FINAL
SITE SPECIFIC WORK PLAN

FORMER SCHILLING AIR FORCE BASE
SALINA, KANSAS
FUDS PROJECT NO. B07KS025607

CHEMICAL WARFARE MATERIEL SITE INSPECTIONS

prepared for:

U.S. ARMY ENGINEERING AND SUPPORT CENTER HUNTSVILLE

and

U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT

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prepared by:

PARSONS

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LIST OF ACRONYMS

ABP	Associated Breakdown Product (for H and L)
AEL	Airborne Exposure Limit
AFB	Air Force Base
APP	Accident Prevention Plan
ASR	Archives Search Report
CA	Chemical Agent
CAIS	Chemical Agent Identification Set(s)
CARA	CBRNE Analytical and Remediation Activity
CENWK	U.S. Army Corps of Engineers, Kansas City District
CG	Phosgene
CHE	Chemical Hazard Evaluation
COC	Chain of Custody
CPU	Chemical Protective Undergarments
CRZ	Contamination Reduction Zone
CSEM	Conceptual Site Exposure Model
CSM	Conceptual Site Model
CVAA	2-chlorovinyl arsenous acid
CVAO	2-chlorovinyl arsenous oxide
CWM	Chemical Warfare Materiel
CWM SI	Chemical Warfare Materiel Site Inspections
DAAMS	Depot Area Agent Monitoring System
DGM	Digital Geophysical Mapping
DoD	Department of Defense
DQCRs	Daily Quality Control Reports
DQOs	Data Quality Objectives
EHE	Explosive Hazard Evaluation
EZ	Exclusion Zone
FSP	Field Sampling Plan
FUDS	Formerly Used Defense Sites
H&S	Health and Safety

LIST OF ACRONYMS (CONTINUED)

H	Mustard
HAZCOM	Hazardous Communications
HHE	Health Hazard Evaluation
HPA	Historical Photographic Analysis
HRS	Hazard Ranking System
IDLH	Immediately Dangerous to Life or Health
IDW	Investigative Derived Waste
KDHE	Kansas Department of Health and Environment
L	Lewisite
MC	Munitions Constituent
MCE	Maximum Credible Event
MEC	Munitions and Explosives of Concern
MINICAMS	Miniature Chemical Agent Monitoring System
MGFD	Munitions with the Greatest Fragmentation Distance
MM	Military Munitions
MM CX	Military Munitions Center of Experise
MMRP	Military Munitions Response Program
MRSPP	Munitions Response Site Prioritization Protocol
NDAI	No Department of Defense Action Indicated
NOSE	No Significant Effects
OSE	One Stop Environmental, LLC
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
PDS	Personnel Decontamination Station
PELs	Permissible Exposure Limits
PM	Project Manager
PS	Chloropicrin
PSAP	Programmatic Sampling and Analysis Plan
PSHO	Project Safety and Health Officer
PWP	Programmatic Work Plan

LIST OF ACRONYMS (CONTINUED)

QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QCO	Quality Control Officer
QR	Qualitative Reconnaissance
RAC	Risk Assessment Code
RCWM	Recovered Chemical Weapons Materiel
RI/FS	Remedial Investigation and Feasibility Study
RMIS	Risk Management Information System
SHPO	State Historic Preservation Officer
SI	Site Inspection
SM	Site Manager
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SS-SAP	Site-Specific Sampling and Analysis Plan
SS-WP	Site-Specific Work Plan
STEL	Short-Term Exposure Limit
TCRA	Time Critical Removal Action
TDG	thiodiglycol
TEC	U.S. Army Engineer Research and Development Center, Topographic Engineering Center
TLV	Threshold Limit Values
TPP	Technical Project Planning
TWA	Time-weighted Average
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USEPA	U.S. Environmental Protection Agency
WPL	Worker Population Limit

SECTION 1
INTRODUCTION

This site-specific Chemical Warfare Materiel (CWM) Site Inspection (SI) work plan, developed for the Schilling Air Force Base (AFB) Formerly Used Defense Site (FUDS), is an addendum to the *Programmatic Work Plan, Chemical Warfare Materiel Site Inspections* (PWP) (USACE, 2006). The PWP describes in detail the procedures, organization, and resources necessary to achieve the objectives of the CWM SI program. This site-specific work plan (SS-WP) incorporates the PWP by reference and focuses on site-specific information and requirements, procedural deviations, and omissions from the PWP. This SS-WP applies specifically to the investigation area located within former Schilling AFB, Salina, Kansas.

1.1 PROJECT LOCATION

The former Schilling AFB is located in Salina, Kansas. The location of the former Schilling AFB and the area of interest is presented on Figure 1.1.

1.2 SITE DESCRIPTION

1.2.1 The former Schilling AFB consists of 4,134.72 acres. As part of the CWM SI program, this project addresses only the former gas instruction building and decontamination area which will be collectively referred to as the "gas instruction area". The gas instruction area is an approximately 5-acre area located in the southwest portion of the Salina Municipal Airport property. The CWM SI will be conducted under the assumption that the potential exists for the presence of chemical agent (CA) or agent.

1.2.2 Presented below is a summary of site-specific information collected as part of the May 2003 Archives search Report (ASR) (USACE, 2003) and 2004 ASR Supplement Report (USACE, 2004). Where appropriate, the information has been revised to reflect data collected during the Technical Project Planning (TPP) Meeting as well as other sources. Archaeology and endangered species issues are presented in Section 4.

1.2.2.1 Climatic Data

Warm periods during the summer months and cold winters are common in the former Schilling AFB area. The normal daily minimum temperature ranges from 19 degrees Fahrenheit (ºF) in January to 69ºF in July. The normal daily maximum temperature ranges from 39ºF in January to 93ºF in July (weather.com). Rainfall is heaviest in late spring, with average monthly rainfalls of approximately four inches during the season. On average, approximately 32 inches of rain falls annually.

1.2.2.2 Topography and Vegetation

The majority of the Schilling AFB area is largely flat to gently rolling. The elevation at the site ranges from approximately 1,200 ft to 1,320 ft above mean sea level (amsl) (USACE, 2009a).

The ground surface at the FUDS has been observed to be covered by a combination of pavement (runways, parking areas, and streets), buildings, landscaping, or used for farming purposes (cultivated). The landscaped areas around the runways, and in-between buildings and paved areas, are covered in grass that is maintained (USACE, 2009a).

1.2.2.3 Geology and Soils

1.2.2.3.1 The former Schilling AFB is located in the Smoky Hills physiographic province. The Permian Wellington Formation bedrock underlies the alluvium at an approximate depth of 40 to 50 ft bgs. The Wellington Formation consists of shale with minor amounts of limestone, dolomite, siltstone, gypsum, and anhydrite.

1.2.2.3.2 Surface sediment along the site consists of a silty loam. The Crete silt loam is generally found to be nearly level (0 to 2 percent slopes). Silty loam is moderately well drained resulting in slow surface runoff and a high capacity of available water (USACE, 2009a).

1.2.2.4 Hydrology

1.2.2.4.1 Saline County and former Schilling AFB site drains into the Smoky Hill River and its tributaries, which flow north and east across the county. Many upland areas do not have an adequate supply of water for domestic and livestock uses. Rural water districts help to distribute water to these areas. The water supply generally is better in valleys along the major streams. Some of the soils in these valleys are irrigated. The irrigation water is drawn from wells, local streams or is surface water impounded by dams (USACE, 2003).

1.2.2.4.2 The Schilling AFB site is underlain by the Western Interior Plains aquifer system. The aquifer system consists of water-yielding dolomite, limestone, and sandstone. Regional groundwater movement in the Western Interior Plains aquifer system is southeastward to eastward and is thought to be very slow. Little water is withdrawn from the aquifer system because the system is deeply buried and contains highly mineralized water (USACE, 2009a).

1.3 SITE HISTORY

1.3.1 The U.S. Government constructed the Smoky Hill Army Air Base in 1942; it was renamed the Smoky Hill Air Force Base in 1946 and renamed Schilling Air Force Base (AFB) in 1957. The former Schilling AFB consisted of 4,134.72 acres located approximately 2 miles southwest of Salina, Kansas. During World War II, Schilling AFB supported the training of pilots for bombing missions.

1.3.2 The base was deactivated in 1949, and reactivated in 1951 to support the Korean conflict. At that time, Schilling AFB was the second largest base in the Strategic Air Command (SAC) and carried the mission to fly nuclear strike attacks with the capability of rapid deployment. In 1961 the facility became the support base for the 550th Strategic Missile Squadron for the Atlas F Inter-Continental Ballistic Missile and Nike missiles. During its operational existence, Schilling AFB housed numerous special weapons and conventional ordnance igloos, a gas instruction building, gas chambers, skeet ranges, an aircraft target butt, an aircraft burning/training area, and a missile maintenance building. The base was permanently closed in 1967 and the U.S. General Services Administration conveyed the majority of the base to the City of Salina for use as a municipal airport.

1.4 CURRENT AND PROJECTED LAND USE

Today, the central and western portions of the former Schilling AFB are occupied by the Salina Municipal Airport. The gas instruction area is used for farming, alternating sorghum and wheat crops. The projected land use of the gas instruction area is not anticipated to change and will likely remain as farmland.

1.5. PREVIOUS INVESTIGATIONS

This section provides information on previous investigations conducted by USACE concerning Munitions and Explosives of Concern (MEC) and CWM associated with the former Schilling AFB FUDS property.

1.5.1 1991 Inventory Project Report (INPR)

An Inventory Project Report (INPR) was prepared in July, 1991 by United States Army Corps of Engineers (USACE). The INPR only addressed the use and/or storage of small arms, flare, signals, simulators, and screening smoke (other than white phosphorous) contamination remaining at the site from the previous military use.

1.5.2 2003 Archives Search Report (ASR)

1.5.2.1 An ASR was completed by USACE in May 2003. The USACE conducted a site visit to the former Schilling AFB on October 23 and 24, 2002 to evaluate site conditions and in preparation of an ASR. The ASR noted that documentation existed showing that chemical agent identification sets (CAIS) were onsite, but final disposition was not noted. The ASR also indicated that live liquid mustard may have been spread over an approximate 100-square yard section of land for the purpose of decontamination training. The location of the possible mustard ground decontamination training area is unknown. The gas instruction building was also presumably used for decontamination practice. The site visit team noted that only the former radio transmitter building remained standing, while the gas instruction building (not the gas chamber building) – which once stood 100-yards to the north – no longer existed.

1.5.2.2 The ASR separated the former training areas at Schilling AFB into different areas. "Area C" was the designation for the area which contained the "Gas Instruction Building", "West Skeet Range" and "South Skeet Range". The ASR designated a Risk Assessment Code (RAC) of "1" for Area C (recommending further action as appropriate), based on the historical documentation of the presence of CAIS and decontamination exercises.

1.5.3 2004 Archives Search Report Supplement

An ASR Supplement was prepared in November 2004. The ASR Supplement renamed "Area C" as "Range Complex No.1" and included sub-ranges: "gas instruction area", "Skeet Range No.3", and "Skeet Range No.1" (USACE, 2004).

1.5.4 2008 Site Inspection Report

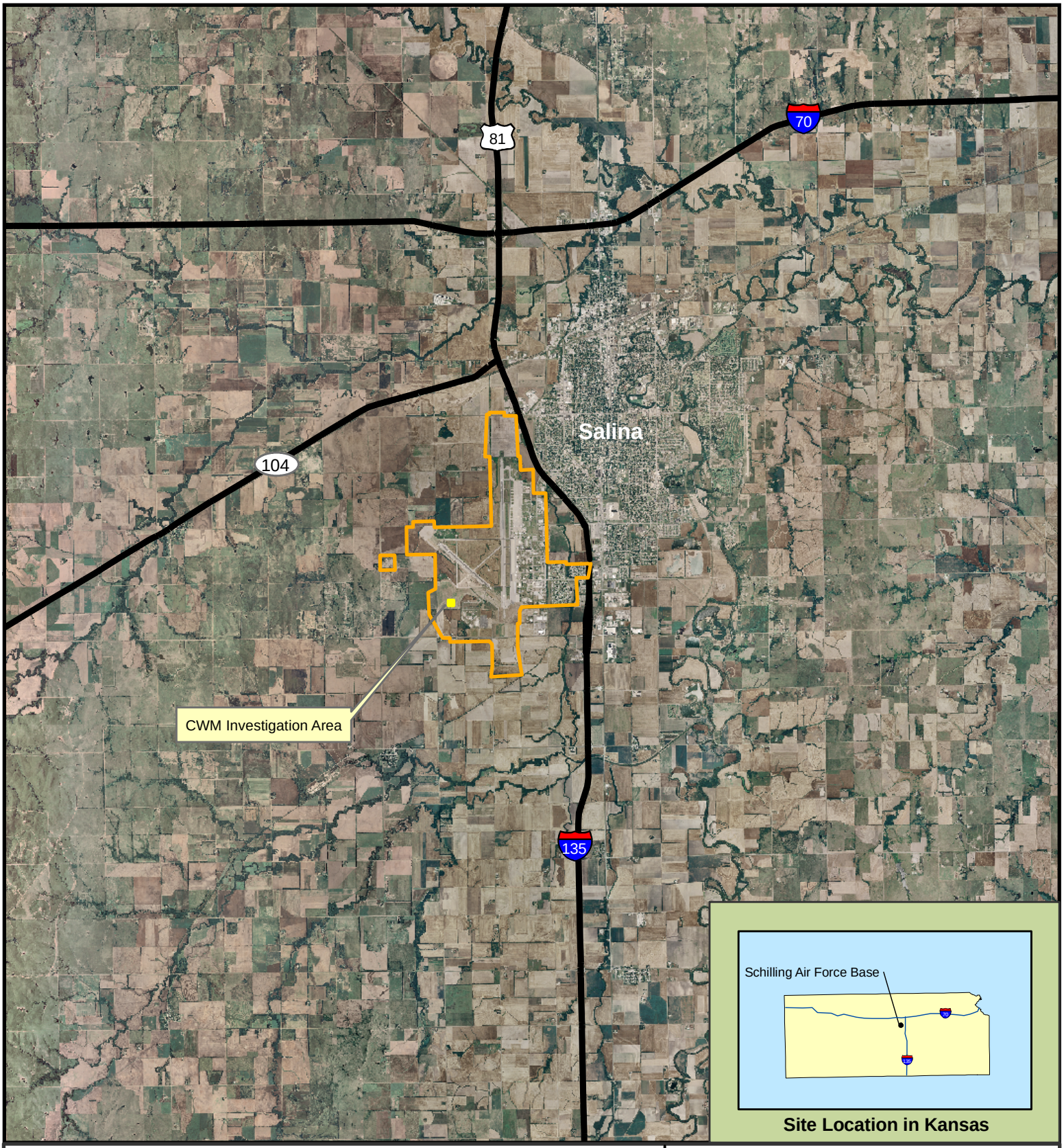
A Site Inspection (SI) was conducted in December 2008 and addressed MEC contamination at the skeet ranges as well as other areas within the former Schilling AFB. Based on the results of the SI a recommendation of no Department of Defense action is indicated (NDAI) was made for these areas of the site (USACE, 2009a).

1.6. INITIAL SUMMARY OF RISK FROM CHEMICAL WARFARE MATERIEL, CAIS, AND MUNITIONS AND EXPLOSIVES OF CONCERN

CWM and CAIS are safety hazards and as such may constitute an imminent and substantial endangerment to the general public, site personnel and the environment. No CAIS or CWM have been found at the former Schilling AFB. Table 1.1 presents a list of CAIS items and their munitions constituent (MC) composition likely associated with the gas instruction area.

Table 1.1
Types and Components of Chemical Agent Identification Sets (CAIS)
Former Schilling Air Force Base, Salina, Kansas

CAIS Type	Description	Packaging	Contents		
			Chemical Type	No. of Containers	Volume Per Container
K951/ K952	CAIS for outdoor identification training – M1 Instructional War Gas Identification Set	48 Pyrex®, flame-sealed, 7.5-inches by 1-inch ampoules. Each ampoule is packed in a cardboard screw cap container with agent type indicated on the cardboard container. Twelve cardboard containers each are packaged into 4 press fit metal cans 9¼ inches high. The cans are packed into a steel cylinder 6 5/8 inches in diameter, approximately 38 inches long, and 0.145 inches thick. The open end of the cylinder is closed by a flanged end cover which is secured by eight bolts. The only difference between the K951 and K952 is that the K951 was issued with blasting caps that were packed and shipped in a separate container. A shipping container weighs about 110 pounds when full.	Mustard (H)	12	2 mL of H diluted with 38 mL of chloroform.
			Lewisite (L)	12	2 mL of L diluted with 38 mL of chloroform
			Chloropicrin (PS)	12	20 mL of PS and 20 mL of chloroform
			Phosgene (CG)	12	40 mL as the amount of CG per container
K941	CAIS used for decontaminati on training – M1 Toxic Gas Set	24 round screw-top bottles with heat resistant paint indicating the contents. Four bottles are packed in a one-half inch layer of sawdust within a sealed metal can. The cans are pressure sealed, 6¼ inches high, and have a sardine-type key on the bottom. Six of these cans are placed into a steel shipping cylinder that is 6-5/8 inches in diameter, approximately 38 inches long, and 0.145 inches thick. The open end of the cylinder is closed by a flanged end cover which is secured by eight bolts. A shipping container weighs approximately 110 pounds when full.	Mustard (H), Sulfur Mustard (HS), or Distilled Mustard (HD)	24	3.5 ounces



Legend

FUDS Property Boundary

CWM Investigation Area

N

0 5,500 11,000 22,000 Feet

Image Source: 2006 Aerial
Projection: NAD 83 UTM Zone 14N

Figure 1.1

Site Location
Schilling Air Force Base
FUDS Project # B07KS0256
Salina, Kansas

SECTION 2
TECHNICAL MANAGEMENT PLAN

The Technical Management Plan provides the site-specific approach and procedures needed to meet the project objectives. General procedures are provided in Section 2 of the PWP.

2.1. PROJECT OBJECTIVES

The objective of the CWM SI in the gas instruction area at the Former Schilling AFB is to determine if further action is warranted due to the presence of CAIS K951/952 and CA/agent breakdown products (ABP), or if NDAI is reasonable. In addition, data will be collected to support Hazard Ranking System (HRS) scoring by the U.S. Environmental Protection Agency (USEPA) and for completion, by Parsons, of the Department of Defense (DoD) Munitions Response Site Prioritization Protocol (MRSPP) forms.

2.2. PROJECT ORGANIZATION

This subsection describes the organizations along with their project role. Table 2.1 lists the organizations that have direct roles in the project.

Table 2.1
Key Project Organizations

Organization	Responsibility Category
U.S. Army Corps of Engineers, Kansas City District (CENWK)	Project Management
U.S. Army Engineering and Support Center, Huntsville (USAESCH)	Project Management
U.S. EPA Region 7	Review and Comment
Parsons	Prime Contractor, Technical Support
CBRNE Analytical and Remediation (CARA)	Technical Support
One Stop Environmental, LLC	Technical Support
GEOMET Technologies	Technical Support
Kansas Department of Health and Environment (KDHE)	Review and Comment
Salina Airport Authority	Property Owner

2.2.1. U.S. Army Corps of Engineers, Kansas City District (CENWK)

CENWK is the overall Project Manager for the Former Schilling AFB project. CENWK responsibilities include: review of project plans and documents, obtaining rights-of-entry to properties in the work area, working with the news media and the public, and coordinating with federal, state and local agencies on issues pertaining to implementation of this project and protection of ecological and cultural resources. Other responsibilities include: coordinating any necessary evacuations, providing proper notifications to the KDHE regarding any findings, notifying the National Response Center and the state and federal officials in the event of a release or spill, and signing the hazardous waste manifest as generator of any hazardous waste. If appropriate, CENWK will provide an on-site representative to handle waste manifests and to coordinate public affairs.

2.2.2. U.S. Army Engineering and Support Center, Huntsville (USAESCH)

USAESCH is the implementing agency for execution of this project. USAESCH provides technical expertise for CWM activities, and serves as the Technical Project Manager for conduct of the SI. USAESCH responsibilities include procurement and direction of the prime contractor (Parsons) and supporting agencies, and the coordination of document reviews and approvals. As the Technical Project Manager, USAESCH is responsible for directing the contractor and controlling the budget and schedule. USAESCH also provides the on-site Safety Specialist.

2.2.3. Parsons

2.2.3.1. Parsons, as the prime contractor to USAESCH, has prepared this Work Plan and will provide overall support and services for implementation of the Schilling AFB SI. Parsons is responsible for performance of the activities detailed in the SOW.

2.2.3.2. Parsons may subcontract some services to ensure successful completion of the delivery order. These services may include, but are not limited to:

1. Site support (site setup, access improvements including brush clearing as well as temporary storage and equipment transportation).
2. Transportation and disposal of waste streams.
3. Field services and sampling including qualified sampling personnel (hand auger).
4. Surveying.
5. Site restoration.

2.2.4. CBRNE Analytical and Remediation Activity (CARA)

CARA provides air monitoring for CAIS-related compounds (i.e., H, L, CG, PS, and chloroform) and provides chemical surety laboratory services. In addition to providing equipment and personnel, CARA obtains support and personnel through subcontractors. During soil sampling activities, CARA conducts the air monitoring for chemical agents in

the work and contamination reduction zone (CRZ). CARA will also provide headspace analysis for H and L on soil samples.

2.2.5. One Stop Environmental, LLC and GEOMET

One Stop Environmental has been contracted by Huntsville to provide support for soil sampling for the Schilling AFB SI. One Stop Environmental has, in turn, contracted GEOMET to perform laboratory analysis for H and L and ABPs on soil samples.

2.2.6. Kansas Department of Health and Environment (KDHE) and U.S. Environmental Protection Agency Region 7

The lead regulatory agency for this project will be the KDHE. KDHE protects Kansas's natural resources and enforces the State's environmental laws. USEPA Region 7 will oversee enforcement of federal environmental laws. The project team will coordinate with KDHE and USEPA Region 7 throughout the project and both KDHE and USEPA Region 7 will be reviewers during the development of work plans and other project documents for the Schilling AFB SI. CENWK will act as the primary contact to KDHE and USEPA Region 7 and will keep both agencies informed of project progress.

2.2.7. Stakeholders

The landowner and stakeholders that may be impacted by the SI have been contacted and are part of the TPP Team. The primary stakeholder for this project is the Salina Airport Authority.

A complete list of names and addresses of Stakeholders is provided in Table 2.2

Table 2.2
Stakeholders List

U.S. Army Corps of Engineers, Kansas City District 601 E 12th St, Kansas City, MO 64106 Mr. Thomas Simmons – Project Manager *email:* thomas.m.simmons@usace.army.mil (816) 389-3372
U.S. Army Engineering and Support Center, Huntsville 4820 University Square Huntsville, AL 35816-1822 Ms. Paula Henderson, Project Manager *email:* paula.k.henderson@usace.army.mil (256) 895-1269 and Ms. Lindsey Miller, Project Co-Manager *email:* lindsey.w.miller@usace.amry.mil (256) 895-1297
Kansas Department of Health and Environment Curtis State Office Building 1000 SW Jackson Topeka, KS 66612 Chad Timken, Project Manager *email:* ctimken@kdheks.gov (785) 296-1682

Table 2.2
Stakeholders List

U.S EPA Region 7 901 N 5th Street Kansas City, KS 66101 Ken Rapplean, Project Manager *email:* rapplean.kenneth@epa.gov (913) 551-7769
CBRNE Analytical and Remediation Activity (CARA) Remediation Response Pine Bluff Arsenal Pine Bluff, AR 71602-9500 Marvin Hubanks, Program Manager *email:* marvin.p.hubanks@us.army.mil (870) 540-2301
One Stop Environmental, LLC 990 Explorer Blvd., Suite D Huntsville, AL 35806 Ms. Sarah McGraw, Program Manager *email:* smcgraw@onestopenv.com (256) 513-6332, ext. 821
Salina Airport Authority 3237 Arnold Ave. Salina, KS 67401 Mr. David "Gunner" Wiles, Manager of Operations *email:* gunner@salair.org (785) 827-3914

2.3. PROJECT PERSONNEL

2.3.1. The responsibilities of the key personnel on the Schilling AFB SI project are presented in Table 2.3.

Table 2.3
Responsibilities of Team Members
Schilling AFB SI

Title	General Description	Responsibilities
PARSONS:		
Project Manager (PM) Kimberly Vaughn	Reports to upper-level management. Has authority to direct response operations and implement the SOW for USAESCH.	• Overall responsibility for project schedule, budget, safety and quality. • Uses the Project Safety and Health Officer (PSHO) to ensure that safety and health requirements are met. • Oversees the performance of all project team members. • Assures that technical and contractual issues are resolved. • Controls cost and schedule targets. • Review and approval of work plans and reports.
Task Order Manager Chris tenBraak	Reports to the PM and conducts project technical performance.	• Prepares and organizes the background review of the situation, the Work Plan, the Accident Prevention Plan (APP)/Site Safety and Health Plan (SSHP), and the field team. • Obtains permission for site access and coordinates activities with appropriate officials. • Uses the Site Safety and Health Officer (SSHO) to ensure that safety and health requirements are met. • Coordinates subcontract activities. • Review and approval of work plans and reports
Site Manager (SM) / Field Team Leader (To be determined)	Responsible for field team operations and safety.	• Manages field operations and determines the sequence and locations of intrusive activities. • With the SSHO, ensures that safety and health requirements are met. • Provides primary on-site point-of-contact between Parsons, USAESCH, the assessment team, and the air monitoring team. • Oversees subcontractor's field operations and reviews subcontractors' weekly status reports. • Coordinates with the Parsons PM to take corrective actions to assure budgets and schedules are enforced during the field work. • Reports all QC failures and corrective actions to the PM and Quality Assurance Manager. • Enforces site control. • Documents field activities and reports to the Parsons PM. • Responsible for knowing the soil sampling procedures and ensuring that the procedures are followed in accordance with the Work Plan • Schedules and coordinates field team activities.

Table 2.3
Responsibilities of Team Members
Schilling AFB SI

Title	General Description	Responsibilities
Project Safety and Health Officer (PSHO) Ed Grunwald	Advises PM on all aspects of health and safety (H&S) and supervises the SSHO.	• Provides technical support concerning health and safety issues. • Manages/Oversees the preparation of the APP/SSHP. • Ensures that the Parsons/USACE health and safety protocols being followed conform with established industry protocols and standards. • Confirms each team member's suitability for work based on a physician's recommendation. • Conducts field health and safety audits to ensure APP/SSHP conformance and Parsons policy compliance. • Certifies that all workers have proper training. • Investigates each accident or reportable incident. • Review and approval of safety plans
Site Safety and Health Officer / Quality Control (QC) Specialist (To be determined)	Reports to the PSHO on all aspects of health and safety on site. Performs day-to-day H&S tasks. Stops work if any operation threatens work or public health or safety. Coordinates with the Parsons PM and QC Manager.	• Knows emergency procedures, evacuation routes, and telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department. • Coordinates decontamination procedures/provisions for medical care with USAESCH, the assessment team and air monitoring personnel. • Notifies USAESCH of emergency conditions. • Conducts hazard communications (HAZCOM) training. • Advises medical personnel of potential exposures and consequences. • Notifies emergency response personnel by telephone or radio in the event of an emergency. • Acts as spokesperson if an Occupational Safety and Health Administration (OSHA) inspector visits the site. • Conducts on site training concerning pertinent Health and Safety (H&S) issues and new concerns. • Reports all accidents or H&S incidents to the PSHO and USAESCH. • Oversees and implements the QC Plan (detailed in the Programmatic Work Plan (PWP). • Monitors the project's performance in accordance with safety protocols and technical compliance. • Provides guidance, as required, and performs scheduled reviews of documentation (QC reports, field progress reports, and technical findings).

Table 2.3
Responsibilities of Team Members
Schilling AFB SI

Title	General Description	Responsibilities
QC Manager Neil Feist	Independent of the project team and interacts and communicates with subcontractor and USAESCH quality assurance (QA) personnel.	• Reviews QA/QC procedures to be used in the project. • Reviews subcontractor system audits and QC procedures to ensure compliance with the project QC guidelines • Performs a quality review to ensure the quality of deliverables from the project team.
Project Geophysicist Craig Murray	Responsible for overseeing implementation of geophysical surveys.	• Develops Geophysical Investigation Plan in PWP and SS-WP • Reviews and supervises geophysical surveys to identify anomalies relevant to buried CAIS.
Site Geophysicist John Baptiste	Directs and implements the geophysical survey in accordance with approved plans.	• Performs digital geophysical mapping • Provides daily status and data results to Project Geophysicist and Task Order Manager • Assists in the selection of suspect buried CAIS based on data results • Provides accurate location of suspect buried CAIS anomalies
Project Chemist Tammy Chang	Responsible for overseeing implementation of environmental sampling.	• Reviews Sampling Daily Quality Control Reports. • Works with the lab to ensure Quality Control. • Performs Data Validation and Ensures that Data Quality Objectives are met.
Sampling Coordinator (To be determined)	Organizes the collection and shipment of environmental samples in accordance with the Sample Analysis Plan.	• Supervises environmental sampling collection and shipment to the proper laboratories • Maintains accurate sampling logs • Provides sampling status reports to the Project Chemist.
Technician (To be determined)	Authorized to temporarily stop performance of work to immediately alert Supervisor of unsafe conditions.	• Safe and efficient performance of field operations, in accordance with the approved Work Plan and APP/SSHP.
USAESCH Safety Specialist (To be determined)	Reports to OE Directorate.	• Provides safety oversight of project related activities. • Monitors operations within the exclusion zone. • Stops work in the event of unsafe conditions or if approved health and safety procedures are not being followed.
Air Monitoring On-Site Coordinator (CARA) (To be determined)	Responsible for air monitoring operations and safety. Coordinates with Parsons SM.	• Manages air monitoring personnel on-site. • Ensures air sampling and monitoring is conducted in accordance with the approved Work Plan. • Ensures laboratory capabilities necessary to conduct required analyses are available onsite. • Coordinates with Parsons SM to ensure proper reporting of monitoring results

2.3.2. Figure 2.1 shows the overall organization structure for the Schilling AFB SI.

2.3.3. Field work at the Schilling AFB site will be conducted in one mobilization. Work will consist of geophysical mapping and soil sampling. The field team will consist of:

- Field Team Leader/ Site Geophysicist
- SSHO
- Geophysical Instrument Operator/Sampling Technician
- CARA Air Monitoring Team
- USAESCH Site Safety Representative

2.3.4 An Emergency Personnel Decontamination Station (EPDS) will be emplaced during sampling activities requiring air monitoring. The EPDS, however, will not have a dedicated crew.

2.4. PROJECT PUBLIC RELATIONS SUPPORT

Public involvement will be coordinated by CENWK.

2.5. PROJECT SCHEDULE

A project schedule has been prepared for work planning purposes (Figure 2.2). This schedule will be updated, when necessary. The included schedule is based on the current work plan and the anticipated time needed for stakeholder review, Parsons' response to comments and final plan preparation.

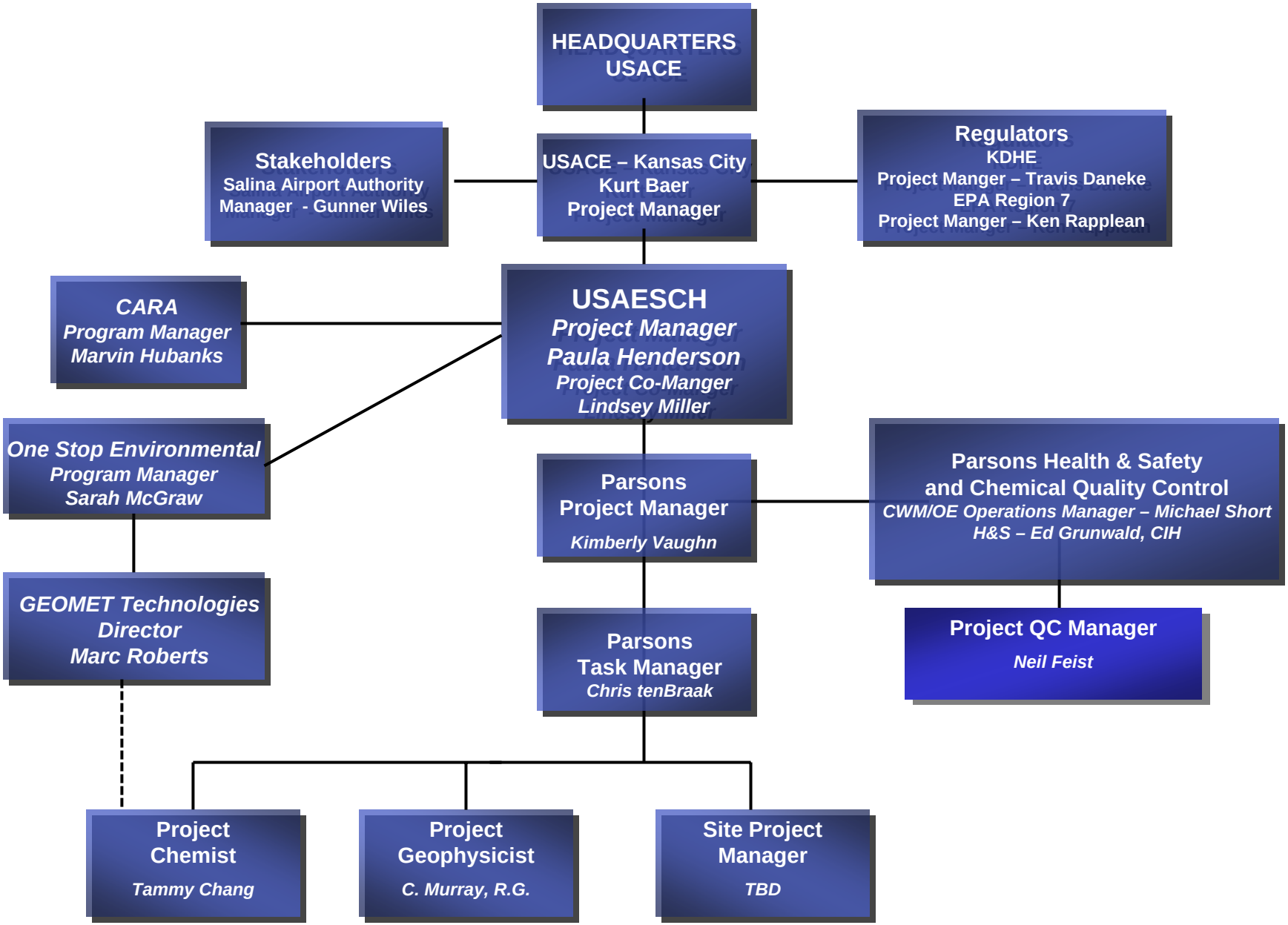
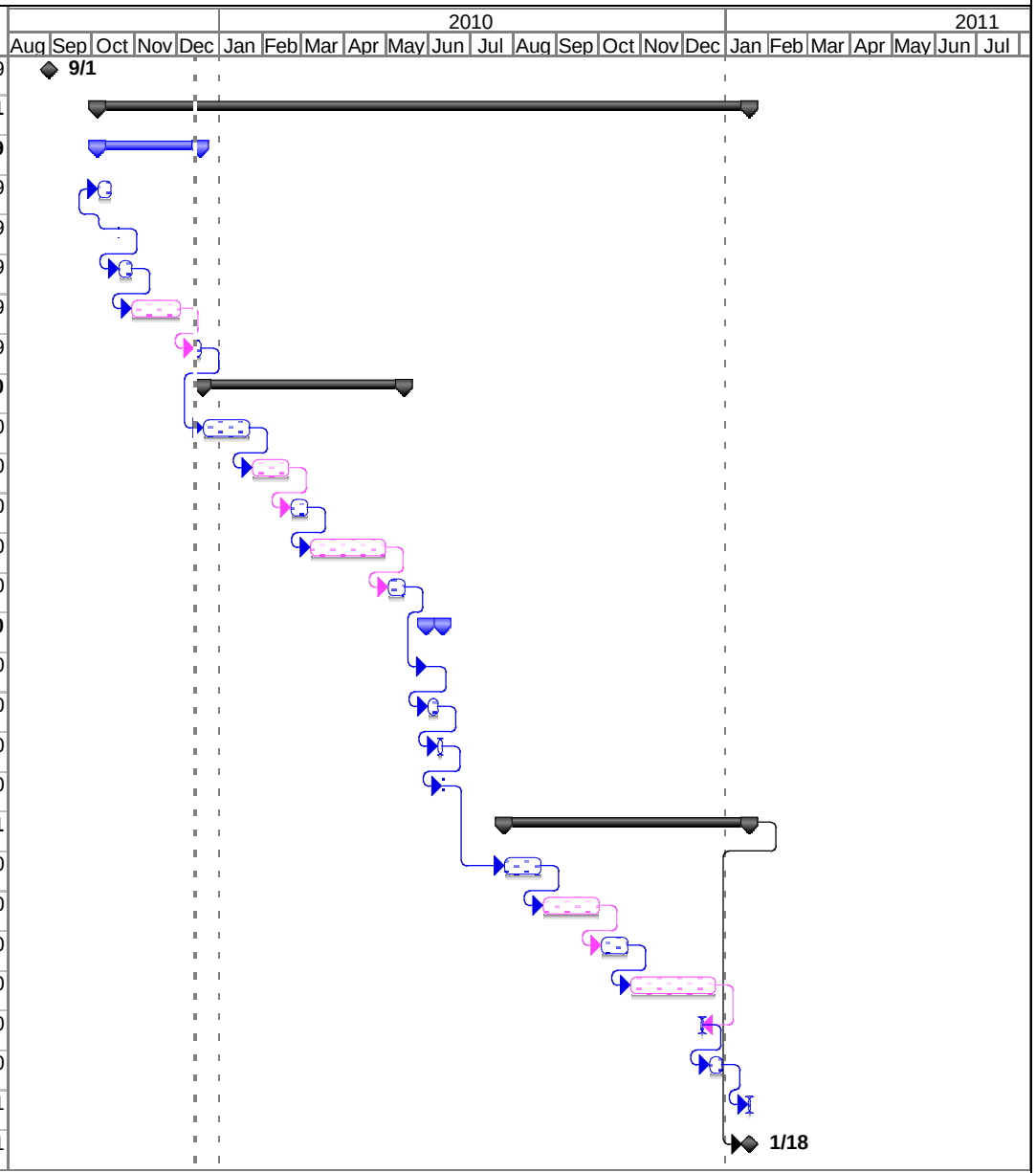


Figure 2.1 Schilling AFB CWM SI Project Organization

Figure 2.2 Schilling Schedule - CWM SI Program

ID	Task Name	Duration	Start	Finish
1	Notice to Proceed	0 days	Tue 9/1/09	Tue 9/1/09
2	**Schilling AFB**	**336 days**	**Tue 10/6/09**	**Tue 1/18/11**
3	**TPP Process**	**54 days**	**Tue 10/6/09**	**Fri 12/18/09**
4	TPP/CSM - Pre-Packet	7 days	Tue 10/6/09	Wed 10/14/09
5	TPP Meeting 1	1 day	Tue 10/20/09	Tue 10/20/09
6	TPP Memorandum Submittal	7 days	Wed 10/21/09	Thu 10/29/09
7	TPP Memorandum Review	25 days	Fri 10/30/09	Thu 12/3/09
8	TPP Memorandum Accepted	5 days	Mon 12/14/09	Fri 12/18/09
9	**Work Plans**	**105 days**	**Mon 12/21/09**	**Fri 5/14/10**
10	Draft Site Specific Work Plan	25 days	Mon 12/21/09	Fri 1/22/10
11	Government Review	20 days	Mon 1/25/10	Fri 2/19/10
12	Draft Final Site Specific Work Plan	10 days	Mon 2/22/10	Fri 3/5/10
13	Government/Regulator Review	40 days	Mon 3/8/10	Fri 4/30/10
14	Final SSWP Accepted	10 days	Mon 5/3/10	Fri 5/14/10
15	**SI Field Work - T&M**	**10 days**	**Mon 5/31/10**	**Fri 6/11/10**
16	Mobilization	1 day	Mon 5/31/10	Mon 5/31/10
17	Geophysical Surveying	5 days	Tue 6/1/10	Mon 6/7/10
18	Sampling	3 days	Tue 6/8/10	Thu 6/10/10
19	Demobilization	1 day	Fri 6/11/10	Fri 6/11/10
20	**SI Report**	**127 days**	**Mon 7/26/10**	**Tue 1/18/11**
21	Submit Draft SI Report	20 days	Mon 7/26/10	Fri 8/20/10
22	Government Review	30 days	Mon 8/23/10	Fri 10/1/10
23	Submit Draft Final SI Report	15 days	Mon 10/4/10	Fri 10/22/10
24	Government BC & Regulatory Review	45 days	Mon 10/25/10	Fri 12/24/10
25	TPP Meeting 2	1 day	Wed 12/15/10	Wed 12/15/10
26	Submit Final SI Report	7 days	Tue 12/21/10	Wed 12/29/10
27	Final SI Report Accepted	1 day	Tue 1/18/11	Tue 1/18/11
28	**Site Completion Date**	0 days	Tue 1/18/11	Tue 1/18/11



CWM SI - Project Schedule

External Task
Task
Milestone
Summary
Rolled Up Milestone ◇

SECTION 3
FIELD INVESTIGATION PLAN

3.1. OVERALL APPROACH

Digital Geophysical Mapping will be conducted to search for possible buried CAIS shipping containers and sampling will be conducted to assess soil for the presence of CA/ABPs. The Overall Approach for conducting the SI of the CWM at the Schilling AFB was established using the TPP process, which consisted of a TPP meeting on October 20, 2009 and a TPP Memorandum prepared as a result of the meeting (USACE, 2009b). Details of the site-specific strategy for the CWM at Schilling AFB site are described in subsequent sections of this Section.

3.1.1. Conceptual Site Models

3.1.1.1. A conceptual site model (CSM) has been prepared and is presented in Table 3.1.

3.1.1.2. The CSM (Table 3.1) records specific data for the area of interest; such as, the potential for CAIS and soil contamination to be found at that site, post-DoD and current land use, potential receptors, potential source and receptor interaction, and proposed field sampling.

3.1.1.3. The CSEM (Figure 3.1) displays the potential transport mechanisms and associated exposure media if a significant source is found; including soil, groundwater, and surface water. The intent of this exposure model is to aid in the identification of potential migration pathways and receptors. Potential receptors are determined based on the types of constituents and whether their properties consist of hazards due to ingestion, dermal contact or inhalation. As shown, there is no surface water present within the gas instruction area, therefore; there is no potential direct release to surface water and or sediment. Although potentially complete, the groundwater exposure pathway will be assessed only if a significant source is found in soil. This CSEM is considered a "living" document, which may be revised throughout the SI process as additional site information is collected.

3.1.2. Data Quality Objectives

3.1.2.1 Overview

3.1.2.1.1. As stated in the PWP, the primary objective of the CWM SI project is to determine the appropriate follow-on action regarding CWM and chemical agent (CA). Potential subsequent, post-SI phases include: immediate action Emergency Removal or

time-critical removal action (TCRA), characterization action (RI/FS), or non-action (NDAI).

3.1.2.1.2. Secondary objectives of this SI also include collection of sufficient data for USEPA's development of the site-specific HRS Score, as well as for the completion, by Parsons, of the Office of the Secretary of Defenses' (OSD) MRSPP.

TABLE 3.1
CONCEPTUAL SITE MODEL
FORMER SCHILLING AIR FORCE BASE
SALINA, KANSAS

Subsite/Range	Acreage	Suspect Past DoD Activities	Potential MD/MEC Presence[1]	MD/MEC Found Since Closure	Previous Investigations/ Clearance Actions	Post-DoD Land Use and Current Land Use	Potential Receptors	Potential Source and Receptor Interaction	Proposed Field Investigation
GAS INSTRUCTION AREA	~5	Chemical agent decontamination of ground and buildings(1) Possible CAIS burial/disposal	None	None	1991 INPR, 2007 INPR Amendment, 2003 ASR, 2009 MMRP Site Investigation Report	Agricultural	Human workers (farmer, airport staff), ecological	Yes- CA/ABP in surface or subsurface. Access controlled.	Site Visit, DGM, 20 soil samples.
TOTAL	~5								

Source:
1 = 2003 ASR

Note: The 5-acre gas instruction area includes the former gas instruction area as well as the surrounding, potentially impacted area. The chemical agent decontamination area was reportedly 100 square yards. The exact location of the decontamination area is unknown.

ASR = Archives Search Report
CA/ABP = Chemical Agent/Agent Breakdown Product
CAIS = Chemical Agent Identification Set(s)
DGM = Digital geophysical mapping
DoD = Department of Defense
INPR = Inventory Project Report
MEC = Munitions and explosives of concern
MD = Munitions debris
MMRP = Military Munitions Response Program

3.1.2.1.3. To ensure accomplishment or attainment of the project objectives detailed above, Data Quality Objectives (DQOs) were developed for Schilling AFB in accordance with the process presented in Section 3, paragraph 3.1.3 of the PWP.

3.1.2.2 Digital Geophysical Mapping (DGM) DQO

The purpose of the digital geophysical mapping is to determine the locations of anomalies possibly related to CAIS burial locations. The DGM DQOs are provided in Table 3.2.

Table 3.2
DGM Data Quality Objectives
Schilling AFB, Kansas

DQO Element Number	DQO Element Description	Site-Specific DQO Statement
Intended Data Use(s):		
1	Project Objective(s) Satisfied	Determine presence/lack thereof of CAIS
Intended Need Requirements:		
2	Data User Perspective(s)	Risk and Remedy perspective
3	Contaminant or Characteristic of Interest	CAIS
4	Media of Interest	N/A
5	Required Locations or Areas	5-acre area surrounding former gas instruction building (represents most likely location for CAIS burial)
6	Number of Samples Required	N/A. Digital Geophysical Mapping (DGM) of 5-acre area.
7	Reference Concentration of Interest or Other Performance Criteria	Identification of large anomaly that would be consistent with CAIS shipping container (Pig) burial. If identified, recommendation will be made regarding subsequent actions at the site.
Appropriate Sampling and Analysis Methods:		
8	Sampling Method	Geophysical survey.
9	Analytical Method	DGM data processing and comparison to data results from known CAIS pig burial locations.

3.1.2.3 Environmental Sampling DQO

The Environmental Sampling DQOs have been developed to assess the presence of CA/ABPs at the Schilling AFB. The DQOs are provided in Table 3.3.

Table 3.3
Sampling Data Quality Objectives
Schilling AFB, Kansas

DQO Element Number	DQO Element Description	Site-Specific DQO Statement
Intended Data Use(s):		
1	Project Objective(s) Satisfied	Determine presence/lack thereof of CA/ABPs
Intended Need Requirements:		
2	Data User Perspective(s)	Risk and Remedy perspective
3	Contaminant or Characteristic of Interest	Mustard and Lewisite and agent breakdown products (1,4-Dithiane; 1,4-Thioxane, CVAA, CVAO)
4	Media of Interest	Soil
5	Required Sampling Locations or Areas and Depths	Area immediately surrounding the former gas instruction building, including possible decontamination area indicated on 1954 air photo (bare ground noted east of gas building). Sample interval 12 to 18 inches below ground surface (below depth disturbed by farming/discing)
6	Number of Samples Required	10 grab samples from grid-based pattern plus 10 discretionary samples, as determined by the field team. Plus associated QA/QC samples.
7	Reference Concentration of Interest or Other Performance Criteria	Screening criteria for human health: H = 10 ug/kg L, CVAA, CVOA = 300 ug/kg 1,4-Dithiane = 610000 ug/kg 1,4-Thioxane = 610000 ug/kg Thiodiglycol = 24000000 ug/kg
Appropriate Sampling and Analysis Methods:		
8	Sampling Method	Soil samples collected in accordance with the PSAP and Site-Specific Work Plan SAP (Appendix C).
9	Analytical Method	GEOMET CDLD SOP-44

3.1.2.4 Hazard Ranking System DQO

Sufficient data for this investigation area will be collected in order for the USEPA to populate the HRS score sheets. The data will be collected from existing document sources. Source documents for HRS information will include the INPR, ASR, and the ASR Supplement. Data gaps will be filled via sampling as well as collection from local and state agencies (demographics/population, groundwater well users and supply sources/served population, surface water within 2 miles, etc).

3.1.2.5 Military Response Site Prioritization Protocol DQO

Specific input data will be collected and the three modules for MRSPP populated as part of the SI. The modules include Explosive Hazard Evaluation (EHE), Chemical Warfare Materiel Hazard Evaluation (CHE), and Health Hazard Evaluation (HHE). The data will be collected from existing document sources. Source documents for MRSPP information will include the INPR, ASR, and the ASR Supplement. Data gaps will be filled via sampling and other data collection from local/state agencies. The State Historic Preservation Office (SHPO) has been contacted for cultural resources; other county agencies will also be contacted for receptor information, groundwater well users, and supply sources/served population, etc (USACE, 2009a).

3.2 SITE APPROACH

3.2.1 This section provides descriptions of the Schilling AFB Site being investigated under the CWM SI Program. The investigative approach for the SI is also provided in subsequent sections of this section. The Schilling AFB Site will undergo geophysical mapping and sampling activities. Sampling described for the site will be conducted in accordance with this site specific work plan and the Programmatic Sampling and Analysis Plan (including the addendum) contained in the PWP. Site-specific sampling information and exceptions are described in the SS-SAP in Appendix C.

3.2.2 In the event CWM is discovered during field activities, the item will be clearly marked and Parsons will implement notification procedures as identified in the PWP and IGD 06-05. The site specific Emergency Notification Plan is included in Chapter 16 of the SSHP (Appendix B, Attachment 1).

3.2.1. Investigation Area

3.2.1.1. Site Description

3.2.1.1.1. This project addresses only the former gas instruction building and decontamination area, which will be collectively referred to as the “gas instruction area”. The gas instruction area is an approximately 5-acre area located in the southwest portion of the Salina Municipal Airport property. The CWM SI will be conducted under the assumption that the potential exists for CAIS burial/disposal and/or the presence of CA or agent breakdown products (ABPs) in soil. This assumption is based on historical activity

recorded on the site; no evidence of CWM was encountered during the ASR site visit nor has been reported since. The gas instruction area is now used for farming, alternating sorghum and wheat crops.

3.2.1.2. SI Approach

3.2.1.2.1. Based on review of available historical aerials (USACE, 2009a), the investigation area includes approximately five acres near the former gas instruction building. The gas instruction building can be seen on the 1954 aerial, as well as an area of disturbed vegetation (possibly the ground decontamination area) located approximately 120 feet to the east of the building (Figure 3.2). The two skeet ranges would likely have precluded CWM training exercises being conducted within the danger zones of the skeet ranges and the five acres of investigation area will be located to surround the area of disturbed vegetation visible in the 1954 historical aerial. Based on a review of the MMRP SI report (currently draft final) no visible remnants (e.g. structures, boundaries) of the two skeet ranges remain. Remnants of a former radio transmission tower building remain nearby.

3.2.1.2.2. The TPP Team has agreed that the CWM SI data collection efforts will include a geophysical survey and soil sampling.

Digital Geophysical Mapping

3.2.1.2.3 Five acres of digital geophysical mapping (DGM) will be conducted near the former gas instruction building. The five acre DGM area encompasses a large buffer around the former gas instruction building and the area of disturbed ground noted on the 1954 aerial image. Although there is no documentation regarding CAIS disposal/burial, the TPP Team agreed that this 5-acre area represented the most appropriate area for DGM to identify possible CAIS disposal/burial.

3.2.1.2.4 A test plot will be established using metallic items to test instrument functionality and repeatability. If the equipment fails to meet quality control guidelines the test will be re-run; repeat failures will lead to equipment replacement. The test plot will be in an area with minimal background anomalies. DGM transects will be spaced 5 feet apart running from east to west, as presented on Figure 3.3. During DGM, the geophysical survey team will document areas of metallic surface debris. Geophysical mapping will be conducted using a portable Geometrics G-858 magnetometer. The G-858 instrument will be mounted on a wheeled cart with sensors separated horizontally by 5 feet. Diurnal variations of the magnetic field will be removed from each sensor dataset with a median removal filter. During data collection, a real-time kinematic global positioning system (such as the Trimble 5800 RTK DGPS system, or equivalent) will be used for positioning. Anomaly selection criteria will be based on the professional judgment of the project geophysicists (Parsons geophysicists in consultation with USAESCH geophysicists).

3.2.1.2.5 The survey area will be located with an RTK GPS instrument and marked in the field using wooden stakes, pin flags, or spray paint. Tape measures will be placed along the eastern and western edges of the area to allow the instrument operator to see where to begin and end their survey lines. The instrument operator will start in the southwest corner of the area and walk towards a visible marker (e.g. traffic cone) placed at the southeast corner. The operator will then turn around and return to the eastern edge of the area along a path parallel to that previously traveled offset 5 feet north, using another marker on the eastern edge of the area for visual guidance. If needed additional intermediate tape measures and markers will be used to keep the paths parallel to each other. This pattern will be repeated until the entire area is surveyed. Digital data will be recorded in data loggers for subsequent processing and map development.

Environmental Sampling

3.2.1.2.6. In addition to DGM, soil samples will be collected around the former gas instruction building and possible decontamination area (as indicated on the 1954 air photo Figure 3.2). The samples will include 10 grid-based soil samples (taken within 12'x18' grids) and 10 discretionary samples (plus associated quality control [QC] samples). The soil samples will be analyzed for Mustard and Lewisite and agent breakdown products (1,4-Dithiane; 1,4-Thioxane, CVAA, CVAO). The discretionary sample locations will be determined by the field team and may include areas outside of the sampling area grid shown on Figure 3.2. Due to the depth of the farming till (maximum of 12 inches), the sampling depth will range from 12 – 18 inches. Table 3.4 summarizes the CWM SI sampling approach.

Table 3.4
Sampling Approach Schilling AFB

Sample Type	Sampling Depth	Number of Samples/ Analyses	Justification
Grab Samples	12 – 18 inches	20 – CA and ABP	10 samples collected from a grid-based pattern and 10 discretionary samples (locations determined by the field team).

Note: Appropriate QC samples are not included in above sample count.

3.2.1.2.7. Before collecting a sample, a Technician will use a Schonstedt magnetic locator (or equivalent) to confirm the selected sample location is free of surface and subsurface ferrous debris. If the selected location is not clear of metallic debris (based on audible signals from the instrument) an alternate sample location will be selected near the original location. This process will be conducted iteratively until the Technician can deem the location safe for collecting the sample. Air monitoring for CAIS- related constituents (i.e., mustard, lewisite, phosgene, chloropicrin, and chloroform) will be conducted at each sample location.

3.2.1.2.8. Comprehensive details of the CA/ABP soil sampling technique are provided in the Formerly Used Defense System (FUDS) CWM SI Program Sampling Analysis Plan (PSAP – aka Programmatic SAP) and within the SS-SAP Appendix C and D. Two CA/ABP soil samples will be collected at each sample location in accordance with the PSAP. CA/ABP soil samples will have a split sample screened in the field (i.e. headspaced) for CA (mustard and Lewisite). No samples containing agent with headspace screening results exceeding the Airborne Exposure Limit (AEL) will leave the project site for additional analytical testing. If headspace analytical results are below the AEL (0.003 mg/m^3), the split sample will be shipped off-site for low-level analytical testing.

3.2.1.2.9. In the event that suspect CWM is discovered during field activities, work will cease, the item will be marked clearly, and Parsons, per the PWP and Interim Guidance Document (IGD) 06-05, will notify the USAESCH On-Site Safety Representative of the finding. The USAESCH On-Site Safety Representative will contact the USAESCH PM. If the USAESCH On-Site Safety Representative is not on site, Parsons will notify the USAESCH PM directly. The USAESCH PM will notify the local USACE District PM whom, in turn, will notify the property owner. Contact information for USACE and the property owner are provided in Section 2, Table 2.2.

3.2.1.2.10. The Property owner is responsible for contacting the appropriate local authorities (Parsons will provide the contact information for the appropriate emergency response unit upon request). The property owner will be informed that if they do not call the local response authority within one hour, the individual who identified the item will notify the local emergency response authority (i.e., police or fire department). The field team will not handle or be responsible for disposal or destruction of any CWM or MEC encountered. Personnel will be kept upwind of the location and, consistent with Interim IGD 06-05, the individual who identified the item, or designee, will generally remain in the area until local response authority arrives (unless the appropriate response authority indicates that the individual may leave the area).

3.2.1.2.11. If CAIS K951/952 is found during field activities (e.g., on the surface or during intrusive soil sampling activities) it will be handled in accordance with the Standard Operating Procedures (SOP) for CAIS (contained in the SOP document).

3.2.1.2.12. Air monitoring for the release of CAIS chemicals (i.e., H, L, PS, and chloroform) will be conducted during intrusive sample collection. Air monitoring will be conducted at the site using the Miniature Chemical Agent Monitoring System (MINICAMS) and the Depot Area Agent Monitoring System (DAAMS). The MINICAMS provides near-real-time monitoring for mustard, lewisite, and selected industrial chemicals. The DAAMS uses a continuous air-flow sample stream to collect a sample on sorbent material in a glass tube. Analysis of the sample collected on the sorbent material will provide confirmation of mustard or Lewisite detections by the MINICAMS. DAAMS pumps will also be placed along the perimeter of the work area. For worker protection, air monitoring for volatile organic carbons (VOCs) will be

conducted during soil sampling using a photo-ionization detector (PID). Details on VOC and CA air monitoring are provided in the SSHP in Appendix B, Attachment 1 and CARA's Air Monitoring Plan in Appendix D.

3.3. SURVEYING AND GEOSPATIAL DATA

Geographical positions will be captured at each soil sample location for inclusion in the geographical information system (GIS) database. The sample points will be documented using a Trimble 5800 (or equivalent) Real Time Kinematic (RTK) digital global positioning system (GPS) with base station or a Trimble ProXRS GPS (or equivalent) with post processed positional data by Parsons. This system will provide better than one-foot accuracy with horizontal precision documented at every sample location.

3.4. RIGHTS OF ENTRY

The CWM SI investigation area is owned by the Salina Airport Authority who have granted access to the area. The field team will work directly with the airport to coordinate entrance to the site. A copy of the Right of Entry agreement will be kept on-hand by the field team conducting field activities.

3.5. EXCLUSION ZONES AND SEPARATION DISTANCES

3.5.1 Intrusive Investigation Exclusion Zone

The Exclusion Zone (EZ) is an area used to protect the public and non-essential personnel from inadvertent chemical releases or detonations. The EZ is based on the Maximum Credible Event (MCE). The actual distance used for the exclusion zone will be the No Significant Effects (NOSE) Distance (defined in 3.5.3) and in this case will extend 433 feet from the sampling area boundaries (Figure 3.4). Personal Protection Equipment (PPE) and various levels of protection are addressed in Appendix B, Accident Protection Plan.

3.5.2 Maximum Credible Event (MCE)

3.5.2.1 The MCE is the worst case release of a chemical agent or industrial chemical from a munition, bulk container, or process that could reasonably be expected to occur as a result of an unintended, unplanned, or accidental release.

3.5.2.2 USAESCH prepared a position paper regarding the likelihood of encountering CWM at the investigation area and it is included as Appendix A. The MCE designated for soil sampling is based on the instantaneous release of 40 ml of phosgene from accidental breakage of a glass ampoule of the type found in a CAIS. Phosgene was selected as the MCE (as opposed to mustard, lewisite, or chloropicrin) due to its volatility and it represents the greatest dispersion hazard from an instantaneous release. Table 3.5 identifies the MCE associated with soil sampling operations.

Table 3.5
Maximum Credible Event for Schilling AFB Intrusive Operations

Container	Agent/Quantity	Release
M1 CAIS ampoule	Phosgene (CG) / 40ml	Instantaneous

3.5.3 No Significant Effects (NOSE) Distance

3.5.3.1 The NOSE distance is a distance beyond which the public would not experience any adverse health effects in association with the chemical agent release associated with the selected MCE. The NOSE distance is used to design contingency plans and to determine the evacuation areas around each site. A computer model (D2PC) was used to predict the NOSE distance based on dispersion modeling of the release using meteorological data, and the characteristics of the chemical agent potentially present. The maximum NOSE distance for the MCE at Schilling AFB is 433 feet.

3.5.3.2 The following factors will be used as the default for input for the D2PC program:

- Geographical Location: Not defined
- Height of Mixing Layer 750
- Type of Munitions/Item: Non
- Type of Agent: CG (Phosgene)
- Type of Release: INS (Instantaneous)
- Pasquill Stability Factor: D (Neutral)
- Windspeed (in meters per second): 1 = 2.2 mph
- Source Strength: 40 ml
- Temperature: 87°F

3.5.3.3 During sampling operations within the investigation area the actual EZ will be based on the NOSE distance calculated using the D2PC computer mode or a default EZ of 433-feet. When used, model input parameters will include data collected with an on-site weather station. Parsons will keep a log of the D2PC daily calculations.

3.5.4 Munitions with the Greatest Fragmentation Distance (MGFD)

Given the historical documents and research available, there is nothing upon which to determine a MGFD at this time. Since there is no definitive data available delineating the identity of the conventional ordnance, the NOSE for phosgene (433-feet) will be used in regards to the munition with greatest fragmentation distance (MGFD). In the event MEC is encountered, an appropriate MGFD will be established if greater than the NOSE.

3.5.5 Minimum Separation Distance (MSD)

The MSD is a protective distance based on the fragmentation hazard distance or the overpressure distance (whichever is greater) for the MGFD for the site. The NOSE for phosgene (433-feet) will be used as the MSD.

3.6 Sample Collection

The sample collection procedures presented in the this SS-WP, Programmatic PSAP, and the PWP will be followed. Slight variances to the sample collection methods and procedures from the PSAP are required for the CWM Investigation Area and are outlined in the SS-SAP in Appendix C.

3.6.1 Analytical Procedures and Data Validation

The analytical method for CA/ABP will be Geomet CDLD SOP-44. Data validation for laboratory hardcopy reports will be performed by the Parsons Project Chemist for sample results in accordance with the requirements contained in the PSAP, Quality Assurance Project Plan (QAPP), Department of Defense Quality Service Manual (DoD QSM, version 4.1), and any applicable USEPA Region standard operation procedures (SOPs). Laboratory results will be assessed for compliance with required precision, accuracy, completeness, comparability, and representativeness.

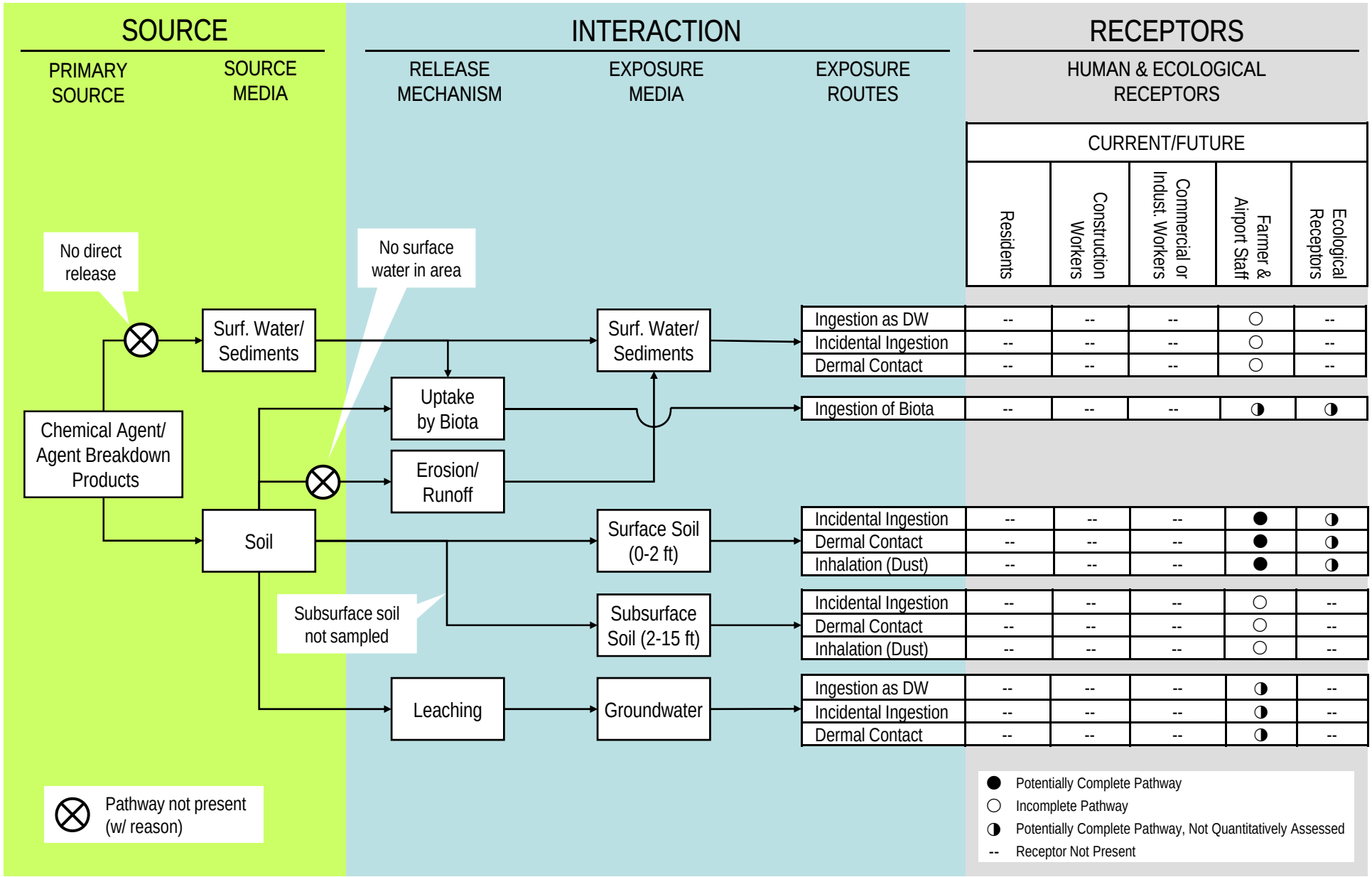
3.7 INVESTIGATIVE DERIVED WASTE

The sampling team will collect soil samples using disposable (one-use) equipment as much as possible. If non-disposable sampling equipment is necessary (e.g., non-disposable hand auger for soil sample collection), the equipment will be decontaminated consistent with the procedures identified in Section C5.7 (Appendix C, Sampling and Analysis Plan). Investigation-derived waste will be handled in accordance with Section C.8 (Appendix C, Sampling and Analysis Plan).

FIGURE 3.1
PRE-CHEMICAL AGENT/AGENT BREAKDOWN PRODUCT SAMPLING CONCEPTUAL SITE EXPOSURE MODEL

MRS Name: FORMER SCHILLING AIR FORCE BASE – Range Complex No. 1, Gas Instruction Subrange

Created/Revised By: Chris tenBraak, PARSONS ***Last Revision Date:*** December 14, 2009



Soil Sample Locations		
Location	X	Y
1	616051	4293009
2	616062	4293013
3	616073	4293012
4	616083	4293018
5	616092	4293009
6	616049	4292997
7	616061	4292995
8	616072	4292995
9	616083	4292997
10	616095	4292993

Figure 3.2

DGM Investigation Area & Sampling Locations Schilling Air Force Base FUDS Project # B07KS0256

Salina, Kansas

Legend

- Soil Sample Locations
- DGM Investigation Area (5 Acres)
- Sampling Area Grid (See Note 1) Grids 60 ft x 36 ft
- Skeet Range Boundaries

Note:
1) Ten additional discretionary samples will be taken based on field observations, which may include areas outside sampling grid area.
2) Individual grid-based samples were randomly located in each grid.
3) The Former Radio Transmitter Building was observed during TPP site visit. The building, however, is scheduled for demolition.
4) The Former Gas Instruction Building was razed many years ago (date unknown) and the area is used for farming since approximately 1967. No stressed vegetation was observed in the area and no stressed vegetation was noted by the Salina Airport Authority representatives.

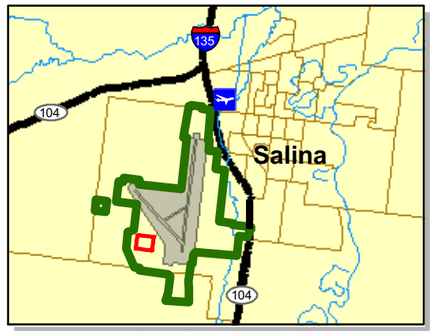


Image Source: 1954 Aerial
Projection: NAD 83 UTM Zone 14N

N

0 125 250 500 Feet

PARSONS	U.S. ARMY ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA
DESIGNED BY: CR	Schilling Air Force Base
DRAWN BY: CAtB	
CHECKED BY: JC	SCALE: As Shown; PROJECT NUMBER: 745080
SUBMITTED BY: CAtB	DATE: March 2010; PAGE NUMBER:
	FILE: S:\ES\shared\CWM SI Program \Schilling\GIS

Figure 3.3

Proposed DGM Transects
Schilling Air Force Base
FUDS Project # B07KS0256
Salina, Kansas

Legend

Proposed DGM Transects

DGM Investigation Area (5 Acres)

DGM = Digital Geophysical Mapping

Note:
1) The location of actual transects will be based on field conditions.
2) Transects will be spaced approximately 5 feet apart

N

Image Source: 1954 Aerial
Projection: NAD 83 UTM Zone 14N

0 75 150 300 Feet

PARSONS	U.S. ARMY ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA
DESIGNED BY: CR	**Schilling Air Force Base**
DRAWN BY: CAtB	
CHECKED BY: JC	SCALE: As Shown; PROJECT NUMBER: 745080
SUBMITTED BY: CAtB	DATE: January 2010; PAGE NUMBER:
	FILE: S:\ES\shared\CWM SI Program \Schilling\GIS

Figure 3.4

Exclusion Zone Locations
Schilling Air Force Base
FUDS Project # B07KS0256
Salina, Kansas

Legend

- Soil Sample Locations
- Exclusion Zone (433 feet)
- Sampling Area Grid (See Note 1)
  Grids 60 ft x 36 ft

Note:
1) Ten additional discretionary samples will be taken based on field observations, which may include areas outside sampling grid area. Exclusion Zone of 433 feet will be implemented for sample locations outside of grid area if necessary.

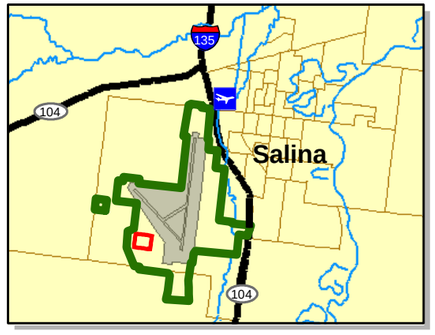


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Image Source: 1954 Aerial
Projection: NAD 83 UTM Zone 14N

0 125 250 500 Feet

PARSONS	U.S. ARMY ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA
DESIGNED BY: CR	Schilling Air Force Base
DRAWN BY: CAtB	
CHECKED BY: JC	SCALE: As Shown — PROJECT NUMBER: 745080
SUBMITTED BY: CAtB	DATE: January 2010 — PAGE NUMBER:
	FILE: S:\ES\shared\CWM SI Program \Schilling\GIS

SECTION 4
ENVIRONMENTAL PROTECTION PLAN

4.1 INTRODUCTION

4.1.1 This Environmental Protection Plan (EPP) has been prepared for the former Schilling AFB SI in accordance with Data Item Description (DID) MR-005-12 and the Performance Work Statement (PWS). Procedures for avoiding, minimizing, and mitigating potential impacts to biological and cultural resources during site field activities are described below. Section 7 of the PWP contains general procedures that will be adhered to by the SI team.

4.1.2 The following sources were consulted for identifying biological and cultural resources at the Schilling AFB site:

- Topographic Map – U.S. Geological Survey (USGS)
- Wetlands Online Mapper – National Wetlands Inventory (NWI), United States Federal Wildlife Service (USFWS)
- Threatened and Endangered Species System– Endangered Species Program, USFWS
- National Wildlife Refuge System – USFWS
- Kansas Department of Wildlife and Parks – Saline County
- National Park Service
- U.S. Department of Agriculture - National Forest Service
- Kansas State Parks System
- National Resource Conservation Service – Saline County
- National Register of Historic Places (NRHP) – Saline County
- National Historic Landmarks (NHL) – National Historic Landmarks Program (Saline County, Kansas)
- National Heritage Areas (NHA) – National Heritage Areas Program (Kansas)
- May 2003 ASR Conclusions and Recommendations Schilling AFB
- August 2009 Draft Final Site Inspection Report, Schilling AFB

4.2 ENDANGERED AND THREATENED SPECIES

The State of Kansas supports 16 federally listed T&E species consisting of 13 animals and 3 plants (USFWS, 2009). According to the KDWP state database for Saline County, five federally listed species are known to occur within the county. These species include:

- American bury beetle (*Nicrophorus americanus*),
- Eskimo curlew (*Numenius borealis*),
- Least Tern (*Sterna antillarum*),
- Topeka Shiner (*Notropis Topeka*), and
- Whooping Crane (*Crus Americana*).

The KDWP list of threatened and endangered species indicated no crucial habitat was present in Saline County for these species listed above (KDWP, 2005). Because the investigation area is cultivated for row crops the species listed above are unlikely to be present and there is no significant habitat for them. All federal and state T&E species are presented in Table 4.1. T&E species are not anticipated to be impacted by the SI effort and will be avoided during field activities.

4.3 SENSITIVE ENVIRONMENTS

The site is not located within a national wildlife refuge, national park, national forest, state park, or county park. The site is currently owned and managed as by the Saline Airport Authority. Sensitive environments are not anticipated to be impacted by the SI effort and will be avoided during field activities.

4.4 WETLANDS

4.4.1 The USFWS Wetlands Online Mapper through the NWI was used to identify possible wetlands within the former Schilling AFB site. Currently, the NWI does not list any digital wetland data within the investigation area (USFWS, 2008).

4.4.2 The Wetlands Online Mapper is used primarily for planning and does not accurately indicate jurisdictional limits of wetlands that are Waters of the United States. Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

4.4.3 During the development of the SI the local National Resource Conservation Service office reported they did not have any wetlands listed within former Schilling AFB. Also, the USACE subcontractor conducted an on-site inspection during the SI and determined that no wetlands were present (USACE, 2009a).

4.5 CULTURAL AND ARCHAEOLOGICAL RESOURCES

4.5.1 According to the NHL, NHA, and NRHP website databases there are no listed archaeological or cultural resources located within the former Schilling AFB boundaries. The Kansas State Historic Preservation Office (SHPO) confirmed the

presence of one reported/recorded site and four recorded surveys near the former Schilling AFB boundary (USACE, 2009a).

4.5.2 The site may have potential for archeological resources; therefore, care will be taken during sampling operations so as not to impact any archeological areas or archeological remnants discovered during the sampling. If a significant archeological remnant or human remains are discovered or suspected during the SI effort the USACE Kansas City District PM, Thomas Simmons, will be notified immediately so that he may contact the USACE archeologist. Archaeological and cultural resources are not anticipated to be impacted by the SI effort.

4.6 WATER RESOURCES

4.6.1 A system of interconnected drainage ditches has been constructed for flood control within the former Schilling AFB. These drainage ditches divert surface water away from the area and into Dry Creek, located along the eastern edge of the area. Dry creek flows north where it eventually merges with the Saline River, a tributary to the Smokey Hill River (USACE, 2009a).

4.6.2 During the Schilling AFB SI field effort, Parsons will not conduct any activities that discharge pollutants into waterways within, adjacent to, or outside of the former training area. Water resources are not anticipated to be impact by the SI effort.

4.7 TREES AND SHRUBS

Trees and shrubs are covered in the PWP. There are no site specific changes to the tree and shrub policy for the former Schilling AFB. In order to minimize disturbance to farming crops, Parsons plans to work around crop cycles to avoid brush clearing.

4.8 WASTE DISPOSAL SITES

4.8.2 Waste disposal policies are covered in the PWP. There are no site specific changes for the Schilling AFB site. In general, excess soil generated during sampling will be returned to the original location. Disposable sampling equipment and other trash generated will be collected and disposed of offsite.

4.9 IMPACT MITIGATION MEASURES

Impact mitigation measures are outlined in the PWP. There are no site specific mitigation measures for the former Schilling AFB.

Table 4.1
State and Federally Listed Species of Saline County, Kansas

Common Name	Scientific Name	Federal Status	State Status
American bury beetle 	*Nicrophorus americanus*	Endangered	Endangered
Eskimo curlew 	*Numenius borealis*	Endangered	Endangered

Table 4.1
State and Federally Listed Species of Saline County, Kansas

Common Name	Scientific Name	Federal Status	State Status
Least Tern 	*Sterna antillarum*	Endangered	Endangered
Topeka Shiner 	*Notropis Topeka*	Threatened	Endangered

Table 4.1
State and Federally Listed Species of Saline County, Kansas

Common Name	Scientific Name	Federal Status	State Status
Whooping Crane 	*Crus americana*	Endangered	Endangered
Bald Eagle 	*Haliaeetus leucocephalus*	Threatened	Threatened

Table 4.1
State and Federally Listed Species of Saline County, Kansas

Common Name	Scientific Name	Federal Status	State Status
Eastern Spotted Skunk 	*Spilogale putorius*	--	Threatened
Peregrine Falcon 	*Falco peregrinus*	--	Endangered

Table 4.1
State and Federally Listed Species of Saline County, Kansas

Common Name	Scientific Name	Federal Status	State Status
Snowy plover 	*Charadrius alexandrinus*	--	Threatened
Piping plover 	*Charadrius melodus*	Threatened	Threatened

SECTION 5
REFERENCES

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