. For the PCE plume, the chemical oxidation corrective action would be complete upon attaining a maximum PCE concentration in each well of 5 μg/L. For the benzene plume, the MNA corrective action would be considered complete upon attaining a maximum benzene concentration in each well of 5 μg/L. Since the RLs for both the PCE and benzene plumes were achieved in October 2004, the Eighth Corrective Action Progress Report recommended that confirmatory sampling of both plumes be conducted 6 months following the corrective action period.

This report documents the results of the confirmatory post-corrective-action PCE sampling event and the confirmatory sampling event for the MNA of the benzene plume. For convenience, all of the historical information from the corrective action is repeated in this document.

2.0 BASELINE SAMPLING

The baseline sampling for the PCE plume was conducted in August 2000, and the baseline sampling for the benzene plume was initially scheduled to be conducted following the treatment of the PCE plume. Following the baseline PCE sampling, however, it was determined that the baseline benzene sampling should be conducted before the PCE treatment in the event that there was any effect on the benzene plume; therefore, the baseline sampling for the benzene plume was conducted in October 2000.

2.1 GROUNDWATER SAMPLING FOR TETRACHLOROETHENE

The seven shallow and three deep wells that monitor the PCE plume were sampled in August 2000 [i.e., baseline sampling event required by Section 5.2.2 of the CAP (SAIC 2000)] to aid in the design of the Geo-Cleanse® system and to provide baseline data. PCE was detected in groundwater samples from shallow wells MW02 (9.9 μg/L), MW03 (1.9 μg/L), MW05 (30.7 μg/L), MW1-22 (12.7 μg/L), MW1-24 (4 μg/L), MW26 (26.9 μg/L), and MW27 (28.8 μg/L). PCE was not detected in the three deep wells, MW10, MW11, and MW28. Ethylbenzene, toluene, trichloroethene (TCE), and total xylenes were detected during the sampling event, but at concentrations below their respective RLs. The results of the baseline sampling for PCE are presented in Table 1. For reference, the figure for the PCE baseline sampling event is provided in Appendix III.

The area of PCE groundwater contamination in August 2000 covered approximately 19,450 ft^2. Of the ten wells sampled in August 2000, five shallow wells had concentrations that exceeded the RL of 5 μg/L for PCE. The area of highest PCE contamination in groundwater was in the vicinity of wells MW05, MW26, and MW27.

2.2 GROUNDWATER SAMPLING FOR BENZENE

The six shallow wells and one deep well that monitor the benzene plume were sampled in October 2000 [i.e., baseline sampling event required by Section 5.2.1 of the CAP (SAIC 2000)] to determine whether it was necessary to proceed with MNA. Benzene was detected in groundwater samples from shallow wells MW01 (4.4 μg/L), MW06 (46.7 μg/L), MW1-23 (1.8 μg/L), and MW1-25 (44.1 μg/L). Benzene was not detected in two shallow wells, MW07 and MW08, and one deep well, MW09. Ethylbenzene, toluene, and total xylenes were also detected during the sampling event, but at concentrations below their respective RLs. The results of the baseline sampling for benzene are presented in Table 2. For reference, the figure for the benzene baseline sampling event is provided in Appendix III.

The area of benzene groundwater contamination in October 2000 covered approximately 9,600 ft^2. Of the seven wells sampled in October 2000, two shallow wells had concentrations that exceeded the RL of 5 μg/L for benzene. The area of highest benzene contamination was in the vicinity of wells MW06 and MW1-25.

2.3 GROUNDWATER LEVEL MEASUREMENTS

Groundwater elevations were measured in the monitoring wells on August 26, 2000, to determine the groundwater flow direction. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the August 2000 groundwater potentiometric surface map is provided in Appendix III. In August 2000, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.0165 ft/ft, and the average groundwater elevation was 10.80 ft above mean sea level (AMSL).

3.0 GEO-CLEANSE® TREATMENT FOR TETRACHLOROETHENE

3.1 CHEMICAL OXIDATION SYSTEM

Chemical oxidation using the patented Geo-Cleanse® process was selected in the CAP for remediation of PCE in groundwater because it would effectively achieve the RL in the shortest period of time and with the least uncertainty. The conceptual Geo-Cleanse® groundwater treatment system design provided in the CAP was based on initial estimates provided by Geo-Cleanse International, Inc. (GCI). Additional details on the treatment process are discussed in Section 5.2.2 of the CAP (SAIC 2000).

The initial Geo-Cleanse® groundwater treatment system design was based on the baseline analytical sampling conducted in August 2000 and was provided by GCI. The contaminated groundwater plume extends over an irregularly shaped area about 200 ft wide and 100 ft long. The depth of the groundwater contamination is limited to predominantly the upper 20 ft of the shallow aquifer zone; no PCE has been detected in any deep wells at the site during any previous sampling event. The Geo-Cleanse® system chemically oxidizes the groundwater by injection of Fenton's Reagent (hydrogen peroxide and a ferrous iron catalyst) into the subsurface at two separate injection levels [10 and 20 ft below ground surface (BGS)]. The treatment area is separated into two areas for the injector design and installation. The first area—which surrounds MW26, measures approximately 50 ft (southeast side) × 70 ft (northeast side) × 90 ft (northwest side) × 85 ft (south side), and includes the former rail bed, which is no longer present on-site—is defined as the "source area." The second area—which surrounds MW27, MW28, MW05, and MW10, measures approximately 90 ft (southeast side) × 70 ft (northeast side) × 200 ft (northwest side) × 160 ft (south side), includes the dirt road, and is bound on the northwest by Lamar Canal—is defined as the "residual area." The locations of these areas are shown in Figure 2. Because of the low concentrations and small mass of PCE reported in groundwater at the PDO Yard, the amount of 50% hydrogen peroxide required for groundwater treatment was not stoichiometrically controlled.

The initial design included the installation of 9 shallow and 20 deep injectors for a total of 29 injectors. For the source area treatment, GCI used five shallow injectors and eight deep injectors. For the residual area treatment, GCI used 4 shallow and 12 deep injectors. Shallow and deep injectors were screened from 9.5 to 12 ft and 17.5 to 20 ft BGS, respectively. Injector locations and depths proposed in the Sampling and Analysis Plan were adjusted based upon field conditions observed during injector installation. Three additional deep injectors were installed in May 2001 as part of the supplemental injection activities. Three more shallow injectors were installed in December 2001 for the final polishing treatment. The locations of the 35 injectors are presented in Figure 2. The boring logs and well construction diagrams were provided in the first three Corrective Action Progress Reports (SAIC 2001a, SAIC 2001b, SAIC 2002).

3.2 INITIAL CHEMICAL INJECTION FIELD ACTIVITIES – FEBRUARY AND MARCH 2001

3.2.1 Injection Point Installation

On February 1 through 3, 2001, 29 injection wells (J1 through J29) were installed in the area of the highest PCE contamination in groundwater, as shown in Figure 2. These points were placed throughout the plume and completed as 1.25-in. carbon steel injection wells with 2.5 ft of 60-mesh stainless steel screen and flush-mount surface completions. Twenty of the injectors were screened from 17.5 to 20 ft BGS, while 9 of the injectors were screened from 9.5 to 12.0 ft BGS. Boring logs and well construction diagrams were provided in the First Corrective Action Progress Report (SAIC 2001a). Well construction details are summarized in Table 4. Header piping from each injection well to the remediation trailer was installed above the ground surface.

3.2.2 Injection Well Groundwater Sampling

During well installation on February 1 through 3, 2001, the 29 injection wells were sampled, and 15 of the samples were selected for laboratory analysis to aid in the final design of the Geo-Cleanse® system. GCI used the results of the injection well sampling to help determine how much hydrogen peroxide and catalyst were to be injected into each well. PCE was detected in 14 of 15 samples at concentrations ranging from 0.77J to 15.1 μg/L. The concentrations in eight injection wells exceeded the RL of 5 μg/L. 2-Butanone, 2-hexanone, 4-methyl-2-pentanone, acetone, chloroform, ethylbenzene, toluene, TCE, and total xylenes were also detected during the sampling event, but at concentrations below their respective maximum contaminant levels (MCLs). The results of the injection well sampling for PCE are presented in Table 1.

3.2.3 Initial Chemical Injection

Field injection operations were conducted from March 8 through March 14, 2001. Approximately 3,125 gal of 50% hydrogen peroxide solution and approximately 7,400 gal of ferrous iron catalyst solution were injected into the 29 injection wells. The hydrogen peroxide and ferrous iron catalyst solutions were injected in accordance with an Underground Injection Well Notification Form for the PDO Yard that was approved by the GA EPD Underground Injection Control Program on March 5, 2001.

During the injection, GCI collected field measurements to ensure that the appropriate subsurface conditions were established for an efficient oxidation using Fenton's Reagent. GCI verified these conditions using groundwater quality measurements. The analysis of each of the monitored parameters [pH, alkalinity, dissolved chloride, dissolved iron, hydrogen peroxide, and volatile organic compounds (VOCs)] is summarized below.

Groundwater pH was monitored to ensure that appropriate pH conditions (pH of less than 6) were established. Throughout the Phase 1 injection, a pH of less than 6 was established and maintained. Alkalinity was monitored throughout the injection because of its effects on Fenton's Reagent treatment. Dissolved bicarbonate is an efficient hydroxyl free radical scavenger. Alkalinity started out at 60 mg/L and, thus, did not present a problem with pH buffering, as evidenced by the ability to maintain an optimal pH for the reaction.

Chloride was produced as an oxidation product of chlorinated hydrocarbons. Dissolved chloride concentrations began at a low range, approximately 10 mg/L, and increased during the injection to approximately 15 to 20 mg/L. The increase in chloride concentration was expected because of the concentrations of PCE present at the site. Dissolved iron is a catalyst for Fenton's Reagent. Iron was found in the groundwater at the site at concentrations of 3 mg/L or greater. Iron concentrations increased during the injection to create an environment in which the hydroxyl free radical could be established and maintained.

Hydrogen peroxide was monitored during the injection to ensure that reagents were distributed throughout the treatment area. A diluted concentration of hydrogen peroxide was found in the wells in the treatment area, indicating that an effective radius of influence had been established.

3.2.4 Initial 7-Day Post-Injection Monitoring

On March 21, 2001, 7 days following the completion of the initial Geo-Cleanse® injection activities, the seven shallow and three deep wells that monitor the PCE plume were sampled to evaluate the effectiveness of the Geo-Cleanse® treatment. PCE was detected in groundwater samples from shallow wells MW02 (0.56J μg/L), MW05 (3.4 μg/L), MW1-22 (10.8 μg/L), MW1-24 (1.5 μg/L), MW26 (2.3 μg/L), and MW27 (11.9 μg/L). PCE was not detected in shallow well MW03 or deep wells MW10, MW11, and MW28. Carbon disulfide, ethylbenzene, toluene, and total xylenes were also detected during the sampling event, but at concentrations below their respective MCLs. The results of the 7-day post-injection sampling for PCE are presented in Table 1. For reference, the figure for the PCE 7-day post-injection sampling event is provided in Appendix III.

The area of PCE groundwater contamination exceeding the RL in March 2001 covered approximately 10,750 ft^2. Of the ten wells sampled in March 2001, two shallow wells had concentrations that exceeded the RL of 5 μg/L for PCE. The area of highest PCE contamination in groundwater was in the vicinity of wells MW1-22 and MW27.

3.3 SUPPLEMENTAL CHEMICAL INJECTION FIELD ACTIVITIES – MAY AND JUNE 2001

As a result of the recommendations presented in the First Corrective Action Progress Report (SAIC 2001a), three additional injection wells were installed in the vicinity of MW1-22 and MW27, and a supplemental phase of Geo-Cleanse® injection was conducted in the vicinity of these wells.

3.3.1 Additional Injection Point Installation

On May 3, 2001, three additional injection wells (J30 through J32) were installed in the vicinity of MW1-22 and MW27, as shown in Figure 2. These points were completed as 1.25-in. carbon steel injection wells with 2.5 ft of 60-mesh stainless steel screen with flush-mount surface completions. These injectors were screened from 18.4 to 20.9 ft BGS. Well construction details are presented in Table 4. Soil samples were collected for investigation-derived waste (IDW) disposal. Header piping from each injection well to the remediation trailer was installed above the ground surface.

3.3.2 Supplemental Chemical Injection

Supplemental chemical injection operations were conducted from May 15 through May 17, 2001. The purpose of the second injection was to target areas that were close to or exceeded the cleanup criteria after the initial injection. Approximately 3,378 gal (30,402 lb) of 50% hydrogen peroxide solution were injected at 13 locations—J12, J14, J15, J16, J17, J19, J20, J24, J25, J26, J30, J31, and J32. Also, approximately 448 gal (3,808 lb) of ferrous iron catalyst solution were injected into 9 monitoring wells—MW02, MW03, MW05, MW10, MW11, MW1-22, MW26, MW27, and MW28. Injection of catalyst into these wells was performed to enhance treatment in the targeted zones. The hydrogen peroxide and ferrous iron catalyst solutions were injected in accordance with an Underground Injection Well Notification Form for the PDO Yard that was amended to include the additional injectors and was approved by the GA EPD Underground Injection Control Program on May 9, 2001. During the injection operations, field measurements were taken of carbon dioxide levels, oxygen levels, and borehole volatile organic measurements of the off-gas.

3.3.3 Supplemental 7-Day Post-Injection Monitoring

Following the supplemental field injection operations, wells MW1-22 and MW27 were to be re-sampled on May 23, 2001. PCE was detected in well MW27 at a concentration of 14.7 μg/L. An obstruction was discovered in well MW1-22 at 10.81 ft below top of casing, and it was impossible to get sampling equipment down the well; therefore, it was not sampled. On June 5, 2001, well MW29 was installed adjacent to MW1-22, and the PCE concentration in well MW29 was 2.4 μg/L.

3.4 SIX-MONTH POST-INJECTION MONITORING – SEPTEMBER 2001

On September 6 and 7, 2001, 6 months following the completion of the initial Geo-Cleanse® injection activities, the seven shallow and three deep wells that monitor the PCE plume were sampled to evaluate the effectiveness of the Geo-Cleanse® treatment. PCE was detected in groundwater samples from shallow wells MW02 (3.8 μg/L), MW03 (1.3 μg/L), MW05 (8.4 μg/L), MW1-22/MW29 (4 μg/L), MW1-24 (2 μg/L), MW26 (10 μg/L), and MW27 (15.8 μg/L). PCE was not detected in deep wells MW10, MW11, and MW28. No other VOCs were analyzed for during the September 2001 sampling event. The results of the 6-month post-injection sampling for PCE are presented in Table 1. For reference, the figure for the PCE 6-month post-injection sampling event is provided in Appendix III.

The area of PCE groundwater contamination exceeding the RL in September 2001 covered approximately 13,000 ft^2. Of the ten wells sampled in September 2001, three shallow wells had concentrations that exceeded the RL of 5 μg/L for PCE. The area of highest PCE contamination in groundwater was in the vicinity of wells MW05, MW26, and MW27.

3.5 POLISHING STEP CHEMICAL INJECTION FIELD ACTIVITIES – DECEMBER 2001 THROUGH MARCH 2002

As a result of the recommendations presented in the Second Corrective Action Progress Report (SAIC 2001b), three additional injection wells were installed in the vicinity of MW26, and a polishing step for the Geo-Cleanse® injection was conducted in the vicinity of these wells.

3.5.1 Additional Injection Point Installation

On December 4, 2001, three additional injection wells (J33 through J35) were installed in the vicinity of MW26, as shown in Figure 2. These points were completed as 1.25-in. carbon steel injection wells with 3.0 ft of 60-mesh stainless steel screen with flush-mount surface completions. These injectors were screened from 10.3 to 13.3 ft BGS. Well construction details are presented in Table 4. Soil samples were collected for IDW disposal. Header piping from each injection well to the remediation trailer was installed above the ground surface.

3.5.2 Polishing Step Chemical Injection

The polishing step of the chemical injection operations was conducted from February 25 through February 28, 2002. The purpose of the polishing step injection was to target areas that were close to or exceeded the cleanup criteria after the initial injection. Approximately 2,003 gal of 50% hydrogen peroxide solution were injected at 12 locations—J14, J15, J19, J20, J23, J28, J30, J31, J32, J33, J34, and J35. Also, approximately 2,304 gal of ferrous iron catalyst solution were injected into nine injection wells and six monitoring wells—J14, J15, J19, J23, J31, J32, J33, J34, and J35 and MW02, MW03, MW05, MW10, MW26, and MW27. Injection of catalyst into these wells was performed to enhance treatment in the targeted zones. During the injection operations, field measurements were taken of carbon dioxide levels, oxygen levels, and borehole volatile organic measurements of the off-gas.

3.5.3 Polishing Step 7-Day Post-Injection Monitoring

On March 12, 2002, 7 days following the completion of the polishing step Geo-Cleanse® injection activities, the seven shallow and three deep wells that monitor the PCE plume were sampled to evaluate the effectiveness of the Geo-Cleanse® treatment. PCE was detected in groundwater samples from shallow wells MW02 (1.6 μg/L), MW05 (0.74J μg/L), MW1-22/MW29 (1 μg/L), MW1-24 (0.72J μg/L), MW26 (6 μg/L), and MW27 (8 μg/L). PCE was not detected in shallow well MW03 or deep wells MW10, MW11, and MW28. No other VOCs were analyzed for during the March 2002 sampling event. The results of the polishing step 7-day post-injection sampling for PCE are presented in Table 1. For reference, the figure for the PCE polishing step 7-day post-injection sampling event is provided in Appendix III.

The area of PCE groundwater contamination exceeding the RL in March 2002 covered approximately 5,000 ft^2. Of the ten wells sampled in March 2002, two shallow wells had concentrations of 6 and 8 μg/L, respectively, which exceeded the RL of 5 μg/L for PCE. The area of highest PCE contamination in groundwater was in the vicinity of wells MW26 and MW27.

3.6 SUMMARY OF CHEMICAL INJECTION RESULTS

The oxidation of PCE using Fenton's Reagent is an exothermic reaction, and as the temperature increases in the groundwater, contamination that is sorbed to soil can be liberated into the groundwater, potentially causing concentrations to increase. After the completion of each of the phases of chemical injection, samples were obtained from the monitoring wells in the treatment area and sent to an off-site laboratory for VOC analysis. Following the initial injection, all the monitoring wells showed an overall decrease in VOC concentrations from their initial concentrations; however, the concentrations in several wells still exceeded the RLs. The sampling results following the supplemental injection and the 6-month post-injection period indicated that the PCE concentrations increased in a few wells. This finding is consistent with the mass destruction of the contaminant. The average pre-injection PCE contaminant concentrations in August 2000 were approximately 10.76 μg/L, with a maximum concentration of 30.7 μg/L. Following the polishing injection phase in February 2002, average PCE concentrations were reduced to 2.2 μg/L, with a maximum concentration of 8 μg/L. This finding indicates an overall contaminant reduction of 79.4%.

The goals of the treatment program were to reduce VOC contamination to below 5 μg/L to meet GA EPD groundwater standards. Average PCE concentrations were reduced from 10.76 to 2.2 μg/L, which is below the cleanup criterion, although there were two monitoring wells with concentrations above 5 µg/L. Overall, through the process monitoring parameters, GCI illustrated that the appropriate conditions for in situ chemical oxidation using Fenton's Reagent were established, and through the VOC analysis it showed that a substantial reduction in PCE concentrations could be accomplished. The process monitoring parameters also indicated that PCE destruction occurred on this site.

The Effectiveness Evaluation Report prepared by GCI was included in the Fourth Corrective Action Progress Report (SAIC 2003a). The chemical oxidation corrective action has produced positive results by reducing the PCE concentrations in groundwater at the site and the area of the PCE plume. Even though the site has been injected with hydrogen peroxide and ferrous iron catalyst on three separate occasions, the PCE concentrations in two wells (i.e., MW26 and MW27) have continued to exceed the RL of 5 µg/L by a few micrograms per liter. Because the chemical oxidation has resulted in the destruction of PCE to concentrations slightly above the RL, it was recommended in the Third Corrective Action Progress Report (SAIC 2002) that the plume be monitored semiannually until the PCE concentrations are below the RL.

4.0 MONITORED NATURAL ATTENUATION OF TETRACHLOROETHENE

The Third Corrective Action Progress Report (SAIC 2002) recommended that ten wells (MW2, MW03, MW05, MW10, MW11, MW1-24, MW26, MW27, MW28, and MW1-22/MW29) be sampled on a semiannual basis in conjunction with the benzene plume sampling; however, because of limited funding, these wells were not sampled in conjunction with the October 2002 benzene sampling activities.

4.1 FIRST POST-CORRECTIVE-ACTION TETRACHLOROETHENE SAMPLING EVENT – JANUARY 2003

In January 2003, the first semiannual sampling event for the MNA of PCE following completion of in situ chemical oxidation was conducted. Seven shallow wells (MW02, MW03, MW05, MW1-24, MW26, MW27, and MW29) and three deep wells (MW10, MW11, and MW28) were sampled for PCE. PCE was detected in groundwater samples from shallow wells MW02 (3 µg/L), MW05 (3.1 µg/L), MW26 (5.7 µg/L), and MW27 (5.6 µg/L). PCE was not detected in shallow wells MW03, MW1-24, and MW29 or deep wells MW10, MW11, and MW28. The results of the first semiannual sampling event for the MNA of PCE are presented in Table 1. For reference, the figure for the PCE semiannual post-corrective-action sampling event is provided in Appendix III.

The area of PCE groundwater contamination exceeding the RL in January 2003 covered approximately 5,250 ft^2. Of the ten wells sampled in January 2003, two shallow wells had concentrations that slightly exceeded the RL of 5 µg/L for PCE. The area of highest PCE contamination was in the vicinity of wells MW26 and MW27.

In January 2003, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.029 ft/ft, and the average groundwater elevation was 11.02 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the January 2003 groundwater potentiometric surface map is provided in Appendix III.

4.2 SECOND POST-CORRECTIVE-ACTION TETRACHLOROETHENE SAMPLING EVENT – JUNE 2003

On June 22, 2003, the second semiannual sampling event for the MNA of PCE following completion of in situ chemical oxidation was conducted. Seven shallow wells (MW02, MW03, MW05, MW1-24, MW26, MW27, and MW29) and three deep wells (MW10, MW11, and MW28) were sampled for PCE. PCE was detected in groundwater samples from shallow wells MW02 (0.83J μg/L), MW1-24 (0.55J μg/L), MW26 (3.9 μg/L), and MW27 (1.8 μg/L). PCE was not detected in shallow wells MW03, MW05, and MW29 or deep wells MW10, MW11, and MW28. The results of the second semiannual sampling event for the MNA of PCE are presented in Table 1. For reference, the figure for the PCE semiannual post-corrective-action sampling event is provided in Appendix III.

Of the ten wells sampled in June 2003, none of the shallow or deep wells had concentrations that exceeded the RL of 5 μg/L for PCE.

In June 2003, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.022 ft/ft, and the average groundwater elevation was 12.11 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the June 2003 groundwater potentiometric surface map is provided in Appendix III.

4.3 THIRD POST-CORRECTIVE-ACTION TETRACHLOROETHENE SAMPLING EVENT – JANUARY 2004

On January 23 and 24, 2004, the third semiannual sampling event for the MNA of PCE following completion of in situ chemical oxidation was conducted. Seven shallow wells (MW02, MW03, MW05, MW1-24, MW26, MW27, and MW29) and three deep wells (MW10, MW11, and MW28) were sampled for PCE. PCE was detected in groundwater samples from shallow wells MW02 (1.7 μg/L), MW05 (6.1 μg/L), MW1-24 (0.87J μg/L), MW26 (4.9 μg/L), and MW27 (3.1 μg/L). PCE was not detected in shallow wells MW03 and MW29 or deep wells MW10, MW11, and MW28. The results of the third semiannual sampling event for the MNA of PCE are presented in Table 1. For reference, the figure for the PCE semiannual post-corrective-action sampling event is provided in Appendix III.

Of the ten wells sampled in January 2004, only shallow well MW05 (6.1 μg/L) had a concentration that slightly exceeded the RL of 5 μg/L for PCE.

In January 2004, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.018 ft/ft, and the average groundwater elevation was 10.12 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the January 2004 groundwater potentiometric surface map is provided in Appendix III.

4.4 FOURTH POST-CORRECTIVE-ACTION TETRACHLOROETHENE SAMPLING EVENT – OCTOBER 2004

On October 18 and 19, 2004, the fourth semiannual sampling event for the MNA of PCE following completion of in situ chemical oxidation was conducted. Seven shallow wells (MW02, MW03, MW05, MW1-24, MW26, MW27, and MW29) were sampled for PCE. PCE has never been detected in the deep wells and, as recommended in the Seventh Corrective Action Progress Report (SAIC 2004b), the three deep wells (MW10, MW11, and MW28) were not sampled during this monitoring event. PCE was detected in groundwater samples from shallow wells MW02 (0.65J μg/L), MW26 (0.61J μg/L), and MW27 (2.7 μg/L). PCE was not detected in shallow wells MW03, MW05, MW1-24, and MW29. The results of the fourth semiannual sampling event for the MNA of PCE are presented in Table 1. For reference, the figure for the PCE semiannual post-corrective-action sampling event is provided in Appendix III.

Of the seven wells sampled in October 2004, none of the wells had concentrations that exceeded the RL of 5 μg/L for PCE.

In October 2004, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.027 ft/ft, and the average groundwater elevation was 11.47 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the October 2004 groundwater potentiometric surface map is provided in Appendix III.

4.5 CONFIRMATION TETRACHLOROETHENE SAMPLING EVENT – APRIL 2005

On April 26 and 27, 2005, the confirmation sampling event for the MNA of PCE following completion of in situ chemical oxidation was conducted. Seven shallow wells (MW02, MW03, MW05, MW1-24, MW26, MW27, and MW29) were sampled for PCE. PCE has never been detected in the deep wells and, as recommended in the Seventh Corrective Action Progress Report (SAIC 2004b), the three deep wells (MW10, MW11, and MW28) were not sampled during this monitoring event. PCE was detected in groundwater samples from shallow wells MW02 (2.5 μg/L), MW05 (2.9 μg/L), MW1-24 (0.44J μg/L), MW26 (3.3 μg/L), and MW27 (2.3 μg/L). PCE was not detected in shallow wells MW03 and MW29. The results of the confirmation semiannual sampling event for the MNA of PCE are presented in Table 1 and Figure 3.

Of the seven wells sampled in April 2005, none of the wells had concentrations that exceeded the RL of 5 μg/L for PCE.

Groundwater elevations were measured in the monitoring wells on April 26, 2005, to determine the groundwater flow direction. A list of the wells and corresponding water level elevations is presented in Table 3. The potentiometric surface map generated from the water level measurements is presented in Figure 4. In April 2005, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.025 ft/ft, and the average groundwater elevation was 11.58 ft AMSL.

The PCE concentrations have been monitored on a semiannual basis since the completion of the chemical oxidation injections in March 2002. During the semiannual monitoring events since March 2002, the PCE concentrations have remained in the vicinity of the RL (i.e., 2 μg/L above or below) and were below the RL in all wells in October 2004. In accordance with the requirements of the CAP, the Eighth Corrective Action Progress Report (SAIC 2005) recommended that confirmation groundwater sampling be conducted 6 months following the achievement of the RL. As a result, the April 2005 event has confirmed that the PCE concentrations have remained below the RL.

5.0 MONITORED NATURAL ATTENUATION OF BENZENE

5.1 FIRST BENZENE SAMPLING EVENT – SEPTEMBER 2001

In September 2001, the first semiannual sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX). Benzene was detected in groundwater samples from shallow wells MW01 (5.1 μg/L), MW06 (42 μg/L), MW1-23 (0.58J μg/L), and MW1-25 (29.7 μg/L). Benzene was not detected in two shallow wells, MW07 and MW08, and one deep well, MW09. Ethylbenzene, toluene, and total xylenes were also detected during the sampling event, but at concentrations below their respective RLs. The results of the first semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the September 2001 benzene groundwater quality map is provided in Appendix III.

The area of benzene groundwater contamination exceeding the RL in September 2001 covered approximately 10,100 ft^2. Of the seven wells sampled in September 2001, three shallow wells had concentrations that exceeded the RL of 5 μg/L for benzene. The area of highest benzene contamination was in the vicinity of wells MW06 and MW1-25.

In September 2001, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.015 ft/ft, and the average groundwater elevation was 10.38 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the September 2001 groundwater potentiometric surface map is provided in Appendix III.

5.2 SECOND BENZENE SAMPLING EVENT – MARCH 2002

In March 2002, the second semiannual sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW01 (12.8 μg/L), MW06 (12.5 μg/L), MW1-23 (1.53 μg/L), and MW1-25 (18.7 μg/L). Benzene was not detected in two shallow wells, MW07 and MW08, and one deep well, MW09. Ethylbenzene, toluene, and total xylenes were also detected during the sampling event, but at concentrations below their respective RLs. The results of the second semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the March 2002 benzene groundwater quality map is provided in Appendix III.

The area of benzene groundwater contamination exceeding the RL in March 2002 covered approximately 8,600 ft^2. Of the seven wells sampled in March 2002, three shallow wells had concentrations that exceeded the RL of 5 μg/L for benzene. The area of highest benzene contamination was in the vicinity of wells MW01, MW06, and MW1-25.

In March 2002, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.017 ft/ft, and the average groundwater elevation was 11.04 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the March 2002 groundwater potentiometric surface map is provided in Appendix III.

5.3 THIRD BENZENE SAMPLING EVENT – OCTOBER 2002

In October 2002, the third semiannual sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW06 (6.7 µg/L), MW1-23 (4.3 µg/L), and MW1-25 (5.1 µg/L). Benzene was not detected in three shallow wells, MW01, MW07, and MW08, and one deep well, MW09. Ethylbenzene and total xylenes were also detected during the sampling event, but at concentrations below their respective RLs. The results of the third semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the October 2002 benzene groundwater quality map is provided in Appendix III.

The area of benzene groundwater contamination exceeding the RL in October 2002 covered approximately 975 ft^2. Of the seven wells sampled in October 2002, two shallow wells had concentrations that slightly exceeded the RL of 5 µg/L for benzene. The area of highest benzene contamination was in the vicinity of wells MW06 and MW1-25.

In October 2002, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.029 ft/ft, and the average groundwater elevation was 11.54 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the October 2002 groundwater potentiometric surface map is provided in Appendix III.

5.4 FOURTH BENZENE SAMPLING EVENT – MARCH/APRIL 2003

In March 2003, the fourth semiannual sampling event for the MNA of benzene was conducted; however, there was a delay in the arrival of the samples at the analytical laboratory, and the arrival temperature exceeded 4°C. As a result, the wells were re-sampled on April 22, 2003, and those results are presented in this report. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW06 (6.2 µg/L), MW1-23 (1.4 µg/L), and MW1-25 (6.1 µg/L). Benzene was not detected in three shallow wells, MW01, MW07 and MW08, and one deep well, MW09. Ethylbenzene, toluene, and total xylenes were not detected during the sampling event. The results of the fourth semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the April 2003 benzene groundwater quality map is provided in Appendix III.

The area of benzene groundwater contamination exceeding the RL in April 2003 covered approximately 975 ft^2. Of the seven wells sampled in April 2003, two shallow wells had concentrations that slightly exceeded the RL of 5 µg/L for benzene. The area of highest benzene contamination was in the vicinity of wells MW06 and MW1-25.

In March 2003 the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.031 ft/ft, and the average groundwater elevation was 12.71 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the March 2003 groundwater potentiometric surface map is provided in Appendix III.

5.5 FIFTH BENZENE SAMPLING EVENT – OCTOBER 2003

In October 2003, the fifth semiannual sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW01 (1.7 µg/L), MW06 (4.6 µg/L), MW1-23 (0.59J µg/L), and MW1-25 (7.7 µg/L). Benzene was not detected in two shallow wells, MW07 and MW08, and one deep well, MW09. Ethylbenzene and total xylenes were not detected during the sampling event. Toluene was only detected at estimated concentrations below the undiluted reporting limit. The results of the fifth semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the October 2003 benzene groundwater quality map is provided in Appendix III.

The area of benzene groundwater contamination exceeding the RL in October 2003 covered approximately 660 ft^2. Of the seven wells sampled in October 2003, one shallow well had a concentration that slightly exceeded the RL of 5 µg/L for benzene. The area of highest benzene contamination was in the vicinity of wells MW06 and MW1-25.

In October 2003, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.019 ft/ft, and the average groundwater elevation was 10.33 ft AMSL. A list of the wells and corresponding water level evaluations is presented in Table 3. For reference, the October 2003 groundwater potentiometric surface map is provided in Appendix III.

5.6 SIXTH BENZENE SAMPLING EVENT – MARCH 2004

On March 23, 2004, the sixth semiannual sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW01 (1.6 µg/L), MW06 (4.4 µg/L), MW1-23 (0.96J µg/L), and MW1-25 (6.1 µg/L). Benzene was not detected in two shallow wells, MW07 and MW08, and one deep well, MW09. Toluene was not detected during the sampling event. Ethylbenzene and total xylenes were only detected at estimated concentrations below their undiluted reporting limits. The results of the sixth semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the March 2004 benzene groundwater quality map is provided in Appendix III.

The area of benzene groundwater contamination exceeding the RL in March 2004 covered approximately 660 ft^2. Of the seven wells sampled in March 2004, one shallow well had a concentration that slightly exceeded the RL of 5 µg/L for benzene (MW1-25 at 6.1 µg/L). The area of highest benzene contamination was in the vicinity of wells MW06 and MW1-25.

In March 2004, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.022 ft/ft, and the average groundwater elevation was 10.56 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the March 2004 groundwater potentiometric surface map is provided in Appendix III.

5.7 SEVENTH BENZENE SAMPLING EVENT – OCTOBER 2004

On October 18, 2004, the seventh semiannual sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW06 (1.5 µg/L), MW1-23 (1.7 µg/L), and MW1-25 (0.73J µg/L). Benzene was not detected in three shallow wells, MW01, MW07 and MW08, and one deep well, MW09. Ethylbenzene and toluene were only detected at low concentrations (i.e., <2 µg/L) or at estimated concentrations below their undiluted reporting limits. Total xylenes were not detected during the sampling event. The results of the sixth semiannual sampling event for benzene are presented in Table 2. For reference, the figure for the October 2004 benzene groundwater quality map is provided in Appendix III.

Of the seven wells sampled in October 2004, none of the wells had concentrations that exceeded the RL of 5 µg/L for benzene.

In October 2004, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.027 ft/ft, and the average groundwater elevation was 11.47 ft AMSL. A list of the wells and corresponding water level elevations is presented in Table 3. For reference, the October 2004 groundwater potentiometric surface map is provided in Appendix III.

5.8 CONFIRMATION BENZENE SAMPLING EVENT – APRIL 2005

On April 26 and 27, 2005, the confirmation sampling event for the MNA of benzene was conducted. Six shallow wells (MW01, MW06, MW07, MW08, MW1-23, and MW1-25) and one deep well (MW09) were sampled for BTEX. Benzene was detected in groundwater samples from shallow wells MW01 (1.6 µg/L), MW06 (4.1 µg/L), MW1-23 (0.67J µg/L), and MW1-25 (2.7 µg/L). Benzene was not detected in two shallow wells, MW07 and MW08, and one deep well, MW09. Ethylbenzene was only detected at estimated concentrations below the undiluted reporting limits. Toluene and total xylenes were not detected during the sampling event. The results of the confirmation sampling event for benzene are presented in Table 2 and Figure 5.

Of the seven wells sampled in April 2005, none of the wells had concentrations that exceeded the RL of 5 µg/L for benzene.

Groundwater elevations were measured in the monitoring wells on April 26, 2005, to determine the groundwater flow direction. A list of the wells and corresponding water level elevations is presented in Table 3. The potentiometric surface map generated from the water level measurements is presented in Figure 4. In April 2005, the groundwater flow direction was toward the northwest, the average groundwater gradient was approximately 0.025 ft/ft, and the average groundwater elevation was 11.58 ft AMSL.

The benzene concentrations have been monitored on a semiannual basis since the implementation of MNA in September 2001. The CAP required that the site be monitored for a minimum period of 2 years until the maximum concentration at the site was less that the RL. During the semiannual monitoring events since October 2002, the benzene concentrations have remained in the vicinity of the RL (i.e., 3 µg/L above or below) and were below the RL in all wells in October 2004. In accordance with the requirements of the CAP, the Eighth Corrective Action Progress Report (SAIC 2005) recommended that confirmation groundwater sampling be conducted 6 months following the achievement of the RL. As a result, the April 2005 event has confirmed that the benzene concentrations have remained below the RL.

6.0 ANALYSIS OF TRENDS

6.1 TETRACHLOROETHENE CONCENTRATIONS IN GROUNDWATER

As described in the previous progress reports for the PDO Yard, the application of in situ chemical oxidation using Fenton's Reagent resulted in a reduction in PCE concentrations and decreased the area of the plume. During the baseline sampling in August 2000, the area of the PCE plume was 19,450 ft^2 (Table 5), with a maximum PCE concentration of 30.07 µg/L in MW05. Following the polishing step in March 2002, the area of the PCE plume was approximately 5,000 ft^2 (Table 5), with a maximum PCE concentration of 8 µg/L in MW27, which represented a 74% reduction in the size of the plume area from the baseline sampling. In addition, a 72 to 100% reduction in the PCE concentrations has been observed in the various wells since the baseline sampling in August 2000. The trend in PCE concentrations associated with the corrective action activities is summarized in Figure 6.

During the semiannual post-corrective-action sampling, the PCE concentrations had continued to decline to the vicinity of the RL of 5 µg/L. In June 2003, the maximum PCE concentration was 3.9 µg/L in well MW26. During the January 2004 sampling event, PCE concentrations increased, with a maximum concentration of 6.1 µg/L in MW05. In October 2004, the maximum PCE concentration was 2.7 µg/L in MW27. In April 2005, the maximum PCE concentration was 3.3 µg/L in MW27.

6.2 BENZENE CONCENTRATIONS IN GROUNDWATER

During the baseline sampling in October 2000, the area of the benzene plume was 9,600 ft^2 (Table 5), with a maximum benzene concentration of 46.7 µg/L in MW06. The benzene concentrations steadily decreased during the semiannual sampling events until October 2002, as shown in Figure 7, with wells MW06 and MW1-25 having the highest benzene concentrations during each sampling event. Since October 2002, the area of the benzene plume exceeding 5 µg/L has been fairly steady and in the range of 660 to 975 ft^2, and the concentrations have been no more that 3 µg/L above the RL. In March 2004, the maximum benzene concentration was 6.1 µg/L in MW1-25. In October 2004, the maximum benzene concentration was 1.7 µg/L in well MW1-23, which is located upgradient of the site within the Hazardous Waste Management Area. Within the plume, the maximum concentration was 1.5 µg/L in MW06. In April 2005, the maximum benzene concentration was 4.1 µg/L in well MW06.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The chemical oxidation corrective action has produced positive results by reducing the PCE concentrations in groundwater at the site and the area of the PCE plume. PCE concentrations decreased to below the RL of 5 µg/L during the October 2004 sampling event. Confirmatory sampling conducted in April 2005 indicated that the PCE concentrations remained below the RL. The objective of the corrective action has been met and the completion criteria (PCE concentrations less than 5 µg/L) achieved, thus it is recommended that no further action be granted for the PCE plume.

MNA of the benzene plume has been conducted since September 2001. The benzene concentrations decreased to below the RL of 5 µg/L during the October 2004 sampling event. Confirmatory sampling conducted in April 2005 indicated that the benzene concentrations remained below the RL. The objective of the corrective action has been met and the completion criteria (benzene concentrations less than 5 µg/L) achieved, thus it is recommended that no further action be granted for the benzene plume.

Upon written confirmation from GA EPD concurring with the recommendation of this report to grant no further action for the entire site (i.e., both the PCE and benzene plumes), the groundwater monitoring system will be decommissioned in accordance with the requirements of the CAP. The injection wells and groundwater monitoring wells will be plugged and abandoned by filling the casings with cement and bentonite grout mixture.

8.0 REFERENCES

Metcalf & Eddy, Inc. 1999. *Revised Final RCRA Facility Investigation Report, Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia,* September.

SAIC (Science Applications International Corporation) 2000. *Corrective Action Plan for the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, April.

SAIC 2001a. *First Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, June.

SAIC 2001b. *Second Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, December.

SAIC 2002. *Third Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, August.

SAIC 2003a. *Fourth Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, January.

SAIC 2003b. *Fifth Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, August.

SAIC 2004a. *Sixth Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, January.

SAIC 2004b. *Seventh Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, August.

SAIC 2005. *Eighth Corrective Action Progress Report for the Corrective Actions at the Old Property Disposal (PDO) Yard at Hunter Army Airfield, Georgia*, April.

APPENDIX I
FIGURES

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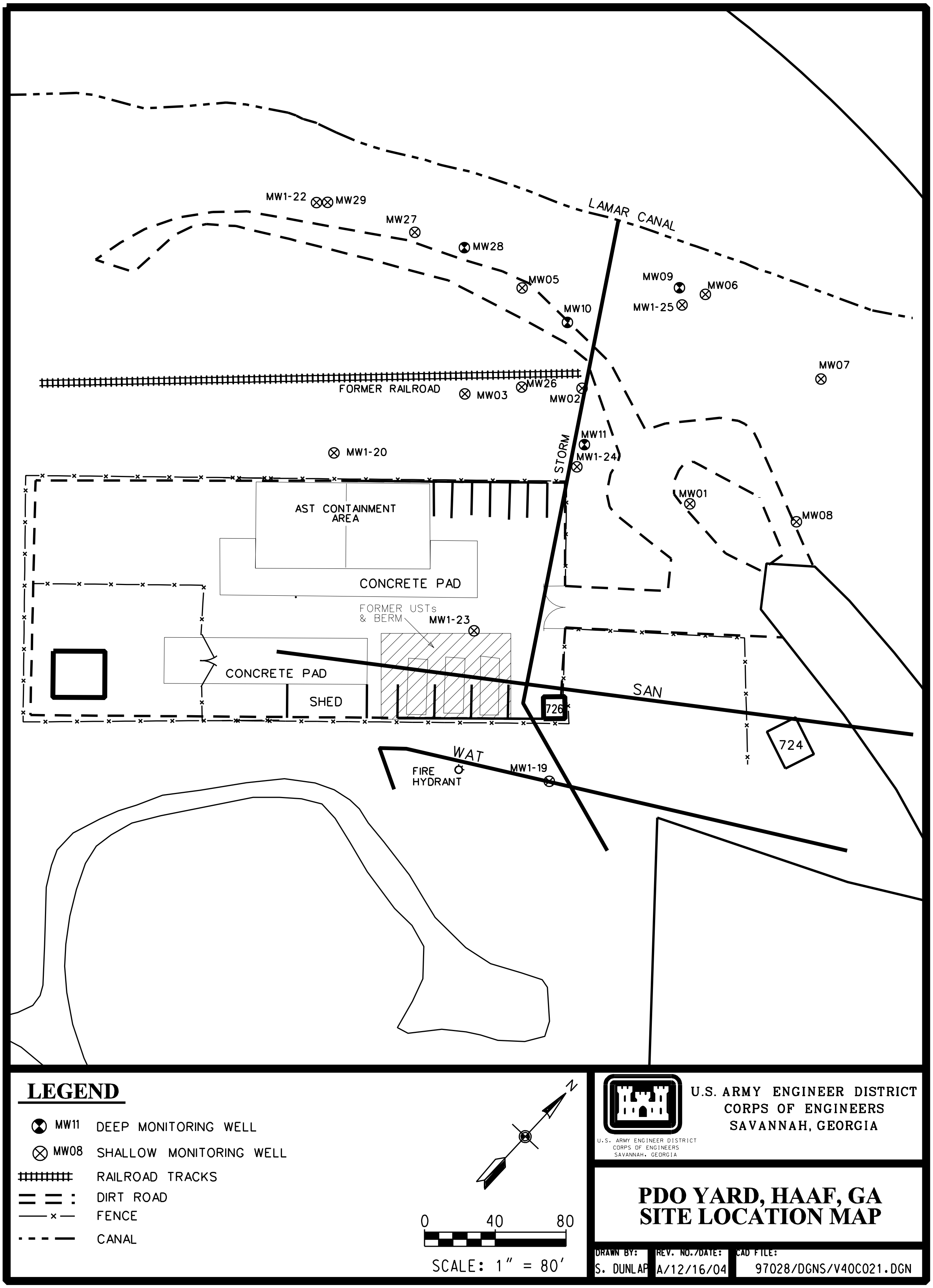
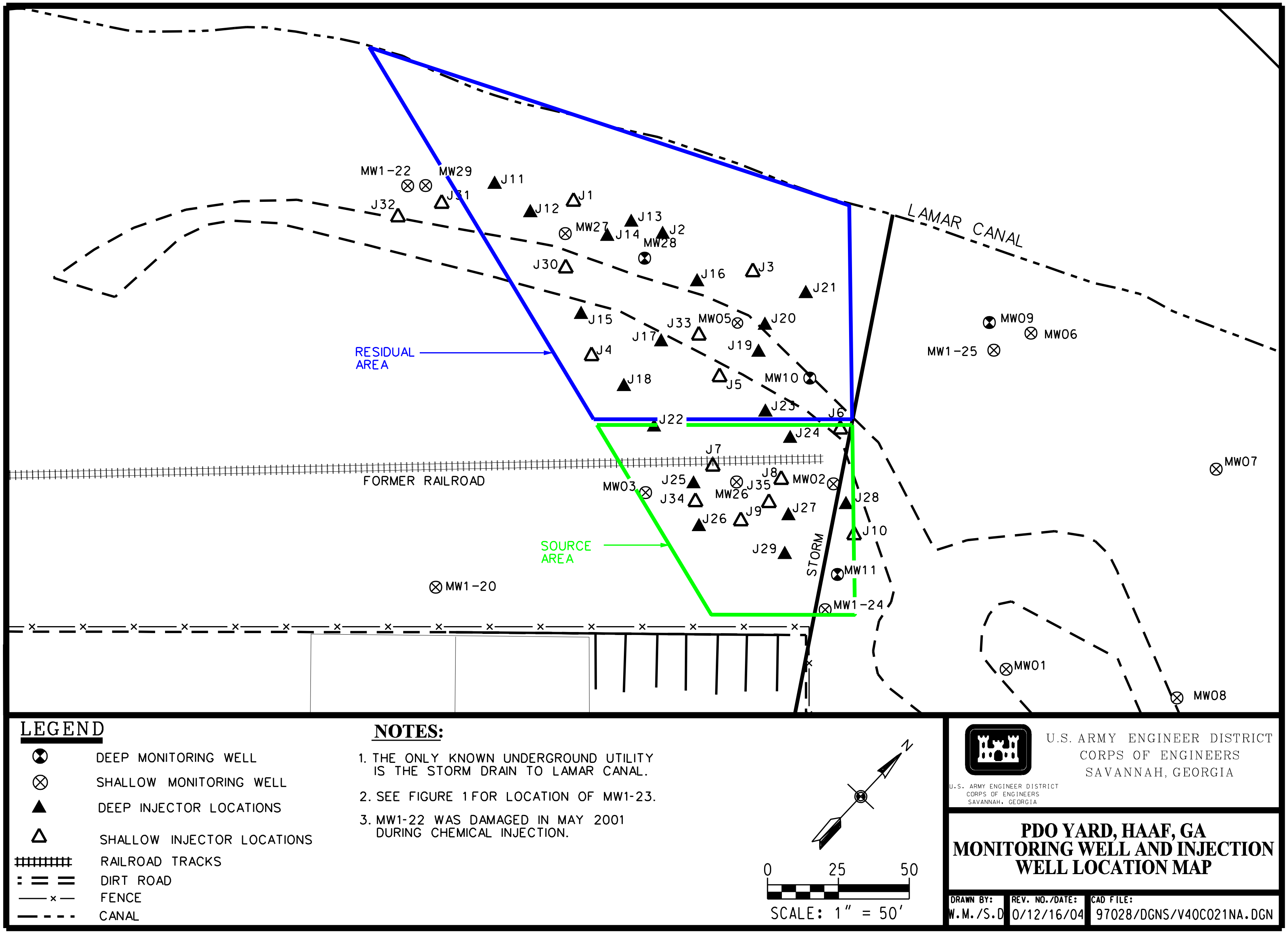


Figure 1. Site Location Map of the PDO Yard, Hunter Army Airfield



NOTES:

1. THE ONLY KNOWN UNDERGROUND UTILITY IS THE STORM DRAIN TO LAMAR CANAL.
2. SEE FIGURE 1 FOR LOCATION OF MW1-23.
3. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

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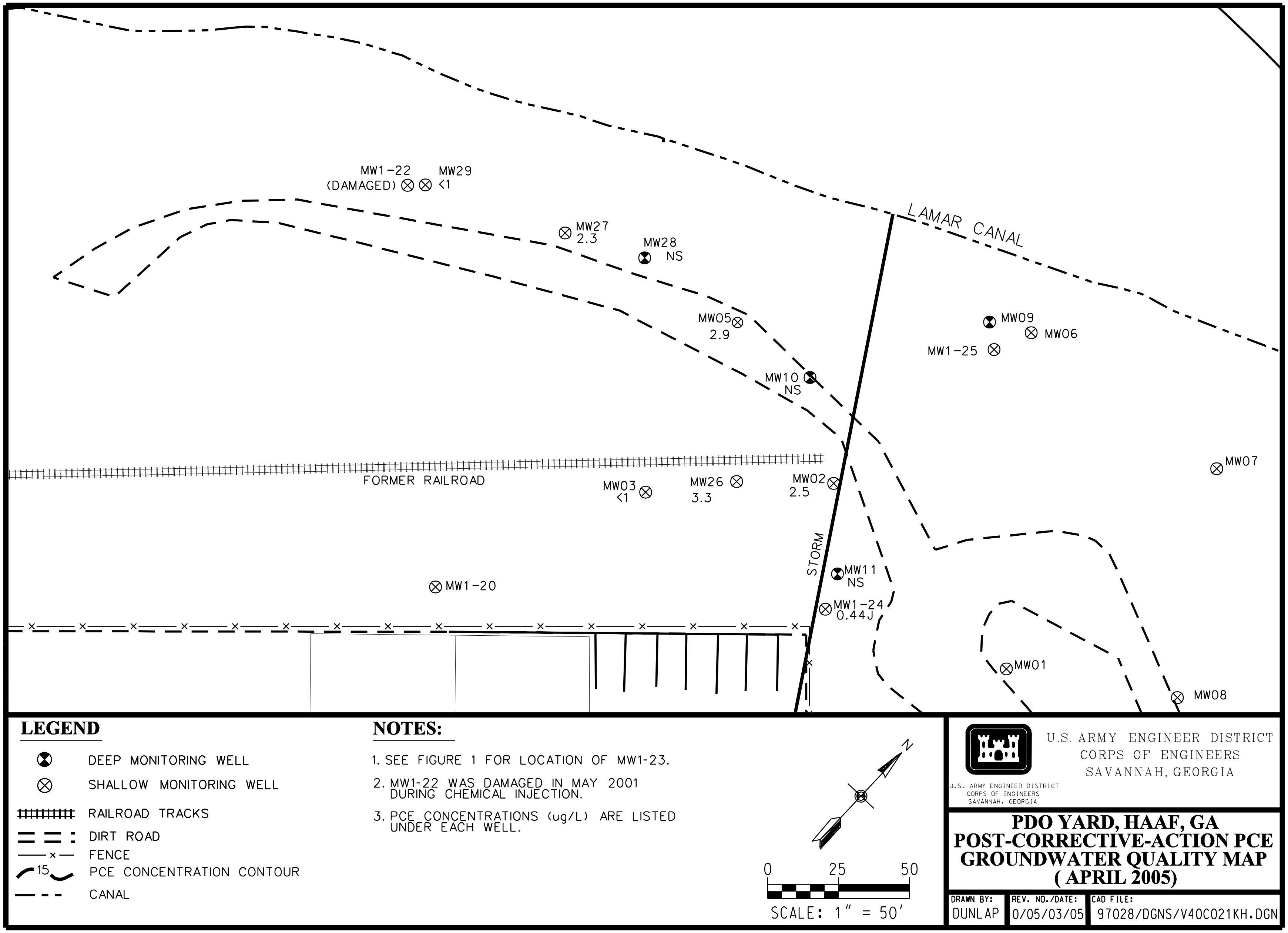
PDO YARD, HAAF, GA
MONITORING WELL AND INJECTION
WELL LOCATION MAP

DRAWN BY:	REV. NO./DATE:	CAD FILE:
W.M./S.D	0/12/16/04	97028/DGNS/V40C021NA.DGN

Figure 2. Monitoring Well and Injection Well Location Map for the PDO Yard, Hunter Army Airfield



LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
╫╫╫╫	RAILROAD TRACKS
═ ═	DIRT ROAD
—×—	FENCE
⌒15⌣	PCE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

**PDO YARD, HAAF, GA
POST-CORRECTIVE-ACTION PCE
GROUNDWATER QUALITY MAP
(APRIL 2005)**

Figure 3. Post-Corrective-Action PCE Groundwater Quality Map (April 2005) at the PDO Yard, Hunter Army Airfield

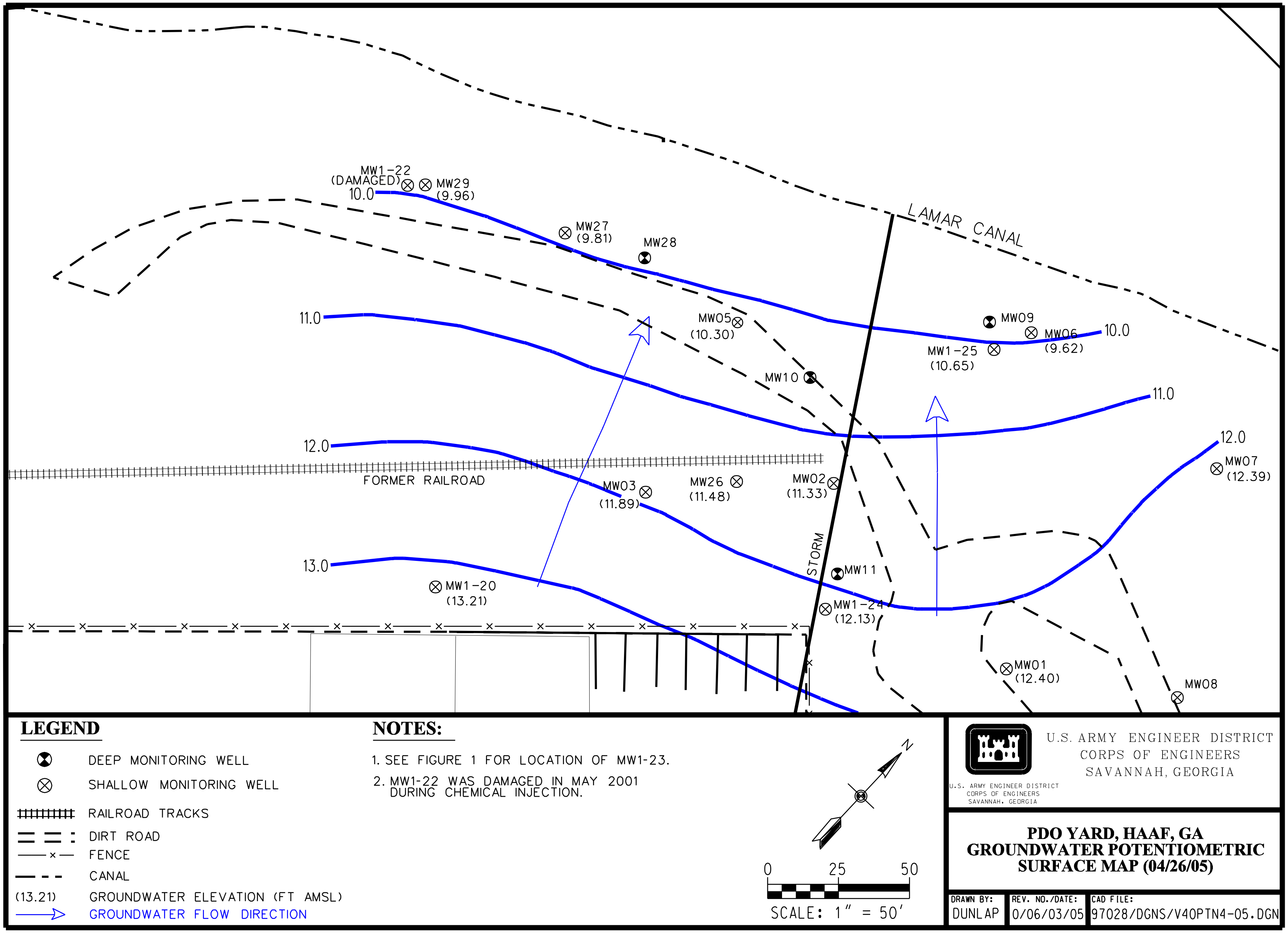


Figure 4. Groundwater Potentiometric Surface Map (April 2005) at the PDO Yard, Hunter Army Airfield

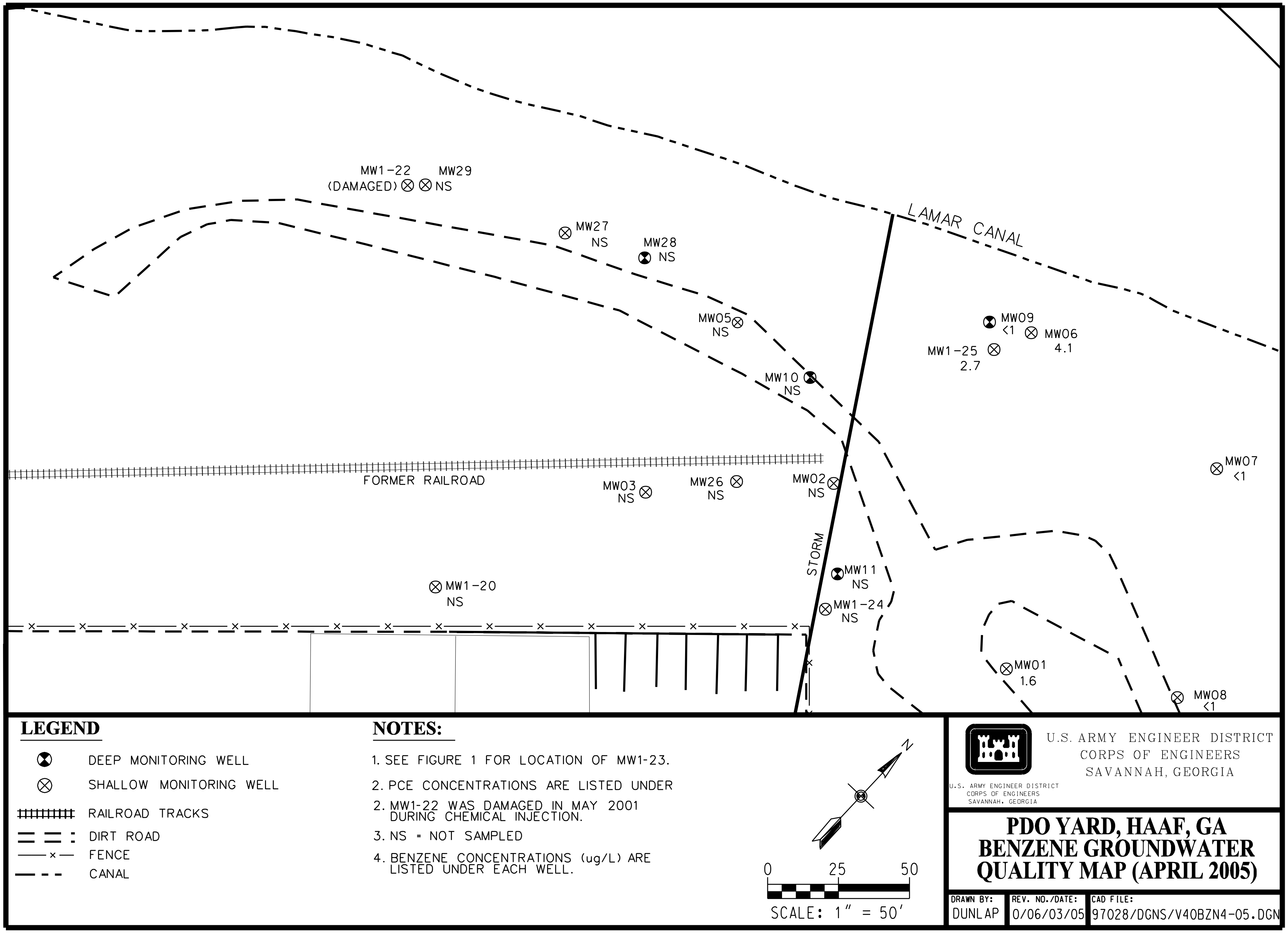
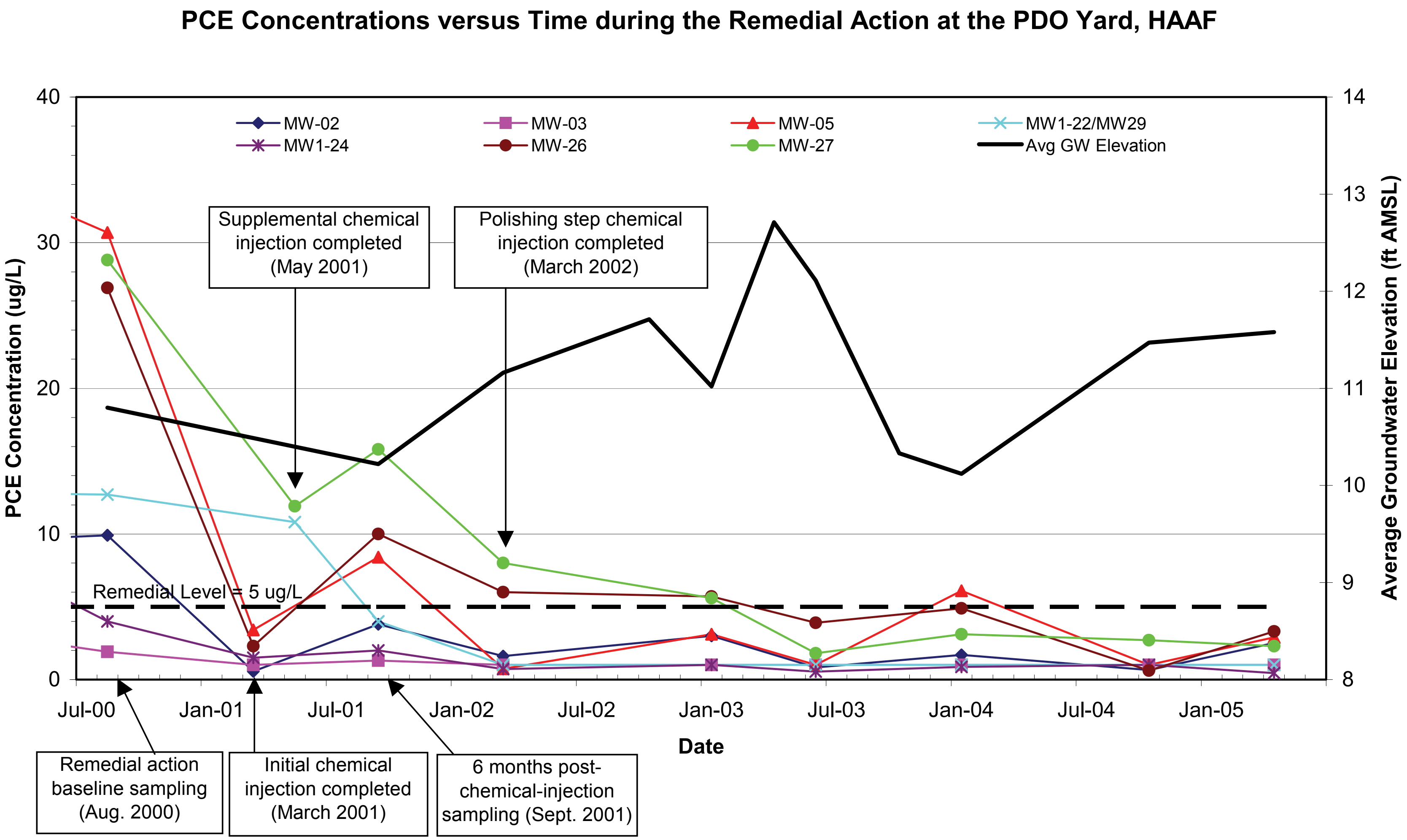


Figure 5. Benzene Groundwater Quality Map (April 2005) at the PDO Yard, Hunter Army Airfield



Supplemental chemical injection completed (May 2001)

Polishing step chemical injection completed (March 2002)

Remedial action baseline sampling (Aug. 2000)

Initial chemical injection completed (March 2001)

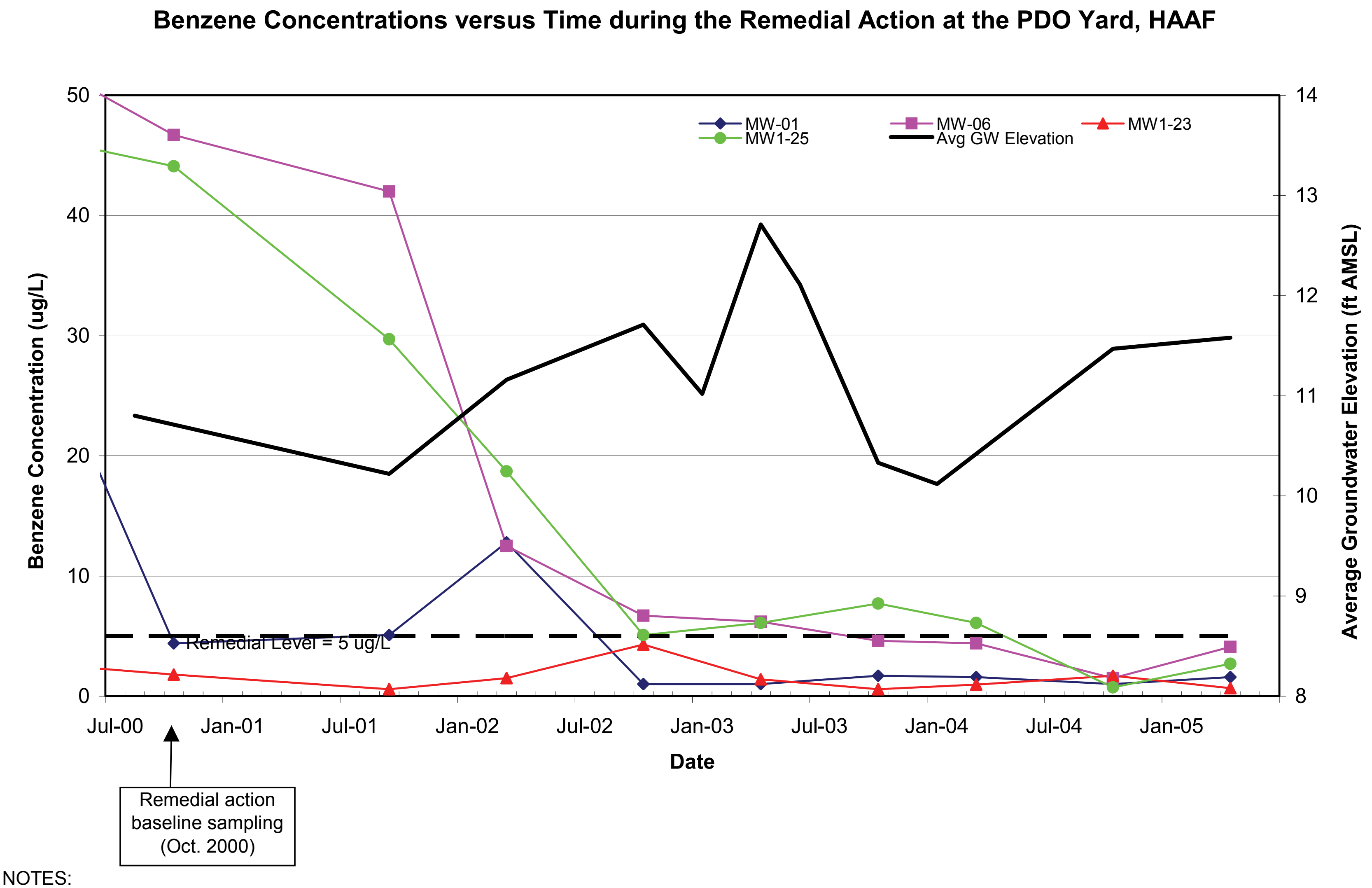
6 months post-chemical-injection sampling (Sept. 2001)

NOTES:

PCE was not detected in deep wells MW-10, MW-11, and MW-28.

Post-remedial-action semiannual sampling began in January 2003.

Figure 6. Trend of PCE Concentrations at the PDO Yard, Hunter Army Airfield



NOTES:

Benzene was not detected in shallow wells MW-07, MW-08, and MW-09.

Semiannual sampling events were initiated in September 2001.

Figure 7. Trend of Benzene Concentrations at the PDO Yard, Hunter Army Airfield

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APPENDIX II
TABLES

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Table 1. PCE Plume Sampling – Groundwater Analytical Results

Sample Location	Sample ID	Date Sampled	Detected Volatile Organic Compounds (µg/L)										
			PCE	**TCE**	**Toluene**	**Ethylbenzene**	**Xylenes**	**2-Butanone**	**2-Hexanone**	**4-Methyl-2-pentanone**	**Acetone**	**Carbon Disulfide**	**Chloroform**
Baseline PCE Sampling – August 2000													
MW02	AP0212	08/28/00	**9.9** =	0.35 J	0.48 J	0.48 J	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW03	AP0312	08/28/00	1.9 =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW05	AP0512	08/28/00	**30.7** =	0.55 J	1 U	1 U	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW10	AP1012	08/28/00	1 U	1 U	1 U	1 U	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW11	AP1112	08/28/00	1 U	1 U	1 U	0.19 J	0.5 J	5 U	5 U	5 U	6.9 U	5 U	1 U
MW1-22[a]	AP2212	08/28/00	**12.7** =	0.15 J	1 U	1 U	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW1-24	AP2412	08/28/00	4 =	0.21 J	1 U	0.17 J	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW26	AP2612	08/28/00	**26.9** =	0.6 J	1 U	0.054 J	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW27	AP2712	08/28/00	**28.8** =	0.64 J	1 U	1 U	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW28	AP2812	08/28/00	1 U	1 U	1 U	0.069 J	3 U	5 U	5 U	5 U	5 U	5 U	1 U
Geo-Cleanse® Injection Well Installation – February 2001													
AP-J1	APJ112	02/01/01	**5.8** =	1 U	0.45 J	1 U	3 U	1.8 J	5 U	5 U	5 U	5 U	1 U
AP-J2	APJ212	02/02/01	**12.9** =	1 U	1.9 =	1 U	3 U	1.8 J	0.8 J	5 U	2.3 J	5 U	1 U
AP-J3	APJ312	02/02/01	**11** =	0.45 J	1.2 =	1 U	3 U	2.2 J	1.6 U	5 U	2.8 J	5 U	1 U
AP-J7	APJ712	02/02/01	0.77 J	1 U	0.26 J	1 U	3 U	2.7 J	1.7 J	5 U	4.5 J	5 U	1 U
AP-J8	APJ812	02/02/01	1.9 =	1 U	1 U	1 U	3 U	2.3 J	1 J	5 U	2.3 J	5 U	1 U
AP-J12	APJB12	02/01/01	**11.1** =	1 U	1.3 =	1 U	3 U	5 U	5 U	0.7 J	17.7 =	5 U	2.5 =
AP-J13	APJC12	02/01/01	1 U	1 U	1.3 =	1 U	3 U	5 U	5 U	5 U	2.3 J	5 U	0.27 J
AP-J14	APJD12	02/02/01	1.1 =	1 U	1.3 =	1 U	3 U	2.6 J	1.2 J	5 U	5 =	5 U	1 U
AP-J16	APJF12	02/02/01	4.2 =	1 U	0.83 J	1 U	3 U	1.9 J	5 U	5 U	1.7 J	5 U	1 U
AP-J17	APJG12	02/01/01	**15.1** =	0.38 J	0.56 J	1 U	3 U	5.3 =	5 U	5 U	8.4 =	5 U	1 U
AP-J19	APJJ12	02/02/01	**9.1** =	1 U	1.1 =	1 U	3 U	5 U	5 U	5 U	2.1 J	5 U	1 U
AP-J20	APJK12	02/02/01	2.7 =	1 U	0.76 J	1 U	3 U	1 J	5 U	5 U	2.2 J	5 U	1 U
AP-J24	APJR12	02/03/01	**11.2** =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	13.6 =	5 U	1.2 =
AP-J25	APJS12	02/02/01	1.9 =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	1.6 J	5 U	1 U
AP-J27	APJU12	02/02/01	**9.3** =	0.85 J	0.23 J	0.28 J	0.5 J	1.3 J	5 U	5 U	5 U	5 U	1 U
Remedial Level			5	5	700	1,000	10,000	—	—	—	—	—	—

[a] Well MW1-22 was damaged during chemical injection in May 2001, and MW29 was installed adjacent to MW1-22 in June 2001.

NOTES:

Bold values exceed remedial levels.
PCE Tetrachloroethene.
TCE Trichloroethene.

Data Qualifiers
U Indicates that the compound was not detected above the reported sample quantitation limit.
J Indicates that the value for the compound was an estimated value.
= Indicates that the compound was detected at the concentration reported.

Table 1. PCE Plume Sampling – Groundwater Analytical Results (continued)

Sample Location	Sample ID	Date Sampled	Detected Volatile Organic Compounds (µg/L)										
			PCE	**TCE**	**Toluene**	**Ethylbenzene**	**Xylenes**	**2-Butanone**	**2-Hexanone**	**4-Methyl-2-pentanone**	**Acetone**	**Carbon Disulfide**	**Chloroform**
Initial 7-Day Post-Geo-Cleanse® Injection – March 2001													
MW02	AP0222	03/21/01	0.56 J	1 U	1 U	1 U	3 U	5 U	5 U	5 U	48.6 U	6.2 =	1 U
MW03	AP0322	03/21/01	1 U	1 U	1 U	1 U	3 U	7.2 U	5 U	5 U	67.6 U	4.4 J	1 U
MW05	AP0522	03/21/01	3.4 =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	51.8 U	48.2 =	1 U
MW10	AP1022	03/21/01	1 U	1 U	1.2 =	0.47 J	3.2 =	5 U	5 U	5 U	5 U	5 U	1 U
MW11	AP1122	03/21/01	1 U	1 U	1 U	1 U	0.41 J	5 U	5 U	5 U	5 U	5 U	1 U
MW1-22[a]	AP2222	03/21/01	**10.8** =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	5 U	5 U	1 U
MW1-24	AP2422	03/21/01	1.5 =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	5 U	2 J	1 U
MW26	AP2622	03/21/01	2.3 =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	18.6 U	76.7 =	1 U
MW27	AP2722	03/21/01	**11.9** =	1 U	1 U	1 U	3 U	5 U	5 U	5 U	7.4 U	5.7 =	1 U
MW28	AP2722	03/21/01	1 U	1 U	0.68 J	1 U	0.53 J	5 U	5 U	5 U	5 U	5 U	1 U
Supplemental 7-Day Post Geo-Cleanse® Injection – May/June 2001													
MW27	AP2732	05/23/01	**14.7** =	*	*	*	*	*	*	*	*	*	*
MW29	AP2912	06/07/01	2.4 =	*	*	*	*	*	*	*	*	*	*
6-Month Post-Geo-Cleanse® Injection – September 2001													
MW02	AP0242	09/06/01	3.8 =	*	*	*	*	*	*	*	*	*	*
MW03	AP0342	09/06/01	1.3 =	*	*	*	*	*	*	*	*	*	*
MW05	AP0542	09/06/01	**8.4** =	*	*	*	*	*	*	*	*	*	*
MW10	AP1042	09/06/01	1 U	*	*	*	*	*	*	*	*	*	*
MW11	AP1142	09/06/01	1 U	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP2242	09/07/01	4 =	*	*	*	*	*	*	*	*	*	*
MW1-24	AP2442	09/07/01	2 =	*	*	*	*	*	*	*	*	*	*
MW26	AP2642	09/07/01	**10** =	*	*	*	*	*	*	*	*	*	*
MW27	AP2742	09/06/01	**15.8** =	*	*	*	*	*	*	*	*	*	*
MW28	AP2742	09/07/01	1 U	*	*	*	*	*	*	*	*	*	*
Remedial Level			5	5	700	1,000	10,000	—	—	—	—	—	—

[a] Well MW1-22 was damaged during chemical injection in May 2001, and MW29 was installed adjacent to MW1-22 in June 2001.

NOTES:

Bold values exceed remedial levels.

PCE	Tetrachloroethene.
TCE	Trichloroethene.

* PCE was the only analyte analyzed.

Data Qualifiers

U	Indicates that the compound was not detected above the reported sample quantitation limit.
J	Indicates that the value for the compound was an estimated value.
=	Indicates that the compound was detected at the concentration reported.

Table 1. PCE Plume Sampling – Groundwater Analytical Results (continued)

			Detected Volatile Organic Compounds (μg/L)										
Sample Location	**Sample ID**	**Date Sampled**	**PCE**	**TCE**	**Toluene**	**Ethylbenzene**	**Xylenes**	**2-Butanone**	**2-Hexanone**	**4-Methyl-2-pentanone**	**Acetone**	**Carbon Disulfide**	**Chloroform**
Polishing Step 7-Day Post-Geo-Cleanse® Injection – March 2002													
MW02	AP0252	03/12/02	1.6 =	*	*	*	*	*	*	*	*	*	*
MW03	AP0352	03/12/02	1 U	*	*	*	*	*	*	*	*	*	*
MW05	AP0552	03/12/02	0.74 J	*	*	*	*	*	*	*	*	*	*
MW10	AP1052	03/12/02	1 U	*	*	*	*	*	*	*	*	*	*
MW11	AP1152	03/12/02	1 U	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP2252	03/12/02	1 =	*	*	*	*	*	*	*	*	*	*
MW1-24	AP2452	03/12/02	0.72 J	*	*	*	*	*	*	*	*	*	*
MW26	AP2652	03/12/02	**6 =**	*	*	*	*	*	*	*	*	*	*
MW27	AP2752	03/12/02	**8 =**	*	*	*	*	*	*	*	*	*	*
MW28	AP2852	03/12/02	1 U	*	*	*	*	*	*	*	*	*	*
First Post-Corrective-Action Sampling Event – January 2003													
MW02	AP0272	01/23/03	3 =	*	*	*	*	*	*	*	*	*	*
MW03	AP0372	01/23/03	1 U	*	*	*	*	*	*	*	*	*	*
MW05	AP0572	01/23/03	3.1 =	*	*	*	*	*	*	*	*	*	*
MW10	AP1072	01/23/03	1 U	*	*	*	*	*	*	*	*	*	*
MW11	AP1172	01/23/03	1 U	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP2972	01/23/03	1 U	*	*	*	*	*	*	*	*	*	*
MW1-24	AP2472	01/24/03	1 U	*	*	*	*	*	*	*	*	*	*
MW26	AP2672	01/23/03	**5.7 =**	*	*	*	*	*	*	*	*	*	*
MW27	AP2772	01/23/03	**5.6 =**	*	*	*	*	*	*	*	*	*	*
MW28	AP2872	01/23/03	1 U	*	*	*	*	*	*	*	*	*	*
Remedial Level			5	5	700	1,000	10,000	—	—	—	—	—	—

[a] Well MW1-22 was damaged during chemical injection in May 2001, and MW29 was installed adjacent to MW1-22 in June 2001.

NOTES:

Bold values exceed remedial levels.

PCE Tetrachloroethene.

TCE Trichloroethene.

* PCE was the only analyte analyzed.

Data Qualifiers

U Indicates that the compound was not detected above the reported sample quantitation limit.

J Indicates that the value for the compound was an estimated value.

= Indicates that the compound was detected at the concentration reported.

Table 1. PCE Plume Sampling – Groundwater Analytical Results (continued)

Sample Location	Sample ID	Date Sampled	Detected Volatile Organic Compounds (µg/L)										
			PCE	TCE	Toluene	Ethylbenzene	Xylenes	2-Butanone	2-Hexanone	4-Methyl-2-pentanone	Acetone	Carbon Disulfide	Chloroform
Second Post-Corrective-Action Sampling Event – June 2003													
MW02	AP0292	06/22/03	0.83 J	*	*	*	*	*	*	*	*	*	*
MW03	AP0392	06/22/03	1 U	*	*	*	*	*	*	*	*	*	*
MW05	AP0592	06/22/03	1 U	*	*	*	*	*	*	*	*	*	*
MW10	AP1092	06/22/03	1 U	*	*	*	*	*	*	*	*	*	*
MW11	AP1192	06/22/03	1 U	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP2992	06/22/03	1 U	*	*	*	*	*	*	*	*	*	*
MW1-24	AP2492	06/22/03	0.55 J	*	*	*	*	*	*	*	*	*	*
MW26	AP2692	06/22/03	3.9 =	*	*	*	*	*	*	*	*	*	*
MW27	AP2792	06/22/03	1.8 =	*	*	*	*	*	*	*	*	*	*
MW28	AP2892	06/22/03	1 U	*	*	*	*	*	*	*	*	*	*
Third Post-Corrective-Action Sampling Event – January 2004													
MW02	AP0202	01/24/04	1.7 =	*	*	*	*	*	*	*	*	*	*
MW03	AP0302	01/24/04	1 U	*	*	*	*	*	*	*	*	*	*
MW05	AP0502	01/24/04	**6.1** =	*	*	*	*	*	*	*	*	*	*
MW10	AP1002	01/24/04	1 U	*	*	*	*	*	*	*	*	*	*
MW11	AP1102	01/24/04	1 U	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP2902	01/24/04	1 U	*	*	*	*	*	*	*	*	*	*
MW1-24	AP2402	01/24/04	0.87 J	*	*	*	*	*	*	*	*	*	*
MW26	AP2602	01/24/04	4.9 =	*	*	*	*	*	*	*	*	*	*
MW27	AP2702	01/24/04	3.1 =	*	*	*	*	*	*	*	*	*	*
MW28	AP2802	01/24/04	1 U	*	*	*	*	*	*	*	*	*	*
Remedial Level			5	5	700	1,000	10,000	—	—	—	—	—	—

[a] Well MW1-22 was damaged during chemical injection in May 2001, and MW29 was installed adjacent to MW1-22 in June 2001.

NOTES:

Bold values exceed remedial levels.

PCE	Tetrachloroethene.
TCE	Trichloroethene.

* PCE was the only analyte analyzed.

Data Qualifiers

U	Indicates that the compound was not detected above the reported sample quantitation limit.
J	Indicates that the value for the compound was an estimated value.
=	Indicates that the compound was detected at the concentration reported.

Table 1. PCE Plume Sampling – Groundwater Analytical Results (continued)

Sample Location	Sample ID	Date Sampled	Detected Volatile Organic Compounds (µg/L)										
			PCE	**TCE**	**Toluene**	**Ethylbenzene**	**Xylenes**	**2-Butanone**	**2-Hexanone**	**4-Methyl-2-pentanone**	**Acetone**	**Carbon Disulfide**	**Chloroform**
Fourth Post-Corrective-Action Sampling Event – October 2004													
MW02	AP02B2	10/18/04	0.65 J	*	*	*	*	*	*	*	*	*	*
MW03	AP03B2	10/18/04	1 U	*	*	*	*	*	*	*	*	*	*
MW05	AP05B2	10/18/04	1 U	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP29B2	10/18/04	1 U	*	*	*	*	*	*	*	*	*	*
MW1-24	AP24B2	10/18/04	1 U	*	*	*	*	*	*	*	*	*	*
MW26	AP26B2	10/19/04	0.61 J	*	*	*	*	*	*	*	*	*	*
MW27	AP27B2	10/18/04	2.7 =	*	*	*	*	*	*	*	*	*	*
Fifth Post-Corrective-Action Sampling Event – April 2005													
MW02	AP02C2	04/26/05	2.5 =	*	*	*	*	*	*	*	*	*	*
MW03	AP03C2	04/27/05	1 U	*	*	*	*	*	*	*	*	*	*
MW05	AP05C2	04/27/05	2.9 =	*	*	*	*	*	*	*	*	*	*
MW1-22/ MW29[a]	AP29C2	04/26/05	1 U	*	*	*	*	*	*	*	*	*	*
MW1-24	AP24C2	04/27/05	0.44 J	*	*	*	*	*	*	*	*	*	*
MW26	AP26C2	04/27/05	3.3 =	*	*	*	*	*	*	*	*	*	*
MW27	AP27C2	04/27/05	2.3 =	*	*	*	*	*	*	*	*	*	*
Remedial Level			5	5	700	1,000	10,000	—	—	—	—	—	—

[a] Well MW1-22 was damaged during chemical injection in May 2001, and MW29 was installed adjacent to MW1-22 in June 2001.

NOTES:

PCE	Tetrachloroethene.
TCE	Trichloroethene.

* PCE was the only analyte analyzed.

Data Qualifiers

U	Indicates that the compound was not detected above the reported sample quantitation limit.
J	Indicates that the value for the compound was an estimated value.
=	Indicates that the compound was detected at the concentration reported.

Table 2. Benzene Plume Sampling – Groundwater Analytical Results

Sample Location	Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
Baseline Benzene Sampling Event – October 2000						
MW01	AP0112	10/31/00	4.4 =	1 U	1.7 =	2.3 J
MW06	AP0612	10/31/00	**46.7 =**	1 U	6.6 =	3 U
MW07	AP0712	10/31/00	1 U	1 U	1 U	3 U
MW08	AP0812	10/31/00	1 U	1 U	1 U	3 U
MW09	AP0912	10/31/00	1 U	1 U	1 U	3 U
MW1-23	AP2312	10/31/00	1.8 =	1 U	0.62 J	3 U
MW1-25	AP2512	10/31/00	**44.1 =**	0.73 J	15.7 =	17.3 =
First Semiannual Benzene Sampling Event – September 2001						
MW01	AP0142	09/07/01	**5.1 =**	1 U	1.8 =	0.95 J
MW06	AP0642	09/07/01	**42 =**	0.52 J	1.7 =	0.56 J
MW07	AP0742	09/07/01	1 U	0.81 J	0.23 J	0.72 J
MW08	AP0842	09/07/01	1 U	0.28 J	1 U	3 U
MW09	AP0942	09/07/01	1 U	1 U	1 U	3 U
MW1-23	AP2342	09/06/01	0.58 J	0.30 J	1 U	3 U
MW1-25	AP2542	09/07/01	**29.7 =**	1 U	1.1 =	3 U
Second Semiannual Benzene Sampling Event – March 2002						
MW01	AP0152	03/12/02	**12.8 =**	0.36 J	14.9 =	10.8 =
MW06	AP0652	03/12/02	**12.5 =**	1 U	0.84 J	3 U
MW07	AP0752	03/12/02	1 U	1 U	1 U	3 U
MW08	AP0852	03/12/02	1 U	1 U	1 U	3 U
MW09	AP0952	03/12/02	1 U	1 U	1 U	3 U
MW1-23	AP2352	03/12/02	1.5 =	1 U	0.53 J	0.91 J
MW1-25	AP2552	03/12/02	**18.7 =**	1 U	1 =	3 U
Remedial Level			5	700	1,000	10,000

NOTES:
Bold values exceed remedial levels.

Data Qualifiers

U Indicates that the compound was not detected above the reported sample quantitation limit.
J Indicates that the value for the compound was an estimated value.
= Indicates that the compound was detected at the concentration reported.

Table 2. Benzene Plume Sampling – Groundwater Analytical Results (continued)

Sample Location	Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
Third Semiannual Benzene Sampling Event – October 2002						
MW01	AP0162	10/18/02	1 U	1 U	1 U	1 U
MW06	AP0662	10/18/02	**6.7 =**	1 U	0.22 J	1 U
MW07	AP0762	10/18/02	1 U	1 U	1 U	1 U
MW08	AP0862	10/18/02	1 U	1 U	1 U	1 U
MW09	AP0962	10/19/02	1 U	1 U	1 U	1 U
MW1-23	AP2362	10/18/02	4.3 =	1 U	1.9 =	0.72 J
MW1-25	AP2562	10/19/02	**5.1 =**	1 U	1 U	1 U
Fourth Semiannual Benzene Sampling Event – March/April 2003						
MW01	AP0172	04/22/03	1 U	1 U	1 U	1 U
MW06	AP0672	04/22/03	**6.2 =**	1 U	1 U	1 U
MW07	AP0772	04/22/03	1 U	1 U	1 U	1 U
MW08	AP0872	04/22/03	1 U	1 U	1 U	1 U
MW09	AP0972	04/22/03	1 U	1 U	1 U	1 U
MW1-23	AP2372	04/22/03	1.4 =	1 U	1 U	1 U
MW1-25	AP2572	04/22/03	**6.1 =**	1 U	1 U	1 U
Fifth Semiannual Benzene Sampling Event – October 2003						
MW01	AP0192	10/13/03	1.7 =	0.68 J	1 U	1 U
MW06	AP0692	10/13/03	4.6 =	0.52 J	1 U	1 U
MW07	AP0792	10/13/03	1 U	0.63 J	1 U	1 U
MW08	AP0892	10/13/03	1 U	0.78 J	1 U	1 U
MW09	AP0992	10/13/03	1 U	0.55 J	1 U	1 U
MW1-23	AP2392	10/14/03	0.59 J	1 U	1 U	1 U
MW1-25	AP2592	10/13/03	**7.7 =**	1 U	1 U	1 U
Remedial Level			5	700	1,000	10,000

NOTES:
Bold values exceed remedial levels.

Data Qualifiers

U	Indicates that the compound was not detected above the reported sample quantitation limit.
J	Indicates that the value for the compound was an estimated value.
=	Indicates that the compound was detected at the concentration reported.

Table 2. Benzene Plume Sampling – Groundwater Analytical Results (continued)

Sample Location	Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)
Sixth Semiannual Benzene Sampling Event – March 2004						
MW01	AP01A2	03/23/04	1.6 =	1 U	1 U	1 U
MW06	AP06A2	03/23/04	4.4 =	1 U	1 U	1 U
MW07	AP07A2	03/23/04	1 U	1 U	1 U	1 U
MW08	AP08A2	03/23/04	1 U	1 U	1 U	1 U
MW09	AP0AA2	03/23/04	1 U	1 U	1 U	1 U
MW1-23	AP23A2	03/22/04	0.96 J	1 U	0.74 J	0.33 J
MW1-25	AP25A2	03/23/04	**6.1 =**	1 U	1 U	1 U
Seventh Semiannual Benzene Sampling Event – October 2004						
MW01	AP01B2	10/18/04	1 U	0.61 J	1 U	1 U
MW06	AP06B2	10/18/04	1.5 =	1 U	1 U	1 U
MW07	AP07B2	10/18/04	1 U	1 U	1 U	1 U
MW08	AP08B2	10/18/04	1 U	0.68 J	1 U	1 U
MW09	AP0AB2	10/18/04	1 U	1 U	1 U	1 U
MW1-23	AP23B2	10/18/04	1.7 =	1 U	1.7 =	1 U
MW1-25	AP25B2	10/18/04	0.73 J	1 U	1 U	1 U
Eighth Semiannual Benzene Sampling Event – April 2005						
MW01	AP01C2	04/26/05	1.6 =	1 U	0.37 J	1 U
MW06	AP06C2	04/27/05	4.1 =	1 U	1 U	1 U
MW07	AP07C2	04/27/05	1 U	1 U	1 U	1 U
MW08	AP08C2	04/27/05	1 U	1 U	1 U	1 U
MW09	AP0AC2	04/27/05	1 U	1 U	1 U	1 U
MW1-23	AP23C2	04/26/05	0.67 J	1 U	0.59 J	1 U
MW1-25	AP25C2	04/27/05	2.7 =	1 U	1 U	1 U
Remedial Level			5	700	1,000	10,000

NOTES:
Bold values exceed remedial levels.

Data Qualifiers

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J Indicates that the value for the compound was an estimated value.
= Indicates that the compound was detected at the concentration reported.

Table 3. Groundwater Elevations

Well Number	Date Measured	Top of Casing Elevation (ft AMSL)	Depth of Screened Interval (ft BGS)	Water Depth (ft BTOC)	Groundwater Elevation (ft AMSL)
August 2000					
MW01	08/26/00	21.08	2.0 - 12.0	9.38	11.70
MW02	08/26/00	21.28	3.0 - 13.0	10.57	10.71
MW03	08/26/00	20.7	2.0 - 12.0	9.52	11.18
MW05	08/26/00	20.63	6.0 - 16.0	10.57	10.06
MW06	08/26/00	21.68	5.5 - 15.5	12.17	9.51
MW07	08/26/00	21.68	4.0 - 14.0	12.03	9.65
MW08	08/26/00	21.77	3.0 - 13.0	10.19	11.58
MW09	08/26/00	21.44	29.1 - 34.1	10.38	11.06
MW10	08/26/00	20.82	26.0 - 31.0	9.82	11.00
MW11	08/26/00	21.25	29.0 - 34.0	10.12	11.13
MW1-20	08/26/00	22.11	[a]	9.95	12.16
MW1-22	08/26/00	19.64	[a]	9.46	10.18
MW1-24	08/26/00	20.06	[a]	8.51	11.55
MW1-25	08/26/00	21.07	[a]	10.73	10.34
MW26	08/26/00	21.03	5.0 - 15.0	10.10	10.93
MW27	08/26/00	20.35	5.0 - 15.0	10.55	9.80
MW28	08/26/00	20.33	34.6 - 44.6	9.31	11.02
September 2001					
MW01	09/05/01	21.08	2.0 - 12.0	9.87	11.21
MW02	09/05/01	21.28	3.0 - 13.0	11.12	10.16
MW03	09/05/01	20.7	2.0 - 12.0	10.22	10.48
MW05	09/05/01	20.63	6.0 - 16.0	11.25	9.38
MW06	09/05/01	21.68	5.5 - 15.5	12.60	9.08
MW07	09/05/01	21.68	4.0 - 14.0	12.40	9.28
MW08	09/05/01	21.77	3.0 - 13.0	10.62	11.15
MW09	09/05/01	21.44	29.1 - 34.1	10.87	10.57
MW10	09/05/01	20.82	26.0 - 31.0	10.31	10.51
MW11	09/05/01	21.25	29.0 - 34.0	10.64	10.61
MW1-20	09/05/01	22.11	[a]	10.63	11.48
MW1-22	09/05/01	19.64	[a]	damaged	damaged
MW1-24	09/05/01	20.06	[a]	9.13	10.93
MW1-25	09/05/01	21.07	[a]	11.34	9.73
MW26	09/05/01	21.03	5.0 - 15.0	10.79	10.24
MW27	09/05/01	20.35	5.0 - 15.0	11.37	8.98
MW28	09/05/01	20.33	34.6 - 44.6	9.84	10.49
MW29	09/05/01	17.38	4.8 - 14.8	8.00	9.38

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

AMSL	Above mean sea level.
BGS	Below ground surface.
BTOC	Below top of casing.

Table 3. Groundwater Elevations (continued)

Well Number	Date Measured	Top of Casing Elevation (ft AMSL)	Depth of Screened Interval (ft BGS)	Water Depth (ft BTOC)	Groundwater Elevation (ft AMSL)
March 2002					
MW01	03/11/02	21.08	2.0 - 12.0	9.10	11.98
MW02	03/11/02	21.28	3.0 - 13.0	10.23	11.05
MW03	03/11/02	20.7	2.0 - 12.0	9.25	11.45
MW05	03/11/02	20.63	6.0 - 16.0	10.46	10.17
MW06	03/11/02	21.68	5.5 - 15.5	11.93	9.75
MW07	03/11/02	21.68	4.0 - 14.0	11.69	9.99
MW08	03/11/02	21.77	3.0 - 13.0	9.71	12.06
MW09	03/11/02	21.44	29.1 - 34.1	10.07	11.37
MW10	03/11/02	20.82	26.0 - 31.0	9.58	11.24
MW11	03/11/02	21.25	29.0 - 34.0	9.85	11.40
MW1-20	03/11/02	22.11	[a]	9.44	12.67
MW1-22	03/11/02	19.64	[a]	damaged	damaged
MW1-24	03/11/02	20.06	[a]	8.25	11.81
MW1-25	03/11/02	21.07	[a]	10.57	10.50
MW26	03/11/02	21.03	5.0 - 15.0	9.85	11.18
MW27	03/11/02	20.35	5.0 - 15.0	10.58	9.77
MW28	03/11/02	20.33	34.6 - 44.6	9.05	11.28
MW29	03/11/02	17.38	4.8 - 14.8	7.37	10.01
October 2002					
MW01	10/18/02	21.08	2.0 - 12.0	7.97	13.11
MW02	10/18/02	21.28	3.0 - 13.0	9.70	11.58
MW03	10/18/02	20.7	2.0 - 12.0	8.43	12.27
MW05	10/18/02	20.63	6.0 - 16.0	10.36	10.27
MW06	10/18/02	21.68	5.5 - 15.5	12.10	9.58
MW07	10/18/02	21.68	4.0 - 14.0	11.42	10.26
MW08	10/18/02	21.77	3.0 - 13.0	8.54	13.23
MW09	10/18/02	21.44	29.1- 34.1	9.34	12.10
MW10	10/18/02	20.82	26.0 - 31.0	8.80	12.02
MW11	10/18/02	21.25	29.0 - 34.0	9.09	12.16
MW1-20	10/18/02	22.11	[a]	8.97	13.14
MW1-22	10/18/02	19.64	[a]	damaged	damaged
MW1-24	10/18/02	20.06	[a]	7.36	12.70
MW1-25	10/18/02	21.07	[a]	10.43	10.64
MW26	10/18/02	21.03	5.0 - 15.0	9.28	11.75
MW27	10/18/02	20.35	5.0 - 15.0	10.87	9.48
MW28	10/18/02	20.33	34.6 - 44.6	8.30	12.03
MW29	10/18/02	17.38	4.8 - 14.8	7.49	9.89

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

AMSL	Above mean sea level.
BGS	Below ground surface.
BTOC	Below top of casing.

Table 3. Groundwater Elevations (continued)

Well Number	Date Measured	Top of Casing Elevation (ft AMSL)	Depth of Screened Interval (ft BGS)	Water Depth (ft BTOC)	Groundwater Elevation (ft AMSL)
January 2003					
MW01	01/23/03	21.08	2.0 - 12.0	9.17	11.91
MW02	01/23/03	21.28	3.0 - 13.0	10.6	10.68
MW03	01/23/03	20.7	2.0 - 12.0	9.57	11.13
MW05	01/23/03	20.63	6.0 - 16.0	10.97	9.66
MW06	01/23/03	21.68	5.5 - 15.5	12.59	9.09
MW07	01/23/03	21.68	4.0 - 14.0	12.16	9.52
MW08	01/23/03	21.77	3.0 - 13.0	9.83	11.94
MW09	01/23/03	21.44	29.1 - 34.1	9.79	11.65
MW10	01/23/03	20.82	26.0 - 31.0	9.22	11.60
MW11	01/23/03	21.25	29.0 - 34.0	9.54	11.71
MW1-20	01/23/03	22.11	[a]	9.2	12.91
MW1-22	01/23/03	19.64	[a]	damaged	damaged
MW1-24	01/23/03	20.06	[a]	8.38	11.68
MW1-25	01/23/03	21.07	[a]	11.02	10.05
MW26	01/23/03	21.03	5.0 - 15.0	10.18	10.85
MW27	01/23/03	20.35	5.0 - 15.0	11.25	9.10
MW28	01/23/03	20.33	34.6 - 44.6	8.79	11.54
MW29	01/23/03	17.38	4.8 - 14.8	7.97	9.41
March 2003					
MW01	03/20/03	21.08	2.0 - 12.0	6.73	14.35
MW02	03/20/03	21.28	3.0 - 13.0	8.78	12.50
MW03	03/20/03	20.7	2.0 - 12.0	6.67	14.03
MW05	03/20/03	20.63	6.0 - 16.0	9.53	11.10
MW06	03/20/03	21.68	5.5 - 15.5	11.42	10.26
MW07	03/20/03	21.68	4.0 - 14.0	10.82	10.86
MW08	03/20/03	21.77	3.0 - 13.0	7.6	14.17
MW09	03/20/03	21.44	29.1 - 34.1	8.79	12.65
MW10	03/20/03	20.82	26.0 - 31.0	8.23	12.59
MW11	03/20/03	21.25	29.0 - 34.0	8.54	12.71
MW1-20	03/20/03	22.11	[a]	7.67	14.44
MW1-22	03/20/03	19.64	[a]	damaged	damaged
MW1-24	03/20/03	20.06	[a]	6.27	13.79
MW1-25	03/20/03	21.07	[a]	9.68	11.39
MW26	03/20/03	21.03	5.0 - 15.0	8.06	12.97
MW27	03/20/03	20.35	5.0 - 15.0	9.9	10.45
MW28	03/20/03	20.33	34.6 - 44.6	7.75	12.58
MW29	03/20/03	17.38	4.8 - 14.8	5.23	12.15

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

AMSL	Above mean sea level.
BGS	Below ground surface.
BTOC	Below top of casing.

Table 3. Groundwater Elevations (continued)

Well Number	Date Measured	Top of Casing Elevation (ft AMSL)	Depth of Screened Interval (ft BGS)	Water Depth (ft BTOC)	Groundwater Elevation (ft AMSL)
June 2003					
MW01	06/22/03	21.08	2.0 - 12.0	7.80	13.28
MW02	06/22/03	21.28	3.0 - 13.0	9.34	11.94
MW03	06/22/03	20.7	2.0 - 12.0	8.04	12.66
MW05	06/22/03	20.63	6.0 - 16.0	9.83	10.80
MW06	06/22/03	21.68	5.5 - 15.5	11.60	10.08
MW07	06/22/03	21.68	4.0 - 14.0	11.13	10.55
MW08	06/22/03	21.77	3.0 - 13.0	8.36	13.41
MW09	06/22/03	21.44	29.1 - 34.1	9.24	12.20
MW10	06/22/03	20.82	26.0 - 31.0	8.69	12.13
MW11	06/22/03	21.25	29.0 - 34.0	8.98	12.27
MW1-20	06/22/03	22.11	[a]	8.25	13.86
MW1-22	06/22/03	19.64	[a]	damaged	damaged
MW1-24	06/22/03	20.06	[a]	6.95	13.11
MW1-25	06/22/03	21.07	[a]	10.02	11.05
MW26	06/22/03	21.03	5.0 - 15.0	8.87	12.16
MW27	06/22/03	20.35	5.0 - 15.0	9.15	11.20
MW28	06/22/03	20.33	34.6 - 44.6	8.23	12.10
MW29	06/22/03	17.38	4.8 - 14.8	6.90	10.48
October 2003					
MW01	10/13/03	21.08	2.0 - 12.0	9.79	11.29
MW02	10/13/03	21.28	3.0 - 13.0	11.09	10.19
MW03	10/13/03	20.7	2.0 - 12.0	10.48	10.22
MW05	10/13/03	20.63	6.0 - 16.0	11.30	9.33
MW06	10/13/03	21.68	5.5 - 15.5	12.72	8.96
MW07	10/13/03	21.68	4.0 - 14.0	12.44	9.24
MW08	10/13/03	21.77	3.0 - 13.0	10.54	11.23
MW09	10/13/03	21.44	29.1 - 34.1	10.76	10.68
MW10	10/13/03	20.82	26.0 - 31.0	10.20	10.62
MW11	10/13/03	21.25	29.0 - 34.0	10.50	10.75
MW1-20	10/13/03	22.11	[a]	10.38	11.73
MW1-22	10/13/03	19.64	[a]	damaged	damaged
MW1-24	10/13/03	20.06	[a]	9.05	11.01
MW1-25	10/13/03	21.07	[a]	11.35	9.72
MW26	10/13/03	21.03	5.0 - 15.0	10.79	10.24
MW27	10/13/03	20.35	5.0 - 15.0	11.53	8.82
MW28	10/13/03	20.33	34.6 - 44.6	9.74	10.59
MW29	10/13/03	17.38	4.8 - 14.8	8.38	9.00

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

AMSL	Above mean sea level.
BGS	Below ground surface.
BTOC	Below top of casing.

Table 3. Groundwater Elevations (continued)

Well Number	Date Measured	Top of Casing Elevation (ft AMSL)	Depth of Screened Interval (ft BGS)	Water Depth (ft BTOC)	Groundwater Elevation (ft AMSL)
January 2004					
MW01	01/23/04	21.08	2.0 - 12.0	10.22	10.86
MW02	01/23/04	21.28	3.0 - 13.0	11.39	9.89
MW03	01/23/04	20.7	2.0 - 12.0	10.55	10.15
MW05	01/23/04	20.63	6.0 - 16.0	11.56	9.07
MW06	01/23/04	21.68	5.5 - 15.5	13.08	8.60
MW07	01/23/04	21.68	4.0 - 14.0	12.84	8.84
MW08	01/23/04	21.77	3.0 - 13.0	10.96	10.81
MW09	01/23/04	21.44	29.1 - 34.1	10.76	10.68
MW10	01/23/04	20.82	26.0 - 31.0	10.22	10.60
MW11	01/23/04	21.25	29.0 - 34.0	10.52	10.73
MW1-20	01/23/04	22.11	[a]	10.58	11.53
MW1-22	01/23/04	19.64	[a]	damaged	damaged
MW1-24	01/23/04	20.06	[a]	9.40	10.66
MW1-25	01/23/04	21.07	[a]	11.63	9.44
MW26	01/23/04	21.03	5.0 - 15.0	11.05	9.98
MW27	01/23/04	20.35	5.0 - 15.0	11.76	8.59
MW28	01/23/04	20.33	34.6 - 44.6	9.73	10.60
MW29	01/23/04	17.38	4.8 - 14.8	8.58	8.80
March 2004					
MW01	03/23/04	21.08	2.0 - 12.0	9.56	11.52
MW02	03/23/04	21.28	3.0 - 13.0	10.92	10.36
MW03	03/23/04	20.7	2.0 - 12.0	9.97	10.73
MW05	03/24/04	20.63	6.0 - 16.0	11.21	9.42
MW06	03/24/04	21.68	5.5 - 15.5	12.85	8.83
MW07	03/24/04	21.68	4.0 - 14.0	12.52	9.16
MW08	03/24/04	21.77	3.0 - 13.0	10.24	11.53
MW09	03/24/04	21.44	29.1 - 34.1	10.4	11.04
MW10	03/24/04	20.82	26.0 - 31.0	9.84	10.98
MW11	03/24/04	21.25	29.0 - 34.0	10.15	11.1
MW1-20	03/24/04	22.11	[a]	10.41	11.7
MW1-22	03/23/04	19.64	[a]	damaged	damaged
MW1-24	03/23/04	20.06	[a]	8.83	11.23
MW1-25	03/24/04	21.07	[a]	11.29	9.78
MW26	03/24/04	21.03	5.0 - 15.0	10.55	10.48
MW27	03/24/04	20.35	5.0 - 15.0	11.21	9.14
MW28	03/24/04	20.33	34.6 - 44.6	9.36	10.97
MW29	03/24/04	17.38	4.8 - 14.8	8.28	9.1

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

AMSL	Above mean sea level.
BGS	Below ground surface.
BTOC	Below top of casing.

Table 3. Groundwater Elevations (continued)

Well Number	Date Measured	Top of Casing Elevation (ft AMSL)	Depth of Screened Interval (ft BGS)	Water Depth (ft BTOC)	Groundwater Elevation (ft AMSL)
October 2004					
MW01	10/18/04	21.08	2.0 - 12.0	8.09	12.99
MW02	10/18/04	21.28	3.0 - 13.0	9.74	11.54
MW03	10/18/04	20.7	2.0 - 12.0	8.34	12.36
MW05	10/18/04	20.63	6.0 - 16.0	10.33	10.30
MW06	10/18/04	21.68	5.5 - 15.5	12.08	9.60
MW07	10/18/04	21.68	4.0 - 14.0	11.48	10.20
MW08	10/18/04	21.77	3.0 - 13.0	8.68	13.09
MW09	10/18/04	21.44	29.1 - 34.1	9.52	11.92
MW10	10/18/04	20.82	26.0 - 31.0	8.97	11.85
MW11	10/18/04	21.25	29.0 - 34.0	9.26	11.99
MW1-20	10/18/04	22.11	[a]	9.33	12.78
MW1-22	10/18/04	19.64	[a]	damaged	damaged
MW1-24	10/18/04	20.06	[a]	7.52	12.54
MW1-25	10/18/04	21.07	[a]	10.41	10.66
MW26	10/18/04	21.03	5.0 - 15.0	9.24	11.79
MW27	10/18/04	20.35	5.0 - 15.0	10.83	9.52
MW28	10/18/04	20.33	34.6 - 44.6	8.52	11.81
MW29	10/18/04	17.38	4.8 - 14.8	7.33	10.05
April 2005					
MW01	04/26/05	21.08	2.0 - 12.0	8.68	12.40
MW02	04/26/05	21.28	3.0 - 13.0	9.95	11.33
MW03	04/26/05	20.7	2.0 - 12.0	8.81	11.89
MW05	04/26/05	20.63	6.0 - 16.0	10.33	10.30
MW06	04/26/05	21.68	5.5 - 15.5	12.06	9.62
MW07	04/26/05	21.68	4.0 - 14.0	9.29	12.39
MW08	04/26/05	21.77	3.0 - 13.0	not accessible	not accessible
MW09	04/26/05	21.44	29.1 - 34.1	9.57	11.87
MW10	04/26/05	20.82	26.0 - 31.0	9.00	11.82
MW11	04/26/05	21.25	29.0 - 34.0	9.31	11.94
MW1-20	04/26/05	22.11	[a]	8.90	13.21
MW1-22	04/26/05	19.64	[a]	damaged	damaged
MW1-24	04/26/05	20.06	[a]	7.93	12.13
MW1-25	04/26/05	21.07	[a]	10.42	10.65
MW26	04/26/05	21.03	5.0 - 15.0	9.55	11.48
MW27	04/26/05	20.35	5.0 - 15.0	10.54	9.81
MW28	04/26/05	20.33	34.6 - 44.6	8.54	11.79
MW29	04/26/05	17.38	4.8 - 14.8	7.42	9.96

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

AMSL	Above mean sea level.
BGS	Below ground surface.
BTOC	Below top of casing.

Table 4. Well Construction Details

Boring Number	**Date Installed**	**Boring Depth (ft BGS)**	**Screened Interval (ft BGS)**	**Type of Completion**	**Coordinates (NAD 83)**		**Elevation (NAVD 88)**	
					Northing	**Easting**	**Ground Surface**	**Top of Casing**
Chemical Oxidation Injection Points								
J1	02/01/01	13.5	9.6 - 12.1	1.25-in. carbon steel	974188.3	740193.7	17.8	17.66
J2	02/01/01	21.0	17.8 - 20.3	1.25-in. carbon steel	974219.2	740206.8	18.0	17.75
J3	02/01/01	13.0	9.6 - 12.1	1.25-in. carbon steel	974251.4	740218.9	18.4	18.07
J4	02/01/01	13.2	9.6 - 12.5	1.25-in. carbon steel	974230.2	740158.4	17.6	17.29
J5	02/01/01	13.0	9.4 - 12.3	1.25-in. carbon steel	974268.2	740183.9	17.7	17.39
J6	02/03/01	13.0	9.6 - 12.5	1.25-in. carbon steel	974311.9	740199.6	18.2	17.56
J7	02/02/01	13.0	9.4 - 12.3	1.25-in. carbon steel	974288.0	740159.3	18.3	17.92
J8	02/02/01	13.0	9.4 - 12.3	1.25-in. carbon steel	974308.8	740172.4	18.2	17.71
J9	02/02/01	13.0	9.5 - 12.4	1.25-in. carbon steel	974308.4	740152.0	18.2	17.70
J10	02/03/01	13.0	9.5 - 12.4	1.25-in. carbon steel	974340.9	740175.8	18.2	17.48
J11	02/01/01	21.0	17.8 - 20.3	1.25-in. carbon steel	974163.9	740179.1	17.3	17.01
J12	02/01/01	21.0	17.6 - 20.1	1.25-in. carbon steel	974179.9	740180.4	17.9	17.97
J13	02/01/01	21.2	17.5 - 20.0	1.25-in. carbon steel	974208.2	740202.3	17.9	17.64
J14	02/02/01	20.9	17.6 - 20.1	1.25-in. carbon steel	974205.4	740192.9	17.7	17.66
J15	02/02/01	21.1	17.1 - 20.1	1.25-in. carbon steel	974217.5	740166.5	17.4	17.05
J16	02/02/01	21.0	17.5 - 20.0	1.25-in. carbon steel	974239.5	740202.9	18.1	17.56
J17	02/01/01	21.0	17.6 - 20.5	1.25-in. carbon steel	974244.7	740178.8	17.7	16.74
J18	02/02/01	21.0	17.5 - 20.4	1.25-in. carbon steel	974245.9	740158.3	18.1	17.39
J19	02/02/01	20.8	17.7 - 20.2	1.25-in. carbon steel	974272.3	740199.6	17.9	17.48
J20	02/02/01	21.0	17.7 - 20.2	1.25-in. carbon steel	974267.4	740208.1	18.1	17.43
J21	02/02/01	21.0	17.7 - 20.2	1.25-in. carbon steel	974270.3	740226.1	18.3	17.87
J22	02/02/01	21.0	17.4 - 20.3	1.25-in. carbon steel	974263.4	740155.2	18.2	17.88
J23	02/01/01	21.0	17.4 - 20.3	1.25-in. carbon steel	974288.5	740185.9	17.9	17.57
J24	02/03/01	21.0	17.7 - 20.6	1.25-in. carbon steel	974301.2	740185.1	18.1	17.74
J25	02/02/01	21.0	17.4 - 20.3	1.25-in. carbon steel	974287.3	740150.1	18.2	17.64
J26	02/02/01	21.0	17.4 - 20.3	1.25-in. carbon steel	974299.0	740140.4	18.0	17.56
J27	02/02/01	21.3	17.8 - 20.7	1.25-in. carbon steel	974319.4	740164.8	18.3	17.73
J28	02/03/01	21.3	17.8 - 20.7	1.25-in. carbon steel	974331.5	740181.6	18.6	17.91
J29	02/02/01	21.0	17.4 - 20.3	1.25-in. carbon steel	974327.8	740154.0	18.3	17.82
J30	05/03/01	22.0	18.4 - 20.9	1.25-in. carbon steel	974202.4	740174.7	17.3	16.80
J31	05/03/01	22.0	18.4 - 20.9	1.25-in. carbon steel	974154.9	740161.4	17.3	17.27
J32	05/03/01	22.0	18.4 - 20.9	1.25-in. carbon steel	974146.9	740147.4	17.3	16.61
J33	12/04/01	14.5	10.3 - 13.3	1.25-in. carbon steel	974252.8	740189.6	17.8	17.55
J34	12/04/01	14.5	10.3 - 13.3	1.25-in. carbon steel	974292.1	740145.9	18.0	17.79
J35	12/04/01	14.5	10.3 - 13.3	1.25-in. carbon steel	974311.2	740163.5	18.2	17.85

NOTES:

BGS	Below ground surface.

Table 4. Well Construction Details (continued)

Boring Number	Date Installed	Boring Depth (ft BGS)	Screened Interval (ft BGS)	Type of Completion	Coordinates (NAD 83)		Elevation (NAVD 88)	
					Northing	Easting	Ground Surface	Top of Casing
Monitoring Wells (used during corrective action)								
MW01	08/26/96	13.0	2.0 - 12.0	2-in. PVC (shallow)	974412.4	740177.9	18.3	21.08
MW02	08/26/96	14.0	3.0 - 13.0	2-in. PVC (shallow)	974323.3	740183.9	18.4	21.28
MW03	08/26/96	13.0	2.0 - 12.0	2-in. PVC (shallow)	974277.1	740136.3	18.0	20.7
MW05	07/21/98	16.5	6.0 - 16.0	2-in. PVC (shallow)	974259.8	740202.1	17.9	20.63
MW06	07/22/98	16.0	5.5 - 15.5	2-in. PVC (shallow)	974337.8	740270.3	18.8	21.68
MW07	07/23/98	14.5	4.0 - 14.0	2-in. PVC (shallow)	974418.2	740280.1	18.8	21.68
MW08	07/28/98	14.0	3.0 - 13.0	2-in. PVC (shallow)	974463.3	740211.8	18.7	21.77
MW09	07/29/98	35.0	29.1 - 34.1	2-in. PVC (deep)	974324.5	740263.0	18.6	21.44
MW10	07/22/98	32.0	26.0 - 31.0	2-in. PVC (deep)	974291.7	740205.4	18.0	20.82
MW11	07/23/98	35.0	29.0 - 34.0	2-in. PVC (deep)	974346.1	740161.6	18.3	21.25
MW1-20	[a]	[a]	[a]	2-in. PVC	974245.9	740061.3	18.3	22.11
MW1-22	[a]	[a]	[a]	2-in. PVC	974141.9	740157.7	17.3	19.64
MW1-24	[a]	[a]	[a]	2-in. PVC	974351.5	740149.6	18.3	20.06
MW1-25	[a]	[a]	[a]	2-in. PVC	974332.3	740257.0	18.6	21.07
MW26	07/19/00	15.0	5.0 - 15.0	2.25-in. carbon steel	974297.9	740161.0	18.3	21.03
MW27	07/19/00	15.0	5.0 - 15.0	2.25-in. carbon steel	974193.9	740183.5	17.5	20.35
MW28	07/19/00	45.0	34.6 - 44.6	2.25-in. carbon steel	974220.3	740196.3	17.9	20.33
MW29	06/05/01	16.0	4.8 - 14.8	2-in. PVC (shallow)	974146.4	740162.1	17.3	17.38

[a] Well construction information was not documented in the Resource Conservation and Recovery Act facility investigation report.

NOTES:

BGS	Below ground surface.
PVC	Polyvinyl chloride.

Table 5. Area of Groundwater Plumes Exceeding Remedial Levels

Time	Area of PCE Plume Exceeding RL of 5 μg/L (ft^2)	Area of Benzene Plume Exceeding RL of 5 μg/L (ft^2)
May 1999	22,500	21,290
August 2000	19,450	—
October 2000	—	9,600
March 2001	10,750	—
September 2001	13,000	10,100
March 2002	5,000	8,600
October 2002	—	975
January 2003	5,250	—
April 2003	—	975
June 2003	0	—
October 2003	—	660
January 2004	3,800	—
March 2004	—	660
October 2004	0	0
April 2005	0	0

NOTES:

PCE	Tetrachloroethene.
RL	Remedial level.

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APPENDIX III
HISTORICAL GROUNDWATER QUALITY AND POTENTIOMETRIC SURFACE MAPS

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PCE GROUNDWATER QUALITY MAPS

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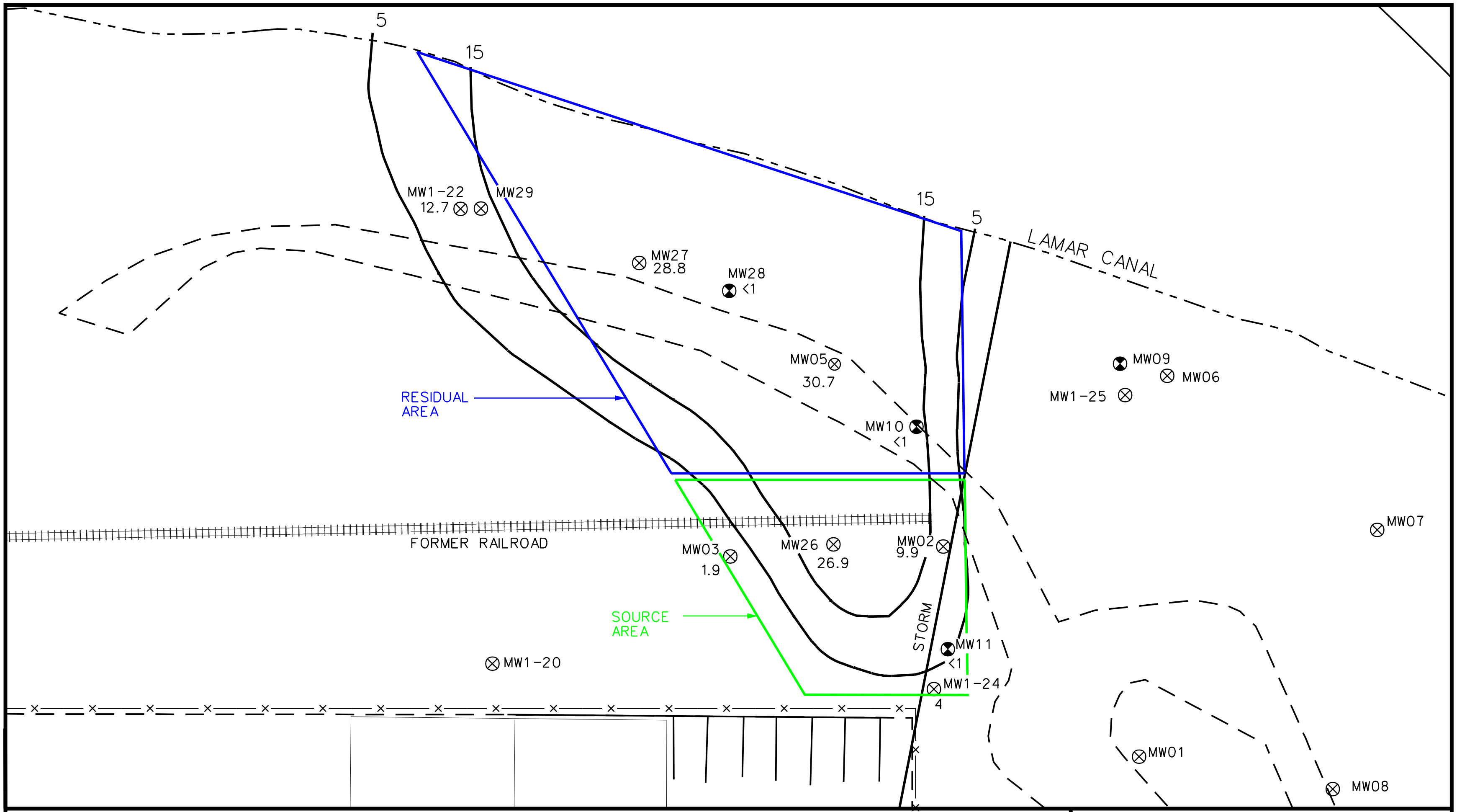

LEGEND

⊛ DEEP MONITORING WELL

⊗ SHALLOW MONITORING WELL

++++++++ RAILROAD TRACKS

= = : DIRT ROAD

—×— FENCE

⁀5‿ PCE CONCENTRATION CONTOUR

— - - CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

N

0 25 50

SCALE: 1" = 50'

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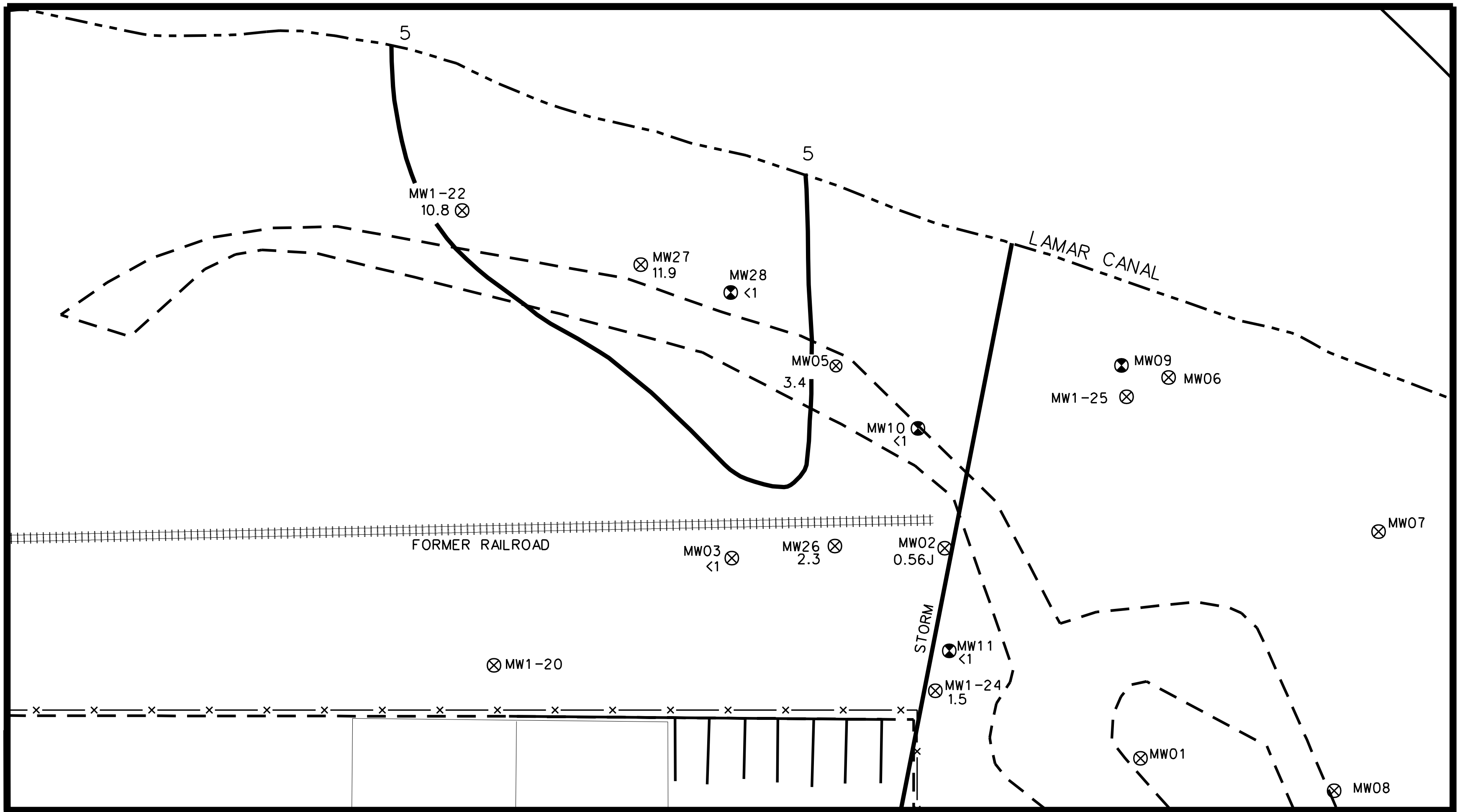
PDO YARD, HAAF,GA
BASELINE PCE GROUNDWATER QUALITY MAP (AUG. 2000)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
J.LAMB	0/11/17/03	97028/DGNS/T43C021A.DGN

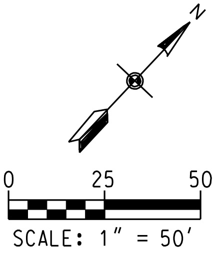


LEGEND

- ● DEEP MONITORING WELL
- ⊗ SHALLOW MONITORING WELL
- ┼┼┼┼┼┼ RAILROAD TRACKS
- = = : DIRT ROAD
- —×— FENCE
- ⁀5‿ PCE CONCENTRATION CONTOUR
- — - - CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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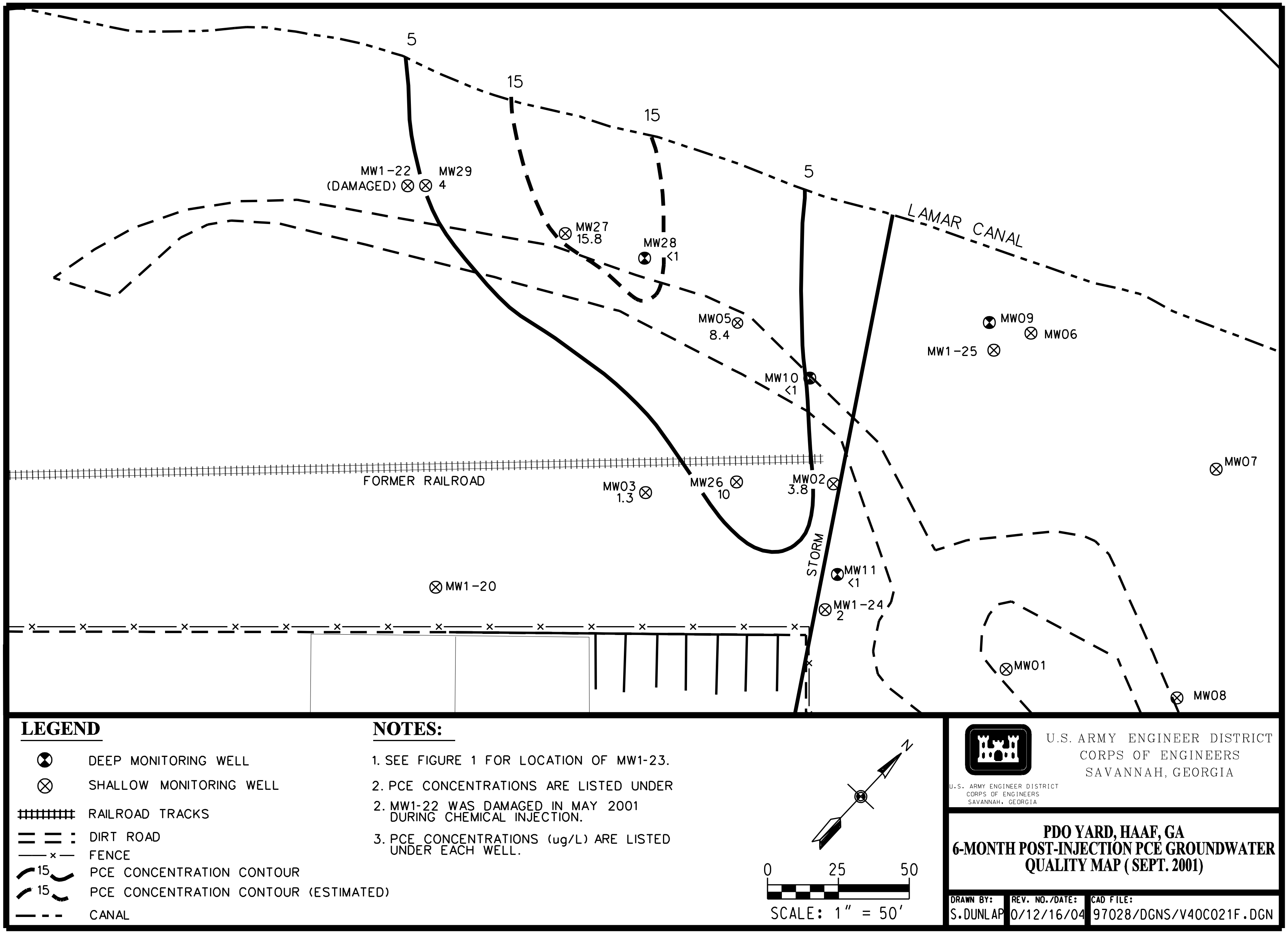
PDO YARD, HAAF, GA 7-DAY POST-INJECTION PCE GROUNDWATER QUALITY MAP (MARCH 2001)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021E.DGN



SCALE: 1" = 50'

LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
▬ ▬ ▬	DIRT ROAD
——×——	FENCE
15	PCE CONCENTRATION CONTOUR
15	PCE CONCENTRATION CONTOUR (ESTIMATED)
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. PCE CONCENTRATIONS ARE LISTED UNDER
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

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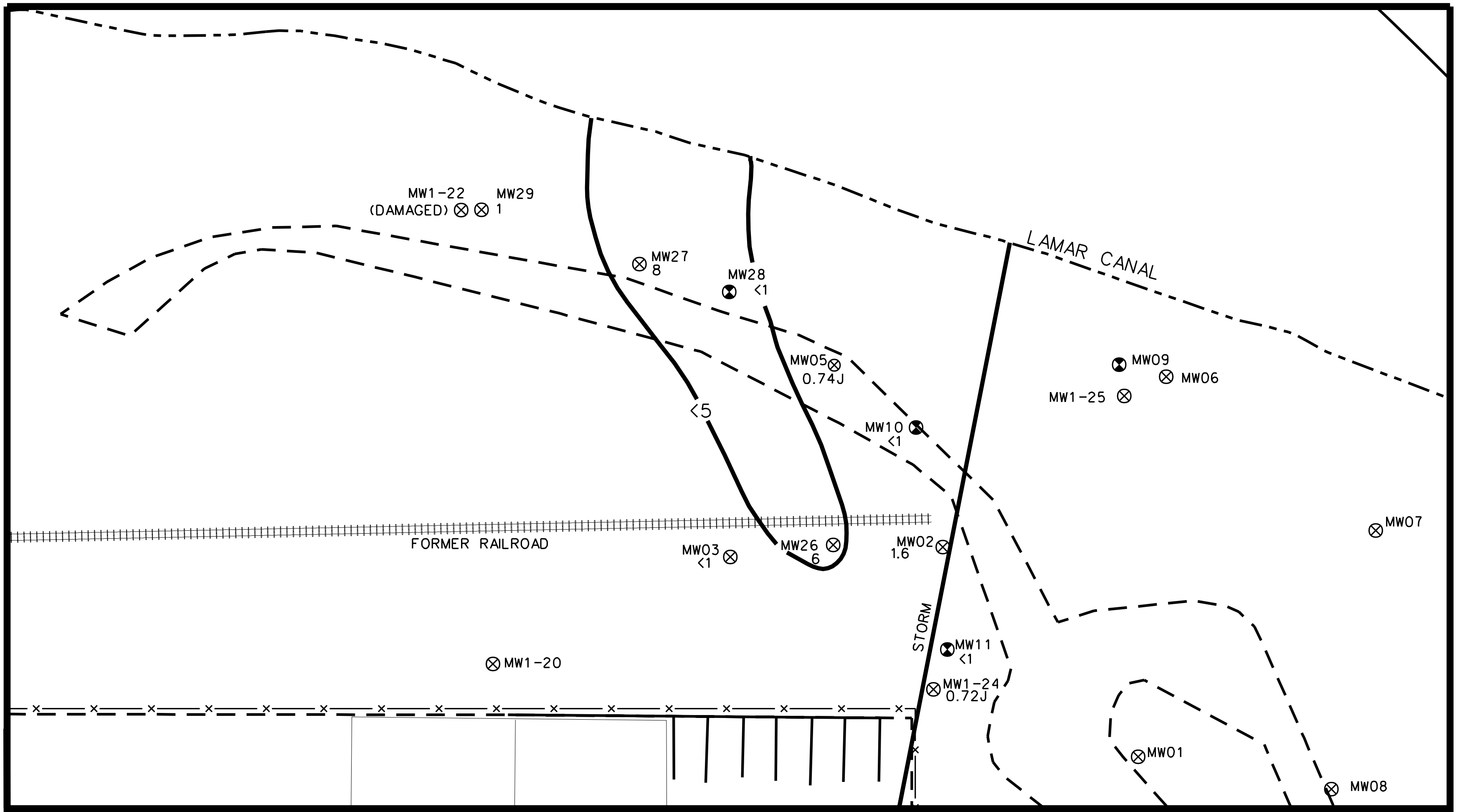
PDO YARD, HAAF, GA
6-MONTH POST-INJECTION PCE GROUNDWATER QUALITY MAP (SEPT. 2001)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021F.DGN



LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
ǂǂǂǂǂǂǂǂ	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
15	PCE CONCENTRATION CONTOUR
15	PCE CONCENTRATION CONTOUR (ESTIMATED)
- - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.

2. PCE CONCENTRATIONS ARE LISTED UNDER

2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

N

0 25 50

SCALE: 1" = 50'

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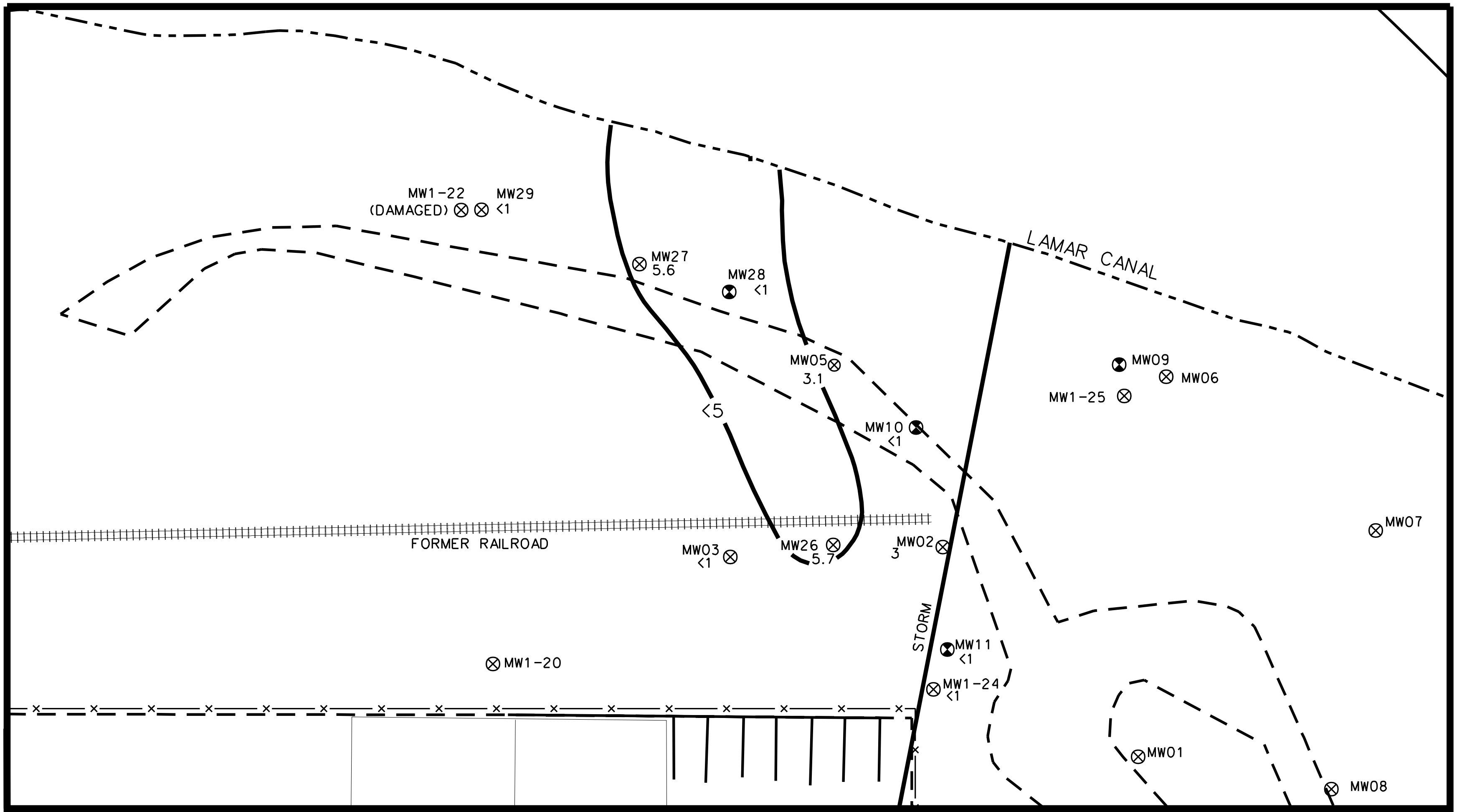
PDO YARD, HAAF, GA
POLISHING STEP 7-DAY
POST-INJECTION PCE GROUNDWATER
QUALITY MAP (MARCH 2002)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
J.LAMB	0/12/16/04	97028/DGNS/V40C021K.DGN

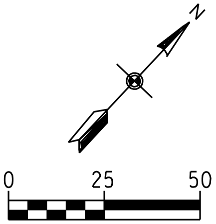


LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
= = :	DIRT ROAD
——×——	FENCE
15	PCE CONCENTRATION CONTOUR
15	PCE CONCENTRATION CONTOUR (ESTIMATED)
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. PCE CONCENTRATIONS ARE LISTED UNDER
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



SCALE: 1" = 50'

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PDO YARD, HAAF, GA POST-CORRECTIVE ACTION QUALITY MAP (JAN. 2003)

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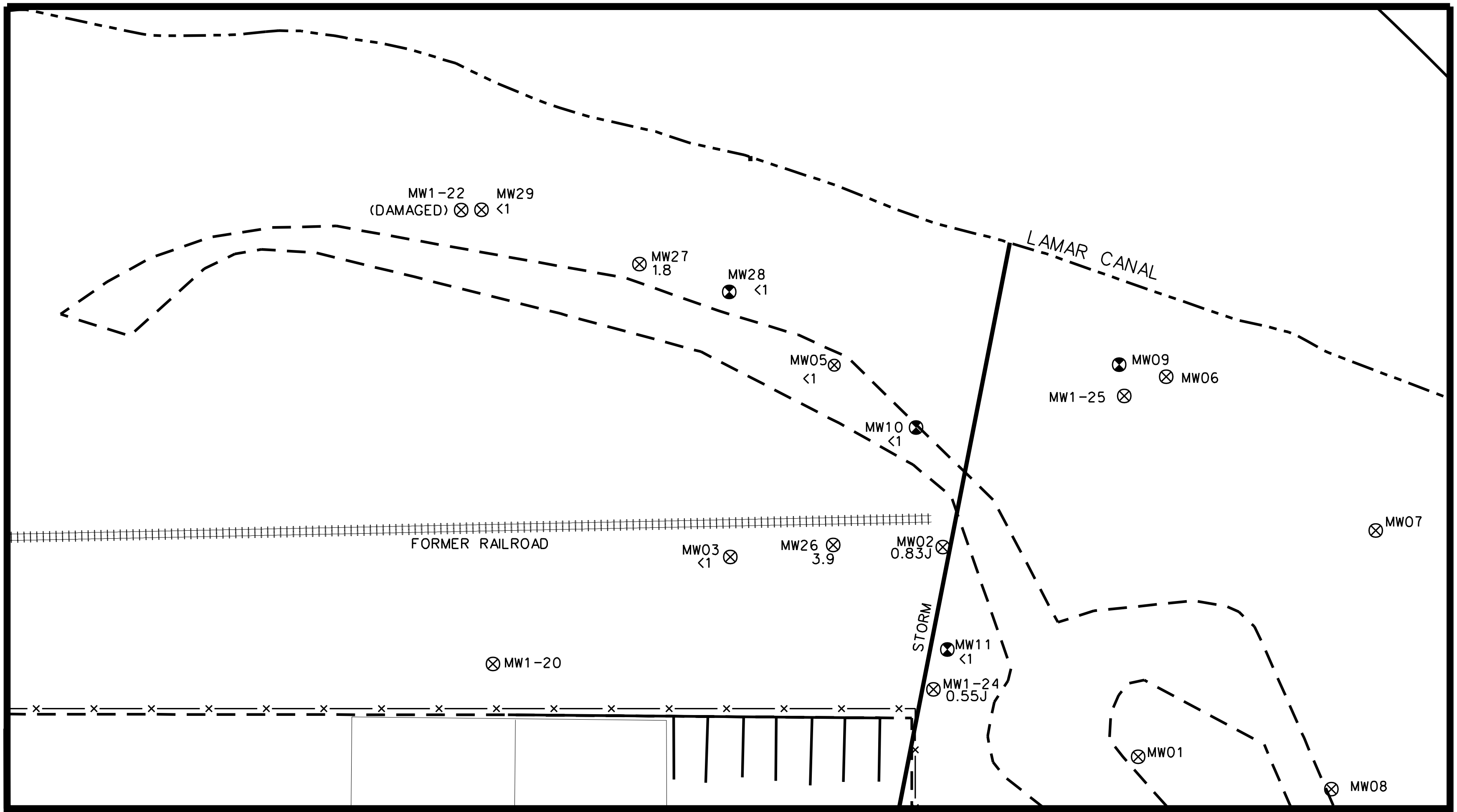
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021KA.DGN

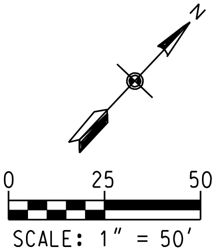


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
╫╫╫╫╫	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
⌒15⌣	PCE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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PDO YARD, HAAF, GA
POST-CORRECTIVE-ACTION
QUALITY MAP (JUNE 2003)

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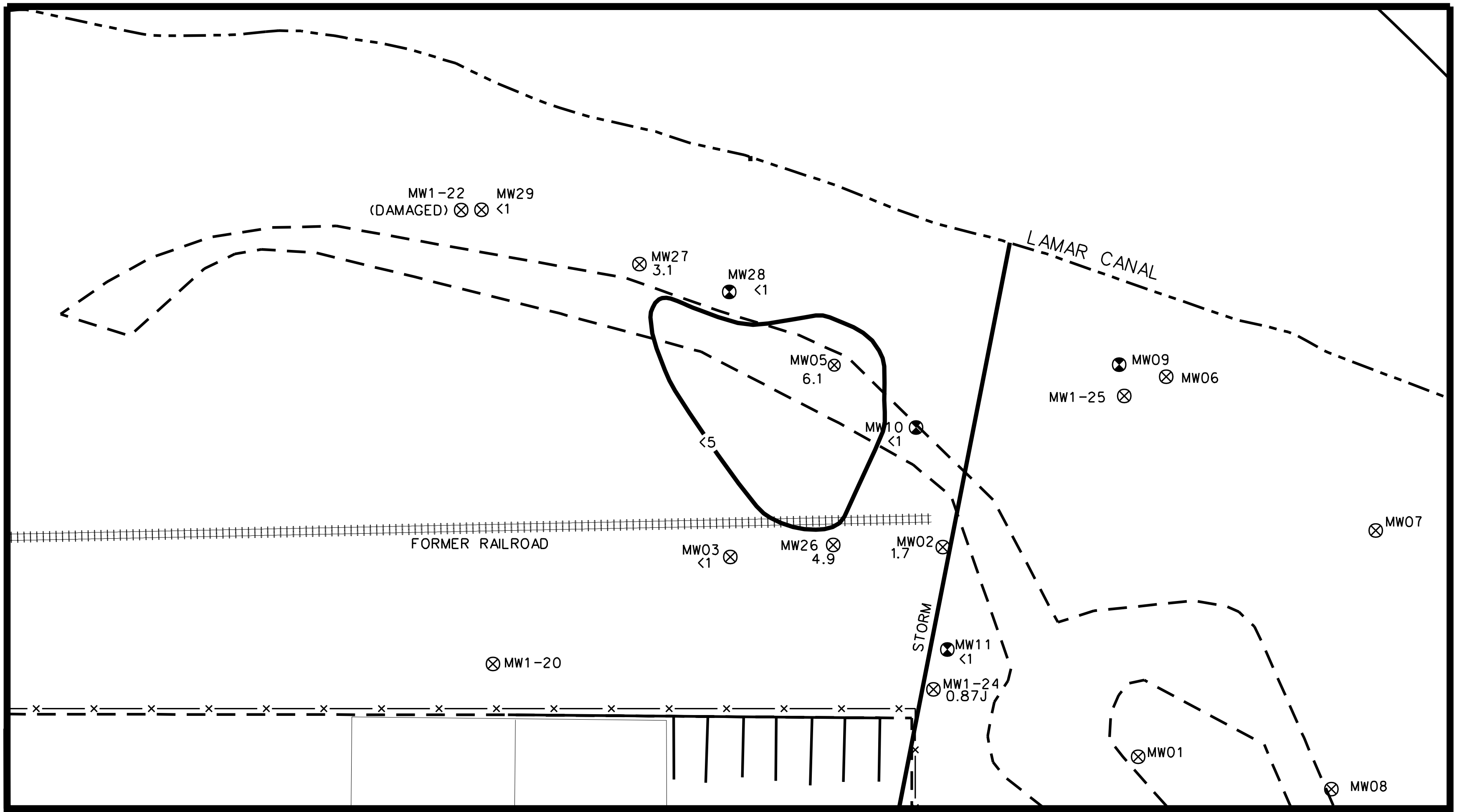
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021KB.DGN



LEGEND

● DEEP MONITORING WELL

⊗ SHALLOW MONITORING WELL

‡‡‡‡‡‡‡ RAILROAD TRACKS

= = : DIRT ROAD

—×— FENCE

15 PCE CONCENTRATION CONTOUR

— - - CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

N

0 25 50

SCALE: 1" = 50'

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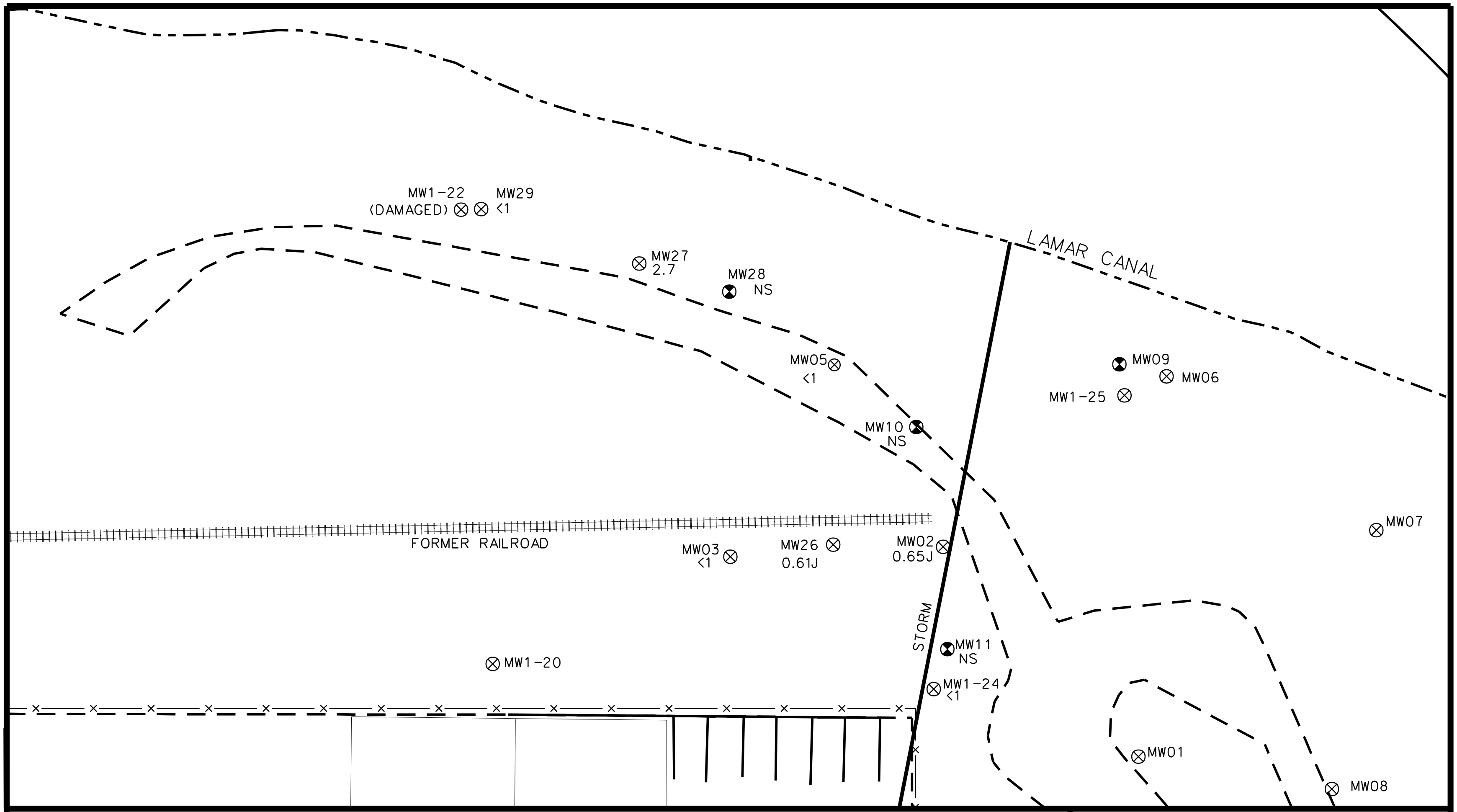
PDO YARD, HAAF, GA
POST-CORRECTIVE-ACTION
QUALITY MAP (JANUARY 2004)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
W.M./S.D	A/12/16/04	97028/DGNS/V40C021KG.DGN



LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
╫╫╫╫╫╫	RAILROAD TRACKS
═ ═ :	DIRT ROAD
—×—	FENCE
⌒15⌣	PCE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. PCE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

N

0 25 50

SCALE: 1" = 50'

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PDO YARD, HAAF, GA
POST-CORRECTIVE-ACTION PCE GROUNDWATER QUALITY MAP
(OCTOBER 2004)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
DUNLAP	0/06/03/04	97028/DGNS/V40PCE10-04.DGN

BENZENE GROUNDWATER QUALITY MAPS

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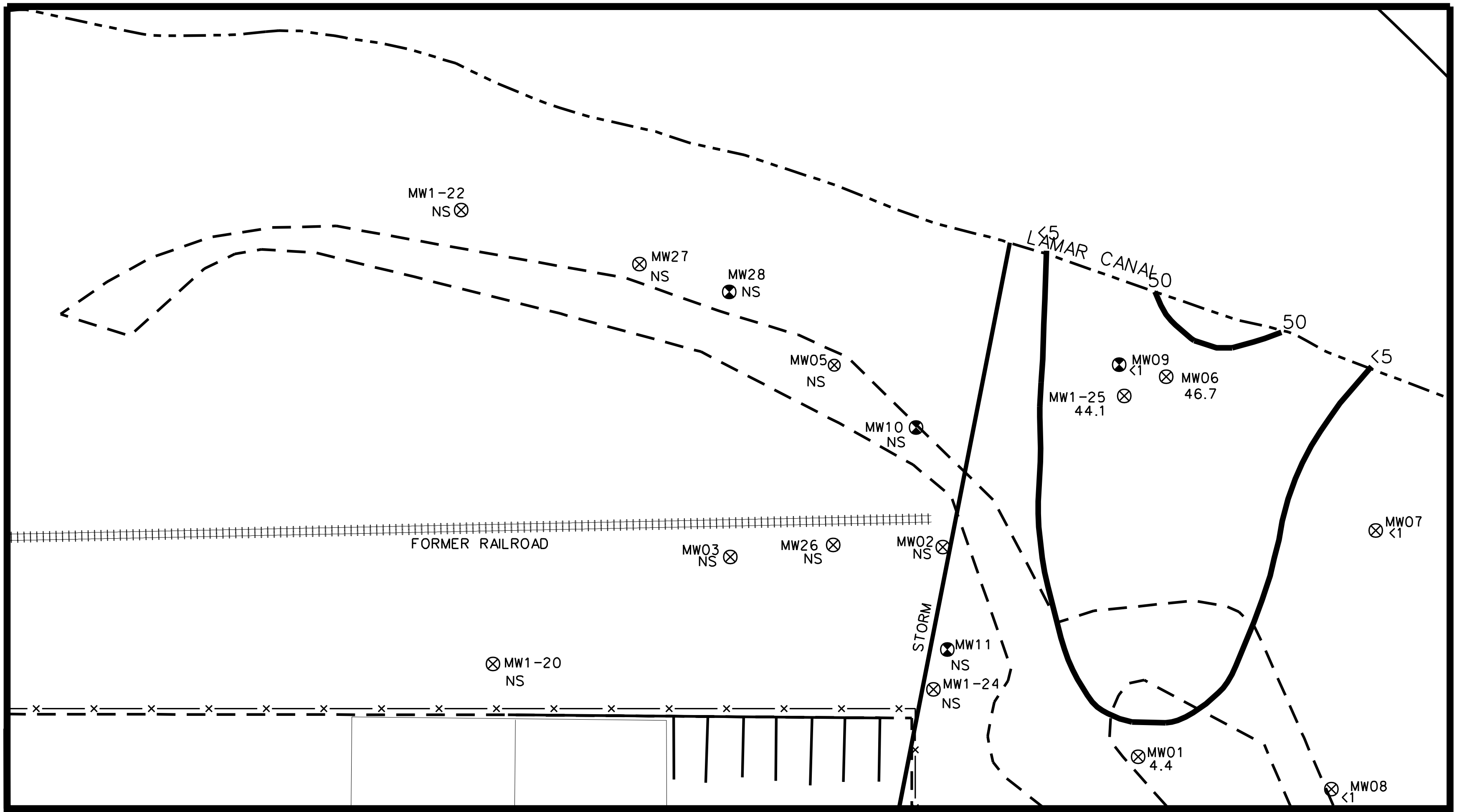
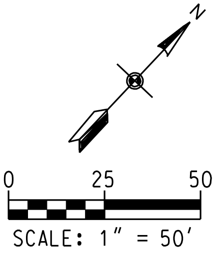


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
5	BENZENE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. NS = NOT SAMPLED
3. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



SCALE: 1" = 50'

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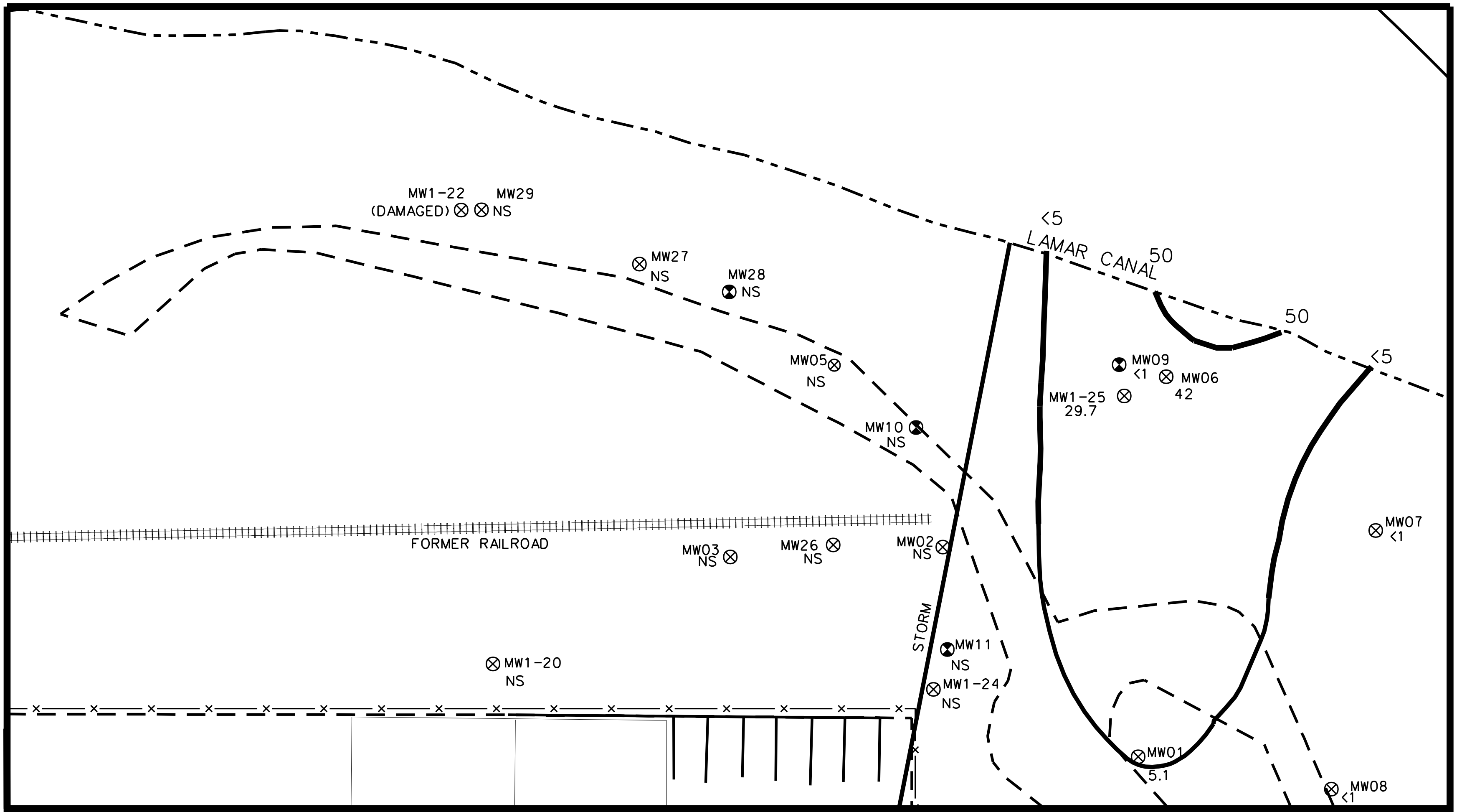
PDO YARD, HAAF, GA
BASELINE BENZENE GROUNDWATER QUALITY MAP (OCT. 2000)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021B.DGN



LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
‡‡‡‡‡‡‡	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
15	BENZENE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS = NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

N

0 25 50

SCALE: 1" = 50'

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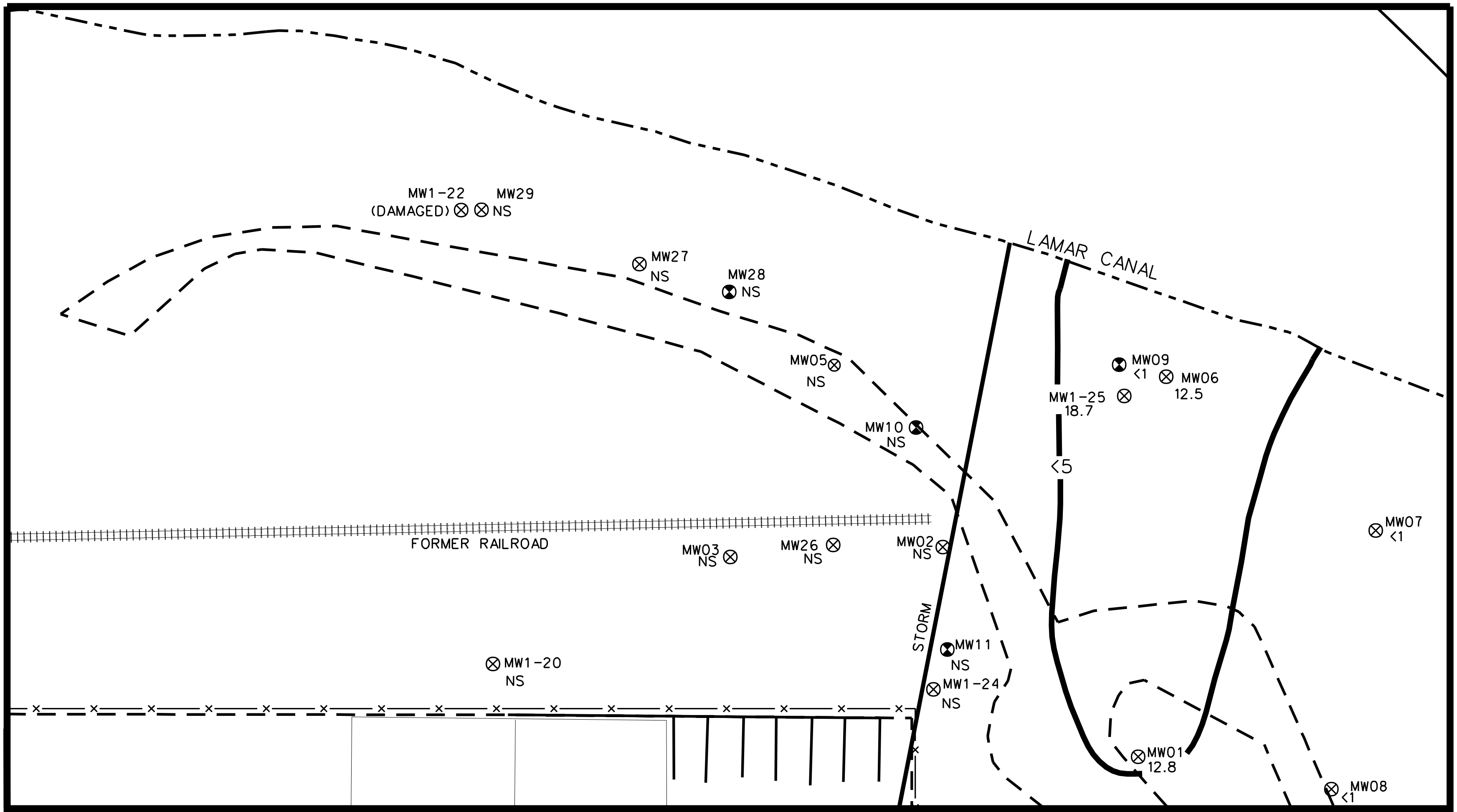
PDO YARD, HAAF, GA
BENZENE GROUNDWATER
QUALITY MAP (SEPT. 2001)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021GA.DGN



LEGEND

● DEEP MONITORING WELL

⊗ SHALLOW MONITORING WELL

┼┼┼┼┼┼┼ RAILROAD TRACKS

= = DIRT ROAD

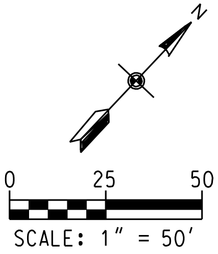
—×— FENCE

15 BENZENE CONCENTRATION CONTOUR

— - - CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS - NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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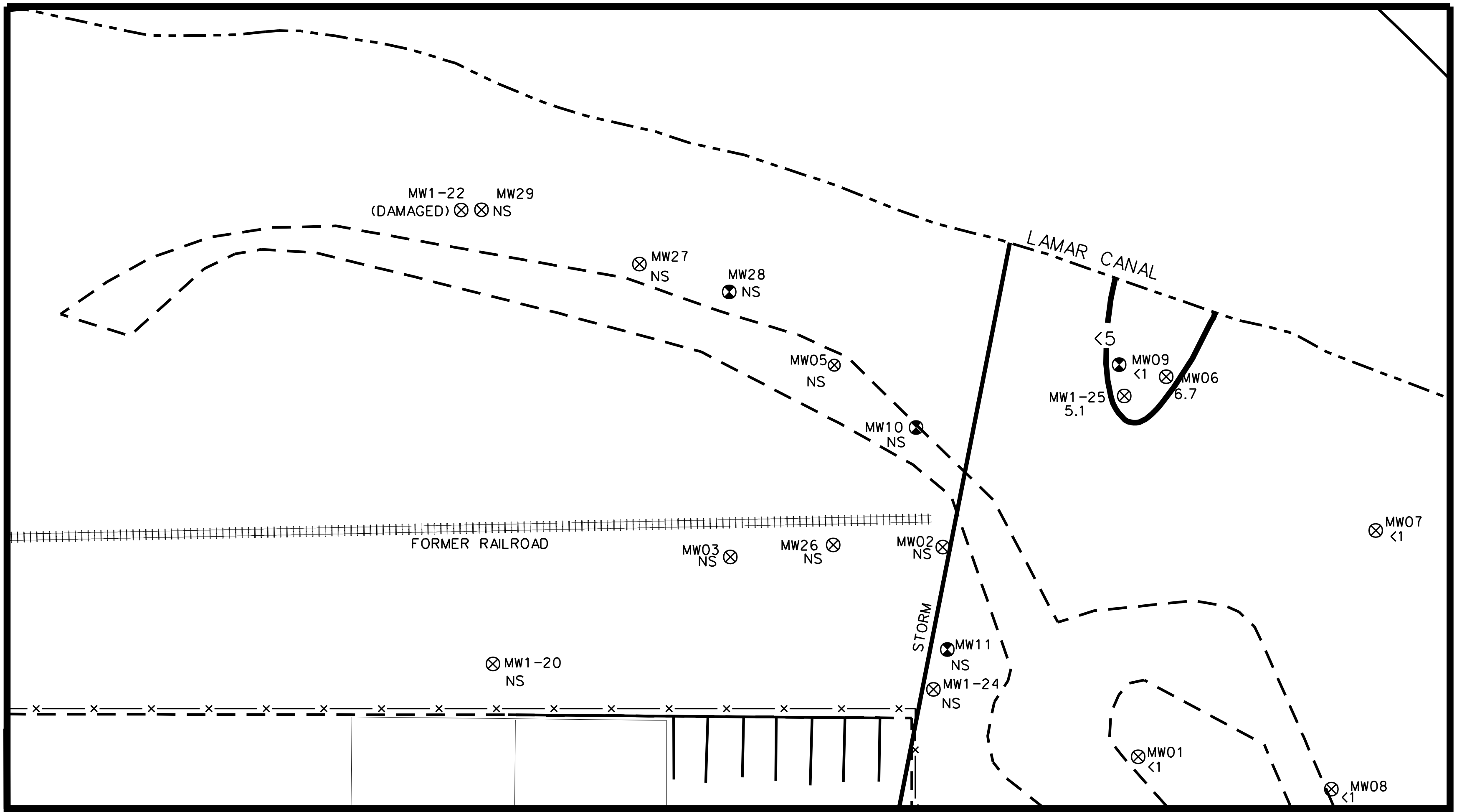
PDO YARD, HAAF, GA BENZENE GROUNDWATER QUALITY MAP (MARCH 2002)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021LA.DGN

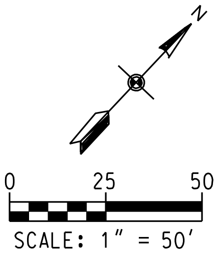


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
15	BENZENE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS = NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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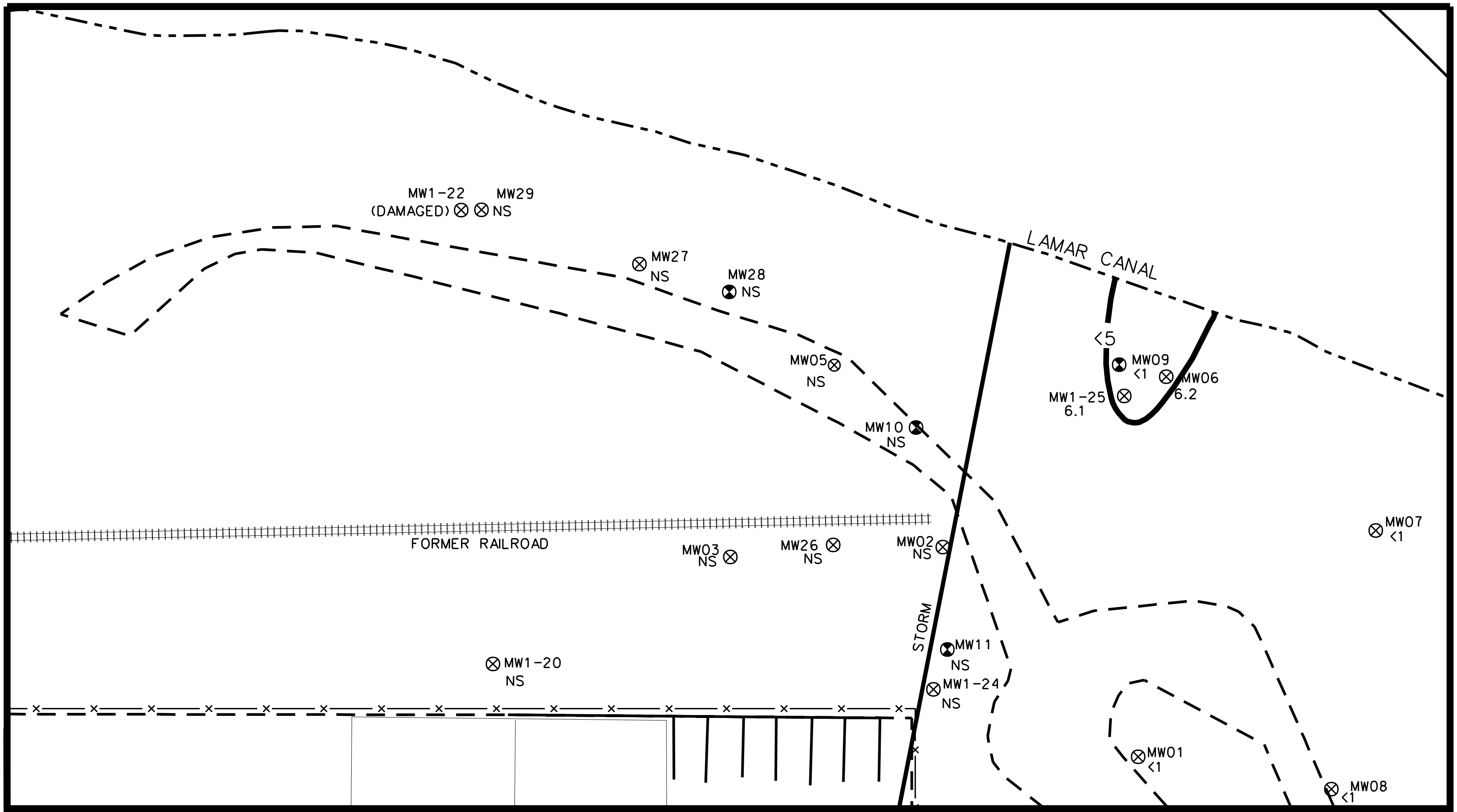
PDO YARD, HAAF, GA
BENZENE GROUNDWATER
QUALITY MAP (OCT. 2002)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021PC.DGN

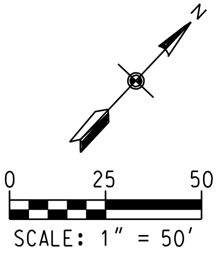


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
═ ═ :	DIRT ROAD
—×—	FENCE
15	BENZENE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS = NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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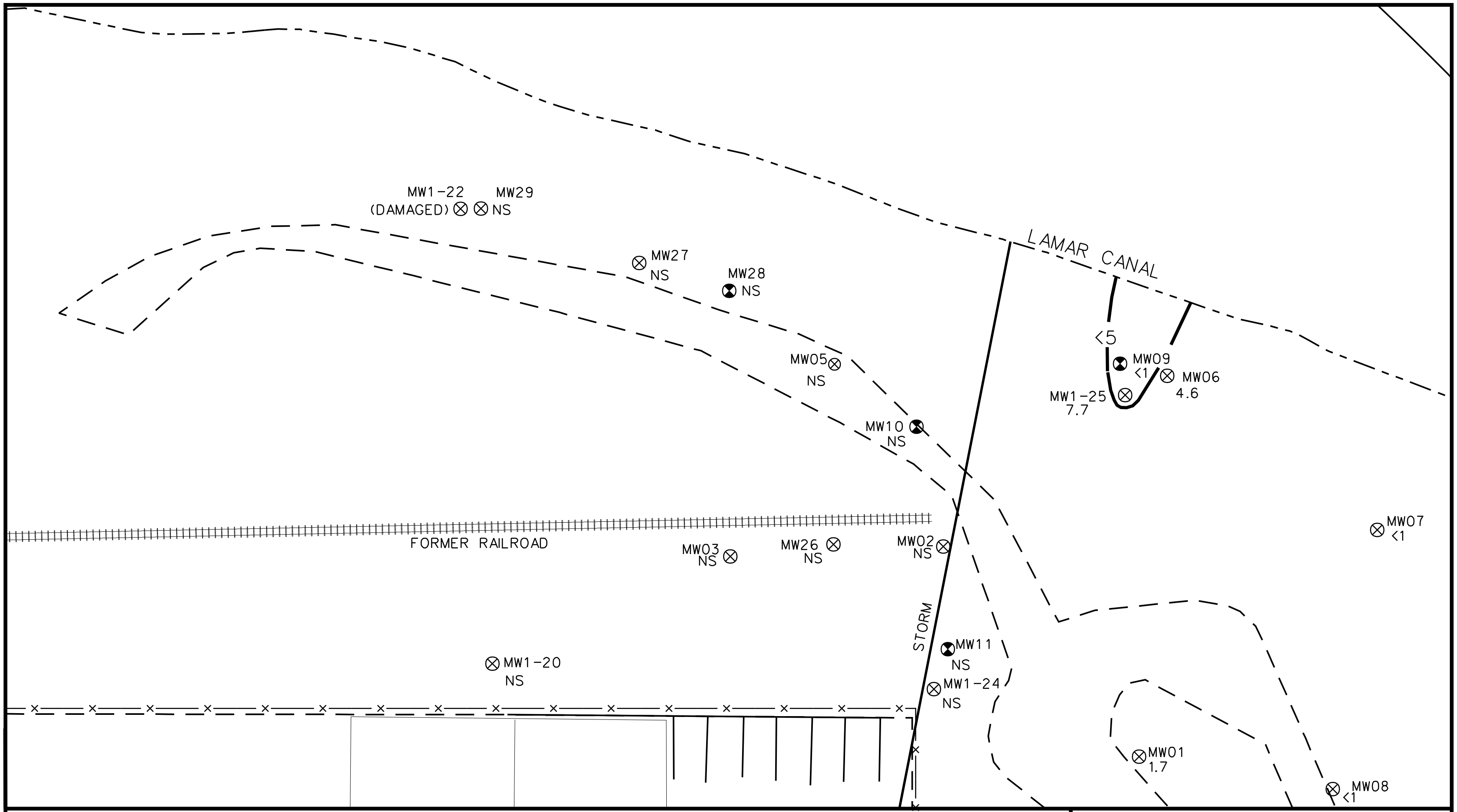
PDO YARD, HAAF, GA BENZENE GROUNDWATER QUALITY MAP (APRIL 2003)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021PE.DGN



LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
— — :	DIRT ROAD
—×—	FENCE
⁀15‿	BENZENE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS = NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.

N

0 25 50

SCALE: 1" = 50'

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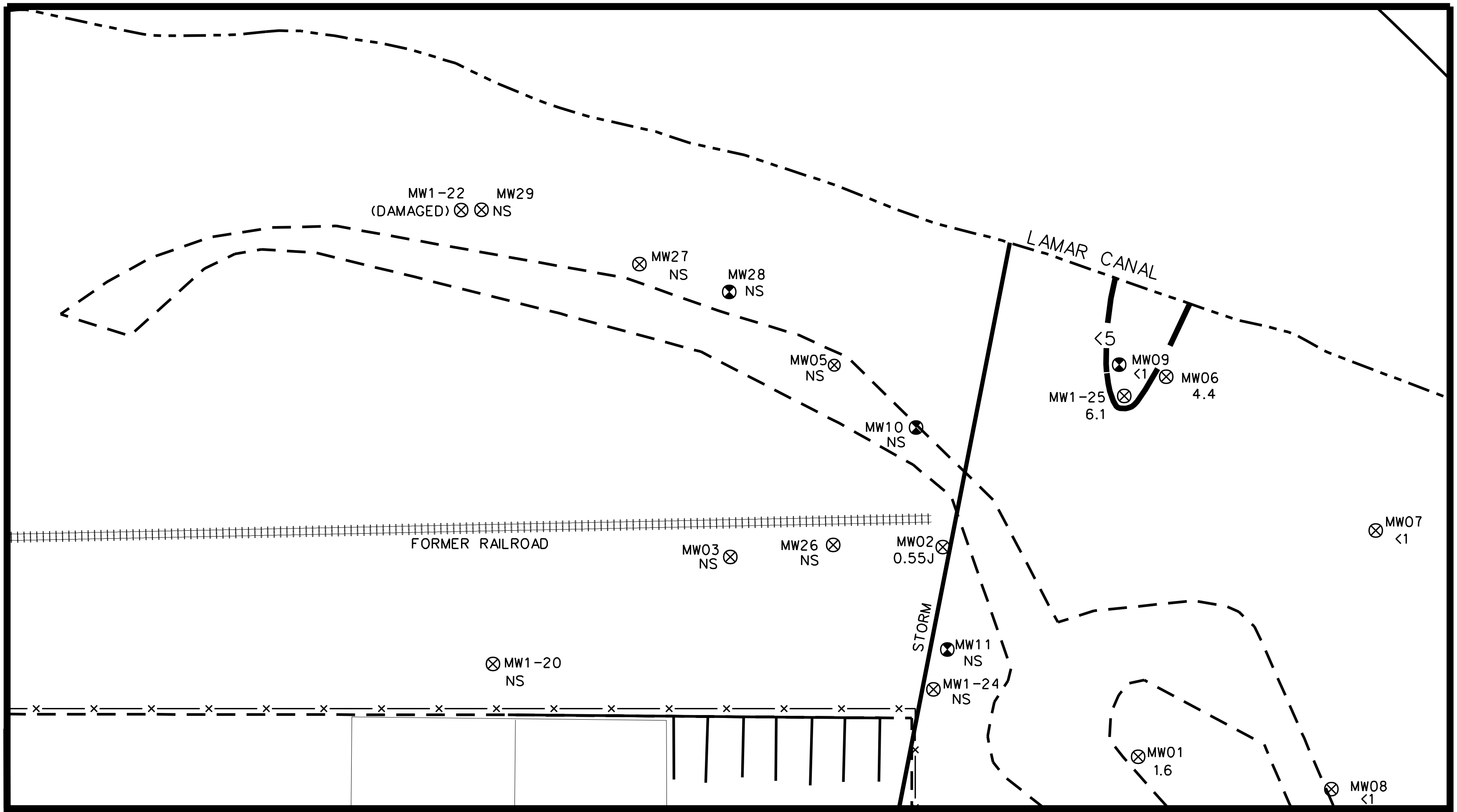
PDO YARD, HAAF, GA BENZENE GROUNDWATER QUALITY MAP (SEPT. 2003)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
J.LAMB	0/11/13/03	97028/DGNS/N34C021PG.DGN

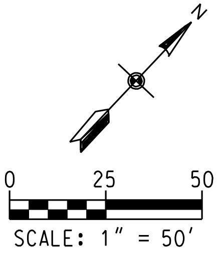


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
++++++++++	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
15	BENZENE CONCENTRATION CONTOUR
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS = NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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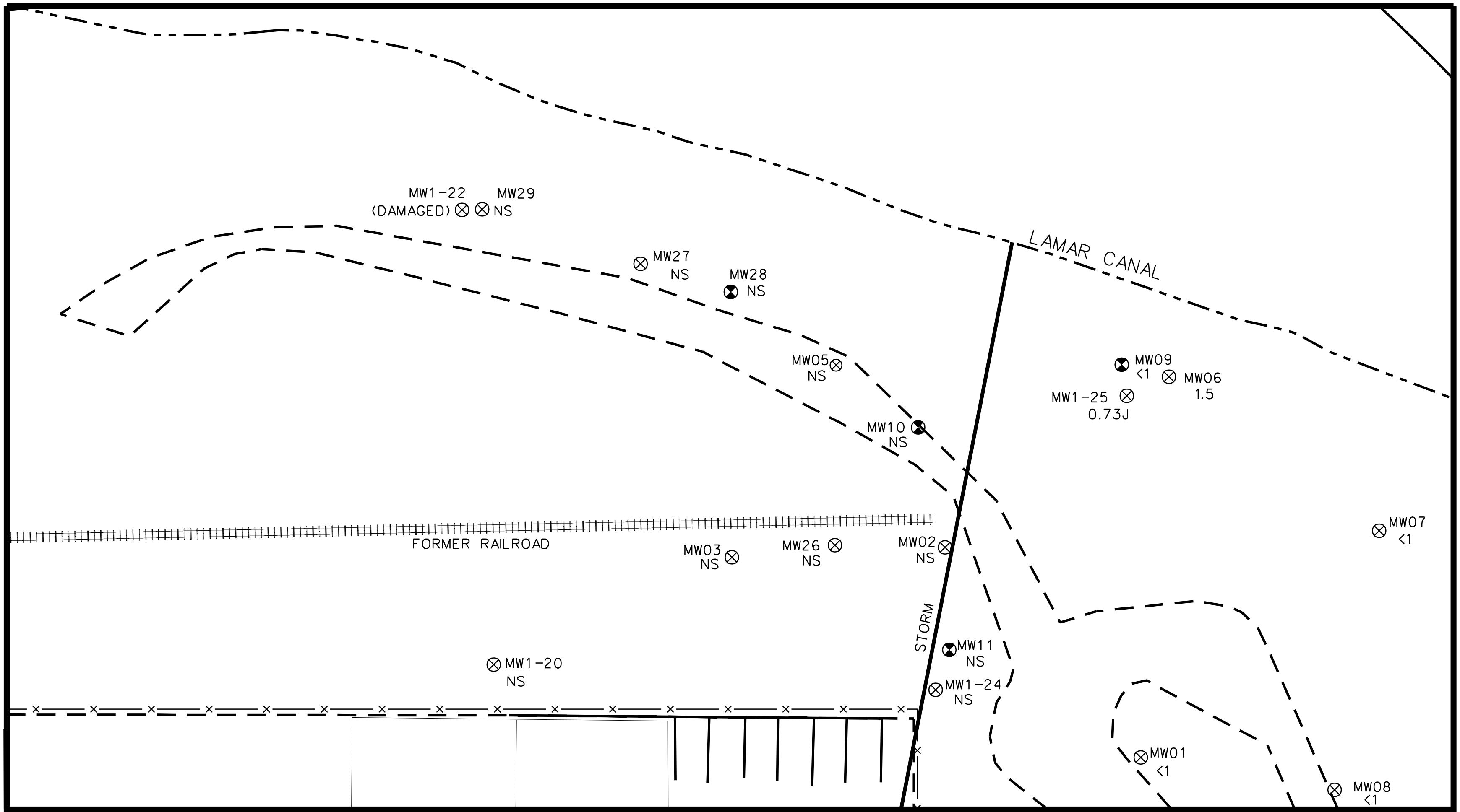
PDO YARD, HAAF, GA BENZENE GROUNDWATER QUALITY MAP (MARCH 2004)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
W.M./S.D	A/12/16/04	97028/DGNS/V40C021PL.DGN

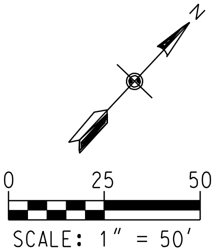


LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
— — :	DIRT ROAD
—×—	FENCE
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. PCE CONCENTRATIONS ARE LISTED UNDER
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.
3. NS = NOT SAMPLED
4. BENZENE CONCENTRATIONS (ug/L) ARE LISTED UNDER EACH WELL.



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PDO YARD, HAAF, GA
BENZENE GROUNDWATER QUALITY MAP (OCTOBER 2004)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
DUNLAP	0/06/03/05	97028/DGNS/V40C021PI.DGN

GROUNDWATER POTENTIOMETRIC SURFACE MAPS

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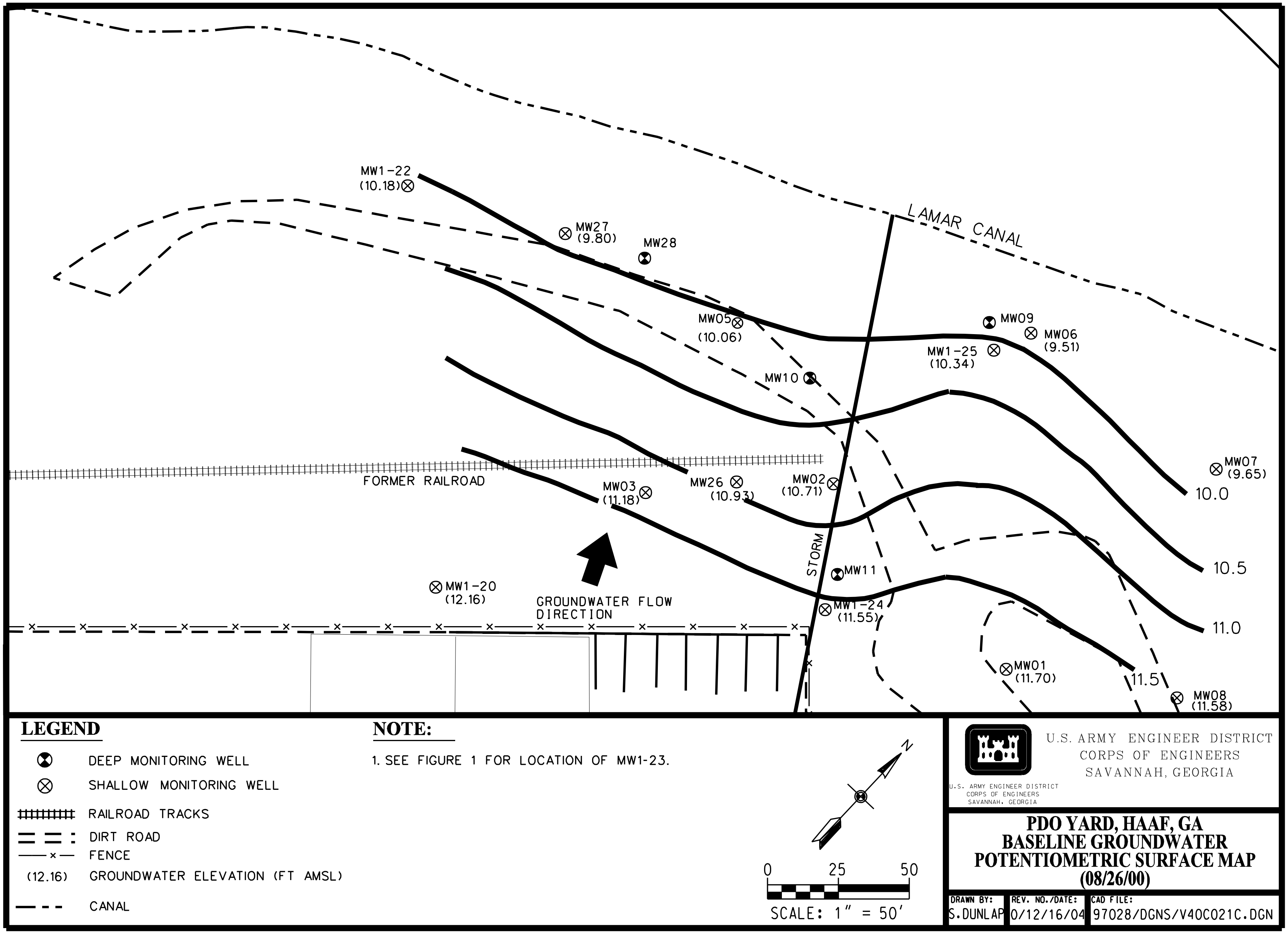

LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
╫╫╫╫╫╫╫╫	RAILROAD TRACKS
═ ═	DIRT ROAD
——×——	FENCE
(12.16)	GROUNDWATER ELEVATION (FT AMSL)
— - -	CANAL

NOTE:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.

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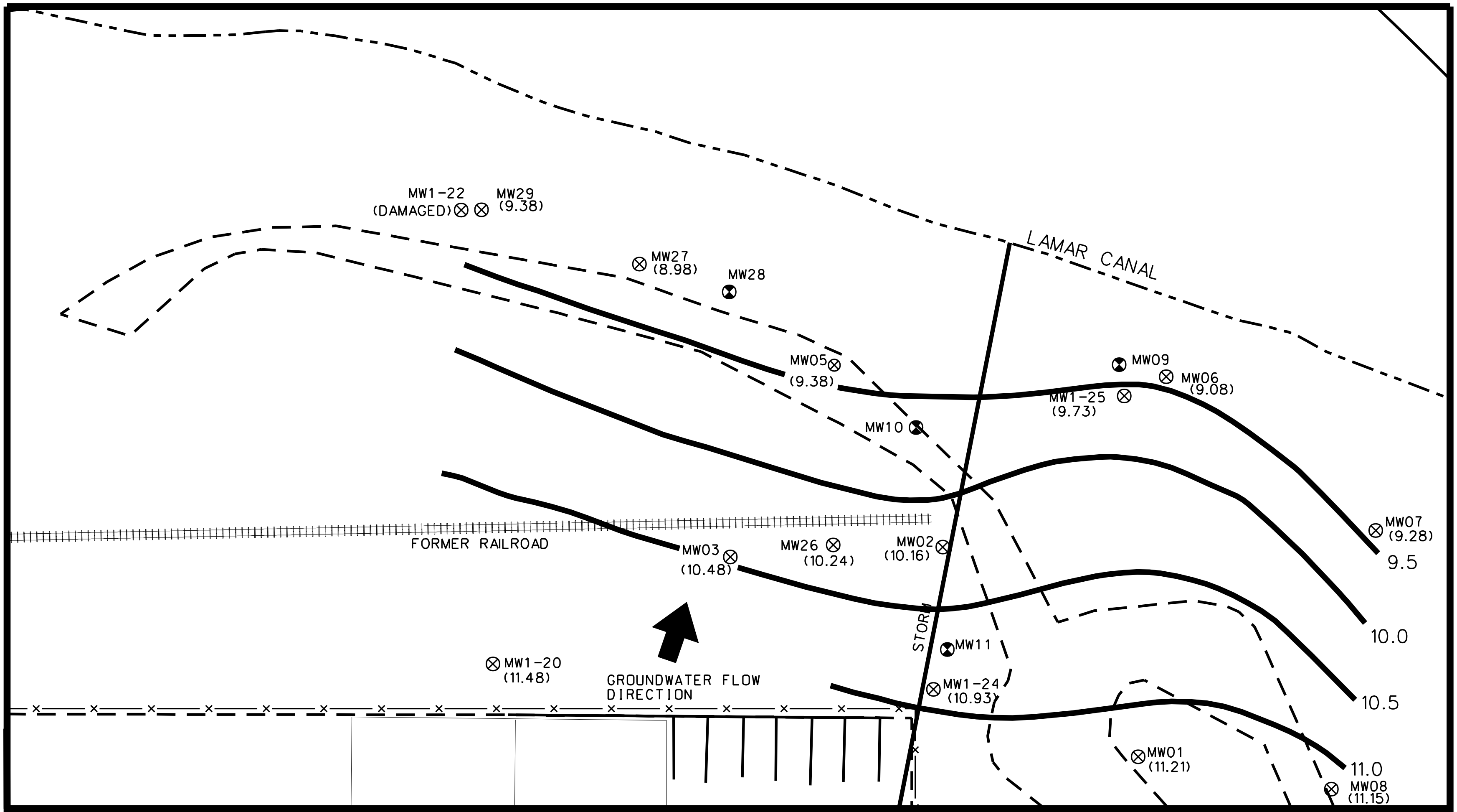
PDO YARD, HAAF, GA
BASELINE GROUNDWATER
POTENTIOMETRIC SURFACE MAP
(08/26/00)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021C.DGN



LEGEND

⊛ DEEP MONITORING WELL

⊗ SHALLOW MONITORING WELL

┼┼┼┼┼┼┼┼ RAILROAD TRACKS

= = : DIRT ROAD

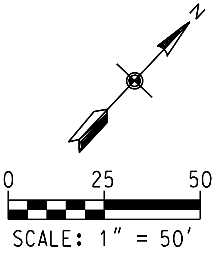
—×— FENCE

(12.16) GROUNDWATER ELEVATION (FT AMSL)

— - - CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.



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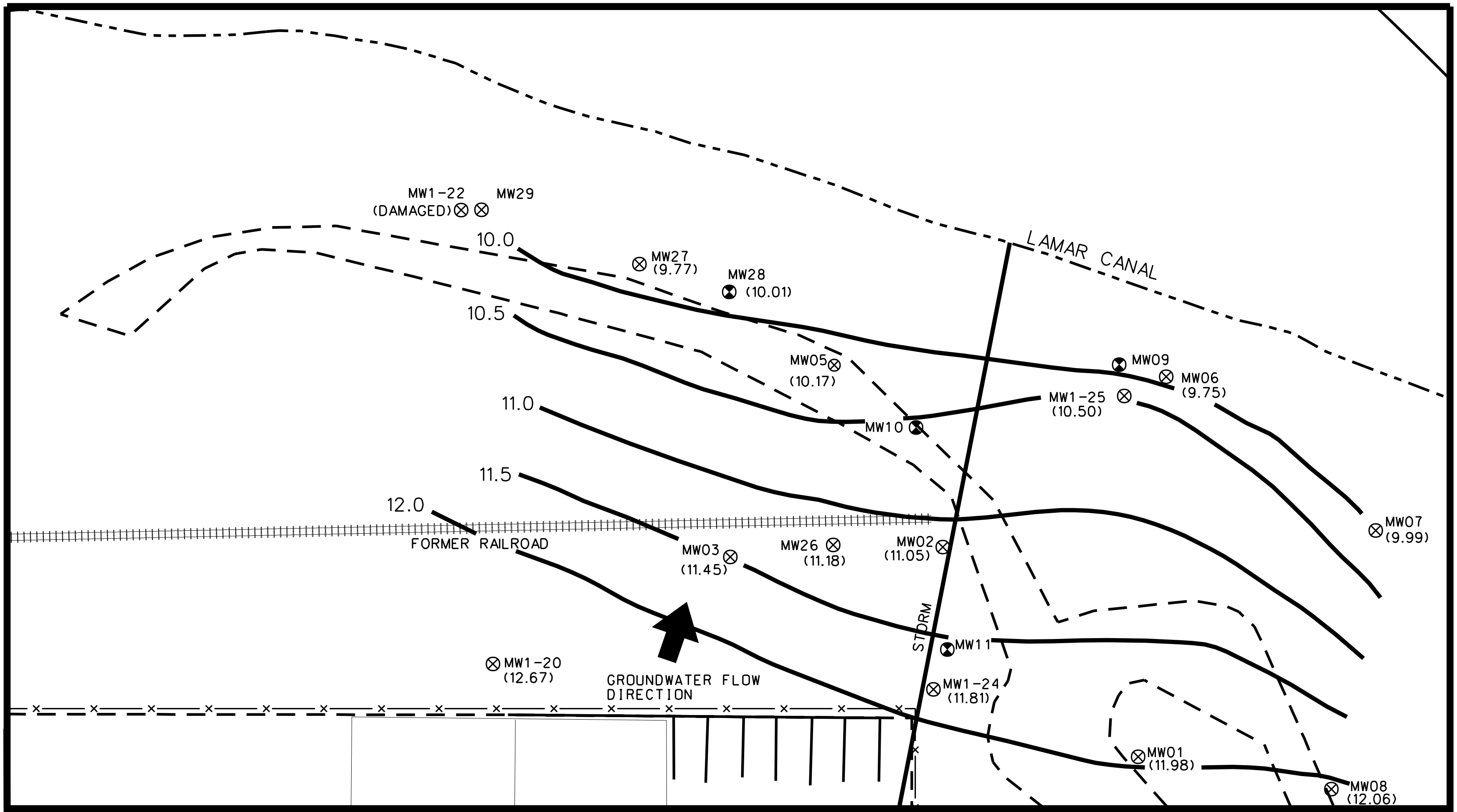
PDO YARD, HAAF, GA
GROUNDWATER POTENTIOMETRIC SURFACE MAP (09/05/01)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021HA.DGN

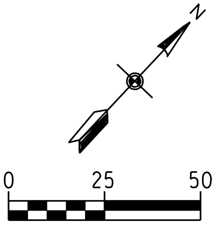


LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
═ ═ ═	DIRT ROAD
—×—	FENCE
(12.16)	GROUNDWATER ELEVATION (FT AMSL)
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.



SCALE: 1" = 50'

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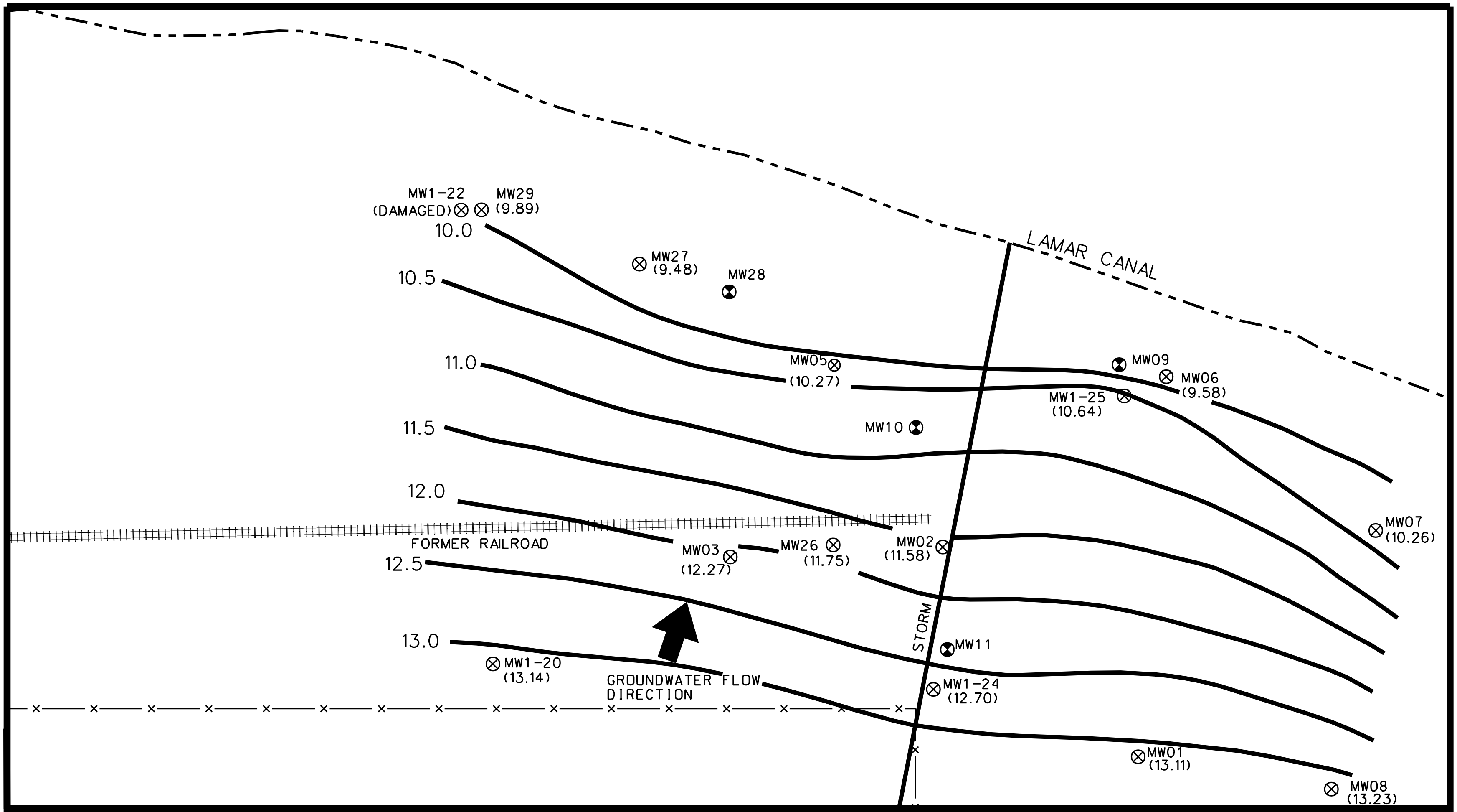
PDO YARD, HAAF, GA GROUNDWATER POTENTIOMETRIC SURFACE MAP (03/11/02)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021M.DGN



LEGEND

● DEEP MONITORING WELL

⊗ SHALLOW MONITORING WELL

++++++++ RAILROAD TRACKS

═ ═ : DIRT ROAD

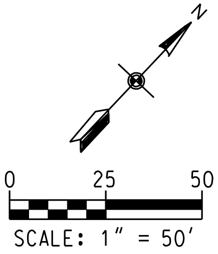
—×— FENCE

(12.16) GROUNDWATER ELEVATION (FT AMSL)

— - - CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.



SCALE: 1" = 50'

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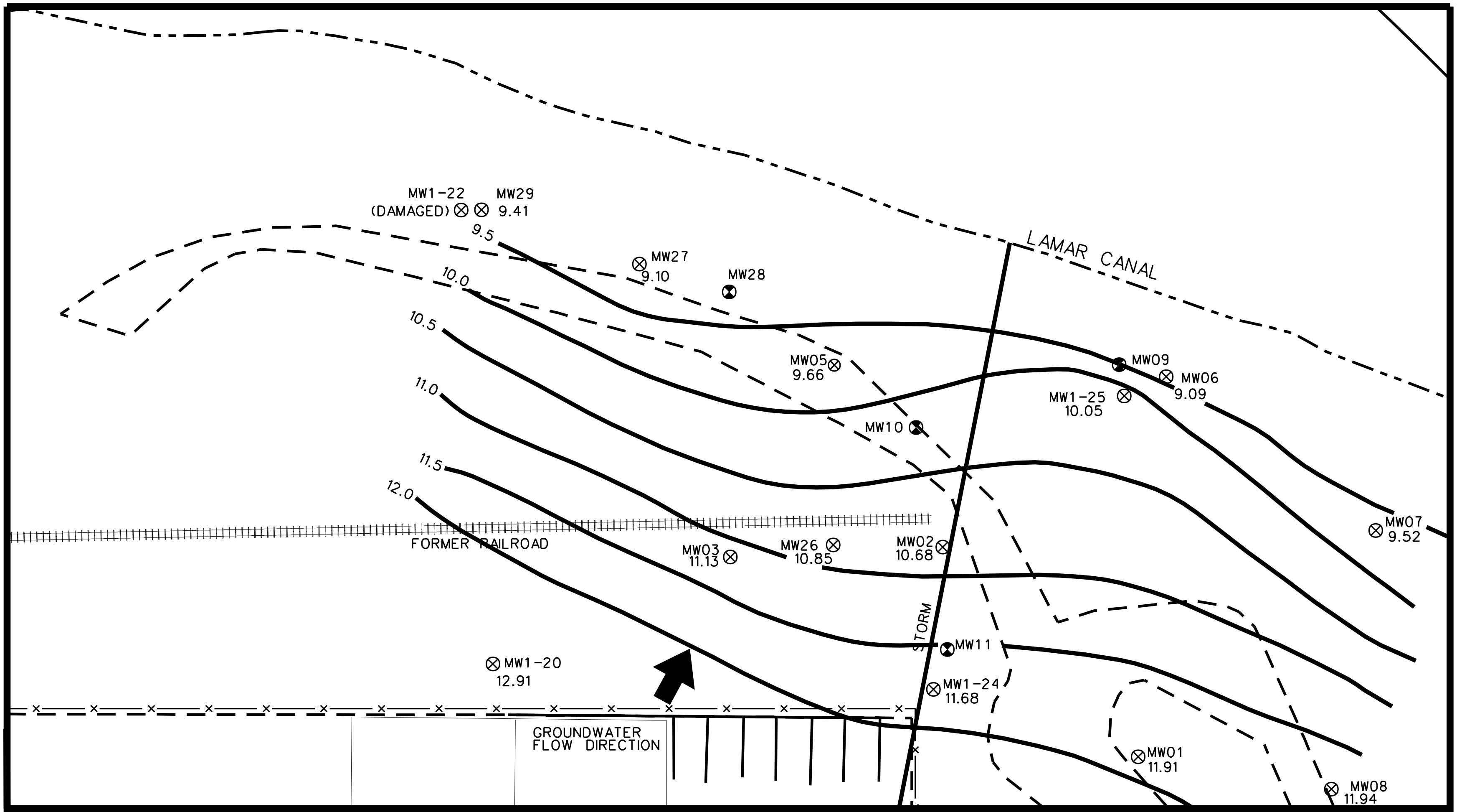
PDO YARD, HAAF, GA GROUNDWATER POTENTIOMETRIC SURFACE MAP (10/18/02)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLA	0/12/16/04	97028/DGNS/V40C021PD.DGN



LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
(12.91)	GROUNDWATER ELEVATION (FT AMSL)
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

N

0 25 50

SCALE: 1" = 50'

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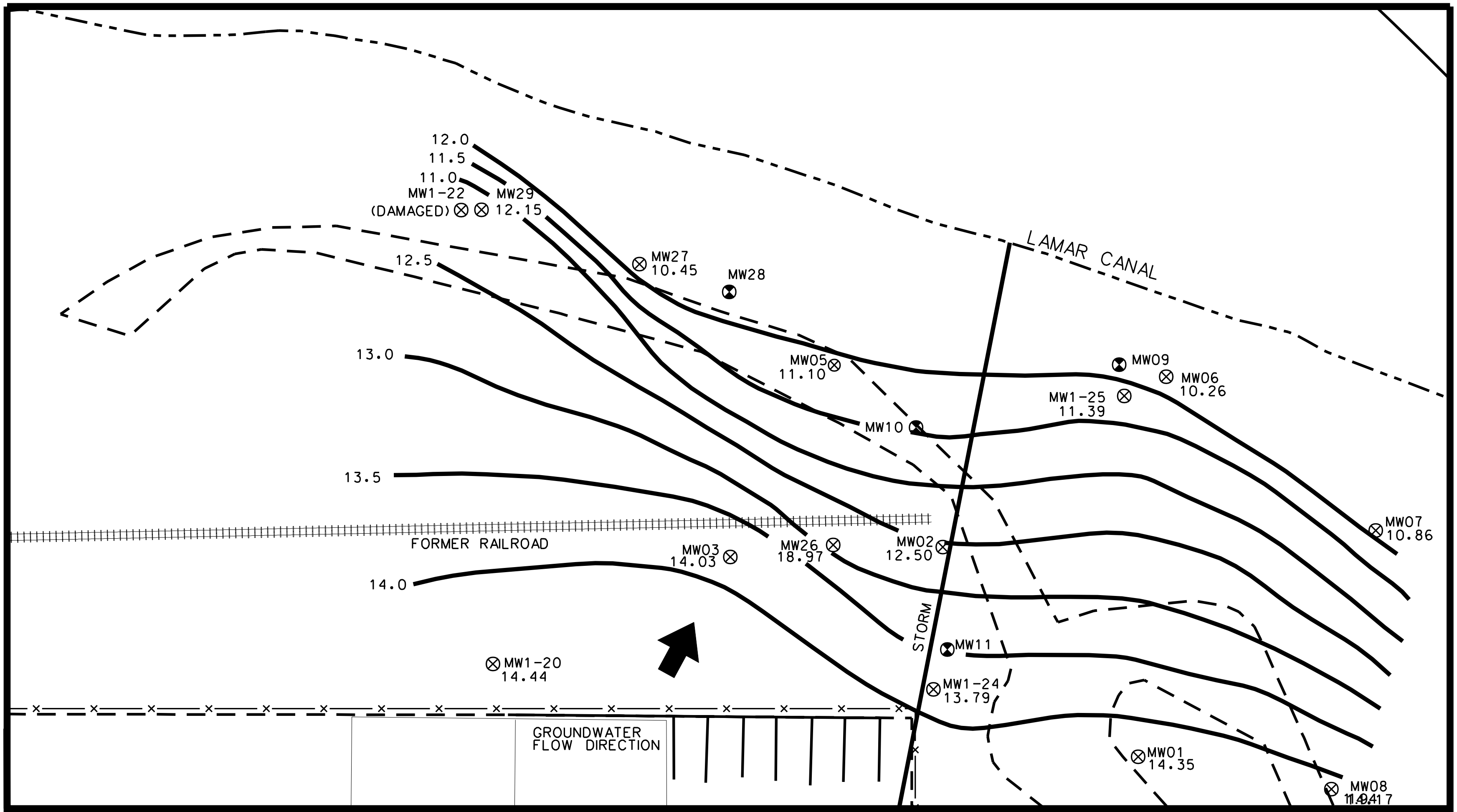
PDO YARD, HAAF, GA
GROUNDWATER POTENTIOMETRIC SURFACE MAP (1/23/03)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021PB.DGN



LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
(14.44)	GROUNDWATER ELEVATION (FT AMSL)
— - -	CANAL

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

N

0 25 50

SCALE: 1" = 50'

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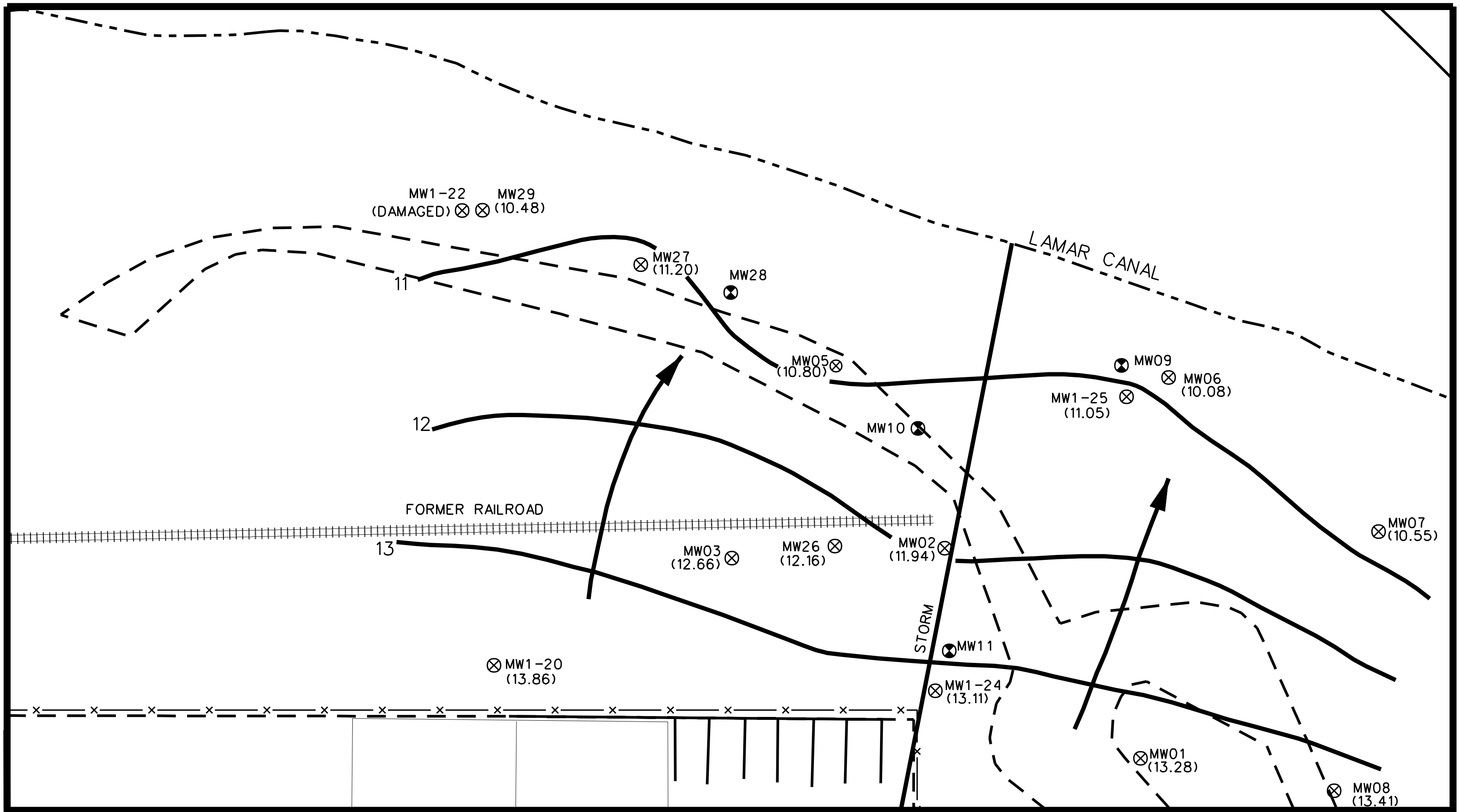
PDO YARD, HAAF, GA GROUNDWATER POTENTIOMETRIC SURFACE MAP (3/20/03)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021PF.DGN



LEGEND

⊗ (filled)	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
═ ═ :	DIRT ROAD
—×—	FENCE
— - -	CANAL
(13.86)	GROUNDWATER ELEVATION (FT AMSL)
◄—	GROUNDWATER FLOW DIRECTION

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

N

0 25 50

SCALE: 1" = 50'

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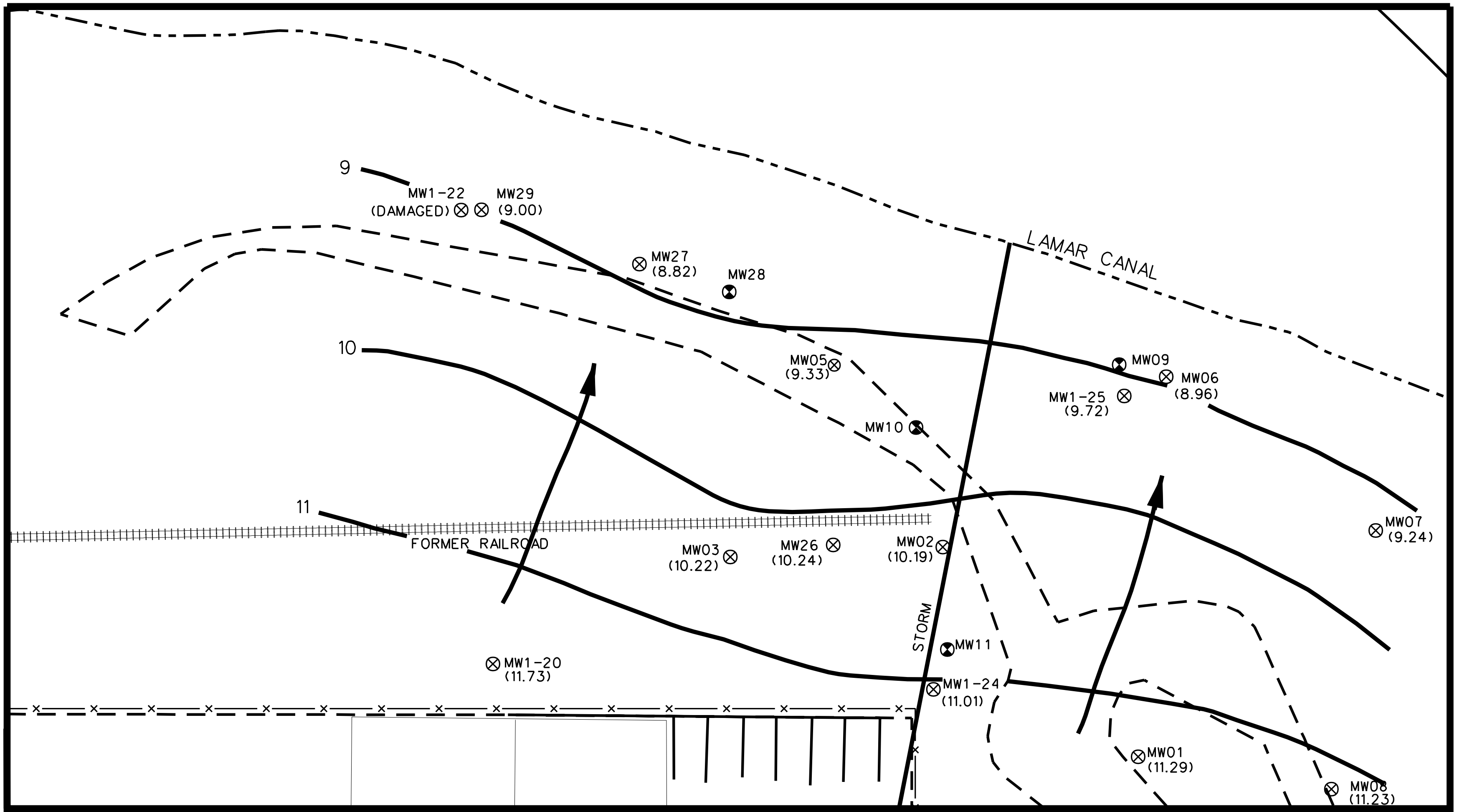
PDO YARD, HAAF, GA GROUNDWATER POTENTIOMETRIC SURFACE MAP (6/22/03)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021PJ.DGN



LEGEND

● DEEP MONITORING WELL
⊗ SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼ RAILROAD TRACKS
= = : DIRT ROAD
—×— FENCE
— - - CANAL
(11.73) GROUNDWATER ELEVATION (FT AMSL)
◀— GROUNDWATER FLOW DIRECTION

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

N

0 25 50

SCALE: 1" = 50'

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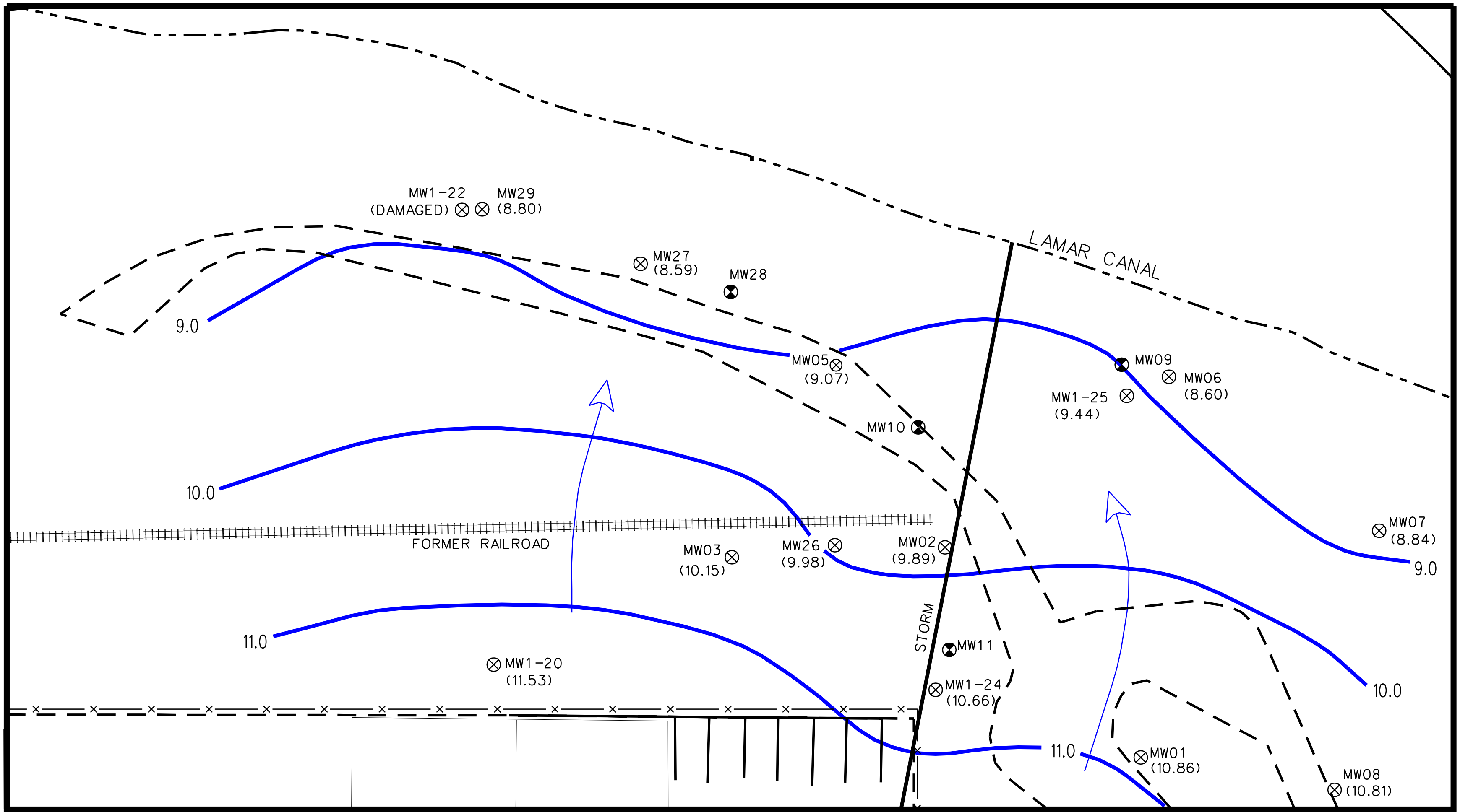
PDO YARD, HAAF, GA
GROUNDWATER POTENTIOMETRIC SURFACE MAP (10/31/03)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	0/12/16/04	97028/DGNS/V40C021PH.DGN

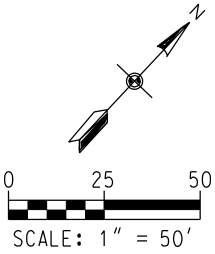


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼┼┼	RAILROAD TRACKS
═ ═ ═	DIRT ROAD
——×——	FENCE
— - -	CANAL
(11.53)	GROUNDWATER ELEVATION (FT AMSL)
←	GROUNDWATER FLOW DIRECTION

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.



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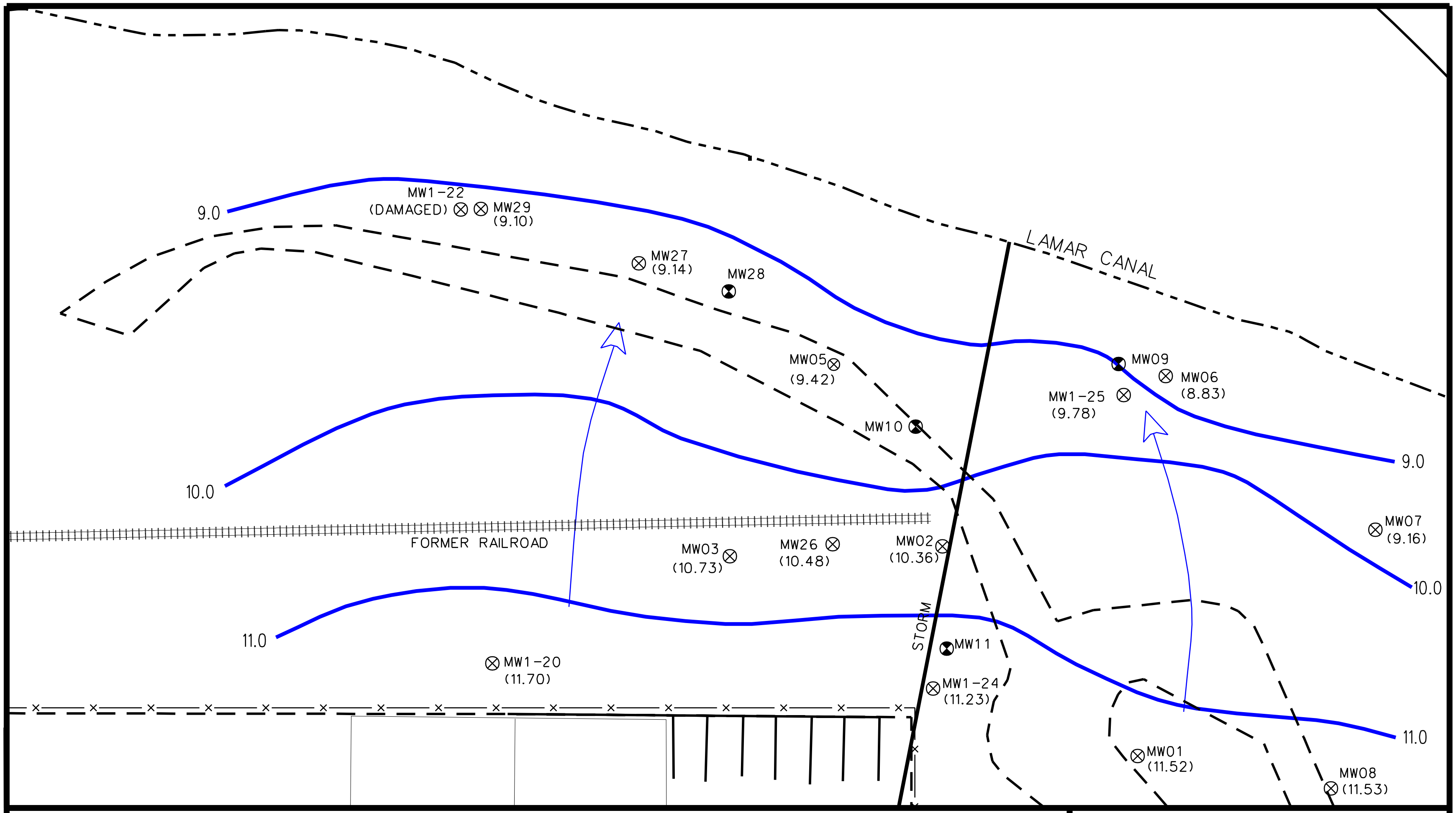
PDO YARD, HAAF,GA GROUNDWATER POTENTIOMETRIC SURFACE MAP (1/23/04)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	C/07/06/05	97028/DGNS/V40C021KD.DGN



LEGEND

⊗	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
╫╫╫╫╫	RAILROAD TRACKS
═ ═	DIRT ROAD
—×—	FENCE
— —	CANAL
(11.70)	GROUNDWATER ELEVATION (FT AMSL)
←	GROUNDWATER FLOW DIRECTION

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.

N

0 25 50

SCALE: 1" = 50'

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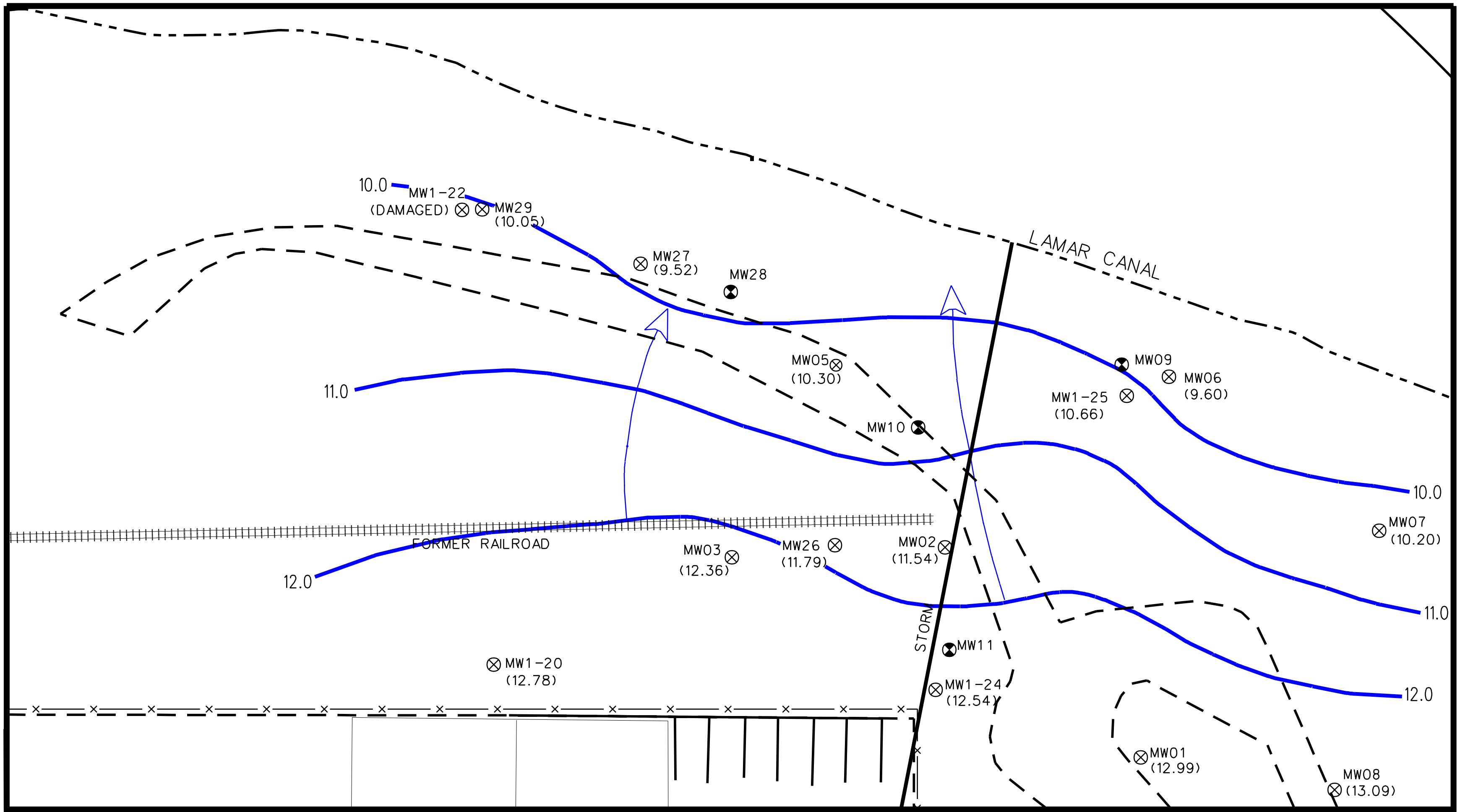
PDO YARD, HAAF, GA
GROUNDWATER POTENTIOMETRIC SURFACE MAP (3/23/04)

DRAWN BY:	REV. NO./DATE:	CAD FILE:
S.DUNLAP	C/07/06/05	97028/DGNS/V40C021KF.DGN

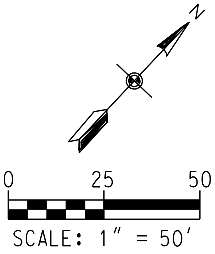


LEGEND

●	DEEP MONITORING WELL
⊗	SHALLOW MONITORING WELL
┼┼┼┼┼┼	RAILROAD TRACKS
= = :	DIRT ROAD
—×—	FENCE
— - -	CANAL
(12.78)	GROUNDWATER ELEVATION (FT AMSL)
——▷	GROUNDWATER FLOW DIRECTION

NOTES:

1. SEE FIGURE 1 FOR LOCATION OF MW1-23.
2. MW1-22 WAS DAMAGED IN MAY 2001 DURING CHEMICAL INJECTION.



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**PDO YARD, HAAF, GA
GROUNDWATER POTENTIOMETRIC
SURFACE MAP (10/18/04)**

DRAWN BY:	REV. NO./DATE:	CAD FILE:
DUNLAP	0/06/03/05	97028/DGNS/V40PTN10-04.DGN

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APPENDIX IV
LABORATORY ANALYTICAL RESULTS

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ANALYTICAL LABORATORY INFORMATION
AND
DATA VALIDATION CODES

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STATE OF GEORGIA
ENVIRONMENTAL LABORATORY ACCREDITATION

	Name of Laboratory:	**General Engineering Laboratories, Inc.**
	Address:	P.O. Box 30712 2040 Savage Road Charleston, SC 29407
	Contact:	Bob Pullano
	Telephone Number:	(843) 556-8171
	Fax Number:	(843) 766-1178
#1	Accrediting Authority:	**State of South Carolina**
	Accreditation Number:	SC-10120001
	Effective Date:	Extension granted while recertification in process. January 27, 2003
	Expiration Date:	March 26, 2006
	Accreditation Scope:	SDWA, CWA, RCRA, CERCLA
#2	Accrediting Authority:	**State of Florida**
	Accreditation Number:	E-87156
	Effective Date:	July 1, 2001 (initial and reaccredited on July 1 each year there after)
	Expiration Date:	June 30, 2006
	Accreditation Scope:	SDWA, CWA, RCRA, CERCLA

DATA VALIDATION REASON CODES

Organic, Inorganic, and Radiological Analytical Data

Holding Times

A01	Extraction holding times were exceeded.
A02	Extraction holding times were grossly exceeded.
A03	Analysis holding times were exceeded.
A04	Analysis holding times were grossly exceeded.
A05	Samples were not preserved properly.
A06	Professional judgment was used to qualify the data.

Gas Chromatography/Mass Spectroscopy Tuning

B01	Mass calibration was in error, even after applying expanded criteria.
B02	Mass calibration was not performed every 12 hours.
B03	Mass calibration did not meet ion abundance criteria.
B04	Professional judgment was used to qualify the data.

Initial/Continuing Calibration – Organics

C01	Initial calibration relative response factor (RRF) was <0.05.
C02	Initial calibration relative standard deviation (RSD) was >30%.
C03	Initial calibration sequence was not followed as required.
C04	Continuing calibration RRF was <0.05.
C05	Continuing calibration percent difference (%D) was >25%.
C06	Continuing calibration was not performed at the required frequency.
C07	Resolution criteria were not met.
C08	Relative percent difference (RPD) criteria were not met.
C09	RSD criteria were not met.
C10	Retention time of compounds was outside windows.
C11	Compounds were not adequately resolved.
C12	Breakdown of endrin or dichlorodiphenyltrichloroethane (DDT) was >30%.
C13	Combined breakdown of endrin/DDT was >30%.
C14	Professional judgment was used to qualify the data.

Initial/Continuing Calibration – Inorganics

D01	Initial calibration verification (ICV) or continuing calibration verification (CCV) was not performed for every analyte.
D02	ICV recovery was above the upper control limit.
D03	ICV recovery was below the lower control limit.
D04	CCV recovery was above the upper control limit.
D05	CCV recovery was below the lower control limit.
D06	Standard curve was not established with the minimum number of standards.
D07	Instrument was not calibrated daily or each time the instrument was set up.
D08	Correlation coefficient was <0.995.
D09	Mid-range cyanide standard was not distilled.
D10	Professional judgment was used to qualify the data.

Inductively Coupled Plasma and Furnace Requirements

E01	Interference check sample recovery was outside the control limit.
E02	Duplicate injections were outside the control limit.
E03	Post-digestion spike recovery was outside the control limit.
E04	Method of standard additions (MSA) was required but not performed.
E05	MSA correlation coefficient was <0.995.
E06	MSA spikes were not at the correct concentration.
E07	Serial dilution criteria were not met.
E08	Professional judgment was used to qualify the data.

Blanks

F01	Sample data were qualified as a result of the method blank.
F02	Sample data were qualified as a result of the field blank.
F03	Sample data were qualified as a result of the equipment rinsate.
F04	Sample data were qualified as a result of the trip blank.
F05	Gross contamination exists.
F06	Concentration of the contaminant was detected at a level below the contract-required quantitation limit (CRQL).
F07	Concentration of the contaminant was detected at a level less than the action limit, but greater than the CRQL.
F08	Concentration of the contaminant was detected at a level that exceeds the action level.
F09	No laboratory blanks were analyzed.
F10	Blank had a negative value >2 times the instrument detection limit.
F11	Blanks were not analyzed at required frequency.
F12	Professional judgment was used to qualify the data.

DATA VALIDATION REASON CODES

Organic, Inorganic, and Radiological Analytical Data (continued)

Surrogate/Radiological Chemical Recovery G01 Surrogate/radiological chemical recovery was above the upper control limit. G02 Surrogate/radiological chemical recovery was below the lower control limit. G03 Surrogate recovery was <10%. G04 Surrogate recovery was zero. G05 Surrogate/radiological chemical recovery data were not present. G06 Professional judgment was used to qualify the data. G07 Radiological chemical recovery was <20%. G08 Radiological chemical recovery was >150%.	**Matrix Spike/Matrix Spike Duplicate** H01 Matrix spike (MS)/matrix spike duplicate (MSD) recovery was above the upper control limit. H02 MS/MSD recovery was below the lower control limit. H03 MD/MSD recovery was <10%. H04 MS/MSD pairs exceed the RPD limit. H05 No action was taken on MS/MSD limit. H06 Professional judgment was used to qualify the data. H07 Radiological MS/MSD recovery was <20%. H08 Radiological MS/MSD recovery was >160%. H09 Radiological MS/MSD samples were not analyzed at the required frequency.
Matrix Spike I01 MS recovery was above the upper control limit. I02 MS recovery was below the lower control limit. I03 MS recovery was <30%. I04 No action was taken on MS data. I05 Professional judgment was used to qualify the data.	**Laboratory Duplicate** J01 Duplicate RPD/radiological duplicate error ratio (DER) was outside the control limit. J02 Duplicate sample results were >5 times the contract-required detection limit (CRDL). J03 Duplicate sample results were <5 times the CRDL. J04 Professional judgment was used to qualify the data. J05 Duplicate was not analyzed at the required frequency.
Internal Area Summary K01 Area counts were outside the control limits. K02 Extremely low area counts or performance was exhibited by a major drop-off. K03 IS retention time varied by more than 30 sec. K04 Professional judgment was used to qualify the data.	**Pesticide Cleanup Checks** L01 10% recovery was obtained during either check. L02 Recoveries during either check were >120%. L03 Gel permeation chromatography cleanup recoveries were outside the control limits. L04 Florisil cartridge cleanup recoveries were outside the control limits. L05 Professional judgment was used to qualify the data.
Target Compound Identification M01 Incorrect identifications were made. M02 Qualitative criteria were not met. M03 Cross contamination occurred. M04 Confirmatory analysis was not performed. M05 No results were provided. M06 Analysis occurred outside 12-hour gas chromatography/mass spectroscopy window. M07 Professional judgment was used to qualify the data. M08 The %D between the two pesticide/polychlorinated biphenyl column checks was >25%.	**Compound Quantitation and Reported CRQLs** N01 Quantitation limits were affected by large off-scale peaks. N02 Method detection limits reported by the laboratory exceeded corresponding CRQLs. N03 Professional judgment was used to qualify the data.
Tentatively Identified Compounds O01 Compound was suspected laboratory contaminant and was not detected in the blank. O02 Tentatively identified compound result was not above 10 times the level found in the blank. O03 Professional judgment was used to qualify analytical data.	**Laboratory Control Samples** P01 Laboratory control sample (LCS) recovery was above upper control limit. P02 LCS recovery was below lower control limit. P03 LCS recovery was <50%. P04 No action was taken on the LCS data. P05 LCS was not analyzed at required frequency. P06 Radiological LCS recovery was <50% for aqueous samples, <40% for solid samples. P07 Radiological LCS recovery was >150% for aqueous samples, >160% for solid samples. P08 Professional judgment was used to qualify the data.

DATA VALIDATION REASON CODES

Organic, Inorganic, and Radiological Analytical Data (continued)

Field Duplicate Q01 Field duplicate RPDs were >30% for water and/or >50% for soil. Q02 Radiological field DER was outside the control limit. Q03 Duplicate sample results were >5 times the CRDL. Q04 Duplicate sample results were <5 times the CRDL.	**Radiological Calibration** R01 Efficiency calibration criteria were not met. R02 Energy calibration criteria were not met. R03 Resolution calibration criteria were not met. R04 Background determination criteria were not met. R05 Quench curve criteria were not met. R06 Absorption curve criteria were not met. R07 Plateau curve criteria were not met. R08 Professional judgment was used to qualify the data.
Radiological Calibration Verification S01 Efficiency verification criteria were not met. S02 Energy verification criteria were not met. S03 Resolution verification criteria were not met. S04 Background verification criteria were not met. S05 Cross-talk verification criteria were not met. S06 Professional judgment was used to qualify the data.	

FIFTH POST-CORRECTIVE-ACTION
PCE PLUME SAMPLING

APRIL 2005

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP02C2

Lab Name: GEL, LLC.   Contract: N/A

Lab Code: N/A   Case No.: N/A   SAS No.: N/A   SDG No.: 135526

Matrix: (soil/water) WATER   Lab Sample ID: 135526003

Sample wt/vol: 5.000 (g/ml) ML   Lab File ID: 3I511

Level: (low/med) LOW   Date Received: 04/29/05

% Moisture: not dec. ________   Date Analyzed: 05/06/05

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
127-18-4	Tetrachloroethylene	2.5	

=

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP02C4

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526

Matrix: (soil/water) WATER Lab Sample ID: 135526004

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I512

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/06/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
127-18-4	--------Tetrachloroethylene________	2.3	____	=

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP03C2

Lab Name: GEL, LLC.   Contract: N/A

Lab Code: N/A   Case No.: N/A   SAS No.: N/A   SDG No.: 135526

Matrix: (soil/water) WATER   Lab Sample ID: 135526006

Sample wt/vol: 5.000 (g/ml) ML   Lab File ID: 3I514

Level: (low/med) LOW   Date Received: 04/29/05

% Moisture: not dec. ________   Date Analyzed: 05/06/05

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
127-18-4	Tetrachloroethylene	1.0	U	u

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
AP05C2

Lab Name: GEL, LLC.
Contract: N/A

Lab Code: N/A
Case No.: N/A
SAS No.: N/A
SDG No.: 135526

Matrix: (soil/water) WATER
Lab Sample ID: 135526008

Sample wt/vol: 5.000 (g/ml) ML
Lab File ID: 3I516

Level: (low/med) LOW
Date Received: 04/29/05

% Moisture: not dec. ________
Date Analyzed: 05/06/05

GC Column: DB-624
ID: 0.25 (mm)
Dilution Factor: 1.0

Soil Extract Volume:________(uL)
Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
127-18-4	Tetrachloroethylene	2.9	

=

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP24C2

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526

Matrix: (soil/water) WATER Lab Sample ID: 135526009

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I517

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/06/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
127-18-4	Tetrachloroethylene	0.44	J	J

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP26C2

Lab Name: GEL, LLC.　　Contract: N/A

Lab Code: N/A　　Case No.: N/A　　SAS No.: N/A　　SDG No.: 135526

Matrix: (soil/water) WATER　　Lab Sample ID: 135526007

Sample wt/vol: 5.000 (g/ml) ML　　Lab File ID: 3I515

Level: (low/med) LOW　　Date Received: 04/29/05

% Moisture: not dec. ________　　Date Analyzed: 05/06/05

GC Column: DB-624　ID: 0.25 (mm)　　Dilution Factor: 1.0

Soil Extract Volume:________(uL)　　Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
127-18-4	Tetrachloroethylene	3.3	

=

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP27C2

Lab Name: GEL, LLC.　　Contract: N/A

Lab Code: N/A　　Case No.: N/A　　SAS No.: N/A　　SDG No.: 135526

Matrix: (soil/water) WATER　　Lab Sample ID: 135526005

Sample wt/vol: 5.000 (g/ml) ML　　Lab File ID: 3I513

Level: (low/med) LOW　　Date Received: 04/29/05

% Moisture: not dec. ________　　Date Analyzed: 05/06/05

GC Column: DB-624　ID: 0.25 (mm)　　Dilution Factor: 1.0

Soil Extract Volume:________(uL)　　Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
127-18-4	Tetrachloroethylene	2.3	=

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP29C2

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526

Matrix: (soil/water) WATER Lab Sample ID: 135526002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I510

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/06/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
127-18-4	--------Tetrachloroethylene	1.0	U	u

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Page 1 of 2

CHAIN OF CUSTODY RECORD

COC NO.: PD00017

PROJECT NAME: Hunter Army Airfield LTM
D.O. # 54

PROJECT NUMBER: 01-1055-04-2945-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature)

(Printed Name) James Dendy

1355262 REQUESTED PARAMETERS 1355272

LABORATORY NAME:
General Engineering Laboratory

LABORATORY ADDRESS:
2040 Savage Road
Charleston, SC 29417

PHONE NO: (843) 556-8171

	Sample ID	Date Collected	Time Collected	Matrix	BTEX	VOC	PAH	PCE	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS	
001	TH0307	4/26/05	0800	water				X	2	NA	Trip Blank	.1
01	TB0413	4/26/05	0800	water	X				2		Trip Blank	.2
02	AP23C2	4/26/05	1400	water	X				2			
03	AP07C2	4/27/05	1345	water	X				2			
04	AP01C2	4/26/05	1535	water	X				2			
002	AP29C2	4/26/05	1630	water				X	2			.1
003	AP02C2	4/26/05	1720	water				X	2			
004	AP02C4	4/26/05	1720	water				X	2			
005	AP27C2	4/27/05	0840	water				X	2			
006	AP03C2	4/27/05	0915	water				X	2			
007	AP26C2	4/27/05	0950	water				X	2			
008	AP05C2	4/27/05	1045	water				X	2			
05	AP25C2	4/27/05	1200	water	X				2			.2

RELINQUISHED BY: James Dendy	Date/Time 4/28/05 1900	RECEIVED BY: FEDEX	Date/Time 4/28/05 1900
COMPANY NAME: SAIC		COMPANY NAME: FEDEX	
RECEIVED BY: M. Gattreu	Date/Time 4/29/05 930	RELINQUISHED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 26

Cooler Temperature: < 4°C

Cooler ID: #①

FEDEX NUMBER: 8431 2138 1041

Call James Dendy at 865-607-8266 with questions.

Page 2 of 2

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CHAIN OF CUSTODY RECORD

COC NO.: PD00017

PROJECT NAME: Hunter Army Airfield LTM
D.O. # 54

PROJECT NUMBER: 01-1055-04-2945-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature) (Printed Name) James Dendy

1355268 REQUESTED PARAMETERS 1355278

LABORATORY NAME:
General Engineering Laboratory

LABORATORY ADDRESS:
2040 Savage Road
Charleston, SC 29417

PHONE NO: (843) 556-8171

	Sample ID	Date Collected	Time Collected	Matrix	BTEX	VOC	PAH	PCE	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS	
06	AP0AC2	4/27/05	1125	Water	X				2			.2
07	AP06C2	4/27/05	1250	water	X				2			↓
09	AP24C2	4/27/05	1615	water				X	2			.1
08	AP08C2	4/27/05	1750	water	X				2			.2

4/28/05

RELINQUISHED BY: Jim Dendy
Date/Time 4/28/05 1900
COMPANY NAME: SAIC

RECEIVED BY: FEDEX
Date/Time 4/28/05 1900
COMPANY NAME: FEDEX

TOTAL NUMBER OF CONTAINERS: 8

Cooler Temperature: <4C

Cooler ID: #1

FEDEX NUMBER: 8431 2138 1041

RECEIVED BY: M. Gaithers
Date/Time 4/29/05 930
COMPANY NAME:

RELINQUISHED BY:
Date/Time
COMPANY NAME:

34 total Sample Bottles

RELINQUISHED BY:
Date/Time
COMPANY NAME:

RECEIVED BY:
Date/Time
COMPANY NAME:

EIGHT SEMIANNUAL
BENZENE PLUME SAMPLING

APRIL 2005

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP01C2

Lab Name: GEL, LLC.
Contract: N/A

Lab Code: N/A
Case No.: N/A
SAS No.: N/A
SDG No.: 135526-1

Matrix: (soil/water) WATER
Lab Sample ID: 135527004

Sample wt/vol: 5.000 (g/ml) ML
Lab File ID: 3I536

Level: (low/med) LOW
Date Received: 04/29/05

% Moisture: not dec. ________
Date Analyzed: 05/07/05

GC Column: DB-624 ID: 0.25 (mm)
Dilution Factor: 1.0

Soil Extract Volume:________(uL)
Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	1.6		=
108-88-3	Toluene	1.0	U	u
100-41-4	Ethylbenzene	0.37	J	J
1330-20-7	Xylenes (total)	1.0	U	u

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP06C2

Lab Name: GEL, LLC.   Contract: N/A

Lab Code: N/A   Case No.: N/A   SAS No.: N/A   SDG No.: 135526-1

Matrix: (soil/water) WATER   Lab Sample ID: 135527007

Sample wt/vol: 5.000 (g/ml) ML   Lab File ID: 3I539

Level: (low/med) LOW   Date Received: 04/29/05

% Moisture: not dec. ________   Date Analyzed: 05/07/05

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	4.1		=
108-88-3	Toluene	1.0	U	u
100-41-4	Ethylbenzene	1.0	U	
1330-20-7	Xylenes (total)	1.0	U	

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP07C2

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526-1

Matrix: (soil/water) WATER Lab Sample ID: 135527003

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I535

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/07/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	1.0	U	u
108-88-3	Toluene	1.0	U	
100-41-4	Ethylbenzene	1.0	U	
1330-20-7	Xylenes (total)	1.0	U	

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP08C2

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526-1

Matrix: (soil/water) WATER Lab Sample ID: 135527008

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I540

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/07/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	1.0	U	u
108-88-3	Toluene	1.0	U	
100-41-4	Ethylbenzene	1.0	U	
1330-20-7	Xylenes (total)	1.0	U	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP23C2

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526-1

Matrix: (soil/water) WATER Lab Sample ID: 135527002

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I534

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/07/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	0.67	J	J
108-88-3	Toluene	1.0	U	u
100-41-4	Ethylbenzene	0.59	J	J
1330-20-7	Xylenes (total)	1.0	U	u

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP25C2

Lab Name: GEL, LLC.   Contract: N/A

Lab Code: N/A   Case No.: N/A   SAS No.: N/A   SDG No.: 135526-1

Matrix: (soil/water) WATER   Lab Sample ID: 135527005

Sample wt/vol: 5.000 (g/ml) ML   Lab File ID: 3I537

Level: (low/med) LOW   Date Received: 04/29/05

% Moisture: not dec. ________   Date Analyzed: 05/07/05

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	2.7		=
108-88-3	Toluene	1.0	U	u
100-41-4	Ethylbenzene	1.0	U	
1330-20-7	Xylenes (total)	1.0	U	

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AP0AC2

Lab Name: GEL, LLC. Contract: N/A

Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: 135526-1

Matrix: (soil/water) WATER Lab Sample ID: 135527006

Sample wt/vol: 5.000 (g/ml) ML Lab File ID: 3I538

Level: (low/med) LOW Date Received: 04/29/05

% Moisture: not dec. ________ Date Analyzed: 05/07/05

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
71-43-2	Benzene	1.0	U	u
108-88-3	Toluene	1.0	U	
100-41-4	Ethylbenzene	1.0	U	
1330-20-7	Xylenes (total)	1.0	U	

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CHAIN OF COUSTODY RECORD

COC NO.: PD00017

PROJECT NAME: Hunter Army Airfield LTM
D.O. # 54

PROJECT NUMBER: 01-1055-04-2945-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature)

(Printed Name) James Dundy

1355262 REQUESTED PARAMETERS 1355272

LABORATORY NAME:
General Engineering Laboratory

LABORATORY ADDRESS:
2040 Savage Road
Charleston, SC 29417

PHONE NO: (843) 556-8171

	Sample ID	Date Collected	Time Collected	Matrix	BTEX	VOC	PAH	PCE	No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS	
001	TH0307	4/26/05	0800	water				X	2	N4	Trip Blank	.1
01	TB0413	4/26/05	0800	water	X				2		Trip Blank	.2
02	AP23C2	4/26/05	1400	Water	X				2			↓
03	AP07C2	4/27/05	1345	water	X				2			
04	AP01C2	4/26/05	1535	water	X				2			
002	AP29C2	4/26/05	1630	water				X	2			.1
03	AP02C2	4/26/05	1720	water				X	2			↓
04	AP02C4	4/26/05	1720	water				X	2			
05	AP27C2	4/27/05	0840	water				X	2			
06	AP03C2	4/27/05	0915	water				X	2			
07	AP26C2	4/27/05	0950	water				X	2			
08	AP05C2	4/27/05	1045	water				X	2			
05	AP25C2	4/27/05	1200	water	X				2			.2

RELINQUISHED BY: James Dundy	Date/Time 4/28/05 1900	RECEIVED BY: FEDEX	Date/Time 4/28/05 1900
COMPANY NAME: SAIC		COMPANY NAME: FEDEX	
RECEIVED BY: M. Gatties	Date/Time 4/29/05 930	RELINQUISHED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 26

Cooler ID: #①

Cooler Temperature: < 4°C

FEDEX NUMBER: 8431 2138 1041

Call James Dundy at 865-607-8266 with questions.

page 2 of 2

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151 Lafayette Drive, Oak Ridge, Tennessee 37831(865) 481-4600

CHAIN OF CUSTODY RECORD

COC NO.: PD00017

PROJECT NAME: Hunter Army Airfield LTM
D.O. # 54

PROJECT NUMBER: 01-1055-04-2945-200

PROJECT MANAGER: Patty Stoll

Sampler (Signature)

(Printed Name) James Dendy

1355268 **REQUESTED PARAMETERS** 1355278

	Sample ID	Date Collected	Time Collected	Matrix	BTEX	VOC	PAH	PCE																No. of Bottles/ Vials:	OVA SCREENING	OBSERVATIONS, COMMENTS, SPECIAL INSTRUCTIONS	
06	APOAC2	4/27/05	1125	Water	X																			2			.2
07	AP06C2	4/27/05	1250	water	X																			2			
09	AP24C2	4/27/05	1615	water				X																2			.1
08	AP08C2	4/27/05	1750	water	X																			2			.2

4/28/05

LABORATORY NAME:
General Engineering Laboratory

LABORATORY ADDRESS:
2040 Savage Road
Charleston, SC 29417

PHONE NO: (843) 556-8171

RELINQUISHED BY:	Date/Time 4/28/05 1900	RECEIVED BY: FEDEX	Date/Time 4/28/05 1900
COMPANY NAME: SAIC		COMPANY NAME: FEDEX	
RECEIVED BY: M. Gaithers	Date/Time 4/29/05 930	RELINQUISHED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	
RELINQUISHED BY:	Date/Time	RECEIVED BY:	Date/Time
COMPANY NAME:		COMPANY NAME:	

TOTAL NUMBER OF CONTAINERS: 8

Cooler Temperature: <4C

Cooler ID: #①

FEDEX NUMBER: 8431 2138 1041

34 total Sample Bottles

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