

**Final**

**Site Investigation Report  
Former Decontamination Complex,  
Parcels 93(7), 46(7), 70(7), and 140(7)**

**Fort McClellan  
Calhoun County, Alabama**

**Volume I of II: Text and Appendices A – B**

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**Revision 0**

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## ***Executive Summary***

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In accordance with Contract Number DACA21-96-D-0018, Task Order CK05, Shaw Environmental, Inc. (Shaw) completed a site investigation (SI) at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), at Fort McClellan in Calhoun County, Alabama. The two-phased SI was conducted to determine whether chemical constituents are present at the site as a result of mission-related Army activities. The SI consisted of a geophysical survey and the collection and analysis of 27 surface soil samples, 5 depositional soil samples, 26 subsurface soil samples, 25 groundwater samples, 6 surface water samples, and 6 sediment samples. In addition, 21 monitoring wells were installed to facilitate groundwater sample collection and to provide site-specific geological and hydrogeological characterization information.

The geophysical survey results indicated the presence of one anomaly at Parcel 140(7) potentially representing an underground storage tank. The anomaly was investigated using exploratory trenching and excavation; however, no tank was found.

Chemical analysis of samples collected at the site indicates that metals, volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides, explosive compounds, one polychlorinated biphenyl (PCB) compound, and one herbicide were detected in site media. To evaluate whether the detected constituents pose an unacceptable risk to human health or the environment, the analytical results were compared to human health site-specific screening levels (SSSL), ecological screening values (ESV), and background screening values for FTMC. In addition, site metals data were evaluated using statistical and geochemical methods to determine if the metals were site related.

The area north of Trench Hill Road (including Parcel 140[7]) will be transferred to the Joint Powers Authority, and the remainder of Parcel 93(7), including Parcels 46(7) and 70(7), will be transferred to the Alabama Army National Guard. Although residential reuse is not planned, the analytical data were screened against residential human health SSSLs to determine if the site is suitable for unrestricted land reuse. Constituents detected at concentrations exceeding SSSLs and background (where available) were identified as chemicals of potential concern (COPC) in site media as follows:

- Surface soil – Metals and polynuclear aromatic hydrocarbon (PAH) compounds
- Subsurface soil – Aluminum and iron

- Groundwater – Metals, VOCs, and one explosive compound
- Surface water – Arsenic and manganese
- Sediment – Arsenic.

However, these COPCs were determined not to pose a threat to human health based on the Phase II investigation results, the statistical/geochemical evaluations, frequency of detection/areal extent of chemicals, or because the chemicals were judged to be unrelated to historical mission-related activities.

Only acetone in groundwater was retained as a COPC at the site. Acetone was detected at concentrations exceeding its SSSL in samples from five monitoring wells installed during Phase II of the SI. All of the wells with elevated acetone results are located in the southern portion of Parcel 93(7) (i.e., south of Trench Hill Road). An additional well installed north of Trench Hill Road showed no detections of possible site-related VOCs, including acetone. Although acetone is a common laboratory sample contaminant, it could not be concluded whether the chemical's presence in site samples was attributable to laboratory contamination. A second potential source of acetone was the bentonite pellets used in monitoring well construction. However, evaluation of this potential contamination source was also inconclusive. A review of site history did not indicate that acetone was ever used at the site. Therefore, acetone's status as a site-related chemical remains undetermined.

Constituents detected at concentrations exceeding ESVs and background were identified as constituents of potential ecological concern in site media as follows:

- Surface soil – Metals, VOCs, SVOCs (primarily PAHs), pesticides, and one PCB
- Surface water – Manganese, mercury, and one SVOC
- Sediment – Metals, one VOC, SVOCs (primarily PAHs), and pesticides.

However, the constituents of potential ecological concern were determined not to pose a threat to ecological receptors based on the Phase II investigation results, statistical/geochemical evaluations, frequency of detection/areal extent of chemicals, or because the chemicals were judged to be unrelated to historical mission-related activities. In addition, the site is located within the developed area of the FTMC Main Post and is largely covered with asphalt pavement and buildings/foundations. The entire portion of Parcel 93(7) south of Trench Hill Road is fenced and is projected for continued use as a military training area by the Alabama Army National Guard.

Based on the results of the SI, Shaw Environmental, Inc. recommends “No Further Action” and unrestricted land reuse with regard to CERCLA-related hazardous substances for the portion of Parcel 93(7) located north of Trench Hill Road (including Parcel 140[7]). For the remainder of Parcel 93(7) south of Trench Hill Road, Shaw recommends further investigation to determine the source of acetone in groundwater at the Former Decontamination Complex, Parcels 93(7), 46(7), and 70(7).

## **1.0 Introduction**

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The U.S. Army has selected Fort McClellan (FTMC), located in Calhoun County, Alabama, for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. The 1990 Base Closure Act, Public Law 101-510, established the process by which U.S. Department of Defense (DOD) installations would be closed or realigned. The BRAC Environmental Restoration Program requires investigation and cleanup of federal properties prior to transfer to the public domain. The U.S. Army is conducting environmental studies of the impact of suspected contaminants at parcels at FTMC under the management of the U.S. Army Corps of Engineers (USACE), Mobile District. The USACE contracted Shaw Environmental, Inc. (Shaw) (formerly IT Corporation [IT]) to perform the site investigation (SI) at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), under Contract Number DACA21-96-D-0018, Task Order CK05.

The SI was conducted in two phases: Phase I field activities were initiated in October 1998 and were completed in March 1999. Phase II field activities were performed from October to December 2001. As a follow-up to the SI, the installation of one additional monitoring well and collection of two groundwater samples were conducted in 2002. A Basewide acetone investigation was conducted in April 2002, during which three screening samples were collected from one monitoring well at the site (FTA-93-MW05).

This SI report presents specific information and results compiled from field investigations conducted at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), including geophysical survey, field sampling and analysis, and monitoring well installation activities.

### **1.1 Project Description**

The Former Decontamination Complex was identified as an area to be investigated prior to property transfer. The site was classified as a Category 7 parcel in the environmental baseline survey (EBS) (Environmental Science and Engineering, Inc. [ESE], 1998). Category 7 parcels are areas that are not evaluated and/or that require further evaluation.

A site-specific work plan, consisting of a field sampling plan (SFSP) and a safety and health plan, was finalized in October 1998 (IT, 1998a). An SFSP addendum (IT, 2001a) was finalized in September 2001 for supplemental (Phase II) activities. The work plan and SFSP addendum

were prepared to provide technical guidance for sample collection and analysis at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7). The work plan and SFSP addendum were used as attachments to the installation-wide work plan (IT, 1998b) and the installation-wide sampling and analysis plan (SAP) (IT, 2000a, 2002). The SAP includes the installation-wide safety and health plan and quality assurance plan.

Shaw conducted Phase I SI field activities at the Former Decontamination Complex in 1998. Phase I consisted of a geophysical survey and the collection and analysis of 24 surface soil samples, 5 depositional soil samples, 26 subsurface soil samples, 9 groundwater samples, 6 surface water samples, and 6 sediment samples. In addition, 9 temporary wells were installed at the site. The SI was conducted to determine whether potential site-specific chemicals are present at concentrations that pose an unacceptable risk to human health or the environment (IT, 1998a).

Phase II of the SI was conducted in 2001 and consisted of the collection and analysis of 3 surface soil samples and 11 groundwater samples. In addition, 8 permanent residuum monitoring wells and 3 permanent bedrock monitoring wells were installed at the site. The objectives of the Phase II investigation were to confirm the presence of organic compounds in groundwater and to determine the horizontal extent of chromium at Phase I surface soil sample location FTA-93-GP09 (IT, 2001a).

At the request of the BRAC Cleanup Team (BCT), additional work was conducted at Parcel 140(7) in 2002. One residuum groundwater monitoring well was installed at the location of a previously abandoned well, and groundwater samples were collected to determine whether organic compounds (e.g., acetone) had impacted groundwater in the northern portion of Parcel 93(7), north of Trench Hill Road.

A Basewide acetone investigation was conducted in April 2002. Three groundwater screening samples were collected from monitoring well FTA-93-MW05 to confirm the presence of acetone in groundwater.

## **1.2 Purpose and Objectives**

The SI program was designed to collect data from site media and provide a level of defensible data and information in sufficient detail to determine whether chemical constituents are present at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), at concentrations that pose an unacceptable risk to human health or the environment. The SI

analytical results were compared to residential human health site-specific screening levels (SSSL), ecological screening values (ESV), and background screening values for metals and polynuclear aromatic hydrocarbons (PAH). The SSSLs, ESVs, and PAH background screening values are presented in the *Final Human Health and Ecological Screening Values and PAH Background Summary Report* (IT, 2000b). The PAH background screening values were developed by Shaw at the direction of the BCT to address the occurrence of PAH compounds in surface soils as a result of anthropogenic activities at FTMC. Background metals screening values are presented in the *Final Background Metals Survey Report, Fort McClellan, Alabama* (Science Applications International Corporation [SAIC], 1998). In addition, site metals data were further evaluated using statistical and geochemical methods to select site-related metals.

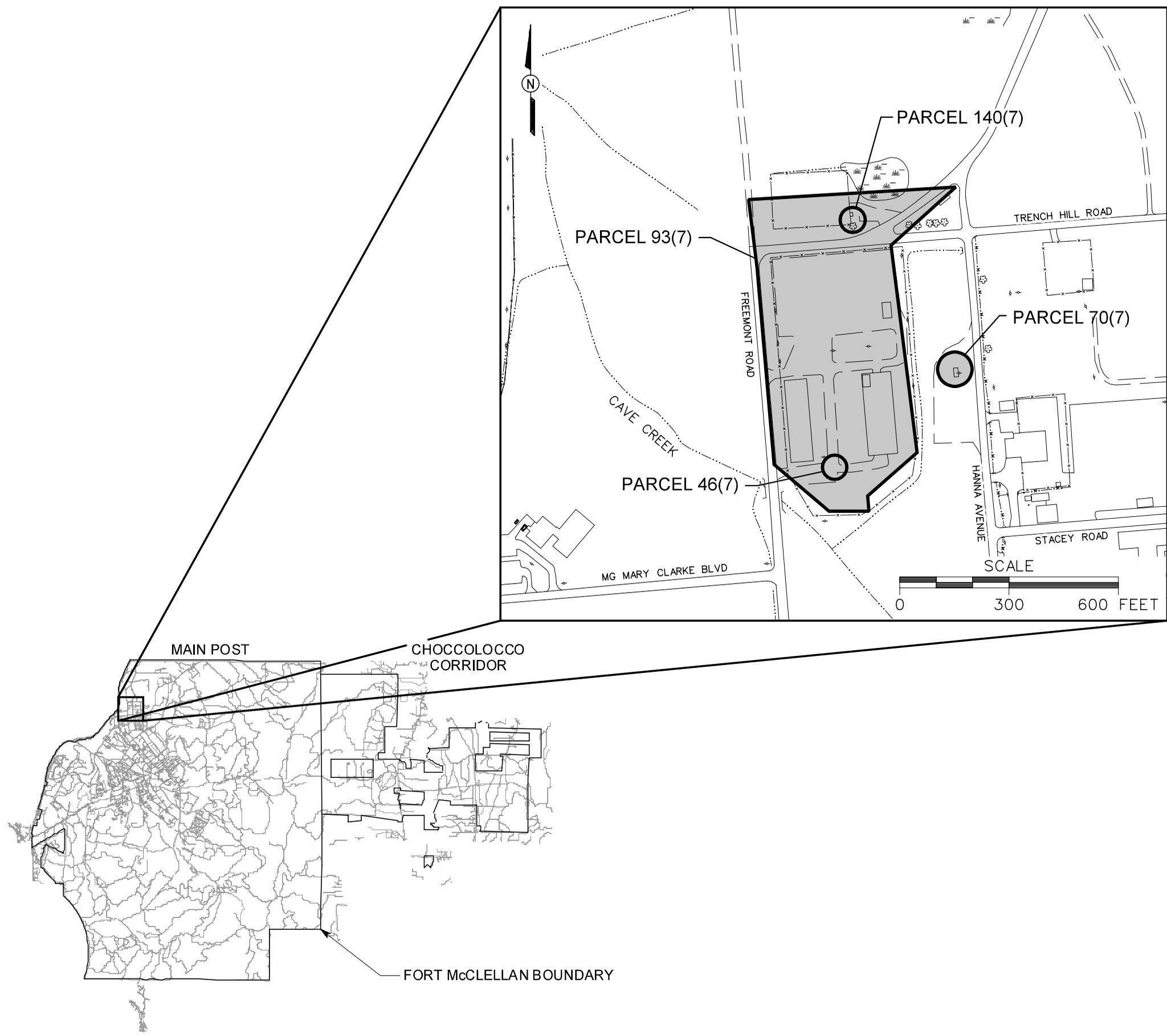
Based on the conclusions presented in this SI report, the BCT will decide either to propose “No Further Action” at the site or to conduct additional work at the site.

### **1.3 Site Description and History**

The Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), is located on the corner of Freemont Road (formerly 4th Avenue) and Trench Hill Road (formerly 1st Street) in the northwestern portion of the FTMC Main Post (Figure 1-1). Built in 1941, the complex covers approximately four acres, including parking areas (Figure 1-2). The entire investigation area south of Trench Hill Road is fenced, except for Parcel 70(7). The pavement inside the fence appears to be covering part of a marshy area that extends to the north end of the area of investigation (north of Trench Hill Road). The ground surface at Parcel 93(7) is almost level, with surface water drainage to the west and northwest, except at the south end of the parcel, where drainage is south into Cave Creek. Cave Creek is located approximately 60 feet from the southwestern boundary of Parcel 93(7) and flows to the north-northwest. A concrete-lined ditch parallel to the western boundary of Parcel 93(7) drains into Cave Creek. A small unnamed intermittent stream on the eastern boundary of the complex discharges into Cave Creek. Site elevation is approximately 740 to 750 feet above mean sea level.

**Parcel 93(7).** Building T-1271 and several concrete foundations (including former Building T-1272) and paved areas are present at Parcel 93(7). Building T-1271 is adjacent to Freemont Road in the southwestern portion of Parcel 93(7). Building T-1271, in conjunction with Building T-1272, housed the 61st Chemical Company from 1961 to 1973. The company’s mission was chemical laundry operations and the Main Post bakery. Chemical laundry operations involved the reimpregnation with paraffin of undergarments used in chemical exercises. Waste from the laundry operations was discharged into the sanitary sewer system. Reimpregnation activities

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 ENGR. CHCK. BY: S. MORAN  
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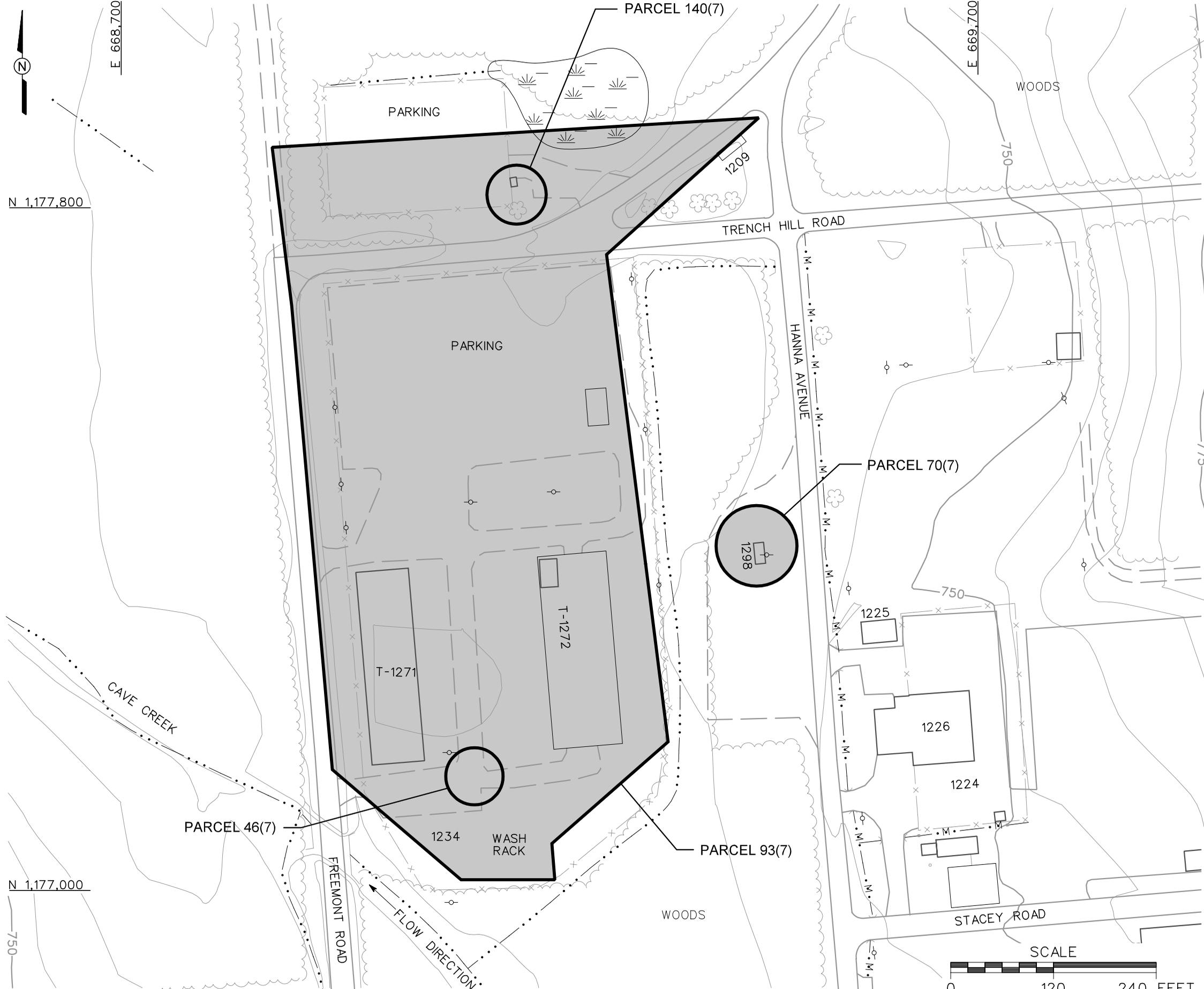
**LEGEND**

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TREES / TREELINE
- MARSH / WETLANDS
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- MANMADE SURFACE DRAINAGE FEATURE
- FENCE
- UTILITY POLE

**FIGURE 1-1**  
**SITE LOCATION MAP**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7),**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018

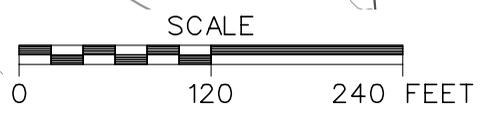
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- LEGEND**
- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
  - TREES / TREELINE
  - MARSH / WETLANDS
  - PARCEL BOUNDARY
  - SURFACE DRAINAGE / CREEK
  - MANMADE SURFACE DRAINAGE FEATURE
  - FENCE
  - UTILITY POLE

**FIGURE 1-2**  
**SITE MAP**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7)**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



used wax, chlorinated oils, and, reportedly, toluene and ethanol. In 1973, the 61st Chemical Company left FTMC and the 548th Battalion continued the mission, but the laundry discontinued the reimpregnation activities.

The 61st Chemical Company returned to FTMC in 1979. From 1980 to 1994, this facility housed the Decontamination Apparatus Branch of the Directorate of Training. Twenty to forty M12A1 decontamination systems were stored on the ground for Chemical Corps student exercises. From 1988 to 1990, other equipment was stored here, including the M17 Lightweight Portable Decontamination Apparatus and the M93 FOX NBC Reconnaissance System. The Former Decontamination Complex was closed in 1994, and the mission was moved to the Decontamination Apparatus Training Facility at Nord Hall (ESE, 1998).

A 1994 FTMC *Storm Water Pollution Prevention Plan* reported that 10 drums of trichlorofluoromethane were found at Building T-1272 (CH2M Hill, 1994). FTMC Directorate of Environment removed the drums before this area was closed. The drums were recycled through the Defense Reutilization and Marketing Office. Building T-1272 was demolished in 1994 (ESE, 1998). The Alabama Army National Guard now controls the portion of the site located south of Trench Hill Road.

Chemical detection test kits containing mercuric cyanide were used at the Former Decontamination Complex. The kits contained strips of paper that changed color in the presence of chemical warfare agents. In 1995, the FTMC Directorate of Environment removed a drum containing mercuric cyanide and several chlorofluorocarbon cans from Building T-1271 (ESE, 1998).

The 1993 Environmental Compliance Assessment System reported numerous oil stains at the site and an oil sheen on the adjacent creek as a result of vehicle operations at the complex. In 1995, an investigation was conducted based on these findings. Soil, groundwater, surface water, and sediment samples were collected and analyzed for total petroleum hydrocarbons (TPH) diesel, TPH gasoline, and total lead. Three soil samples showed evidence of TPH diesel. TPH was not detected in the remainder of the samples. Lead was detected in each of the soil samples and in the sediment outfall sample. Oil-stained surface soil was removed from the site (ESE, 1998).

A petroleum release reportedly occurred at the Former Decontamination Complex, but specific information was not available. A potential existed for a hazardous release because of the

chemical storage conducted at Building T-1272 and the previous chemical laundry mission (ESE, 1998).

**Parcel 46(7).** Parcel 46(7) is an underground storage tank (UST) site located behind Building T-1271 and close to Cave Creek. During the site walkover, it was apparent that excavation work had been conducted. According to the EBS, a 2,500-gallon heating oil tank was removed and a 3,000-gallon heating oil tank was closed in place in 1996. Releases from these tanks were not identified during the tank removal or closure activities. Both tanks had met tank tightness testing standards within the previous five years and were in compliance (ESE, 1998). A large concrete pad, which appears to be an old washrack with a drainpipe on the eastern end, is also located near the tank site.

**Parcel 70(7).** Parcel 70(7), located just east of Parcel 93(7), is the site of Building 1298, a washrack for the refuse dumpster and dump truck cleaning facility. The washrack was built in 1960 and discharged to the sanitary sewer system.

**Parcel 140(7).** Parcel 140(7) is a former gas station located in the northern end of Parcel 93(7). Built in 1941, the building consisted of a 9- by 21-foot cement foundation with corrugated steel walls. Two fuel pumps were located on an island approximately 20 feet in front of the building. The original plans called for two 10,000-gallon tanks for this building. Closure reports for the USTs are not on file at FTMC or the Alabama Department of Environmental Management (ADEM).

## **2.0 Previous Investigations**

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An EBS was conducted by ESE to document the current environmental condition of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with DOD guidance for fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria:

1. Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas)
2. Areas where only release or disposal of petroleum products has occurred
3. Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response
4. Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken
5. Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken
6. Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented
7. Areas that are not evaluated or require additional evaluation.

The EBS was conducted in accordance with protocols of the Community Environmental Response Facilitation Act (CERFA) (Public Law 102-426) and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, ADEM, the U.S. Environmental Protection Agency (EPA) Region 4, and Calhoun County, as well as a database search of substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); petroleum products; and facilities regulated under the Resource Conservation and Recovery Act. Available historical maps and aerial photographs were reviewed to document historical land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify

conditions of specific property parcels. Previous investigations have been conducted at the Former Decontamination Complex, as discussed in the following paragraphs.

**Parcel 93(7), Buildings T-1271 and T-1272 (1993).** The 1993 Environmental Compliance Assessment System reported numerous oil stains at the site and an oil sheen on the adjacent creek as a result of vehicle operations at the complex. In 1995, an investigation was conducted based on these findings. Soil samples, groundwater samples, surface water samples, and sediment samples were collected and analyzed for TPH diesel, TPH gasoline, and total lead. The locations of these samples are unknown. Three soil samples showed evidence of TPH diesel. TPH levels in the remainder of the samples were below detection limits. Lead was detected in each of the soil samples and in the sediment outfall sample. Oil-stained surface soil was removed from the site (ESE, 1998).

**Parcel 93(7), Building T-1272 (1994).** An FTMC *Storm Water Pollution Prevention Plan* (CH2M Hill, 1994) reported that ten drums of trichlorofluoromethane were found at Building T-1272. The FTMC Directorate of Environment removed the drums before this area was closed. The drums were recycled through the Defense Reutilization and Marketing Office. Building T-1272 was demolished in 1994.

**Parcel 46(7).** Parcel 46(7) is a UST location near the southeast corner of Building T-1271. According to the EBS, a 2,500-gallon heating oil tank was removed and a 3,000-gallon heating oil tank was closed in place in 1996 (ESE, 1998). Releases from these tanks were not identified during removal and closure activities. Both tanks had met tank tightness testing standards within the previous five years and were in compliance.

The 2,500-gallon heating oil tank was removed in February 1996. The closure report documented that a mild product odor was detected within the excavation. Examination of the removed tank revealed that it was in good condition. Groundwater was observed flowing into the excavation at approximately 5 feet below ground surface (bgs). Soil samples were collected and field screened for organic vapors. Approximately 37 cubic yards of contaminated soil were excavated and stockpiled. Stockpiled soils were sampled and analyzed for TPH. Analytical results indicated TPH concentrations of up to 2,780 parts per million. Groundwater samples were not collected. Uncontaminated soil was used to backfill the excavation. Justification for not obtaining closure samples was attached to the closure report.

The 3,000-gallon heating oil tank was closed in place in March 1996. Based on a soil boring completed near the tank excavation, depth to groundwater was approximately 5 feet bgs. Groundwater samples were not collected. A flow chart showing the decision logic for not obtaining closure samples was presented in the report.

The Former Decontamination Complex was identified in the EBS as a site where further evaluation was needed.

## **3.0 Current Site Investigation Activities**

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This chapter summarizes SI activities conducted by Shaw at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), including geophysical survey, environmental sampling and analysis, and groundwater monitoring well installation activities.

### **3.1 Geophysical Survey**

A geophysical survey was conducted at the former gas station location (Parcel 140[7]) to identify potential USTs. The area surveyed was approximately 10,800 square feet (0.25 acre), as shown on Figure 3-1. A detailed discussion of the geophysical investigation, including theory of operation of the instruments, field procedures, data processing, and interpreted results of the investigation, is presented as Appendix A. The geophysical survey results are summarized in Section 4.1.

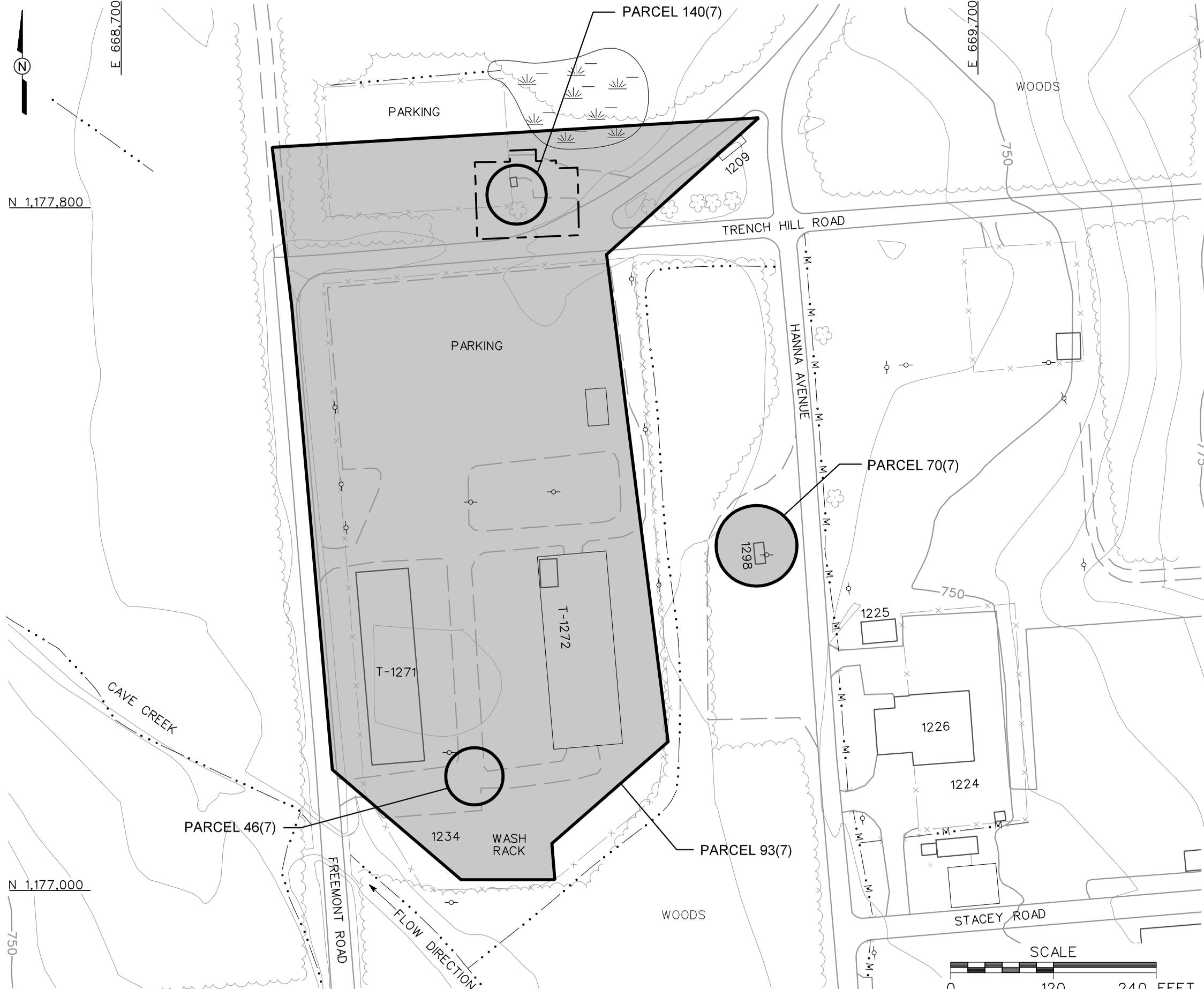
The survey was conducted using magnetic, electromagnetic (EM), and ground-penetrating radar (GPR) techniques. Initially, a survey grid was established at the site to encompass suspected tank locations. Survey control was accomplished using a survey-grade total station global positioning system (GPS). The GPS survey data were referenced to the U.S. State Plane Coordinate System (Alabama East Zone, North American Datum of 1983).

A detailed site map was drawn in the field. The map included any surface cultural features within the survey area, or near its perimeter, that could potentially affect the geophysical data (e.g., vehicles, overhead utilities, manhole covers).

Magnetic and EM data were initially acquired to provide site screening for large, buried metal objects the size of a UST. Preliminary color contour maps of the data were analyzed and compared with the site sketch to differentiate between anomalies caused by surface and subsurface source materials. The locations of magnetic and EM anomalies caused by subsurface features the size of a UST were marked in the field for further characterization with the GPR.

GPR was used to discriminate between subsurface anomalies potentially caused by USTs and those caused by concentrations of buried metallic debris, metal-reinforced utility vaults and junction boxes, or localized concentrations of metal along, or very near, utilities. Suspected underground utilities were verified with an EM utility locator, and their locations were placed on the site map.

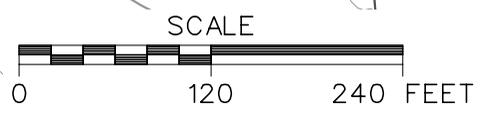
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 PROJ. NO.: 774645  
 INITIATOR: L. O'HARE  
 PROJ. MGR.: J. YACOUB  
 DRAFT. CHK. BY:  
 ENGR. CHK. BY: S. MORAN  
 DATE LAST REV.:  
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 STARTING DATE: 05/06/02  
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- LEGEND**
- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
  - TREES / TREELINE
  - MARSH / WETLANDS
  - PARCEL BOUNDARY
  - GEOPHYSICAL SURVEY AREA
  - SURFACE DRAINAGE / CREEK
  - MANMADE SURFACE DRAINAGE FEATURE
  - FENCE
  - UTILITY POLE

**FIGURE 3-1**  
**EXTENT OF GEOPHYSICAL**  
**SURVEY AREA**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7)**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



### **3.2 Environmental Sampling**

The environmental sampling performed during the field investigations at the Former Decontamination Complex included the collection of surface and depositional soil samples, subsurface soil samples, groundwater samples, surface water samples, and sediment samples for chemical analysis. The sample locations were determined by observing site physical characteristics during site reconnaissance, by reviewing historical documents pertaining to activities conducted at the site, and based on geophysical survey activities. The sample locations, media, and rationale are summarized in Table 3-1. Sampling locations are shown on Figure 3-2. Samples were submitted for laboratory analysis of site-related parameters listed in Section 3.4.

#### **3.2.1 Surface and Depositional Soil Sampling**

A total of 27 surface soil samples and 5 depositional soil samples were collected at the Former Decontamination Complex, as shown on Figure 3-2. Soil sampling locations and rationale are presented in Table 3-1. Sample designations and analytical parameters are listed in Table 3-2. Soil boring locations were determined in the field by the on-site geologist based on geophysical survey activities, sampling rationale, presence of surface structures, site topography, and buried utilities.

**Sample Collection.** Surface and depositional soil samples were collected from the uppermost foot of soil using a stainless-steel hand auger following methodology specified in the SAP. Surface and depositional soil samples were collected by first removing surface material (e.g., rocks, asphalt) from the immediate sample area. The soil was then collected with the sampling device and screened with a photoionization detector (PID) in accordance with procedures outlined in the SAP. The soil fraction for volatile organic compound (VOC) analysis was collected directly from the sample device using three EnCore<sup>®</sup> samplers. The remaining soil was then transferred to a clean stainless-steel bowl, homogenized, and placed in the appropriate sample containers. The samples were analyzed for the parameters listed in Table 3-2 using methods outlined in Section 3.4. Sample collection logs are included in Appendix B.

#### **3.2.2 Subsurface Soil Sampling**

Subsurface soil samples were collected from 26 soil borings at the Former Decontamination Complex, as shown on Figure 3-2. Subsurface soil sampling locations and rationale are presented in Table 3-1. Subsurface soil sample designations, depths, and analytical parameters are listed in Table 3-2. Soil boring locations were determined in the field by the on-site geologist

**Table 3-1**

**Sampling Locations and Rationale  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 4)

<b>Sample Location</b>	<b>Sample Media</b>	<b>Sample Location Rationale</b>
FTA-93-GP01	Subsurface Soil	A subsurface soil sample was collected north of the potential tank location (Parcel 140[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP02	Subsurface Soil	A subsurface soil sample was collected east of the potential tank location (Parcel 140[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP03	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected southwest of the former gas station (Parcel 140[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP04	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected near the northwestern corner of Parcel 93(7), north of Trench Hill Road inside the fenced area, to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP05	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected north of the concrete pad inside the fenced area (south of Trench Hill Road) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP06	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected east of the concrete pad to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP07	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected south of the concrete pad to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP08	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected in the north-central area of Parcel 93(7), approximately 100 feet west of the concrete pad, to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP09	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected for coverage midway between the concrete pad and the fence to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP10	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected north of Building T-1271, near the east door, to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP11	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected north of the Building T-1272 foundation to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP12	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected west of Building T-1271 between the building and the boundary fence to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP13	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected east of Building T-1271 to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP14	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected south of Building T-1271 to determine if potential site-specific chemicals are present from previous use of this area.

**Table 3-1**

**Sampling Locations and Rationale  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 4)

<b>Sample Location</b>	<b>Sample Media</b>	<b>Sample Location Rationale</b>
FTA-93-GP15	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected west of former Building T-1272 to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP16	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected east of former Building T-1272 to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP17	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected south of former Building T-1272 to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP18	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected northwest of tank location (Parcel 46[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP19	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected east of tank location (Parcel 46[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP20	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected south of the tank location (Parcel 46[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP21	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected adjacent to the washrack in the southern area of Parcel 93(7) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP22	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected adjacent to the washrack in the southern area of Parcel 93(7) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP23	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected northwest of the oil/water separator (Parcel 70[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP24	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil, and groundwater samples were collected northeast of the oil/water separator (Parcel 70[7]) to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP25	Surface Soil Subsurface Soil	Surface and subsurface soil samples were collected south of Parcel 70(7), at the south edge of the old concrete pad, to determine if potential site-specific chemicals are present from previous use of this area.
FTA-93-GP26	Surface Soil Subsurface Soil Groundwater	Surface soil, subsurface soil and groundwater samples were collected to provide coverage in the fenced, gravel yard near (west of) the old fueling station (Parcel 140[7]), at the north end of the parcel, to determine if potential site-specific chemicals are present from previous use of this area.

**Table 3-1**

**Sampling Locations and Rationale  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 4)

<b>Sample Location</b>	<b>Sample Media</b>	<b>Sample Location Rationale</b>
FTA-93-GP27	Surface Soil	A surface soil sample was collected north of the existing sample location FTA-93-GP09 to determine the northern extent of chromium found in surface soil at FTA-93-GP09.
FTA-93-GP28	Surface Soil	A surface soil sample was collected west of the existing sample location FTA-93-GP09 to determine the western extent of chromium found in surface soil at FTA-93-GP09.
FTA-93-GP29	Surface Soil	A surface soil sample was collected south of the existing sample location FTA-93-GP09 to determine the southern extent of chromium found in surface soil at FTA-93-GP09.
FTA-93-MW01	Groundwater	A permanent residuum groundwater monitoring well was installed east (upgradient) of the site and a groundwater sample was collected to determine if contaminant releases into the environment have occurred from previous use of this area.
FTA-93-MW02	Groundwater	A permanent residuum groundwater monitoring well was installed to replace temporary well FTA-93-GP10 and a groundwater sample was collected to confirm the presence of organic compounds in the groundwater at this location.
FTA-93-MW03	Groundwater	A permanent bedrock groundwater monitoring well was installed adjacent to well location FTA-93-MW02 and a groundwater sample was collected to confirm the presence of organic compounds in the groundwater.
FTA-93-MW04	Groundwater	A permanent residuum groundwater monitoring well was installed to replace temporary well FTA-93-GP18 and a groundwater sample was collected to confirm the presence of organic compounds in the groundwater at this location.
FTA-93-MW05	Groundwater	A permanent bedrock groundwater monitoring well was installed adjacent to well location FTA-93-MW04 and groundwater samples were collected to confirm the presence of organic compounds in the groundwater. Three groundwater screening samples were also collected from this well to confirm the presence of acetone.
FTA-93-MW06	Groundwater	A permanent residuum groundwater monitoring well was installed at the location of the temporary well FTA-93-GP22 and a groundwater sample was collected to confirm the presence of organic compounds in the groundwater at this location.
FTA-93-MW07	Groundwater	A permanent bedrock groundwater monitoring well was installed adjacent to well location FTA-93-MW06 and a groundwater sample was collected to confirm the presence of organic compounds in the groundwater.
FTA-93-MW08	Groundwater	A permanent residuum groundwater monitoring well was installed downgradient of FTA-93-GP22 and a groundwater sample was collected to determine the horizontal extent of organic compounds at FTA-93-GP22.
FTA-93-MW09	Groundwater	A permanent residuum groundwater monitoring well was installed downgradient of temporary well FTA-93-GP18 and a groundwater sample was collected to determine the horizontal extent of organic compounds at FTA-93-GP18.
FTA-93-MW10	Groundwater	A permanent residuum groundwater monitoring well was installed downgradient of FTA-93-GP10 and a groundwater sample was collected to determine the horizontal extent of organic compounds at FTA-93-GP10.
FTA-93-MW11	Groundwater	A permanent residuum groundwater monitoring well was installed north of FTA-93-GP10 and a groundwater sample was collected to determine the northern extent of organic compounds at FTA-93-GP10.

**Table 3-1**

**Sampling Locations and Rationale  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 4)

<b>Sample Location</b>	<b>Sample Media</b>	<b>Sample Location Rationale</b>
FTA-93-MW12	Groundwater	A permanent residuum groundwater monitoring well was installed to replace the previously abandoned temporary well FTA-93-GP26. A groundwater sample was collected to verify that organic compounds (e.g., acetone) were not present in groundwater north of Trench Hill Road.
FTA-93-SW/SD01	Surface Water Sediment	Surface water and sediment samples were collected from the drainage that empties into the marshy area north of the site. Sampling location represents a lower elevation area where surface water could collect and percolate into the substratum.
FTA-93-SW/SD02	Surface Water Sediment	Surface water and sediment samples were collected from the marshy area north of the site.
FTA-93-SW/SD03	Surface Water Sediment	Surface water and sediment samples were collected near the concrete structure in the marsh. Sampling location represents water and sediment associated with a productive wetland/marsh habitat that has developed at this site.
FTA-93-SW/SD04	Surface Water Sediment	Surface water and sediment samples were collected east of Parcel 93(7), in the marshy area between Parcel 70(7) and Parcel 93(7) fence.
FTA-93-SW/SD05	Surface Water Sediment	Surface water and sediment samples were collected from the stream at the south end of the parcel, east of the bridge and the motor pool concrete slab. Sample location is a downgradient sink for the site.
FTA-93-SW/SD06	Surface Water Sediment	Surface water and sediment samples were collected from Cave Creek near the southwest corner of the parcel, downstream from FTA-93-SW/SD05.
FTA-93-DEP01	Depositional Soil	A depositional soil sample was collected from the southern edge of the marshy area at the north end of Parcel 93(7). Sampling location represents a lower elevation area associated with the wetland/marsh.
FTA-93-DEP02	Depositional Soil	A depositional soil sample was collected from the front of the fenced area north of Parcel 93(7), adjacent to the fence and the south edge of the marsh. Sampling location represents a lower elevation area associated with the wetland/marsh.
FTA-93-DEP03	Depositional Soil	A depositional soil sample was collected from a low area southeast of Parcel 93(7).
FTA-93-DEP04	Depositional Soil	A depositional soil sample was collected from a low area south of Parcel 93(7).
WS-93-DEP01	Depositional Soil	A depositional soil sample was collected near FTA-93-SW/SD01 as part of the Watershed Screening Assessment conducted at Fort McClellan.

Table 3-2

**Soil Sample Designations and Analytical Parameters  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 2)

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Parameters
			Field Duplicates	Field Splits	MS/MSD	
FTA-93-GP01	FTA-93-GP01-DS-DA0035-REG	5-8				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP01-DS-DA0035R-REG <sup>a</sup>	5-8				
FTA-93-GP02	FTA-93-GP02-DS-DA0036-REG	5-8				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP02-DS-DA0036R-REG <sup>a</sup>	5-8				
FTA-93-GP03	FTA-93-GP03-SS-DA0003-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP03-DS-DA0037-REG	8-12				
FTA-93-GP04	FTA-93-GP04-SS-DA0004-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP04-DS-DA0038-REG	8-12				
FTA-93-GP05	FTA-93-GP05-SS-DA0005-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP05-DS-DA0039-REG	8-12				
FTA-93-GP06	FTA-93-GP06-SS-DA0006-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP06-DS-DA0040-REG	8-12				
FTA-93-GP07	FTA-93-GP07-SS-DA0007-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP07-DS-DA0041-REG	8-12				
FTA-93-GP08	FTA-93-GP08-SS-DA0008-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP08-DS-DA0042-REG	8-12				
FTA-93-GP09	FTA-93-GP09-SS-DA0009-REG	0-1			FTA-93-GP09-SS-DA0009-MS/MSD <sup>b</sup> FTA-93-GP09-DS-DA0043-MS/MSD	Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP09-DS-DA0043-REG	8-12				
FTA-93-GP10	FTA-93-GP10-SS-DA0010-REG	0-1	FTA-93-GP10-SS-DA0011-FD	FTA-93-GP10-SS-DA0012-FS		Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP10-DS-DA0044-REG	8-12				
FTA-93-GP11	FTA-93-GP11-SS-DA0013-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP11-DS-DA0045-REG	8-12				
FTA-93-GP12	FTA-93-GP12-SS-DA0014-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP12-DS-DA0046-REG	8-12				
FTA-93-GP13	FTA-93-GP13-SS-DA0015-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP13-DS-DA0047-REG	9-12				
FTA-93-GP14	FTA-93-GP14-SS-DA0016-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP14-DS-DA0048-REG	8-12				
FTA-93-GP15	FTA-93-GP15-SS-DA0017-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP15-DS-DA0049-REG	8-11				
FTA-93-GP16	FTA-93-GP16-SS-DA0018-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP16-DS-DA0050-REG	8-10				
FTA-93-GP17	FTA-93-GP17-SS-DA0019-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP17-DS-DA0051-REG	8-12				
FTA-93-GP18	FTA-93-GP18-SS-DA0020-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP18-DS-DA0052-REG	9-12				
FTA-93-GP19	FTA-93-GP19-SS-DA0021-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP19-DS-DA0053-REG	8-12				

Table 3-2

**Soil Sample Designations and Analytical Parameters**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Parameters
			Field Duplicates	Field Splits	MS/MSD	
FTA-93-GP20	FTA-93-GP20-SS-DA0022-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP20-DS-DA0054-REG	8-12				
FTA-93-GP21	FTA-93-GP21-SS-DA0023-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP21-DS-DA0055-REG	8-12	FTA-93-GP21-DS-DA0056-FD	FTA-93-GP21-DS-DA0057-FS		
FTA-93-GP22	FTA-93-GP22-SS-DA0024-REG	0-1	FTA-93-GP22-SS-DA0025-FD	FTA-93-GP22-SS-DA0026-FS		Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP22-DS-DA0058-REG	8-10	FTA-93-GP22-DS-DA0059-FD <sup>b</sup>	FTA-93-GP22-DS-DA0060-FS <sup>b</sup>		
FTA-93-GP23	FTA-93-GP23-SS-DA0027-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP23-DS-DA0061-REG	8-12				
FTA-93-GP24	FTA-93-GP24-SS-DA0028-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP24-DS-DA0062-REG	8-12				
FTA-93-GP25	FTA-93-GP25-SS-DA0029-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP25-DS-DA0063-REG	8-12				
FTA-93-GP26	FTA-93-GP26-SS-DA0030-REG	0-1			FTA-93-GP26-SS-DA0030-MS/MSD	Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
	FTA-93-GP26-DS-DA0066-REG	12-16				
FTA-93-GP27	FTA-93-GP27-SS-DA0067-REG	0-0.5			FTA-93-GP27-SS-DA0067-MS/MSD	Metals
FTA-93-GP28	FTA-93-GP28-SS-DA0068-REG	0-0.5	FTA-93-GP28-SS-DA0069-FD			Metals
FTA-93-GP29	FTA-93-GP29-SS-DA0070-REG	0-0.5				Metals
FTA-93-DEP01	FTA-93-DEP01-DEP-DA0031-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-DEP02	FTA-93-DEP02-DEP-DA0032-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-DEP03	FTA-93-DEP03-DEP-DA0033-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-DEP04	FTA-93-DEP04-DEP-DA0034-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
WS-93-DEP01	WS-93-DEP01-DEP-WS0001-REG	0-1				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide

<sup>a</sup> Sample reanalyzed for organophosphorus pesticides because of laboratory QA/QC criteria out of limits.<sup>b</sup> VOC analysis only due to limited soil volume.

FD - Field duplicate.

FS - Field split.

ft. bgs - Feet below ground surface.

MS/MSD - Matrix spike/matrix spike duplicate.

PCB - Polychlorinated biphenyl.

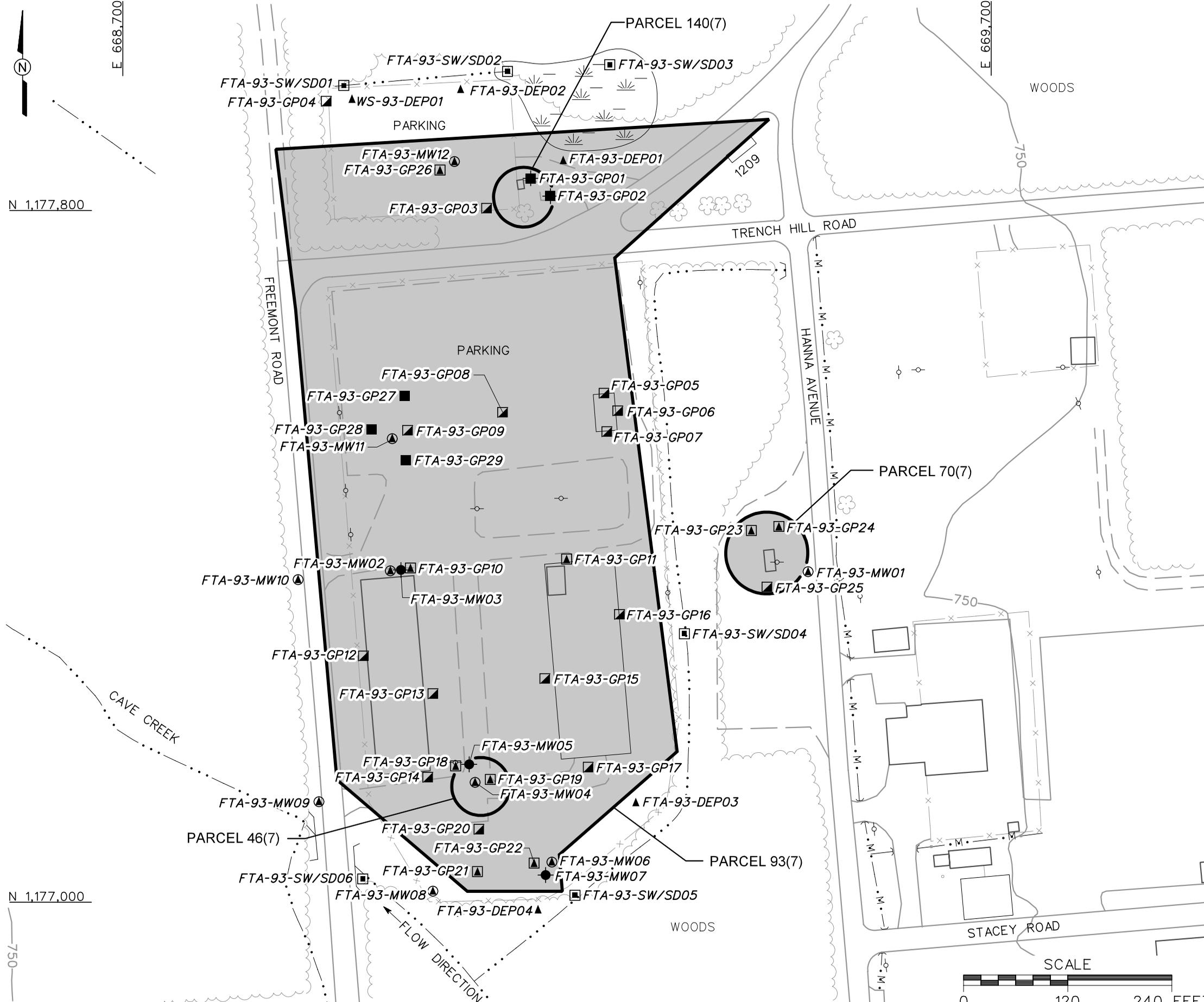
QA/QC - Quality assurance/quality control.

REG - Regular field sample.

SVOC - Semivolatile organic compound.

VOC - Volatile organic compound.

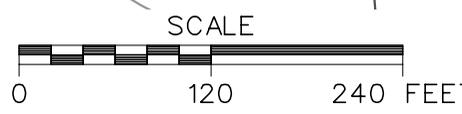
DWG. NO.: ...774645es.914  
 INITIATOR: L. O'HARE  
 DRAFT. CHK. BY:  
 ENGR. CHK. BY: J. YACOUB  
 PROJ. NO.: 774645  
 DATE LAST REV.:  
 DRAFTER: S. MORAN  
 ENGR. CHK. BY: S. MORAN  
 STARTING DATE: 05/06/02  
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- LEGEND**
- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 25 FOOT)
  - TREES / TREELINE
  - MARSH / WETLANDS
  - PARCEL BOUNDARY
  - SURFACE DRAINAGE / CREEK
  - MANMADE SURFACE DRAINAGE FEATURE
  - FENCE
  - UTILITY POLE
  - BEDROCK MONITORING WELL AND GROUNDWATER SAMPLE LOCATION
  - RESIDUUM MONITORING WELL AND GROUNDWATER SAMPLE LOCATION
  - SURFACE WATER/SEDIMENT SAMPLE LOCATION
  - SURFACE SOIL SAMPLE LOCATION
  - SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
  - SUBSURFACE SOIL SAMPLE LOCATION
  - GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
  - DEPOSITIONAL SOIL SAMPLE LOCATION

**FIGURE 3-2**  
**SAMPLE LOCATION MAP**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7)**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



based on geophysical survey activities, sampling rationale, presence of surface structures, site topography, and buried and overhead utilities.

**Sample Collection.** Subsurface soil samples were collected from soil borings at depths greater than 1 foot bgs in the unsaturated zone. The soil borings were advanced and soil samples collected using the direct-push technology (DPT) sampling procedures specified in the SAP. Sample collection logs are included in Appendix B. The samples were analyzed for the parameters listed in Table 3-2 using methods outlined in Section 3.4.

Subsurface soil samples were collected continuously to 12 feet bgs or until DPT sampler refusal was encountered, except at sample location FTA-93-GP26, which was extended to 16 feet bgs. Samples were field screened using a PID to measure volatile organic vapors. The soil sample displaying the highest reading was selected and sent to the laboratory for analysis; however, at those locations where PID readings were below background, the deepest soil sample interval above the saturated zone was submitted for analysis. The soil fraction for VOC analysis was collected directly from the sample device using three EnCore samplers. The remaining sample was then transferred to a clean stainless-steel bowl, homogenized, and placed in the appropriate sample containers. Samples submitted for laboratory analysis are summarized in Table 3-2. The on-site geologist constructed a detailed boring log for each soil boring. The boring logs are included in Appendix C.

At the completion of soil sampling, boreholes were abandoned with hydrated bentonite pellets following borehole abandonment procedures summarized in the SAP.

### **3.2.3 Monitoring Well Installation**

A total of 21 monitoring wells, including 9 temporary wells, 9 permanent residuum monitoring wells, and 3 permanent bedrock wells, were installed at the Former Decontamination Complex to collect groundwater samples for laboratory analysis. The well/groundwater sample locations are shown on Figure 3-2. Table 3-3 summarizes construction details of the monitoring wells installed at the site. The well construction logs are included in Appendix C.

#### **3.2.3.1 Temporary Wells**

Nine temporary wells were installed during Phase I of the SI at the Former Decontamination Complex. Five 1-inch diameter temporary wells were installed by TEG, Inc., a DPT subcontractor. TEG attempted to install the remaining four wells using DPT, but refusal was encountered prior to reaching groundwater; therefore, the wells were installed as 2-inch diameter

Table 3-3

**Monitoring Well Construction Summary  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Well Location	Northing	Easting	Ground Elevation (ft amsl)	TOC Elevation (ft amsl)	Well Depth (ft bgs)	Screen Length (ft)	Screen Interval (ft bgs)	Well Material
<b>Temporary Wells</b>								
FTA-93-GP10	1177384.68	669033.21	746.55	748.50	14	10	3.75 - 13.75	2" ID Sch. 40 PVC
FTA-93-GP11	1177394.93	669212.95	746.53	748.98	14	10	3.75 - 13.75	2" ID Sch. 40 PVC
FTA-93-GP18*	1177155.75	669085.24	745.92	746.03	16	10	6 - 16	1" ID Sch. 40 PVC
FTA-93-GP19*	1177140.19	669125.05	745.44	749.24	12	5	7 - 12	1" ID Sch. 40 PVC
FTA-93-GP21*	1177033.53	669110.30	744.71	745.58	9	5	4 - 9	1" ID Sch. 40 PVC
FTA-93-GP22*	1177037.61	669184.65	744.57	745.32	10	5	5 - 10	1" ID Sch. 40 PVC
FTA-93-GP23	1177428.01	669425.70	747.99	750.41	20	15	4.75 - 19.75	2" ID Sch. 40 PVC
FTA-93-GP24	1177432.69	669457.40	748.58	751.23	19	15	3.75 - 18.75	2" ID Sch. 40 PVC
FTA-93-GP26*	1177845.20	669067.20	747.53	745.90	16	5	8 - 13	1" ID Sch. 40 PVC
<b>Permanent Wells</b>								
FTA-93-MW01 <sup>a</sup>	1177380.13	669491.06	750.21	750.05	33	20	13 - 33	2" ID Sch. 40 PVC
FTA-93-MW02 <sup>a</sup>	1177381.24	669010.08	746.61	746.37	24	15	9 - 24	2" ID Sch. 40 PVC
FTA-93-MW03 <sup>b</sup>	1177382.23	669022.09	746.58	746.42	75	20	55 - 75	4" ID Sch. 80 PVC
FTA-93-MW04 <sup>a</sup>	1177137.55	669107.56	745.72	745.49	19	10	9 - 19	2" ID Sch. 40 PVC
FTA-93-MW05 <sup>b</sup>	1177157.45	669100.78	746.30	746.08	78	20	58 - 78	4" ID Sch. 80 PVC
FTA-93-MW06 <sup>a</sup>	1177044.46	669196.02	745.32	747.43	15	10	5 - 15	2" ID Sch. 40 PVC
FTA-93-MW07 <sup>b</sup>	1177036.55	669185.34	745.56	747.67	75	20	55 - 75	4" ID Sch. 80 PVC
FTA-93-MW08 <sup>a</sup>	1177010.74	669059.06	744.86	746.83	25	15	10 - 25	2" ID Sch. 40 PVC
FTA-93-MW09 <sup>a</sup>	1177114.20	668927.78	748.18	747.96	30	20	10 - 30	2" ID Sch. 40 PVC
FTA-93-MW10 <sup>a</sup>	1177371.01	668903.75	747.32	747.11	15.5	5	10.5 - 15.5	2" ID Sch. 40 PVC
FTA-93-MW11 <sup>a</sup>	1177534.04	669012.22	746.53	746.31	30	20	10 - 30	2" ID Sch. 40 PVC
FTA-93-MW12 <sup>a</sup>	1177854.49	669083.83	746.25	746.02	22	10	10.5 - 20.5	2" ID Sch. 40 PVC

**Table 3-3**

**Monitoring Well Construction Summary  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Temporary wells installed using hollow-stem auger, except as noted by \*.

\* Temporary well installed using direct-push technology.

<sup>a</sup> Permanent residuum well installed using a hollow-stem auger.

<sup>b</sup> Permanent bedrock well installed using a combination of air rotary and wireline rock coring.

Horizontal coordinates referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum of 1983.

Elevations referenced to the North American Vertical Datum of 1988.

1" ID Sch. 40 PVC - 1-inch inside diameter, Schedule 40, polyvinyl chloride.

2" ID Sch. 40 PVC - 2-inch inside diameter, Schedule 40, polyvinyl chloride.

4" ID Sch. 80 PVC - 4-inch inside diameter, Schedule 80, polyvinyl chloride.

amsl - Above mean sea level.

bgs - Below ground surface.

ft - Feet.

TOC - Top of casing.

temporary wells by Miller Drilling Company using a hollow-stem auger drill rig as described below.

The DPT temporary wells (FTA-93-GP18, FTA-93-GP19, FTA-93-GP21, FTA-93-GP22, and FTA-93-GP26) were installed by advancing a 2-inch outside diameter DPT sampler to 16 feet bgs or until refusal was encountered. The DPT sampler was removed from the borehole and a 5- or 10-foot length of 1-inch inside diameter (ID), 0.010-inch factory slotted Schedule 40 polyvinyl chloride (PVC) screen was placed at the bottom of the borehole and attached to 1-inch ID, flush-threaded Schedule 40 PVC riser. A sand pack consisting of Number 1 filter sand (environmentally safe, clean fine sand, sieve size 20 to 40) was placed in the annular space of the borehole around the screen from the bottom of the borehole to approximately 1 to 4 feet above the top of the screen. A bentonite seal was created from the top of the filter sand to the ground surface by placing bentonite chips in the annular space and hydrating with potable water.

The 2-inch diameter temporary wells were installed by advancing a 4¼-inch ID hollow-stem auger from ground surface to the first groundwater-bearing zone in the residuum. Beginning at the completion depth of the DPT boring or from ground surface, a 2-foot-long, 2-inch ID carbon steel split-spoon sampler was driven at 5-foot intervals to collect residuum for observing and describing lithology. Where split-spoon refusal was encountered, the auger was advanced until the first water-bearing zone was reached or until auger refusal was encountered. The on-site geologist logging the boreholes continued the lithological log for each borehole from the depth of split-spoon sampler refusal to the bottom of the auger borehole by logging the auger drill cuttings. The drill cuttings were logged to determine lithologic changes and the approximate depth of groundwater encountered during drilling. This information was used to determine the optimal placement of the monitoring well screen interval and to provide site-specific geological and hydrogeological information. The lithological logs are included in Appendix C.

Upon reaching the target depth in each borehole, a 5- to 20-foot length of 2-inch ID, 0.010-inch continuous slot, Schedule 40 PVC screen with a PVC end cap was placed through the auger to the bottom of the borehole. The screen and end cap were attached to 2-inch ID, flush-threaded Schedule 40 PVC riser. A sand pack consisting of Number 1 filter sand (environmentally safe, clean fine sand, sieve size 20 to 40) was tremied around the well screen to approximately 1 to 6 feet above the top of the well screen as the augers were removed. A bentonite seal, consisting of approximately 2 to 5 feet of bentonite pellets, was placed immediately on top of the sand pack and hydrated with potable water. If the bentonite seal was installed below the water table

surface, the bentonite pellets were allowed to hydrate in the groundwater. Bentonite seal placement and hydration followed procedures outlined in the SAP.

A locking well cap was placed on top of the PVC well casing. The well surface completion included attaching plastic sheeting around the PVC riser using duct tape. Additionally, sand bags were used to secure the sheeting to the ground surface around the wellhead.

### **3.2.3.2 Permanent Residuum Wells**

Shaw contracted Miller Drilling Company to install the eight permanent residuum wells during Phase II and one additional well in 2002 using a hollow-stem auger drill rig. The wells were installed following procedures outlined in the SAP. The borehole at each well location was advanced with a 4¼-inch ID hollow-stem auger from ground surface to the first groundwater-bearing zone in the residuum. Beginning at the completion depth of the DPT boring or from ground surface, a 2-foot-long, 2-inch ID carbon steel split-spoon sampler was driven at 5-foot intervals to collect residuum for observing and describing lithology. Where split-spoon refusal was encountered, the auger was advanced until the first water-bearing zone was reached or until auger refusal was encountered. The on-site geologist logging the boreholes continued the lithological log for each borehole from the depth of split-spoon sampler refusal to the bottom of the auger borehole by logging the auger drill cuttings. The drill cuttings were logged to determine lithologic changes and the approximate depth of groundwater encountered during drilling. This information was used to determine the optimal placement of the monitoring well screen interval and to provide site-specific geological and hydrogeological information. Soil characteristics were described using the “Burmeister Identification System” described in Hunt (1986) and the Unified Soil Classification System as outlined in American Society for Testing and Materials (ASTM) Method D 2488 (ASTM, 2000). The lithological logs are included in Appendix C.

Upon reaching the target depth in each borehole, a 5- to 20-foot length of 2-inch ID, 0.010-inch continuous slot, Schedule 40 PVC screen with a PVC end cap was placed through the auger to the bottom of the borehole. The screen and end cap were attached to 2-inch ID, flush-threaded Schedule 40 PVC riser. A sand pack consisting of Number 1 filter sand (environmentally safe, clean fine sand, sieve size 20 to 40) was tremied around the well screen to approximately 1 to 6 feet above the top of the well screen as the augers were removed. A bentonite seal, consisting of approximately 2 to 5 feet of bentonite pellets, was placed immediately on top of the sand pack and hydrated with potable water. If the bentonite seal was installed below the water table surface, the bentonite pellets were allowed to hydrate in the groundwater. Bentonite seal

placement and hydration followed procedures outlined in the SAP. Bentonite-cement grout was tremied into the remaining annular space of the well from the top of the bentonite seal to ground surface. A well cap was placed on the PVC riser. A locking protective steel casing was placed around the top of the PVC well casing, and a cement pad was constructed around the wellhead.

### **3.2.3.3 Permanent Bedrock Wells**

Three bedrock monitoring wells (FTA-93-MW03, FTA-93-MW05, and FTA-93-MW07) were installed at the Former Decontamination Complex using a combination of air-rotary drilling and triple PQ wireline rock coring techniques. The bedrock monitoring wells were drilled using a 12-inch ID tri-cone rotary bit from ground surface to approximately 5 feet into competent bedrock. The borehole diameter was approximately 12 inches, such that an 8-inch ID carbon steel International Pipe Standard outer casing could be installed into the borehole from ground surface to 5 feet into bedrock. A minimum of 2 inches of annular space was maintained between the outer casing and the borehole wall. The 8-inch carbon steel outer casing was grouted in place using a tremie pipe suspended in the annulus outside the casing. The grout cured for a minimum of 48 hours before drilling continued. A triple PQ wireline core barrel was then used to collect core samples continuously from the bottom of the outer casing to the target depth of the borehole. After reaching the target depth, a 7<sup>7</sup>/<sub>8</sub>-inch air percussion bit was used to ream the borehole to the total depth of the boring.

Upon reaching the target depth in each borehole, a 20-foot length of 4-inch ID, 0.010-inch continuous slot, Schedule 80 PVC screen with a PVC end cap was placed in the borehole. The screen and end cap were attached to 4-inch ID, flush-threaded Schedule 80 PVC riser. A filter pack consisting of Number 1 filter sand (environmentally safe, clean fine sand, sieve size 20 to 40) was tremied around the well screen to approximately 5 feet above the top of the well screen. The filter pack also included an approximately 5-foot layer of extra fine filter sand (sieve size 30 to 70). A bentonite seal, consisting of approximately 5 feet of bentonite pellets, was placed on top of the filter pack and hydrated with potable water. In wells where the bentonite seal was installed below the water table surface, the bentonite pellets were allowed to hydrate in the groundwater. Bentonite seal placement and hydration followed procedures outlined in the SAP. Bentonite-cement grout was tremied into the remaining annular space of the well from the top of the bentonite seal to ground surface. A locking protective steel casing was placed over the PVC well riser, and a concrete pad was constructed around the wellhead. Four protective steel posts were installed around the well pad.

### **3.2.4 Well Development**

The 2-inch temporary wells and all permanent wells were developed by surging and pumping with a submersible pump in accordance with methodology outlined in the SAP. The submersible pump used for well development was moved in an up-and-down fashion to encourage any residual well installation materials to enter the well. These materials were then pumped out of the well to re-establish the natural hydraulic flow conditions. Development continued until the water turbidity was less than 20 nephelometric turbidity units (NTU), until the well was pumped dry, or for a maximum of 8 hours (2-inch wells) or 12 hours (4-inch wells). The well development logs are included in Appendix D.

### **3.2.5 Well Abandonment**

Following groundwater sampling, the DPT temporary wells (FTA-93-GP18, FTA-93-GP19, FTA-93-GP21, FTA-93-GP22, and FTA-93-GP26) were abandoned by removing the PVC riser and screen from the borehole, filling the borehole with bentonite chips to ground surface, and hydrating with potable water. In addition, three 2-inch temporary wells (FTA-93-GP10, FTA-93-GP23, and FTA-93-GP24) were abandoned subsequent to SI field activities. All wells were abandoned in accordance with ADEM guidelines, following procedures outlined in the SAP. The well abandonment forms for the 2-inch temporary wells are included in Appendix C.

### **3.2.6 Water Level Measurements**

The depth to groundwater was measured in wells at the Former Decontamination Complex on November 27, 2002, following procedures outlined in the SAP. Water levels were not measured at the DPT wells because these wells had been previously abandoned. Depth to groundwater was measured with an electronic water-level meter. The meter probe and cable were cleaned before use at each well, following decontamination methodology presented in the SAP. Measurements were referenced to the top of the PVC well casing. A summary of groundwater level measurements is presented in Table 3-4.

### **3.2.7 Groundwater Sampling**

A total of 25 groundwater samples were collected from the 21 monitoring wells installed at the Former Decontamination Complex. The well/groundwater sampling locations are shown on Figure 3-2. The groundwater sampling locations and rationale are listed in Table 3-1. The groundwater sample designations and analytical parameters are listed in Table 3-5.

**Sample Collection.** The groundwater samples were collected using either a peristaltic pump or a bladder pump equipped with Teflon™ tubing following procedures outlined in the SAP.

**Table 3-4**

**Groundwater Elevations  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

<b>Well Location</b>	<b>Date</b>	<b>Depth to Water (ft BTOC)</b>	<b>Top of Casing Elevation (ft amsl)</b>	<b>Ground Elevation (ft amsl)</b>	<b>Groundwater Elevation (ft amsl)</b>
FTA-93-GP10	27-Nov-02	5.70	748.50	746.55	742.80
FTA-93-GP11	27-Nov-02	3.93	748.98	746.53	745.05
FTA-93-GP23	27-Nov-02	4.81	750.41	747.99	745.60
FTA-93-GP24	27-Nov-02	5.68	751.23	748.58	745.55
FTA-93-MW01	27-Nov-02	3.12	750.05	750.21	746.93
FTA-93-MW02	27-Nov-02	6.72	746.37	746.61	739.65
FTA-93-MW03	27-Nov-02	2.92	746.42	746.58	743.50
FTA-93-MW04	27-Nov-02	2.74	745.49	745.72	742.75
FTA-93-MW05	27-Nov-02	3.40	746.08	746.30	742.68
FTA-93-MW06	27-Nov-02	6.00	747.43	745.32	741.43
FTA-93-MW07	27-Nov-02	5.51	747.67	745.56	742.16
FTA-93-MW08	27-Nov-02	6.38	746.83	744.86	740.45
FTA-93-MW09	27-Nov-02	7.03	747.96	748.18	740.93
FTA-93-MW10	27-Nov-02	4.83	747.11	747.32	742.28
FTA-93-MW11	27-Nov-02	4.26	746.31	746.53	742.05
FTA-93-MW12	27-Nov-02	3.28	746.02	746.25	742.74

Elevations referenced to the North American Vertical Datum of 1988.

amsl - Above mean sea level.

BTOC - Below top of casing.

ft - Feet.

**Table 3-5**

**Groundwater Sample Designations and Analytical Parameters  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 2)

Sample Location	Sample Designation	QA/QC Samples			Analytical Parameters
		Field Duplicates	Field Splits	MS/MSD	
FTA-93-GP10	FTA-93-GP10-GW-DA3001-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP11	FTA-93-GP11-GW-DA3002-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP18	FTA-93-GP18-GW-DA3003-REG	FTA-93-GP18-GW-DA3006-FD <sup>a</sup>	FTA-93-GP18-GW-DA3007-FS <sup>a</sup>		Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP19	FTA-93-GP19-GW-DA3004-REG			FTA-93-GP19-GW-DA3004-MS/MSD <sup>f</sup>	Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP21	FTA-93-GP21-GW-DA3005-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP22	FTA-93-GP22-GW-DA3008-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP23	FTA-93-GP23-GW-DA3009-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP24	FTA-93-GP24-GW-DA3010-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-GP26	FTA-93-GP26-GW-DA3011-REG				Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, and Cyanide
FTA-93-MW01	FTA-93-MW01-GW-DA3012-REG				Metals, VOCs, and Explosives
FTA-93-MW02	FTA-93-MW02-GW-DA3013-REG	FTA-93-MW02-GW-DA3014-FD			Metals, VOCs, and Explosives
FTA-93-MW03	FTA-93-MW03-GW-DA3015-REG				Metals, VOCs, and Explosives
FTA-93-MW04	FTA-93-MW04-GW-DA3016-REG			FTA-93-MW04-GW-DA3016-MS/MSD	Metals, VOCs, and Explosives
FTA-93-MW05	FTA-93-MW05-GW-DA3017-REG				Metals, VOCs, and Explosives
	FTA-93-MW05-GW-DA3017R-REG	FTA-93-MW05-GW-DA3017R1-FD			
	FTA-93-MW05-GW-ACE3001-REG				VOCs
	FTA-93-MW05-GW-ACE3002-REG				
	FTA-93-MW05-GW-ACE3003-REG				

**Table 3-5**

**Groundwater Sample Designations and Analytical Parameters  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

Sample Location	Sample Designation	QA/QC Samples			Analytical Parameters
		Field Duplicates	Field Splits	MS/MSD	
FTA-93-MW06	FTA-93-MW06-GW-DA3018-REG				Metals, VOCs, and Explosives
FTA-93-MW07	FTA-93-MW07-GW-DA3019-REG				Metals, VOCs, and Explosives
FTA-93-MW08	FTA-93-MW08-GW-DA3020-REG				Metals, VOCs, and Explosives
FTA-93-MW09	FTA-93-MW09-GW-DA3021-REG				Metals, VOCs, and Explosives
FTA-93-MW10	FTA-93-MW10-GW-DA3022-REG				Metals, VOCs, and Explosives
FTA-93-MW11	FTA-93-MW11-GW-DA3023-REG				Metals, VOCs, and Explosives
FTA-93-MW12	FTA-93-MW12-GW-DA3024R-REG	FTA-93-MW12-GW-DA3025R-FD			VOCs and Acetone <sup>b</sup>

Groundwater samples collected from the approximate midpoint of the saturated screened interval of the monitoring well.

<sup>a</sup> Analyzed for metals, VOCs, and SVOCs only.

<sup>b</sup> Analyzed by EPA Method 8315A.

FD - Field duplicate.

FS - Field split.

MS/MSD - Matrix spike/matrix spike duplicate.

PCB - Polychlorinated biphenyl.

QA/QC - Quality assurance/quality control.

REG - Regular field sample.

SVOC - Semivolatile organic compound.

VOC - Volatile organic compound.

Samples for VOC analysis collected using a peristaltic pump were collected via the “tube evacuation” method described in the SAP (IT, 2002). Groundwater was sampled after purging a minimum of three well volumes and after field parameters (temperature, pH, specific conductivity, oxidation-reduction potential, and turbidity) stabilized. Field parameters were measured using a calibrated water-quality meter. Field parameter readings are summarized in Table 3-6. Sample collection logs are included in Appendix B. The samples were analyzed for the parameters listed in Table 3-5 using methods outlined in Section 3.4.

### **3.2.8 Surface Water Sampling**

Six surface water samples were collected at the Former Decontamination Complex at the locations shown on Figure 3-2. The surface water sampling locations and rationale are listed in Table 3-1. Surface water sample designations and analytical parameters are listed in Table 3-7. The sampling locations were determined in the field, based on drainage pathways and field observations.

**Sample Collection.** Surface water samples were collected in accordance with the procedures specified in the SAP. The surface water samples were collected by dipping a stainless-steel pitcher in the water and pouring the water into the sample containers or by dipping the sample containers in the water and allowing the water to fill the sample containers. Surface water samples were collected after field parameters had been measured using a calibrated water quality meter. Surface water field parameters are listed in Table 3-6. Sample collection logs are included in Appendix B. The samples were analyzed for the parameters listed in Table 3-7 using methods outlined in Section 3.4.

### **3.2.9 Sediment Sampling**

Six sediment samples were collected at the same locations as the surface water samples, as shown on Figure 3-2. Sediment sampling locations and rationale are presented in Table 3-1. The sediment sample designations and analytical parameters are listed in Table 3-7. The actual sediment sampling locations were determined in the field, based on drainage pathways and field observations.

**Sample Collection.** Sediment samples were collected in accordance with the procedures specified in the SAP. Sediments were collected with a stainless-steel hand auger and placed in a clean stainless-steel bowl. Samples for VOC analysis were then immediately collected from the stainless-steel bowl with three EnCore samplers. The remaining portion of the sample was homogenized and placed in the appropriate sample containers. Sample collection logs are

Table 3-6

**Groundwater and Surface Water Field Parameters  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location	Date	Media	Specific Conductivity (mS/cm) <sup>a</sup>	Dissolved Oxygen (mg/L)	ORP (mv)	Temperature (°C)	Turbidity (NTU)	pH (SU)
FTA-93-GP10	13-Jan-99	GW	0.168	2.90	99	15.8	34.4	5.73
FTA-93-GP11	14-Jan-99	GW	0.102	4.02	144	16.6	15	6.26
FTA-93-GP18	27-Oct-98	GW	0.341	0.89	4	24.7	>1000	5.86
FTA-93-GP19	26-Oct-98	GW	0.215	0.96	56	26.8	182	5.32
FTA-93-GP21	28-Oct-98	GW	0.304	1.40	-47	21.8	99	6.22
FTA-93-GP22	28-Oct-98	GW	0.202	0.73	-15	22.7	22.5	6.09
FTA-93-GP23	12-Jan-99	GW	0.115	5.32	78	19.8	>1000	7.04
FTA-93-GP24	13-Jan-99	GW	0.463	6.95	222	19.5	13.2	6.88
FTA-93-GP26	29-Oct-98	GW	0.159	3.32	70	23.0	>1000	5.17
FTA-93-MW01	5-Dec-01	GW	0.487	5.43	36	21.5	1.4	6.87
FTA-93-MW02	29-Nov-01	GW	0.589	0.00	-73	20.6	5.6	6.72
FTA-93-MW03	29-Nov-01	GW	0.393	0.00	-146	19.7	3.1	7.89
FTA-93-MW04	30-Nov-01	GW	0.256	0.00	-31	21.9	7.4	5.97
FTA-93-MW05	3-Dec-01	GW	0.481	0.00	-129	20.0	1.5	7.55
	27-Feb-02	GW	0.620	12.12 <sup>b</sup>	-35	15.8	12.9	7.63
	22-Apr-02	GW	0.499	1.19	-303	19.3	3.9	7.65
FTA-93-MW06	28-Nov-01	GW	0.510	0.10	-59	18.0	7.9	6.50
FTA-93-MW07	27-Nov-01	GW	0.469	0.88	-150	18.5	5.1	7.39
FTA-93-MW08	28-Nov-01	GW	0.629	0.00	-118	18.3	8.2	6.91
FTA-93-MW09	4-Dec-01	GW	0.208	3.10	66	21.5	0.0	6.03
FTA-93-MW10	3-Dec-01	GW	0.232	0.00	12	19.8	3.5	5.89
FTA-93-MW11	30-Nov-01	GW	0.111	0.00	157	20.6	1.0	4.90
FTA-93-MW12	16-Dec-02	GW	0.142	0.98	198	20.3	1.0	4.87
FTA-93-SW/SD01	27-Jan-99	SW	0.128	7.68	NA	14.8	9.4	6.93
FTA-93-SW/SD02	22-Oct-98	SW	0.126	1.25	242	14.3	343	6.27
FTA-93-SW/SD03	27-Jan-99	SW	0.950	2.56	NA	14.1	14.9	6.26
FTA-93-SW/SD04	23-Oct-98	SW	0.210	4.55	294	14.1	117	6.36
FTA-93-SW/SD05	22-Oct-98	SW	0.200	7.97	231	12.3	NR	6.31
FTA-93-SW/SD06	22-Oct-98	SW	NR	NR	NR	NR	NR	NR

**Table 3-6**

**Groundwater and Surface Water Field Parameters  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

<sup>a</sup> Specific conductivity values standardized to millisiemens per centimeter.

<sup>b</sup> Result anomalously high due to aeration of groundwater during purging/sampling.

°C - Degrees Celsius.

GW - Groundwater.

mg/L - Milligrams per liter.

mS/cm - Millisiemens per centimeter.

mV - Millivolts.

NR - Not recorded due to equipment malfunction.

NTUs - Nephtholometric turbidity units.

ORP - Oxidation-reduction potential.

SU - Standard units.

SW - Surface water.

Table 3-7

**Surface Water and Sediment Sample Designations and Analytical Parameters  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft bgs)	QA/QC Samples		Analytical Parameters
			Field Duplicates	Field Splits	
FTA-93-SW/SD01	FTA-93-SW/SD01-SW-DA2001-REG	NA			Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, Cyanide, TOC <sup>a</sup> , and Grain Size <sup>a</sup>
	FTA-93-SW/SD01-SD-DA1001-REG	0-0.5			
FTA-93-SW/SD02	FTA-93-SW/SD02-SW-DA2002-REG	NA			Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, Cyanide, TOC <sup>a</sup> , and Grain Size <sup>a</sup>
	FTA-93-SW/SD02-SD-DA1002-REG	0-0.5			
FTA-93-SW/SD03	FTA-93-SW/SD03-SW-DA2003-REG	NA			Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, Cyanide, TOC <sup>a</sup> , and Grain Size <sup>a</sup>
	FTA-93-SW/SD03-SD-DA1003-REG	0-0.5			
FTA-93-SW/SD04	FTA-93-SW/SD04-SW-DA2004-REG	NA			Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, Cyanide, TOC <sup>a</sup> , and Grain Size <sup>a</sup>
	FTA-93-SW/SD04-SD-DA1004-REG	0-0.5			
FTA-93-SW/SD05	FTA-93-SW/SD05-SW-DA2005-REG	NA	FTA-93-SW/SD05-SW-DA2006-FD	FTA-93-SW/SD05-SW-DA2007-FS	Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, Cyanide, TOC <sup>a</sup> , and Grain Size <sup>a</sup>
	FTA-93-SW/SD05-SD-DA1005-REG	0-0.5	FTA-93-SW/SD05-SD-DA1006-FD	FTA-93-SW/SD05-SD-DA1007-FS	
FTA-93-SW/SD06	FTA-93-SW/SD06-SW-DA2008-REG	NA			Metals, VOCs, SVOCs, Pesticides, Herbicides, PCBs, Cyanide, TOC <sup>a</sup> , and Grain Size <sup>a</sup>
	FTA-93-SW/SD06-SD-DA1008-REG	0-0.5			

<sup>a</sup> Sediment sample only.

FD - Field duplicate.

FS - Field split.

ft bgs - Feet below ground surface.

MS/MSD - Matrix spike/matrix spike duplicate.

NA - Not applicable.

PCB - Polychlorinated biphenyl.

QA/QC - Quality assurance/quality control.

REG - Regular field sample.

SVOC - Semivolatile organic compound.

TOC - Total organic carbon.

VOC - Volatile organic compound.

included in Appendix B. The sediment samples were analyzed for the parameters listed in Table 3-7 using methods outlined in Section 3.4.

### **3.3 Surveying of Sample Locations**

Sample locations were surveyed using GPS and conventional civil survey techniques described in the SAP. Horizontal coordinates were referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum of 1983. Elevations were referenced to the North American Vertical Datum of 1988. Horizontal coordinates and elevations are included in Appendix E.

### **3.4 Analytical Program**

Samples collected during the SI were analyzed for various chemical and physical parameters based on the potential site-specific chemicals and EPA, ADEM, FTMC, and USACE requirements. The samples were analyzed using EPA SW-846 methods, including Update III methods where applicable, as presented in the SAP. Samples collected during Phase I of the SI were analyzed for the following parameters:

- Target compound list (TCL) VOCs – EPA Method 8260B
- TCL semivolatile organic compounds (SVOC) – EPA Method 8270C
- Target analyte list metals – EPA Method 6010B/7470A/7471A
- Chlorinated pesticides – EPA Method 8081A
- Organophosphorus pesticides – EPA Method 8141A
- Chlorinated herbicides – EPA Method 8151A
- Polychlorinated biphenyls (PCB) – EPA Method 8082
- Cyanide (Total) – EPA Method 9010B
- Total organic carbon (TOC) – EPA Method 9060 (sediment only)
- Grain size – American Society for Testing and Materials Method D422 (sediment only).

Groundwater samples collected during Phase II of the SI were analyzed for the following parameters:

- TCL VOCs – EPA Method 8260B
- Target analyte list metals – EPA Method 6010B/7000
- Nitroaromatic/nitramine explosives – EPA Method 8330.

Phase II soil samples were analyzed for TAL metals only (EPA Method 6010B/7471A).

The additional groundwater samples collected to confirm the presence of acetone in monitoring wells FTA-93-MW05 and FTA-93-MW12 were analyzed only for the following parameters:

- TCL VOCs – EPA Method 8260B
- Acetone – EPA Method 8315A (FTA-93-MW12 only).

### **3.5 Sample Preservation, Packaging, and Shipping**

Sample preservation, packaging, and shipping followed requirements specified in the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SI are listed in the SAP. Sample documentation and chain of custody records were completed as specified in the SAP.

Completed analysis request and chain of custody records (Appendix B) were included with each shipment of sample coolers to the analytical laboratory. Samples were shipped to Quanterra Environmental Services in Knoxville, Tennessee, or to EMAX Laboratories, Inc., in Torrance, California. Split samples were shipped to the USACE South Atlantic Division Laboratory in Marietta, Georgia. The groundwater screening samples (for acetone analysis) were sent to Severn Trent Laboratory in Knoxville, Tennessee.

### **3.6 Investigation-Derived Waste Management and Disposal**

Investigation-derived waste (IDW) was managed and disposed as outlined in the SAP. The IDW generated during the SI at the Former Decontamination Complex was segregated as follows:

- Drill cuttings
- Purge water from well development, sampling activities, and decontamination fluids
- Spent well materials and personal protective equipment.

Solid IDW was stored inside the fenced area surrounding Buildings 335 and 336 in lined roll-off bins prior to characterization and final disposal. Solid IDW was characterized using toxicity characteristic leaching procedure analyses. Based on the results, solid IDW generated prior to January 2002 was disposed as nonhazardous waste at the Industrial Waste Landfill on the Main Post of FTMC. Solid IDW generated after January 2002 was disposed as nonhazardous waste at the Three Corners Landfill in Piedmont, Alabama.

Liquid IDW was contained in the existing 20,000-gallon sump associated with the Building T-338 vehicle washrack. Liquid IDW was characterized by VOC, SVOC, and metals analyses. Based on the analyses, liquid IDW was discharged as nonhazardous waste to the FTMC wastewater treatment plant on the Main Post.

### **3.7 Variances/Nonconformances**

One variance to the SFSP was recorded during completion of the SI at the Former Decontamination Complex. Groundwater samples were not collected from DPT temporary wells FTA-93-GP10, FTA-93-GP11, FTA-93-GP23, and FTA-93-GP24 because the wells were dry or groundwater was not present in sufficient volume to collect a sample. However, the wells were subsequently installed using hollow-stem auger drilling and produced sufficient water to be sampled. The variance report is included in Appendix F. No nonconformances to the SFSPs were recorded during completion of the SI.

### **3.8 Data Quality**

The field sample analytical data are presented in tabular form in Appendix G. The field samples were collected, documented, handled, analyzed, and reported in a manner consistent with the SI work plans, the FTMC SAP and quality assurance plan, and standard, accepted methods and procedures. Data were reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah Level B criteria (USACE, 2001) and the stipulated requirements for the generation of definitive data presented in the SAP. Chemical data were reported via hard-copy data packages by the laboratory using Contract Laboratory Program-like forms.

**Data Validation.** The reported analytical data were validated in accordance with EPA National Functional Guidelines by Level III criteria, except for the data from the groundwater screening samples collected to confirm the presence of acetone. The data validation summary reports are included in Appendix H. Selected results were rejected or otherwise qualified based on the implementation of accepted data validation procedures and practices. These qualified parameters are highlighted in the report. The validation-assigned qualifiers were added to the Shaw Environmental Management System™ database for tracking and reporting. The qualified data were used in the comparisons to the SSSLs and ESVs. Rejected data (assigned an “R” qualifier) were not used in the comparisons to the SSSLs and ESVs. The data presented in this report, except where qualified, meet the principle data quality objective for this SI.

## **4.0 Site Characterization**

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This chapter presents the geophysical survey results and information on the regional and site geology, and site hydrology at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7).

### **4.1 Geophysical Survey Results**

A geophysical survey was conducted during the SI at Parcel 140(7) to determine the presence of USTs. A former gas station was reportedly located at Parcel 140(7). Records indicate that it was a standard post gas station built in 1941. Reportedly, the station contained two 10,000-gallon USTs to store gasoline and diesel fuel. The foundation of the building is not present.

The geophysical survey results indicated the presence of one anomaly representing a potential UST at Parcel 140(7) (Figure 4-1). In July 2000, Shaw investigated the anomaly using exploratory trenching and excavation and determined that no UST was present. The anomaly was caused by reinforced concrete, piping, and backfill debris from previous tank removal activities. Although no UST was found, an ADEM UST closure site assessment report was completed for the piping that was removed (IT, 2001b).

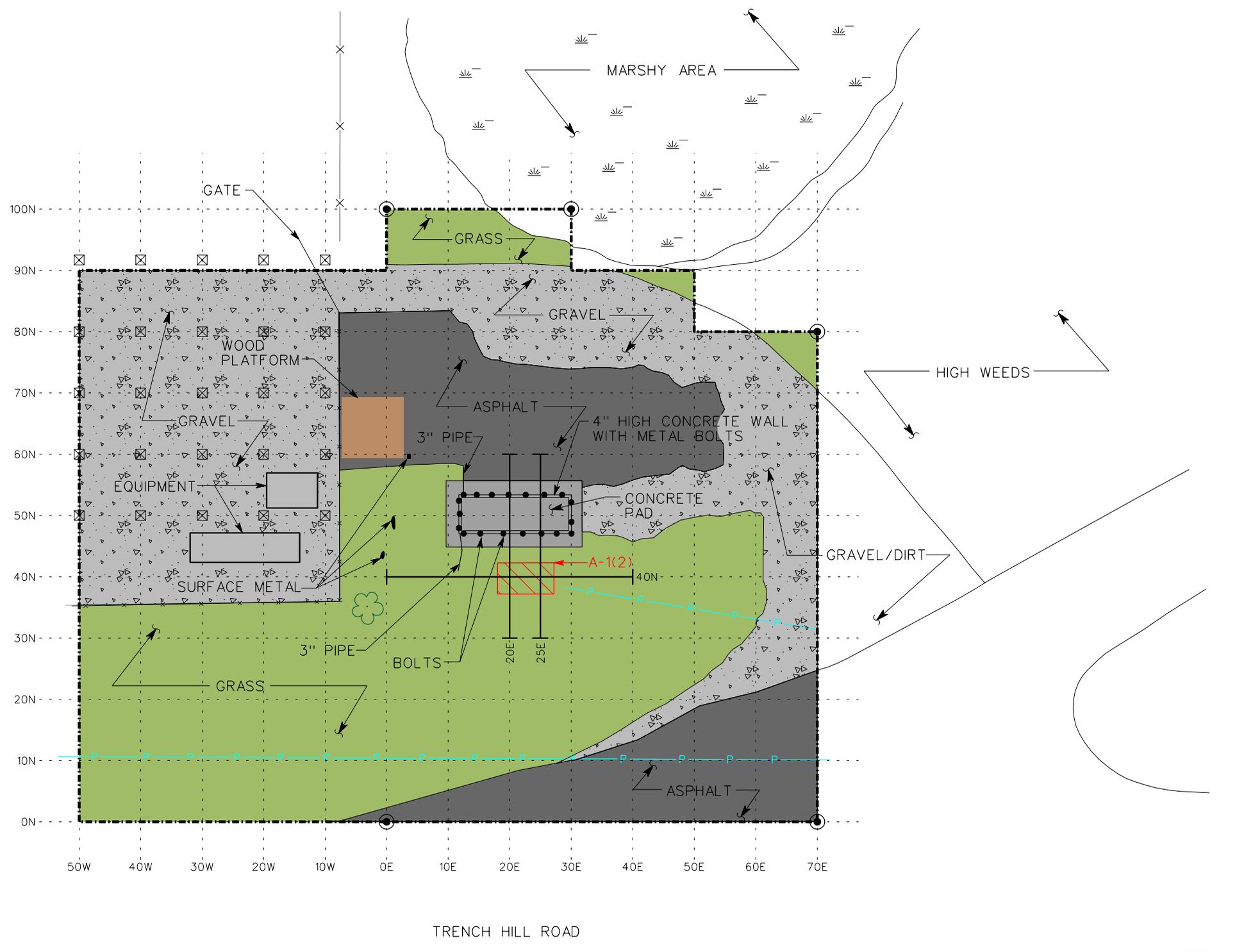
### **4.2 Regional and Site Geology**

#### **4.2.1 Regional Geology**

Calhoun County includes parts of two physiographic provinces, the Piedmont Upland Province and the Valley and Ridge Province. The Piedmont Upland Province occupies the extreme eastern and southeastern portions of the county and is characterized by metamorphosed sedimentary rocks. The generally accepted range in age of these metamorphics is Cambrian to Devonian.

The majority of Calhoun County, including the Main Post of FTMC, lies within the Appalachian fold-and-thrust structural belt (Valley and Ridge Province) where southeastward-dipping thrust faults with associated minor folding are the predominant structural features. The fold-and-thrust belt consists of Paleozoic sedimentary rocks that have been asymmetrically folded and thrust-faulted, with major structures and faults striking in a northeast-southwest direction.

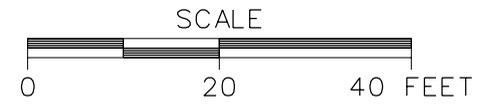
DWG. NO.: \774645es.915  
 PROJ. NO.: 774645  
 INITIATOR: S. TAKATA  
 PROJ. MGR.: J. YACOUB  
 DRAFT. CHK. BY:  
 ENGR. CHK. BY: J. HACKWORTH  
 DATE LAST REV.:  
 DRAWN BY:  
 STARTING DATE: 01/31/00  
 DRAWN BY: D. BOMAR  
 12/10/2003  
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**LEGEND**

- GEOPHYSICAL SURVEY BOUNDARY
- CIVIL SURVEY STAKE LOCATION
- GPR PROFILES PRESENTED
- GEOPHYSICAL ANOMALY DISCUSSED IN TEXT; NUMBER SHOWN IN PARENTHESIS INDICATES ANOMALY TYPE FOR POTENTIAL UST
- 5" x 8" CONCRETE FOOTINGS SOME WITH BOLTS AND METAL FLANGES
- PIPE/BURIED UTILITY
- FENCE
- TREES / TREELINE
- MARSH / WETLANDS

NAD 83 SPHEROID, ALABAMA EAST STATE PLANE DATUM		
LOCAL GRID COORDINATES	STATE PLANE COORDINATES	
0N,0E	1177760.814N	669163.674E
0N,70E	1177766.546N	669233.003E
80N,70E	1177845.893N	669227.028E
100N,30E	1177861.635N	669185.484E
100N,0E	1177861.320N	669154.980E



**FIGURE 4-1**  
**GEOPHYSICAL INTERPRETATION MAP**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7),**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



Northwestward transport of the Paleozoic rock sequence along the thrust faults has resulted in the imbricate stacking of large slabs of rock referred to as thrust sheets. Within an individual thrust sheet, smaller faults may splay off the larger thrust fault, resulting in imbricate stacking of rock units within an individual thrust sheet (Osborne and Szabo, 1984). Geologic contacts in this region generally strike parallel to the faults, and repetition of lithologic units is common in vertical sequences. Geologic formations within the Valley and Ridge Province portion of Calhoun County have been mapped by Warman and Causey (1962), Osborne and Szabo (1984), and Moser and DeJarnette (1992) and vary in age from Lower Cambrian to Pennsylvanian.

The basal unit of the sedimentary sequence in Calhoun County is the Cambrian Chilhowee Group. The Chilhowee Group consists of the Cochran, Nichols, Wilson Ridge, and Weisner Formations (Osborne and Szabo, 1984) but in Calhoun County is either undifferentiated or divided into the Cochran and Nichols Formations and an upper, undifferentiated Wilson Ridge and Weisner Formation. The Cochran is composed of poorly sorted arkosic sandstone and conglomerate with interbeds of greenish gray siltstone and mudstone. Massive to laminated greenish gray and black mudstone makes up the Nichols Formation, with thin interbeds of siltstone and very fine-grained sandstone (Osborne et al., 1988). These two formations are mapped only in the eastern part of the county.

The Wilson Ridge and Weisner Formations are undifferentiated in Calhoun County and consist of both coarse-grained and fine-grained clastics. The coarse-grained facies appears to dominate the unit and consists primarily of coarse-grained, vitreous quartzite and friable, fine- to coarse-grained, orthoquartzitic sandstone, both of which locally contain conglomerate. The fine-grained facies consists of sandy and micaceous shale and silty, micaceous mudstone, which are locally interbedded with the coarse clastic rocks. The abundance of orthoquartzitic sandstone and quartzite suggests that most of the Chilhowee Group bedrock in the vicinity of FTMC belongs to the Weisner Formation (Osborne and Szabo, 1984).

The Cambrian Shady Dolomite overlies the Weisner Formation northeast, east, and southwest of the Main Post and consists of interlayered bluish gray or pale yellowish gray sandy dolomitic limestone and siliceous dolomite with coarsely crystalline, porous chert (Osborne et al., 1989). A variegated shale and clayey silt have been included within the lower part of the Shady Dolomite (Cloud, 1966). Material similar to this lower shale unit was noted in core holes drilled by the Alabama Geologic Survey on FTMC (Osborne and Szabo, 1984). The character of the Shady Dolomite in the FTMC vicinity and the true assignment of the shale at this stratigraphic interval are still uncertain (Osborne, 1999).

The Rome Formation overlies the Shady Dolomite and locally occurs to the northwest and southeast of the Main Post, as mapped by Warman and Causey (1962) and Osborne and Szabo (1984), and immediately to the west of Reilly Airfield (Osborne and Szabo, 1984). The Rome Formation consists of variegated, thinly interbedded grayish red-purple mudstone, shale, siltstone, and greenish red and light gray sandstone, with locally occurring limestone and dolomite. Weaver Cave, located approximately 1 mile west of the northwest boundary of the Main Post, is situated in gray dolomite and limestone mapped as the Rome Formation (Osborne et al., 1997). The Conasauga Formation overlies the Rome Formation and occurs along anticlinal axes in the northeastern portion of Pelham Range (Warman and Causey, 1962; Osborne and Szabo, 1984) and the northern portion of the Main Post (Osborne et al., 1997). The Conasauga Formation is composed of dark gray, finely to coarsely crystalline, medium- to thick-bedded dolomite with minor shale and chert (Osborne et al., 1989).

Overlying the Conasauga Formation is the Knox Group, which is composed of the Copper Ridge and Chepultepec dolomites of Cambro-Ordovician age. The Knox Group is undifferentiated in Calhoun County and consists of light medium gray, fine to medium crystalline, variably bedded to laminated, siliceous dolomite and dolomitic limestone that weather to a chert residuum (Osborne and Szabo, 1984). The Knox Group underlies a large portion of the Pelham Range area.

The Ordovician Newala and Little Oak Limestones overlie the Knox Group. The Newala Limestone consists of light to dark gray, micritic, thick-bedded limestone with minor dolomite. The Little Oak Limestone is comprised of dark gray, medium- to thick-bedded, fossiliferous, argillaceous to silty limestone with chert nodules. These limestone units are mapped as undifferentiated at FTMC and in other parts of Calhoun County. The Athens Shale overlies the Ordovician limestone units. The Athens Shale consists of dark gray to black shale and graptolitic shale with localized interbedded dark gray limestone (Osborne et al., 1989). These units occur within an eroded “window” in the uppermost structural thrust sheet at FTMC and underlie much of the developed area of the Main Post.

Other Ordovician-aged bedrock units mapped in Calhoun County include the Greensport Formation, Colvin Mountain Sandstone, and Sequatchie Formation. These units consist of various siltstones, sandstones, shales, dolomites, and limestones and are mapped as one, undifferentiated unit in some areas of Calhoun County. The only Silurian-age sedimentary formation mapped in Calhoun County is the Red Mountain Formation. This unit consists of

interbedded red sandstone, siltstone, and shale with greenish gray to red silty and sandy limestone.

The Devonian Frog Mountain Sandstone consists of sandstone and quartzitic sandstone with shale interbeds, dolomudstone, and glauconitic limestone (Osborne et al., 1988). This unit locally occurs in the western portion of Pelham Range.

The Mississippian Fort Payne Chert and the Maury Formation overlie the Frog Mountain Sandstone and are composed of dark to light gray limestone with abundant chert nodules and greenish gray to grayish red phosphatic shale, with increasing amounts of calcareous chert toward the upper portion of the formation (Osborne and Szabo, 1984). These units occur in the northwestern portion of Pelham Range. Overlying the Fort Payne Chert is the Floyd Shale, also of Mississippian age, which consists of thin-bedded, fissile brown to black shale with thin intercalated limestone layers and interbedded sandstone. Osborne and Szabo (1984) reassigned the Floyd Shale, which was mapped by Warman and Causey (1962) on the Main Post of FTMC, to the Ordovician Athens Shale based on fossil data.

The Pennsylvanian Parkwood Formation overlies the Floyd Shale and consists of a medium to dark gray, silty, clay shale and mudstone with interbedded light to medium gray, very fine to fine grained, argillaceous, micaceous sandstone. Locally the Parkwood Formation also contains beds of medium to dark gray argillaceous, bioclastic to cherty limestone and beds of clayey coal up to a few inches thick (Raymond et al., 1988). The Parkwood Formation in Calhoun County is generally found within a structurally complex area known as the Coosa deformed belt. In the deformed belt, the Parkwood Formation and Floyd Shale are mapped as undifferentiated because their lithologic similarity and significant deformation make it impractical to map the contact (Thomas and Drahovzal, 1974; Osborne et al., 1988). The undifferentiated Parkwood Formation and Floyd Shale are found throughout the western quarter of Pelham Range.

The Jacksonville thrust fault is the most significant structural geologic feature in the vicinity of the Main Post of FTMC, both for its role in determining the stratigraphic relationships in the area and for its contribution to regional water supplies. The trace of the fault extends northeastward for approximately 39 miles between Bynum, Alabama, and Piedmont, Alabama. The fault is interpreted as a major splay of the Pell City fault (Osborne and Szabo, 1984). The Ordovician sequence that makes up the Eden thrust sheet is exposed at FTMC through an eroded window, or fenster, in the overlying thrust sheet. Rocks within the window display complex folding, with the folds being overturned and tight to isoclinal. The carbonates and shales locally exhibit well-

developed cleavage (Osborne and Szabo, 1984). The FTMC window is framed on the northwest by the Rome Formation; north by the Conasauga Formation; northeast, east, and southwest by the Shady Dolomite; and southeast and southwest by the Chilhowee Group (Osborne et al., 1997). Two small klippen of the Shady Dolomite, bounded by the Jacksonville fault, have been recognized adjacent to the Pell City fault at the FTMC window (Osborne et al., 1997).

The Pell City fault serves as a fault contact between the bedrock within the FTMC window and the Rome and Conasauga Formations. The trace of the Pell City fault is also exposed approximately nine miles west of the FTMC window on Pelham Range, where it traverses northeast to southwest across the western quarter of Pelham Range. Here, the trace of the Pell City fault marks the boundary between the Pell City thrust sheet and the Coosa deformed belt.

The eastern three-quarters of Pelham Range is located within the Pell City thrust sheet, while the remaining western quarter of Pelham is located within the Coosa deformed belt. The Pell City thrust sheet is a large-scale thrust sheet containing Cambrian and Ordovician rocks and is relatively less structurally complex than the Coosa deformed belt (Thomas and Neathery, 1982). The Pell City thrust sheet is exposed between the traces of the Jacksonville and Pell City faults along the western boundary of the FTMC window and along the trace of the Pell City fault on Pelham Range (Thomas and Neathery, 1982; Osborne et al., 1988). The Coosa deformed belt is a narrow northeast-to-southwest-trending linear zone of complex structure (approximately 5 to 20 miles wide and approximately 90 miles long) consisting mainly of thin imbricate thrust slices. The structure within these imbricate thrust slices is often internally complicated by small-scale folding and additional thrust faults (Thomas and Drahovzal, 1974).

#### **4.2.2 Site Geology**

Soils at the Former Decontamination Complex fall into the Anniston and Allen gravelly loam, 2 to 6 percent slopes, eroded (U.S. Department of Agriculture, 1961). This mapping unit consists of friable soils that have developed in local, old alluvium on foot slopes and along the base of mountains. The color of the surface soil ranges from very dark brown and dark brown to reddish brown and dark reddish brown. The texture of the subsoil ranges from light clay loam to clay or silty clay loam. The color of the subsoil is mainly dark red. These soils are well drained and strongly acid. Infiltration and runoff are medium, permeability is moderate, and the capacity for available moisture is high. Organic matter is moderately low (U.S. Department of Agriculture, 1961).

As shown on the site geologic map (Figure 4-2), the Former Decontamination Complex is situated on the northern boundary of the Ordovician window that frames Fort McClellan. The site is bisected by the Pell City Fault. At this location, the fault trace and geologic contacts strike generally east to west, with transport direction of the thrust sheet to the north. The bedrock south of the fault is mapped as the undifferentiated Mississippian/Ordovician Floyd and Athens shale (Osborne et al., 1997). This unit is exposed at FTMC as a thick sequence of dark gray to black, fissile shale and shaley mudstone, which locally may contain interbeds of limestone, sandstone, and chert (Raymond et al., 1988). The northern portion of the site is mapped as the Cambrian Conasauga Formation (Osborne et al., 1997). The Conasauga Formation consists of very thin-bedded, pale olive mudstone, shaley mudstone, and shale, locally containing interbeds of bluish gray, fine- to medium-grained, thin-bedded limestone and rare siltstone (Osborne and Szabo, 1984). An area of high relief east of the site (identified as Trench Hill on Army topographic maps) is a klippe of Cambrian Shady Dolomite.

A geologic cross section was constructed using the lithological data collected during the SI at the Former Decontamination Complex, as shown on Figure 4-3. The geologic cross section location is shown on Figure 4-2. The residuum at the site consists predominantly of clay and sand with weathered shale fragments, sandstone gravel, and quartzite gravel overlying highly weathered shale. Weathered, gray shale was encountered at depths ranging from 9.5 to 11 feet bgs. Competent shale was encountered between 20 and 40 feet bgs. During rock coring activities, the bedrock was described as a black shale, unweathered to moderately weathered, moderately hard, fine grained to microcrystalline, banded, highly fractured, and highly contorted, with contorted calcite veins throughout.

### **4.3 Site Hydrology**

#### **4.3.1 Surface Hydrology**

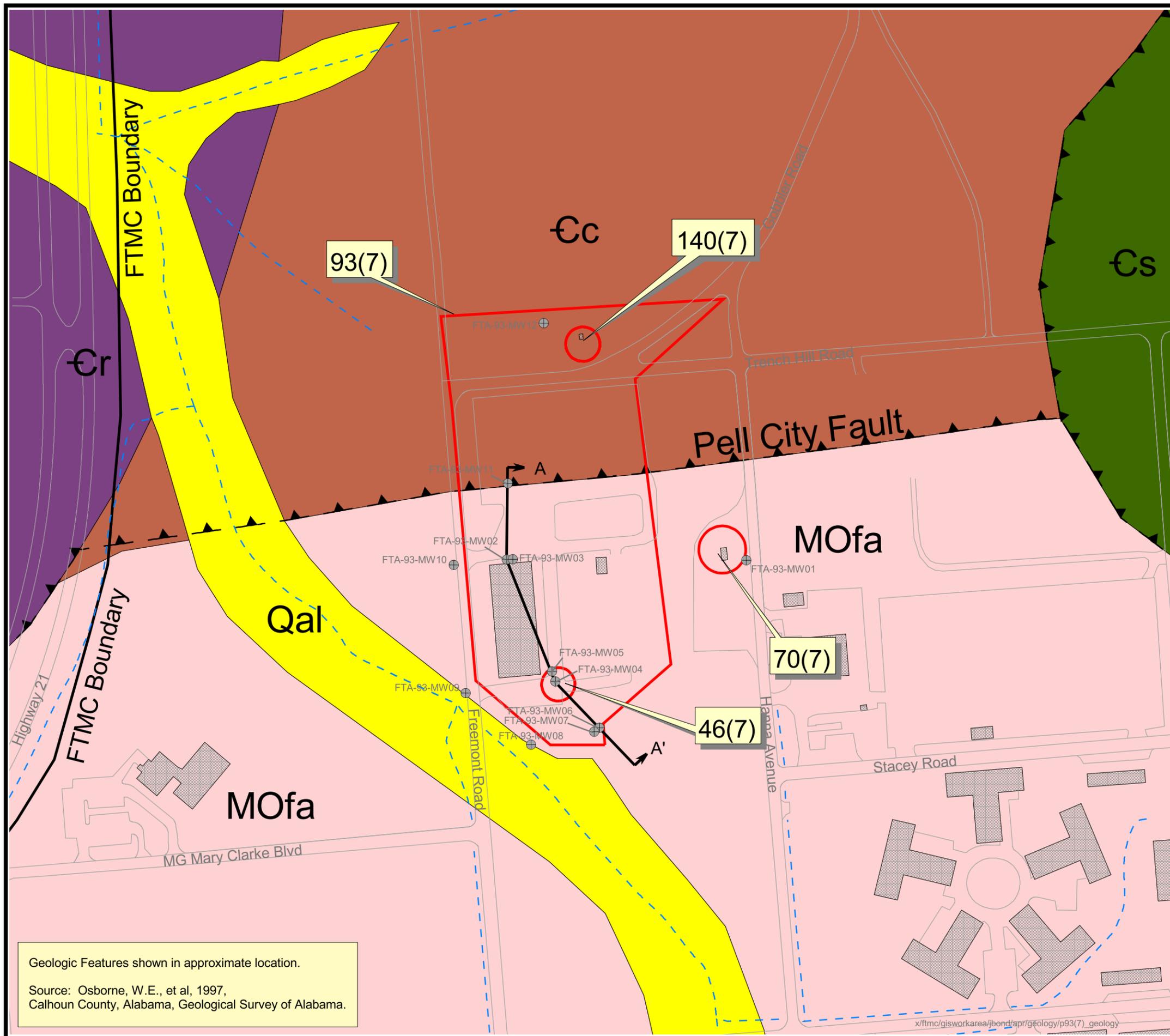
Precipitation in the form of rainfall averages about 53 inches annually in Anniston, Alabama, with infiltration rates annually exceeding evapotranspiration rates (U.S. Department of Commerce, 1998). The major surface water features on the Main Post of FTMC include Remount Creek, Cane Creek, South Branch of Cane Creek, and Cave Creek. These waterways flow in a general northwest to westerly direction towards the Coosa River on the western boundary of Calhoun County.

Surface runoff at the Former Decontamination Complex follows the general topography of the site and flows to the west and northwest, except at the south end of the parcel, where drainage is

# Figure 4-2

## Site Geologic Map

Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7) Fort McClellan, Alabama



### Legend

- Parcel Boundary
  - Roads
  - Surface Drainage Feature (dashed where intermittent)
  - Building
  - Monitoring Well
- Geology**
- Qal** Quaternary - Alluvium
  - MOfa** Mississippian/Ordovician - Floyd and Athens Shale, undifferentiated
  - Cc** Cambrian - Conasauga Formation
  - Cr** Cambrian - Rome Formation
  - Cs** Cambrian - Shady Dolomite
  - Thrust Fault (dashed where inferred; barbs on upper plate)
  - Cross Section Location

200 0 200 Feet

NAD83 State Plane Coordinates



Shaw Environmental, Inc.



U.S. Army Corps of Engineers  
Mobile District

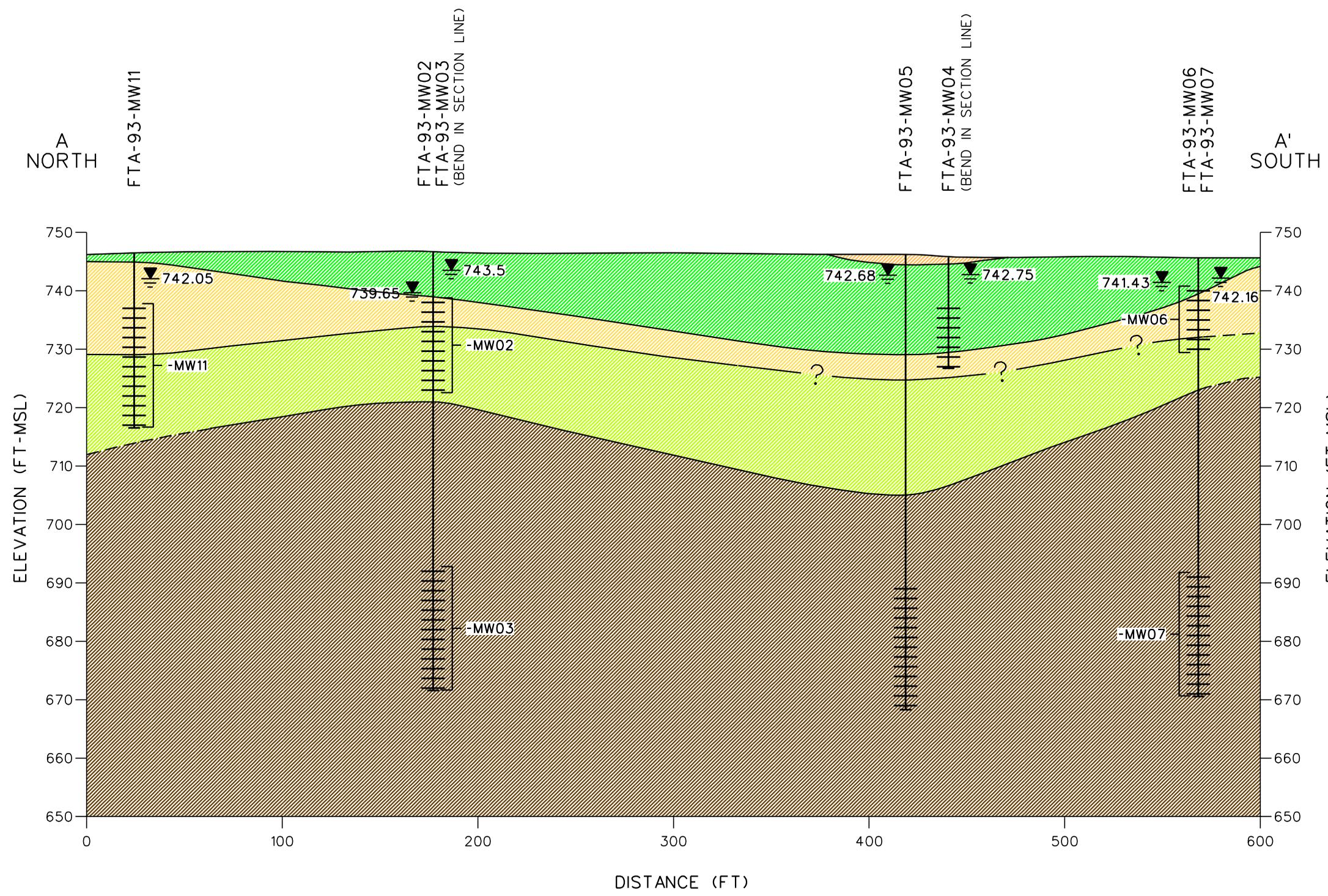
Contract No. DACA21-96-D-0018

Geologic Features shown in approximate location.

Source: Osborne, W.E., et al, 1997,  
Calhoun County, Alabama, Geological Survey of Alabama.

x:/ftmc/gisworkarea/jbond/apr/geology/p93(7)\_geology

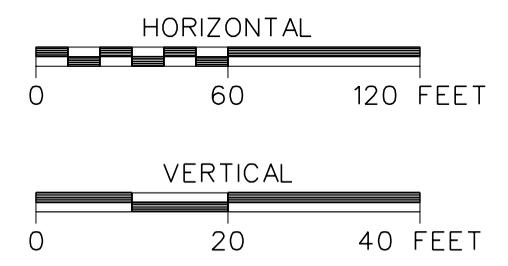
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 INITIATOR: L. O'HARE  
 PROJ. MGR.: J. YACOUB  
 PROJ. NO.: 774645  
 DRAFT. CHCK. BY:  
 ENGR. CHCK. BY: S. MORAN  
 DATE LAST REV.:  
 DRAWN BY:  
 STARTING DATE: 05/06/02  
 DRAWN BY: D. BOMAR  
 12/17/2003  
 9:25:39 AM  
 c:\cadd\design\774645es.916



**LEGEND**

- SCREEN INTERVAL
- WATER TABLE
- 742.05 GROUNDWATER ELEVATION (FT MSL) (NOVEMBER 27, 2002)
- - ? - - CONTACT DASHED WHERE INFERRED
- SAND AND SILT
- SAND, LITTLE CLAY
- CLAY
- CLAY SOME SAND (HIGHLY WEATHERED SHALE)
- SHALE

- NOTES:**
1. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988.
  2. SEE FIGURE 4-2 FOR CROSS SECTION LOCATION.



**FIGURE 4-3**  
**GEOLOGIC CROSS SECTION A-A'**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7),**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018

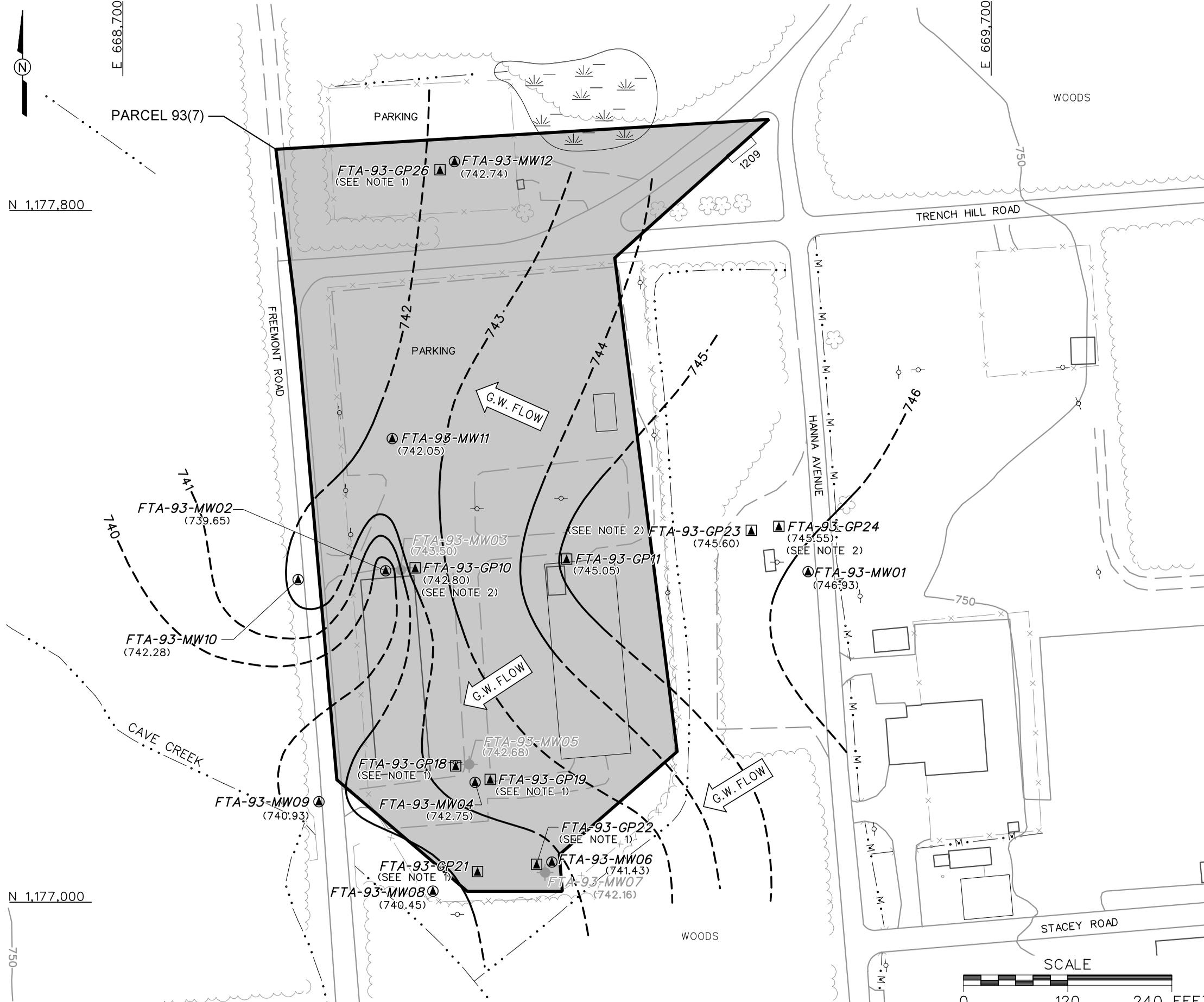
south into Cave Creek. Cave Creek is located approximately 60 feet southwest of the parcel and flows to the north-northwest. A concrete-lined ditch that parallels the west boundary drains into Cave Creek. A small unnamed intermittent stream on the eastern boundary of the complex also discharges into Cave Creek.

A marshy area is located at the northern end of Parcel 93(7). The marshy area is best described as an emergent wetland based on the presence of erect, rooted herbaceous hydrophytes (e.g., cat tails). A drainage ditch appears to empty into the marshy area from the west (Figure 1-2).

#### **4.3.2 Hydrogeology**

Static groundwater levels were measured in monitoring wells at the site on November 27, 2002, as summarized in Table 3-4. A groundwater elevation map constructed from the November 2002 data is shown on Figure 4-4. Residuum groundwater flow at the site follows the general topography and flows to the west-southwest towards Cave Creek. This suggests that the groundwater in the residuum is hydraulically connected to the creek. Upward hydraulic gradients were observed in two of the three well pairs, and a downward hydraulic gradient was observed in the third well pair. This suggests that groundwater in the bedrock is under confined to semiconfined conditions.

DWG. NO.: ...774645es.917  
 PROJ. NO.: 774645  
 INITIATOR: N. BADON  
 PROJ. MGR.: J. YACOUB  
 DRAFT. CHK. BY:  
 ENGR. CHK. BY: J. JENKINS  
 DATE LAST REV.:  
 DRAWN BY:  
 STARTING DATE: 06/12/01  
 DRAWN BY: D. BOMAR  
 12/10/2003  
 3:54:59 PM  
 dbomar  
 c:\cadd\design\774645es.917



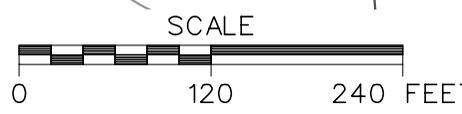
### LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 25 FOOT)
- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER ELEVATION (FT MSL) (NOVEMBER 27, 2002)
- G.W. FLOW
- TREES / TREELINE
- MARSH / WETLANDS
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- MANMADE SURFACE DRAINAGE FEATURE
- FENCE
- UTILITY POLE
- RESIDUUM MONITORING WELL LOCATION
- BEDROCK MONITORING WELL LOCATION
- GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION

- ### NOTES:
1. TEMPORARY 1-INCH ID WELL WAS ABANDONED IN JANUARY 1999.
  2. TEMPORARY 2-INCH ID WELL WAS ABANDONED IN MARCH 2003.

**FIGURE 4-4**  
**RESIDUUM GROUNDWATER**  
**ELEVATION MAP**  
**FORMER DECONTAMINATION COMPLEX**  
**PARCELS 93(7), 46(7), 70(7),**  
**AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



## **5.0 Summary of Analytical Results**

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The results of the chemical analyses of samples collected at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), indicate that metals, VOCs, SVOCs, and pesticides were detected in the various site media. In addition, the PCB Aroclor 1254 was detected in one surface soil sample, and the herbicide 2,2-dichloropropanoic acid was detected in two groundwater samples and one surface water sample. Explosives were detected in Phase II groundwater samples. Cyanide was not detected in site media. To evaluate whether the detected constituents present an unacceptable risk to human health and the environment, analytical results were compared to the human health SSSLs and ESVs for FTMC. The SSSLs and ESVs were developed by Shaw for human health and ecological risk evaluations as part of the ongoing SIs being performed under the BRAC Environmental Restoration Program at FTMC.

Metals concentrations exceeding the SSSLs and ESVs were subsequently compared to metals background screening values to determine if the metals concentrations are within natural background concentrations (SAIC, 1998). Metals detected at concentrations exceeding background were carried forward for further evaluation using statistical testing and geochemical evaluation. Additionally, PAH concentrations in surface and depositional soils that exceeded the SSSLs and ESVs were compared to PAH background screening values (IT, 2000b).

The following sections and Tables 5-1 through 5-5 summarize the results of the comparison of detected constituents to the SSSLs, ESVs, and background screening values. Complete analytical results are presented in Appendix G.

### **5.1 Surface and Depositional Soil Analytical Results**

Twenty-seven surface soil samples and five depositional soil samples were collected for chemical analysis at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7). Surface and depositional soil samples were collected from the uppermost foot of soil at the locations shown on Figure 3-2. Analytical results were compared to residential human health SSSLs, ESVs, and background screening values, as presented in Table 5-1.

**Metals.** A total of 22 metals were detected in the surface and depositional soil samples. Seven metals (aluminum, antimony, arsenic, chromium, iron, manganese, and thallium) were detected at concentrations exceeding SSSLs. The concentrations of aluminum, antimony, arsenic,

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 1 of 22)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-DEP01 DA0031 11-Nov-98 0-1					FTA-93-DEP02 DA0032 13-Nov-98 0-1					FTA-93-DEP03 DA0033 12-Nov-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	5.37E+03				YES	6.53E+03				YES	3.71E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	4.20E+00		YES			3.50E+00			YES		4.00E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	6.14E+01					6.45E+01					4.76E+01				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					9.20E-01		YES			ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					7.60E-01		YES			ND				
Calcium	mg/kg	1.72E+03	NA	NA	2.60E+04	J	YES			1.55E+04	J	YES			7.90E+03	J	YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.10E+01				YES	1.44E+01				YES	1.24E+01				YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					ND					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	7.40E+00					1.13E+01					1.40E+01		YES		
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	8.86E+03		YES	YES		9.04E+03			YES	YES	1.40E+04			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	2.50E+01					5.24E+01		YES		YES	3.86E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	1.02E+04		YES			5.90E+03		YES			3.74E+03		YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	3.81E+02		YES	YES		4.75E+02			YES	YES	3.42E+02				YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	1.10E-01		YES		YES	7.50E-02					5.80E-02				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	ND					ND					ND				
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.88E+01				YES	1.78E+01				YES	1.04E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.06E+02		YES		YES	1.65E+02		YES		YES	5.52E+01		YES		YES
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					ND					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	1.50E-02	B				ND					1.20E-02	B			
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	6.40E-03	B				4.80E-03	B				3.80E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 2 of 22)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-DEP01 DA0031 11-Nov-98 0-1					FTA-93-DEP02 DA0032 13-Nov-98 0-1					FTA-93-DEP03 DA0033 12-Nov-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					9.50E-02	J				ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	1.20E-01	J				1.30E-01	J				ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	3.80E+00		YES			5.00E+00		YES			ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	3.60E+00		YES		YES	4.90E+00		YES		YES	ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	1.00E+00			YES		1.90E+00		YES	YES		6.60E-02	J			
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	2.30E+00		YES	YES	YES	3.60E+00		YES	YES	YES	8.70E-02	J		YES	
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	2.50E+00		YES	YES		3.60E+00		YES	YES		1.00E-01	J			
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	1.90E+00		YES			2.40E+00		YES			6.00E-02	J			
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	2.70E+00		YES			4.30E+00		YES			9.40E-02	J			
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	3.00E-01	J				3.80E-01	J				ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	1.30E+00					2.20E+00		YES			8.50E-02	J			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	6.80E-01	J		YES		9.60E-01		YES	YES		ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	1.20E+00				YES	2.10E+00		YES		YES	1.30E-01	J			YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	1.10E-01	J				2.90E-01	J				ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	1.70E+00		YES	YES		2.10E+00		YES	YES		5.90E-02	J			
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	3.60E-01	J			YES	4.10E-01	J			YES	ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	9.70E-02	J			YES	1.00E-01	J			YES	ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	1.80E+00		YES		YES	3.10E+00		YES		YES	1.00E-01	J			YES
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND					ND					6.40E-02	J			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	4.00E-03	J			YES	1.00E-02	J			YES	3.40E-03	J			YES
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	8.90E-03				YES	1.20E-02				YES	1.40E-02				YES
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	6.40E-03					2.30E-02				YES	ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 3 of 22)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-DEP04 DA0034 11-Nov-98 0- 1					FTA-93-GP03 DA0003 23-Oct-98 0- 1					FTA-93-GP04 DA0004 23-Oct-98 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	5.90E+03				YES	4.10E+03				YES	3.56E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	7.70E+00		YES			5.80E+00			YES		1.40E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	5.57E+01					5.88E+01					ND				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					ND					ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	6.90E-01		YES			ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	8.72E+03	J	YES			1.19E+04	J	YES			1.99E+03	J	YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.65E+01				YES	7.20E+00	J			YES	6.30E+00	J			YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	9.50E+00					ND					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	1.57E+01		YES			4.30E+00					3.60E+00				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	2.27E+04			YES	YES	4.93E+03			YES	YES	5.87E+03			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	3.76E+01					3.59E+01					5.70E+00				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	3.21E+03		YES			2.85E+03	J	YES			1.06E+03	J	YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	5.11E+02			YES	YES	1.21E+02	J			YES	3.59E+01	J			
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	6.70E-02					ND					ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	8.10E+00					ND					ND				
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.13E+01				YES	9.60E+00				YES	7.30E+00				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	7.29E+01		YES		YES	6.37E+01		YES		YES	8.40E+00	B			
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					2.90E-03	J				ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	1.30E-02	B				ND					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	1.80E-01	J				ND					2.60E-01	J			
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					3.40E-03	J				ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	4.70E-03	B				5.40E-03	B				4.40E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					1.10E-02					4.70E-03	J			
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					3.20E-03	B				ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					1.50E-02	J				4.50E-03	J			
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 4 of 22)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-DEP04 DA0034 11-Nov-98 0- 1					FTA-93-GP03 DA0003 23-Oct-98 0- 1					FTA-93-GP04 DA0004 23-Oct-98 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					2.70E-01	J				5.40E-02	J			
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					1.90E-01	J			YES	4.60E-02	J			
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					1.90E-01	J				ND				
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					3.90E-01			YES	YES	5.40E-02	J			
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					3.90E-01					5.80E-02	J			
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					ND					ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					3.80E-01					6.90E-02	J			
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	ND					2.50E-01	J				ND				
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					1.70E-01	B				2.30E-01	B			
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					8.80E-02	J		YES		ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	ND					2.10E-01	J			YES	ND				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND					2.00E-01	J				4.10E-02	J			
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					4.20E-02	J				ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	ND					2.30E-01	J			YES	3.70E-02	J			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND					5.80E-02	B				7.20E-02	B			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					2.90E-03				YES	ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					3.30E-02				YES	ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					2.20E-02				YES	ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 5 of 22)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP05 DA0005 19-Oct-98 0-1					FTA-93-GP06 DA0006 19-Oct-98 0-1					FTA-93-GP07 DA0007 18-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	1.56E+03				YES	2.94E+03				YES	9.78E+02				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	2.20E+00		YES			3.90E+00			YES		3.10E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	2.44E+01					ND					2.81E+01				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					ND					ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	1.84E+05		YES			1.12E+05		YES			2.26E+05		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.09E+01	J			YES	2.45E+01	J		YES	YES	ND				
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					ND					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	1.53E+01		YES			1.16E+01					7.80E+00				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	3.41E+03			YES	YES	6.50E+03			YES	YES	4.57E+03			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	1.48E+01					1.11E+01					1.01E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	4.08E+04		YES			5.73E+04		YES			6.54E+04		YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	9.18E+01					1.28E+02				YES	9.95E+01				
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					ND					ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	7.60E+00					ND					ND				
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.88E+01				YES	2.46E+01				YES	1.91E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	3.00E+01	B				1.48E+02		YES		YES	4.98E+01		YES		
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					ND					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	ND					ND					1.70E-02	B			
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	4.80E-03	B				4.70E-03	B				5.00E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP05 DA0005 19-Oct-98 0-1					FTA-93-GP06 DA0006 19-Oct-98 0-1					FTA-93-GP07 DA0007 18-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	2.40E-01	J				2.50E-01	J				3.50E-01	J			
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	2.40E-01	J			YES	3.50E-01				YES	3.10E-01	J			YES
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	5.80E-01					1.10E+00			YES		6.70E-01	J			
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	1.10E+00			YES	YES	1.30E+00			YES	YES	9.60E-01	J		YES	YES
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	1.20E+00			YES		1.80E+00		YES	YES		7.00E-01	J			
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	6.80E-02	J				ND					7.70E-01	J			
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	1.10E+00	J				1.50E+00	J	YES			9.70E-01	J			
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	5.20E-02	J				1.10E-01	J				ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	7.60E-01					1.20E+00					7.80E-01	J			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	9.70E-02	J		YES		3.60E-02	J				3.70E-01	J		YES	
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	9.10E-01			YES		2.00E+00				YES	1.50E+00	J			YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					9.30E-02	J				ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	1.90E-01	J				1.90E-01	J				7.00E-01	J			
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	2.10E-01	J		YES		7.30E-01				YES	4.00E-01	J			YES
Phenol	mg/kg	NA	4.66E+03	5.00E-02	4.90E-02	B				ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	1.20E+00			YES		2.10E+00		YES		YES	1.20E+00	J			YES
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	7.80E-02	B				7.60E-02	B				ND				
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP08 DA0008 19-Oct-98 0-1					FTA-93-GP09 DA0009 19-Oct-98 0-1					FTA-93-GP10 DA0010 19-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	4.26E+03				YES	4.03E+03				YES	3.78E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	2.30E+00		YES			3.20E+00			YES		1.50E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	2.76E+01					1.75E+02		YES		YES	2.57E+01				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					ND					ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	7.94E+03		YES			8.16E+03		YES			8.57E+04	J	YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.17E+01	J			YES	1.51E+02	J	YES	YES	YES	1.02E+01	J			YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					1.09E+01					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	3.40E+00					9.80E+00					3.30E+00				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	8.98E+03			YES	YES	1.46E+04				YES	YES	5.38E+03			YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	1.78E+01					1.56E+01					1.65E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	2.25E+03		YES			3.19E+03		YES			5.55E+03	J	YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	4.57E+02			YES	YES	9.80E+02				YES	YES	7.40E+01			
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					ND					ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	ND					6.62E+01		YES		YES	ND				
Potassium	mg/kg	8.00E+02	NA	NA	ND					5.45E+02					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.36E+01				YES	1.48E+01				YES	1.37E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	7.80E+00	B				9.70E+00	B				1.18E+01	B			
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	2.30E-03	J				1.20E-02	J				ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					3.80E-03	J				ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					ND					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	7.40E-01	J				2.80E+00	J			YES	5.40E-02	B			
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					5.40E-03					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	5.90E-03	B				6.80E-03	B				4.20E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	6.00E-03	J				7.30E-02	J	YES			ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP08 DA0008 19-Oct-98 0-1					FTA-93-GP09 DA0009 19-Oct-98 0-1					FTA-93-GP10 DA0010 19-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	5.50E-01	J				6.60E-01	J				ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	2.00E+00	J	YES			1.10E+00	J	YES			ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	3.70E+00		YES		YES	2.50E+00	J	YES		YES	ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	1.00E+01		YES	YES	YES	4.80E+00		YES	YES	YES	ND				
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	1.20E+01		YES	YES	YES	4.80E+00		YES	YES	YES	ND				
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	1.30E+01		YES	YES		4.40E+00		YES	YES		ND				
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	1.80E+00	J	YES			8.20E-01	J				ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	1.30E+01		YES	YES		6.00E+00		YES			ND				
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	9.90E-01	J				8.60E-01	J				ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	1.20E+01		YES		YES	5.20E+00		YES		YES	ND				
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	1.40E+00	J	YES	YES		5.60E-01	J		YES		ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	4.40E-01	J				6.10E-01	J				ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	2.30E+01		YES		YES	1.20E+01		YES		YES	ND				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	1.20E+00	J	YES			1.70E+00	J	YES			ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	2.40E+00	J	YES	YES		1.00E+00	J	YES	YES		ND				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	9.90E+00		YES		YES	6.10E+00		YES		YES	ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	2.40E+01		YES		YES	9.60E+00		YES		YES	ND				
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND					ND					ND				
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP11 DA0013 20-Oct-98 0-1					FTA-93-GP12 DA0014 19-Oct-98 0-1					FTA-93-GP13 DA0015 16-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	2.67E+03				YES	5.31E+03				YES	3.94E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	2.10E+00		YES			2.50E+00			YES		4.00E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	2.55E+01					3.19E+01					4.08E+01				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					ND					ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	1.52E+04		YES			9.89E+02					2.84E+04		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.82E+01			YES		8.10E+00 J			YES		1.71E+01 J				YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					7.20E+00					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	2.90E+00					4.40E+00					1.07E+01				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	1.07E+04 J		YES	YES		9.95E+03			YES	YES	1.42E+04			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	7.70E+00					1.54E+01					5.73E+01		YES		YES
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	1.65E+03		YES			ND					1.06E+04		YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	7.00E+01					2.59E+02			YES		3.09E+02				YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					ND					ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	4.20E+00					ND					7.60E+00				
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.03E+01 J			YES		7.20E+00			YES		1.22E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.37E+01 B					1.58E+01 B					2.76E+01 B				
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					3.30E-03 J					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	ND					3.80E+00 J			YES		6.10E-02 J				
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					2.20E-03 J				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	3.00E-03 B					4.90E-03 B					2.50E-03 B				
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP11 DA0013 20-Oct-98 0- 1					FTA-93-GP12 DA0014 19-Oct-98 0- 1					FTA-93-GP13 DA0015 16-Oct-98 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	4.00E-02	J				ND					ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					ND					ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	6.80E-02	J				ND					ND				
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	1.10E-01	J		YES	YES	ND					ND				
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	9.30E-02	J				ND					ND				
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	8.40E-02	J				ND					ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	1.50E-01	J				ND					ND				
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	8.70E-02	J				ND					ND				
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	3.60E-02	J				ND					ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	6.40E-02	J				ND					ND				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	7.30E-02	J				ND					ND				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					ND					ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	6.80E-02	J				ND					ND				
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	9.30E-02	B				4.70E-02	B				6.00E-02	B			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP14 DA0016 16-Oct-98 0- 1					FTA-93-GP15 DA0017 20-Oct-98 0- 1					FTA-93-GP16 DA0018 20-Oct-98 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	8.35E+03			YES	YES	9.59E+03			YES	YES	1.65E+04		YES	YES	YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	6.50E+00			YES		4.90E+00			YES		7.60E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	3.29E+01					1.32E+02		YES			2.56E+02		YES		YES
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					6.10E-01					1.00E+00		YES		
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	2.38E+04		YES			7.26E+03		YES			2.87E+03		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	4.03E+01	J	YES	YES	YES	1.75E+01				YES	2.46E+01			YES	YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	7.30E+00					1.11E+01					1.63E+01		YES		
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	9.90E+00					8.70E+00					9.90E+00				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	2.38E+04			YES	YES	1.92E+04	J		YES	YES	2.86E+04	J		YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	1.30E+01					6.90E+01		YES		YES	6.63E+01		YES		YES
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	1.34E+04		YES			3.93E+03		YES			7.79E+02				
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	2.40E+02				YES	1.79E+03		YES	YES	YES	2.82E+03		YES	YES	YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					4.60E-02					7.90E-02				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	1.01E+01					8.00E+00					1.49E+01		YES		
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					6.38E+02				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					8.10E-01		YES		YES
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					1.40E+00	B		YES	YES
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.69E+01				YES	2.21E+01	J			YES	3.33E+01	J			YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	2.14E+01	B				6.24E+01	J	YES		YES	5.65E+01	J	YES		YES
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	4.70E-03	J				7.90E-03	J				6.40E-03	J			
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	4.60E-02	B				1.40E-01	B				1.60E-01	B			
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	2.20E-03	B				7.00E-03	B				8.00E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP14 DA0016 16-Oct-98 0-1					FTA-93-GP15 DA0017 20-Oct-98 0-1					FTA-93-GP16 DA0018 20-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					ND					ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					5.50E-02	J				ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					1.20E-01	J				6.70E-02	J			
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					1.10E-01	J		YES	YES	7.20E-02	J			
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					1.10E-01	J				5.50E-02	J			
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					6.10E-02	J				ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					1.50E-01	J				8.30E-02	J			
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	ND					1.30E-01	J				7.50E-02	J			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					ND					ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	ND					2.90E-01	J			YES	1.10E-01	J			YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND					6.10E-02	J				ND				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					1.90E-01	J			YES	ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	ND					2.10E-01	J			YES	8.70E-02	J			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	1.30E-01	B				1.10E-01	B				7.70E-02	B			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP17 DA0019 20-Oct-98 0-1					FTA-93-GP18 DA0020 16-Oct-98 0-1					FTA-93-GP19 DA0021 20-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	2.33E+03				YES	2.63E+03				YES	2.50E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	4.00E+00		YES			2.60E+00			YES		2.80E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	ND					5.42E+01					1.32E+02		YES		
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					ND					ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	6.96E+04		YES			3.25E+03		YES			1.99E+04		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.91E+01				YES	1.07E+01	J			YES	1.32E+01				YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					ND					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	6.20E+00					2.29E+01		YES			6.30E+00				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	5.05E+03	J		YES	YES	1.22E+04			YES	YES	1.06E+04	J		YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	2.68E+01					5.17E+01			YES	YES	1.82E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	3.82E+04		YES			1.49E+03		YES			1.07E+04		YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	1.13E+02				YES	3.87E+02			YES	YES	8.68E+02			YES	YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					ND					ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	6.30E+00	B				ND					6.30E+00	B			
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					5.60E-01		YES			ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.86E+01	J			YES	ND					1.00E+01	J			YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	3.11E+01	J				2.44E+02		YES		YES	1.46E+01	B			
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					4.10E-03	J				ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	7.80E-02	B				6.70E-02	J				ND				
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	8.10E-03	B				2.60E-03	B				3.80E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP17 DA0019 20-Oct-98 0-1					FTA-93-GP18 DA0020 16-Oct-98 0-1					FTA-93-GP19 DA0021 20-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					3.80E-02	J				ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					8.60E-02	J				ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					2.20E-01	J				7.00E-02	J			
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					2.40E-01	J		YES	YES	7.40E-02	J			
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					3.00E-01	J				7.90E-02	J			
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					1.70E-01	J				ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					4.70E-01					9.40E-02	J			
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					1.30E-01	J				ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	ND					3.80E-01					8.40E-02	J			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					7.50E-02	J				ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	ND					8.00E-01				YES	1.50E-01	J			YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND					1.70E-01	J				ND				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					3.90E-01				YES	5.90E-02	J			
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	ND					5.10E-01				YES	1.30E-01	J			YES
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND					1.40E-01	B				7.90E-02	B			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	9.20E-02				YES	ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP20 DA0022 20-Oct-98 0-1					FTA-93-GP21 DA0023 27-Oct-98 0-1					FTA-93-GP22 DA0024 27-Oct-98 0-1					
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
<b>METALS</b>																				
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	3.04E+03				YES	1.12E+04				YES	YES	1.63E+04			YES	YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND					
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	1.70E+00		YES			3.10E+00			YES		1.98E+01		YES	YES	YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	2.16E+01					2.77E+01					3.82E+01					
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					7.70E-01					6.70E-01					
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					ND					
Calcium	mg/kg	1.72E+03	NA	NA	9.82E+03		YES			2.46E+03	J	YES			ND					
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	9.40E+00				YES	2.95E+01	J		YES	YES	3.41E+01	J			YES	YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					1.47E+01					7.20E+00					
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	5.00E+00					1.89E+01		YES			1.41E+01		YES			
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	5.74E+03	J		YES	YES	5.96E+04		YES	YES	YES	5.92E+04		YES	YES	YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	2.49E+01					4.09E+01		YES			1.67E+01					
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	4.03E+03		YES			ND					ND					
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	1.69E+02				YES	1.71E+02	J			YES	3.01E+02	J				YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					8.80E-02		YES			8.90E-02		YES			
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	ND					1.47E+01		YES			9.90E+00					
Potassium	mg/kg	8.00E+02	NA	NA	ND					7.47E+02					ND					
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					1.80E+00		YES			YES
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND					
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND					
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	8.50E+00	J			YES	1.63E+01				YES	2.86E+01	J				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	2.14E+01	B				1.23E+02		YES		YES	3.88E+01					
<b>VOLATILE ORGANIC COMPOUNDS</b>																				
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND					
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND					
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND					
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					ND					ND					
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND					
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND					
Acetone	mg/kg	NA	7.76E+02	2.50E+00	ND					3.30E-02	B				3.00E-02	B				
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					ND					ND					
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND					
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND					
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND					
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	3.50E-03	B				6.50E-03	B				5.20E-03	B				
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND					
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND					
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND					
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND					
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND					

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP20 DA0022 20-Oct-98 0- 1					FTA-93-GP21 DA0023 27-Oct-98 0- 1					FTA-93-GP22 DA0024 27-Oct-98 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					ND					ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					ND					ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					ND					ND				
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					ND					ND				
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					ND					ND				
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					ND					ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					ND					ND				
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	ND					ND					ND				
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					ND					ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	ND					ND					ND				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND					ND					ND				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					ND					ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	ND					ND					ND				
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	7.20E-02	B				6.40E-02	J				ND				
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP23 DA0027 20-Oct-98 0-1					FTA-93-GP24 DA0028 20-Oct-98 0-1					FTA-93-GP25 DA0029 20-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	3.71E+03				YES	2.66E+03				YES	2.40E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	7.10E+00		YES			2.20E+00			YES		2.00E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	5.66E+01					3.59E+01					4.96E+01				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	6.80E-01					ND					ND				
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	2.70E+00		YES		YES	ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	3.84E+04		YES			8.36E+03		YES			2.04E+04		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	6.64E+01		YES	YES	YES	6.96E+01		YES	YES	YES	2.16E+01				YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					ND					ND				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	5.95E+01		YES		YES	1.11E+01					6.80E+00				
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	4.69E+04	J	YES	YES	YES	9.19E+03	J		YES	YES	1.30E+04	J		YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	8.94E+01		YES		YES	1.63E+01					3.84E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	1.01E+04		YES			1.61E+03		YES			4.43E+03		YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	4.48E+02			YES	YES	1.78E+02				YES	3.12E+02				YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	1.40E-01		YES		YES	2.50E-01		YES		YES	ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	2.48E+01		YES			2.93E+01		YES			5.20E+00	B			
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	8.40E-01		YES		YES	ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND				
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	ND					7.00E+00	J			YES	7.00E+00	J			YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.50E+02	J	YES		YES	1.74E+01	B				2.33E+01	B			
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					ND					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	ND					ND					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	ND					ND					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	ND					2.80E-02	B				ND				
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					1.60E-03	J				ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					1.80E-03	J				ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	ND					ND					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	3.30E-03	B				7.90E-03	B				3.20E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	ND					ND					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					ND					ND				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	ND					ND					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP23 DA0027 20-Oct-98 0-1					FTA-93-GP24 DA0028 20-Oct-98 0-1					FTA-93-GP25 DA0029 20-Oct-98 0-1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					ND					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					ND					ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					ND					ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					ND					ND				
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					ND					ND				
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					ND					ND				
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					ND					ND				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					ND					ND				
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	3.70E-02	J				ND					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	ND					ND					ND				
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					ND					ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					ND					1.40E-01	J			
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	4.70E-02	J				ND					ND				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND					ND					ND				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					ND					ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	3.00E-02	J				ND					ND				
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	1.80E-01	B				6.70E-02	B				9.30E-02	B			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	ND					ND					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	ND					ND					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					ND					ND				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					1.10E-01	J			YES	ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP26 DA0030 23-Oct-98 0-1					FTA-93-GP27 DA0067 28-Nov-01 0-6					FTA-93-GP28 DA0068 28-Nov-01 0-.5				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	3.39E+03				YES	1.69E+04		YES	YES	YES	1.24E+04			YES	YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND					5.80E+00	J	YES	YES	YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	ND					3.81E+00			YES		3.33E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	ND					6.79E+01	J				5.79E+01	J			
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					5.57E-01	J				5.22E-01	J			
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND					3.98E+00		YES		YES
Calcium	mg/kg	1.72E+03	NA	NA	1.30E+04	J	YES			1.61E+04		YES			5.94E+04		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.24E+01	J			YES	1.48E+01				YES	1.21E+01				YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					3.94E+00					3.02E+00				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	ND					9.62E+00					1.78E+01		YES		
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	2.90E+03			YES	YES	1.45E+04			YES	YES	9.21E+03			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	5.70E+00					1.48E+01					3.68E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	4.96E+03	J	YES			7.67E+03	J	YES			3.32E+04	J	YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	1.03E+02	J			YES	4.81E+02			YES	YES	3.73E+02			YES	YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					ND					ND				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	ND					7.71E+00					5.83E+00				
Potassium	mg/kg	8.00E+02	NA	NA	ND					1.61E+03		YES			1.19E+03		YES		
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					ND					ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND					7.14E+01	J				1.00E+02	J			
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					ND					ND				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.19E+01				YES	3.10E+01				YES	2.18E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.12E+01	B				2.42E+01					4.61E+01		YES		
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	3.60E-02	J				NR					NR				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	4.10E-02					NR					NR				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	1.30E-02	J				NR					NR				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	4.00E-03	J				NR					NR				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	4.70E-03	J				NR					NR				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	3.30E-03	J				NR					NR				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	5.20E-02	B				NR					NR				
Benzene	mg/kg	NA	2.17E+01	5.00E-02	ND					NR					NR				
Bromomethane	mg/kg	NA	1.09E+01	NA	3.20E-03	B				NR					NR				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	4.50E-03	J				NR					NR				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	2.60E-02					NR					NR				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	5.60E-03	B				NR					NR				
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	3.10E-03	J				NR					NR				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	3.50E-02					NR					NR				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	ND					NR					NR				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	1.20E-01				YES	NR					NR				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	7.20E-03	J				NR					NR				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP26 DA0030 23-Oct-98 0-1					FTA-93-GP27 DA0067 28-Nov-01 0-6					FTA-93-GP28 DA0068 28-Nov-01 0-.5				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	ND					NR					NR				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					NR					NR				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	1.50E+00		YES			NR					NR				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	1.40E+00		YES		YES	NR					NR				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					NR					NR				
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					NR					NR				
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					NR					NR				
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					NR					NR				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					NR					NR				
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	ND					NR					NR				
Carbazole	mg/kg	NA	3.11E+01	NA	7.10E-02	J				NR					NR				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	1.20E+00					NR					NR				
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	1.80E-01	B				NR					NR				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					NR					NR				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					NR					NR				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	ND					NR					NR				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	1.30E-01	J			YES	NR					NR				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	7.80E-02	J				NR					NR				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	4.60E-01					NR					NR				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					NR					NR				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					NR					NR				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	6.60E-01				YES	NR					NR				
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND					NR					NR				
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	8.50E-03				YES	NR					NR				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	ND					NR					NR				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	1.10E-02				YES	NR					NR				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	ND					NR					NR				
<b>PCBs</b>																			
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	ND					NR					NR				

Table 5-1

**Surface and Depositional Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP29 DA0070 28-Nov-01 0- .5					WS93-DEP01 WS0001 16-Mar-99 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>														
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	1.38E+04			YES	YES	6.34E+03				YES
Antimony	mg/kg	1.99E+00	3.11E+00	3.50E+00	ND					ND				
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	1.99E+00			YES		8.30E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	4.56E+01	J				3.87E+01				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	ND					8.50E-01		YES		
Cadmium	mg/kg	2.90E-01	6.25E+00	1.60E+00	ND					ND				
Calcium	mg/kg	1.72E+03	NA	NA	1.19E+04		YES			1.87E+03		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.15E+01				YES	1.50E+01				YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	2.45E+00					5.90E+00	J			
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	6.82E+00					2.08E+01		YES		
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	8.81E+03			YES	YES	3.00E+04			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	2.14E+01					2.93E+01				
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	5.52E+03	J	YES			5.79E+02	J			
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	3.26E+02				YES	3.08E+02				YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	ND					6.40E-02				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	5.15E+00					1.22E+01		YES		
Potassium	mg/kg	8.00E+02	NA	NA	9.15E+02		YES			2.80E+02	J			
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					1.40E+00		YES		YES
Sodium	mg/kg	6.34E+02	NA	NA	4.94E+01	J				6.30E+01	B			
Thallium	mg/kg	3.43E+00	5.08E-01	1.00E+00	ND					5.20E-01	B		YES	
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	2.18E+01				YES	4.07E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.44E+01					6.21E+01		YES		YES
<b>VOLATILE ORGANIC COMPOUNDS</b>														
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	NR					ND				
1,2-Dimethylbenzene	mg/kg	NA	1.55E+04	5.00E-02	NR					ND				
1,3,5-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	NR					ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	NR					ND				
2-Hexanone	mg/kg	NA	3.11E+02	1.26E+01	NR					ND				
4-Methyl-2-pentanone	mg/kg	NA	6.21E+02	4.43E+02	NR					ND				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	NR					1.40E-02	J			
Benzene	mg/kg	NA	2.17E+01	5.00E-02	NR					ND				
Bromomethane	mg/kg	NA	1.09E+01	NA	NR					ND				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	NR					ND				
Ethylbenzene	mg/kg	NA	7.77E+02	5.00E-02	NR					ND				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	NR					4.80E-03	B			
Naphthalene	mg/kg	NA	1.55E+02	1.00E-01	NR					ND				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	NR					ND				
Trichlorofluoromethane	mg/kg	NA	2.33E+03	1.00E-01	NR					5.50E-03	J			
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	NR					ND				
n-Propylbenzene	mg/kg	NA	7.77E+01	NA	NR					ND				

Table 5-1

**Surface and Depositional Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-GP29 DA0070 28-Nov-01 0- .5					WS93-DEP01 WS0001 16-Mar-99 0- 1				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>c</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>														
4-Methylphenol	mg/kg	NA	3.88E+01	5.00E-01	NR					ND				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	NR					ND				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	NR					ND				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	NR					ND				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	NR					8.40E-02	J			
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	NR					ND				
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	NR					1.70E-01	J			
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	NR					1.10E-01	J			
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	NR					9.20E-02	J			
Butyl benzyl phthalate	mg/kg	NA	1.56E+03	2.40E-01	NR					ND				
Carbazole	mg/kg	NA	3.11E+01	NA	NR					ND				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	NR					1.00E-01	J			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	NR					ND				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	NR					ND				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	NR					ND				
Diethyl phthalate	mg/kg	NA	6.23E+03	1.00E+02	NR					ND				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	NR					ND				
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	NR					ND				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	NR					1.20E-01	J			
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	NR					ND				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	NR					ND				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	NR					ND				
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	NR					1.20E-01	B			
<b>PESTICIDES</b>														
4,4'-DDD	mg/kg	NA	2.54E+00	2.50E-03	NR					ND				
4,4'-DDE	mg/kg	NA	1.79E+00	2.50E-03	NR					ND				
4,4'-DDT	mg/kg	NA	1.79E+00	2.50E-03	NR					ND				
Endrin ketone	mg/kg	NA	2.32E-01	1.05E-02	NR					ND				
<b>PCBs</b>														
Aroclor 1254	mg/kg	NA	2.93E-01	2.00E-02	NR					ND				

Analyses performed using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods.

<sup>a</sup> BKG - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in SAIC, 1998, *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.  
For SVOCs, concentration listed is the background screening value for soils adjacent to asphalt as given in IT Corporation (IT), 2000, *Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama*, July.

<sup>b</sup> Residential human health site-specific screening level (SSSL) and ecological screening value (ESV) as given in IT, 2000.

B - Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero).

J - Compound was positively identified; reported value is an estimated concentration.

mg/kg - Milligrams per kilogram.

NA - Not available.

ND - Not detected.

NR - Not requested.

Qual - Data validation qualifier.

Table 5-2

**Subsurface Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 1 of 8)

Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP01 DA0035 2-Feb-99 5-8				FTA-93-GP02 DA0036 2-Feb-99 5-8				FTA-93-GP03 DA0037 23-Oct-98 8-12				FTA-93-GP04 DA0038 23-Oct-98 8-12			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>METALS</b>																			
Aluminum	mg/kg	1.36E+04	7.80E+03	3.84E+03				5.00E+03				6.02E+03				6.03E+03			
Arsenic	mg/kg	1.83E+01	4.26E-01	1.60E+00		YES		3.00E+00		YES		1.20E+00		YES		2.70E+00			YES
Barium	mg/kg	2.34E+02	5.47E+02	2.56E+01				2.84E+01				3.61E+01				2.88E+01			
Beryllium	mg/kg	8.60E-01	9.60E+00	3.50E-01	J			4.00E-01	J			ND				ND			
Calcium	mg/kg	6.37E+02	NA	1.65E+02	J			1.65E+03		YES		6.77E+02	J	YES		ND			
Chromium	mg/kg	3.83E+01	2.32E+01	5.60E+00				7.10E+00				9.40E+00	J			1.16E+01	J		
Cobalt	mg/kg	1.75E+01	4.68E+02	3.10E+00	J			7.90E-01	J			ND				ND			
Copper	mg/kg	1.94E+01	3.13E+02	3.40E+00				4.60E+00				5.40E+00				7.30E+00			
Iron	mg/kg	4.48E+04	2.34E+03	7.49E+03		YES		1.58E+04		YES		5.41E+03		YES		8.87E+03			YES
Lead	mg/kg	3.85E+01	4.00E+02	5.40E+00				5.80E+00				5.10E+00				5.60E+00			
Magnesium	mg/kg	7.66E+02	NA	3.34E+02	J			9.68E+02		YES		ND				ND			
Manganese	mg/kg	1.36E+03	3.63E+02	6.22E+01				7.00E+00				4.47E+01	J			1.17E+01	J		
Mercury	mg/kg	7.00E-02	2.33E+00	3.80E-02				2.40E-02	J			ND				ND			
Nickel	mg/kg	1.29E+01	1.54E+02	2.70E+00	J			1.70E+00	J			ND				ND			
Potassium	mg/kg	7.11E+02	NA	2.08E+02	J			1.80E+02	J			ND				ND			
Selenium	mg/kg	4.70E-01	3.91E+01	ND				9.00E-01		YES		ND				ND			
Sodium	mg/kg	7.02E+02	NA	4.32E+01	B			4.27E+01	B			ND				ND			
Vanadium	mg/kg	6.49E+01	5.31E+01	1.48E+01				1.84E+01				1.21E+01				2.84E+01			
Zinc	mg/kg	3.49E+01	2.34E+03	8.30E+00				8.80E+00				1.23E+01	B			1.47E+01	B		
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	4.66E+03	ND				ND				ND				ND			
Acetone	mg/kg	NA	7.76E+02	7.00E-02	B			1.60E-02	B			3.60E-02	B			1.40E-02	B		
Bromomethane	mg/kg	NA	1.09E+01	ND				ND				ND				1.40E-03	B		
Carbon disulfide	mg/kg	NA	7.77E+02	ND				ND				ND				ND			
Methylene chloride	mg/kg	NA	8.41E+01	2.90E-03	B			3.20E-03	B			3.90E-03	B			4.00E-03	B		
Naphthalene	mg/kg	NA	1.55E+02	ND				ND				ND				ND			
p-Cymene	mg/kg	NA	1.55E+03	ND				ND				ND				ND			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	4.63E+02	4.00E-02	J			ND				ND				ND			
Benzo(a)pyrene	mg/kg	NA	8.51E-02	4.40E-02	J			ND				ND				ND			
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	7.60E-02	J			ND				ND				ND			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND				ND				2.40E-01	B			2.40E-01	B		
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	4.40E-02	J			ND				ND				ND			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	6.10E-02	B			7.20E-02	B			8.00E-02	B			8.70E-02	B		
<b>PESTICIDES</b>																			
4,4'-DDE	mg/kg	NA	1.79E+00	2.00E-03	J			ND				ND				ND			
4,4'-DDT	mg/kg	NA	1.79E+00	1.10E-03	J			ND				ND				ND			
Aldrin	mg/kg	NA	3.65E-02	1.20E-03	J			ND				ND				ND			
Heptachlor	mg/kg	NA	1.40E-01	8.10E-04	J			ND				ND				ND			
beta-BHC	mg/kg	NA	3.50E-01	4.20E-03	J			ND				ND				ND			
delta-BHC	mg/kg	NA	2.33E+00	9.70E-04	J			ND				ND				ND			

Table 5-2

**Subsurface Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 2 of 8)

Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP05 DA0039 19-Oct-98 8-12				FTA-93-GP06 DA0040 19-Oct-98 8-12				FTA-93-GP07 DA0041 19-Oct-98 8-12				FTA-93-GP08 DA0042 19-Oct-98 8-12			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>p</sup>	Result	Qual	>BKG	>SSSL												
<b>METALS</b>																			
Aluminum	mg/kg	1.36E+04	7.80E+03	1.42E+04		YES	YES	1.53E+04		YES	YES	2.04E+04		YES	YES	8.32E+03			YES
Arsenic	mg/kg	1.83E+01	4.26E-01	3.20E+00			YES	4.10E+00			YES	1.13E+01			YES	2.70E+00			YES
Barium	mg/kg	2.34E+02	5.47E+02	ND				4.93E+01				5.27E+01				4.01E+01			
Beryllium	mg/kg	8.60E-01	9.60E+00	1.20E+00		YES		1.50E+00		YES		1.50E+00		YES		ND			
Calcium	mg/kg	6.37E+02	NA	ND				9.63E+02		YES		1.29E+03		YES		ND			
Chromium	mg/kg	3.83E+01	2.32E+01	1.09E+01	J			1.44E+01	J			3.46E+01	J		YES	1.20E+01	J		
Cobalt	mg/kg	1.75E+01	4.68E+02	1.19E+01				9.10E+01				1.42E+01				ND			
Copper	mg/kg	1.94E+01	3.13E+02	3.07E+01		YES		2.97E+01		YES		3.46E+01		YES		7.50E+00			
Iron	mg/kg	4.48E+04	2.34E+03	2.37E+04			YES	2.72E+04			YES	7.16E+04		YES	YES	2.07E+04			YES
Lead	mg/kg	3.85E+01	4.00E+02	2.53E+01				3.03E+01				2.40E+01				9.10E+00			
Magnesium	mg/kg	7.66E+02	NA	4.36E+03		YES		5.51E+03		YES		2.30E+03		YES		7.00E+02			
Manganese	mg/kg	1.36E+03	3.63E+02	1.22E+02				6.46E+01				2.48E+02				1.56E+01			
Mercury	mg/kg	7.00E-02	2.33E+00	ND															
Nickel	mg/kg	1.29E+01	1.54E+02	1.44E+01		YES		1.69E+01		YES		2.01E+01		YES		ND			
Potassium	mg/kg	7.11E+02	NA	5.17E+03		YES		5.33E+03		YES		9.91E+02		YES		ND			
Selenium	mg/kg	4.70E-01	3.91E+01	ND				ND				1.50E+00		YES		ND			
Sodium	mg/kg	7.02E+02	NA	ND				6.02E+02				7.54E+02		YES		ND			
Vanadium	mg/kg	6.49E+01	5.31E+01	ND				ND				2.02E+01				8.50E+00			
Zinc	mg/kg	3.49E+01	2.34E+03	3.03E+01	B			3.01E+01	B			5.25E+01		YES		1.34E+01	B		
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	4.66E+03	ND															
Acetone	mg/kg	NA	7.76E+02	5.60E-02	J			7.30E-02	B			1.40E-02	B			1.60E-02	B		
Bromomethane	mg/kg	NA	1.09E+01	ND															
Carbon disulfide	mg/kg	NA	7.77E+02	ND															
Methylene chloride	mg/kg	NA	8.41E+01	5.00E-03	B			5.40E-03	B			5.30E-03	B			4.90E-03	B		
Naphthalene	mg/kg	NA	1.55E+02	ND				4.80E-03	J			ND				ND			
p-Cymene	mg/kg	NA	1.55E+03	ND															
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	4.63E+02	ND															
Benzo(a)pyrene	mg/kg	NA	8.51E-02	ND															
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	ND															
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND															
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	ND															
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	ND															
<b>PESTICIDES</b>																			
4,4'-DDE	mg/kg	NA	1.79E+00	ND															
4,4'-DDT	mg/kg	NA	1.79E+00	ND															
Aldrin	mg/kg	NA	3.65E-02	ND															
Heptachlor	mg/kg	NA	1.40E-01	ND															
beta-BHC	mg/kg	NA	3.50E-01	ND															
delta-BHC	mg/kg	NA	2.33E+00	ND															

Table 5-2

**Subsurface Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP09 DA0043 19-Oct-98 8-12				FTA-93-GP10 DA0044 19-Oct-98 8-12				FTA-93-GP11 DA0045 20-Oct-98 8-12				FTA-93-GP12 DA0046 20-Oct-98 8-12			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>METALS</b>																			
Aluminum	mg/kg	1.36E+04	7.80E+03	7.02E+03				3.81E+03				1.71E+04		YES	YES	4.25E+03			
Arsenic	mg/kg	1.83E+01	4.26E-01	1.60E+00			YES	1.30E+00			YES	7.10E+00			YES	5.40E+00			YES
Barium	mg/kg	2.34E+02	5.47E+02	7.91E+01				2.68E+01				4.13E+02		YES		2.84E+01			
Beryllium	mg/kg	8.60E-01	9.60E+00	ND				ND				2.10E+00		YES		1.20E+00		YES	
Calcium	mg/kg	6.37E+02	NA	ND				ND				9.60E+02		YES		ND			
Chromium	mg/kg	3.83E+01	2.32E+01	1.26E+01	J			6.30E+00	J			2.09E+01				1.15E+01			
Cobalt	mg/kg	1.75E+01	4.68E+02	1.20E+01				ND				1.69E+01				ND			
Copper	mg/kg	1.94E+01	3.13E+02	9.40E+00				3.20E+00				4.06E+01		YES		7.70E+00			
Iron	mg/kg	4.48E+04	2.34E+03	1.52E+04			YES	3.44E+03			YES	4.83E+04	J	YES	YES	2.10E+04	J		YES
Lead	mg/kg	3.85E+01	4.00E+02	1.16E+01				4.90E+00				1.74E+01				7.80E+00			
Magnesium	mg/kg	7.66E+02	NA	ND				ND				6.33E+03		YES		ND			
Manganese	mg/kg	1.36E+03	3.63E+02	5.89E+02			YES	2.78E+01				2.75E+02				4.86E+01			
Mercury	mg/kg	7.00E-02	2.33E+00	ND															
Nickel	mg/kg	1.29E+01	1.54E+02	4.70E+00				ND				4.10E+01		YES		ND			
Potassium	mg/kg	7.11E+02	NA	ND				ND				7.59E+02		YES		ND			
Selenium	mg/kg	4.70E-01	3.91E+01	ND				ND				9.30E-01		YES		8.40E-01		YES	
Sodium	mg/kg	7.02E+02	NA	ND															
Vanadium	mg/kg	6.49E+01	5.31E+01	6.60E+00				7.70E+00				ND				ND			
Zinc	mg/kg	3.49E+01	2.34E+03	1.99E+01	B			8.50E+00	B			9.65E+01	J	YES		1.40E+01	B		
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	4.66E+03	ND															
Acetone	mg/kg	NA	7.76E+02	1.30E-02	B			1.30E-02	B			1.70E-02	B			1.40E-02	B		
Bromomethane	mg/kg	NA	1.09E+01	ND															
Carbon disulfide	mg/kg	NA	7.77E+02	ND															
Methylene chloride	mg/kg	NA	8.41E+01	5.30E-03	B			5.00E-03	B			7.50E-03	B			8.90E-03	B		
Naphthalene	mg/kg	NA	1.55E+02	ND															
p-Cymene	mg/kg	NA	1.55E+03	ND															
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	4.63E+02	ND															
Benzo(a)pyrene	mg/kg	NA	8.51E-02	ND															
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	ND															
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND															
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	ND															
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	ND				ND				6.30E-02	B			7.50E-02	B		
<b>PESTICIDES</b>																			
4,4'-DDE	mg/kg	NA	1.79E+00	ND															
4,4'-DDT	mg/kg	NA	1.79E+00	ND															
Aldrin	mg/kg	NA	3.65E-02	ND															
Heptachlor	mg/kg	NA	1.40E-01	ND															
beta-BHC	mg/kg	NA	3.50E-01	ND															
delta-BHC	mg/kg	NA	2.33E+00	ND															

Table 5-2

**Subsurface Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 4 of 8)

Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP13 DA0047 16-Oct-98 9-12				FTA-93-GP14 DA0048 16-Oct-98 8-12				FTA-93-GP15 DA0049 20-Oct-98 8-11				FTA-93-GP16 DA0050 20-Oct-98 8-10			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>METALS</b>																			
Aluminum	mg/kg	1.36E+04	7.80E+03	3.62E+03				6.16E+03				1.04E+04			YES	1.95E+04		YES	YES
Arsenic	mg/kg	1.83E+01	4.26E-01	2.20E+00			YES	2.00E+00			YES	ND				4.40E+00			YES
Barium	mg/kg	2.34E+02	5.47E+02	ND				5.72E+01				1.31E+02				3.31E+02		YES	
Beryllium	mg/kg	8.60E-01	9.60E+00	ND				6.10E-01				8.40E-01				2.70E+00		YES	
Calcium	mg/kg	6.37E+02	NA	ND				ND				ND				7.18E+02		YES	
Chromium	mg/kg	3.83E+01	2.32E+01	7.90E+00	J			1.19E+01	J			1.20E+01				2.11E+01			
Cobalt	mg/kg	1.75E+01	4.68E+02	ND				ND				6.80E+00				2.98E+01		YES	
Copper	mg/kg	1.94E+01	3.13E+02	6.50E+00				9.40E+00				1.79E+01				4.39E+01		YES	
Iron	mg/kg	4.48E+04	2.34E+03	7.75E+03			YES	1.33E+04			YES	1.33E+04	J		YES	4.96E+04	J	YES	YES
Lead	mg/kg	3.85E+01	4.00E+02	7.10E+00				8.80E+00				9.50E+00				1.62E+01			
Magnesium	mg/kg	7.66E+02	NA	ND				6.52E+02				2.23E+03		YES		8.17E+03		YES	
Manganese	mg/kg	1.36E+03	3.63E+02	4.05E+01				3.75E+01				4.25E+01				3.53E+02			
Mercury	mg/kg	7.00E-02	2.33E+00	ND															
Nickel	mg/kg	1.29E+01	1.54E+02	ND				ND				1.67E+01		YES		5.98E+01		YES	
Potassium	mg/kg	7.11E+02	NA	ND				ND				ND				6.11E+02			
Selenium	mg/kg	4.70E-01	3.91E+01	ND				ND				ND				7.00E-01		YES	
Sodium	mg/kg	7.02E+02	NA	ND				ND				ND				6.76E+02			
Vanadium	mg/kg	6.49E+01	5.31E+01	1.01E+01				9.70E+00				7.00E+00	J			ND			
Zinc	mg/kg	3.49E+01	2.34E+03	1.30E+01	B			1.98E+01	B			5.07E+01	J	YES		1.28E+02	J	YES	
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	4.66E+03	ND															
Acetone	mg/kg	NA	7.76E+02	8.30E-03	B			ND				1.50E-02	B			3.00E-02	B		
Bromomethane	mg/kg	NA	1.09E+01	ND															
Carbon disulfide	mg/kg	NA	7.77E+02	ND															
Methylene chloride	mg/kg	NA	8.41E+01	2.80E-03	B			2.10E-03	B			6.60E-03	B			7.70E-03	B		
Naphthalene	mg/kg	NA	1.55E+02	ND															
p-Cymene	mg/kg	NA	1.55E+03	ND															
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	4.63E+02	ND															
Benzo(a)pyrene	mg/kg	NA	8.51E-02	ND															
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	ND															
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND															
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	ND															
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	5.80E-02	B			7.00E-02	B			5.50E-02	B			5.90E-02	B		
<b>PESTICIDES</b>																			
4,4'-DDE	mg/kg	NA	1.79E+00	ND															
4,4'-DDT	mg/kg	NA	1.79E+00	ND															
Aldrin	mg/kg	NA	3.65E-02	ND															
Heptachlor	mg/kg	NA	1.40E-01	ND															
beta-BHC	mg/kg	NA	3.50E-01	ND															
delta-BHC	mg/kg	NA	2.33E+00	ND															

Table 5-2

**Subsurface Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP17 DA0051 20-Oct-98 8-12				FTA-93-GP18 DA0052 16-Oct-98 9-12				FTA-93-GP19 DA0053 20-Oct-98 8-12				FTA-93-GP20 DA0054 20-Oct-98 8-12			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>METALS</b>																			
Aluminum	mg/kg	1.36E+04	7.80E+03	8.45E+03			YES	4.21E+03				3.92E+03				5.68E+03			
Arsenic	mg/kg	1.83E+01	4.26E-01	2.90E+00			YES	2.70E+00			YES	1.70E+00			YES	ND			
Barium	mg/kg	2.34E+02	5.47E+02	4.04E+01				ND				3.86E+01				4.39E+01			
Beryllium	mg/kg	8.60E-01	9.60E+00	6.40E-01				ND				ND				6.30E-01			
Calcium	mg/kg	6.37E+02	NA	ND															
Chromium	mg/kg	3.83E+01	2.32E+01	1.38E+01				1.37E+01 J				1.09E+01				1.28E+01			
Cobalt	mg/kg	1.75E+01	4.68E+02	1.89E+01			YES	ND				ND				7.70E+00			
Copper	mg/kg	1.94E+01	3.13E+02	1.95E+01			YES	6.90E+00				5.20E+00				1.25E+01			
Iron	mg/kg	4.48E+04	2.34E+03	1.45E+04 J			YES	1.31E+04			YES	8.16E+03 J			YES	1.21E+04 J			YES
Lead	mg/kg	3.85E+01	4.00E+02	1.07E+01				7.40E+00				4.70E+00				6.50E+00			
Magnesium	mg/kg	7.66E+02	NA	1.73E+03			YES	ND				ND				1.88E+03			YES
Manganese	mg/kg	1.36E+03	3.63E+02	1.57E+02				3.05E+01				1.54E+01				3.93E+01			
Mercury	mg/kg	7.00E-02	2.33E+00	ND															
Nickel	mg/kg	1.29E+01	1.54E+02	1.76E+01			YES	ND				ND				1.50E+01			YES
Potassium	mg/kg	7.11E+02	NA	ND															
Selenium	mg/kg	4.70E-01	3.91E+01	6.10E-01			YES	ND				ND				ND			
Sodium	mg/kg	7.02E+02	NA	ND															
Vanadium	mg/kg	6.49E+01	5.31E+01	1.18E+01 J				8.30E+00				9.00E+00 J				ND			
Zinc	mg/kg	3.49E+01	2.34E+03	4.82E+01 J			YES	1.51E+01 B				1.05E+01 B				3.63E+01 J			YES
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	4.66E+03	ND															
Acetone	mg/kg	NA	7.76E+02	2.80E-02 B				ND				1.70E-02 B				1.90E-02 B			
Bromomethane	mg/kg	NA	1.09E+01	ND															
Carbon disulfide	mg/kg	NA	7.77E+02	ND															
Methylene chloride	mg/kg	NA	8.41E+01	5.70E-03 B				2.50E-03 B				5.80E-03 B				6.30E-03 B			
Naphthalene	mg/kg	NA	1.55E+02	ND															
p-Cymene	mg/kg	NA	1.55E+03	ND															
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	4.63E+02	ND															
Benzo(a)pyrene	mg/kg	NA	8.51E-02	ND															
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	ND															
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND															
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	ND															
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	7.20E-02 B				5.40E-02 B				6.30E-02 B				7.80E-02 B			
<b>PESTICIDES</b>																			
4,4'-DDE	mg/kg	NA	1.79E+00	ND															
4,4'-DDT	mg/kg	NA	1.79E+00	ND															
Aldrin	mg/kg	NA	3.65E-02	ND															
Heptachlor	mg/kg	NA	1.40E-01	ND															
beta-BHC	mg/kg	NA	3.50E-01	ND															
delta-BHC	mg/kg	NA	2.33E+00	ND															

Table 5-2

**Subsurface Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP21 DA0055 27-Oct-98 8-12				FTA-93-GP22 DA0058 27-Oct-98 8-10				FTA-93-GP23 DA0061 20-Oct-98 8-12			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>METALS</b>															
Aluminum	mg/kg	1.36E+04	7.80E+03	2.27E+03				8.07E+03			YES	1.74E+04		YES	YES
Arsenic	mg/kg	1.83E+01	4.26E-01	1.30E+00	J		YES	1.70E+00			YES	3.80E+00			YES
Barium	mg/kg	2.34E+02	5.47E+02	2.55E+01				1.09E+02				4.03E+02		YES	
Beryllium	mg/kg	8.60E-01	9.60E+00	ND				9.60E-01		YES		3.10E+00		YES	
Calcium	mg/kg	6.37E+02	NA	ND				7.82E+02	J	YES		3.02E+03		YES	
Chromium	mg/kg	3.83E+01	2.32E+01	8.20E+00	J			1.11E+01	J			2.17E+01			
Cobalt	mg/kg	1.75E+01	4.68E+02	ND				8.30E+00				1.76E+01		YES	
Copper	mg/kg	1.94E+01	3.13E+02	3.90E+00	J			1.02E+01				3.91E+01		YES	
Iron	mg/kg	4.48E+04	2.34E+03	3.98E+03	J		YES	1.29E+04			YES	2.66E+04	J		YES
Lead	mg/kg	3.85E+01	4.00E+02	3.20E+00				1.25E+01				1.80E+01			
Magnesium	mg/kg	7.66E+02	NA	ND				8.06E+02	J	YES		4.78E+03		YES	
Manganese	mg/kg	1.36E+03	3.63E+02	3.58E+01	J			1.66E+02	J			4.16E+01			
Mercury	mg/kg	7.00E-02	2.33E+00	ND				5.80E-02				ND			
Nickel	mg/kg	1.29E+01	1.54E+02	ND				8.70E+00				4.62E+01		YES	
Potassium	mg/kg	7.11E+02	NA	ND				ND				8.12E+02		YES	
Selenium	mg/kg	4.70E-01	3.91E+01	ND				7.40E-01		YES		1.00E+00		YES	
Sodium	mg/kg	7.02E+02	NA	ND				ND				6.02E+02			
Vanadium	mg/kg	6.49E+01	5.31E+01	8.70E+00				1.16E+01				1.15E+01	J		
Zinc	mg/kg	3.49E+01	2.34E+03	1.14E+01	B			2.56E+01	B			8.05E+01	J	YES	
<b>VOLATILE ORGANIC COMPOUNDS</b>															
2-Butanone	mg/kg	NA	4.66E+03	4.90E-03	J			7.50E-03	J			ND			
Acetone	mg/kg	NA	7.76E+02	4.20E-02	B			6.10E-02	J			1.10E-02	B		
Bromomethane	mg/kg	NA	1.09E+01	ND				ND				ND			
Carbon disulfide	mg/kg	NA	7.77E+02	ND				3.20E-03	J			ND			
Methylene chloride	mg/kg	NA	8.41E+01	4.00E-03	B			7.50E-03	B			4.80E-03	B		
Naphthalene	mg/kg	NA	1.55E+02	ND				ND				ND			
p-Cymene	mg/kg	NA	1.55E+03	7.60E-02	J			1.60E-02	J			ND			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>															
Acenaphthylene	mg/kg	NA	4.63E+02	ND				ND				ND			
Benzo(a)pyrene	mg/kg	NA	8.51E-02	ND				ND				ND			
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	ND				ND				ND			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND				ND				ND			
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	ND				ND				ND			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	ND				6.40E-02	J			6.80E-02	B		
<b>PESTICIDES</b>															
4,4'-DDE	mg/kg	NA	1.79E+00	ND				ND				ND			
4,4'-DDT	mg/kg	NA	1.79E+00	ND				ND				ND			
Aldrin	mg/kg	NA	3.65E-02	ND				ND				ND			
Heptachlor	mg/kg	NA	1.40E-01	ND				ND				ND			
beta-BHC	mg/kg	NA	3.50E-01	ND				ND				ND			
delta-BHC	mg/kg	NA	2.33E+00	ND				ND				ND			

Table 5-2

**Subsurface Soil Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)				FTA-93-GP24 DA0062 20-Oct-98 8-12				FTA-93-GP25 DA0063 20-Oct-98 8-12				FTA-93-GP26 DA0066 23-Oct-98 12-16			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>METALS</b>															
Aluminum	mg/kg	1.36E+04	7.80E+03	8.43E+03			YES	1.94E+04		YES	YES	6.68E+03			
Arsenic	mg/kg	1.83E+01	4.26E-01	3.00E+00			YES	4.40E+00			YES	2.50E+00			YES
Barium	mg/kg	2.34E+02	5.47E+02	1.60E+02				1.45E+02				4.58E+01			
Beryllium	mg/kg	8.60E-01	9.60E+00	9.40E-01		YES		1.40E+00		YES		ND			
Calcium	mg/kg	6.37E+02	NA	7.01E+02		YES		1.51E+03		YES		ND			
Chromium	mg/kg	3.83E+01	2.32E+01	1.52E+01				2.14E+01				1.48E+01	J		
Cobalt	mg/kg	1.75E+01	4.68E+02	7.00E+00				2.32E+01		YES		ND			
Copper	mg/kg	1.94E+01	3.13E+02	9.90E+00				4.68E+01		YES		1.02E+01			
Iron	mg/kg	4.48E+04	2.34E+03	2.08E+04	J		YES	4.38E+04	J		YES	9.85E+03			YES
Lead	mg/kg	3.85E+01	4.00E+02	1.22E+01				2.07E+01				1.51E+01			
Magnesium	mg/kg	7.66E+02	NA	1.50E+03		YES		8.55E+03		YES		ND			
Manganese	mg/kg	1.36E+03	3.63E+02	1.38E+01				4.45E+02			YES	4.20E+01	J		
Mercury	mg/kg	7.00E-02	2.33E+00	6.10E-02				ND				ND			
Nickel	mg/kg	1.29E+01	1.54E+02	8.30E+00				4.42E+01		YES		ND			
Potassium	mg/kg	7.11E+02	NA	ND				ND				ND			
Selenium	mg/kg	4.70E-01	3.91E+01	5.90E-01		YES		1.20E+00		YES		ND			
Sodium	mg/kg	7.02E+02	NA	ND				ND				ND			
Vanadium	mg/kg	6.49E+01	5.31E+01	3.35E+01	J			ND				1.70E+01			
Zinc	mg/kg	3.49E+01	2.34E+03	1.46E+01	B			1.20E+02	J	YES		1.48E+01	B		
<b>VOLATILE ORGANIC COMPOUNDS</b>															
2-Butanone	mg/kg	NA	4.66E+03	ND				ND				ND			
Acetone	mg/kg	NA	7.76E+02	1.00E-02	B			2.00E-02	B			1.20E-02	B		
Bromomethane	mg/kg	NA	1.09E+01	ND				ND				ND			
Carbon disulfide	mg/kg	NA	7.77E+02	ND				ND				ND			
Methylene chloride	mg/kg	NA	8.41E+01	4.60E-03	B			5.40E-03	B			7.30E-03	B		
Naphthalene	mg/kg	NA	1.55E+02	ND				ND				ND			
p-Cymene	mg/kg	NA	1.55E+03	ND				ND				ND			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>															
Acenaphthylene	mg/kg	NA	4.63E+02	ND				ND				ND			
Benzo(a)pyrene	mg/kg	NA	8.51E-02	ND				ND				ND			
Benzo(ghi)perylene	mg/kg	NA	2.32E+02	ND				ND				ND			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	ND				ND				2.00E-01	B		
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.51E-01	ND				ND				ND			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	1.30E-01	B			6.10E-02	B			6.20E-02	B		
<b>PESTICIDES</b>															
4,4'-DDE	mg/kg	NA	1.79E+00	ND				ND				ND			
4,4'-DDT	mg/kg	NA	1.79E+00	ND				ND				ND			
Aldrin	mg/kg	NA	3.65E-02	ND				ND				ND			
Heptachlor	mg/kg	NA	1.40E-01	ND				ND				ND			
beta-BHC	mg/kg	NA	3.50E-01	ND				ND				ND			
delta-BHC	mg/kg	NA	2.33E+00	ND				ND				ND			

**Table 5-2**

**Subsurface Soil Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Analyses performed using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods.

<sup>a</sup> BKG - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in SAIC, 1998, *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.

<sup>b</sup> Residential human health site-specific screening level (SSSL) as given in IT Corporation (2000), *Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama*, July.

B - Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero).

J - Compound was positively identified; reported value is an estimated concentration.

mg/kg - Milligrams per kilogram.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

Table 5-3

**Groundwater Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-GP10 DA3001 13-Jan-99				FTA-93-GP11 DA3002 14-Jan-99				FTA-93-GP18 DA3003 27-Oct-98				FTA-93-GP19 DA3004 26-Oct-98			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	2.40E-03				4.80E-03				ND				ND			
<b>METALS</b>																			
Aluminum	mg/L	2.34E+00	1.56E+00	5.90E+00		YES	YES	2.19E+00			YES	1.28E+01	J	YES	YES	1.94E+00	J		YES
Arsenic	mg/L	1.78E-02	4.40E-05	3.30E-03	J		YES	ND				ND				ND			
Barium	mg/L	1.27E-01	1.10E-01	1.19E-01	J		YES	4.60E-02	J			ND				ND			
Beryllium	mg/L	1.25E-03	3.13E-03	6.40E-04	J			ND				ND				ND			
Calcium	mg/L	5.65E+01	NA	1.60E+01				3.17E+01				ND				6.71E+00	J		
Chromium	mg/L	NA	4.69E-03	6.80E-03	J		YES	4.60E-03	J			2.75E-02			YES	ND			
Cobalt	mg/L	2.34E-02	9.39E-02	7.90E-03	J			1.12E-02	J			ND				ND			
Copper	mg/L	2.55E-02	6.26E-02	4.60E-03	J			ND				ND				ND			
Iron	mg/L	7.04E+00	4.69E-01	2.15E+01		YES	YES	2.03E+00			YES	1.78E+01		YES	YES	6.03E+00			YES
Lead	mg/L	8.00E-03	1.50E-02	3.00E-03	B			1.80E-03	B			1.05E-02		YES		ND			
Magnesium	mg/L	2.13E+01	NA	6.28E+00				3.50E+01		YES		ND				6.58E+00	J		
Manganese	mg/L	5.81E-01	7.35E-02	2.58E+00		YES	YES	2.10E+00		YES	YES	6.62E-01		YES	YES	6.72E-01		YES	YES
Mercury	mg/L	NA	4.69E-04	4.90E-05	J			5.50E-05	J			ND				ND			
Nickel	mg/L	NA	3.13E-02	1.01E-02	J			1.16E-02	J			ND				ND			
Potassium	mg/L	7.20E+00	NA	1.86E+00	J			2.90E+00	J			ND				ND			
Selenium	mg/L	NA	7.82E-03	ND															
Sodium	mg/L	1.48E+01	NA	7.31E+00				1.24E+02		YES		1.52E+01	J	YES		1.00E+01	J		
Thallium	mg/L	1.46E-03	1.01E-04	ND															
Vanadium	mg/L	1.70E-02	1.10E-02	1.04E-02	J			ND				ND				ND			
Zinc	mg/L	2.20E-01	4.69E-01	2.68E-02				1.17E-02	J			6.55E-02	B			ND			
<b>EXPLOSIVES</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR															
2-Nitrotoluene	mg/L	NA	1.53E-02	NR															
RDX	mg/L	NA	6.69E-04	NR															
p-Nitrotoluene	mg/L	NA	1.53E-02	NR															
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	ND				ND				4.80E-03	J		YES	ND			
4-Methylphenol	mg/L	NA	7.69E-03	ND				ND				1.30E-03	J			ND			
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	ND				ND				ND				1.20E-03	J		
Di-n-butyl phthalate	mg/L	NA	1.48E-01	ND				ND				1.10E-03	J			ND			
Diethyl phthalate	mg/L	NA	1.23E+00	ND				ND				4.80E-03	J			ND			
Phenol	mg/L	NA	9.31E-01	ND				ND				7.80E-03	B			4.20E-03	B		

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-GP10 DA3001 13-Jan-99				FTA-93-GP11 DA3002 14-Jan-99				FTA-93-GP18 DA3003 27-Oct-98				FTA-93-GP19 DA3004 26-Oct-98			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	2.20E-03			YES	ND				ND				ND			
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	ND				2.20E-04	J			ND				ND			
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	ND															
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	ND															
Acetone	mg/L	NA	1.56E-01	ND				ND				3.20E-03	B			3.80E-03	B		
Benzene	mg/L	NA	1.41E-03	1.20E-03				ND				ND				ND			
Bromomethane	mg/L	NA	2.18E-03	1.00E-04	J			2.10E-04	J			ND				1.00E-04	J		
Carbon disulfide	mg/L	NA	1.51E-01	ND				ND				2.30E-04	J			ND			
Chloroform	mg/L	NA	1.15E-03	ND															
Chloromethane	mg/L	NA	3.93E-03	ND				1.80E-04	J			ND				ND			
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	3.80E-03				ND				ND				ND			
Ethylbenzene	mg/L	NA	1.40E-01	ND															
Methylene chloride	mg/L	NA	7.85E-03	ND															
N-Propylbenzene	mg/L	NA	1.30E-02	ND															
Naphthalene	mg/L	NA	3.01E-03	6.80E-04	J			2.50E-04	J			ND				ND			
Toluene	mg/L	NA	2.59E-01	ND				1.40E-04	J			ND				ND			
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	1.50E-03				ND				ND				ND			
Trichloroethene	mg/L	NA	4.51E-03	3.50E-03				ND				ND				ND			
Vinyl chloride	mg/L	NA	3.20E-05	2.80E-04	J		YES	ND				ND				ND			
m,p-Xylenes	mg/L	NA	2.80E+00	ND															
p-Cymene	mg/L	NA	2.26E-01	ND															
sec-Butylbenzene	mg/L	NA	1.06E-02	1.80E-03				ND				ND				ND			
tert-Butylbenzene	mg/L	NA	1.14E-02	1.10E-03				ND				ND				ND			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-GP21 DA3005 28-Oct-98				FTA-93-GP22 DA3008 28-Oct-98				FTA-93-GP23 DA3009 12-Jan-99				FTA-93-GP24 DA3010 13-Jan-99			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	ND															
<b>METALS</b>																			
Aluminum	mg/L	2.34E+00	1.56E+00	7.49E+00	J	YES	YES	4.49E+00	J	YES	YES	2.16E+02		YES	YES	1.35E+00			
Arsenic	mg/L	1.78E-02	4.40E-05	ND				ND				3.05E-02		YES	YES	ND			
Barium	mg/L	1.27E-01	1.10E-01	ND				ND				1.26E+00		YES	YES	8.06E-02	J		
Beryllium	mg/L	1.25E-03	3.13E-03	ND				ND				1.36E-02		YES	YES	ND			
Calcium	mg/L	5.65E+01	NA	1.60E+01	J			1.44E+01	J			7.51E+01		YES		4.50E+01			
Chromium	mg/L	NA	4.69E-03	1.01E-02			YES	ND				2.73E-01			YES	ND			
Cobalt	mg/L	2.34E-02	9.39E-02	ND				ND				3.68E-02	J	YES		ND			
Copper	mg/L	2.55E-02	6.26E-02	ND				ND				1.50E-01		YES	YES	ND			
Iron	mg/L	7.04E+00	4.69E-01	2.95E+01		YES	YES	1.59E+01		YES	YES	2.85E+02		YES	YES	1.12E+00			YES
Lead	mg/L	8.00E-03	1.50E-02	4.50E-03				3.60E-03				1.14E-01		YES	YES	ND			
Magnesium	mg/L	2.13E+01	NA	9.07E+00	J			7.44E+00	J			1.45E+02		YES		3.48E+01		YES	
Manganese	mg/L	5.81E-01	7.35E-02	1.33E+00		YES	YES	8.01E-01		YES	YES	1.27E+00		YES	YES	1.06E-01			YES
Mercury	mg/L	NA	4.69E-04	ND				ND				2.40E-04				1.00E-04	J		
Nickel	mg/L	NA	3.13E-02	ND				ND				3.42E-01			YES	ND			
Potassium	mg/L	7.20E+00	NA	ND				ND				4.36E+01		YES		3.46E+00	J		
Selenium	mg/L	NA	7.82E-03	ND				ND				9.30E-03			YES	ND			
Sodium	mg/L	1.48E+01	NA	1.83E+01	J	YES		1.01E+01	J			1.46E+02		YES		4.78E+01		YES	
Thallium	mg/L	1.46E-03	1.01E-04	ND				ND				8.80E-03	B	YES	YES	ND			
Vanadium	mg/L	1.70E-02	1.10E-02	ND				ND				2.97E-01		YES	YES	ND			
Zinc	mg/L	2.20E-01	4.69E-01	ND				ND				5.59E-01		YES	YES	ND			
<b>EXPLOSIVES</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR															
2-Nitrotoluene	mg/L	NA	1.53E-02	NR															
RDX	mg/L	NA	6.69E-04	NR															
p-Nitrotoluene	mg/L	NA	1.53E-02	NR															
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	ND															
4-Methylphenol	mg/L	NA	7.69E-03	ND															
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	ND															
Di-n-butyl phthalate	mg/L	NA	1.48E-01	ND															
Diethyl phthalate	mg/L	NA	1.23E+00	ND															
Phenol	mg/L	NA	9.31E-01	5.10E-03	B			4.50E-03	B			1.40E-03	B			ND			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-GP21 DA3005 28-Oct-98				FTA-93-GP22 DA3008 28-Oct-98				FTA-93-GP23 DA3009 12-Jan-99				FTA-93-GP24 DA3010 13-Jan-99			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL												
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	ND															
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	ND															
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	ND															
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	ND															
Acetone	mg/L	NA	1.56E-01	4.60E-03	B			2.60E-03	B			5.60E-03	B			6.30E-02	J		
Benzene	mg/L	NA	1.41E-03	ND															
Bromomethane	mg/L	NA	2.18E-03	ND				ND				1.50E-04	J			ND			
Carbon disulfide	mg/L	NA	1.51E-01	ND															
Chloroform	mg/L	NA	1.15E-03	ND															
Chloromethane	mg/L	NA	3.93E-03	ND				ND				1.80E-04	J			ND			
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	ND				2.80E-04	J			ND				ND			
Ethylbenzene	mg/L	NA	1.40E-01	ND															
Methylene chloride	mg/L	NA	7.85E-03	ND															
N-Propylbenzene	mg/L	NA	1.30E-02	ND															
Naphthalene	mg/L	NA	3.01E-03	ND															
Toluene	mg/L	NA	2.59E-01	2.50E-04	J			ND				ND				ND			
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	ND															
Trichloroethene	mg/L	NA	4.51E-03	ND															
Vinyl chloride	mg/L	NA	3.20E-05	ND				3.40E-04	J		YES	ND				ND			
m,p-Xylenes	mg/L	NA	2.80E+00	ND															
p-Cymene	mg/L	NA	2.26E-01	4.20E-02				ND				ND				ND			
sec-Butylbenzene	mg/L	NA	1.06E-02	ND															
tert-Butylbenzene	mg/L	NA	1.14E-02	ND															

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-GP26 DA3011 29-Oct-98				FTA-93-MW01 DA3012 5-Dec-01				FTA-93-MW02 DA3013 29-Nov-01				FTA-93-MW03 DA3015 29-Nov-01			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	ND				NR				NR				NR			
<b>METALS</b>																			
Aluminum	mg/L	2.34E+00	1.56E+00	8.96E+01	J	YES	YES	ND				7.79E-02	B			ND			
Arsenic	mg/L	1.78E-02	4.40E-05	1.37E-02			YES	2.72E-03	B		YES	3.52E-03	B		YES	6.22E-03	B		YES
Barium	mg/L	1.27E-01	1.10E-01	4.31E-01		YES	YES	1.35E-01		YES	YES	4.55E-01		YES	YES	4.01E-01		YES	YES
Beryllium	mg/L	1.25E-03	3.13E-03	ND				ND				ND				ND			
Calcium	mg/L	5.65E+01	NA	ND				3.58E+01				6.51E+01		YES		2.52E+01			
Chromium	mg/L	NA	4.69E-03	1.22E-01			YES	ND				ND				ND			
Cobalt	mg/L	2.34E-02	9.39E-02	ND				ND				ND				ND			
Copper	mg/L	2.55E-02	6.26E-02	7.24E-02		YES	YES	ND				ND				ND			
Iron	mg/L	7.04E+00	4.69E-01	6.58E+01		YES	YES	2.34E-01	J			2.05E+00	J		YES	1.88E-01	J		
Lead	mg/L	8.00E-03	1.50E-02	7.14E-02		YES	YES	ND				ND				ND			
Magnesium	mg/L	2.13E+01	NA	8.53E+00	J			3.11E+01		YES		1.60E+01	J			1.43E+01	J		
Manganese	mg/L	5.81E-01	7.35E-02	1.34E-01			YES	2.77E-01			YES	6.36E-01		YES	YES	1.38E-02	J		
Mercury	mg/L	NA	4.69E-04	ND				ND				ND				ND			
Nickel	mg/L	NA	3.13E-02	5.48E-02			YES	ND				ND				ND			
Potassium	mg/L	7.20E+00	NA	6.84E+00				3.16E+00	J			1.75E+00	J			4.49E+00	J		
Selenium	mg/L	NA	7.82E-03	ND				ND				6.21E-03	J			ND			
Sodium	mg/L	1.48E+01	NA	2.22E+01	J	YES		1.84E+01		YES		1.45E+01	J			2.61E+01	J	YES	
Thallium	mg/L	1.46E-03	1.01E-04	ND				ND				ND				ND			
Vanadium	mg/L	1.70E-02	1.10E-02	1.45E-01		YES	YES	ND				ND				ND			
Zinc	mg/L	2.20E-01	4.69E-01	1.76E-01	B			ND				ND				ND			
<b>EXPLOSIVES</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR				ND				ND				ND			
2-Nitrotoluene	mg/L	NA	1.53E-02	NR				ND				ND				ND			
RDX	mg/L	NA	6.69E-04	NR				ND				ND				ND			
p-Nitrotoluene	mg/L	NA	1.53E-02	NR				ND				ND				ND			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	ND				NR				NR				NR			
4-Methylphenol	mg/L	NA	7.69E-03	ND				NR				NR				NR			
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	ND				NR				NR				NR			
Di-n-butyl phthalate	mg/L	NA	1.48E-01	ND				NR				NR				NR			
Diethyl phthalate	mg/L	NA	1.23E+00	ND				NR				NR				NR			
Phenol	mg/L	NA	9.31E-01	7.50E-03	B			NR				NR				NR			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-GP26 DA3011 29-Oct-98				FTA-93-MW01 DA3012 5-Dec-01				FTA-93-MW02 DA3013 29-Nov-01				FTA-93-MW03 DA3015 29-Nov-01			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	ND				ND				ND				ND			
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	2.30E-03				ND				ND				ND			
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	3.50E-03				ND				ND				ND			
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	6.10E-04	J			ND				ND				ND			
Acetone	mg/L	NA	1.56E-01	4.30E-03	B			ND				2.80E+00	J		YES	ND			
Benzene	mg/L	NA	1.41E-03	ND				ND				ND				ND			
Bromomethane	mg/L	NA	2.18E-03	ND				ND				ND				ND			
Carbon disulfide	mg/L	NA	1.51E-01	ND				ND				ND				ND			
Chloroform	mg/L	NA	1.15E-03	ND				ND				ND				ND			
Chloromethane	mg/L	NA	3.93E-03	ND				ND				ND				ND			
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	ND				ND				9.60E-04	J			ND			
Ethylbenzene	mg/L	NA	1.40E-01	2.00E-03				ND				ND				ND			
Methylene chloride	mg/L	NA	7.85E-03	ND				8.70E-04	B			ND				6.10E-04	B		
N-Propylbenzene	mg/L	NA	1.30E-02	2.60E-04	J			ND				ND				ND			
Naphthalene	mg/L	NA	3.01E-03	ND				ND				ND				ND			
Toluene	mg/L	NA	2.59E-01	3.20E-03				ND				ND				ND			
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	ND				ND				2.20E-04	J			ND			
Trichloroethene	mg/L	NA	4.51E-03	ND				ND				2.90E-04	J			ND			
Vinyl chloride	mg/L	NA	3.20E-05	ND				ND				ND				ND			
m,p-Xylenes	mg/L	NA	2.80E+00	1.00E-02				ND				ND				ND			
p-Cymene	mg/L	NA	2.26E-01	ND				ND				ND				ND			
sec-Butylbenzene	mg/L	NA	1.06E-02	ND				ND				ND				ND			
tert-Butylbenzene	mg/L	NA	1.14E-02	ND				ND				ND				ND			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW04 DA3016 30-Nov-01				FTA-93-MW05 DA3017 3-Dec-01				FTA-93-MW05 DA3017R 27-Feb-02				FTA-93-MW05 ACE3001 22-Apr-02			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	NR				NR				NR				NR			
<b>METALS</b>																			
Aluminum	mg/L	2.34E+00	1.56E+00	1.84E-01	J			1.00E-01	J			NR				NR			
Arsenic	mg/L	1.78E-02	4.40E-05	5.04E-03	B		YES	1.26E-02	B		YES	NR				NR			
Barium	mg/L	1.27E-01	1.10E-01	1.42E-01		YES	YES	1.52E-01		YES	YES	NR				NR			
Beryllium	mg/L	1.25E-03	3.13E-03	ND				ND				NR				NR			
Calcium	mg/L	5.65E+01	NA	1.10E+01	J			4.43E+01	J			NR				NR			
Chromium	mg/L	NA	4.69E-03	ND				ND				NR				NR			
Cobalt	mg/L	2.34E-02	9.39E-02	ND				ND				NR				NR			
Copper	mg/L	2.55E-02	6.26E-02	ND				ND				NR				NR			
Iron	mg/L	7.04E+00	4.69E-01	9.31E+00	J	YES	YES	8.96E-01	J		YES	NR				NR			
Lead	mg/L	8.00E-03	1.50E-02	ND				ND				NR				NR			
Magnesium	mg/L	2.13E+01	NA	4.76E+00				1.57E+01				NR				NR			
Manganese	mg/L	5.81E-01	7.35E-02	2.66E-01			YES	3.49E-02	J			NR				NR			
Mercury	mg/L	NA	4.69E-04	1.23E-04	J			ND				NR				NR			
Nickel	mg/L	NA	3.13E-02	ND				ND				NR				NR			
Potassium	mg/L	7.20E+00	NA	1.88E+00	J			2.57E+00	J			NR				NR			
Selenium	mg/L	NA	7.82E-03	3.01E-03	J			ND				NR				NR			
Sodium	mg/L	1.48E+01	NA	1.95E+01		YES		3.10E+01		YES		NR				NR			
Thallium	mg/L	1.46E-03	1.01E-04	ND				ND				NR				NR			
Vanadium	mg/L	1.70E-02	1.10E-02	ND				ND				NR				NR			
Zinc	mg/L	2.20E-01	4.69E-01	ND				ND				NR				NR			
<b>EXPLOSIVES</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	ND				ND				NR				NR			
2-Nitrotoluene	mg/L	NA	1.53E-02	ND				6.60E-04				NR				NR			
RDX	mg/L	NA	6.69E-04	ND				ND				NR				NR			
p-Nitrotoluene	mg/L	NA	1.53E-02	ND				4.10E-04	J			NR				NR			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR				NR				NR				NR			
4-Methylphenol	mg/L	NA	7.69E-03	NR				NR				NR				NR			
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	NR				NR				NR				NR			
Di-n-butyl phthalate	mg/L	NA	1.48E-01	NR				NR				NR				NR			
Diethyl phthalate	mg/L	NA	1.23E+00	NR				NR				NR				NR			
Phenol	mg/L	NA	9.31E-01	NR				NR				NR				NR			

Table 5-3

**Groundwater Analytical Results  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW04 DA3016 30-Nov-01				FTA-93-MW05 DA3017 3-Dec-01				FTA-93-MW05 DA3017R 27-Feb-02				FTA-93-MW05 ACE3001 22-Apr-02			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	ND				ND				ND	nv			ND	nv		
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	ND				ND				ND	nv			ND	nv		
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	ND				ND				ND	nv			ND	nv		
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	ND				ND				ND	nv			ND	nv		
Acetone	mg/L	NA	1.56E-01	2.00E+00	J		YES	4.70E+00	J		YES	5.70E+00	nv		YES	7.50E-01	nv		YES
Benzene	mg/L	NA	1.41E-03	ND				ND				ND	nv			ND	nv		
Bromomethane	mg/L	NA	2.18E-03	ND				ND				ND	nv			ND	nv		
Carbon disulfide	mg/L	NA	1.51E-01	ND				ND				ND	nv			ND	nv		
Chloroform	mg/L	NA	1.15E-03	ND				4.00E-04	J			4.10E-04	nv			ND	nv		
Chloromethane	mg/L	NA	3.93E-03	ND				4.20E-04	J			ND	nv			ND	nv		
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	ND				ND				ND	nv			ND	nv		
Ethylbenzene	mg/L	NA	1.40E-01	ND				ND				ND	nv			ND	nv		
Methylene chloride	mg/L	NA	7.85E-03	2.90E-04	B			2.20E-04	B			ND	nv			2.20E-04	nv		
N-Propylbenzene	mg/L	NA	1.30E-02	ND				ND				ND	nv			ND	nv		
Naphthalene	mg/L	NA	3.01E-03	ND				ND				ND	nv			ND	nv		
Toluene	mg/L	NA	2.59E-01	ND				ND				ND	nv			ND	nv		
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	ND				ND				ND	nv			ND	nv		
Trichloroethene	mg/L	NA	4.51E-03	ND				ND				ND	nv			ND	nv		
Vinyl chloride	mg/L	NA	3.20E-05	ND				ND				ND	nv			ND	nv		
m,p-Xylenes	mg/L	NA	2.80E+00	ND				ND				ND	nv			ND	nv		
p-Cymene	mg/L	NA	2.26E-01	ND				ND				ND	nv			ND	nv		
sec-Butylbenzene	mg/L	NA	1.06E-02	ND				ND				ND	nv			ND	nv		
tert-Butylbenzene	mg/L	NA	1.14E-02	ND				ND				ND	nv			ND	nv		

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW05 ACE3002 22-Apr-02				FTA-93-MW05 ACE3003 22-Apr-02				FTA-93-MW06 DA3018 28-Nov-01				FTA-93-MW07 DA3019 27-Nov-01			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	NR				NR											
<b>METALS</b>																			
Aluminum	mg/L	2.34E+00	1.56E+00	NR				NR				1.16E-01	B			1.33E-01	B		
Arsenic	mg/L	1.78E-02	4.40E-05	NR				NR				ND				5.11E-03	B		YES
Barium	mg/L	1.27E-01	1.10E-01	NR				NR				9.26E-02				4.78E-01		YES	YES
Beryllium	mg/L	1.25E-03	3.13E-03	NR				NR				ND				ND			
Calcium	mg/L	5.65E+01	NA	NR				NR				4.68E+01				3.30E+01			
Chromium	mg/L	NA	4.69E-03	NR				NR				ND				ND			
Cobalt	mg/L	2.34E-02	9.39E-02	NR				NR				ND				ND			
Copper	mg/L	2.55E-02	6.26E-02	NR				NR				ND				ND			
Iron	mg/L	7.04E+00	4.69E-01	NR				NR				3.37E+00	J		YES	1.63E+00	J		YES
Lead	mg/L	8.00E-03	1.50E-02	NR				NR				ND				ND			
Magnesium	mg/L	2.13E+01	NA	NR				NR				2.13E+01	J	YES		1.37E+01	J		
Manganese	mg/L	5.81E-01	7.35E-02	NR				NR				1.24E+00		YES	YES	4.96E-02	J		
Mercury	mg/L	NA	4.69E-04	NR				NR				2.74E-04	B			2.77E-04	B		
Nickel	mg/L	NA	3.13E-02	NR				NR				ND				ND			
Potassium	mg/L	7.20E+00	NA	NR				NR				3.21E+00	J			4.17E+00	J		
Selenium	mg/L	NA	7.82E-03	NR				NR				ND				ND			
Sodium	mg/L	1.48E+01	NA	NR				NR				1.74E+01	J	YES		4.22E+01	J	YES	
Thallium	mg/L	1.46E-03	1.01E-04	NR				NR				ND				ND			
Vanadium	mg/L	1.70E-02	1.10E-02	NR				NR				ND				ND			
Zinc	mg/L	2.20E-01	4.69E-01	NR				NR				ND				ND			
<b>EXPLOSIVES</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR				NR				ND				3.80E-04	J		YES
2-Nitrotoluene	mg/L	NA	1.53E-02	NR				NR				ND				ND			
RDX	mg/L	NA	6.69E-04	NR				NR				ND				ND			
p-Nitrotoluene	mg/L	NA	1.53E-02	NR				NR				ND				ND			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR				NR				NR				NR			
4-Methylphenol	mg/L	NA	7.69E-03	NR				NR				NR				NR			
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	NR				NR				NR				NR			
Di-n-butyl phthalate	mg/L	NA	1.48E-01	NR				NR				NR				NR			
Diethyl phthalate	mg/L	NA	1.23E+00	NR				NR				NR				NR			
Phenol	mg/L	NA	9.31E-01	NR				NR				NR				NR			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW05 ACE3002 22-Apr-02				FTA-93-MW05 ACE3003 22-Apr-02				FTA-93-MW06 DA3018 28-Nov-01				FTA-93-MW07 DA3019 27-Nov-01			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	ND	nv			ND	nv			ND				ND			
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	ND	nv			ND	nv			ND				ND			
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	ND	nv			ND	nv			ND				ND			
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	ND	nv			ND	nv			ND				ND			
Acetone	mg/L	NA	1.56E-01	9.80E-01	nv		YES	1.00E+00	nv		YES	1.70E+00	J		YES	2.30E+00	J		YES
Benzene	mg/L	NA	1.41E-03	ND	nv			ND	nv			ND				ND			
Bromomethane	mg/L	NA	2.18E-03	ND	nv			ND	nv			ND				ND			
Carbon disulfide	mg/L	NA	1.51E-01	ND	nv			ND	nv			ND				ND			
Chloroform	mg/L	NA	1.15E-03	ND	nv			ND	nv			2.90E-04	J			3.20E-04	B		
Chloromethane	mg/L	NA	3.93E-03	ND	nv			ND	nv			ND				ND			
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	ND	nv			ND	nv			ND				ND			
Ethylbenzene	mg/L	NA	1.40E-01	ND	nv			ND	nv			ND				ND			
Methylene chloride	mg/L	NA	7.85E-03	1.70E-03	nv			ND	nv			ND				ND			
N-Propylbenzene	mg/L	NA	1.30E-02	ND	nv			ND	nv			ND				ND			
Naphthalene	mg/L	NA	3.01E-03	ND	nv			ND	nv			ND				ND			
Toluene	mg/L	NA	2.59E-01	ND	nv			ND	nv			ND				ND			
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	ND	nv			ND	nv			ND				ND			
Trichloroethene	mg/L	NA	4.51E-03	ND	nv			ND	nv			ND				ND			
Vinyl chloride	mg/L	NA	3.20E-05	ND	nv			ND	nv			ND				ND			
m,p-Xylenes	mg/L	NA	2.80E+00	ND	nv			ND	nv			ND				ND			
p-Cymene	mg/L	NA	2.26E-01	ND	nv			ND	nv			ND				ND			
sec-Butylbenzene	mg/L	NA	1.06E-02	ND	nv			ND	nv			ND				ND			
tert-Butylbenzene	mg/L	NA	1.14E-02	ND	nv			ND	nv			ND				ND			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW08 DA3020 29-Nov-01				FTA-93-MW09 DA3021 4-Dec-01				FTA-93-MW10 DA3022 3-Dec-01			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>HERBICIDES</b>															
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	NR				NR				NR			
<b>METALS</b>															
Aluminum	mg/L	2.34E+00	1.56E+00	1.35E-01	B			ND				ND			
Arsenic	mg/L	1.78E-02	4.40E-05	ND				3.36E-03	B		YES	4.39E-03	B		YES
Barium	mg/L	1.27E-01	1.10E-01	5.47E-01		YES	YES	9.01E-02				5.11E-02			
Beryllium	mg/L	1.25E-03	3.13E-03	ND				ND				ND			
Calcium	mg/L	5.65E+01	NA	6.18E+01		YES		2.05E+01	J			2.21E+01	J		
Chromium	mg/L	NA	4.69E-03	ND				ND				ND			
Cobalt	mg/L	2.34E-02	9.39E-02	ND				ND				ND			
Copper	mg/L	2.55E-02	6.26E-02	ND				ND				ND			
Iron	mg/L	7.04E+00	4.69E-01	1.29E+01	J	YES	YES	2.07E+00	J		YES	1.55E+00	J		YES
Lead	mg/L	8.00E-03	1.50E-02	ND				1.97E-03	B			ND			
Magnesium	mg/L	2.13E+01	NA	2.15E+01	J	YES		3.67E+00				1.05E+01			
Manganese	mg/L	5.81E-01	7.35E-02	1.21E+00		YES	YES	3.34E-01			YES	6.13E-01		YES	YES
Mercury	mg/L	NA	4.69E-04	ND				ND				ND			
Nickel	mg/L	NA	3.13E-02	ND				ND				ND			
Potassium	mg/L	7.20E+00	NA	7.01E+00				1.18E+00	J			1.19E+00	J		
Selenium	mg/L	NA	7.82E-03	ND				ND				ND			
Sodium	mg/L	1.48E+01	NA	2.25E+01	J	YES		6.35E+00				2.25E+00			
Thallium	mg/L	1.46E-03	1.01E-04	4.61E-03	B	YES	YES	5.20E-03	J	YES	YES	5.32E-03	J	YES	YES
Vanadium	mg/L	1.70E-02	1.10E-02	ND				ND				ND			
Zinc	mg/L	2.20E-01	4.69E-01	ND				ND				ND			
<b>EXPLOSIVES</b>															
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	ND				ND				ND			
2-Nitrotoluene	mg/L	NA	1.53E-02	ND				ND				2.70E-04	J		
RDX	mg/L	NA	6.69E-04	2.20E-04	J			ND				ND			
p-Nitrotoluene	mg/L	NA	1.53E-02	ND				ND				ND			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>															
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR				NR				NR			
4-Methylphenol	mg/L	NA	7.69E-03	NR				NR				NR			
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	NR				NR				NR			
Di-n-butyl phthalate	mg/L	NA	1.48E-01	NR				NR				NR			
Diethyl phthalate	mg/L	NA	1.23E+00	NR				NR				NR			
Phenol	mg/L	NA	9.31E-01	NR				NR				NR			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW08 DA3020 29-Nov-01				FTA-93-MW09 DA3021 4-Dec-01				FTA-93-MW10 DA3022 3-Dec-01			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>VOLATILE ORGANIC COMPOUNDS</b>															
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	ND				ND				ND			
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	ND				ND				ND			
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	ND				ND				ND			
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	ND				ND				ND			
Acetone	mg/L	NA	1.56E-01	ND				ND				ND			
Benzene	mg/L	NA	1.41E-03	ND				ND				ND			
Bromomethane	mg/L	NA	2.18E-03	ND				ND				ND			
Carbon disulfide	mg/L	NA	1.51E-01	ND				ND				ND			
Chloroform	mg/L	NA	1.15E-03	ND				ND				ND			
Chloromethane	mg/L	NA	3.93E-03	ND				ND				ND			
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	ND				ND				ND			
Ethylbenzene	mg/L	NA	1.40E-01	ND				ND				ND			
Methylene chloride	mg/L	NA	7.85E-03	4.60E-04	B			ND				2.10E-04	B		
N-Propylbenzene	mg/L	NA	1.30E-02	ND				ND				ND			
Naphthalene	mg/L	NA	3.01E-03	ND				ND				ND			
Toluene	mg/L	NA	2.59E-01	ND				ND				ND			
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	ND				ND				ND			
Trichloroethene	mg/L	NA	4.51E-03	ND				ND				ND			
Vinyl chloride	mg/L	NA	3.20E-05	ND				ND				ND			
m,p-Xylenes	mg/L	NA	2.80E+00	ND				ND				ND			
p-Cymene	mg/L	NA	2.26E-01	ND				ND				ND			
sec-Butylbenzene	mg/L	NA	1.06E-02	ND				ND				ND			
tert-Butylbenzene	mg/L	NA	1.14E-02	ND				ND				ND			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW11 DA3023 30-Nov-01				FTA-93-MW12 DA3024R 16-Dec-02			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>HERBICIDES</b>											
2,2-Dichloropropanoic Acid	mg/L	NA	4.68E-02	NR				NR			
<b>METALS</b>											
Aluminum	mg/L	2.34E+00	1.56E+00	ND				NR			
Arsenic	mg/L	1.78E-02	4.40E-05	ND				NR			
Barium	mg/L	1.27E-01	1.10E-01	3.85E-02				NR			
Beryllium	mg/L	1.25E-03	3.13E-03	ND				NR			
Calcium	mg/L	5.65E+01	NA	8.12E-01	J			NR			
Chromium	mg/L	NA	4.69E-03	ND				NR			
Cobalt	mg/L	2.34E-02	9.39E-02	ND				NR			
Copper	mg/L	2.55E-02	6.26E-02	ND				NR			
Iron	mg/L	7.04E+00	4.69E-01	1.18E+01	J	YES	YES	NR			
Lead	mg/L	8.00E-03	1.50E-02	ND				NR			
Magnesium	mg/L	2.13E+01	NA	1.02E+00	J			NR			
Manganese	mg/L	5.81E-01	7.35E-02	2.64E-01			YES	NR			
Mercury	mg/L	NA	4.69E-04	ND				NR			
Nickel	mg/L	NA	3.13E-02	ND				NR			
Potassium	mg/L	7.20E+00	NA	ND				NR			
Selenium	mg/L	NA	7.82E-03	ND				NR			
Sodium	mg/L	1.48E+01	NA	7.92E+00	J			NR			
Thallium	mg/L	1.46E-03	1.01E-04	ND				NR			
Vanadium	mg/L	1.70E-02	1.10E-02	ND				NR			
Zinc	mg/L	2.20E-01	4.69E-01	ND				NR			
<b>EXPLOSIVES</b>											
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	ND				NR			
2-Nitrotoluene	mg/L	NA	1.53E-02	ND				NR			
RDX	mg/L	NA	6.69E-04	ND				NR			
p-Nitrotoluene	mg/L	NA	1.53E-02	ND				NR			
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>											
2,6-Dinitrotoluene	mg/L	NA	9.80E-05	NR				NR			
4-Methylphenol	mg/L	NA	7.69E-03	NR				NR			
Bis(2-Ethylhexyl)phthalate	mg/L	NA	4.31E-03	NR				NR			
Di-n-butyl phthalate	mg/L	NA	1.48E-01	NR				NR			
Diethyl phthalate	mg/L	NA	1.23E+00	NR				NR			
Phenol	mg/L	NA	9.31E-01	NR				NR			

Table 5-3

**Groundwater Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date				FTA-93-MW11 DA3023 30-Nov-01				FTA-93-MW12 DA3024R 16-Dec-02			
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	Result	Qual	>BKG	>SSSL	Result	Qual	>BKG	>SSSL
<b>VOLATILE ORGANIC COMPOUNDS</b>											
1,1,2,2-Tetrachloroethane	mg/L	NA	2.03E-04	ND				ND	nv		
1,2,4-Trimethylbenzene	mg/L	NA	6.00E-03	ND				ND	nv		
1,2-Dimethylbenzene	mg/L	NA	2.80E+00	ND				ND	nv		
1,3,5-Trimethylbenzene	mg/L	NA	6.00E-03	ND				ND	nv		
Acetone	mg/L	NA	1.56E-01	ND				ND	nv		
Benzene	mg/L	NA	1.41E-03	ND				ND	nv		
Bromomethane	mg/L	NA	2.18E-03	ND				ND	nv		
Carbon disulfide	mg/L	NA	1.51E-01	ND				ND	nv		
Chloroform	mg/L	NA	1.15E-03	ND				ND	nv		
Chloromethane	mg/L	NA	3.93E-03	ND				ND	nv		
Cis-1,2-Dichloroethene	mg/L	NA	1.55E-02	ND				ND	nv		
Ethylbenzene	mg/L	NA	1.40E-01	ND				ND	nv		
Methylene chloride	mg/L	NA	7.85E-03	7.90E-04	B			7.00E-04	nv		
N-Propylbenzene	mg/L	NA	1.30E-02	ND				ND	nv		
Naphthalene	mg/L	NA	3.01E-03	ND				ND	nv		
Toluene	mg/L	NA	2.59E-01	ND				ND	nv		
Trans-1,2-Dichloroethene	mg/L	NA	3.07E-02	ND				ND	nv		
Trichloroethene	mg/L	NA	4.51E-03	ND				ND	nv		
Vinyl chloride	mg/L	NA	3.20E-05	ND				ND	nv		
m,p-Xylenes	mg/L	NA	2.80E+00	ND				ND	nv		
p-Cymene	mg/L	NA	2.26E-01	ND				ND	nv		
sec-Butylbenzene	mg/L	NA	1.06E-02	ND				ND	nv		
tert-Butylbenzene	mg/L	NA	1.14E-02	ND				ND	nv		

Analyses performed using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods.

<sup>a</sup>BKG - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in SAIC, 1998, *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.

<sup>b</sup>Residential human health site-specific screening level (SSSL) as given in IT Corporation (2000), *Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama*, July.

B - Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero).

J - Compound was positively identified; reported value is an estimated concentration.

mg/L - Milligrams per liter.

NA - Not available.

ND - Not detected.

NR - Not requested.

nv - Not validated.

Qual - Data validation qualifier.

Table 5-4

**Surface Water Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date					FTA-93-SW/SD01 DA2001 27-Jan-99					FTA-93-SW/SD02 DA2002 22-Oct-98					FTA-93-SW/SD03 DA2003 27-Jan-99				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>b</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/L	5.26E+00	1.53E+01	8.70E-02	1.72E+00				YES	2.85E-01	J			YES	2.34E-01				YES
Arsenic	mg/L	2.17E-03	7.30E-04	1.90E-01	ND					ND					3.20E-03	J	YES	YES	
Barium	mg/L	7.54E-02	1.10E+00	3.90E-03	1.28E-02	J			YES	ND					3.00E-02	J			YES
Calcium	mg/L	2.52E+01	NA	1.16E+02	1.83E+01					1.88E+01	J				1.37E+01				
Iron	mg/L	1.96E+01	4.70E+00	1.00E+00	5.77E-01					4.99E+00			YES	YES	3.02E+00				YES
Magnesium	mg/L	1.10E+01	NA	8.20E+01	4.73E+00	J				ND					3.09E+00	J			
Manganese	mg/L	5.65E-01	6.40E-01	8.00E-02	5.19E-02					1.32E+00		YES	YES	YES	1.43E+00		YES	YES	YES
Mercury	mg/L	NA	4.25E-03	1.20E-05	7.40E-05	J			YES	ND					5.70E-05	J			YES
Potassium	mg/L	2.56E+00	NA	5.30E+01	2.22E+00	J				ND					3.03E+00	J	YES		
Sodium	mg/L	3.44E+00	NA	6.80E+02	1.02E+00	B				ND					1.06E+00	B			
Thallium	mg/L	2.49E-03	1.02E-03	4.00E-03	4.50E-03	B	YES	YES	YES	ND					4.10E-03	B	YES	YES	YES
Zinc	mg/L	4.04E-02	4.65E+00	5.89E-02	3.22E-02					ND					3.67E-02				
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,3-Trichlorobenzene	mg/L	NA	7.91E-03	6.92E-02	3.60E-04	J				ND					ND				
1,2,4-Trichlorobenzene	mg/L	NA	8.37E-02	4.49E-02	2.60E-04	J				ND					ND				
Acetone	mg/L	NA	1.57E+00	7.80E+01	5.80E-03	J				3.20E-03	B				8.50E-03	J			
Bromodichloromethane	mg/L	NA	1.70E-02	1.10E+01	ND					ND					ND				
Chloroform	mg/L	NA	1.69E-01	2.89E-01	ND					ND					ND				
Dibromochloromethane	mg/L	NA	1.27E-02	6.40E+00	ND					ND					ND				
Hexachlorobutadiene	mg/L	NA	1.28E-02	9.30E-04	2.10E-04	J				ND					ND				
Methylene chloride	mg/L	NA	1.42E-01	1.93E+00	8.90E-04	B				ND					7.50E-04	B			
Toluene	mg/L	NA	2.32E+00	1.75E-01	ND					1.20E-04	B				ND				
Trichloroethene	mg/L	NA	8.80E-02	2.19E+01	ND					ND					ND				
cis-1,2-Dichloroethene	mg/L	NA	1.49E-01	1.16E+01	ND					ND					ND				
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Phenol	mg/L	NA	9.06E+00	2.56E-01	ND					5.00E-03	B				ND				
bis(2-Ethylhexyl)phthalate	mg/L	NA	5.17E-02	3.00E-04	ND					ND					ND				
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.69E-01	NA	ND					2.00E-03					ND				

Table 5-4

**Surface Water Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

Sample Location Sample Number Sample Date					FTA-93-SW/SD04 DA2004 23-Oct-98					FTA-93-SW/SD05 DA2005 22-Oct-98					FTA-93-SW/SD06 DA2008 22-Oct-98				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>b</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/L	5.26E+00	1.53E+01	8.70E-02	ND					ND					ND				
Arsenic	mg/L	2.17E-03	7.30E-04	1.90E-01	ND					ND					ND				
Barium	mg/L	7.54E-02	1.10E+00	3.90E-03	ND					ND					ND				
Calcium	mg/L	2.52E+01	NA	1.16E+02	2.38E+01	J				2.54E+01	J	YES			1.85E+01	J			
Iron	mg/L	1.96E+01	4.70E+00	1.00E+00	1.81E+00				YES	2.49E+00	J			YES	1.79E-01				
Magnesium	mg/L	1.10E+01	NA	8.20E+01	1.14E+01	J	YES			1.15E+01	J	YES			9.38E+00	J			
Manganese	mg/L	5.65E-01	6.40E-01	8.00E-02	4.81E-02					4.73E-01				YES	2.97E-02				
Mercury	mg/L	NA	4.25E-03	1.20E-05	ND					ND					ND				
Potassium	mg/L	2.56E+00	NA	5.30E+01	ND					ND					ND				
Sodium	mg/L	3.44E+00	NA	6.80E+02	ND					ND					ND				
Thallium	mg/L	2.49E-03	1.02E-03	4.00E-03	ND					ND					ND				
Zinc	mg/L	4.04E-02	4.65E+00	5.89E-02	ND					ND					ND				
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
1,2,3-Trichlorobenzene	mg/L	NA	7.91E-03	6.92E-02	ND					ND					ND				
1,2,4-Trichlorobenzene	mg/L	NA	8.37E-02	4.49E-02	ND					ND					ND				
Acetone	mg/L	NA	1.57E+00	7.80E+01	1.50E-03	B				1.70E-03	B				1.70E-03	B			
Bromodichloromethane	mg/L	NA	1.70E-02	1.10E+01	4.30E-04	J				ND					ND				
Chloroform	mg/L	NA	1.69E-01	2.89E-01	1.50E-03					ND					ND				
Dibromochloromethane	mg/L	NA	1.27E-02	6.40E+00	2.70E-04	J				ND					ND				
Hexachlorobutadiene	mg/L	NA	1.28E-02	9.30E-04	ND					ND					ND				
Methylene chloride	mg/L	NA	1.42E-01	1.93E+00	ND					ND					ND				
Toluene	mg/L	NA	2.32E+00	1.75E-01	ND					ND					ND				
Trichloroethene	mg/L	NA	8.80E-02	2.19E+01	1.50E-03					1.10E-04	J				ND				
cis-1,2-Dichloroethene	mg/L	NA	1.49E-01	1.16E+01	1.80E-04	J				ND					ND				
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Phenol	mg/L	NA	9.06E+00	2.56E-01	6.70E-03	B				5.30E-03	B				6.00E-03	B			
bis(2-Ethylhexyl)phthalate	mg/L	NA	5.17E-02	3.00E-04	ND					ND					4.20E-02				YES
<b>HERBICIDES</b>																			
2,2-Dichloropropanoic Acid	mg/L	NA	4.69E-01	NA	ND					ND					ND				

Analyses performed using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods.

<sup>a</sup> BKG - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in SAIC, 1998, *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.

<sup>b</sup> Recreational site user site-specific screening level (SSSL) and ecological screening value (ESV) as given in IT Corporation (2000), *Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama*, July.

B - Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero).

J - Compound was positively identified; reported value is an estimated concentration.

mg/L - Milligrams per liter.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

Table 5-5

**Sediment Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 1 of 4)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-SW/SD01 DA1001 27-Jan-99 0- .5				FTA-93-SW/SD02 DA1002 22-Oct-98 0- .5				FTA-93-SW/SD03 DA1003 27-Jan-99 0- .5						
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>b</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	8.59E+03	1.15E+06	NA	8.01E+03					1.01E+04		YES			1.05E+04		YES		
Arsenic	mg/kg	1.13E+01	5.58E+01	7.24E+00	9.90E+00				YES	1.01E+01				YES	1.60E+01		YES		YES
Barium	mg/kg	9.89E+01	8.36E+04	NA	3.96E+01					5.72E+01					6.38E+01				
Beryllium	mg/kg	9.70E-01	1.50E+02	NA	6.30E-01	J				1.10E+00		YES			1.00E+00		YES		
Cadmium	mg/kg	4.30E-01	1.71E+02	1.00E+00	ND					ND					ND				
Calcium	mg/kg	1.11E+03	NA	NA	1.41E+03				YES	1.82E+03	J	YES			8.67E+02				
Chromium	mg/kg	3.12E+01	2.79E+03	5.23E+01	3.13E+01				YES	2.34E+01	J				3.27E+01		YES		
Cobalt	mg/kg	1.10E+01	6.72E+04	5.00E+01	6.30E+00	J				ND					8.00E+00				
Copper	mg/kg	1.71E+01	4.74E+04	1.87E+01	9.20E+00					1.88E+01		YES		YES	1.66E+01				
Iron	mg/kg	3.53E+04	3.59E+05	NA	3.02E+04					3.45E+04					4.84E+04		YES		
Lead	mg/kg	3.78E+01	4.00E+02	3.02E+01	2.51E+01					4.52E+01		YES		YES	3.83E+01		YES		YES
Magnesium	mg/kg	9.06E+02	NA	NA	4.41E+02	J				ND					3.77E+02	J			
Manganese	mg/kg	7.12E+02	4.38E+04	NA	6.87E+02					2.70E+02	J				4.65E+02				
Mercury	mg/kg	1.10E-01	2.99E+02	1.30E-01	7.40E-02					8.80E-02					1.00E-01				
Nickel	mg/kg	1.30E+01	1.76E+04	1.59E+01	6.90E+00					1.18E+01					1.13E+01				
Potassium	mg/kg	1.01E+03	NA	NA	3.74E+02	J				ND					4.08E+02	J			
Selenium	mg/kg	7.20E-01	5.96E+03	NA	1.60E+00	B	YES			1.50E+00		YES			2.00E+00	B	YES		
Sodium	mg/kg	6.92E+02	NA	NA	1.07E+02	B				ND					8.57E+01	B			
Vanadium	mg/kg	4.09E+01	4.83E+03	NA	3.76E+01					2.52E+01					5.55E+01		YES		
Zinc	mg/kg	5.27E+01	3.44E+05	1.24E+02	1.02E+02				YES	6.40E+01		YES			5.30E+01		YES		
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	6.23E+05	1.37E-01	ND					6.40E-03	J				7.20E-03	J			
Acetone	mg/kg	NA	1.03E+05	4.53E-01	1.80E-02	J				1.10E-01	J				5.90E-02	J			
Carbon disulfide	mg/kg	NA	1.04E+05	1.34E-01	ND					6.90E-03	J				ND				
Chloroethane	mg/kg	NA	2.54E+04	5.86E+01	ND					ND					3.60E-03	J			
Methylene chloride	mg/kg	NA	9.84E+03	1.26E+00	8.10E-03	B				1.90E-02	B				7.70E-03	B			
Toluene	mg/kg	NA	2.11E+05	6.70E-01	ND					ND					ND				
Trichloroethene	mg/kg	NA	6.61E+03	1.80E-01	ND					ND					ND				
Trichlorofluoromethane	mg/kg	NA	3.06E+05	3.07E-03	4.00E-03	J			YES	ND					ND				
p-Cymene	mg/kg	NA	2.08E+05	NA	ND					ND					ND				

Table 5-5

**Sediment Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 2 of 4)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-SW/SD01 DA1001 27-Jan-99 0- .5					FTA-93-SW/SD02 DA1002 22-Oct-98 0- .5					FTA-93-SW/SD03 DA1003 27-Jan-99 0- .5				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>b</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	5.59E+04	3.30E-01	1.10E-01	J				3.70E-01	J			YES	1.20E-01	J			
Anthracene	mg/kg	NA	2.99E+05	3.30E-01	1.00E-01	J				2.70E-01	J				1.00E-01	J			
Benzo(a)anthracene	mg/kg	NA	8.93E+01	3.30E-01	ND					1.30E-01	J				1.00E-01	J			
Benzo(a)pyrene	mg/kg	NA	8.93E+00	3.30E-01	7.90E-02	J				4.10E-01	J			YES	1.60E-01	J			
Benzo(b)fluoranthene	mg/kg	NA	8.93E+01	6.55E-01	8.10E-02	J				6.00E-01					1.50E-01	J			
Benzo(ghi)perylene	mg/kg	NA	2.79E+04	6.55E-01	1.40E-01	J				1.40E-01	J				1.30E-01	J			
Benzo(k)fluoranthene	mg/kg	NA	8.93E+02	6.55E-01	7.40E-02	J				7.00E-01				YES	1.50E-01	J			
Chrysene	mg/kg	NA	9.79E+03	3.30E-01	ND					2.30E-01	J				1.20E-01	J			
Di-n-butyl phthalate	mg/kg	NA	1.14E+05	1.11E-01	ND					ND					ND				
Dibenz(a,h)anthracene	mg/kg	NA	9.79E+00	3.30E-01	ND					ND					6.60E-02	J			
Fluoranthene	mg/kg	NA	3.73E+04	3.30E-01	ND					2.00E-01	J				1.60E-01	J			
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.93E+01	6.55E-01	9.80E-02	J				1.50E-01	J				1.20E-01	J			
Phenanthrene	mg/kg	NA	2.79E+05	3.30E-01	ND					ND					5.80E-02	J			
Pyrene	mg/kg	NA	3.06E+04	3.30E-01	ND					3.50E-01	J			YES	1.80E-01	J			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	5.41E+03	1.82E-01	ND					ND					ND				
<b>TOTAL ORGANIC CARBON</b>																			
Total Organic Carbon	mg/kg	NA	NA	NA	1.99E+04	J				2.46E+04					1.96E+04	J			
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.35E+02	3.30E-03	ND					4.70E-03				YES	ND				
4,4'-DDE	mg/kg	NA	1.66E+02	3.30E-03	ND					7.40E-03				YES	4.00E-03	J			YES
Endrin	mg/kg	NA	2.79E+02	3.30E-03	ND					ND					1.70E-03	J			

Table 5-5

**Sediment Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 3 of 4)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-SW/SD04 DA1004 23-Oct-98 0- .5					FTA-93-SW/SD05 DA1005 22-Oct-98 0- .5					FTA-93-SW/SD06 DA1008 22-Oct-98 0- .5				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>b</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>METALS</b>																			
Aluminum	mg/kg	8.59E+03	1.15E+06	NA	9.68E+03		YES			8.63E+03		YES			5.41E+03				
Arsenic	mg/kg	1.13E+01	5.58E+01	7.24E+00	8.05E+01		YES	YES	YES	1.01E+01				YES	5.10E+00				
Barium	mg/kg	9.89E+01	8.36E+04	NA	6.27E+01					1.52E+02		YES			2.60E+01				
Beryllium	mg/kg	9.70E-01	1.50E+02	NA	ND					ND					7.10E-01				
Cadmium	mg/kg	4.30E-01	1.71E+02	1.00E+00	1.60E+00		YES		YES	ND					ND				
Calcium	mg/kg	1.11E+03	NA	NA	3.08E+03	J	YES			3.42E+03	J	YES			3.35E+03	J	YES		
Chromium	mg/kg	3.12E+01	2.79E+03	5.23E+01	2.84E+01	J				2.73E+01	J				1.93E+01	J			
Cobalt	mg/kg	1.10E+01	6.72E+04	5.00E+01	ND					ND					7.10E+00				
Copper	mg/kg	1.71E+01	4.74E+04	1.87E+01	2.65E+01		YES		YES	2.11E+01		YES		YES	1.24E+01				
Iron	mg/kg	3.53E+04	3.59E+05	NA	2.34E+04					3.69E+04		YES			2.25E+04				
Lead	mg/kg	3.78E+01	4.00E+02	3.02E+01	2.44E+01					6.43E+01		YES		YES	1.05E+01				
Magnesium	mg/kg	9.06E+02	NA	NA	ND					ND					2.11E+03	J	YES		
Manganese	mg/kg	7.12E+02	4.38E+04	NA	9.88E+01	J				3.47E+03	J	YES			2.36E+02	J			
Mercury	mg/kg	1.10E-01	2.99E+02	1.30E-01	ND					1.00E-01					ND				
Nickel	mg/kg	1.30E+01	1.76E+04	1.59E+01	1.18E+01					ND					1.09E+01				
Potassium	mg/kg	1.01E+03	NA	NA	ND					ND					ND				
Selenium	mg/kg	7.20E-01	5.96E+03	NA	3.30E+00		YES			ND					ND				
Sodium	mg/kg	6.92E+02	NA	NA	ND					ND					ND				
Vanadium	mg/kg	4.09E+01	4.83E+03	NA	2.29E+01					ND					7.40E+00				
Zinc	mg/kg	5.27E+01	3.44E+05	1.24E+02	1.24E+02		YES		YES	1.09E+02		YES			4.90E+01				
<b>VOLATILE ORGANIC COMPOUNDS</b>																			
2-Butanone	mg/kg	NA	6.23E+05	1.37E-01	2.80E-02	J				2.10E-02	J				ND				
Acetone	mg/kg	NA	1.03E+05	4.53E-01	4.50E-01	J				3.00E-01	J				3.90E-02	B			
Carbon disulfide	mg/kg	NA	1.04E+05	1.34E-01	1.70E-02	J				7.60E-03	J				ND				
Chloroethane	mg/kg	NA	2.54E+04	5.86E+01	ND					ND					ND				
Methylene chloride	mg/kg	NA	9.84E+03	1.26E+00	1.90E-02	B				5.00E-02	J				1.10E-02	B			
Toluene	mg/kg	NA	2.11E+05	6.70E-01	3.60E-02					ND					ND				
Trichloroethene	mg/kg	NA	6.61E+03	1.80E-01	5.70E-03	J				ND					ND				
Trichlorofluoromethane	mg/kg	NA	3.06E+05	3.07E-03	ND					ND					ND				
p-Cymene	mg/kg	NA	2.08E+05	NA	1.60E-02	J				ND					ND				

Table 5-5

**Sediment Analytical Results**  
**Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)**  
**Fort McClellan, Calhoun County, Alabama**

(Page 4 of 4)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-93-SW/SD04 DA1004 23-Oct-98 0- .5					FTA-93-SW/SD05 DA1005 22-Oct-98 0- .5					FTA-93-SW/SD06 DA1008 22-Oct-98 0- .5				
Parameter	Units	BKG <sup>a</sup>	SSSL <sup>b</sup>	ESV <sup>b</sup>	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>																			
Acenaphthylene	mg/kg	NA	5.59E+04	3.30E-01	ND					ND					ND				
Anthracene	mg/kg	NA	2.99E+05	3.30E-01	ND					ND					ND				
Benzo(a)anthracene	mg/kg	NA	8.93E+01	3.30E-01	ND					ND					4.40E-02	J			
Benzo(a)pyrene	mg/kg	NA	8.93E+00	3.30E-01	ND					ND					5.30E-02	J			
Benzo(b)fluoranthene	mg/kg	NA	8.93E+01	6.55E-01	ND					1.00E-01	J				5.00E-02	J			
Benzo(ghi)perylene	mg/kg	NA	2.79E+04	6.55E-01	ND					ND					ND				
Benzo(k)fluoranthene	mg/kg	NA	8.93E+02	6.55E-01	ND					ND					5.30E-02	J			
Chrysene	mg/kg	NA	9.79E+03	3.30E-01	ND					ND					5.10E-02	J			
Di-n-butyl phthalate	mg/kg	NA	1.14E+05	1.11E-01	5.30E-01	B			YES	ND					ND				
Dibenz(a,h)anthracene	mg/kg	NA	9.79E+00	3.30E-01	ND					ND					ND				
Fluoranthene	mg/kg	NA	3.73E+04	3.30E-01	ND					1.20E-01	J				7.90E-02	J			
Indeno(1,2,3-cd)pyrene	mg/kg	NA	8.93E+01	6.55E-01	ND					ND					ND				
Phenanthrene	mg/kg	NA	2.79E+05	3.30E-01	ND					ND					ND				
Pyrene	mg/kg	NA	3.06E+04	3.30E-01	ND					ND					5.70E-02	J			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	5.41E+03	1.82E-01	ND					1.90E-01	J			YES	1.10E-01	J			
<b>TOTAL ORGANIC CARBON</b>																			
Total Organic Carbon	mg/kg	NA	NA	NA	4.04E+04					3.66E+04					1.68E+03				
<b>PESTICIDES</b>																			
4,4'-DDD	mg/kg	NA	2.35E+02	3.30E-03	4.80E-03				YES	ND					ND				
4,4'-DDE	mg/kg	NA	1.66E+02	3.30E-03	1.10E-02				YES	5.60E-03				YES	ND				
Endrin	mg/kg	NA	2.79E+02	3.30E-03	ND					ND					ND				

Analyses performed using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods.

<sup>a</sup> BKG - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in SAIC, 1998, *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.

<sup>b</sup> Recreational site user site-specific screening level (SSSL) and ecological screening value (ESV) as given in IT Corporation (2000), *Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama*, July.

B - Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero).

J - Compound was positively identified; reported value is an estimated concentration.

mg/kg - Milligrams per kilogram.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

chromium, iron, and manganese exceeded SSSLs and their respective background concentrations as follows:

- Aluminum (16,500 and 16,900 milligrams per kilogram [mg/kg]) exceeded its SSSL (7,803 mg/kg) and background (16,306 mg/kg) at two sample locations (FTA-93-GP16 and FTA-93-GP27).
- Antimony (5.8 mg/kg) exceeded its SSSL (3.11 mg/kg) and background (1.99 mg/kg) at sample location FTA-93-GP28; however, the result was flagged with a “J” data qualifier, signifying that the concentration was estimated.
- Arsenic (19.8 mg/kg) exceeded its SSSL (0.43 mg/kg) and background (13.7 mg/kg) at sample location FTA-93-GP22.
- Chromium (40.3 to 151 mg/kg) exceeded its SSSL (23.2 mg/kg) and background (37 mg/kg) at four sample locations (FTA-93-GP09, FTA-93-GP14, FTA-93-GP23, and FTA-93-GP24).
- Iron (46,900 to 59,600 mg/kg) exceeded its SSSL (2,345 mg/kg) and background (34,154 mg/kg) at three sample locations (FTA-93-GP21, FTA-93-GP22, and FTA-93-GP23).
- Manganese (1,790 and 2,820 mg/kg) exceeded its SSSL (363 mg/kg) and background (1,579 mg/kg) at two sample locations (FTA-93-GP15 and FTA-93-GP16).

The highest chromium detection (151 mg/kg), at Phase I sample location FTA-93-GP09, was further investigated during Phase II. Chromium concentrations in the three Phase II samples were all below the SSSL and background.

The concentrations of 16 metals exceeded ESVs. Of these, the following metals also exceeded their respective background concentrations in one or more samples:

- Aluminum (16,500 and 16,900 mg/kg) exceeded its ESV (50 mg/kg) and background (16,306 mg/kg) at two sample locations (FTA-93-GP16 and FTA-93-GP27).
- Antimony (5.8 mg/kg) exceeded its ESV (3.5 mg/kg) and background (1.99 mg/kg) at sample location FTA-93-GP28; however, the result was “J” flagged.
- Arsenic (19.8 mg/kg) exceeded its ESV (10 mg/kg) and background (13.7 mg/kg) at sample location FTA-93-GP22.
- Barium (175 and 256 mg/kg) exceeded its ESV (165 mg/kg) and background (124 mg/kg) at two sample locations (FTA-93-GP09 and FTA-93-GP16).

- Cadmium (2.7 and 3.98 mg/kg) exceeded its ESV (1.6 mg/kg) and background (0.29 mg/kg) at two sample locations (FTA-93-GP23 and FTA-93-GP28).
- Chromium (40.3 to 151 mg/kg) exceeded its ESV (0.4 mg/kg) and background (37 mg/kg) at four sample locations (FTA-93-GP09, FTA-93-GP14, FTA-93-GP23, and FTA-93-GP24).
- Copper (59.5 mg/kg) exceeded its ESV (40 mg/kg) and background (12.7 mg/kg) at sample location FTA-93-GP23.
- Iron (46,900 to 59,600 mg/kg) exceeded its ESV (200 mg/kg) and background (34,154 mg/kg) at three sample locations (FTA-93-GP21, FTA-93-GP22, and FTA-93-GP23).
- Lead (51.7 to 89.4 mg/kg) exceeded its ESV (50 mg/kg) and background (40 mg/kg) at six sample locations.
- Manganese (1,790 and 2,820 mg/kg) exceeded its ESV (100 mg/kg) and background (1,579 mg/kg) at two sample locations (FTA-93-GP15 and FTA-93-GP16).
- Mercury (0.11 to 0.25 mg/kg) exceeded its ESV (0.1 mg/kg) and background (0.08 mg/kg) at three sample locations (FTA-93-DEP01, FTA-93-GP23, and FTA-93-GP24).
- Nickel (66.2 mg/kg) exceeded its ESV (30 mg/kg) and background (10.3 mg/kg) at sample location FTA-93-GP09.
- Selenium (0.81 to 1.8 mg/kg) exceeded its ESV (0.81 mg/kg) and background (0.48 mg/kg) at four sample locations (FTA-93-GP16, FTA-93-GP22, FTA-93-GP23, and WS-93-DEP01).
- Zinc (55.2 to 244 mg/kg) exceeded its ESV (50 mg/kg) and background (40.6 mg/kg) at 12 sample locations.

**Volatile Organic Compounds.** Twenty-nine of the 32 surface and depositional soil samples were analyzed for VOCs. A total of 17 VOCs were detected in the samples. The detected VOC concentrations ranged from 0.0016 to 3.8 mg/kg and were all below SSSLs.

The following VOCs were detected at concentrations exceeding ESVs:

- Acetone (2.8 and 3.8 mg/kg) exceeded its ESV (2.5 mg/kg) at two sample locations (FTA-93-GP09 and FTA-93-GP12).

- m,p-xylenes (0.12 mg/kg) exceeded its ESV (0.05 mg/kg) at one sample location (FTA-93-GP26).

**Semivolatile Organic Compounds.** Twenty-nine surface and depositional soil samples were analyzed for SVOCs. A total of 23 SVOCs, including 15 PAH compounds, were detected in the samples. Of the detected compounds, 6 PAHs were detected at concentrations exceeding SSSLs and PAH background values:

- Benzo(a)anthracene (1.9 to 10 mg/kg) exceeded its SSSL (0.85 mg/kg) and background (1.19 mg/kg) at three sample locations (FTA-93-DEP02, FTA-93-GP08, and FTA-93-GP09).
- Benzo(a)pyrene (2.3 to 12 mg/kg) exceeded its SSSL (0.09 mg/kg) and background (1.42 mg/kg) at four sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-GP08, and FTA-93-GP09).
- Benzo(b)fluoranthene (1.8 to 13 mg/kg) exceeded its SSSL (0.85 mg/kg) and background (1.66 mg/kg) at five sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-GP06, FTA-93-GP08, and FTA-93-GP09).
- Benzo(k)fluoranthene (13 mg/kg) exceeded its SSSL (8.5 mg/kg) and background (1.4 mg/kg) at sample location FTA-93-GP08.
- Dibenz(a,h)anthracene (0.96 and 1.4 mg/kg) exceeded its SSSL (0.09 mg/kg) and background (0.72 mg/kg) at two sample locations (FTA-93-DEP02 and FTA-93-GP08).
- Indeno(1,2,3-cd)pyrene (1 to 2.4 mg/kg) exceeded its SSSL (0.85 mg/kg) and background (0.94 mg/kg) at four sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-GP08, and FTA-93-GP09).

Eight SVOCs (seven PAH compounds and one non-PAH compound) were detected at concentrations exceeding their respective ESVs. Of these, the following seven PAH compounds were detected at concentrations exceeding their respective ESVs and background values:

- Anthracene (1.4 to 4.9 mg/kg) exceeded its ESV (0.1 mg/kg) and background (0.9 mg/kg) at five sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-GP08, FTA-93-GP09, and FTA-93-GP26).
- Benzo(a)anthracene (10 mg/kg) exceeded its ESV (5.2 mg/kg) and background (1.2 mg/kg) at sample location FTA-93-GP08.

- Benzo(a)pyrene (2.3 to 12 mg/kg) exceeded its ESV (0.1 mg/kg) and background (1.4 mg/kg) at four sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-GP08, and FTA-93-DEP09).
- Chrysene (12 and 5.2 mg/kg) exceeded its ESV (4.7 mg/kg) and background (1.4 mg/kg) at two sample locations (FTA-93-GP08 and FTA-93-GP09).
- Fluoranthene (2.1 to 23 mg/kg) exceeded its ESV (0.1 mg/kg) and background (2.0 mg/kg) at three sample locations (FTA-93-DEP02, FTA-93-GP08, and FTA-93-GP09).
- Phenanthrene (9.9 and 6.1 mg/kg) exceeded its ESV (0.1 mg/kg) and background (1.1 mg/kg) at two sample locations (FTA-93-GP08 and FTA-93-GP09).
- Pyrene (1.8 to 24 mg/kg) exceeded its ESV (0.1 mg/kg) and background (1.6 mg/kg) at five sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-GP06, FTA-93-GP08 and FTA-93-GP09).

In addition, phenol was detected at estimated concentrations (0.097 and 0.1 mg/kg) exceeding its ESV (0.05 mg/kg) at two sample locations (FTA-93-DEP01 and FTA-93-DEP02).

**Pesticides.** Twenty-nine surface and depositional soil samples were analyzed for pesticides. A total of four pesticides (4,4'-dichlorodiphenyldichloroethane [DDD], 4,4'-dichlorodiphenyldichloroethene [DDE], 4,4'-dichlorodiphenyltrichloroethane [DDT], and endrin ketone) were detected in six of the samples. The pesticide concentrations ranged from 0.0029 to 0.092 mg/kg and were all below SSSLs. However, each of the detected compounds exceeded its respective ESV in one or more samples:

- 4,4'-DDD (0.0029 to 0.01 mg/kg) exceeded its ESV (0.0025 mg/kg) at five sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-DEP03, FTA-93-GP03, and FTA-93-GP26).
- 4,4'-DDE (0.0089 to 0.033 mg/kg) exceeded its ESV (0.0025 mg/kg) at four sample locations (FTA-93-DEP01, FTA-93-DEP02, FTA-93-DEP03, and FTA-93-GP03).
- 4,4'-DDT (0.011 to 0.092 mg/kg) exceeded its ESV (0.0025 mg/kg) at three sample locations (FTA-93-GP03, FTA-93-GP17, and FTA-93-GP26).
- Endrin ketone (0.023 mg/kg) exceeded its ESV (0.01 mg/kg) at one sample location (FTA-93-DEP02).

**Herbicides.** Twenty-nine surface and depositional soil samples were analyzed for herbicides. Herbicides were not detected in the samples.

**Polychlorinated Biphenyls.** Twenty-nine surface and depositional soil samples were analyzed for PCBs. PCB Aroclor 1254 was detected at one surface soil sample location (FTA-93-GP24). The Aroclor 1254 result was below its SSSL; however, the estimated concentration (0.11 mg/kg) exceeded its ESV (0.02 mg/kg).

**Cyanide.** Twenty-nine surface and depositional soil samples were analyzed for cyanide. Cyanide was not detected in the samples.

## **5.2 Subsurface Soil Analytical Results**

Twenty-six subsurface soil samples were collected for chemical analysis at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7). Subsurface soil samples were collected at depths greater than 1 foot bgs at the locations shown on Figure 3-2. Analytical results were compared to residential human health SSSLs and metals background concentrations, as presented in Table 5-2.

**Metals.** Nineteen metals were detected in subsurface soil samples collected at the site. The concentrations of five metals (aluminum, arsenic, chromium, iron, and manganese) exceeded SSSLs. Of these metals, only aluminum and iron also exceeded their respective background concentrations:

- Aluminum (14,200 to 20,400 mg/kg) exceeded its SSSL (7,803 mg/kg) and background (13,591 mg/kg) at seven sample locations.
- Iron (48,300 to 71,600 mg/kg) exceeded its SSSL (2,345 mg/kg) and background (44,817 mg/kg) at three sample locations (FTA-93-GP07, FTA-93-GP11, and FTA-93-GP16).

**Volatile Organic Compounds.** A total of seven VOCs (2-butanone, acetone, bromomethane, carbon disulfide, methylene chloride, naphthalene, and p-cymene) were detected in the subsurface soil samples. The detected concentrations ranged from 0.0014 to 0.076 mg/kg and were all below SSSLs.

**Semivolatile Organic Compounds.** A total of six SVOCs (acenaphthylene, benzo[a]pyrene, benzo[ghi]perylene, bis[2-ethylhexyl]phthalate, di-n-butyl phthalate, and indeno[1,2,3-cd]pyrene) were detected in the subsurface soil samples. The SVOC results ranged from 0.04 to 0.24 mg/kg and were all below SSSLs.

**Pesticides.** Six pesticides (4,4'-DDE, 4,4'-DDT, aldrin, beta-hexachlorocyclohexane [BHC], delta-BHC, and heptachlor) were detected at subsurface soil sample location FTA-93-GP01. Pesticides were not detected in any of the other subsurface soil samples. The pesticide concentrations ranged from 0.00081 to 0.0042 mg/kg and were all below SSSLs.

**Herbicides.** Herbicides were not detected in the subsurface soil samples.

**Polychlorinated Biphenyls.** PCBs were not detected in the subsurface soil samples.

**Cyanide.** Cyanide was not detected in the subsurface soil samples.

### **5.3 Groundwater Analytical Results**

A total of 25 groundwater samples were collected from 21 monitoring wells at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), at the locations shown on Figure 3-2. Analytical results were compared to residential human health SSSLs and metals background concentrations, as presented in Table 5-3.

**Metals.** Twenty groundwater samples were analyzed for metals. A total of 20 metals were detected in the samples. Fourteen metals (aluminum, arsenic, barium, beryllium, chromium, copper, iron, lead, manganese, nickel, selenium, thallium, vanadium, and zinc) were detected at concentrations exceeding SSSLs. Of these metals, the concentrations of aluminum, arsenic, barium, beryllium, copper, iron, lead, manganese, thallium, vanadium, and zinc also exceeded their respective background concentrations in one or more samples. Background concentrations for chromium, nickel, and selenium were not available in the background metals survey (SAIC, 1998).

The majority of metals that exceeded SSSLs and background concentrations were present in samples from three temporary wells (FTA-93-GP18, FTA-93-GP23, and FTA-93-GP26), including two DPT wells, that had high turbidity (greater than 1,000 NTUs) at the time of sample collection. To evaluate the effects of turbidity on metals concentrations in groundwater at FTMC, Shaw resampled five wells that previously had high turbidity using a lower flow purging and sampling technique to reduce turbidity to below 10 NTUs. The resampling effort demonstrated that the concentrations of most metals in the lower-turbidity samples were significantly lower (one to two orders of magnitude lower) than in the higher-turbidity samples (Appendix I) (IT, 2000c). Consequently, the elevated metals results in the groundwater samples

collected at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), are likely the result of high turbidity.

Excluding the three high-turbidity samples, the concentrations of five metals exceeded SSSLs and their respective background concentrations:

- Aluminum (4.49 to 7.49 milligrams per liter [mg/L]) exceeded its SSSL (1.56 mg/L) and background (2.34 mg/L) at three sample locations (FTA-93-GP10, FTA-93-GP21, and FTA-93-GP22).
- Barium (0.135 to 0.547 mg/L) exceeded its SSSL (0.110 mg/L) and background (0.128 mg/L) at seven sample locations.
- Iron (9.31 to 29.5 mg/L) exceeded its SSSL (0.47 mg/L) and background (7.04 mg/L) at six sample locations.
- Manganese (0.613 to 2.58 mg/L) exceeded its SSSL (0.074 mg/L) and background (0.581 mg/L) at nine sample locations.
- Thallium (0.0046 to 0.0053 mg/L) exceeded its SSSL (0.0001 mg/L) and background (0.0015 mg/L) at three sample locations (FTA-93-MW08, FTA-93-MW09, and FTA-93-MW10). Two of the results were flagged with a “J” data qualifier, signifying that the concentrations were estimated. The remaining result was flagged with a “B” data qualifier, signifying that thallium was also detected in an associated laboratory or field blank sample.

**Volatile Organic Compounds.** All of the groundwater samples were analyzed for VOCs. A total of 23 VOCs were detected in the samples. Three VOCs (1,1,2,2-tetrachloroethane, vinyl chloride, and acetone) were detected at concentrations exceeding SSSLs. Vinyl chloride (at FTA-93-GP10 and FTA-93-GP22) and 1,1,2,2-tetrachloroethane (at FTA-93-GP10) exceeded their respective SSSLs in the Phase I temporary wells. However, these compounds were not detected in the Phase II permanent wells, which were installed at the locations of the original wells.

During the supplemental SI (Phase II), acetone was detected at estimated concentrations (1.7 to 4.7 mg/L) exceeding its SSSL (0.156 mg/L) at five well locations (FTA-93-MW02, FTA-93-MW04, FTA-93-MW05, FTA-93-MW06, and FTA-93-MW07). Due to the elevated concentrations of acetone, a resample was collected from monitoring well FTA-93-MW05 in February 2002. The acetone concentration (5.7 mg/L) in the resample at FTA-93-MW05 also

exceeded its SSSL. All of the Phase II acetone results were flagged with a “J” data qualifier, signifying that the concentrations were estimated.

Because acetone was detected at high concentrations in the Phase II wells at Parcel 93(7) and in wells installed at other FTMC sites during the same time period, a Basewide acetone investigation was conducted in an attempt to determine if the well construction materials (e.g., bentonite pellets) were the source of the acetone. Three groundwater screening samples (sample nos. ACE3001, ACE3002, and ACE3003) were collected from monitoring well FTA-93-MW05 as part of the investigation. Acetone was detected in all three samples at concentrations (0.75 to 1 mg/L) exceeding its SSSL (0.156 mg/L).

Figure 5-1 shows the spatial distribution of acetone in groundwater at the site.

**Acetone (EPA Method 8315A).** One groundwater sample (from well FTA-93-MW12) was analyzed for acetone only by EPA Method 8315A. Acetone was not detected in the sample.

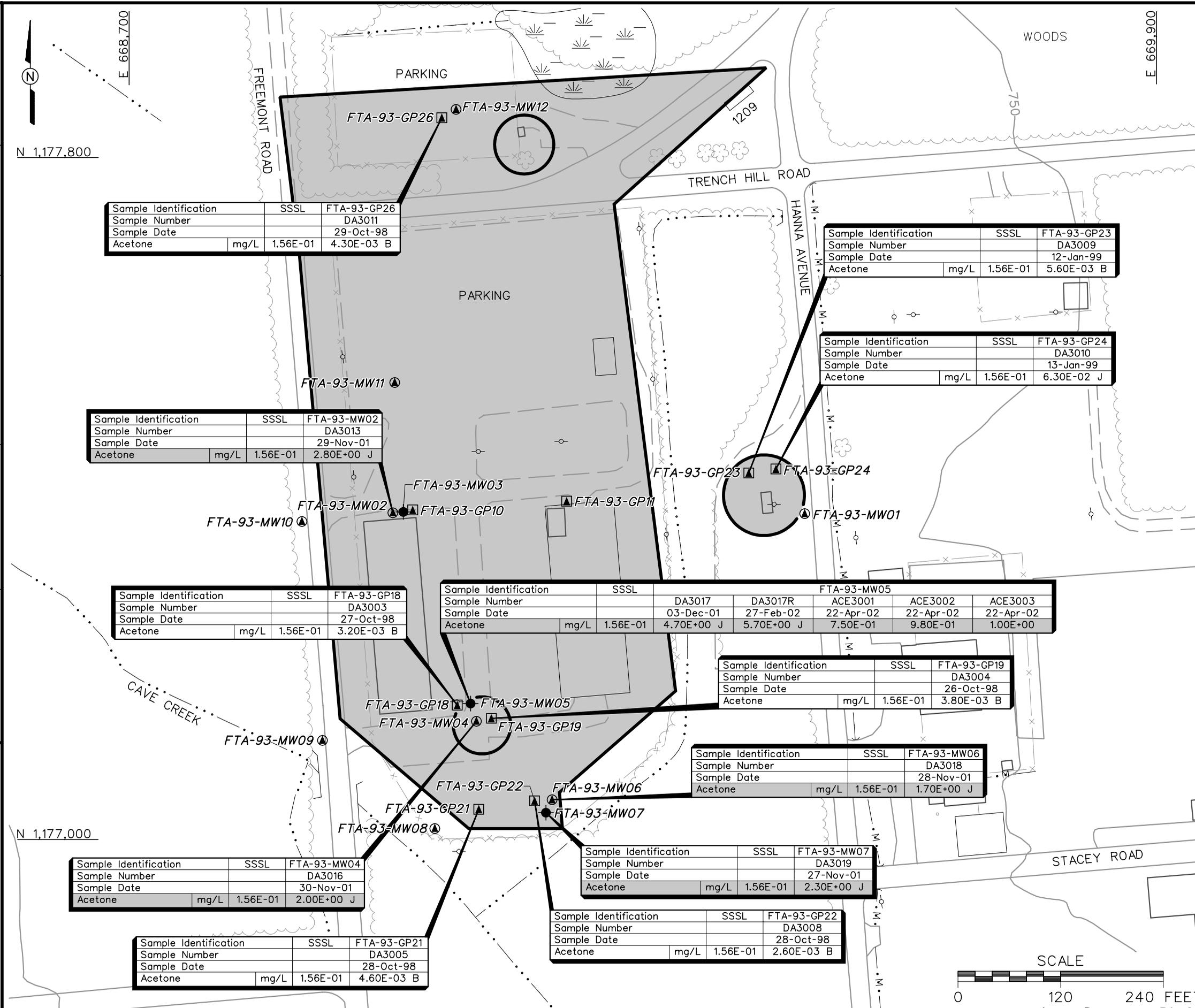
**Semivolatile Organic Compounds.** Nine groundwater samples collected during Phase I were analyzed for SVOCs. A total of six SVOCs (2,6-dinitrotoluene, 4-methylphenol, di-n-butyl phthalate, diethyl phthalate, phenol, and bis[2-ethylhexyl]phthalate) were detected in the samples. Only the concentration of 2,6-dinitrotoluene (0.0048 mg/L) exceeded its SSSL (0.00009 mg/L) at one sample location (FTA-93-GP18); however, the result was “J” flagged, signifying that the concentration was estimated. 2,6-Dinitrotoluene was not detected in either of the Phase II wells (FTA-93-MW04 and FTA-93-MW05) subsequently installed at the original location (FTA-93-GP18).

**Pesticides.** Nine groundwater samples collected during Phase I were analyzed for pesticides. Pesticides were not detected in the samples.

**Herbicides.** Nine groundwater samples collected during Phase I were analyzed for herbicides. One herbicide (2,2-dichloropropanoic acid) was detected at two sample locations (FTA-93-GP10 and FTA-93-GP11) at concentrations below its SSSL.

**Explosives.** Eleven groundwater samples were analyzed for explosives during Phase II of the SI. A total of four explosive compounds (2-nitrotoluene, p-nitrotoluene, 2,6-dinitrotoluene, and cyclotrimethylenetrinitramine [RDX]) were detected in the samples. However, only one compound (2,6-dinitrotoluene) was detected at a concentration (0.00038 mg/L) exceeding its

DWG. NO.: ...774645aa.023  
 PROJ. NO.: 774645  
 INITIATOR: L. O'HARE  
 PROJ. MGR.: J. YACOUB  
 DRAFT. CHK. BY:  
 ENGR. CHK. BY: S. MORAN  
 DATE LAST REV.:  
 DRAWN BY:  
 STARTING DATE: 05/06/02  
 DRAWN BY: D. BOWAR  
 12/10/2003  
 3:58:23 PM  
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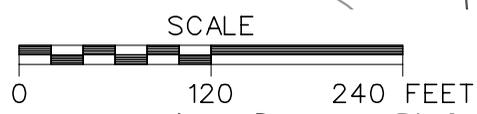


### LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 25 FOOT)
- TREES / TREELINE
- MARSH / WETLANDS
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- MANMADE SURFACE DRAINAGE FEATURE
- FENCE
- UTILITY POLE
- COMPOUND WAS POSITIVELY IDENTIFIED; REPORTED VALUE IS AN ESTIMATED CONCENTRATION
- ANALYTE DETECTED IN LABORATORY OR FIELD BLANK AT CONCENTRATION GREATER THAN THE REPORTING LIMIT
- SITE-SPECIFIC SCREENING LEVEL
- MILLIGRAMS PER LITER
- CONCENTRATION EXCEEDS SSSL
- BEDROCK MONITORING WELL AND GROUNDWATER SAMPLE LOCATION
- RESIDUUM MONITORING WELL AND GROUNDWATER SAMPLE LOCATION
- GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION

**FIGURE 5-1**  
**ACETONE DETECTED IN GROUNDWATER FORMER DECONTAMINATION COMPLEX PARCELS 93(7), 46(7), 70(7) AND 140(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



SSSL (0.00009 mg/L) at well location FTA-93-MW07. The analytical result was flagged with a “J” data qualifier, indicating that the concentration was estimated.

**Polychlorinated Biphenyls.** Nine groundwater samples collected during Phase I were analyzed for PCBs. PCBs were not detected in the samples.

**Cyanide.** Nine groundwater samples collected during Phase I were analyzed for cyanide. Cyanide was not detected in the samples.

#### **5.4 Surface Water Analytical Results**

Six surface water samples were collected for chemical analysis at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7), at the locations shown on Figure 3-2. Analytical results were compared to recreational site user human health SSSLs, ESVs, and metals background concentrations, as presented in Table 5-4. It should be noted that the assumptions for recreational site user and residential exposure to surface water are identical.

**Metals.** A total of 12 metals were detected in the surface water samples. The concentrations of four metals (arsenic, iron, manganese, and thallium) exceeded SSSLs. Of these metals, arsenic, manganese, and thallium concentrations exceeded their respective background concentrations:

- Arsenic (0.0032 mg/L) exceeded its SSSL (0.00073 mg/L) and background (0.0022 mg/L) at sample location FTA-93-SW/SD03; however, the result was “J” flagged, indicating that the concentration was estimated.
- Manganese (1.32 and 1.43 mg/L) exceeded its SSSL (0.64 mg/L) and background (0.56 mg/L) at two sample locations (FTA-93-SW/SD02 and FTA-93-SW/SD03).
- Thallium (0.0045 and 0.0041 mg/L) exceeded its SSSL (0.001 mg/L) and background (0.0025 mg/L) at two sample locations (FTA-93-SW/SD01 and FTA-93-SW/SD03). Both thallium results were flagged with a “B” qualifier, signifying that thallium was also detected in a laboratory or field blank sample.

The concentrations of six metals (aluminum, barium, iron, manganese, mercury, and thallium) exceeded ESVs. Of these metals, only manganese and thallium also exceeded their respective background concentrations:

- Manganese (1.32 and 1.43 mg/L) exceeded its ESV (0.08 mg/L) and background (0.56 mg/L) at two sample locations (FTA-93-SW/SD02 and FTA-93-SW/SD03).

- Thallium (0.0045 and 0.0041 mg/L) exceeded its ESV (0.004 mg/L) and background (0.0025 mg/L) at two sample locations (FTA-93-SW/SD01 and FTA-93-SW/SD03). Both thallium results were “B” flagged.

A background value was not available for mercury (0.000074 and 0.000057 mg/L), which exceeded its ESV (0.000012 mg/L) at two sample locations (FTA-93-SW/SD01 and FTA-93-SW/SD03).

**Volatile Organic Compounds.** A total of 11 VOCs (1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, acetone, bromodichloromethane, chloroform, cis-1,2-dichloroethene, dibromochloromethane, hexachlorobutadiene, methylene chloride, toluene, and trichloroethene) were detected in the surface water samples. The VOC concentrations in surface water were below SSSLs and ESVs.

**Semivolatile Organic Compounds.** A total of two SVOCs (phenol and bis[2-ethylhexyl]phthalate) were detected in the surface water samples. The SVOC results were below SSSLs; however, bis(2-ethylhexyl)phthalate (0.042 mg/L) exceeded its ESV (0.0003 mg/L) at sample location FTA-93-SW/SD06. Bis(2-ethylhexyl)phthalate is a common sample contaminant.

**Pesticides.** Pesticides were not detected in the surface water samples.

**Herbicides.** One herbicide (2,2-dichloropropanoic acid) was detected at one surface water sample location (FTA-93-SW/SD02) at a concentration below its SSSL. An ESV for 2,2-dichloropropanoic acid was not available.

**Polychlorinated Biphenyls.** PCBs were not detected in the surface water samples.

**Cyanide.** Cyanide was not detected in the surface water samples.

### **5.5 Sediment Analytical Results**

Six sediment samples were collected for chemical and physical analyses at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7). Sediment samples were collected from the uppermost 0.5 foot of sediment at the locations shown on Figure 3-2. Analytical results were compared to recreational site user human health SSSLs, ESVs, and

metals background concentrations, as presented in Table 5-5. It should be noted that the assumptions for recreational site user and residential exposure to sediment are identical.

**Metals.** A total of 20 metals were detected in the sediment samples. Of the detected metals, only arsenic exceeded its SSSL at sample location FTA-93-SW/SD04. The arsenic result (80.5 mg/kg) also exceeded its background value (11.3 mg/kg).

The following five metals were detected at concentrations exceeding their respective ESVs and background concentrations:

- Arsenic (16 and 80.5 mg/kg) exceeded its ESV (7.2 mg/kg) and background (11.3 mg/kg) at two sample locations (FTA-93-SW/SD03 and FTA-93-SW/SD04).
- Cadmium (1.6 mg/kg) exceeded its ESV (1 mg/kg) and background (0.4 mg/kg) at sample location FTA-93-SW/SD04.
- Copper (18.8 to 26.5 mg/kg) exceeded its ESV (18.7 mg/kg) and background (17.1 mg/kg) at three sample locations (FTA-93-SW/SD03, FTA-93-SW/SD04, and FTA-93-SW/SD05).
- Lead (38.3 to 64.3 mg/kg) exceeded its ESV (30.2 mg/kg) and background (37.8 mg/kg) at three sample locations (FTA-93-SW/SD02, FTA-93-SW/SD03, and FTA-93-SW/SD05).
- Zinc (124 mg/kg) equaled its ESV (124 mg/kg) and exceeded its background value (52.7 mg/kg) at sample location FTA-93-SW/SD04.

**Volatile Organic Compounds.** A total of nine VOCs (2-butanone, acetone, carbon disulfide, chloroethane, methylene chloride, p-cymene, toluene, trichloroethene, and trichlorofluoromethane) were detected in the sediment samples. The VOC concentrations ranged from 0.0036 to 0.45 mg/kg and were all below SSSLs; however, trichlorofluoromethane (0.004 mg/kg) exceeded its ESV (0.003 mg/kg) at sample location FTA-93-SW/SD01.

**Semivolatile Organic Compounds.** A total of 15 SVOCs, including thirteen PAHs, were detected in the sediment samples. The SVOC concentrations were below SSSLs. However, the following compounds exceeded their respective ESVs in one sample each:

- Acenaphthylene (0.37 mg/kg) exceeded its ESV (0.33 mg/kg) at sample location FTA-93-SW/SD02.

- Benzo(a)pyrene (0.41 mg/kg) exceeded its ESV (0.33 mg/kg) at sample location FTA-93-SW/SD02.
- Benzo(k)fluoranthene (0.7 mg/kg) exceeded its ESV (0.66 mg/kg) at sample location FTA-93-SW/SD02.
- Bis(2-ethylhexyl)phthalate (0.19 mg/kg) exceeded its ESV (0.18 mg/kg) at sample location FTA-93-SW/SD05.
- Di-n-butyl phthalate (0.53 mg/kg) exceeded its ESV (0.11 mg/kg) at sample location FTA-93-SW/SD04. The analytical result was flagged with a “B” data qualifier indicating that the compound was also detected in an associated laboratory or field blank sample.
- Pyrene (0.35 mg/kg) exceeded its ESV (0.33 mg/kg) at sample location FTA-93-SW/SD02.

**Pesticides.** A total of three pesticides (4,4'-DDD, 4,4'-DDE, and endrin) were detected in the sediment samples. The pesticide concentrations ranged from 0.0017 to 0.011 mg/kg and were all below SSSLs. However, the concentrations of 4,4'-DDD and 4,4'-DDE exceeded their respective ESVs as follows:

- 4,4'-DDD (0.0047 and 0.0048 mg/kg) exceeded its ESV (0.0033 mg/kg) at two sample locations (FTA-93-SW/SD02 and FTA-93-SW/SD04).
- 4,4'-DDE (0.004 to 0.011 mg/kg) exceeded its ESV (0.0033 mg/kg) at four sample locations (FTA-93-SW/SD02, FTA-93-SW/SD03, FTA-93-SW/SD04, and FTA-93-SW/SD05).

**Herbicides.** Herbicides were not detected in the sediment samples.

**Polychlorinated Biphenyls.** PCBs were not detected in the sediment samples.

**Cyanide.** Cyanide was not detected in the sediment samples.

**Total Organic Carbon.** The sediment samples were analyzed for TOC content. TOC concentrations ranged from 1,680 mg/kg to 40,400 mg/kg, as summarized in Appendix G.

**Grain Size.** The results of grain size analysis for the sediment samples are included in Appendix G.

## **5.6 Statistical and Geochemical Evaluations**

Site metals data were further evaluated using statistical and geochemical methods to determine if the metals are site-related (Appendix J). This multi-tiered approach is described in the technical memorandum “Selecting Site-Related Chemicals for Human Health and Ecological Risk Assessments for FTMC: Revision 2” (Shaw, 2003). The statistical and geochemical evaluations concluded that six metals (cadmium, chromium, copper, mercury, nickel, and zinc) in one or more of 11 surface and depositional soil samples and two metals (arsenic and selenium) in one sediment sample are anomalously high relative to background and may be indicative of contamination. The remaining metals detected in site media were determined to be present at naturally-occurring levels.

## **6.0 Summary, Conclusions, and Recommendations**

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Shaw completed an SI at the Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7) at FTMC in Calhoun County, Alabama. The SI was conducted to determine whether chemical constituents are present at the site as a result of mission-related Army activities. SI field activities consisted of a geophysical survey and the collection and analysis of 27 surface soil samples, 5 depositional soil samples, 26 subsurface soil samples, 25 groundwater samples, 6 surface water samples, and 6 sediment samples. In addition, 21 monitoring wells were installed to facilitate groundwater sample collection and to provide site-specific geological and hydrogeological characterization information.

The geophysical survey results indicated the presence of one anomaly potentially caused by a UST at Parcel 140(7). The anomaly was investigated in July 2000 using exploratory trenching and excavation; however, no UST was found. The anomaly at Parcel 140(7) was caused by reinforced concrete, piping, and backfill from previous tank removal activities.

Chemical analysis of samples collected at the site indicates that metals, VOCs, SVOCs, pesticides, explosives, one PCB, and one herbicide were detected in site media. To evaluate whether the detected constituents pose an unacceptable risk to human health or the environment, the analytical results were compared to human health SSSLs, ESVs, and background screening values for FTMC. Additionally, site metals data were evaluated using statistical and geochemical methods to determine if the metals were site related.

Although residential reuse is not planned, the analytical data were screened against residential human health SSSLs to determine if the site is suitable for unrestricted land reuse. Constituents detected in site media at concentrations exceeding SSSLs and background (where available) were selected as COPCs, as summarized in Table 6-1. With the exception of acetone in groundwater, these COPCs were determined not to pose a threat to human health based on the rationale provided in Table 6-1.

Only acetone in groundwater was retained as a COPC at the site. Acetone was detected at concentrations exceeding its SSSL in samples from five monitoring wells installed during Phase II of the SI. All of the wells with elevated acetone results are located in the southern portion of Parcel 93(7) (i.e., south of Trench Hill Road). An additional well installed north of Trench Hill Road (FTA-93-MW12) showed no detections of possible site-related VOCs,

Table 6-1

**Chemicals of Potential Concern  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

Medium	Analytical Parameter	COPC	Rationale for Exclusion as COPC
Surface Soil	Metals	Aluminum	Naturally occurring based on statistical/geochemical evaluation.
		Antimony	Naturally occurring based on statistical/geochemical evaluation.
		Arsenic	Naturally occurring based on statistical/geochemical evaluation.
		Chromium	Infrequently detected above SSSL and background. Exceeded SSSL and background in only 4 of 32 surface and depositional soil samples (12.5%). Phase II sampling confirmed that highest chromium detection was isolated hot spot. All other chromium results in site media were determined to be naturally occurring based on the statistical/geochemical evaluation.
		Iron	Naturally occurring based on statistical/geochemical evaluation.
		Manganese	Naturally occurring based on statistical/geochemical evaluation.
	PAHs	Benzo(a)anthracene	PAHs exceeded SSSLs and background primarily in four samples collected near asphalt pavement present at the site. It is likely that the asphalt was the source of the PAHs rather than historical mission-related activities.
		Benzo(a)pyrene	
		Benzo(b)fluoranthene	
		Benzo(k)fluoranthene	
		Dibenz(a,h)anthracene	
		Indeno(1,2,3-cd)pyrene	
Subsurface Soil	Metals	Aluminum	Naturally occurring based on statistical/geochemical evaluation.
		Iron	
Groundwater	Metals	Several metals	Naturally occurring based on statistical/geochemical evaluation.
	VOCs	Acetone	NA
		Vinyl Chloride	Not detected in Phase II wells.
		1,1,2,2-Tetrachloroethane	Not detected in Phase II wells.
	SVOC	2,6-dinitrotoluene	Not detected in Phase II wells installed at original location.
Explosive	2,6-dinitrotoluene	Detected in only 1 of 11 Phase II wells. Low estimated concentration (0.00038 mg/L) above SSSL (0.000098 mg/L).	
Surface Water	Metals	Arsenic	Naturally occurring based on statistical/geochemical evaluation.
		Manganese	Naturally occurring based on statistical/geochemical evaluation.
Sediment	Metals	Arsenic	Infrequently detected above SSSL and background. Exceeded SSSL and background in only 1 of 6 sediment samples. All other arsenic results in site media were determined to be naturally occurring based on statistical/geochemical evaluation.

COPC - Chemical of potential concern.  
mg/L - Milligrams per liter.  
NA - Not applicable.  
PAH - Polynuclear aromatic hydrocarbon.

SSSL - Site-specific screening level.  
SVOC - Semivolatile organic compound.  
VOC - Volatile organic compound.

including acetone. Although acetone is a common laboratory sample contaminant, it could not be concluded whether its presence in site samples was attributable to laboratory contamination. A second potential source of acetone is the bentonite pellets used in monitoring well construction. However, evaluation of this potential contamination source was inconclusive. A review of site history did not indicate that acetone was ever used at the site. Therefore, acetone's status as a site-related chemical remains undetermined.

Constituents exceeding ESVs and background (where available) were identified as constituents of potential ecological concern, as summarized in Table 6-2. However, these constituents of potential ecological concern were determined not to pose a threat to ecological receptors based on the rationale provided in Table 6-2. Furthermore, the site is located within the developed area of the FTMC Main Post and is largely covered with asphalt pavement and buildings/foundations. The entire portion of Parcel 93(7) south of Trench Hill Road is fenced and is projected for continued use as a military training area by the Alabama Army National Guard. The area north of Trench Hill Road (including Parcel 140[7]) will be transferred to the Joint Power Authority.

Based on the results of the SI, Shaw recommends "No Further Action" and unrestricted land reuse with regard to CERCLA-related hazardous substances for the portion of Parcel 93(7) located north of Trench Hill Road (including Parcel 140[7]). For the remainder of Parcel 93(7) located south of Trench Hill Road, Shaw recommends further investigation to determine the source of acetone in groundwater at the Former Decontamination Complex, Parcels 93(7), 46(7), and 70(7).

Table 6-2

**Constituents of Potential Ecological Concern  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 2)

Sample Medium	Analytical Parameter	COPEC	Rationale for Exclusion as COPEC
Surface Soil	Metals	Aluminum	Naturally occurring based on statistical/geochemical evaluation.
		Antimony	Naturally occurring based on statistical/geochemical evaluation.
		Arsenic	Naturally occurring based on statistical/geochemical evaluation.
		Barium	Naturally occurring based on statistical/geochemical evaluation.
		Cadmium	Infrequently detected above screening values; results (2.7 and 4 mg/kg) exceeded ESV (1.6 mg/kg) and background (0.29 mg/kg) in only 2 of 32 samples (6.3%).
		Chromium	Infrequently detected above screening values; results (40-151 mg/kg) exceeded ESV (0.4 mg/kg) and background (23.2 mg/kg) in only 4 of 32 samples (12.5%). Phase II sampling confirmed that highest chromium detection was isolated hot spot.
		Copper	Infrequently detected above screening values; result (59.5 mg/kg) exceeded ESV (40 mg/kg) and background (12.7 mg/kg) in only 1 of 32 samples (6.3%).
		Iron	Naturally occurring based on statistical/geochemical evaluation.
		Lead	Naturally occurring based on statistical/geochemical evaluation.
		Manganese	Naturally occurring based on statistical/geochemical evaluation.
		Mercury	Infrequently detected above screening values; results (0.11 - 0.25 mg/kg) exceeded ESV (0.1 mg/kg) and background (0.08 mg/kg) in only 3 of 32 samples (9.4%). Geochemical evaluation determined that only one of the results (0.25 mg/kg) was anomalously high relative to background.
		Nickel	Infrequently detected above screening values; result (66.2 mg/kg) exceeded ESV (30 mg/kg) and background (10.3 mg/kg) in only 1 of 32 samples (6.3%).
		Selenium	Naturally occurring based on statistical/geochemical evaluation.
	Zinc	Exceeded ESV and background in 12 of 32 samples. Geochemical evaluation concluded that zinc concentrations were anomalously high relative to background in only 4 of 32 samples (12.5%).	
	VOCs	Acetone	Infrequently detected above ESV; results (2.8 and 3.8 mg/kg) marginally exceeded ESV (2.5 mg/kg) in only 2 of 29 samples analyzed for VOCs (6.8%).
		m,p-xylenes	Infrequently detected above ESV; result (0.12 mg/kg) exceeded ESV (0.05 mg/kg) in only 1 of 29 surface and depositional soil samples analyzed for VOCs (3.4%).
	SVOCs	Anthracene	PAHs exceeded ESVs and background primarily in two samples collected near asphalt pavement present at the site. It is likely that the asphalt was the source of the PAHs rather than historical mission-related activities.
Benzo(a)anthracene			
Benzo(a)pyrene			
Chrysene			
Fluoranthene			
Phenanthrene			
Pyrene			
Total PAHs			
Phenol	Infrequently detected above ESV; estimated results (0.097 and 0.1 mg/kg) marginally exceeded ESV (0.05 mg/kg) in only 2 of 29 samples analyzed for SVOCs (6.8%).		

Table 6-2

**Constituents of Potential Ecological Concern  
Former Decontamination Complex, Parcels 93(7), 46(7), 70(7), and 140(7)  
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

Sample Medium	Analytical Parameter	COPEC	Rationale for Exclusion as COPEC
Surface Soil (continued)	Pesticides	4,4'-DDD	Infrequently detected above ESV; results (0.0029 - 0.01 mg/kg) marginally exceeded ESV (0.0025 mg/kg) in only 5 of 29 samples analyzed for pesticides (17.2%).
		4,4'-DDE	Infrequently detected above ESV; results (0.0089 - 0.033 mg/kg) marginally exceeded ESV (0.0025 mg/kg) in only 4 of 29 samples analyzed for pesticides (13.8%).
		4,4'-DDT	Infrequently detected above ESV; results (0.011 - 0.092 mg/kg) exceeded ESV (0.0025 mg/kg) in only 3 of 29 samples analyzed for pesticides (10.3%).
		Endrin ketone	Infrequently detected above ESV; result (0.023 mg/kg) marginally exceeded ESV (0.01 mg/kg) in only 1 of 29 samples analyzed for pesticides (3.4%).
	PCB	Aroclor 1254	Infrequently detected above ESV; estimated result (0.11 mg/kg) exceeded ESV (0.02 mg/kg) in only 1 of 29 samples analyzed for PCBs (3.4%).
Surface Water	Metals	Manganese	Naturally occurring based on statistical/geochemical evaluation.
		Mercury	Naturally occurring based on statistical/geochemical evaluation.
	SVOC	Bis(2-ethylhexyl)phthalate	Common sample contaminant; not site related. Result (0.042 mg/L) exceeded ESV (0.0003 mg/L) in only 1 of 6 samples.
Sediment	Metals	Arsenic	Infrequently detected above ESV and background. Geochemical evaluation determined that one arsenic result (80.5 mg/kg) was anomalously high relative to background (11.3 mg/kg); all other arsenic results in sediment and the other site media were determined to be naturally occurring.
		Cadmium	Naturally occurring based on statistical/geochemical evaluation.
		Copper	Naturally occurring based on statistical/geochemical evaluation.
		Lead	Naturally occurring based on statistical/geochemical evaluation.
		Zinc	Naturally occurring based on statistical/geochemical evaluation.
	VOC	Trichlorofluoromethane	Result (0.004 mg/kg) marginally exceeded ESV (0.003 mg/kg) in only 1 of 6 samples.
	SVOCs	Acenaphthalene	PAH compound attributed to the presence of asphalt pavement.
		Benzo(a)pyrene	PAH compound attributed to the presence of asphalt pavement.
		Benzo(k)fluoranthene	PAH compound attributed to the presence of asphalt pavement.
		Bis(2-ethylhexyl)phthalate	Common sample contaminant; not site related. Result (0.19 mg/kg) marginally exceeded ESV (0.18 mg/kg) in only 1 of 6 samples.
		Pyrene	PAH compound attributed to the presence of asphalt pavement.
		Total PAHs	PAH compounds attributed to the presence of asphalt pavement.
	Pesticides	4,4'-DDD	Results (0.0047 and 0.0048 mg/kg) marginally exceeded ESV (0.0033 mg/kg) in only 2 of 6 samples.
4,4'-DDE		Results (0.004 - 0.011 mg/kg) marginally exceeded ESV (0.0033 mg/kg) in 4 of 6 samples.	

COPEC - Constituent of potential ecological concern.  
ESV - Ecological screening value.  
mg/kg - Milligrams per kilogram.  
mg/L - Milligrams per liter.

NA - Not applicable.  
PAH - Polynuclear aromatic hydrocarbon.  
SVOC - Semivolatile organic compound.  
VOC - Volatile organic compound.

## 7.0 References

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- American Society for Testing and Materials (ASTM), 2000, ***Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)***, ASTM D 2488-00.
- Cloud, P. E., Jr., 1966, ***Bauxite Deposits of the Anniston, Fort Payne, and Ashville Areas, Northeast Alabama***, U. S. Geological Survey Bulletin 1199-O, 35p.
- CH2M Hill, Inc. (CH2M Hill), 1994, ***Storm Water Pollution Prevention Plan***, Prepared for Fort McClellan, Alabama. Montgomery, Alabama, SRE70244.FP.MC
- Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.
- Hunt, Roy E., 1986, ***Geotechnical Engineering Techniques and Practices***, McGraw-Hill Book Company, New York, New York.
- IT Corporation (IT), 2002, ***Draft Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, Revision 3, February.
- IT Corporation (IT), 2001a, ***Final Supplemental Site Investigation Site-Specific Field Sampling Plan Addendum and Site-Specific Safety and Health Plan Attachment, Former Decontamination Complex, Parcels 93(7), 46(7), and 70(7), Fort McClellan, Calhoun County, Alabama***, September.
- IT Corporation (IT), 2001b, ***Final Underground Storage Tank Removal Closure Reports, Fort McClellan, Calhoun County, Alabama***, November.
- IT Corporation (IT), 2000a, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, March.
- IT Corporation (IT), 2000b, ***Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama***, July.
- IT Corporation (IT), 2000c, Letter to Ellis Pope (USACE) from Jeanne Yacoub (IT), "Groundwater Resampling Results," August 7.
- IT Corporation (IT), 1998a, ***Final Site-Specific Field Sampling Plan and Site-Specific Safety and Health Plan Attachments, Former Decontamination Complex (Parcels 93, 46, 140, and 70), Former Motor Pool Area 1300 (Parcels 148 and 16), Former Motor Pool Area 600 (Parcels 149 and 136), Motor Pool Area 800 (Parcels 164, 11, 68, and 12), and Former Gas Mask Test Chambers (Parcels 195, 196, and 198), Fort McClellan, Calhoun County, Alabama***, October.
- IT Corporation (IT), 1998b, ***Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama***, August.

Moser, P. H., and S.S. DeJarnette, 1992, ***Ground-water Availability in Calhoun County, Alabama***, Geological Survey of Alabama Special Map 228.

Osborne, W. E., 1999, personal communication with John Hofer, IT Corporation.

Osborne, W. E., M. W. Szabo, T. L. Neathery, and C. W. Copeland, compilers, 1988, ***Geologic Map of Alabama, Northeast Sheet***, Geological Survey of Alabama Special Map 220, Scale 1:250,000.

Osborne, W. E., and M.W. Szabo, 1984, ***Stratigraphy and Structure of the Jacksonville Fault, Calhoun County, Alabama***, Alabama Geological Survey Circular 117.

Osborne, W. E., G. D. Irving, and W. E. Ward, 1997, ***Geologic Map of the Anniston 7.5' Quadrangle, Calhoun County, Alabama***, Alabama Geologic Survey Preliminary Map, 1 sheet.

Osborne, W. E., M. W. Szabo, C. W. Copeland, Jr., and T. L. Neathery, 1989, ***Geologic Map of Alabama***, Alabama Geologic Survey Special Map 221, scale 1:500,000, 1 sheet.

Raymond, D. E., W. E. Osborne, C. W. Copeland, and T. L. Neathery, 1988, ***Alabama Stratigraphy***, Geological Survey of Alabama, Tuscaloosa, Alabama.

Science Applications International Corporation (SAIC), 1998, ***Final Background Metals Survey Report, Fort McClellan, Alabama***, July.

Shaw Environmental, Inc. (Shaw), 2003, "Selecting Site-Related Chemicals for Human Health and Ecological Risk Assessments for FTMC: Revision 2," technical memorandum dated June 24.

Thomas, W. A., and J. A. Drahovzal, 1974, ***The Coosa Deformed Belt in the Alabama Appalachians***, Alabama Geological Society, 12<sup>th</sup> Annual Field Trip Guidebook 98 p.

Thomas, W. A., and T. L. Neathery, 1982, ***Appalachian Thrust Belts in Alabama: Tectonics and Sedimentation***, Geologic Society of America 1982 Annual Meeting, New Orleans, Louisiana, Field Trip, Alabama Geological Society Guidebook 19A.

U.S. Army Corps of Engineers (USACE), 2001, ***Requirements for the Preparation of Sampling and Analysis Plans***, Engineer Manual EM 200-1-3, February.

U.S. Department of Agriculture, 1961, ***Soil Survey, Calhoun County, Alabama***, Soil Conservation Service, Series 1958, No. 9, September.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), 1998, Unedited Local Climatological Data, Anniston, Alabama, January 1998 - December 1998.

Warman, J. C., and L. V. Causey, 1962, ***Geology and Ground-water Resources of Calhoun County, Alabama***, Alabama Geological Survey County Report 7, 77 p.

**ATTACHMENT 1**  
**LIST OF ABBREVIATIONS AND ACRONYMS**

## List of Abbreviations and Acronyms

2,4-D	2,4-dichlorophenoxyacetic acid	AUF	area use factor	CESAS	Corps of Engineers South Atlantic Savannah
2,4,5-T	2,4,5-trichlorophenoxyacetic acid	AWARE	Associated Water and Air Resources Engineers, Inc.	CF	conversion factor
2,4,5-TP	2,4,5-trichlorophenoxypropionic acid	AWQC	ambient water quality criteria	CFC	chlorofluorocarbon
3D	3D International Environmental Group	AWWSB	Anniston Water Works and Sewer Board	CFDP	Center for Domestic Preparedness
AB	ambient blank	'B'	Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero)	CFR	Code of Federal Regulations
AbB3	Anniston gravelly clay loam, 2 to 6 percent slopes, severely eroded	BCF	blank correction factor; bioconcentration factor	CG	phosgene (carbonyl chloride)
AbC3	Anniston gravelly clay loam, 6 to 10 percent slopes, severely eroded	BCT	BRAC Cleanup Team	CGI	combustible gas indicator
AbD3	Anniston and Allen gravelly clay loams, 10 to 15 percent slopes, eroded	BERA	baseline ecological risk assessment	ch	inorganic clays of high plasticity
Abs	skin absorption	BEHP	bis(2-ethylhexyl)phthalate	CHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
ABS	dermal absorption factor	BFB	bromofluorobenzene	CIH	Certified Industrial Hygienist
AC	hydrogen cyanide	BFE	base flood elevation	CK	cyanogen chloride
ACAD	AutoCadd	BG	Bacillus globigii	cl	inorganic clays of low to medium plasticity
AcB2	Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded	BGR	Bains Gap Road	Cl	chlorinated
AcC2	Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded	bgs	below ground surface	CLP	Contract Laboratory Program
AcD2	Anniston and Allen gravelly loams, 10 to 15 percent slopes, eroded	BHC	hexachlorocyclohexane	cm	centimeter
AcE2	Anniston and Allen gravelly loams, 15 to 25 percent slopes, eroded	BHHRA	baseline human health risk assessment	CN	chloroacetophenone
ACGIH	American Conference of Governmental Industrial Hygienists	BIRTC	Branch Immaterial Replacement Training Center	CNB	chloroacetophenone, benzene, and carbon tetrachloride
AdE	Anniston and Allen stony loam, 10 to 25 percent slope	bkg	background	CNS	chloroacetophenone, chloropicrin, and chloroform
ADEM	Alabama Department of Environmental Management	bls	below land surface	CO	carbon monoxide
ADPH	Alabama Department of Public Health	BOD	biological oxygen demand	CO <sub>2</sub>	carbon dioxide
AEC	U.S. Army Environmental Center	Bp	soil-to-plant biotransfer factors	Co-60	cobalt-60
AEDA	ammunition, explosives, and other dangerous articles	BRAC	Base Realignment and Closure	CoA	Code of Alabama
AEL	airborne exposure limit	Braun	Braun Intertec Corporation	COC	chain of custody; chemical of concern
AET	adverse effect threshold	BSAF	biota-to-sediment accumulation factors	COE	Corps of Engineers
AF	soil-to-skin adherence factor	BSC	background screening criterion	Con	skin or eye contact
AHA	ammunition holding area	BTAG	Biological Technical Assistance Group	COPC	chemical of potential concern
AL	Alabama	BTEX	benzene, toluene, ethyl benzene, and xylenes	COPEC	constituent of potential ecological concern
ALARNG	Alabama Army National Guard	BTOC	below top of casing	CPSS	chemicals present in site samples
ALAD	δ-aminolevulinic acid dehydratase	BTV	background threshold value	CQCSM	Contract Quality Control System Manager
ALDOT	Alabama Department of Transportation	BW	biological warfare; body weight	CRDL	contract-required detection limit
amb.	amber	BZ	breathing zone; 3-quinuclidinyl benzilate	CRL	certified reporting limit
amsl	above mean sea level	C	ceiling limit value	CRQL	contract-required quantitation limit
ANAD	Anniston Army Depot	Ca	carcinogen	CRZ	contamination reduction zone
AOC	area of concern	CaCO <sub>3</sub>	calcium carbonate	Cs-137	cesium-137
AP	armor piercing	CAA	Clean Air Act	CS	ortho-chlorobenzylidene-malononitrile
APEC	areas of potential ecological concern	CAB	chemical warfare agent breakdown products	CSEM	conceptual site exposure model
APT	armor-piercing tracer	CACM	Chemical Agent Contaminated Media	CSM	conceptual site model
AR	analysis request	CAMU	corrective action management unit	CT	central tendency
ARAR	applicable or relevant and appropriate requirement	CBR	chemical, biological, and radiological	ctr.	container
AREE	area requiring environmental evaluation	CCAL	continuing calibration	CWA	chemical warfare agent; Clean Water Act
AS/SVE	air sparging/soil vapor extraction	CCB	continuing calibration blank	CWM	chemical warfare material; clear, wide mouth
ASP	Ammunition Supply Point	CCV	continuing calibration verification	CX	dichloroformoxime
ASR	Archives Search Report	CD	compact disc	'D'	duplicate; dilution
AST	aboveground storage tank	CDTF	Chemical Defense Training Facility	D&I	detection and identification
ASTM	American Society for Testing and Materials	CEHNC	U.S. Army Engineering and Support Center, Huntsville	DAAMS	depot area agent monitoring station
AT	averaging time	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	DAF	dilution-attenuation factor
ATSDR	Agency for Toxic Substances and Disease Registry	CERFA	Community Environmental Response Facilitation Act	DANC	decontamination agent, non-corrosive
ATV	all-terrain vehicle			°C	degrees Celsius

## List of Abbreviations and Acronyms (Continued)

°F	degrees Fahrenheit	EPIC	Environmental Photographic Interpretation Center	$g/m^3$	gram per cubic meter
DCA	dichloroethane	EPRI	Electrical Power Research Institute	G-856	Geometrics, Inc. G-856 magnetometer
DCE	dichloroethene	ER	equipment rinsate	G-858G	Geometrics, Inc. G-858G magnetic gradiometer
DDD	dichlorodiphenyldichloroethane	ERA	ecological risk assessment	GAF	gastrointestinal absorption factor
DDE	dichlorodiphenyldichloroethene	ER-L	effects range-low	gal	gallon
DDT	dichlorodiphenyltrichloroethane	ER-M	effects range-medium	gal/min	gallons per minute
DEH	Directorate of Engineering and Housing	ESE	Environmental Science and Engineering, Inc.	GB	sarin (isopropyl methylphosphonofluoridate)
DEP	depositional soil	ESMP	Endangered Species Management Plan	gc	clay gravels; gravel-sand-clay mixtures
DFTPP	decafluorotriphenylphosphine	ESN	Environmental Services Network, Inc.	GC	gas chromatograph
DI	deionized	ESV	ecological screening value	GCL	geosynthetic clay liner
DID	data item description	ET	exposure time	GC/MS	gas chromatograph/mass spectrometer
DIMP	di-isopropylmethylphosphonate	EU	exposure unit	GCR	geosynthetic clay liner
DM	dry matter; adamsite	Exp.	explosives	GFAA	graphite furnace atomic absorption
DMBA	dimethylbenz(a)anthracene	E-W	east to west	GIS	Geographic Information System
DMMP	dimethylmethylphosphonate	EZ	exclusion zone	gm	silty gravels; gravel-sand-silt mixtures
DO	dissolved oxygen	FAR	Federal Acquisition Regulations	gp	poorly graded gravels; gravel-sand mixtures
DOD	U.S. Department of Defense	FB	field blank	gpm	gallons per minute
DOJ	U.S. Department of Justice	FD	field duplicate	GPR	ground-penetrating radar
DOT	U.S. Department of Transportation	FDC	Former Decontamination Complex	GPS	global positioning system
DP	direct-push	FDA	U.S. Food and Drug Administration	GRA	general response action
DPDO	Defense Property Disposal Office	Fe <sup>+3</sup>	ferric iron	GS	ground scar
DPT	direct-push technology	Fe <sup>+2</sup>	ferrous iron	GSA	General Services Administration; Geologic Survey of Alabama
DQO	data quality objective	FedEx	Federal Express, Inc.	GSBP	Ground Scar Boiler Plant
DRMO	Defense Reutilization and Marketing Office	FEMA	Federal Emergency Management Agency	GSSI	Geophysical Survey Systems, Inc.
DRO	diesel range organics	FFCA	Federal Facilities Compliance Act	GST	ground stain
DS	deep (subsurface) soil	FFE	field flame expedient	GW	groundwater
DS2	Decontamination Solution Number 2	FFS	focused feasibility study	gw	well-graded gravels; gravel-sand mixtures
DSERTS	Defense Site Environmental Restoration Tracking System	FI	fraction of exposure	H&S	health and safety
DWEL	drinking water equivalent level	Fil	filtered	HA	hand auger
E&E	Ecology and Environment, Inc.	Flt	filtered	HC	mixture of hexachloroethane, aluminum powder, and zinc oxide (smoke producer)
EB	equipment blank	FMDC	Fort McClellan Development Commission	HCl	hydrochloric acid
EBS	environmental baseline survey	FML	flexible membrane liner	HD	distilled mustard (bis-[dichloroethyl]sulfide)
EC <sub>50</sub>	effects concentration for 50 percent of a population	f <sub>oc</sub>	fraction organic carbon	HDPE	high-density polyethylene
ECBC	Edgewood Chemical Biological Center	FOMRA	Former Ordnance Motor Repair Area	HE	high explosive
ED	exposure duration	FOST	Finding of Suitability to Transfer	HEAST	Health Effects Assessment Summary Tables
EDD	electronic data deliverable	Foster Wheeler	Foster Wheeler Environmental Corporation	Herb.	herbicides
EF	exposure frequency	FR	Federal Register	HHRA	human health risk assessment
EDQL	ecological data quality level	Frtn	fraction	HI	hazard index
EE/CA	engineering evaluation and cost analysis	FS	field split; feasibility study	H <sub>2</sub> O <sub>2</sub>	hydrogen peroxide
Elev.	elevation	FSP	field sampling plan	HPLC	high-performance liquid chromatography
EM	electromagnetic	ft	feet	HNO <sub>3</sub>	nitric acid
EMI	Environmental Management Inc.	ft/day	feet per day	HQ	hazard quotient
EM31	Geonics Limited EM31 Terrain Conductivity Meter	ft/ft	feet per foot	HQ <sub>screen</sub>	screening-level hazard quotient
EM61	Geonics Limited EM61 High-Resolution Metal Detector	ft/yr	feet per year	hr	hour
EOD	explosive ordnance disposal	FTA	Fire Training Area	HRC	hydrogen releasing compound
EODT	explosive ordnance disposal team	FTMC	Fort McClellan	HSA	hollow-stem auger
EPA	U.S. Environmental Protection Agency	FTRRA	FTMC Reuse & Redevelopment Authority	HTRW	hazardous, toxic, and radioactive waste
EPC	exposure point concentration	g	gram	'I'	out of control, data rejected due to low recovery

## List of Abbreviations and Acronyms (Continued)

IASPOW	Impact Area South of POW Training Facility	LC	liquid chromatography	MPA	methyl phosphonic acid
IATA	International Air Transport Authority	LCS	laboratory control sample	MPM	most probable munition
ICAL	initial calibration	LC <sub>50</sub>	lethal concentration for 50 percent population tested	MQL	method quantitation limit
ICB	initial calibration blank	LD <sub>50</sub>	lethal dose for 50 percent population tested	MR	molasses residue
ICP	inductively-coupled plasma	LEL	lower explosive limit	MRL	method reporting limit
ICRP	International Commission on Radiological Protection	LOAEL	lowest-observed-adverse-effects-level	MS	matrix spike
ICS	interference check sample	LRA	land redevelopment authority	mS/cm	millisiemens per centimeter
ID	inside diameter	LT	less than the certified reporting limit	mS/m	millisiemens per meter
IDL	instrument detection limit	LUC	land-use control	MSD	matrix spike duplicate
IDLH	immediately dangerous to life or health	LUCAP	land-use control assurance plan	MTBE	methyl tertiary butyl ether
IDM	investigative-derived media	LUCIP	land-use control implementation plan	msl	mean sea level
IDW	investigation-derived waste	max	maximum	MtD3	Montevallo shaly, silty clay loam, 10 to 40 percent slopes, severely eroded
IEUBK	Integrated Exposure Uptake Biokinetic	MB	method blank	mV	millivolts
IF	ingestion factor; inhalation factor	MCL	maximum contaminant level	MW	monitoring well
ILCR	incremental lifetime cancer risk	MCLG	maximum contaminant level goal	MWI&MP	Monitoring Well Installation and Management Plan
IMPA	isopropylmethyl phosphonic acid	MCPA	4-chloro-2-methylphenoxyacetic acid	Na	sodium
IMR	Iron Mountain Road	MCPP	2-(2-methyl-4-chlorophenoxy)propionic acid	NA	not applicable; not available
in.	inch	MCS	media cleanup standard	NAD	North American Datum
Ing	ingestion	MD	matrix duplicate	NAD83	North American Datum of 1983
Inh	inhalation	MDC	maximum detected concentration	NaMnO <sub>4</sub>	sodium permanganate
IP	ionization potential	MDCC	maximum detected constituent concentration	NAVD88	North American Vertical Datum of 1988
IPS	International Pipe Standard	MDL	method detection limit	NAS	National Academy of Sciences
IR	ingestion rate	mg	milligrams	NCEA	National Center for Environmental Assessment
IRDMIS	Installation Restoration Data Management Information System	mg/kg	milligrams per kilogram	NCP	National Contingency Plan
IRIS	Integrated Risk Information Service	mg/kg/day	milligram per kilogram per day	NCRP	National Council on Radiation Protection and Measurements
IRP	Installation Restoration Program	mg/kgbw/day	milligrams per kilogram of body weight per day	ND	not detected
IS	internal standard	mg/L	milligrams per liter	NE	no evidence; northeast
ISCP	Installation Spill Contingency Plan	mg/m <sup>3</sup>	milligrams per cubic meter	ne	not evaluated
IT	IT Corporation	mh	inorganic silts, micaceous or diatomaceous fine, sandy or silt soils	NEW	net explosive weight
ITEMS	IT Environmental Management System™	MHz	megahertz	NFA	No Further Action
'J'	estimated concentration	µg/g	micrograms per gram	NG	National Guard
JeB2	Jefferson gravelly fine sandy loam, 2 to 6 percent slopes, eroded	µg/kg	micrograms per kilogram	NGP	National Guardsperson
JeC2	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded	µg/L	micrograms per liter	ng/L	nanograms per liter
JfB	Jefferson stony fine sandy loam, 0 to 10 percent slopes have strong slopes	µmhos/cm	micromhos per centimeter	NGVD	National Geodetic Vertical Datum
JPA	Joint Powers Authority	MeV	mega electron volt	Ni	nickel
K	conductivity	min	minimum	NIC	notice of intended change
K <sub>d</sub>	soil-water distribution coefficient	MINICAMS	miniature continuous air monitoring system	NIOSH	National Institute for Occupational Safety and Health
kg	kilogram	ml	inorganic silts and very fine sands	NIST	National Institute of Standards and Technology
KeV	kilo electron volt	mL	milliliter	NLM	National Library of Medicine
K <sub>oc</sub>	organic carbon partitioning coefficient	mm	millimeter	NO <sub>3</sub> <sup>-</sup>	nitrate
K <sub>ow</sub>	octonal-water partition coefficient	MM	mounded material	NPDES	National Pollutant Discharge Elimination System
KMnO <sub>4</sub>	potassium permanganate	MMBtu/hr	million Btu per hour	NPW	net present worth
L	liter; Lewisite (dichloro-[2-chloroethyl]sulfide)	MNA	monitored natural attenuation	No.	number
L/kg/day	liters per kilogram per day	MnO <sub>4</sub> <sup>-</sup>	permanganate ion	NOAA	National Oceanic and Atmospheric Administration
l	liter	MOA	Memorandum of Agreement	NOAEL	no-observed-adverse-effects-level
LAW	light anti-tank weapon	MOGAS	motor vehicle gasoline	NR	not requested; not recorded; no risk
lb	pound	MOUT	Military Operations in Urban Terrain	NRC	National Research Council
LBP	lead-based paint	MP	Military Police	NRCC	National Research Council of Canada

## List of Abbreviations and Acronyms (Continued)

NRHP	National Register of Historic Places	PFT	portable flamethrower	RI	remedial investigation
NRT	near real time	PG	professional geologist	RL	reporting limit
ns	nanosecond	PID	photoionization detector	RME	reasonable maximum exposure
N-S	north to south	PkA	Philo and Stendal soils local alluvium, 0 to 2 percent slopes	ROD	Record of Decision
NS	not surveyed	PM	project manager	RPD	relative percent difference
NSA	New South Associates, Inc.	POC	point of contact	RR	Range residue
nT	nanotesla	POL	petroleum, oils, and lubricants	RRF	relative response factor
nT/m	nanoteslas per meter	POTW	publicly owned treatment works	RSD	relative standard deviation
NTU	nephelometric turbidity unit	POW	prisoner of war	RTC	Recruiting Training Center
nv	not validated	PP	peristaltic pump; Proposed Plan	RTECS	Registry of Toxic Effects of Chemical Substances
O <sub>2</sub>	oxygen	ppb	parts per billion	RTK	real-time kinematic
O <sub>3</sub>	ozone	ppbv	parts per billion by volume	RWIMR	Ranges West of Iron Mountain Road
O&G	oil and grease	PPE	personal protective equipment	SA	exposed skin surface area
O&M	operation and maintenance	ppm	parts per million	SAD	South Atlantic Division
OB/OD	open burning/open detonation	PPMP	Print Plant Motor Pool	SAE	Society of Automotive Engineers
OD	outside diameter	ppt	parts per thousand	SAIC	Science Applications International Corporation
OE	ordnance and explosives	PR	potential risk	SAP	installation-wide sampling and analysis plan
oh	organic clays of medium to high plasticity	PRA	preliminary risk assessment	SARA	Superfund Amendments and Reauthorization Act
OH•	hydroxyl radical	PRG	preliminary remediation goal	sc	clayey sands; sand-clay mixtures
ol	organic silts and organic silty clays of low plasticity	PS	chloropicrin	Sch.	schedule
OP	organophosphorus	PSSC	potential site-specific chemical	SCM	site conceptual model
ORC	Oxygen Releasing Compound	pt	peat or other highly organic silts	SD	sediment
ORP	oxidation-reduction potential	PVC	polyvinyl chloride	SDG	sample delivery group
OSHA	Occupational Safety and Health Administration	QA	quality assurance	SDWA	Safe Drinking Water Act
OSWER	Office of Solid Waste and Emergency Response	QA/QC	quality assurance/quality control	SDZ	safe distance zone; surface danger zone
OVM-PID/FID	organic vapor meter-photoionization detector/flame ionization detector	QAM	quality assurance manual	SEMS	Southern Environmental Management & Specialties, Inc.
OWS	oil/water separator	QAO	quality assurance officer	SF	cancer slope factor
oz	ounce	QAP	installation-wide quality assurance plan	SFSP	site-specific field sampling plan
PA	preliminary assessment	QC	quality control	SGF	standard grade fuels
PAH	polynuclear aromatic hydrocarbon	QST	QST Environmental, Inc.	Shaw	Shaw Environmental, Inc.
PARCCS	precision, accuracy, representativeness, comparability, completeness, and sensitivity	qty	quantity	SHP	installation-wide safety and health plan
Parsons	Parsons Engineering Science, Inc.	Qual	qualifier	SI	site investigation
Pb	lead	R	rejected data; resample; retardation factor	SINA	Special Interest Natural Area
PBMS	performance-based measurement system	R&A	relevant and appropriate	SL	standing liquid
PC	permeability coefficient	RA	remedial action	SLERA	screening-level ecological risk assessment
PCB	polychlorinated biphenyl	RAO	remedial action objective	sm	silty sands; sand-silt mixtures
PCDD	polychlorinated dibenzo-p-dioxins	RBC	risk-based concentration; red blood cell	SM	Serratia marcescens
PCDF	polychlorinated dibenzofurans	RCRA	Resource Conservation and Recovery Act	SMDP	Scientific Management Decision Point
PCE	perchloroethene	RCWM	Recovered Chemical Warfare Material	s/n	signal-to-noise ratio
PCP	pentachlorophenol	RD	remedial design	SO <sub>4</sub> <sup>-2</sup>	sulfate
PDS	Personnel Decontamination Station	RDX	cyclotrimethylenetrinitramine	SOD	soil oxidant demand
PEF	particulate emission factor	ReB3	Rarden silty clay loams	SOP	standard operating procedure
PEL	permissible exposure limit	REG	regular field sample	SOPQAM	U.S. EPA's <i>Standard Operating Procedure/Quality Assurance Manual</i>
PERA	preliminary ecological risk assessment	REL	recommended exposure limit	sp	poorly graded sands; gravelly sands
PES	potential explosive site	RFA	request for analysis	SP	submersible pump
Pest.	pesticides	RfC	reference concentration	SPCC	system performance calibration compound
PETN	pentaerythritoltetranitrate	RfD	reference dose	SPCS	State Plane Coordinate System
		RGO	remedial goal option	SPM	sample planning module

## List of Abbreviations and Acronyms (Continued)

SQRT	screening quick reference tables	TOC	top of casing; total organic carbon	WWII	World War II
Sr-90	strontium-90	TPH	total petroleum hydrocarbons	XRF	x-ray fluorescence
SRA	streamlined human health risk assessment	TR	target cancer risk	yd <sup>3</sup>	cubic yards
SRM	standard reference material	TRADOC	U.S. Army Training and Doctrine Command		
Ss	stony rough land, sandstone series	TRPH	total recoverable petroleum hydrocarbons		
SS	surface soil	TSCA	Toxic Substances Control Act		
SSC	site-specific chemical	TSDF	treatment, storage, and disposal facility		
SSHO	site safety and health officer	TWA	time-weighted average		
SSHP	site-specific safety and health plan	UCL	upper confidence limit		
SSL	soil screening level	UCR	upper certified range		
SSSL	site-specific screening level	'U'	not detected above reporting limit		
SSSSL	site-specific soil screening level	UIC	underground injection control		
STB	supertropical bleach	UF	uncertainty factor		
STC	source-term concentration	USACE	U.S. Army Corps of Engineers		
STD	standard deviation	USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine		
STEL	short-term exposure limit	USAEC	U.S. Army Environmental Center		
STL	Severn-Trent Laboratories	USAEHA	U.S. Army Environmental Hygiene Agency		
STOLS	Surface Towed Ordnance Locator System <sup>®</sup>	USACMLS	U.S. Army Chemical School		
Std. units	standard units	USAMPS	U.S. Army Military Police School		
SU	standard unit	USATCES	U.S. Army Technical Center for Explosive Safety		
SUXOS	senior UXO supervisor	USATEU	U.S. Army Technical Escort Unit		
SVOC	semivolatile organic compound	USATHAMA	U.S. Army Toxic and Hazardous Material Agency		
SW	surface water	USC	United States Code		
SW-846	U.S. EPA's <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods</i>	USCS	Unified Soil Classification System		
SWMU	solid waste management unit	USDA	U.S. Department of Agriculture		
SWPP	storm water pollution prevention plan	USEPA	U.S. Environmental Protection Agency		
SZ	support zone	USFWS	U.S. Fish and Wildlife Service		
TAL	target analyte list	USGS	U.S. Geological Survey		
TAT	turn around time	UST	underground storage tank		
TB	trip blank	UTL	upper tolerance level; upper tolerance limit		
TBC	to be considered	UXO	unexploded ordnance		
TCA	trichloroethane	UXOQCS	UXO Quality Control Supervisor		
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin	UXOSO	UXO safety officer		
TCDF	tetrachlorodibenzofurans	V	vanadium		
TCE	trichloroethene	VC	vinyl chloride		
TCL	target compound list	VOA	volatile organic analyte		
TCLP	toxicity characteristic leaching procedure	VOC	volatile organic compound		
TDEC	Tennessee Department of Environment and Conservation	VOH	volatile organic hydrocarbon		
TDGCL	thiodiglycol	VQlfr	validation qualifier		
TDGCLA	thiodiglycol chloroacetic acid	VQual	validation qualifier		
TEA	triethylaluminum	VX	nerve agent (O-ethyl-S-[diisopropylaminoethyl]-methylphosphonothiolate)		
Tetryl	trinitrophenylmethylnitramine	WAC	Women's Army Corps		
TERC	Total Environmental Restoration Contract	Weston	Roy F. Weston, Inc.		
THI	target hazard index	WP	installation-wide work plan		
TIC	tentatively identified compound	WRS	Wilcoxon rank sum		
TLV	threshold limit value	WS	watershed		
TN	Tennessee	WSA	Watershed Screening Assessment		
TNT	trinitrotoluene	WWI	World War I		

**Final**

**Site Investigation Report  
Former Decontamination Complex,  
Parcels 93(7), 46(7), 70(7), and 140(7)**

**Fort McClellan  
Calhoun County, Alabama**

**Volume II of II: Appendices C – J**

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