

Final

**Site Investigation Report
Old Hospital, Parcel 95(7)**

**Fort McClellan
Calhoun County, Alabama**

Prepared for:

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**Task Order CK05
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List of Acronyms

See Attachment 1 - List of Abbreviations and Acronyms

Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Task Order CK05, IT Corporation completed a site investigation (SI) at the Old Hospital, Parcel 95(7) at Fort McClellan, Calhoun County, Alabama. The SI was conducted to determine whether chemical constituents are present at the Old Hospital, Parcel 95(7) and, if present, whether the concentrations would present an unacceptable risk to human health or the environment. The SI at the Old Hospital, Parcel 95(7) consisted of the sampling and analyses of 20 surface soil samples, 4 depositional soil samples, 48 subsurface soil samples, 5 surface water samples, and 5 sediment samples.

Chemical analyses of the samples collected at the Old Hospital, Parcel 95(7) indicate that metals, volatile organic compounds, and semivolatile organic compounds (SVOC) were detected in the environmental media sampled. To evaluate whether detected constituents pose an unacceptable risk to human health or the environment, analytical results were compared to human health site-specific screening levels (SSSL), ecological screening values (ESV), and background screening values for Fort McClellan.

Several metals and SVOCs were detected in site media (primarily surface and depositional soils) at concentrations exceeding ESVs. In addition, one volatile organic compound (chloroform) was detected in one surface soil sample at a concentration exceeding the ESV. However, the potential impact to ecological receptors is expected to be minimal based on the limited viable habitat and the existing site conditions. The site is a well-developed area, consisting of buildings and paved roads/areas interspersed with grassy areas, and is projected for use as an education/training area. Viable ecological habitat is presently limited and is not expected to increase in the future land-use scenario. Consequently, the potential threat to ecological receptors is expected to be low.

The potential threat to human receptors is also expected to be low. Although the site is projected for future use as an education/training area, the soils data were screened against residential human health SSSLs to evaluate the parcel for possible unrestricted future use. With the exception of mercury in one surface soil sample and iron in four subsurface soil samples, the metals detected in site media were within background concentrations or the range of background values. The iron results were within the same order of magnitude as background concentrations. The mercury concentration (2.5 milligrams per kilogram [mg/kg]) exceeded the residential human health SSSL (2.33 mg/kg) at one sample location. However, the extent of the mercury

contamination is defined horizontally and vertically and is very limited. Given the limited impacted area, the iron and mercury are not expected to pose a substantial threat to human health.

The concentrations of four SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) exceeded SSSLs and polynuclear aromatic hydrocarbon background values at two surface soil locations (plus dibenz[a,h]anthracene at one of the locations). These sample locations were immediately adjacent to or beneath old asphalt areas, which have likely leached these compounds to the surrounding surface soils, causing the elevated SVOC results. With the exception of the dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene results, the concentrations of these SVOCs in both samples were within the same order of magnitude as the polynuclear aromatic hydrocarbon background screening values. The concentrations of the SVOCs at the two locations ranged from 1.2 mg/kg to 8.7 mg/kg. SVOCs were not detected in the subsurface soil samples collected at these locations. In subsurface soils, benzo(a)pyrene (five locations) and dibenz(a,h)anthracene (one location) exceeded SSSLs. However, the cumulative concentration (1.03 mg/kg) of these two SVOCs in subsurface soils is very low. Given the limited distribution and low concentrations, the SVOCs detected in surface, depositional, and subsurface soils are not expected to pose a substantial threat to human health.

Based on the results of the SI, past operations at the Old Hospital, Parcel 95(7) do not appear to have adversely impacted the environment. The metals and organic compounds detected in site media do not pose an unacceptable risk to human health or the environment. Therefore, IT Corporation recommends “No Further Action” with regard to hazardous, toxic, and radioactive waste at the Old Hospital, Parcel 95(7).

1.0 Introduction

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 with IT Corporation (IT) to perform the site investigation (SI) at the Old Hospital, Parcel 95(7) through Prime Contract DACA21-96-D-0018, Task Order CK05.

This SI report presents specific information and results compiled from the SI, including field sampling and analysis, conducted at the Old Hospital, Parcel 95(7).

1.1 Project Description

The Old Hospital was identified as an area to be investigated prior to property transfer. The Old Hospital, Parcel 95(7), was identified as a Category 7 site in the environmental baseline survey (EBS) (Environmental Science and Engineering, Inc. [ESE], 1998). Category 7 sites are areas that are not evaluated or that require further evaluation.

A site-specific field sampling plan (SFSP) attachment and a site-specific safety and health plan (SSHP) attachment were finalized in September 1998 (IT, 1998a). The SFSP and SSHP were prepared to provide technical guidance for sample collection and analysis at the Old Hospital, Parcel 95(7). The SFSP was used in conjunction with the SSHP as attachments to the installation-wide work plan (IT, 1998b), and the installation-wide sampling and analysis plan (SAP) (IT, 2000a). The SAP includes the installation-wide safety and health plan and quality assurance plan.

The SI included field work to collect 20 surface soil samples, 48 subsurface soil samples, 4 depositional soil samples, 5 surface water samples, and 5 sediment samples to determine if potential site-specific chemicals are present at the Old Hospital, Parcel 95(7).

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 Old Hospital, Parcel 95(7) at concentrations that would present an unacceptable risk to human health or the environment. The conclusions of the SI in Section 6.0 are based on the comparison of the analytical results to human health site-specific screening levels (SSSL), ecological screening values (ESV), and background screening values for FTMC. The SSSLs and ESVs were developed by IT as part of the human health and ecological risk evaluations associated with SIs being performed under the BRAC Environmental Restoration Program at FTMC. The SSSLs, ESVs, and polynuclear aromatic hydrocarbon (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 IT at the direction of the BRAC Cleanup Team 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).

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

1.3 Site Description and History

The Old Hospital is located in the central part of the Main Post of FTMC (Figure 1-1). The Old Hospital is bounded by 20th Street to the north, 3rd Avenue to the east, 22nd Street to the south, and 6th Avenue to the west (Figure 1-2). The Old Hospital complex, which was built between 1941 and 1943, contained 110 buildings and had 4.5 miles of catwalks designed to provide access throughout the area. The EBS presents conflicting information regarding the areal extent of the Old Hospital. In one section of the EBS, the size was listed as 13 acres; in a separate section, 100 acres were reported. The approximate acreage was recalculated by ESE on July 20, 1998 and determined to be 64.5 acres. The Old Hospital was reportedly renovated in 1951 to accommodate the Specialized Treatment Center of the Third Army (concerned with treating chest diseases).

The Old Hospital was connected to the sanitary sewer system. A series of stormwater drainage ditches located along the southern border of the site appears to have coursed through the complex and discharged into Cane Creek, which flows along the western side of the site. Information is

not available on the handling, storage, or disposal of generated hazardous substances at the site. The standard disposal practice for hazardous wastes during the time the Old Hospital was active was on-post incineration. This disposal method is assumed to have been implemented since there was not any evidence of hazardous waste disposal at the site (ESE, 1998).

The Old Hospital ceased operation in 1955 and new buildings were constructed at the site in 1988. The buildings are used for housing military personnel and office storage. Some of the buildings constructed in 1941 still exist in the southern section of the site (Figure 1-2).

A 1954 aerial photograph (U.S. Environmental Protection Agency [EPA], 1990) with imagery of the former buildings and catwalks and an overlay from the 1998 Base Map is provided on Figure 1-3. The figure shows that numerous structures formerly existed on the parcel compared to the current configuration of buildings. Figure 1-3 was used to assist in determining sample locations for the SI. To IT's knowledge, previous environmental studies have not been conducted at the site.

The soil type at the Old Hospital is classified as Rarden Series (U.S. Department of Agriculture, 1961). These soils are moderately well-drained, strongly acidic soils. They generally occur on wide shale ridges. Rarden soils are developed from the residuum of shale and fine-grained, platy sandstone or limestone. In eroded areas, the surface soil is brown silt loam. The subsoil is yellowish-red clay or silty clay. Site elevation ranges from approximately 805 feet mean sea level in the northeastern section of the site and slopes towards the southwest to approximately 775 feet mean sea level.

2.0 Previous Investigations

An EBS was conducted by ESE to document current environmental conditions 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 (including migration) has occurred
2. Areas where only release or disposal of petroleum products has occurred
3. Areas of contamination below action levels
4. Areas where all necessary remedial actions have been taken
5. Areas of known contamination with removal and/or remedial action underway
6. Areas of known contamination where required response actions have not been taken
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, the Alabama Department of Environmental Management (ADEM), EPA Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic 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.

The Old Hospital, Parcel 95(7) was identified as a Category 7 CERFA site: a parcel where hazardous substances and/or petroleum products were stored, and where the possibility exists that those substances were released onto the site or to the environment, or were disposed on the

site property. Previous studies to document site environmental conditions have not been conducted at the Old Hospital, Parcel 95(7).

3.0 Current Site Investigation Activities

This chapter summarizes SI activities conducted by IT at the Old Hospital, Parcel 95(7), including environmental sampling and analysis.

3.1 Environmental Sampling

The environmental sampling performed during the SI at the Old Hospital, Parcel 95(7) included the collection of surface soil samples, subsurface soil samples, surface water samples, sediment samples, and depositional soil samples for chemical analysis. The sample locations were determined by observing site physical characteristics noted during a site walkover and by reviewing historical documents pertaining to activities conducted at the site. The sample locations, media, and rationale are summarized in Table 3-1. Samples were submitted for laboratory analyses of site-related parameters listed in Section 3.3.

3.1.1 Surface and Depositional Soil Sampling

Surface soil samples were collected from 20 locations and depositional soil samples were collected from four locations at the Old Hospital, Parcel 95(7), as shown on Figure 3-1. Surface and depositional soil sampling locations and rationale are presented in Table 3-1. Surface and depositional soil sample designations and quality assurance/quality control (QA/QC) samples are listed in Table 3-2. Surface and depositional soil sampling locations were determined in the field by the on-site geologist based on the sampling rationale, presence of surface structures, site topography, and buried and overhead utilities.

Sample Collection. Surface soil samples were collected from the upper 1 foot of soil by either direct-push technology or with a 3-inch diameter stainless-steel hand auger using the methodology specified in Section 4.9 of the SAP (IT, 2000a). Depositional soil samples were collected from the upper 1 foot of soil with a stainless-steel trowel. Surface and depositional soil samples were collected by first removing surface debris, such as rocks and vegetation, from the immediate sample area. The soil was collected with the sampling device and screened with a photoionization detector (PID) in accordance with Section 4.7.1.1 of the SAP (IT, 2000a). Samples for volatile organic compound (VOC) analyses were collected directly from the sampler or trowel with three EnCore[®] samplers. The remaining portion of the sample was transferred to a clean stainless-steel bowl, homogenized, and placed in the appropriate sample containers. Sample collection logs are included in Appendix A. The samples were analyzed for the parameters listed in Table 3-2 using methods outlined in Section 3.3.

Table 3-1

**Sampling Locations and Rationale
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Media	Sample Location Rationale
FTA-95-GP45	Surface Soil Subsurface Soil	Sample locations were installed at former hospital buildings and metal catwalk areas based on the aerial photograph of the former hospital in 1954. Samples were collected at approximately 200 ft intervals.
FTA-95-GP46	Surface Soil Subsurface Soil	Sample locations were installed at former hospital buildings and metal catwalk areas based on the aerial photograph of the former hospital in 1954. Samples were collected at approximately 200 ft intervals.
FTA-95-GP47	Surface Soil Subsurface Soil	Sample locations were installed at former hospital buildings and metal catwalk areas based on the aerial photograph of the former hospital in 1954. Samples were collected at approximately 200 ft intervals.
FTA-95-GP48	Surface Soil Subsurface Soil	Sample locations were installed at former hospital buildings and metal catwalk areas based on the aerial photograph of the former hospital in 1954. Samples were collected at approximately 200 ft intervals.
FTA-95-SW/SD01	Surface Water Sediment	Sample location is a potential downgradient sink for potential site-specific chemicals. Evidence of contaminant mobility at any point within the site would likely be integrated at this location.
FTA-95-SW/SD02	Surface Water Sediment	Sample location is a potential downgradient sink for potential site-specific chemicals. Evidence of contaminant mobility at any point within the site would likely be integrated at this location.
FTA-95-SW/SD03	Surface Water Sediment	Sample location is a potential downgradient sink for potential site-specific chemicals. Evidence of contaminant mobility at any point within the site would likely be integrated at this location.
FTA-95-SW/SD05	Surface Water Sediment	Sample location is a potential downgradient sink for potential site-specific chemicals. Evidence of contaminant mobility at any point within the southern portion of the site would likely be integrated at this location.
FTA-95-SW/SD06	Surface Water Sediment	Sample location is a potential downgradient sink for potential site-specific chemicals. Evidence of contaminant mobility at any point within the southern portion of the site would likely be integrated at this location.
FTA-95-DEP01	Depositional Soil	Sampling location is the accumulation point for surface water runoff from the northeast and east central portions of the site. Evidence of contaminant mobility from the northeast and east central sections of the site would likely be
FTA-95-DEP02	Depositional Soil	Sampling location is the accumulation point for surface water runoff from the center portion of the site. Evidence of contaminant mobility from the central portion of the site would likely be integrated at this location.
FTA-95-DEP03	Depositional Soil	Sampling location is the most probable point of exit from the site for surface water runoff from the northern and central portions of the site. Evidence of contaminant mobility at any point would likely be integrated at this location.
FTA-95-DEP04	Depositional Soil	Sample location is a potential downgradient sink for potential site-specific chemicals. Evidence of contaminant mobility at any point within the west central portion of the site would likely be integrated at this location.

Table 3-2

**Surface Soil, Subsurface Soil, and Depositional Soil Sample Designations and QA/QC Samples
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 4)

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTA-95-GP01	FTA-95-GP01-DS-AD0001-REG	8-12				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP02	FTA-95-GP02-DS-AD0002-REG	8-9				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP03	FTA-95-GP03-DS-AD0003-REG	4-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP04	FTA-95-GP04-DS-AD0004-REG	4-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP05	FTA-95-GP05-DS-AD0005-REG	8-12				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP06	FTA-95-GP06-DS-AD0006-REG	1-4				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP07	FTA-95-GP07-DS-AD0007-REG	4-8				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP08	FTA-95-GP08-DS-AD0008-REG	4-8				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP09	FTA-95-GP09-DS-AD0009-REG	1-4			FTA-95-GP09-DS-AD0009-MS FTA-95-GP09-DS-AD0009-MSD	TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP10	FTA-95-GP10-DS-AD0010-REG	1-2	FTA-95-GP10-DS-AD0011-FD	FTA-95-GP10-DS-AD0012-FS		TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP11	FTA-95-GP11-DS-AD0013-REG	1-4				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP12	FTA-95-GP12-DS-AD0014-REG	8-10				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP13	FTA-95-GP13-DS-AD0015-REG	4-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP14	FTA-95-GP14-DS-AD0016-REG	1-4				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP15	FTA-95-GP15-DS-AD0017-REG	8-11				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP16	FTA-95-GP16-DS-AD0018-REG	4-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP17	FTA-95-GP17-DS-AD0019-REG	1-4				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP18	FTA-95-GP18-DS-AD0020-REG	1-4				TCL VOCs, TCL SVOCs, TAL Metals

Table 3-2

**Surface Soil, Subsurface Soil, and Depositional Soil Sample Designations and QA/QC Samples
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 4)

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTA-95-GP19	FTA-95-GP19-DS-AD0021-REG	4-6			FTA-95-GP19-DS-AD0022-MS FTA-95-GP19-DS-AD0022-MSD	TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP20	FTA-95-GP20-DS-AD0022-REG	4-8	FTA-95-GP20-DS-AD0023-FD			TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP21	FTA-95-GP21-DS-AD0025-REG	8-10				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP22	FTA-95-GP22-DS-AD0026-REG	1-3				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP23	FTA-95-GP23-DS-AD0027-REG	4-6				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP24	FTA-95-GP24-DS-AD0028-REG	4-8				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP25	FTA-95-GP25-DS-AD0029-REG	8-9				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP26	FTA-95-GP26-DS-AD0030-REG	1-4				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP27	FTA-95-GP27-DS-AD0031-REG	4-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP28	FTA-95-GP28-DS-AD0032-REG	1-3			FTA-95-GP28-DS-AD0032-MS FTA-95-GP28-DS-AD0032-MSD	TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP29	FTA-95-GP29-SS-AD0034-REG FTA-95-GP29-DS-AD0033-REG	0-1 1-5	FTA-95-GP29-DS-AD0035-FD			TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP30	FTA-95-GP30-SS-AD0038-REG FTA-95-GP30-DS-AD0037-REG	0-1 4-8	FTA-95-GP30-SS-AD0039-FD			TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP31	FTA-95-GP31-SS-AD0042-REG FTA-95-GP31-DS-AD0041-REG	0-1 1-5				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP32	FTA-95-GP32-SS-AD0044-REG FTA-95-GP32-DS-AD0043-REG	0-1 5-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP33	FTA-95-GP33-SS-AD0046-REG FTA-95-GP33-DS-AD0045-REG	0-1 1-5				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP34	FTA-95-GP34-SS-AD0050-REG FTA-95-GP34-DS-AD0047-REG	0-1 1-5	FTA-95-GP34-DS-AD0048-FD	FTA-95-GP34-DS-AD0049-FS		TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP35	FTA-95-GP35-SS-AD0052-REG FTA-95-GP35-DS-AD0051-REG	0-1 5-8				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP36	FTA-95-GP36-SS-AD0054-REG FTA-95-GP36-DS-AD0053-REG	0-1 5-7				TCL VOCs, TCL SVOCs, TAL Metals

Table 3-2

**Surface Soil, Subsurface Soil, and Depositional Soil Sample Designations and QA/QC Samples
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 4)

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTA-95-GP37	FTA-95-GP37-SS-AD0056-REG FTA-95-GP37-DS-AD0055-REG	0-1 5-9				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP38	FTA-95-GP38-SS-AD0058-REG FTA-95-GP38-DS-AD0057-REG	0-1 5-7				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP39	FTA-95-GP39-SS-AD0060-REG FTA-95-GP39-DS-AD0059-REG	0-1 1-5	FTA-95-GP39-SS-AD0061-FD	FTA-95-GP39-SS-AD0062-FS		TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP40	FTA-95-GP40-SS-AD0064-REG FTA-95-GP40-DS-AD0063-REG	0-1 5-9				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP41	FTA-95-GP41-SS-AD0066-REG FTA-95-GP41-DS-AD0065-REG	0-1 1-5				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP42	FTA-95-GP42-SS-AD0068-REG FTA-95-GP42-DS-AD0067-REG	0-1 9-12				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP43	FTA-95-GP43-SS-AD0070-REG FTA-95-GP43-DS-AD0069-REG	0-1 1-3				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP44	FTA-95-GP44-SS-AD0072-REG FTA-95-GP44-DS-AD0071-REG	0-1 1-4	FTA-95-GP44-SS-AD0073-FD	FTA-95-GP44-SS-AD0074-FD		TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP45	FTA-95-GP45-SS-AD0076-REG FTA-95-GP45-DS-AD0075-REG	0-1 9-12				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP46	FTA-95-GP46-SS-AD0078-REG FTA-95-GP46-DS-AD0077-REG	0-1 1-5				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP47	FTA-95-GP47-SS-AD0080-REG FTA-95-GP47-DS-AD0079-REG	0-1 1-5				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-GP48	FTA-95-GP48-SS-AD0082-REG FTA-95-GP48-DS-AD0081-REG	0-1 1-4				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-DEP01	FTA-95-DEP01-DEP-AD1006-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-DEP02	FTA-95-DEP02-DEP-AD1007-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-DEP03	FTA-95-DEP03-DEP-AD1008-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals
FTA-95-DEP04	FTA-95-DEP04-DEP-AD0083-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals

FD - Field duplicate.

FS - Field split.

ft. bgs - feet below ground surface.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

REG - Field sample.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

Table 3-2

**Surface Soil, Subsurface Soil, and Depositional Soil Sample Designations and QA/QC Samples
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 4)

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	

3.1.2 Subsurface Soil Sampling

Subsurface soil samples were collected from 48 soil borings at the Old Hospital, Parcel 95(7), as shown on Figure 3-1. Subsurface sampling locations and rationale are presented in Table 3-1. Subsurface soil sample designations, depths, and QA/QC samples are listed in Table 3-2. Soil boring sampling locations were determined in the field by the on-site geologist based on the sampling rationale, presence of surface structures, site topography, and buried and overhead utilities. IT contracted TEG, Inc., a direct-push technology subcontractor, to assist in subsurface soil sample collection.

Sample Collection. Subsurface soil samples were collected from soil borings at a depth greater than 1 foot below ground surface (bgs) in the unsaturated zone. The soil borings were advanced and soil samples collected using the direct-push sampling procedures specified in Section 4.9.1.1 of the SAP (IT, 2000a). Sample collection logs are included in Appendix A. The samples were analyzed for the parameters listed in Table 3-2 using methods outlined in Section 3.3.

Soil samples were collected continuously to 12 feet bgs or until direct-push sampler refusal was encountered. Subsurface soil samples were field screened using a PID in accordance with Section 4.7.1.1 of the SAP (IT, 2000a) to measure for volatile organic vapors. The sample showing the highest reading was selected and sent to the laboratory for analysis; however, at those locations where PID readings were not greater than background, the deepest sample interval above groundwater was submitted for analyses. Samples to be analyzed for VOCs were collected directly from the sampler with three EnCore[®] samplers. The remaining portion of the sample was transferred to a clean stainless-steel bowl, homogenized, and placed in the appropriate sample containers. Samples submitted for laboratory analyses are summarized in Table 3-2. The on-site geologist at each borehole constructed a detailed lithological log. The lithological log for each borehole is included in Appendix B.

At the completion of soil sampling, boreholes were abandoned with hydrated bentonite chips following borehole abandonment procedures summarized in Appendix B of the SAP (IT, 2000a).

3.1.3 Surface Water Sampling

Five surface water samples were collected at the Old Hospital, Parcel 95(7) from locations shown on Figure 3-1. The surface water sampling locations and rationale are listed in Table 3-1. The

surface water sample designations and QA/QC samples are listed in Table 3-3. The sampling locations were determined in the field, based on drainage pathways and actual field observations.

Sample Collection. Surface water samples were collected in accordance with the procedures specified in Section 4.9.1.3 of the SAP (IT, 2000a). The surface water samples were collected by dipping a clean stainless-steel pitcher in the water and pouring the water in the appropriate sample containers. Surface water samples were collected after field parameters had been measured using a Hydrolab[®] water quality unit. Surface water field parameters are listed in Table 3-4. Sample collection logs are included in Appendix A. The samples were analyzed for the parameters listed in Table 3-3 using methods outlined in Section 3.3.

3.1.4 Sediment Sampling

Five sediment samples were collected at the same locations as the surface water samples presented in Section 3.1.3. The locations of the sediment samples collected are shown on Figure 3-1. Sediment sampling locations and rationale are presented in Table 3-1. The sediment sample designations and QA/QC samples are listed in Table 3-3. The actual sediment sampling locations were determined in the field, based on drainage pathways and actual field observations.

Sample Collection. Sediment sample collection was conducted in accordance with the procedures specified in Section 4.9.1.2 of the SAP (IT, 2000a). The samples were collected from the upper 0.5 foot of sediment with a clean stainless-steel trowel. Samples for VOC analyses were collected directly from the trowel with three EnCore[®] samplers. The remaining portion of the sample was transferred to a clean stainless-steel bowl, homogenized, and placed in the appropriate sample containers. Sample collection logs are included in Appendix A. The sediment samples were analyzed for the parameters listed in Table 3-3 using methods outlined in Section 3.3.

3.2 Surveying of Sample Locations

Sample locations were surveyed using global positioning system survey techniques described in Section 4.3 of the SAP (IT, 2000a), and conventional civil survey techniques described in Section 4.19 of the SAP. Horizontal coordinates were referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum, 1983. Elevations were referenced to the North American Vertical Datum of 1988. Horizontal coordinates and elevations are included in Appendix C.

Table 3-3

**Surface Water and Sediment Sample Designations and QA/QC Samples
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft. bgs)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
FTA-95-SW/SD01	FTA-95-SW/SD01-SW-AD2001-REG	NA				TCL VOCs, TCL SVOCs, TAL Metals,
	FTA-95-SW/SD01-SD-AD1001-REG	0-0.5				TOC, and Grain Size (sediment only)
FTA-95-SW/SD02	FTA-95-SW/SD02-SW-AD2002-REG	NA				TCL VOCs, TCL SVOCs, TAL Metals,
	FTA-95-SW/SD02-SD-AD1002-REG	0-0.5				TOC, and Grain Size (sediment only)
FTA-95-SW/SD03	FTA-95-SW/SD03-SW-AD2005-REG	NA				TCL VOCs, TCL SVOCs, TAL Metals,
	FTA-95-SW/SD03-SD-AD1003-REG	0-0.5				TOC, and Grain Size (sediment only)
FTA-95-SW/SD05	FTA-95-SW/SD05-SW-AD2007-REG FTA-95-SW/SD05-SD-AD1010-REG	NA 0-0.5	FTA-95-SW/SD05-SD-AD1004-FD	FTA-95-SW/SD05-SD-AD1005-FS	FTA-95-SW/SD05-SD-AD1010-MS FTA-95-SW/SD05-SD-AD1010-MSD	TCL VOCs, TCL SVOCs, TAL Metals, TOC, and Grain Size (sediment only)
FTA-95-SW/SD06	FTA-95-SW/SD06-SW-AD2008-REG	NA	FTA-95-SW/SD06-SW-AD2003-FD	FTA-95-SW/SD06-SW-AD2004-FS	FTA-95-SW/SD06-SW-AD2008-MS FTA-95-SW/SD06-SW-AD2008-MSD	TCL VOCs, TCL SVOCs, TAL Metals, TOC, and Grain Size (sediment only)
	FTA-95-SW/SD06-SD-AD1009-REG	0-0.5				

FD - Field duplicate.

FS - Field split.

ft. bgs - feet below ground surface.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

REG - Field sample.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

TOC - Total organic carbon.

VOC - Volatile organic compound.

Table 3-4

**Surface Water Field Parameters
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Date	Media	Specific Conductivity (µmhos/cm)	Dissolved Oxygen (ppm)	Redox Potential (mV)	Temperature (°C)	Turbidity (NTUs)	pH (Std units)
FTA-95-SW/SD01	20-OCT-98	SW	130	9.62	238	NR	0.8	7.70
FTA-95-SW/SD02	23-OCT-98	SW	125	16.32	314	11.79	1.8	6.60
FTA-95-SW/SD03	23-OCT-98	SW	126	16.25	314	12.01	0.8	6.84
FTA-95-SW/SD05	21-OCT-98	SW	119	10.58	404	15.56	1.0	6.12
FTA-95-SW/SD06	21-OCT-98	SW	120	10.61	394	15.87	1.5	6.09

°C - Degrees Celsius.

µmhos/cm - Micromhos per centimeter.

mV - Millivolts.

NR - Reading not recorded.

NTUs - Nephelometric turbidity units.

ppm - Parts per million.

Redox - Oxidation-reduction potential.

Std units - Standard units.

SW - Surface water.

3.3 Analytical Program

Samples collected during the SI were analyzed for various physical and chemical properties. The specific suite of analyses performed is based on the potential site-specific chemicals historically at the site and EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected at the Old Hospital, Parcel 95(7) included the following parameters:

- Target compound list VOCs - Method 5035/8260B
- Target compound list semivolatile organic compounds (SVOC) - Method 8270C
- Target analyte list metals - Method 6010B/7000
- Total organic carbon (TOC) – Method 9060 (sediment only)
- Grain size – American Society for Testing and Materials D421/D422 (sediment only)

The samples were analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 6-1 in Appendix B of the SAP (IT, 2000a). Data were reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of Appendix B of the SAP). Chemical data were reported via hard copy data packages by the laboratory using Contract Laboratory Program-like forms. These packages were validated in accordance with EPA National Functional Guidelines by Level III criteria. A summary of validated data is included in Appendix D. The Data Validation Summary Report is included as Appendix E.

3.4 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping followed requirements specified in Section 4.13.2 of the SAP (IT, 2000a). Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SI are listed in Section 5.0, Table 5-1, of Appendix B of the SAP. Sample documentation and chain-of-custodies were recorded as specified in Section 4.13 of the SAP.

Completed analysis request and chain-of-custody records (Appendix A) were secured and included with each shipment of sample coolers to Quanterra Environmental Services in Knoxville, Tennessee. Split samples were shipped to USACE South Atlantic Division Laboratory in Marietta, Georgia.

3.5 Investigation-Derived Waste Management and Disposal

Investigation-derived waste (IDW) was managed and disposed as outlined in Appendix D of the SAP (IT, 2000a). The IDW generated during the SI at the Old Hospital, Parcel 95(7) was segregated as follows:

- Soil boring cuttings
- Decontamination fluids
- Personal protective equipment.

Solid IDW was stored inside the fenced area surrounding Buildings 335 and 336 in lined rolloff bins prior to characterization and final disposal. Solid IDW was characterized using toxicity characteristic leaching procedure analyses. Based on the results, soil boring cuttings and personal protective equipment generated during the SI at the Old Hospital, Parcel 95(7) were disposed as nonregulated waste at the Industrial Waste Landfill on the Main Post of FTMC.

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

3.6 Variances/Nonconformances

This section describes the variances and nonconformances to the SFSP that occurred during completion of the SI at the Old Hospital, Parcel 95(7).

3.6.1 Variances

One variance to the SFSP was recorded during completion of the SI at the Old Hospital, Parcel 95(7). The variance did not alter the intent of the investigation or the sampling rationale presented in Table 4-2 of the SFSP (IT, 2000a). The variance to the SFSP is summarized in Table 3-5 and included in Appendix F.

3.6.2 Nonconformances

There were not any nonconformances to the SFSP recorded during completion of the SI at the Old Hospital, Parcel 95(7).

Table 3-5

**Variance to the Site-Specific Field Sampling Plan
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

Variance to the SFSP	Justification for Variance	Impact to Site Investigation
Surface water and sediment samples were not collected at FTA-95-SW/SD04. Depositional sample FTA-95-DEP04 was added to the field sampling program	Surface water and sediment were not present in the creek. Several attempts were made to collect a surface water and sediment sample, but all attempts were unsuccessful. Therefore, a depositional soil sample was collected at this proposed surface water and sediment sample location.	None.

3.7 Data Quality

The field sample data are presented in tabular form in Appendix D. The field samples were collected, documented, handled, analyzed, and reported in a manner consistent with the SI work plan; the FTMC SAP and quality assurance plan; and standard, accepted methods and procedures. Sample collection logs pertaining to the collection of the samples were reviewed and organized for this report and are included in Appendix A. As discussed in Section 3.6, there was one variance to the SFSP recorded during completion of the SI. However, the variance did not impact the usability of the data.

Data Validation. A complete (100 percent) Level III data validation effort was performed on the reported analytical data. Appendix E consists of a data validation summary report that was prepared to discuss the results of the validation. Selected results were rejected or otherwise qualified based on the implementation of accepted data validation procedures and practices during the validation effort. These qualified parameters are highlighted in the report. The validation-assigned qualifiers were added to the FTMC IT Environmental Management System™ database for tracking and reporting. The qualified data were used in the comparison to the SSSLs and ESVs developed by IT. Rejected data (assigned an “R” data qualifier) were not used in the comparison 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

Subsurface investigations performed at the Old Hospital, Parcel 95(7) provided soil data used to characterize the site. Because there were not any wells installed at the parcel, a hydrogeological characterization was not performed.

4.1 Regional and Site Geology

4.1.1 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.

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 is comprised 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 (Szabo 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 appear to dominate the unit and consist primarily of coarse-grained, vitreous quartzite, and friable, fine- to coarse-grained, orthoquartzitic sandstone, both of which locally contain conglomerate. The fine-grained facies consist 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 southwest of the Main Post as mapped by Warman and Causey (1962) and 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. 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 weathers 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 together as undifferentiated at FTMC and 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 (Szabo 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 on the basis of fossil data.

The Jacksonville Thrust Fault is the most significant structural geologic feature in the vicinity 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 comprising 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).

4.1.2 Site Geology

Soils underlying the Old Hospital, Parcel 95(7) are mapped as Rarden Series (U.S. Department of Agriculture, 1961). These soils are characterized as silty clay loam with concretions and sandstone fragments and a thin solum. The Rarden series soils are developed from the residuum of shale and fine-grained platy sandstone or limestone.

Bedrock beneath the Main Post of FTMC, including the Old Hospital, Parcel 95(7), is mapped as Ordovician limestone and shale formations, including the Newala and Longview Limestones, Lenoir Limestone, Athens Shale, Little Oak Limestone, and Chickamauga Limestone. These units occur within the eroded "window" in the uppermost structural thrust sheet at FTMC and underlie much of the developed area of the Main Post. The Mississippian Floyd Shale, which was mapped by Warman and Causey (1962) on the Main Post of FTMC, was reassigned to the Ordovician Athens Shale by Osborne and Szabo (1983, 1984), on the basis of fossil data.

Based on direct-push boring data collected during the SI, sediments beneath the Old Hospital, Parcel 95(7) consist of predominantly silt and clay. Direct-push refusal ranged from about 2 to 15 feet bgs in clays and clay-gravel mixtures.

4.2 Surface Hydrology

Precipitation in the form of rainfall averages about 54 inches annually in Anniston, Alabama, with infiltration rates annually exceeding evapotranspiration rates. The major surface water features at the Main Post of FTMC include Remount Creek, 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 Old Hospital, Parcel 95(7) follows site topography and generally flows to the southwest toward Cane Creek.

5.0 Summary of Analytical Results

The results of the chemical analyses of samples collected at the Old Hospital, Parcel 95(7) indicate that metals, VOCs, and SVOCs have been detected in the various site media. To evaluate whether the detected constituents present an unacceptable risk to human health and the environment, detected constituent concentrations were compared to the human health SSSLs and ESVs for FTMC. The SSSLs and ESVs were developed by IT for human health and ecological risk evaluations as part of the ongoing SIs being performed under the BRAC Environmental Restoration Program at FTMC.

Metal concentrations exceeding the SSSLs and ESVs were subsequently compared to metals background screening values (background concentrations) (SAIC, 1998) to determine if the metals concentrations are within natural background concentrations. Summary statistics for background metals samples collected at FTMC (SAIC, 1998) are included in Appendix G. Additionally, SVOC concentrations in surface and depositional soils that exceeded the SSSLs and ESVs were compared to PAH background screening values, where available. The PAH background screening values were derived from PAH analytical data from 18 parcels at FTMC that were determined to represent anthropogenic activity (IT, 2000b). PAH background screening values were developed for two categories of surface soils: beneath asphalt and adjacent to asphalt. The PAH background screening values for soils adjacent to asphalt are the more conservative (i.e., lower) of the PAH background values and are the values used herein for comparison.

Six compounds were quantified by both SW-846 Method 8260B (as VOC) and Method 8270C (as SVOC), including 1,2,4-trichlorobenzene, 1,4-dichlorobenzene, 1,3-dichlorobenzene, 1,2-dichlorobenzene, hexachlorobutadiene, and naphthalene. Method 8260B yields a reporting limit (RL) of 0.005 milligrams per kilogram (mg/kg), while Method 8270C has a RL of 0.330 mg/kg, which is typical for a soil matrix sample. Because of the direct nature of the Method 8260B analysis and its resulting lower RL, this method should be considered superior to Method 8270C when quantifying low levels (0.005 to 0.330 mg/kg) of these compounds. Method 8270C and its associated methylene chloride extraction step is superior, however when dealing with samples that contain higher concentrations (greater than 0.330 mg/kg) of these compounds. Therefore all data were considered and none were categorically excluded. Data validation qualifiers were helpful in evaluating the usability of data, especially if calibration, blank contamination, precision, or accuracy indicator anomalies were encountered. The validation qualifiers and

concentrations reported (e.g., whether concentrations were less than or greater than 0.330 mg/kg) were used to determine which analytical method was likely to return the more accurate result.

The following sections and Tables 5-1 through 5-4 summarize the results of the comparison of detected constituents to the SSSLs, ESVs, and background screening values. Complete analytical results are presented in Appendix D.

5.1 Surface and Depositional Soil Sample Results

Twenty surface soil samples and four depositional soil samples were collected for chemical analyses at the Old Hospital, Parcel 95(7). Surface and depositional soil samples were collected from the upper 1 foot of soil at the sample locations shown on Figure 3-1. Analytical results were compared to residential human health SSSLs, ESVs, and background screening values (metals and PAHs), as presented in Table 5-1.

Metals. Twenty metals, including aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, vanadium, and zinc were detected in surface and depositional soil samples collected at the Old Hospital, Parcel 95(7). Nineteen of the twenty detected metals were present in the sample collected at FTA-95-DEP04; eighteen of the twenty detected metals were present in each of the samples collected at FTA-95-GP32, FTA-95-GP36, and FTA-95-GP38.

The concentrations of arsenic (FTA-95-GP33), chromium (FTA-95-GP36 and FTA-95-GP37), iron (FTA-95-DEP04, FTA-95-GP41, and FTA-95-GP42), manganese (FTA-95-GP31), and mercury (FTA-95-GP37) exceeded SSSLs and background concentrations. With the exception of the mercury result, the concentrations of these metals were within the range of background values determined by SAIC (Appendix G).

Twelve metals were detected at concentrations exceeding ESVs and background concentrations, including: arsenic (one location), barium (one location), beryllium (four locations), chromium (two locations), iron (two locations), lead (thirteen locations), manganese (one location), mercury (seven locations), nickel (one location), selenium (five locations), silver (two locations), and zinc (sixteen locations).

Volatile Organic Compounds. Twelve VOCs, including 1,2,4-trimethylbenzene, 2-butanone, acetone, bromomethane, carbon disulfide, chloroform, cumene, m,p-xylenes,

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

(Page 1 of 12)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-DEP01 AD1006 06-Nov-98 0- 1					FTA-95-DEP02 AD1007 06-Nov-98 0- 1					FTA-95-DEP03 AD1008 06-Nov-98 0- 1					FTA-95-DEP04 AD0083 08-Mar-99 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
METALS																									
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	8.53E+03			YES	YES	5.61E+03				YES	6.45E+03				YES	1.03E+04				YES	YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	7.80E+00			YES		5.40E+00			YES		5.80E+00			YES		7.80E+00				YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	5.50E+01					1.34E+02		YES			6.11E+01					6.55E+01					
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	7.40E-01					6.10E-01					6.10E-01					1.30E+00		YES		YES	
Calcium	mg/kg	1.72E+03	NA	NA	4.05E+03		YES			3.67E+03		YES			3.96E+03		YES			2.04E+03		YES			
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	2.34E+01			YES	YES	1.36E+01				YES	1.40E+01				YES	1.82E+01					YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	8.90E+00					7.00E+00					ND					8.40E+00					
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	2.59E+01		YES			1.56E+01		YES			1.36E+01		YES			3.37E+01		YES			
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	2.97E+04			YES	YES	1.87E+04			YES	YES	1.47E+04			YES	YES	3.45E+04		YES	YES	YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	4.11E+01		YES			5.05E+01		YES		YES	5.48E+01		YES		YES	4.76E+01		YES			
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	2.14E+03		YES			1.30E+03		YES			1.21E+03		YES			3.88E+03		YES			
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	3.77E+02			YES	YES	8.23E+02			YES	YES	3.63E+02				YES	4.12E+02				YES	YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	6.90E-02					5.90E-02					1.70E-01		YES		YES	4.40E-02		B			
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	1.80E+01		YES			9.70E+00					8.90E+00					2.49E+01		YES			
Potassium	mg/kg	8.00E+02	NA	NA	5.93E+02		B			6.75E+02					1.14E+03		YES			5.02E+02		J			
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	1.00E+00		YES		YES	ND					5.90E-01		YES			1.80E+00		YES		YES	YES
Silver	mg/kg	3.60E-01	3.91E+01	2.00E+00	ND																				
Sodium	mg/kg	6.34E+02	NA	NA	ND					ND					ND					4.66E+01		B			
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	6.30E+00					6.20E+00				YES	9.30E+00				YES	2.41E+01					YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	6.87E+01		YES		YES	5.77E+01		YES		YES	8.18E+01		YES		YES	1.05E+02		YES		YES	YES
VOLATILE ORGANIC COMPOUNDS																									
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND																				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	9.70E-03		J			2.00E-02		J			3.20E-02		J			ND					
Acetone	mg/kg	NA	7.76E+02	2.50E+00	9.20E-02		B			1.70E-01		J			3.40E-01		J			4.30E-03		B			
Bromomethane	mg/kg	NA	1.09E+01	NA	ND																				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND																				
Chloroform	mg/kg	NA	1.03E+02	1.00E-03	ND																				
Cumene	mg/kg	NA	7.77E+02	NA	ND																				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	3.40E-03		B			4.30E-03		B			5.20E-03		B			5.50E-03		B			
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					ND					3.60E-03		J			
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND																				
p-Cymene	mg/kg	NA	1.55E+03	NA	ND																				

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-DEP01 AD1006 06-Nov-98 0- 1					FTA-95-DEP02 AD1007 06-Nov-98 0- 1					FTA-95-DEP03 AD1008 06-Nov-98 0- 1					FTA-95-DEP04 AD0083 08-Mar-99 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
SEMIVOLATILE ORGANIC COMPOUNDS																									
2-Methylnaphthalene	mg/kg	NA	1.55E+02	NA	ND																				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND																				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	4.60E-02	J				1.60E-01	J				1.50E-01	J				ND					
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	4.00E-02	J				1.40E-01	J			YES	1.20E-01	J			YES	ND					
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	7.00E-02	J				1.60E-01	J				1.40E-01	J				ND					
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	9.20E-02	J		YES		3.00E-01	J		YES	YES	2.40E-01	J		YES	YES	ND					
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	1.00E-01	J				3.30E-01	J				2.50E-01	J				ND					
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	6.20E-02	J				2.00E-01	J				1.40E-01	J				ND					
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	9.10E-02	J				3.60E-01					2.90E-01	J				ND					
Carbazole	mg/kg	NA	3.11E+01	NA	ND																				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	8.00E-02	J				2.60E-01	J				1.70E-01	J				ND					
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND																				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					8.40E-02	J				6.50E-02	J				ND					
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND																				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	1.10E-01	J		YES		2.50E-01	J			YES	1.80E-01	J			YES	ND					
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND																				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	6.20E-02	J				1.90E-01	J				1.40E-01	J				ND					
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					ND					2.90E-02	J				ND					
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND																				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	7.90E-02	J				2.40E-01	J			YES	1.60E-01	J			YES	ND					
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND																				

Table 5-1

**Surface and Depositional Soil Analytical Results
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP29 AD0034 28-Sep-98 0- 1					FTA-95-GP30 AD0038 28-Sep-98 0- 1					FTA-95-GP31 AD0042 28-Sep-98 0- 1					FTA-95-GP32 AD0044 24-Sep-98 0- 1				
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
METALS																								
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	7.90E+03			YES	YES	6.72E+03				YES	1.27E+04			YES	YES	1.04E+04			YES	YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	6.30E+00	J		YES		7.60E+00	J		YES		9.20E+00	J		YES		8.00E+00			YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	7.32E+01					7.81E+01					2.02E+02		YES		YES	1.14E+02	J			
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	6.60E-01					5.60E-01					1.50E+00		YES		YES	1.10E+00		YES		YES
Calcium	mg/kg	1.72E+03	NA	NA	3.36E+03	J	YES			3.72E+04	J	YES			2.68E+04	J	YES			2.21E+04		YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.79E+01				YES	1.67E+01				YES	2.20E+01				YES	1.47E+01	J			YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	1.00E+01					1.06E+01					1.51E+01					1.21E+01				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	1.82E+01		YES			2.33E+01		YES			1.62E+01		YES			1.36E+01		YES		
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	2.32E+04			YES	YES	2.16E+04			YES	YES	2.61E+04			YES	YES	1.81E+04			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	5.84E+01		YES		YES	8.72E+01		YES		YES	5.60E+01		YES		YES	7.52E+01		YES		YES
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	1.34E+03	J	YES			1.63E+04	J	YES			4.66E+03	J	YES			8.69E+03		YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	4.54E+02	J		YES	YES	7.10E+02	J		YES	YES	2.97E+03	J	YES	YES	YES	1.52E+03	J		YES	YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	6.90E-02					1.60E-01	J	YES		YES	3.60E-01		YES		YES	6.70E-02				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	1.28E+01		YES			9.50E+00					1.58E+01		YES			9.90E+00				
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND					7.43E+02				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	8.60E-01	J	YES		YES	ND					ND					5.70E-01		YES		
Silver	mg/kg	3.60E-01	3.91E+01	2.00E+00	ND					3.30E+00		YES		YES	1.50E+00		YES			ND				
Sodium	mg/kg	6.34E+02	NA	NA	ND																			
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	8.60E+00				YES	1.49E+01				YES	1.77E+01				YES	1.68E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	6.20E+01		YES		YES	7.10E+01		YES		YES	7.56E+01		YES		YES	6.37E+01		YES		YES
VOLATILE ORGANIC COMPOUNDS																								
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND																			
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	ND					9.80E-03	B				ND					9.20E-03	B			
Acetone	mg/kg	NA	7.76E+02	2.50E+00	ND					1.20E-01	B				ND					9.60E-02	B			
Bromomethane	mg/kg	NA	1.09E+01	NA	ND																			
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND					1.00E-02	J			
Chloroform	mg/kg	NA	1.03E+02	1.00E-03	ND																			
Cumene	mg/kg	NA	7.77E+02	NA	ND																			
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	1.10E-02	B				7.00E-03	B				5.40E-03	B				4.30E-03	B			
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																			
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					2.10E-03	J				ND					2.70E-03	B			
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					1.00E-02					ND					ND				
p-Cymene	mg/kg	NA	1.55E+03	NA	ND																			

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP29 AD0034 28-Sep-98 0- 1					FTA-95-GP30 AD0038 28-Sep-98 0- 1					FTA-95-GP31 AD0042 28-Sep-98 0- 1					FTA-95-GP32 AD0044 24-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
SEMIVOLATILE ORGANIC COMPOUNDS																									
2-Methylnaphthalene	mg/kg	NA	1.55E+02	NA	ND																				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND																				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	4.80E-02	J				4.20E-01					ND					6.30E-01	J				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					3.90E-01				YES	ND					8.30E-01	J				YES
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	6.50E-02	J				4.70E-01					ND					1.80E+00		YES	YES		
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	9.90E-02	J		YES		7.10E-01			YES	YES	2.90E-02	J				2.30E+00		YES	YES	YES	
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	8.50E-02	J				6.90E-01					ND					3.70E+00	J	YES	YES		
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	6.90E-02	J				4.40E-01					ND					1.00E+00	J	YES			
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	1.20E-01	J				6.90E-01	J				4.50E-02	J				3.40E+00	J	YES			
Carbazole	mg/kg	NA	3.11E+01	NA	ND					4.80E-02	J				ND					ND					
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	7.30E-02	J				5.10E-01					ND					2.90E+00		YES			
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND																				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	3.80E-02	J				2.20E-01	J		YES		ND					6.70E-01	J		YES		
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND																				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	7.90E-02	J				5.80E-01				YES	3.60E-02	J				8.10E-01					YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND																				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	6.80E-02	J				4.40E-01					ND					1.20E+00		YES	YES		
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					7.20E-02	J				ND					ND					
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND																				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	7.30E-02	J				5.40E-01				YES	ND					9.80E-01					YES
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND																				

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP33 AD0046 24-Sep-98 0- 1					FTA-95-GP34 AD0050 24-Sep-98 0- 1					FTA-95-GP35 AD0052 24-Sep-98 0- 1					FTA-95-GP36 AD0054 24-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
METALS																									
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	6.03E+03				YES	7.44E+03				YES	5.99E+03				YES	6.02E+03					YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	1.42E+01		YES	YES	YES	7.20E+00			YES		4.00E+00			YES		5.40E+00				YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	8.54E+01	J				7.51E+01	J				5.93E+01	J				5.54E+01	J				
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	5.60E-01					6.90E-01					6.00E-01					5.50E-01					
Calcium	mg/kg	1.72E+03	NA	NA	2.51E+04		YES			3.89E+03		YES			4.49E+04		YES			1.75E+03		YES			
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.26E+01	J			YES	1.58E+01	J			YES	2.63E+01	J		YES	YES	9.06E+01	J	YES	YES	YES	YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	6.00E+00					6.50E+00					ND					8.60E+00					
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	1.72E+01		YES			1.52E+01		YES			1.28E+01		YES			1.30E+01		YES			
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	1.58E+04			YES	YES	1.40E+04			YES	YES	1.20E+04			YES	YES	1.72E+04			YES	YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	1.71E+02		YES		YES	7.34E+01		YES		YES	6.91E+01		YES		YES	2.41E+01					
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	7.49E+03		YES			1.14E+03		YES			2.29E+04		YES			7.35E+02					
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	6.22E+02	J		YES	YES	5.41E+02	J		YES	YES	5.55E+02	J		YES	YES	2.86E+02	J				YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	1.50E-01		YES		YES	2.80E-01		YES		YES	7.20E-02					9.70E-02		YES			
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	8.30E+00					9.20E+00					7.80E+00					4.31E+01		YES			YES
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND					5.82E+02					
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	5.70E-01		YES			5.50E-01		YES			ND					6.90E-01		YES			
Silver	mg/kg	3.60E-01	3.91E+01	2.00E+00	ND																				
Sodium	mg/kg	6.34E+02	NA	NA	ND																				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.50E+01				YES	1.06E+01				YES	2.66E+01				YES	8.90E+00					YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.42E+02		YES		YES	7.10E+01		YES		YES	6.79E+01		YES		YES	3.45E+01					
VOLATILE ORGANIC COMPOUNDS																									
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND																				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	1.30E-02	B				1.40E-02	B				1.20E-02	B				5.40E-03	B				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	1.30E-01	B				1.20E-01	B				1.20E-01	B				6.40E-02	B				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND																				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	2.10E-03	J				ND					3.20E-03	J				ND					
Chloroform	mg/kg	NA	1.03E+02	1.00E-03	1.70E-03	J			YES	ND					ND					ND					
Cumene	mg/kg	NA	7.77E+02	NA	ND																				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	6.10E-03	B				4.00E-03	B				4.10E-03	B				1.30E-02	B				
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	5.00E-03	B				2.00E-03	J				1.80E-03	J				2.40E-03	J				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND																				
p-Cymene	mg/kg	NA	1.55E+03	NA	ND																				

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP33 AD0046 24-Sep-98 0- 1					FTA-95-GP34 AD0050 24-Sep-98 0- 1					FTA-95-GP35 AD0052 24-Sep-98 0- 1					FTA-95-GP36 AD0054 24-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
SEMIVOLATILE ORGANIC COMPOUNDS																									
2-Methylnaphthalene	mg/kg	NA	1.55E+02	NA	ND																				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND																				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND																				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND																				
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					3.90E-02	J				ND					ND					
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	3.30E-02	J				5.10E-02	J				ND					ND					
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	4.20E-02	J				5.70E-02	J				ND					ND					
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND																				
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					4.80E-02	J				ND					ND					
Carbazole	mg/kg	NA	3.11E+01	NA	ND																				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	3.80E-02	J				4.90E-02	J				ND					ND					
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND																				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND																				
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND																				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	6.20E-02	J				6.20E-02	J				4.20E-01	J			YES	ND					
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND																				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND																				
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND																				
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND																				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	4.60E-02	J				5.30E-02	J				ND					ND					
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	5.20E-02	J				ND					ND					9.40E-02	J				

Table 5-1

**Surface and Depositional Soil Analytical Results
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP37 AD0056 24-Sep-98 0- 1					FTA-95-GP38 AD0058 24-Sep-98 0- 1					FTA-95-GP39 AD0060 28-Sep-98 0- 1					FTA-95-GP40 AD0064 25-Sep-98 0- 1						
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV		
METALS																										
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	1.35E+04			YES	YES	8.27E+03			YES	YES	1.09E+04			YES	YES	4.05E+03						YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	3.80E+00			YES		7.20E+00			YES		5.40E+00	J		YES		4.00E+00				YES		
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	1.61E+02	J	YES			9.40E+01	J				7.71E+01					3.15E+01						
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	2.10E+00		YES		YES	8.40E-01		YES			5.70E-01					ND						
Calcium	mg/kg	1.72E+03	NA	NA	7.16E+04		YES			2.59E+03		YES			1.95E+03	J	YES			3.17E+04		YES				
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	5.62E+01	J	YES	YES	YES	1.80E+01	J			YES	1.91E+01				YES	1.29E+01						YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	ND					1.05E+01					8.10E+00					ND						
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	2.64E+01		YES			1.39E+01		YES			3.71E+01		YES			4.60E+00						
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	1.43E+04			YES	YES	2.08E+04			YES	YES	1.89E+04			YES	YES	1.16E+04				YES	YES	
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	1.92E+02		YES		YES	4.71E+01		YES			2.78E+01					8.10E+00						
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	2.79E+04		YES			9.83E+02					8.64E+02	J				1.78E+04		YES				
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	1.29E+03	J		YES	YES	5.54E+02	J		YES	YES	9.23E+02	J		YES	YES	1.73E+02						YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	2.50E+00		YES	YES	YES	9.70E-02		YES			1.50E-01		YES		YES	ND						
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	9.00E+00					8.40E+00					7.60E+00					4.40E+00						
Potassium	mg/kg	8.00E+02	NA	NA	9.05E+02		YES			6.56E+02					ND					ND						
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND					8.90E-01		YES		YES	ND					ND						
Silver	mg/kg	3.60E-01	3.91E+01	2.00E+00	2.20E+00		YES		YES	ND					ND					ND						
Sodium	mg/kg	6.34E+02	NA	NA	ND																					
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	4.20E+01				YES	1.05E+01				YES	1.67E+01				YES	1.55E+01						YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.82E+02		YES		YES	4.79E+01		YES			4.52E+01		YES			8.00E+00						
VOLATILE ORGANIC COMPOUNDS																										
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND																					
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	9.20E-03	B				1.10E-02	B				9.50E-03	B				3.70E-03	B					
Acetone	mg/kg	NA	7.76E+02	2.50E+00	8.70E-02	B				1.50E-01	B				1.90E-01	J				4.10E-02	B					
Bromomethane	mg/kg	NA	1.09E+01	NA	ND					ND					2.10E-03	J				ND						
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	1.20E-02	J				ND					ND					ND						
Chloroform	mg/kg	NA	1.03E+02	1.00E-03	ND																					
Cumene	mg/kg	NA	7.77E+02	NA	ND																					
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	1.30E-02	B				4.70E-03	B				7.10E-03	B				3.20E-03	B					
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																					
Toluene	mg/kg	NA	1.55E+03	5.00E-02	3.60E-03	J				4.00E-03	J				2.00E-03	J				ND						
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					1.10E-02					ND						
p-Cymene	mg/kg	NA	1.55E+03	NA	ND																					

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP37 AD0056 24-Sep-98 0- 1					FTA-95-GP38 AD0058 24-Sep-98 0- 1					FTA-95-GP39 AD0060 28-Sep-98 0- 1					FTA-95-GP40 AD0064 25-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
SEMIVOLATILE ORGANIC COMPOUNDS																									
2-Methylnaphthalene	mg/kg	NA	1.55E+02	NA	ND																				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND					5.50E-02	J				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					ND					ND					1.70E-01	J				
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	2.40E-01	J			YES	ND					ND					2.90E-01	J				YES
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	3.90E-01	J				4.80E-02	J				5.20E-02	J				7.20E-01					
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	4.00E-01	J		YES	YES	4.50E-02	J				5.90E-02	J				7.20E-01			YES	YES	
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	6.40E-01	J				5.80E-02	J				6.00E-02	J				7.50E-01	J				
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	3.50E-01	J				4.00E-02	J				ND					5.10E-01					
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	5.60E-01	J				4.60E-02	J				6.20E-02	J				7.60E-01	J				
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND					1.20E-01	J				
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	5.20E-01	J				5.20E-02	J				6.50E-02	J				7.30E-01					
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					9.20E-02	J				ND					ND					
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					ND					ND					2.50E-01	J		YES		
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND																				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	6.50E-01	J			YES	7.80E-02	J				1.30E-01	J			YES	1.40E+00					YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND					9.20E-02	J				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	3.00E-01	J				ND					ND					4.90E-01					
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					ND					6.80E-02	J				7.70E-01					YES
Phenol	mg/kg	NA	4.66E+03	5.00E-02	9.90E-01	J			YES	ND					ND					ND					
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	5.50E-01	J			YES	6.30E-02	J				9.70E-02	J				1.00E+00					YES
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	4.80E-01	J				9.40E-02	J				ND					ND					

Table 5-1

**Surface and Depositional Soil Analytical Results
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP41 AD0066 25-Sep-98 0- 1					FTA-95-GP42 AD0068 25-Sep-98 0- 1					FTA-95-GP43 AD0070 25-Sep-98 0- 1					FTA-95-GP44 AD0072 28-Sep-98 0- 1				
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
METALS																								
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	1.11E+04			YES	YES	8.83E+03			YES	YES	7.59E+03				YES	8.81E+03			YES	YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	9.50E+00			YES		1.34E+01			YES	YES	3.30E+00			YES		8.10E+00	J		YES	
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	4.06E+01					3.60E+01					1.17E+02					1.15E+02	J			
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	7.30E-01					7.90E-01					9.10E-01		YES			6.00E-01				
Calcium	mg/kg	1.72E+03	NA	NA	9.13E+02					7.26E+03		YES			1.20E+03					1.00E+04	J	YES		
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.93E+01				YES	1.97E+01				YES	8.70E+00			YES		2.38E+01			YES	YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	1.20E+01					8.80E+00					1.28E+01					1.18E+01				
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	1.92E+01		YES			1.28E+01		YES			8.30E+00					1.36E+01		YES		
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	3.47E+04		YES	YES	YES	3.78E+04		YES	YES	YES	1.10E+04			YES	YES	2.04E+04			YES	YES
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	3.45E+01					8.99E+01		YES		YES	2.22E+01					5.24E+01		YES		YES
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	1.09E+03		YES			3.62E+03		YES			7.19E+02					4.97E+03	J	YES		
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	5.78E+02			YES	YES	5.88E+02			YES	YES	1.16E+03			YES	YES	1.04E+03	J		YES	YES
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	7.40E-02					9.30E-02		YES			6.20E-02					6.70E-02				
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	1.33E+01		YES			8.70E+00					7.30E+00					6.90E+00				
Potassium	mg/kg	8.00E+02	NA	NA	ND					ND					ND					6.02E+02				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	8.30E-01		YES		YES	5.30E-01		YES			ND					ND				
Silver	mg/kg	3.60E-01	3.91E+01	2.00E+00	ND																			
Sodium	mg/kg	6.34E+02	NA	NA	ND																			
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	1.53E+01				YES	1.09E+01				YES	9.20E+00				YES	1.69E+01				YES
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	3.74E+01					5.58E+01		YES		YES	2.12E+01					4.89E+01		YES		
VOLATILE ORGANIC COMPOUNDS																								
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND					ND					2.80E-03	J				ND				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	7.00E-03	B				ND					1.60E-02	B				8.80E-03	B			
Acetone	mg/kg	NA	7.76E+02	2.50E+00	7.40E-02	B				ND					1.60E-01	J				2.00E-01	J			
Bromomethane	mg/kg	NA	1.09E+01	NA	ND																			
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND					ND					ND					3.90E-03	J			
Chloroform	mg/kg	NA	1.03E+02	1.00E-03	ND																			
Cumene	mg/kg	NA	7.77E+02	NA	ND					ND					ND					9.00E-03				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	3.70E-03	B				2.70E-03	B				4.70E-03	B				7.20E-03	B			
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND					ND					ND					9.10E-03	J			
Toluene	mg/kg	NA	1.55E+03	5.00E-02	ND					ND					4.00E-03	J				7.00E-03	J			
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND					ND					ND					9.80E-03				
p-Cymene	mg/kg	NA	1.55E+03	NA	ND					ND					ND					2.20E-02	J			

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP41 AD0066 25-Sep-98 0- 1					FTA-95-GP42 AD0068 25-Sep-98 0- 1					FTA-95-GP43 AD0070 25-Sep-98 0- 1					FTA-95-GP44 AD0072 28-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
SEMIVOLATILE ORGANIC COMPOUNDS																									
2-Methylnaphthalene	mg/kg	NA	1.55E+02	NA	ND					ND					ND										
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND					ND					ND							1.50E+00	J	YES	
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	ND					ND					ND							9.30E-01	J	YES	
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	ND					ND					ND							4.70E+00	J	YES	YES
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	ND					5.20E-02	J				ND							8.70E+00	J	YES	YES
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	ND					5.10E-02	J				ND							6.30E+00	J	YES	YES
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	ND					7.00E-02	J				3.60E-02	J						5.50E+00	J	YES	YES
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	ND					4.50E-02	J				ND							3.30E+00	J	YES	
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	ND					5.60E-02	J				ND							7.80E+00	J	YES	
Carbazole	mg/kg	NA	3.11E+01	NA	ND					ND					ND							2.60E+00	J		
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	ND					6.10E-02	J				3.70E-02	J						8.00E+00	J	YES	YES
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND					ND					ND							ND			
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	ND					ND					ND							1.90E+00	J	YES	YES
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND					ND					ND							2.00E+00	J		
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	ND					7.40E-02	J				6.20E-02	J						2.00E+01	J	YES	YES
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND					ND					ND							2.40E+00	J	YES	
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	ND					3.80E-02	J				ND							3.30E+00	J	YES	YES
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND					ND					ND							1.80E+00	J	YES	YES
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	ND					ND					ND							1.90E+01	J	YES	YES
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND					ND					ND							ND			
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	ND					7.00E-02	J				4.80E-02	J						1.40E+01	J	YES	YES
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	ND					6.40E-02	B				ND							ND			

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP45 AD0076 25-Sep-98 0- 1					FTA-95-GP46 AD0078 25-Sep-98 0- 1					FTA-95-GP47 AD0080 25-Sep-98 0- 1					FTA-95-GP48 AD0082 25-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
METALS																									
Aluminum	mg/kg	1.63E+04	7.80E+03	5.00E+01	5.57E+03				YES	6.40E+03				YES	5.77E+03				YES	5.47E+03					YES
Arsenic	mg/kg	1.37E+01	4.26E-01	1.00E+01	5.00E+00			YES		2.60E+00			YES		3.40E+00			YES		3.70E+00			YES		
Barium	mg/kg	1.24E+02	5.47E+02	1.65E+02	1.19E+02					1.17E+02					9.07E+01					1.39E+02		YES			
Beryllium	mg/kg	8.00E-01	9.60E+00	1.10E+00	6.60E-01					7.80E-01					6.10E-01					6.80E-01					
Calcium	mg/kg	1.72E+03	NA	NA	3.37E+03		YES			1.50E+03					6.07E+02					8.96E+02					
Chromium	mg/kg	3.70E+01	2.32E+01	4.00E-01	1.41E+01				YES	1.79E+01				YES	7.90E+00				YES	9.50E+00					YES
Cobalt	mg/kg	1.52E+01	4.68E+02	2.00E+01	1.36E+01					1.84E+01		YES			5.60E+00					6.60E+00					
Copper	mg/kg	1.27E+01	3.13E+02	4.00E+01	1.12E+01					1.34E+01		YES			4.32E+01		YES		YES	4.90E+00					
Iron	mg/kg	3.42E+04	2.34E+03	2.00E+02	1.44E+04		YES	YES		2.07E+04			YES	YES	9.53E+03			YES	YES	1.56E+04			YES	YES	
Lead	mg/kg	4.01E+01	4.00E+02	5.00E+01	9.34E+01		YES		YES	8.90E+00					1.87E+01					1.73E+01					
Magnesium	mg/kg	1.03E+03	NA	4.40E+05	ND																				
Manganese	mg/kg	1.58E+03	3.63E+02	1.00E+02	1.17E+03		YES	YES		1.46E+03			YES	YES	9.67E+02			YES	YES	7.39E+02			YES	YES	
Mercury	mg/kg	8.00E-02	2.33E+00	1.00E-01	5.90E-02					5.00E-02					5.30E-02					5.30E-02					
Nickel	mg/kg	1.03E+01	1.54E+02	3.00E+01	6.90E+00					8.10E+00					4.40E+00					ND					
Potassium	mg/kg	8.00E+02	NA	NA	ND																				
Selenium	mg/kg	4.80E-01	3.91E+01	8.10E-01	ND																				
Silver	mg/kg	3.60E-01	3.91E+01	2.00E+00	ND																				
Sodium	mg/kg	6.34E+02	NA	NA	ND																				
Vanadium	mg/kg	5.88E+01	5.31E+01	2.00E+00	9.30E+00			YES		1.07E+01				YES	7.20E+00				YES	ND					
Zinc	mg/kg	4.06E+01	2.34E+03	5.00E+01	1.04E+02		YES		YES	5.80E+01		YES		YES	5.54E+01		YES		YES	1.75E+01					
VOLATILE ORGANIC COMPOUNDS																									
1,2,4-Trimethylbenzene	mg/kg	NA	3.88E+02	1.00E-01	ND																				
2-Butanone	mg/kg	NA	4.66E+03	8.96E+01	1.80E-02	B				1.80E-02	B				1.40E-02	B				9.50E-03	B				
Acetone	mg/kg	NA	7.76E+02	2.50E+00	1.70E-01	J				2.10E-01	J				2.20E-01	J				2.30E-01	J				
Bromomethane	mg/kg	NA	1.09E+01	NA	ND																				
Carbon disulfide	mg/kg	NA	7.77E+02	9.00E-02	ND																				
Chloroform	mg/kg	NA	1.03E+02	1.00E-03	ND																				
Cumene	mg/kg	NA	7.77E+02	NA	ND																				
Methylene chloride	mg/kg	NA	8.41E+01	2.00E+00	5.30E-03	B				5.70E-03	B				5.90E-03	B				6.30E-03	B				
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Toluene	mg/kg	NA	1.55E+03	5.00E-02	2.00E-03	J				ND					ND					2.30E-03	J				
m,p-Xylenes	mg/kg	NA	1.55E+04	5.00E-02	ND																				
p-Cymene	mg/kg	NA	1.55E+03	NA	ND					ND					ND					3.60E-03	J				

Table 5-1

Surface and Depositional Soil Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

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Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-GP45 AD0076 25-Sep-98 0- 1					FTA-95-GP46 AD0078 25-Sep-98 0- 1					FTA-95-GP47 AD0080 25-Sep-98 0- 1					FTA-95-GP48 AD0082 25-Sep-98 0- 1					
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	
SEMIVOLATILE ORGANIC COMPOUNDS																									
2-Methylnaphthalene	mg/kg	NA	1.55E+02	NA	ND																				
Acenaphthene	mg/kg	7.02E-01	4.63E+02	2.00E+01	ND																				
Acenaphthylene	mg/kg	8.91E-01	4.63E+02	6.82E+02	6.60E-02	J				ND					ND					ND					
Anthracene	mg/kg	9.35E-01	2.33E+03	1.00E-01	1.00E-01	J			YES	ND					ND					ND					
Benzo(a)anthracene	mg/kg	1.19E+00	8.51E-01	5.21E+00	2.40E-01	J				5.20E-02	J				ND					ND					
Benzo(a)pyrene	mg/kg	1.42E+00	8.51E-02	1.00E-01	2.50E-01	J		YES	YES	6.20E-02	J				ND					ND					
Benzo(b)fluoranthene	mg/kg	1.66E+00	8.51E-01	5.98E+01	2.70E-01	J				6.50E-02	J				ND					ND					
Benzo(ghi)perylene	mg/kg	9.55E-01	2.32E+02	1.19E+02	1.70E-01	J				4.50E-02	J				ND					ND					
Benzo(k)fluoranthene	mg/kg	1.45E+00	8.51E+00	1.48E+02	2.90E-01	J				6.20E-02	J				ND					ND					
Carbazole	mg/kg	NA	3.11E+01	NA	4.20E-02	J				ND					ND					ND					
Chrysene	mg/kg	1.40E+00	8.61E+01	4.73E+00	2.70E-01	J				6.40E-02	J				ND					ND					
Di-n-butyl phthalate	mg/kg	NA	7.80E+02	2.00E+02	ND																				
Dibenz(a,h)anthracene	mg/kg	7.20E-01	8.61E-02	1.84E+01	8.00E-02	J				ND					ND					ND					
Dibenzofuran	mg/kg	NA	3.09E+01	NA	ND																				
Fluoranthene	mg/kg	2.03E+00	3.09E+02	1.00E-01	5.20E-01				YES	1.10E-01	J			YES	ND					ND					
Fluorene	mg/kg	6.67E-01	3.09E+02	1.22E+02	ND																				
Indeno(1,2,3-cd)pyrene	mg/kg	9.37E-01	8.51E-01	1.09E+02	1.60E-01	J				4.20E-02	J				ND					ND					
Naphthalene	mg/kg	3.30E-02	1.55E+02	1.00E-01	ND																				
Phenanthrene	mg/kg	1.08E+00	2.32E+03	1.00E-01	2.50E-01	J			YES	4.60E-02	J				ND					ND					
Phenol	mg/kg	NA	4.66E+03	5.00E-02	ND																				
Pyrene	mg/kg	1.63E+00	2.33E+02	1.00E-01	3.80E-01				YES	8.60E-02	J				ND					ND					
bis(2-Ethylhexyl)phthalate	mg/kg	NA	4.52E+01	9.30E-01	9.60E-02	B				ND					2.50E-01	B				4.90E-02	B				

Analyses performed by Quanterra Environmental Services using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods, including Update III methods where applicable.

^a Bkg - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in Science Applications International Corporation (1998), *Final Background Metals Survey Report, Fort McClellan, Alabama, July*.

For SVOCs, value listed is the background screening criterion for soils adjacent to asphalt 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 Residential human health 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 - Result is greater than stated method detection limit but less than or equal to specified reporting limit.

mg/kg - Milligrams per kilogram.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

Table 5-2

**Subsurface Soil Analytical Results
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

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Analyses performed by Quanterra Environmental Services using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods, including Update III methods where applicable.

^a Bkg - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in Science Applications International Corporation (1998), *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.

^b 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 - Result is greater than stated method detection limit but less than or equal to specified reporting limit.

mg/kg - Milligrams per kilogram.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

Table 5-3

Surface Water Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

(Page 1 of 2)

Sample Location Sample Number Sample Date					FTA-95-SW/SD01 AD2001 20-Oct-98					FTA-95-SW/SD02 AD2002 23-Oct-98					FTA-95-SW/SD03 AD2005 23-Oct-98				
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
METALS																			
Calcium	mg/L	2.52E+01	NA	1.16E+02	2.02E+01					1.92E+01					1.91E+01				
Iron	mg/L	1.96E+01	4.70E+00	1.00E+00	1.38E-01					ND					ND				
Lead	mg/L	8.60E-03	1.50E-02	1.32E-03	5.60E-03				YES	4.80E-03				YES	4.80E-03				YES
VOLATILE ORGANIC COMPOUNDS																			
Acetone	mg/L	NA	1.57E+00	7.80E+01	1.40E-03	B				1.20E-03	B				1.30E-03	B			
Hexachlorobutadiene	mg/L	NA	1.28E-02	9.30E-04	ND					ND					ND				
SEMIVOLATILE ORGANIC COMPOUNDS																			
Phenol	mg/L	NA	9.06E+00	2.56E-01	4.50E-03	B				5.00E-03	B				4.40E-03	B			
bis(2-Ethylhexyl)phthalate	mg/L	NA	5.17E-02	3.00E-04	3.10E-03	J			YES	ND					8.20E-03	J			YES

Table 5-3

Surface Water Analytical Results
 Old Hospital, Parcel 95(7)
 Fort McClellan, Calhoun County, Alabama

(Page 2 of 2)

Sample Location Sample Number Sample Date					FTA-95-SW/SD05 AD2007 21-Oct-98					FTA-95-SW/SD06 AD2008 21-Oct-98				
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
METALS														
Calcium	mg/L	2.52E+01	NA	1.16E+02	1.77E+01					1.73E+01				
Iron	mg/L	1.96E+01	4.70E+00	1.00E+00	1.36E-01					1.51E-01				
Lead	mg/L	8.60E-03	1.50E-02	1.32E-03	6.60E-03				YES	6.90E-03				YES
VOLATILE ORGANIC COMPOUNDS														
Acetone	mg/L	NA	1.57E+00	7.80E+01	ND					ND				
Hexachlorobutadiene	mg/L	NA	1.28E-02	9.30E-04	ND					2.30E-04	J			
SEMIVOLATILE ORGANIC COMPOUNDS														
Phenol	mg/L	NA	9.06E+00	2.56E-01	2.30E-03	B				2.10E-03	B			
bis(2-Ethylhexyl)phthalate	mg/L	NA	5.17E-02	3.00E-04	ND					ND				

Analyses performed by Quanterra Environmental Services using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods, including Update III methods where applicable.

^a Bkg - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in Science Applications International Corporation (1998), *Final Background Metals Survey Report, Fort McClellan, Alabama*, July.

^b 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 - Result is greater than stated method detection limit but less than or equal to specified reporting limit.

mg/L - Milligrams per liter.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

Table 5-4

**Sediment Analytical Results
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 2)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-SW/SD01 AD1001 20-Oct-98 0- .5					FTA-95-SW/SD02 AD1002 23-Oct-98 0- .5					FTA-95-SW/SD03 AD1003 23-Oct-98 0- .5				
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
METALS																			
Aluminum	mg/kg	8.59E+03	1.15E+06	NA	2.55E+03					2.69E+03					2.19E+03				
Arsenic	mg/kg	1.13E+01	5.58E+01	7.24E+00	4.20E+00					5.30E+00					3.70E+00				
Barium	mg/kg	9.89E+01	8.36E+04	NA	3.58E+01					4.31E+01					3.58E+01				
Beryllium	mg/kg	9.70E-01	1.50E+02	NA	1.00E+00		YES			9.70E-01		YES			ND				
Chromium	mg/kg	3.12E+01	2.79E+03	5.23E+01	2.97E+01	J				1.89E+01	J				1.05E+01	J			
Cobalt	mg/kg	1.10E+01	6.72E+04	5.00E+01	1.22E+01		YES			ND					ND				
Copper	mg/kg	1.71E+01	4.74E+04	1.87E+01	2.19E+01	J	YES		YES	1.72E+01	J	YES			3.17E+01	J	YES		YES
Iron	mg/kg	3.53E+04	3.59E+05	NA	3.50E+04					2.82E+04					1.53E+04				
Lead	mg/kg	3.78E+01	4.00E+02	3.02E+01	7.83E+01	J	YES		YES	4.53E+01	J	YES		YES	1.33E+02	J	YES		YES
Manganese	mg/kg	7.12E+02	4.38E+04	NA	4.34E+02	J				3.25E+02	J				2.60E+02	J			
Nickel	mg/kg	1.30E+01	1.76E+04	1.59E+01	8.40E+00					8.30E+00					6.20E+00				
Selenium	mg/kg	7.20E-01	5.96E+03	NA	9.70E-01		YES			7.40E-01		YES			ND				
Zinc	mg/kg	5.27E+01	3.44E+05	1.24E+02	3.28E+01	J				3.08E+01	B				3.04E+01	B			
VOLATILE ORGANIC COMPOUNDS																			
2-Butanone	mg/kg	NA	6.23E+05	1.37E-01	ND					4.90E-03	J				4.50E-03	J			
Acetone	mg/kg	NA	1.03E+05	4.53E-01	3.10E-02	B				5.20E-02	B				4.90E-02	B			
Bromomethane	mg/kg	NA	1.43E+03		ND					ND					3.00E-03	B			
Methylene chloride	mg/kg	NA	9.84E+03	1.26E+00	9.60E-03	B				7.10E-03	B				1.10E-02	B			
SEMIVOLATILE ORGANIC COMPOUNDS																			
bis(2-Ethylhexyl)phthalate	mg/kg	NA	5.41E+03	1.82E-01	ND					7.40E-02	B				9.80E-02	B			

Table 5-4

**Sediment Analytical Results
Old Hospital, Parcel 95(7)
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 2)

Sample Location Sample Number Sample Date Sample Depth (Feet)					FTA-95-SW/SD05 AD1010 21-Oct-98 0- .5					FTA-95-SW/SD06 AD1009 21-Oct-98 0- .5				
Parameter	Units	BKG ^a	SSSL ^b	ESV ^b	Result	Qual	>BKG	>SSSL	>ESV	Result	Qual	>BKG	>SSSL	>ESV
METALS														
Aluminum	mg/kg	8.59E+03	1.15E+06	NA	2.50E+03	J				1.46E+03				
Arsenic	mg/kg	1.13E+01	5.58E+01	7.24E+00	2.80E+00					1.70E+00				
Barium	mg/kg	9.89E+01	8.36E+04	NA	ND					ND				
Beryllium	mg/kg	9.70E-01	1.50E+02	NA	ND					ND				
Chromium	mg/kg	3.12E+01	2.79E+03	5.23E+01	9.50E+00	J				6.50E+00	J			
Cobalt	mg/kg	1.10E+01	6.72E+04	5.00E+01	ND					ND				
Copper	mg/kg	1.71E+01	4.74E+04	1.87E+01	2.99E+01	J	YES		YES	3.71E+01	J	YES		YES
Iron	mg/kg	3.53E+04	3.59E+05	NA	1.70E+04					1.15E+04				
Lead	mg/kg	3.78E+01	4.00E+02	3.02E+01	1.11E+02	J	YES		YES	1.81E+02	J	YES		YES
Manganese	mg/kg	7.12E+02	4.38E+04	NA	2.15E+02	J				1.16E+02	J			
Nickel	mg/kg	1.30E+01	1.76E+04	1.59E+01	7.80E+00					ND				
Selenium	mg/kg	7.20E-01	5.96E+03	NA	6.50E-01					ND				
Zinc	mg/kg	5.27E+01	3.44E+05	1.24E+02	3.99E+01	J				1.97E+01	B			
VOLATILE ORGANIC COMPOUNDS														
2-Butanone	mg/kg	NA	6.23E+05	1.37E-01	ND					ND				
Acetone	mg/kg	NA	1.03E+05	4.53E-01	2.90E-02	B				3.10E-02	B			
Bromomethane	mg/kg	NA	1.43E+03		ND					ND				
Methylene chloride	mg/kg	NA	9.84E+03	1.26E+00	8.30E-03	B				7.50E-03	B			
SEMIVOLATILE ORGANIC COMPOUNDS														
bis(2-Ethylhexyl)phthalate	mg/kg	NA	5.41E+03	1.82E-01	ND					ND				

Analyses performed by Quanterra Environmental Services using U.S. Environmental Protection Agency (EPA) SW-846 analytical methods, including Update III methods where applicable.

^a Bkg - Background. Concentration listed is two times (2x) the arithmetic mean of background metals concentration given in Science Applications International Corporation (1998), *Final Background Metals Survey Report, Fort McClellan, Alabama, July*.

^b 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 - Result is greater than stated method detection limit but less than or equal to specified reporting limit.

mg/kg - Milligrams per kilogram.

NA - Not available.

ND - Not detected.

Qual - Data validation qualifier.

methylene chloride, naphthalene, p-cymene, and toluene, were detected in surface and depositional soil samples collected at the Old Hospital, Parcel 95(7). Chloroform (FTA-95-GP33), 1,2,4-trimethylbenzene (FTA-95-GP43), cumene (FTA-95-GP44), and naphthalene (FTA-95-GP44) were each detected in only one of the samples. The 1,2,4-trimethylbenzene, chloroform, and naphthalene results were flagged with a “J” data qualifier signifying that result is greater than the method detection limit (MDL) but less than the specified RL. Methylene chloride was detected in each of the samples; however, the results were flagged with a “B” data qualifier signifying that methylene chloride was also detected in an associated laboratory or field blank. Nine of the twelve detected VOCs were present in the sample collected at FTA-95-GP44.

Detected VOCs were not present at concentrations exceeding SSSLs. The chloroform concentration at sample location FTA-95-GP33 exceeded the ESV.

Semivolatile Organic Compounds. Twenty-two SVOCs were detected in surface and depositional soil samples collected at the Old Hospital, Parcel 95(7). Dibenzofuran (FTA-95-GP44), 2-methylnaphthalene (FTA-95-GP44), di-n-butyl phthalate (FTA-95-GP38), naphthalene (FTA-95-GP44), and phenol (FTA-95-GP37) were each detected in only one of the samples. These results were flagged with a “J” data qualifier signifying that result is greater than the MDL but less than the specified RL. Sample location FTA-95-GP44 contained nineteen of the twenty-two detected SVOCs; sample location FTA-95-GP40 contained sixteen of the twenty-two detected SVOCs.

The concentrations of five SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene) exceeded SSSLs and PAH background screening values at surface soil sample location FTA-95-GP44. The concentrations of four SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) exceeded SSSLs and PAH background values at FTA-95-GP32. Because the sample from FTA-95-GP44 was collected from beneath asphalt, the SVOC results exceeding SSSLs were also compared to the PAH background screening values for soils collected beneath asphalt. The concentrations of these five SVOCs at sample location FTA-95-GP44 also exceeded the PAH background screening values for soils collected beneath asphalt. With the exception of the dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene results, the concentrations of these SVOCs in both samples were within the same order of magnitude as the PAH background screening values. The concentrations of the SVOCs detected at FTA-95-GP32 and FTA-95-GP44 ranged from 1.2 mg/kg to 8.7 mg/kg.

The concentrations of nine SVOCs, including anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, naphthalene, phenol, phenanthrene, and pyrene, exceeded ESVs in surface and depositional soils. Of these, anthracene (FTA-95-GP44), benzo(a)anthracene (FTA-95-GP44), benzo(a)pyrene (FTA-95-GP32 and FTA-95-GP44), chrysene (FTA-95-GP44), fluoranthene (FTA-95-GP44), naphthalene (FTA-95-GP44), phenanthrene (FTA-95-GP44), and pyrene (FTA-95-GP44) also exceeded PAH background screening values.

5.2 Subsurface Soil Sample Results

Forty-eight subsurface soil samples were collected for chemical analyses at the Old Hospital, Parcel 95(7). Subsurface soil samples were collected at depths greater than 1 foot bgs at the sample locations shown on Figure 3-1. Analytical results were compared to residential human health SSSLs and metals background screening values, as presented in Table 5-2.

Metals. Twenty metals were detected in subsurface soils at the Old Hospital, Parcel 95(7). Aluminum, barium, chromium, iron, lead, manganese, and zinc were detected in each of the subsurface soil samples. Silver was detected at only one sample location (FTA-95-GP30). Sample locations FTA-95-GP13 and FTA-95-GP14 each contained eighteen of the twenty detected metals.

The concentrations of six metals (aluminum, arsenic, barium, chromium, iron, and manganese) exceeded SSSLs in subsurface soils. Of these metals, aluminum (ten locations), arsenic (two locations), barium (one location), iron (six locations), and manganese (one location) concentrations also exceeded background concentrations. However, with the exception of four of the iron results, the metals concentrations were within the range of background values determined by SAIC (Appendix G).

Volatile Organic Compounds. Nine VOCs were detected in subsurface soil samples collected at the Old Hospital, Parcel 95(7). The acetone results, methylene chloride results, and all but one of the 2-butanone results were flagged with a “B” data qualifier signifying that these compounds were also detected in an associated laboratory or field blank. Carbon disulfide (FTA-95-GP17), 1,2,3-trichlorobenzene (FTA-95-GP09), and trichlorofluoromethane (FTA-95-GP04) were each detected in only one of the samples. Sample locations FTA-95-GP09, FTA-95-GP17, FTA-95-GP44, and FTA-95-GP48 each contained four of the nine detected VOCs.

Detected VOCs were not present at concentrations exceeding SSSLs.

Semivolatile Organic Compounds. Thirteen SVOCs were detected in subsurface soil samples collected at the Old Hospital, Parcel 95(7). SVOCs were not detected at thirty-three of the forty-eight sample locations and, at six sample locations, bis(2-ethylhexyl) phthalate was the only detected SVOC. With the exception of three results, the SVOC analytical results were flagged with either a “J” or “B” data qualifier. The detected SVOCs were present in each of the samples collected from locations FTA-95-GP26 and FTA-95-GP28. Sample locations FTA-95-GP06 and FTA-95-GP10 each contained twelve of the thirteen detected SVOCs.

The concentrations of benzo(a)pyrene (five locations) and dibenz(a,h)anthracene (one location) exceeded SSSLs.

5.3 Surface Water Sample Results

Five surface water samples were collected at the Old Hospital, Parcel 95(7) at the locations shown on Figure 3-1. Analytical results were compared to recreational site user human health SSSLs, ESVs, and metals background screening values, as presented in Table 5-3.

Metals. Three metals, including calcium, iron, and lead, were detected in unfiltered surface water samples collected at the Old Hospital, Parcel 95(7). The metals concentrations were below SSSLs. Lead concentrations exceeded the ESV in each of the samples but were within background concentrations.

Volatile Organic Compounds. Acetone and hexachlorobutadiene were detected in surface water samples collected at the Old Hospital, Parcel 95(7). Acetone was detected in three of the samples; however, the results were flagged with a “B” data qualifier signifying that acetone was also detected in an associated laboratory or field blank. Hexachlorobutadiene was detected at only one sample location (FTA-95-SW/SD06). The analytical result was flagged with a “J” data qualifier signifying that result is greater than the MDL but less than the specified RL.

The acetone and hexachlorobutadiene concentrations were below SSSLs and ESVs.

Semivolatile Organic Compounds. Phenol and bis(2-ethylhexyl) phthalate were detected in surface water samples collected at the Old Hospital, Parcel 95(7). Phenol was detected in each

of the surface water samples but results were flagged with a “B” data qualifier signifying that the compound was also detected in an associated laboratory or field blank. Bis(2-ethylhexyl) phthalate was detected at two sample locations (FTA-95-SW/SD01 and FTA-95-SW/SD03); however, the results were flagged with a “J” data qualifier signifying that result is greater than the MDL but less than the specified RL.

The phenol and bis(2-ethylhexyl) phthalate concentrations were below SSSLs. The bis(2-ethylhexyl) phthalate concentrations exceeded the ESV.

5.4 Sediment Sample Results

Five sediment samples were collected at the Old Hospital, Parcel 95(7). Samples were collected from the upper 0.5 foot of sediment at the sample locations shown on Figure 3-1. Analytical results were compared to recreational site user human health SSSLs, ESVs, and metals background screening values, as presented in Table 5-4.

Metals. Thirteen metals, including aluminum, arsenic, barium, beryllium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, and zinc were detected in sediment samples collected at the Old Hospital, Parcel 95(7). Each of the detected metals was present in the sample collected at FTA-95-SW/SD01, and twelve of the thirteen detected metals were present in the sample collected at FTA-95-SW/SD02.

The concentrations of the detected metals were below SSSLs. The concentrations of copper (four locations) and lead (five locations) exceeded ESVs and background concentrations.

Volatile Organic Compounds. Four VOCs, including 2-butanone, acetone, bromomethane, and methylene chloride, were detected in sediment samples collected at the Old Hospital, Parcel 95(7). Methylene chloride and acetone were detected in each of the sediment samples; however, the results were flagged with a “B” data qualifier signifying that these compounds were also detected in an associated laboratory or field blank. Each of the detected VOCs was present in the sample collected from FTA-95-SW/SD03.

Detected VOCs were not present at concentrations exceeding SSSLs or ESVs.

Semivolatile Organic Compounds. The SVOC bis(2-ethylhexyl) phthalate was detected in the sediment samples collected from FTA-95-SW/SD02 and FTA-95-SW/SD03 at the Old

Hospital, Parcel 95(7). The bis(2-ethylhexyl) phthalate results were flagged with a “B” data qualifier signifying that the compound was also detected in an associated laboratory or field blank.

The bis(2-ethylhexyl) phthalate concentrations were below the SSSL and ESV.

Total Organic Carbon and Grain Size. Five sediment samples were collected and analyzed for TOC and grain size. The TOC content ranged from 971 to 2,750 mg/kg of carbon present in the sediment samples. TOC and grain-size distribution results are presented in Appendix D.

6.0 Summary and Conclusions and Recommendations

IT, under contract with USACE, completed an SI at the Old Hospital, Parcel 95(7) at FTMC, Calhoun County, Alabama. The SI was conducted to determine whether chemical constituents are present at the Old Hospital, Parcel 95(7) and, if present, whether the concentrations would present an unacceptable risk to human health or the environment. The SI at the Old Hospital, Parcel 95(7) consisted of the sampling and analyses of 20 surface soil samples, 4 depositional soil samples, 48 subsurface soil samples, 5 surface water samples, and 5 sediment samples.

Chemical analyses of the samples collected at the Old Hospital, Parcel 95(7) indicate that metals, VOCs, and SVOCs were detected in the environmental media sampled. Analytical results were compared to the human health SSSLs and ESVs for FTMC. The SSSLs and ESVs were developed by IT for human health and ecological risk evaluations as part of the ongoing SIs being performed under the BRAC Environmental Restoration Program at FTMC. Additionally, metal concentrations exceeding SSSLs and ESVs were compared to media-specific background screening values (SAIC, 1998), and SVOC concentrations exceeding SSSLs and ESVs in surface and depositional soils were compared to PAH background screening values, where available (IT, 2000b).

Several metals and SVOCs were detected in site media (primarily surface and depositional soils) at concentrations exceeding ESVs. In addition, one VOC (chloroform) was detected in one surface soil sample at a concentration exceeding the ESV. However, the potential impact to ecological receptors is expected to be minimal based on the limited viable habitat and the existing site conditions. The site is a well-developed area, consisting of buildings and paved roads/areas interspersed with grassy areas, and is projected for use as an education/training area (FTMC, 1997). Viable ecological habitat is presently limited and is not expected to increase in the future land-use scenario. Consequently, the potential threat to ecological receptors is expected to be low.

The potential threat to human receptors is also expected to be low. Although the site is projected for future use as an education/training area, the soils data were screened against residential human health SSSLs to evaluate the parcel for possible unrestricted future use. With the exception of mercury in one surface soil sample and iron in four subsurface soil samples, the metals detected in site media were within background concentrations or the range of background values. The iron results were within the same order of magnitude as background concentrations.

The mercury concentration (2.5 mg/kg) exceeded the residential human health SSSL (2.33 mg/kg) at one sample location (FTA-95-GP37). However, mercury was not detected in the subsurface soil sample collected at FTA-95-GP37 and mercury concentrations in six surface soil sample locations surrounding FTA-95-GP37 were below the SSSL. The extent of the mercury contamination is defined horizontally and vertically and is very limited. Given the limited impacted area, the iron and mercury are not expected to pose a substantial threat to human health.

The concentrations of four SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) exceeded SSSLs and PAH background values at two surface soil locations (FTA-95-GP32 and FTA-95-GP44). In addition, the concentration of dibenz[a,h]anthracene exceeded the SSSL and PAH background value at FTA-95-GP44. These sample locations were immediately adjacent to (FTA-95-GP32) or beneath (FTA-95-GP44) old asphalt areas, which have likely leached these compounds to the surrounding surface soils causing the elevated SVOC results. With the exception of the dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene results, the concentrations of these SVOCs in both samples were within the same order of magnitude as the PAH background screening values. The concentrations of the SVOCs detected at FTA-95-GP32 and FTA-95-GP44 ranged from 1.2 mg/kg to 8.7 mg/kg. SVOCs were not detected in the subsurface soil samples collected at these locations. In subsurface soils, benzo(a)pyrene (five locations) and dibenz(a,h)anthracene (one location) exceeded SSSLs. However, the cumulative concentration (1.03 mg/kg) of these two SVOCs in subsurface soils is very low. Given the limited distribution and low concentrations, the SVOCs detected in surface, depositional, and subsurface soils are not expected to pose a substantial threat to human health.

Based on the results of the SI, past operations at the Old Hospital, Parcel 95(7) do not appear to have adversely impacted the environment. The metals and organic compounds detected in site media do not pose an unacceptable risk to human health or the environment. Therefore, IT recommends “No Further Action” with regard to hazardous, toxic, and radioactive waste at the Old Hospital, Parcel 95(7).

7.0 References

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ATTACHMENT 1

LIST OF ABBREVIATIONS AND ACRONYMS

List of Abbreviations and Acronyms

Abs	skin absorption	COE	Corps of Engineers	FMP 1300	Former Motor Pool 1300 Site
AC	hydrogen cyanide	Con	skin or eye contact	Frtn	fraction
AcB2	Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded	CRL	certified reporting limit	FS	field split
AcC2	Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded	CRZ	contamination reduction zone	ft	feet
AcD2	Anniston and Allen gravelly loams, 10 to 15 percent slopes, eroded	CS	ortho-chlorobenzylidene-malononitrile	ft/ft	feet per foot
AcE2	Anniston and Allen gravelly loams, 15 to 25 percent slopes, eroded	CSEM	conceptual site exposure model	FTA	fire training area
ACGIH	American Conference of Governmental Industrial Hygienists	ctr.	container	FTMC	Fort McClellan
ADEM	Alabama Department of Environmental Management	CWA	chemical warfare agent	g	gram
AEL	airborne exposure limit	CWM	chemical warfare materials, clear wide mouth	G-856	Geometrics, Inc. G-856 magnetometer
AL	Alabama	CX	dichloroformoxime	G-858G	Geometrics, Inc. G-858G magnetic gradiometer
amb.	Amber	D	duplicate	gal	gallon
ANAD	Anniston Army Depot	DANC	decontamination agent, non-corrosive	gal/min	gallons per minute
APT	armor piercing tracer	°C	degrees Celsius	GB	sarin
ASP	Ammunition Supply Point	°F	degrees Fahrenheit	gc	clay gravels; gravel-sand-clay mixtures
ASR	Archives Search Report, July 1999	DDT	dichlorodiphenyltrichloroethane	GC	gas chromatograph
AST	aboveground storage tank	DEP	depositional soil	GC/MS	gas chromatograph/mass spectrometer
ASTM	American Society for Testing and Materials	DI	deionized	GFAA	graphite furnace atomic absorption
B	analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero)	DIMP	di-isopropylmethylphosphonate	gm	silty gravels; gravel-sand-silt mixtures
BCT	BRAC Cleanup Team	DMMP	dimethylmethylphosphonate	gp	poorly graded gravels; gravel-sand mixtures
BFB	bromofluorobenzene	DOD	U.S. Department of Defense	gpm	gallons per minute
bgs	below ground surface	DP	direct-push	GPR	ground-penetrating radar
bkg	background	DPDO	Defense Property Disposal Office	GPS	global positioning system
bls	below land surface	DQO	data quality objective	GSPB	Ground Scar Boiler Plant
BOD	biological oxygen demand	DRMO	Defense Reutilization and Marketing Office	GSSI	Geophysical Survey Systems, Inc.
BRAC	Base Realignment and Closure	DS	deep (subsurface) soil	GW	groundwater
Braun	Braun Intertec Corporation	DS2	Decontamination Solution Number 2	gw	well-graded gravels; gravel-sand mixtures
BTEX	benzene, toluene, ethylbenzene, and xylenes	E&E	Ecology and Environment, Inc.	HA	hand auger
BTOC	below top of casing	EBS	environmental baseline survey	HCl	hydrochloric acid
BZ	breathing zone	Elev.	elevation	HD	distilled mustard
C	ceiling limit value	EM	electromagnetic	HDPE	high-density polyethylene
Ca	carcinogen	EM31	Geonics Limited EM31 Terrain Conductivity Meter	Herb.	herbicides
CCAL	continuing calibration	EM61	Geonics Limited EM61 High-Resolution Metal Detector	HNO ₃	nitric acid
CCB	continuing calibration blank	EOD	explosive and ordnance disposal	hr	hour
CD	compact disc	EODT	explosive and ordnance disposal team	H&S	health and safety
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	EPA	U.S. Environmental Protection Agency	HSA	hollow stem auger
CERFA	Community Environmental Response Facilitation Act	EPC	exposure point concentration	HTRW	hazardous, toxic, and radioactive waste
CESAS	Corps of Engineers South Atlantic Savannah	EPIC	Environmental Photographic Interpretation Center	I	out of control, data rejected due to low recovery
CFC	chlorofluorocarbon	ER	equipment rinsate	ICAL	initial calibration
CG	cyanogen chloride	ESE	Environmental Science and Engineering, Inc.	ICB	initial calibration blank
ch	inorganic clays of high plasticity	ESV	ecological screening value	ICP	inductively-coupled plasma
CK	carbonyl chloride	E-W	east to west	ICS	interference check sample
cl	inorganic clays of low to medium plasticity	EZ	exclusion zone	ID	inside diameter
Cl.	chlorinated	FB	field blank	IDL	instrument detection limit
CLP	Contract Laboratory Program	FD	field duplicate	IDLH	immediately dangerous to life or health
CN	chloroacetophenone	FedEx	Federal Express, Inc.	IDW	investigation-derived waste
CNB	chloroacetophenone, benzene, and carbon tetrachloride	FFE	field flame expedient	IMPA	isopropylmethyl phosphonic acid
CNS	chloroacetophenone, chloropicrin, and chloroform	Fil	filtered	in.	inch
COC	chain of custody	FIt	filtered	Ing	ingestion

List of Abbreviations and Acronyms (Continued)

Inh	inhalation	ND	not detected	qty	quantity
IP	ionization potential	NE	no evidence	Qual	qualifier
IPS	International Pipe Standard	NFA	No Further Action	R	rejected
IRDMIS	Installation Restoration Data Management Information System	ng/L	nanograms per liter	RCRA	Resource Conservation and Recovery Act
IT	IT Corporation	NGVD	National Geodetic Vertical Datum	ReB3	Rarden silty clay loams
ITEMS	IT Environmental Management System™	NIC	notice of intended change	REG	field sample
J	estimated concentration	NIOSH	National Institute for Occupational Safety and Health	REL	recommended exposure limit
JeB2	Jefferson gravelly fine sandy loam, 2 to 6 percent slopes, eroded	No.	number	RFA	request for analysis
JeC2	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded	NOAA	National Oceanic and Atmospheric Administration	RI	remedial investigation
JfB	Jefferson stony fine sandy loam, 0 to 10 percent slopes have strong slopes	NR	not requested	RL	reporting limit
K	conductivity	ns	nanosecond	RPD	relative percent difference
L	lewisite; liter	N-S	north to south	RRF	relative response factor
LC ₅₀	lethal concentration for 50 percent of population tested	nT	nanotesla	RSD	relative standard deviation
LD ₅₀	lethal dose for 50 percent of population tested	NTU	nephelometric turbidity unit	RTK	real-time kinematic
l	liter	O&G	oil and grease	SAD	South Atlantic Division
LCS	laboratory control sample	OD	outside diameter	SAE	Society of Automotive Engineers
LEL	lower explosive limit	OE	ordnance and explosives	SAIC	Science Applications International Corporation
LT	less than the certified reporting limit	oh	organic clays of medium to high plasticity	SAP	installation-wide sampling and analysis plan
max	maximum	ol	organic silts and organic silty clays of low plasticity	sc	clayey sands; sand-clay mixtures
MDL	method detection limit	OP	organophosphorus	Sch.	schedule
mg/kg	milligrams per kilogram	OSHA	Occupational Safety and Health Administration	SD	sediment
mg/L	milligrams per liter	OWS	oil/water separator	SDG	sample delivery group
mg/m ³	milligrams per cubic meter	oz	ounce	SDZ	safe distance zone
mh	inorganic silts, micaceous or diatomaceous fine, sandy or silt soils	PAH	polynuclear aromatic hydrocarbon	SEMS	Southern Environmental Management & Specialties
MHz	megahertz	Pb	lead	SFSP	site-specific field sampling plan
µg/g	micrograms per gram	PCB	polychlorinated biphenyl	SGF	standard grade fuels
µg/kg	micrograms per kilogram	PCE	perchloroethene	SHP	installation-wide safety and health plan
µg/L	micrograms per liter	PDS	Personnel Decontamination Station	SI	site investigation
µmhos/cm	micromhos per centimeter	PEL	permissible exposure limit	sm	silty sands; sand-silt mixtures
min	minimum	Pest.	pesticide	SOP	standard operating procedure
MINICAMS	miniature continuous air sampling system	PG	professional geologist	sp	poorly graded sands; gravelly sands
ml	inorganic silts and very fine sands	PID	photoionization detector	SP	sump pump
mL	milliliter	PkA	Philo and Stendal soils local alluvium, 0 to 2 percent slopes	Ss	stony rough land, sandstone series
mm	millimeter	POL	petroleum, oils, and lubricants	SS	surface soil
MOGAS	motor vehicle gasoline	PP	peristaltic pump	SSC	site-specific chemical
MPA	methyl phosphonic acid	ppb	parts per billion	SSHO	site safety and health officer
MR	molasses residue	PPE	personal protective equipment	SSHP	site-specific safety and health plan
MS	matrix spike	ppm	parts per million	SSSL	site-specific screening level
mS/cm	milliSiemens per centimeter	PPMP	Print Plant Motor Pool	STB	supertropical bleach
MSD	matrix spike duplicate	ppt	parts per thousand	STEL	short-term exposure limit
msl	mean sea level	PSSC	potential site-specific chemical	STOLS	Surface Towed Ordnance Locator System®
MtD3	Montevallo shaly, silty clay loam, 10 to 40 percent slopes, severely eroded	pt	peat or other highly organic silts	Std. units	standard units
mV	millivolts	PVC	polyvinyl chloride	SU	standard unit
MW	monitoring well	QA	quality assurance	SVOC	semivolatile organic compound
N/A	not applicable; not available	QA/QC	quality assurance/quality control	SW	surface water
NAD	North American Datum	QAP	installation-wide quality assurance plan	SW-846	U.S. EPA Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
NAD83	North American Datum of 1983	QC	quality control	SZ	support zone
NAVD88	North American Vertical Datum of 1988	QST	QST Environmental Inc.	TAL	target analyte list

List of Abbreviations and Acronyms (Continued)

TAT	turn around time
TB	trip blank
TCE	trichloroethene
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TDGCL	thiodiglycol
TDGCLA	thiodiglycol chloroacetic acid
TERC	Total Environmental Restoration Contract
TIC	tentatively identified compounds
TLV	threshold limit value
TN	Tennessee
TOC	top of casing, total organic carbon
TPH	total petroleum hydrocarbons
TRADOC	U.S. Army Training and Doctrine Command
TRPH	total recoverable petroleum hydrocarbons
TWA	time weighted average
UCL	upper confidence limit
UCR	upper certified range
UJ	not detected above reporting limit; result should be estimated
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USAEHA	U.S. Army Environmental Hygiene Agency
USAMCLS	U.S. Army Chemical School
USATEU	U.S. Army Technical Escort Unit
USATHAMA	U.S. Army Toxic and Hazardous Material Agency
USCS	Unified Soil Classification System
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
UXO	unexploded ordnance
VOA	volatile organic analyte
VOC	volatile organic compound
VOH	volatile organic hydrocarbon
VQlfr	validation qualifier
VQual	validated qualifier
VX	nerve agent (O-ethyl-S- [diisopropylaminoethyl]-methylphosphonothiolate)
Weston	Roy F. Weston, Inc.
WP	installation-wide work plan
WS	watershed
WSA	Watershed Screening Assessment
WWI	World War I
WWII	World War II
XRF	x-ray fluorescence
yd ³	cubic yards

APPENDIX A

SAMPLE COLLECTION LOGS AND ANALYSIS REQUEST/ CHAIN-OF-CUSTODY RECORDS

SAMPLE COLLECTION LOGS AND ANALYSIS REQUEST

CHAIN-OF-CUSTODY RECORDS

APPENDIX B
BORING LOGS

APPENDIX C
SURVEY DATA

APPENDIX D

SUMMARY OF VALIDATED ANALYTICAL DATA

APPENDIX E
DATA VALIDATION SUMMARY REPORT

APPENDIX F
VARIANCES

APPENDIX G

SUMMARY STATISTICS FOR BACKGROUND MEDIA