6, II

Final - Volume 2 of 4

U.S. Army Environmental Center

RI/FS SAMPLING AND ANALYSIS PLAN

FORT McCLELLAN, ALABAMA
TASK ORDER 005
Contract Number DAAA15-91-D-0017

FINAL

Volume II: QUALITY ASSURANCE PROJECT PLAN

Prepared for:

U.S. Army Environmental Center
Installation Restoration Division
Aberdeen Proving Ground, Maryland 21010-5401

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SAMPLING AND ANALYSIS PLAN
FOR
FORT McCLELLAN RI/FS
ANNISTON, ALABAMA

Volume II: Quality Assurance Project Plan

FINAL

Submitted to:

U.S. Army Environmental Center
Installation Restoration Division
SFIM-AEC-IRB
Aberdeen Proving Ground, Maryland 21010-5401

Submitted by:

Science Applications International Corporation
1710 Goodridge Drive
McLean, Virginia 22102

USATHAMA Contract DAAA15-91-D-0017
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SAIC Project No. 01-0827-03-6520-005

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LIST OF ACRONYMS AND ABBREVIATIONS

AMPS	U.S. Military Police School
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
BFB	4-Bromofluorobenzene
BG	Bacillus Goldbigii
BLS	Below Land Surface
CAR	Corrective Action Report
CCV	Continuing Calibration Verification
CIH	Certified Industrial Hygienist
CLP	Contract Laboratory Program
CRL	Certified Reporting Limit
CVAA	Cold Vapor Atomic Absorption
DCL	DataChem Laboratories
DEM	Department of Environmental Management
DFTPP	Decafluorotriphenylphosphene
DMP	Data Management Plan
DOD	Department of Defense
DOT	U.S. Department of Transportation
DQO	Data Quality Objective
ECG	Environmental Compliance Group
EICP	Extracted Ion Current Profile
EPA	U.S. Environmental Protection Agency
ES&E	Environmental Science &Engineering, Inc.
FEL	Field Equipment List
FSP	Field Sampling Plan
GB	Sarin
GC/MS	Gas Chromatography/Mass Spectrometry
GFAA	Graphite Furnace Atomic Absorption
H&SP	Health and Safety Plan

LIST OF ACRONYMS AND ABBREVIATIONS
(continued)

HD	Mustard
HPLC	High Pressure Liquid Chromatography
IC	Ion Chromatography
ICAP	Inductively Coupled Argon Plasma
ICP	Inductively Coupled Argon Plasma
ICV	Initial Calibration Verification
ID	Identification
IDL	Instrument Detection Limit
IDW	Investigation Derived Waste
IRDMIS	Installation Restoration Data Management Information System
IRP	Installation Restoration Program
ITRMS	Interim Reference Materials
LCL	Lower Control Limit
LEL	Lower Explosive Limit
LCD	Liquid Crystal Display
LIMS	Laboratory Information Management Systems
LWL	Lower Warning Limit
MPR	Monthly Progress Report
MRD	Missouri River Division
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSA	Mine Safety Appliances, Inc. Combustible Gas Indicator
NCR	Nonconformance Report
NGVD	National Geodetic Vertical Datum
NIST	National Institute of Standards and Technology
NTAM	Non-USAEC Approved Method
PR	Percent Recovery
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OVA	Organic Vapor Analyzer

LIST OF ACRONYMS AND ABBREVIATIONS
(continued)

PARCC	Precision, Accuracy, Representativeness, Comparability, and Completeness
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
PMP	Project Management Plan
ppm	Parts per Million
PR	Percent Recovery
PRI	Potomac Research, Inc.
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
R&D	Research and Development
RCRA	Resource Conservation and Recovery Act
RF	Response Factor
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPD	Relative Percent Difference
RRF	Relative Response Factor
RRT	Relative Retention Time
RSD	Relative Standard Deviation
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
SARMs	Standard Analytical Reference Materials
SI	Site Inspection
SM	Serratia Mancescens
SOP	Standard Operating Procedures
SOW	Statement of Work
SRC	Sample Receipt Coordinator

LIST OF ACRONYMS AND ABBREVIATIONS
(continued)

SRO	Sample Receipt Officer
SRMs	Standard Reference Materials
SVOC	Semivolatile Organic Compound
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TRADOC	U.S. Army Training and Doctrine Command
TRL	Target Reporting Limit
UCL	Upper Control Limit
URL	Upper Reporting Limit
USACE	U.S. Army Corp of Engineers
USAEC	U.S. Army Environmental Center
USATEU	U.S. Army Technical Escort Unit
USGS	U.S. Geological Society
UV	Ultraviolet
UWL	Upper Warning Limit
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound

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1. PROJECT DESCRIPTION

1.1 INTRODUCTION

The objective of the U.S. Department of Defense (DOD) Installation Restoration Program (IRP) is to assess all past hazardous waste practices on military installations and to develop remedial actions for those sites that pose a threat to human health and welfare or the environment. During the course of the remedial investigation/feasibility study (RI/FS) conducted for the U.S. Army Environmental Center (USAEC) at Fort McClellan, laboratory and field analytical data will be used to determine the presence of environmental contamination. The primary goal of this Quality Assurance Project Plan (QAPP) is to define procedures that will ensure the quality and integrity of the samples; accuracy and precision of the analyses; representativeness of the results; and completeness of the information. The information gathered during this investigation will enable the RI/FS team to evaluate fully the potential extent of contamination and the need for further investigation. Descriptions of all data quality objectives (DQOs) and procedures associated with sample collection, laboratory analysis, sample custody, initial and continuing instrument/equipment calibration, internal quality assurance (QA) checks, performance and system audits, preventive maintenance and scheduling, data quality assessment, corrective action, and QA reports to management applicable to this project are contained within this document. This RI/FS will be conducted according to the 1991 Region IV U.S. Environmental Protection Agency (EPA) Engineering Support Branch document *Standard Operating Procedures (SOPs) and Quality Assurance Manual,* and the *USATHAMA Quality Assurance Program, PAM 11-41 (January 1990)* for environmental sample collection and analysis.

As the contractor for the RI/FS at Fort McClellan, Science Applications International Corporation (SAIC) is responsible for setting DQOs and the corresponding QA standards by which the sampling and analysis effort will be conducted, and ensuring that these standards are met by all participants. This comprehensive QAPP is submitted for the following reasons:

- This QAPP represents the implementation of the USAEC, EPA Region IV, and SAIC corporate policy on quality assurance/quality control (QA/QC)

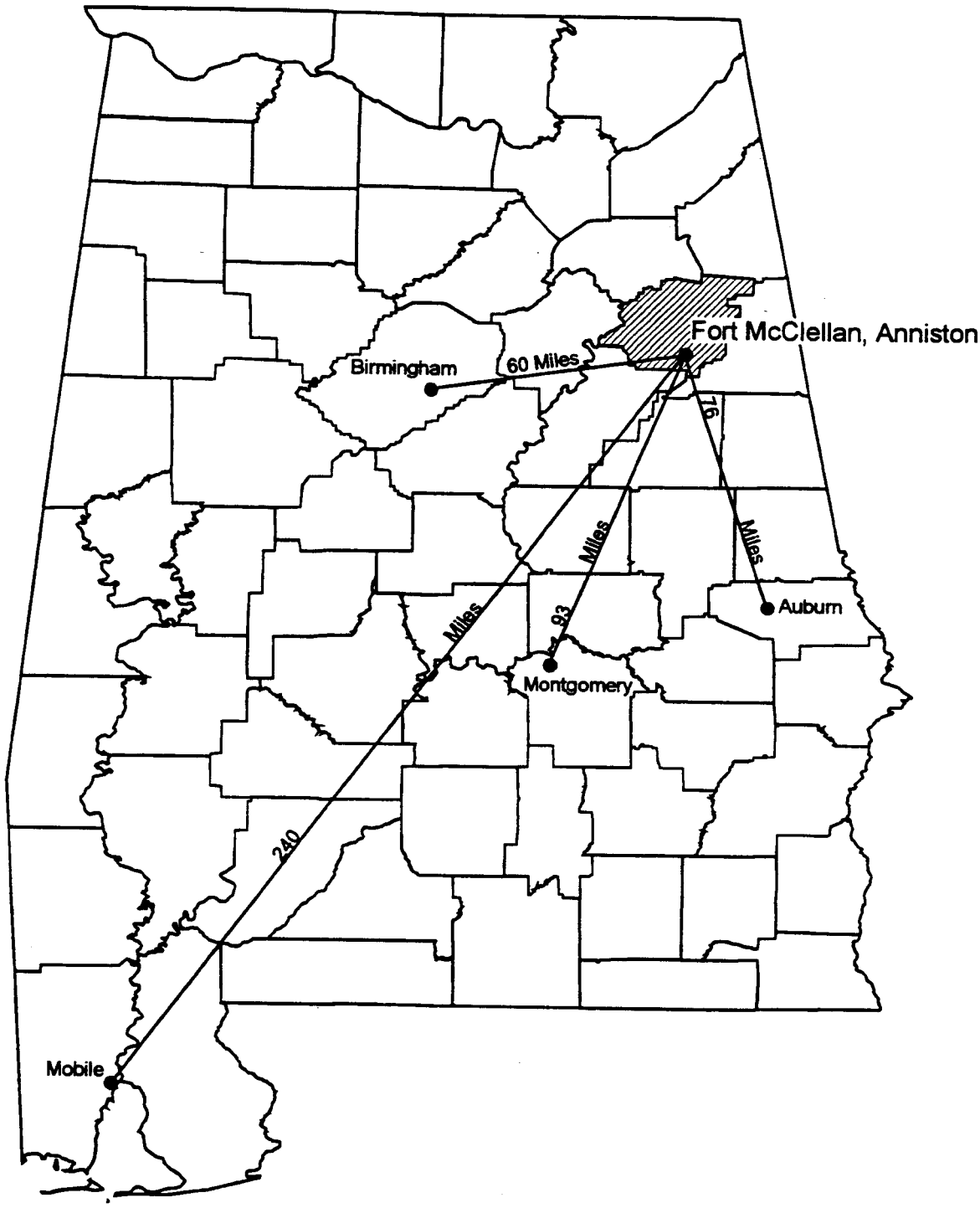
- The QA/QC and standard operating procedures (SOPs) described in the RI/FS QAPP are unique to the investigation being conducted by SAIC and represent complete instructions to all individuals responsible for data collection and data quality during the RI/FS.
- The RI/FS QAPP is a single document that incorporates all relevant *USATHAMA Quality Assurance Program, PAM 11-41 (January 1990)* procedures to be followed during the RI/FS field and laboratory activities at Fort McClellan.

SAIC firmly believes that QA/QC is the critical factor that encompasses all health and safety, risk, liability, and indemnity issues directly related to SAIC. The QAPP was developed not only to ensure that data of known and acceptable quality will be collected during the RI/FS, but also in an effort to minimize the risk and liability factors likely to be encountered during the RI/FS. In joining the team for this effort, each participating subcontractor has made a commitment to adhere to the procedures identified in the QA Program developed by SAIC for all activities conducted for USAEC and to follow the QAPP protocols for each assigned task.

1.2 SITE DESCRIPTION AND HISTORY

1.2.1 Post Description

Fort McClellan is located in northeastern Alabama adjacent to the city of Anniston in Calhoun County, as shown in Figure 1-1. The Post is approximately 60 miles northeast of Birmingham and approximately 75 miles northwest of Auburn, Alabama. Municipalities located in the immediate vicinity of Fort McClellan include the city of Anniston, which adjoins the main Post on the south and east, and the city of Weaver, which is located less than 1 mile northwest of the northern main Post. The Morrisville Maneuver Area, or Pelham Range, is located approximately 5 miles due west of the main Post and adjoins the Anniston Army Depot to the south. Pelham Range is bordered on the east by U.S. Highway 431. Fort McClellan is under the jurisdiction of the U.S. Army Training and Doctrine Command (TRADOC). The Post houses three major organizations: U.S. Army Military Police School (AMPS), U.S. Army Chemical School, and Training Center (under the direction of the Training Brigade), in addition to other major support units and tenants. The primary mission of Fort McClellan is to provide command and support for the U.S. Army Military Police, Chemical Schools and Chemical Training Centers, the Training Brigade, and other units as specified by higher headquarters.



LOCATION OF FORT McCLELLAN/
ANNISTON, ALABAMA

Figure 1-1

Prepared for:
U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland

1.2.2 Process and Waste Disposal History

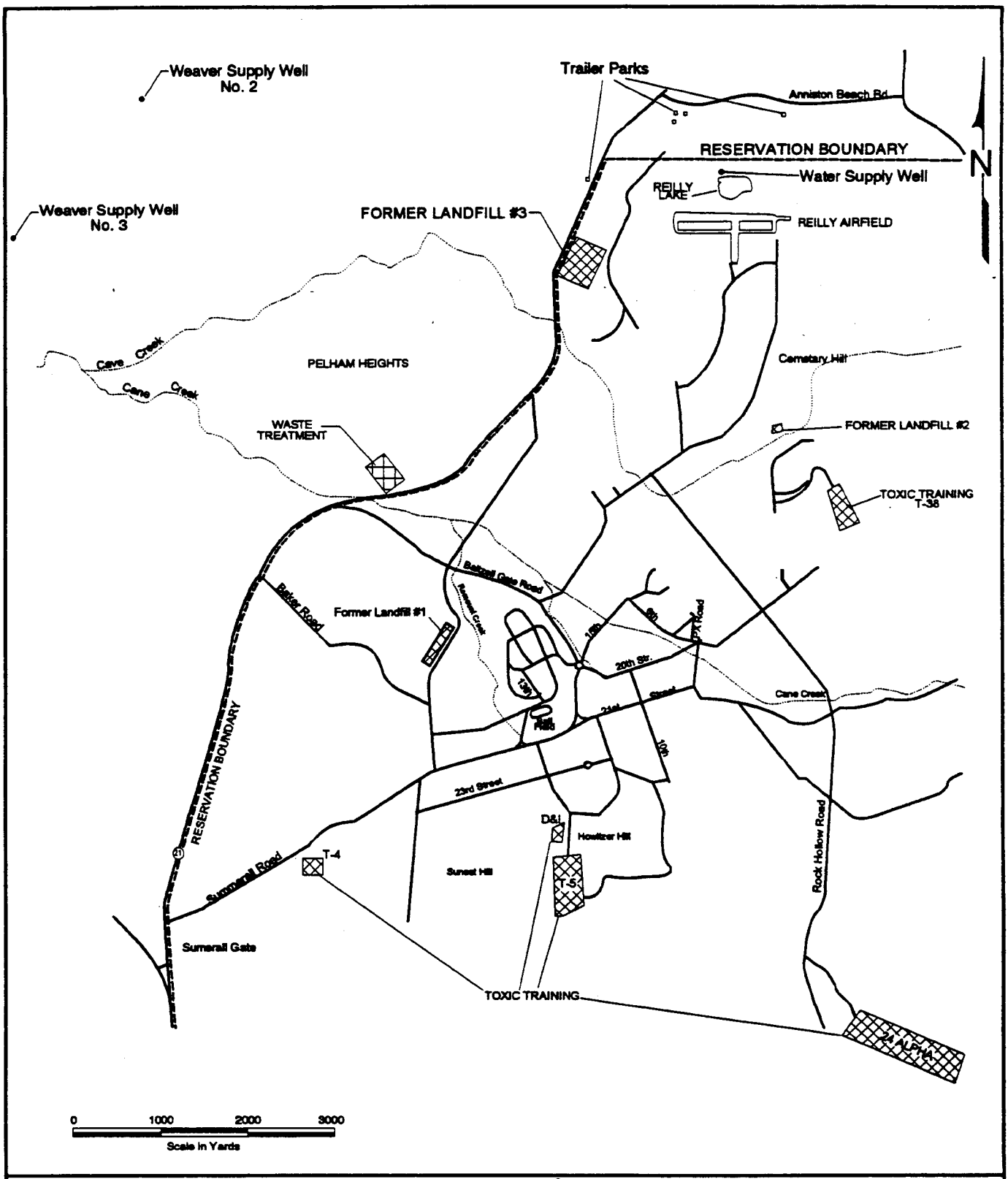
Historical information regarding the activities conducted at the sites to be investigated under the RI/FS program is presented in documents prepared by SAIC (1993), Weston (1990), and Environmental Science and Engineering (1984). The locations of the RI/FS sites are shown in Figures 1-2 and 1-3.

The chemical and biological agent training sites under investigation during the RI/FS (i.e., Areas T-4, T-5, T-24A, T-38; Detection and Identification Area; Ranges J, K, and L; and the Old Water Hole site) were formerly used for the controlled training of personnel engaged in various facets of chemical and biological warfare decontamination, detection, and munitions/agent disposal. Training occurred at various times between the early 1950's and 1973. Operations occurring on the sites involved various agents, some of which may or may not have been used on the individual sites. The agents included Mustard (HD), the nerve agents VX and GB (Sarin), and the biological simulants bacillus goldbigii (BG) and serratia marcescens (SM). The predominant agent thought to have been used at Fort McClellan is HD. Chemical agent was not detected at high-probability sample locations on these sites during the 1992 site investigation.

Waste disposal or dumping activities were confirmed during the site investigation (SI) at Former Landfills #2 and #3, which operated at various times between approximately 1945 and 1967. The landfills reportedly were used for the disposal of municipal wastes and construction debris. Waste disposal activity at Former Landfill #1 could not be confirmed based on geophysical data obtained during the SI. Organic compounds and heavy metals were detected in groundwater samples from several wells at Former Landfill #3.

1.3 PROJECT OBJECTIVES AND INTENDED DATA USAGES

The primary objective of the RI/FS is to determine the nature, extent, and concentration of contaminants potentially occurring at the sites under investigation and to evaluate potential risks to human health and the environment resulting from exposure. Based on the data obtained from each site, the sites will be evaluated during the FS to determine the most cost-effective



SITE LOCATION MAP: MAIN POST
FORT McCLELLAN, ALABAMA

Figure 1-2

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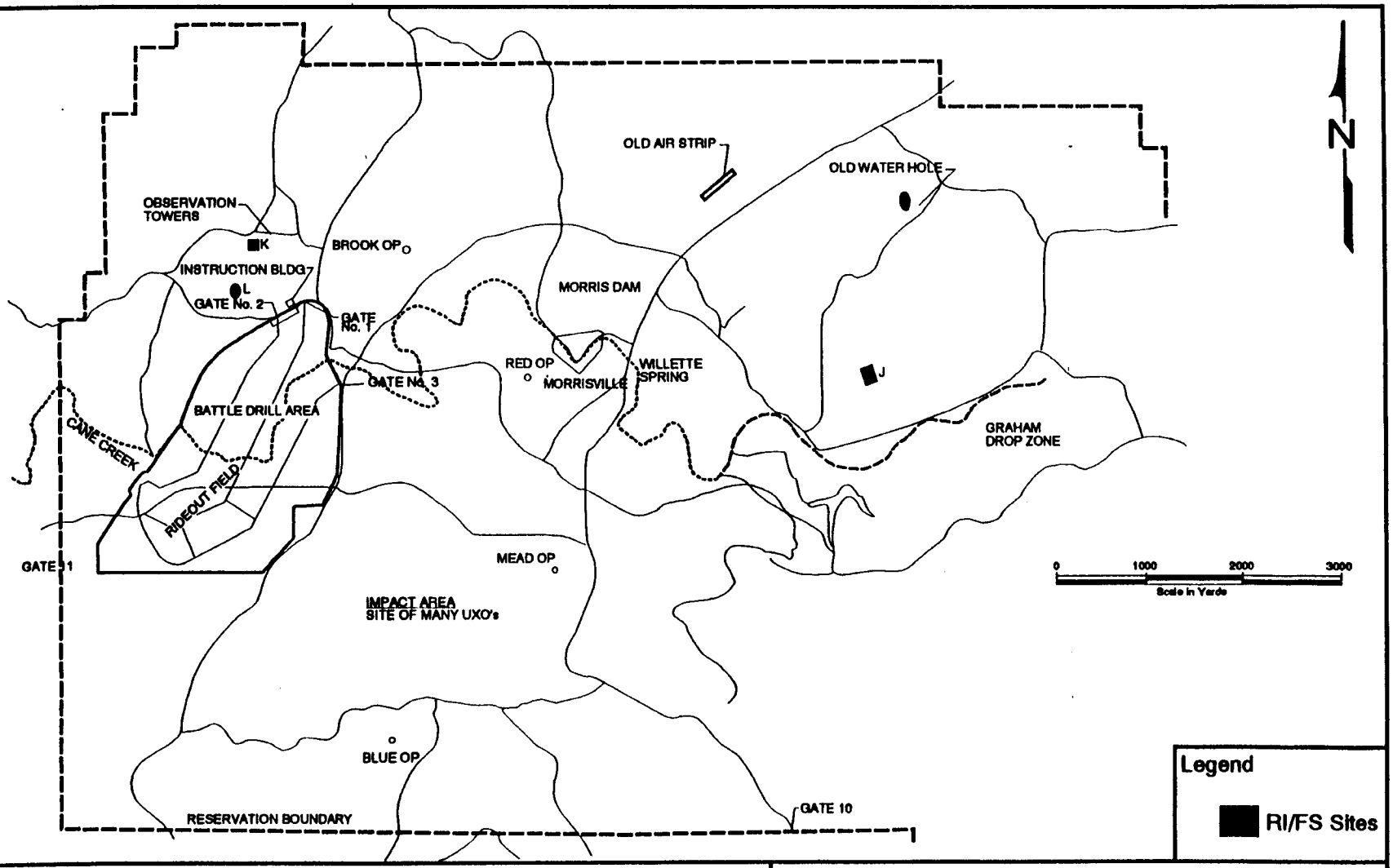
U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland



SITE LOCATION MAP - PELHAM RANGE
FORT McCLELLAN RI/FS

Figure 1-3

Prepared for:
U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland

means for mitigating the areas of concern. To accomplish this goal, data will be collected during the following activities:

- Monitoring well installation
- Subsurface soil sampling and analysis
- Shallow soil sampling and analysis
- Sediment and surface water sampling and analysis
- Groundwater sampling and analysis
- Geophysical surveying
- Topographic surveying.

Data obtained from soil, sediment, surface water, and groundwater samples collected by SAIC and the U.S. Army Technical Escort Unit (USATEU) will be used to determine the nature and extent of organic and inorganic compounds, chemical agents, or their breakdown products. Data obtained from groundwater samples collected at Former Landfills #2 and #3, Area T-38, Range L, and the Old Water Hole site will quantitatively identify the presence of contaminants associated with these sites.

Data requirements for the RI/FS phase of an Installation Restoration Program (IRP) project are more extensive than those necessary for the SI phase. The objectives of the RI/FS at Fort McClellan require that sufficient data be obtained to:

- Determine the nature and extent of identified contaminants
- Identify Federal and state chemical specific applicable or relevant and appropriate requirements (ARARs)
- Conduct an ecological and human health baseline risk assessment
- Identify and screen potential treatment technologies
- Assemble technologies into alternatives
- Select remediation alternatives and prepare a Record of Decision (ROD).

Analytical data are required from the Fort McClellan RI/FS to support site characterization, hazardous constituent characterization, risk assessment, and FS evaluation of

remediation alternatives. These data use requirements indicate that the minimum appropriate analytical level is equivalent to EPA DQO Level III.

1.4 TARGET COMPOUNDS

Target compound and element lists have been prepared based on the type of activities conducted or the contaminants suspected at each site. Table 1-1 summarizes the RI/FS sites to be investigated, site history and suspected contamination, planned field activities, and the analytical scope of work to be conducted on soil and water samples collected at each site.

1.5 DATA QUALITY OBJECTIVES

DQOs are qualitative (i.e., comparability and completeness) and quantitative (i.e., accuracy, precision, and representativeness) and define the quality of data required to support all decisions made during the RI/FS activities at each site. The DQOs determined for each RI/FS site were developed following the guidelines presented in the 1987 EPA document *Data Quality Objectives for Remedial Response Activities*, Office of Solid Waste and Emergency Response (OSWER) Directive 933550.7B, in addition to the *USATHAMA Quality Assurance Program, PAM 11-41 (January 1990)*. All environmental samples and associated QC samples will be collected and analyzed using methods and QC procedures commensurate with the *USATHAMA Quality Assurance Program, PAM 11-41 (January 1990)*. During the course of this RI/FS, all activities and analyses will be conducted using standard procedures so that known and acceptable levels of precision, accuracy, representativeness, comparability, and completeness (PARCC) are documented. All results will be produced using established methodology and SOPs, and will be reproducible at all levels. DQOs for the RI/FS are defined in Section 3.

1.6 PROJECT SCHEDULE

The RI/FS for the 12 sites identified at Fort McClellan is scheduled (Figure 1-4) for completion approximately 93 weeks (July 19, 1995) after notice to proceed (August 23, 1993). This schedule is subject to change depending on the results of the RI/FS field program, changes in site priority or project scope, timing of regulatory review, funding, and other factors that cannot be predicted.

Table 1-1. Fort McClellan Remedial Investigation Feasibility Study Summary

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 1: Area T-4 (Biological Test Area)	• Area used for biological (i.e., Bacillus goldbigii [BG] and Serratia marcescens [SM]) agent training until 1971. Possible HD storage area and VX usage. • Surface use is not restricted; however, subsurface sampling has not been conducted at site. • Unable to locate site area during October 1991 walkover. No evidence of former site.	• MINICAMS soil screening for chemical warfare agents HD, VX. Ten samples 0 to 0.5 feet (USATEU). • Surface soil sampling and analysis (USATEU)	• *ES&E* Mustard (HD) breakdown products (LW18/LT03/LL03) VX breakdown products (LT03/IC)	• None

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 2: Area T-5 (Agent Training Area)	• Training area for detection and decontamination of chemical (i.e., mustard [HD], sarin [GB], and VX) and biological (i.e., Bacillus glodbigii [BG] and Serratia marcescens [SM]) agents from 1961 to 1973. • Reported location of a 110-gallon HD spill, which has been remediated. • Area cleared for surface use.	• 26 soil samples will be collected (0-6") for onsite agent analyses (USATEU). • 4 soil/sediment samples will be collected and submitted to Environmental Science and Engineering, Inc. (ES&E) based on the onsite results. • 2 surface water/sediment samples will be collected and submitted to ES&E and DataChem Laboratories (DCL) for analysis.	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9) • VX breakdown products (LT03/IC) *DCL* • VOCs (LM23) • SVOCs (LM25) • Metals (JS12) • Pesticides/PCBs (LH17) • Explosives (LW23, LW27)	• None • None *DCL* • VOCs (UM21) • SVOCs (UM25) • Metals (SS12) • Pesticides/ PCBs (UH20) • Explosives (UW25,UW27)

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 3: Area 24A (Agent Disposal Training Area)	• Training area used for decontamination of chemical (i.e., mustard [HD], sarin [GB], phosgene [CG], and BZ) agents and as a chemical munitions disposal training range until 1973. • Approximately 4.46 kg of HD used during each training exercise. Other volumes typically used included 40 mL CG, one M-6 canister BZ, and 74g GB. • Two decontamination burn pits were located onsite to process "significant" quantities of training materials. • HD, BG, and their breakdown products were not detected in samples collected during the limited investigation conducted in April and July 1973, or in 1992. • Two 81 mm mortar shells were discovered at the site during an October 1991 walkover.	• Site vegetation clearing and ordnance sweep (USATEU). • Magnetometer and electromagnetic induction surveys (SAIC). • 2 test pits to be located in reported burn pits (USATEU). • 7 shallow soil samples will be collected for onsite MINICAMS agent analyses (USATEU). • 6 soil, 1 sediment, and 1 surface water sample will be collected (USATEU/SAIC) and submitted to Environmental Science and Engineering, Inc. (ES&E) and DataChem Laboratories (DCL).	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9)	• None *ES&E* • HD breakdown products (UW22/UT03/UL04) • GB breakdown products (UT03/T8) • VX breakdown products (UT03/IC) *DCL* • VOC (UM21) • SVOC (UM25) • Metals (SS12) • Pesticides/ PCBs (UH20) • Explosives (UW25/UW27)

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 4: Area T-38 (Technical Escort Reaction Area)	• Chemical agents (i.e., mustard [HD], sarin [GB], and VX) and other unspecified chemicals were used and stored from 1961 to 1972. Area was last used for training in 1972. • Extensive decontamination was conducted on spills and training aids, including railroad flat cars. • Residual HD contamination report January 1973; however, HD was not detected during a later investigation. • Subsurface sampling conducted in 1992 did not detect CWA or CWA breakdown products.	• Install 4 groundwater monitoring wells (SAIC). • Drill 1 soil boring in sump area (SAIC). • Geophysical surveys including magnetometry, EM, and GPR to locate former sump area (SAIC). • 56 shallow and subsurface soil samples for onsite CWA analyses (USATEU/SAIC). • 6 soil samples to be submitted, based on the onsite screening results, to Environmental Science and Engineering, Inc. (ES&E) and DataChem Laboratories (DCL), if necessary (USATEU/SAIC). • Sample groundwater from 4 wells (two rounds) to be installed at site and submit to ES&E and DCL for analysis (SAIC).	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9) • VX breakdown products (LT03/IC) *DCL* • VOC (LM23) • SVOC (LM25) • Metals (JS12) • Pesticides/PCBs (LH17) • Explosives (LW23, LW27)	• None • None *DCL* • VOC (UM21) • SVOC (UM25) • Metals (SS12) • Pesticides/ PCBs (UH20) • Explosives (UW25, UW27)

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 5: Range K CWA Shell Tapping Area	• Shell tapping area where CWA rounds were opened and decontaminated. • No residual contamination detected during previous investigation. • Area cleared for surface use; however, subsurface sampling has not been conducted. • Evidence of former training area not observed during October 1991 site walkover. Site has apparent recent usage as bivouac area. • USAEC observed empty agent (GB, HD) rounds and decontamination (DS-2) canisters onsite in 1993.	• 10 shallow soil samples will be analyzed (MINICAMS) onsite for CWA (USATEU). • 4 soil samples will be submitted to Environmental Science and Engineering, Inc. (ES&E) based on the onsite results.	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9)	• None • None

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 6: Range J Agent Training and Disposal	• Area used to dispose of drums filled with chemical (i.e., mustard [HD]) agent contaminated soils collected during a 110-gallon spill remediation. • Actual agent use is not known. • Area recommended for further investigation and use restriction (i.e., fencing and posting) by USAEHA, 1975. • Pit contained corroded drums, some filled with soil, observed during October 1991 walkover. • Soil sampling within fenced area and drums did not detect CWA in 1992.	• USATEU will clear vegetation from within fenced area and sweep for ordnance. • SAIC will conduct magnetometer and EM geophysical surveys within fenced area. • 11 soil samples will be analyzed (MINICAMS) onsite for CWA (USATEU). • 4 soil samples will be submitted to Environmental Science and Engineering, Inc. (ES&E) based on the onsite results (USATEU).	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03)	• None • None

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 11: Detection and Identification Area	• Area for chemical (i.e., sarin [GB], cyanogen chloride [CK], GC, CX, and hydrogen cyanide [AC]) agent training from 1950 (estimated) until 1973. • One burn pit located onsite that was used to dispose of training aids. • Subsurface sampling did not detect CWA in 1992.	• 13 soil samples will be analyzed onsite for CWA (USATEU). • 4 soil samples will be submitted to Environmental Science and Engineering, Inc. (ES&E) based on the onsite results for agent breakdown products analyses (USATEU).	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9)	• None • None

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 8: Range L (Lima Pond) Agent and Munitions Disposal Area	• Area contains small manmade pond. • Reportedly, this site was use to dispose of captured munitions from World War II. • No agents were detected in surface samples collected during a 1982 investigation.	• Fallen trees will be cleared from inside pond area (Fort McClellan). • SAIC will conduct magnetometer, EM, and GPR surveys in pond area and in areas to be drilled. • SAIC will install up to 7 monitoring wells. • Topographic survey of site area (SAIC). • 50 subsurface soil samples for CWA will be analyzed onsite (USATEU/SAIC). • 8 soils and 2 sediment sample will be submitted to Environmental Science and Engineering, Inc. (ES&E) based on the onsite results for agent breakdown products analyses (USATEU/SAIC). • 8 soils and 2 sediment sample will be submitted to DataChem Laboratories (DCL) for all other analyses (USATEU/SAIC). • Groundwater samples (minimum 8/two rounds) will be collected from installed monitoring wells (SAIC). • 2 surface water samples will be collected and submitted to ES&E and DCL for analysis (SAIC).	*MINICAMS Onsite Screening Analyses (USATEU)* • VX • HD • GB *ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9) • VX breakdown products (LT03/IC) *DCL* • VOCs (LM23) • SVOCs (LM25) • Explosives (LW23/LW27) • Metals (JS12) • Pesticides/PCBs (LH17)	• VX • HD • GB *ES&E* • HD breakdown products (UW22/UT03/UL04) • GB breakdown products (UT03/T8) • VX breakdown products (UT03/IC) *DCL* • VOCs (UM21) • SVOCs (UM25) • Explosives (UW25/UW27) • Metals (SS12) • Pesticides/PCBs (UH20)

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 9: Former Landfill #1	• Area allegedly operated as sanitary landfill from 1945 to 1947; however, documentation supporting this use at the identified location is not available. • This area contains no topographic evidence or physical debris (i.e., trash) that indicates the site was a landfill.	• Magnetometer, EM survey (SAIC). • Install 4 groundwater monitoring wells. Submit 8 (two rounds) groundwater samples to DataChem Laboratories (DCL) for analysis (SAIC).	• None	• None *DCL* • VOCs (UM21) • SVOCs (UM25) • Pesticides/PCBs (UH20) • Metals (SS12) • Explosives (UW25/UW27)
Site 10: Former Landfill #2	• Area was developed as landfill in 1947 following Landfill #1 closure. The date that landfill ceased accepting sanitary waste is not known. • Rusted debris (drums, machinery) observed during October 1991 walkover.	• 6 groundwater samples (two rounds) will be collected and submitted to DCL for analysis (SAIC). • 2 surface water/sediment samples will be collected and submitted to DCL for analysis (SAIC).	*DCL* • VOCs (LM23) • SVOCs (LM25) • Pesticides/PCBs (LH17) • Metals (JS12) • Explosives (LW23/LW27)	*DCL* • VOCs (UM21) • SVOCs (UM25) • Pesticides/PCBs (UH20) • Metals (SS12) • Explosives (UW25/US27)

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Site 11: Former Landfill #3	• Landfill operated between 1946 to 1967 using trench and fill waste disposal method. • 5 groundwater monitoring wells were installed in 1986 (USAEHA) and 5 additional wells were installed in 1992 (SAIC) to investigate potential contaminant migration.	• Install 9 groundwater monitoring wells (SAIC). • Collect 18 (two rounds) groundwater samples at new monitoring wells and 20 (two rounds) at existing groundwater wells (SAIC). • Collect 2 surface water/sediment samples (SAIC). • Submit 12 soil samples for laboratory analysis (SAIC).	*DCL* • VOCs (LM23) • SVOCs (LM25) • Pesticides/PCBs (LH17) • Metals (JS12) • Explosives (LW23/LW27)	*DCL* • VOCs (UM21) • SVOCs (UM25) • Pesticides/PCBs (UH20) • Total metals (SS12) • Explosives (UW25/UW27)
Site 12: Old Water Hole	• Possible munitions and chemical agent disposal area	• Topographic survey and contour mapping (SAIC). • Magnetometer, EM, and GPR surveys (SAIC). • 50 soil samples will be field (MINICAMS) screened (USATEU). • Collect 8 soil samples (USATEU/SAIC). • Install 5 monitoring wells and collect 10 groundwater samples (two rounds) (SAIC).	*ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9) • VX breakdown products (LT03/IC) *DCL* • VOCs (LM23) • SVOCs (LM25) • Pesticides/PCBs (LH17) • Metals (JS12) • Explosives (LW23/LW27)	*ES&E* • HD breakdown products (UW22/UT03/UL04) • GB breakdown products (UT03/T8) • VX breakdown products (UT03/IC) *DCL* • VOCs (UM21) • SVOCs (UM25) • Pesticides/PCBs (UH20) • Metals (SS12) • Explosives (UW25/UW27)

Table 1-1. Fort McClellan Remedial Investigation/Feasibility Study Summary (continued)

Site Name	Site History and Suspected Contamination	Planned Field Activities	Analysis/Methodology	
			Soil	Water
Background	• Background samples will be obtained from Pelham Range (1 location) and Main Post (3 locations).	• Collect 4 soil samples, and 4 groundwater samples (SAIC). - Well at Reilly Lake (Main Post) - Well east of operating landfill (Main Post) - Well upgradient of Area T-24A (Main Post) - Well at Rideout Hall (Pelham) • Install 1 groundwater monitoring well (SAIC).	*ES&E* • HD breakdown products (LW18/LT03/LL03) • GB breakdown products (LT03/TT9) • VX breakdown products (LT03/IC) *DCL* • VOCs (LM23) • SVOCs (LM25) • Pesticides/PCBs (LH17) • Metals (JS12) • Explosives (LW23/LW27)	*ES&E* • HD breakdown products (UW22/UT03/UL04) • GB breakdown products (UT03/T8) • VX breakdown products (UT03/IC) *DCL* • VOCs (UM21) • SVOCs (UM25) • Pesticides/PCBs (UH 20) • Metals (SS12) • Explosives (UW25/UW27)

Figure 1–4. Schedule for Fort McClellan Remedial Investigation/ Feasibility Study

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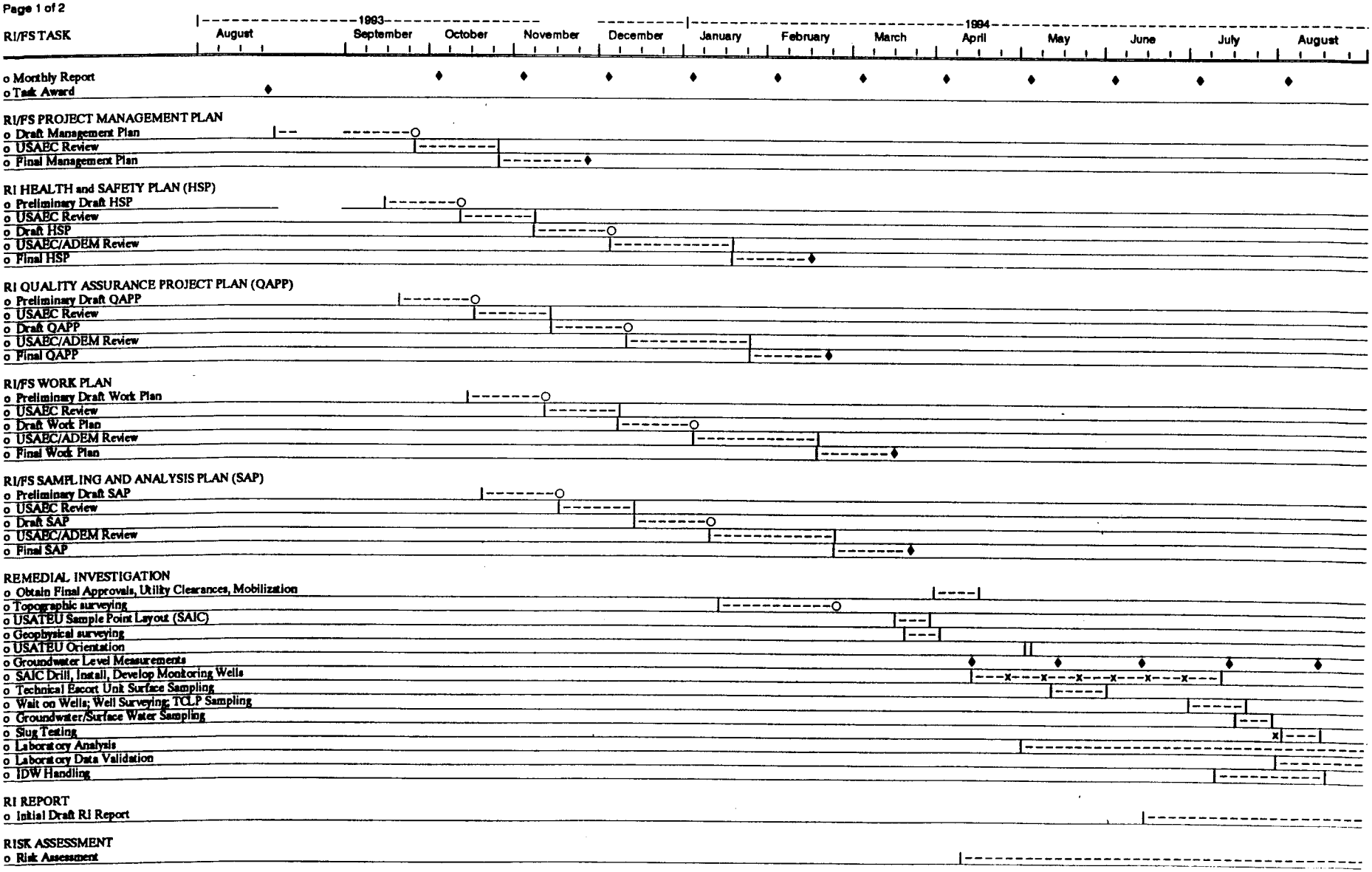
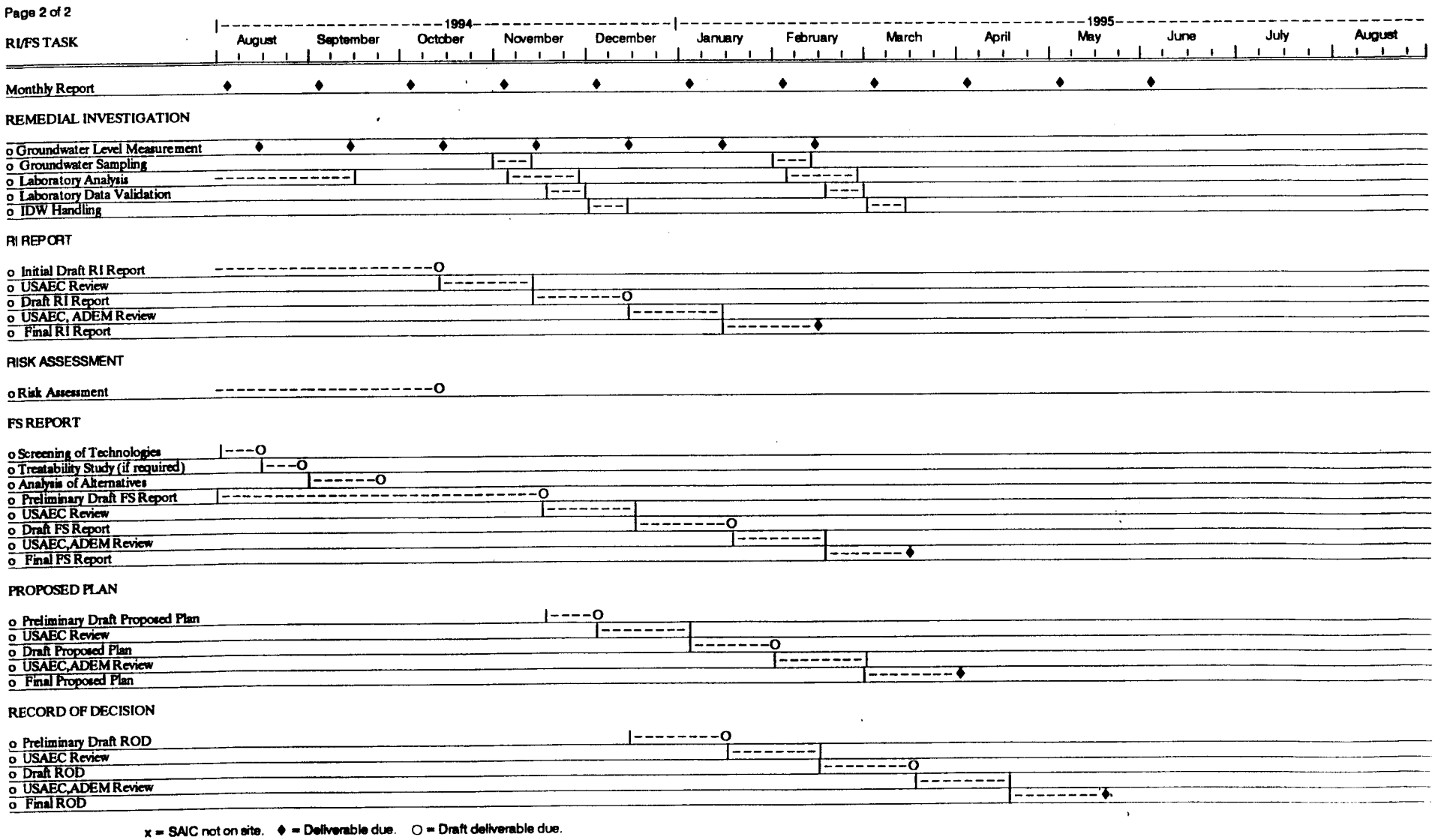


x = SAIC not on site. ♦ = Deliverable due. O = Draft deliverable due.

Figure 1–4. Schedule for Fort McClellan Remedial Investigation/ Feasibility Study (Cont)



x = SAIC not on site. ♦ = Deliverable due. O = Draft deliverable due.

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2. PROJECT ORGANIZATION

2.1 PROJECT ORGANIZATION AND RESPONSIBILITIES

The remedial investigation/feasibility study (RI/FS) at Fort McClellan, Alabama, will be conducted by the U.S. Army Environmental Center (USAEC) subcontractor Science Applications International Corporation (SAIC). The organizational relationships within the project are shown in Figure 2-1.

2.1.1 Science Applications International Corporation

SAIC is the subcontractor retained by USAEC to perform the RI/FS activities for the 12 sites at Fort McClellan. The organization and functions within SAIC are described below.

Program Manager—The Program Manager will ensure that SAIC's full resources are accessible to the Project Manager and that all staffing and administrative support needs of this project are met in a timely manner. He also will play an active role in client interaction and review all deliverables. The SAIC Program Manager is Mr. Alfred Wickline.

Project Manager—The Project Manager will provide overall management of this project. The Project Manager will be the project's technical lead and the principal point of contact. He will develop, monitor, and fill project staffing needs, and coordinate with administrative staff to maintain smooth flow of all project activities. The Project Manager will lead the deliverable preparation and production activities. He is directly responsible for meeting schedules and budget requirements of this project. Mr. Christopher Manikas will be the SAIC Project Manager for the Fort McClellan RI/FS.

Site Field Manager—The Site Field Manager will be located at Fort McClellan to supervise daily activities of the entire RI/FS field data collection effort. He will participate extensively in data interpretation, report writing, and preparation of deliverables. The Site Field Manager's main responsibility is to ensure that work is being conducted as specified in the Health and Safety Plan (H&SP), Field Sampling Plan (FSP), and Quality Assurance Project Plan (QAPP). The Fort McClellan Site Field Manager is Mr. Wayne Stoner.

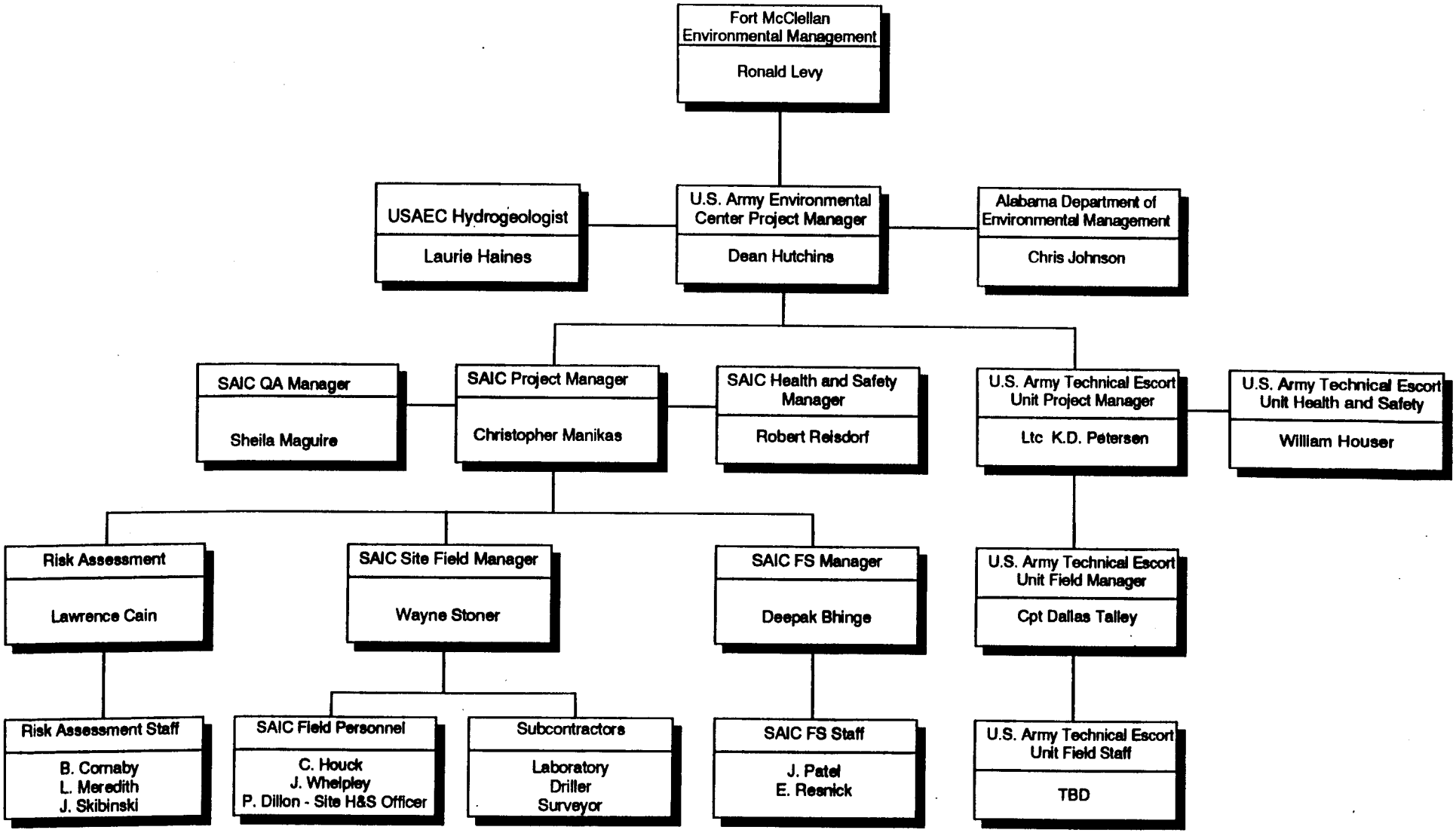

Figure 2-1. Project Organization for Remedial Investigation/Feasibility Study at Fort McClellan, Alabama

Quality Assurance Manager—The Quality Assurance (QA) Manager is the primary point of contact for the RI/FS on matters concerning field and laboratory QA procedures, and will be responsible for ensuring that QA procedures in the *USATHAMA Quality Assurance Program, PAM 11-41 (January 1990)* and the RI/FS QAPP are implemented and that appropriate controls are used to ensure a high level of quality. The QA Manager also will be responsible for preparing the RI/FS QAPP and statement of work (SOW) for any subcontractors providing analytical services. The QA Manager will be responsible for the review, evaluation, and validation of all analytical data for the RI/FS, and will participate extensively in interpretation and presentation of analytical data in the final report. Ms. Sheila Maguire is the QA Manager for the Fort McClellan RI/FS.

Feasibility Study Manager—The FS Manager will be responsible for assimilating the RI results into cost-effective remedial solutions for the investigated sites. The FS Manager also will be responsible for interfacing with regulatory agencies, identifying applicable or relevant and appropriate requirements (ARARs) and appropriate technologies, and preparing the FS report and Record of Decision (ROD). The FS Manager for the Fort McClellan RI/FS is Mr. Deepak Bhinge.

Risk Assessment Manager—The Risk Assessment Manager will be responsible for evaluating the RI chemical data for potential human health and ecological risk impacts. In addition to evaluating human health risks, the Risk Assessment Manager will coordinate the evaluation of existing ecological data with the Fort McClellan Department of Environmental Management (DEM) and natural resources office. The Risk Assessment Manager for the Fort McClellan RI/FS is Mr. Lawrence Cain.

Data Manager—The project Data Manager will be responsible for establishing a comprehensive sample management plan, ensuring that data uploaded to the Installation Restoration Data Management Information System (IRDMIS) Pyramid has been correctly input, accessing data from the USAEC Pyramid, and interfacing with the analytical laboratories. The Data Manager also will be responsible for supporting the risk assessment and FS. The Data Manager for the Fort McClellan RI/FS is Mr. Joseph Skibinski.

Health and Safety Officer—The Health and Safety Officer will ensure that the physical and chemical hazards are appropriately mitigated through effective execution of the Health and Safety Plan (H&SP), audit project performance according to the plan, and provide technical support as needed in executing the plan. Mr. Robert Reisdorf, Certified Industrial Hygienist (CIH), will be the project Health and Safety Officer. Onsite health and safety will be the responsibility of the Site Field Manager working in coordination with the Project Manager and the project Health and Safety Officer.

2.1.2 U.S. Army Technical Escort Unit

The U.S. Army Technical Escort Unit (USATEU) will be conducting investigative activities at Fort McClellan concurrent with activities to be completed by SAIC. The USATEU Field Manager will interact with SAIC personnel to coordinate sample collection, handling, and shipping protocols to ensure satisfactory completion of these activities.

2.1.3 Subcontractors

Services for laboratory chemical analyses, drilling, and land surveying will be subcontracted by SAIC. The following paragraphs describe the subcontractor support positions to be interfaced with SAIC during the completion of the Fort McClellan RI/FS.

Laboratory Director—The Laboratory Director is responsible for the technical quality of the laboratory, laboratory personnel management, cost control, and strict adherence to project schedules. His overall QA management responsibilities in the RI/FS are the satisfactory analysis of all samples with complete data documentation and the QC of data uploaded to the USAEC IRDMIS. SAIC will use two subcontracted laboratories to provide these services. Environmental Science & Engineering, Inc. (ES&E) will analyze environmental samples for chemical agent breakdown products. DataChem Laboratories (DCL) will analyze environmental samples for all other parameters of interest. Both DCL and ES&E are USAEC-approved laboratories and have been validated by the U.S. Army Corp of Engineers (USACE) Missouri River Division (MRD). Laboratory activities will be monitored by the SAIC QA Manager.

Drilling Manager—The Drilling Manager will be responsible for ensuring that capable drilling crews are onsite and equipped to complete the required work. A drilling foreman will be in daily contact onsite with the SAIC Site Field Manager throughout the work assignment.

Survey Foreman—The Survey Foreman will be responsible for ensuring that all land surveying is completed on time and in accordance with State of Alabama and USAEC requirements.

2.2 TRAINING

All field personnel scheduled for work at Fort McClellan are trained in accordance with the Occupational Safety and Health Administration (OSHA) Interim Final Standard 51 FR 45654, issued December 12, 1986, and are experienced in hazardous waste site work, use of personal protective equipment, and emergency response procedures.

All SAIC field personnel assigned to the Fort McClellan RI/FS will receive the FSP, H&SP, and QAPP in a timely manner to allow for a sufficient review period. The drilling subcontractor will receive information from these work plans pertaining to drilling/well installation operations and the Health and Safety Plan. A field staff orientation and briefing will be held before site sampling begins to acquaint personnel with the site, assign field responsibilities, and provide training in the operation of new field equipment.

SAIC also is responsible for providing sample preservation and containerization requirements and chain-of-custody instructions to USATEU. USATEU will be responsible for collecting soil, sediment, surface water, and groundwater samples at sites where live chemical (mustard, sarin, and VX) agent training or decontamination is suspected or inferred by historical documents. SAIC will provide USATEU with all required project documents (i.e., chain-of-custody forms and sample labels), in addition to complete instructions as to the required information to be written on each document. SAIC also will provide USATEU with all necessary sample containers, preservatives (for water samples only), and shipping containers, as well as all appropriate instructions for sample collection, including field QC samples, preservation, and shipment.

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