

FINAL PROPOSED PLAN

**MUNITIONS RESPONSE SITE:
GAS INSTRUCTION AREA
AT FORMER SCHILLING AIR FORCE BASE
SALINE COUNTY, KANSAS**



**U.S. Army Corps of Engineers
U.S. Army Engineering and Support Center, Huntsville
and
Kansas City District**

**Contract No. W912DY-10-D-0023
Delivery Order No. 0006
FUDS Property No. B07KS0256
FUDS Project No. B07KS025607**

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Glossary

Request for Comments Form

List of Abbreviations and Acronyms

ABP	agent breakdown product
AFB	Air Force Base
ARAR	applicable or relevant and appropriate requirement
Army	U.S. Army
ASR	Archives Search Report
bgs	below ground surface
CA	chemical agent
CAIS	chemical agent identification set
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWM	chemical warfare materiel
DERP	Defense Environmental Restoration Program
DGM	digital geophysical mapping
DoD	Department of Defense
FUDS	Formerly Used Defense Site
IC	institutional control
INPR	Inventory Project Report
KDHE	Kansas Department of Health and Environment
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
OE	ordnance and explosives
PS	chloropicrin
RI	Remedial Investigation
SARA	Superfund Amendments and Reauthorization Act of 1986
SI	Site Inspection
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

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1 Introduction

The U.S. Army (Army), on behalf of the Department of Defense (DoD), is issuing this **Proposed Plan** for the former Gas Instruction Area at the Former Schilling Air Force Base (AFB). As the lead agency under the **Formerly Used Defense Sites** (FUDS) program, the Army is issuing the Proposed Plan to solicit public participation as required under Section 117a of the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA) and Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan** (NCP). The public participation process, as required by CERCLA and the NCP, affords the public a reasonable opportunity for submittal of written or oral comments and for a public meeting near the site during the public comment period.

The U.S. Army Corps of Engineers (USACE) has conducted environmental activities at the former Gas Instruction Area on behalf of the Army, pursuant to the **Defense Environmental Restoration Program** (DERP). This Proposed Plan was developed by the USACE with support from the Kansas Department of Health and Environment (KDHE) and the U.S. Environmental Protection Agency (USEPA), Region 7. Although the former Gas Instruction Area is not on the **National Priorities List** (NPL), the USACE FUDS Program follows the CERCLA process.

This Proposed Plan highlights the results from the 2012 **Remedial Investigation** (RI) (USACE 2012a), which indicate that no releases of **chemical agent** (CA) or **chemical warfare materiel** (CWM) occurred at the Gas Instruction Area. Hence, no CA/CWM-related risks to human health or the surrounding environment have been identified and no remedial action is necessary. Based on the above, there is no requirement for further action at the Gas Instruction Area.

The RI report (USACE, 2012a) details the findings of the RI and of previous investigations, which determined that no releases of hazardous substances had occurred at the Gas Instruction Area. The RI report and this Proposed Plan are available in the **Administrative Record** file located at the Salina Public Library in Salina, Kansas. Significant reports are also available on the Internet at:

<http://www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects/Schilling.aspx>.

This Proposed Plan recommends no further action for the Gas Instruction Area. A final determination will be made after the public comment period ends and all comments have been reviewed and addressed. Opportunities for public participation are detailed in Section 6 of this Proposed Plan.

* All terms initially shown in bold font are defined in a glossary at the end of this Proposed Plan.

DATES TO REMEMBER	MARK YOUR CALENDARS
PUBLIC COMMENT PERIOD: February 21, 2013–March 25, 2013	USACE will accept written comments on the Proposed Plan during the public comment period. Refer to Section 6 for information on how to submit written comments.
PUBLIC MEETING: March 13, 2013 Starting at 6 p.m.	USACE will hold a public meeting to explain the Preferred Alternative. The meeting will be held at South High School located at 730 East Magnolia Road, Salina, Kansas 67401.
For additional information, review the Administrative Record file at:	Salina Public Library 301 West Elm Street Salina, KS 67401 (785) 825-4624

2 Site Background

2.1 Site Location

The former Schilling AFB consisted of approximately 4,134 acres and was located 2 miles southwest of Salina, Kansas (Parsons, 2010a). A site location map is presented as Figure 2.1. The RI focused on the Gas Instruction Area, which is an 8.8 acre site located in the southwestern portion of the former Schilling AFB within the Salina Municipal Airport (HGL, 2012; Parsons, 2010a). The Gas Instruction Area with surrounding historical features is presented in Figure 2.2.

2.2 Site History

The U.S. Government constructed Smoky Hill Army Air Base in 1942. It was renamed Smoky Hill AFB in 1946 and then Schilling AFB in 1957. In 1942, the base served as headquarters for the 20th Bomber Command, and it became the first operational training base for B-29 bombers. The base remained a bomber base for 5 years after World War II ended and was deactivated in 1949 (Parsons, 2010a; USACE, 2012b).

In 1951, Schilling AFB was reactivated to support the Korean War. At that time, Schilling AFB was the second largest base in the Strategic Air Command. The mission of the base was to provide rapid deployment capabilities in support of nuclear strike attack missions. The base was designated as a permanent U.S. Air Force installation in July 1953 (Parsons, 2010a; USACE, 2012a).

In 1960, the bombardment wing was transferred to Forbes AFB in Topeka, Kansas. A squadron of Atlas F intercontinental ballistic missiles was deployed to 12 sites around Schilling AFB and attached to Schilling AFB for support. Schilling AFB also was upgraded to receive B-52 bombers and KC-135 tankers (USACE, 2012a). During its operational existence, Schilling AFB housed numerous special weapons and conventional ordnance igloos, a gas instruction building, skeet ranges, an aircraft target butt, an aircraft burning/training area, and a missile maintenance building (Parsons, 2010a).

Closure of Schilling AFB was announced in 1964. 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 (Parsons, 2010a). The remainder of the former Schilling AFB was conveyed to various state and local agencies for educational purposes (USACE, 2012a).

2.2.1 Gas Instruction Area

The Gas Instruction Area was used during the 1940s to train troops on how to don gas masks using a tear gas medium. Training also included learning the physical properties of CA, such as odor, and how to decontaminate equipment and buildings exposed to CA. Historical records indicate that an approximately 100-square-yard section of land within the Gas Instruction Area was used for the purpose of decontamination training (Parsons, 2010a; USACE, 2003).

Chemical agent identification sets (CAISs) were shipped to Schilling AFB and are thought to have been used within the Gas Instruction Area. Past inventory documents indicate that CAISs were present at the Gas Instruction Area (Parsons, 2010a; USACE, 2003).

2.2.2 Chemical Agent Identification Sets

CAISs most commonly encountered at DoD sites are glass vials from the M1 Detonation Kit, which had the identification numbers K951 and K952. The CAISs were shipped in steel cylinders and contained four sheet metal cans. Each can contained 12 glass vials with 1.33 ounces of CA. The glass vials, which were 1 inch in diameter and 7.5 inches long, were individually packaged in cardboard tubes. The 1.3-ounce glass vials contained less than 0.5 teaspoon each of either lewisite or mustard agent, or 4 teaspoons of **chloropicrin** (PS) in **chloroform**, and neat phosgene (Parsons, 2010a, 2010b; U.S. Army, 2007). The chemicals in the K951 and K952 were not pure and are not considered CWM: mustard at 5 percent in chloroform; lewisite at 5 percent in chloroform; and PS at 50 percent in chloroform.

A less common CAIS, the K941 toxic gas set, also was shipped in a steel cylinder and contained six sheet metal cans. Each can contained 4 glass bottles with 3.5 ounces of mustard agent (U.S. Army, 2007). Since the K941 set contains mustard agent, it is classified as CWM (Parsons, 2010a).

2.2.3 Nearby Land Use

When closed in 1967, the former Schilling AFB was conveyed to the City of Salina for use as a municipal airport. The airport remains in operation. Properties in the southern and eastern portions of the site were adapted to agricultural uses, while some locations in the eastern portion of the site transitioned to residential or industrial uses. The boundaries of the former Schilling AFB are presented on Figure 2.1. The land immediately surrounding the Gas Instruction Area is primarily used for farming (HGL, 2012).

2.2.4 Environmental History and Investigations

Documents pertinent to the Gas Instruction Area are discussed in this section. The cited documents are part of the Administrative Record file, which is available for viewing at the locations identified in Section 6 of this Proposed Plan.

2.2.4.1 1991 Inventory Project Report

An Inventory Project Report (INPR) was prepared by USACE in July 1991 (USACE, 1991). In preparing the report, USACE reviewed the history of the installation and determined that it had formerly been used by DoD. For this reason, Schilling AFB was designated a FUDS property. The INPR only addressed the historical use and/or storage of small arms, flares, signals, simulators, and screening smoke (other than white phosphorous) at the site by DoD components (HGL, 2012).

2.2.4.2 2003 Archives Search Report

An **Archives Search Report** (ASR) was completed by USACE in May 2003 (USACE, 2003). As part of the ASR, USACE conducted a site visit to the former Schilling AFB on October 23 and 24, 2002, to evaluate site conditions. Documentation identified during the ASR process showed that CAIS kits had been present on the base and most likely at the Gas Instruction Area. Documents addressing the disposition of the CAIS kits were not found. The ASR also indicated that liquid mustard agent may have been spread over an approximately 100-square-yard section of land as part of decontamination training. The exact location of the

possible mustard ground decontamination training area has not been determined, but an estimated location is indicated on Figure 2.2 (USACE, 2010a). Presumably, the gas instruction building was also used for decontamination practice. The site visit team noted that only the former radio transmitter building remained standing, while the gas instruction building, which once stood 100 yards to the north, no longer existed (HGL, 2012).

Based on a review of historical documents, interviews with persons familiar with the site, and the visual inspection of the area, the ASR concluded that buried CWM was potentially present.

2.2.4.3 2010 Site Inspection

The primary goal of the 2010 Site Inspection (SI) (USACE, 2010) was to determine whether a **response action** (for example, an RI or a time-critical removal action) or no further action was appropriate regarding the potential presence of CAISs, CA, and/or agent breakdown products (ABP).

The scope of the 2010 SI included soil sampling for CA/ABP and a digital geophysical mapping (DGM) survey across the site to map subsurface **anomalies**. The geophysical data from the SI is presented on Figure 2.3. The DGM survey identified 19 anomalies with magnetic signatures similar to those of CAIS shipping containers (that is, either single or multiple containers) (Figure 2.3). In addition to the 19 individual CAIS-like magnetic signatures, an area of high density magnetic anomalies (area of magnetic clutter) was identified in the southern portion of the former Gas Instruction Area. These magnetic anomalies extended to the former location of the radio transmitter building.

The soil sampling effort included 20 soil samples taken to assess the presence of CA and ABP. The samples were biased to locations where contamination was most likely to be found. Ten soil samples were collected within a grid-based pattern positioned over the location of the former gas instruction building, as shown on Figure 2.4. Ten additional samples were collected within the vicinity of the Gas Instruction Area (Figure 2.4). These 20 samples were collected at depths of 12 to 16 inches below ground surface (bgs). All samples collected were analyzed for **mustard**, mustard breakdown products, **lewisite**, and lewisite breakdown products.

Analytical results from the 2010 SI found no evidence of releases of CA/ABP within the Gas Instruction Area; hence, an unacceptable risk to human health and the environment resulting from exposure to CA/ABP did not exist. The 2010 SI recommended an RI for the site to investigate subsurface anomalies with CAIS-like magnetic signatures.

2.2.4.4 Remedial Investigation

Based on the known history of the site and the results of the 2010 SI, an RI was performed to identify the source of the CAIS-like magnetic signatures. Three trenches were also excavated in an area identified during the SI as having a high density of buried metallic material. In addition, the RI plans included removal of CAIS materials if encountered. The RI fieldwork was conducted in July 2012. The results are presented in Section 3.2 of this Proposed Plan.

2.2.4.5 2012 Fact Sheet

A fact sheet was published to provide updated information on the history of the Gas Instruction Area and the planned RI investigation. This fact sheet was published on the Internet at the following URL:

http://www.nwk.usace.army.mil/Portals/29/docs/environmental/schilling/SchillingGasInstructionHistoryFactSheet_Final.pdf.

3 Site Characteristics

3.1 Site Geology and Soils

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 feet bgs. The Wellington Formation consists of shale with minor amounts of limestone, dolomite, siltstone, gypsum, and anhydrite.

Surface soil within the former Schilling AFB consists of a silty loam, a moderately well-drained soil resulting in slow surface runoff and a high capacity of available water (USACE, 2010a).

3.2 Nature and Extent of Contamination

During the 2012 RI field investigation, 19 subsurface anomalies identified during the 2010 SI were investigated. One anomaly (anomaly 7) was not found. It was determined that this anomaly was incorrectly identified during the 2010 SI and does not exist. No evidence of CWM was found during intrusive investigation of the remaining 18 anomalies. The anomaly sources were classified as other debris including cable wire, metal pipes, and rebar.

Three test trenches also were executed in areas with high magnetic clutter. The trench locations are presented on Figure 3.1. Within these trenches CWM was not encountered, and the anomaly sources were identified as generally large amounts of ferrous metal flakes. These flakes are the likely source for the high-intensity magnetic responses observed during the 2010 SI. These flakes are a result of other debris (rust) and do not pose a threat to human health or the environment.

Only metal debris was encountered during the **intrusive investigations** of the 18 anomalies and the 3 trenches. CAISs were not discovered during the 2010 SI or the 2012 RI. Thus, there is no physical evidence of CWM-related activities within the former Gas Instruction Area. For these reasons, further characterization activities were not required. Therefore, the Gas Instruction Area does not pose an unacceptable risk to human health or the environment.

4 Scope and Role of the Action

As discussed in Section 5, there are no known risks associated with access to or use of the site due to releases from former site-related activities at the Gas Instruction Area. Therefore, there is no requirement for further action at the Gas Instruction Area.

5 Summary of Site Risks

CERCLA requires that a **risk assessment** be prepared to quantify the risk associated with contamination identified at the site. As contamination was not identified within the site, there is no risk to human health or the surrounding environment.

5.1 Hazard Identification

Historical documents have identified the potential for a historical release of CA at the Gas Instruction Area. This possibility was assessed through historical investigations such as the 2010 SI and 2012 RI. No evidence of a historical release was identified at the Gas Instruction Area. Therefore, it was determined that no site-related hazards exist at the site.

5.2 Exposure Assessment

Physical evidence collected during historical investigations within the Gas Instruction Area did not indicate a release of CA on site. CA/ABP were not identified during geophysical or intrusive investigations conducted as part of the 2010 SI or the 2012 RI. Therefore, complete exposure pathways do not exist at this site.

5.3 Toxicity Assessment

Physical evidence collected during historical investigations within the Gas Instruction Area did not indicate a release of CA on site. CA/ABP were not identified during geophysical or intrusive investigations conducted as part of the 2010 SI or the 2012 RI. Therefore, a toxicity assessment is not required for this site.

5.4 Uncertainty Analysis

In all cases, uncertainty exists in evaluating the hazards associated with CA. The physical evidence collected during historical investigations indicates that CA/ABP are not present at the site.

Geophysical investigations during the 2010 SI identified anomalies with magnetic readings consistent with buried CAIS. Only these anomalies were flagged and intrusively investigated during the 2012 RI to determine the presence of buried CAISs. During these investigations, no evidence of CAISs was identified, and the magnetic anomalies were associated with other debris.

Soil sampling was conducted in areas where CAIS materials could have been used. The results from these sampling activities found no evidence of a release because there were no detections of mustard, mustard breakdown products, or lewisite and lewisite breakdown products.

Given the extensive nature of the investigations, the conclusions drawn from the 2010 SI and 2012 RI can be accepted with minimal uncertainty. For this reason, it can be concluded that there is no evidence of a release within the former Gas Instruction Area.

5.5 Summary and Conclusions

The results from the 2012 RI indicate that no releases of CA or CWM occurred at the Gas Instruction Area. Hence, no CA/CWM-related risks to human health or the surrounding environment have been identified and no remedial action is necessary.

6 Community Participation

One of the purposes of this Proposed Plan is to obtain comments from members of the public. USACE encourages the public to gain a more comprehensive understanding of the site and the activities that have been conducted there. Detailed information about the previous studies and restoration activities can be found in the reports and documents contained in the Administrative Record file located at:

Salina Public Library
301 West Elm Street
Salina, KS 67401
(785) 825-4624
<http://www.salinapubliclibrary.org>

The Proposed Plan and a fact sheet can also be viewed online by visiting the USACE Web page at the following URL:

<http://www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects/Schilling.aspx>.

Public Comment Period: USACE is initiating the public comment period required by CERCLA. The public comment period will run from February 21, 2013, through March 25, 2013, and is provided to allow the public time to review the Preferred Alternative presented in this document. USACE, in consultation with KDHE and USEPA, will consider the views and input of the general public before making a final decision.

Public Meeting: As part of the public comment period, USACE will host a public meeting on March 13, 2013, from 6:00 to 8:00 p.m. to provide and discuss the information in this Proposed Plan. The public meeting will be held at South High School located at 730 east Magnolia Road, Salina, Kansas.

Public Comments: The public is encouraged to provide comments on the approach in this Proposed Plan through attendance at the public meeting. Interested parties may also submit written comments by letter or by using the attached form. Written comments should be submitted to Kurt Baer at the address below:

U.S. Army Corps of Engineers (USACE)
ATTN: Kurt Baer
CENWK-ED-EG
601 East 12th Street
Kansas City, MO 64106-2896
(816) 389-3922
Kurt.H.Baer@usace.army.mil

Information can also be obtained from Jorge Jacobs with KDHE at the address below:

Kansas Department of Health and Environment (KDHE)
1000 SW Jackson Street, Suite 410
Topeka, KS 66612-1367
jjacobs@kdheks.gov

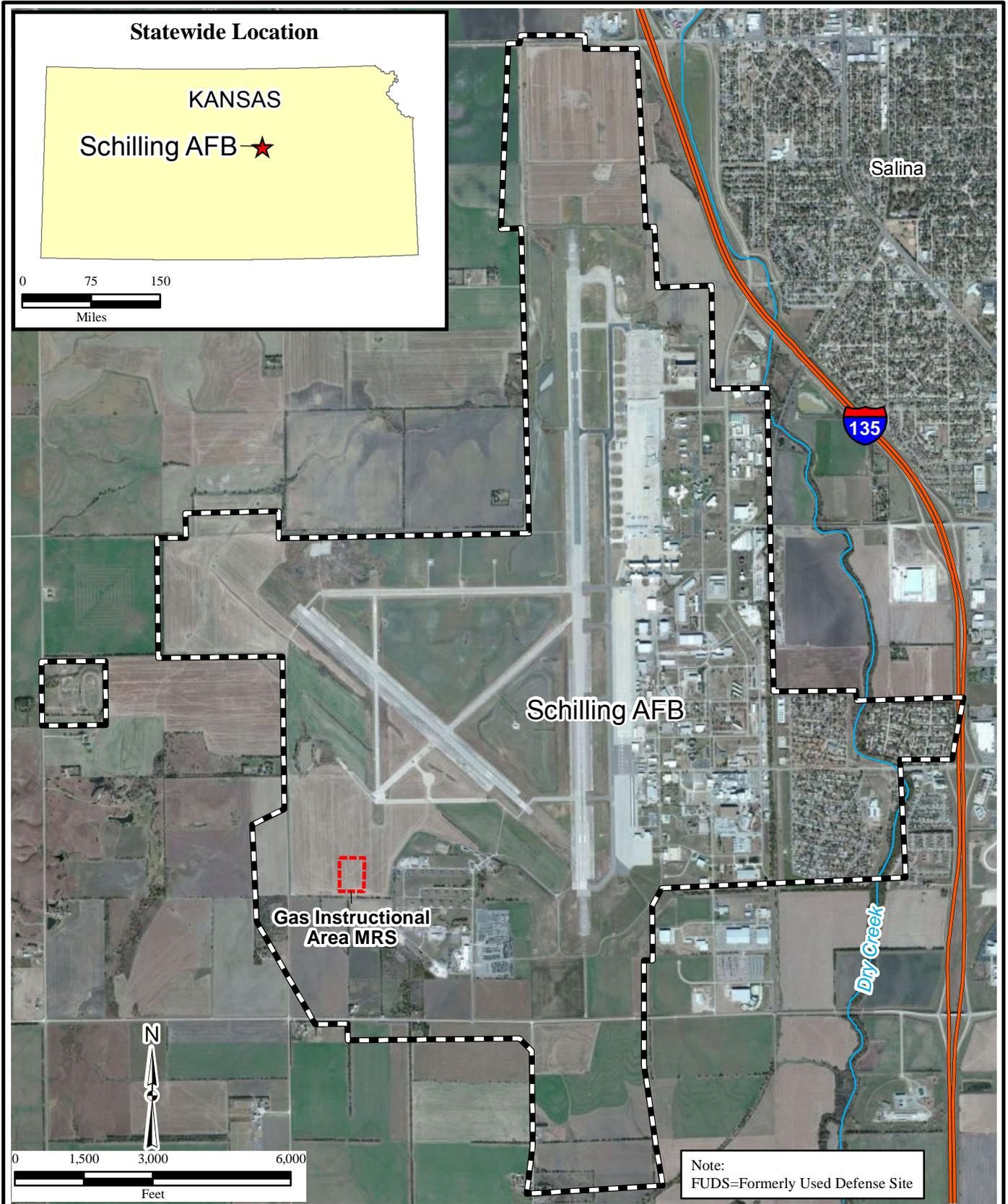
Please refer to the end of this document for a mail-in form to submit written comments or information to USACE and KDHE.

7 References

- HydroGeoLogic Inc. (HGL), 2012. Remedial Investigation Report, Former Gas Instructional Area, Schilling Air Force Base, Saline County, Kansas. October.
- Parsons, 2010a. Final Site Inspection Report, Former Schilling Air Force Base, Saline County, Kansas FUDS Project No. B07KS025607, Chemical Warfare Materiel Site Inspections for Multiple Sites. December.
- Parsons, 2010b. Final Site Specific Work Plan, Chemical Warfare Materiel Site Inspections for Multiple Sites, Former Schilling Air Force Base Salina, Kansas FUDS Project No. B07KS025607. May 5.
- U.S. Army, 2007. Chemical Agent Identification Sets Fact Sheet. November.
- U.S. Army Corps of Engineers (USACE), 1991. DERP-FUDS Inventory Project Report (INPR), Former Schilling Air Force Base, Kansas, Site No. B07KS025600. August.
- USACE, 2003. Archives Search Report for the Former Schilling AFB, Project Number B07KS025604, Salina, Kansas. May.
- USACE, 2010. Final Site Inspection Report, Schilling AFB, FUDS Property No. B07KS0256. August.
- USACE, 2012a, Remedial Investigation, Munitions Response Site: Gas Instructional Area at Former Schilling Air Force Base, Saline County, Kansas. Prepared by HydroGeoLogic, Inc., Contract No. W912DY-10-D-0023.
- USACE, 2012b. Schilling Air Force Base, Salina, Saline County, Kansas, Gas Instructional Area Website at URL:
<http://www.nwk.usace.army.mil/Missions/Environmental/EnvironmentalProjects/Schilling.aspx>.

FIGURES

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Note:
FUDS=Formerly Used Defense Site

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Source: HGL
ArcGIS Online Bing Maps Aerial



Legend

-  Interstate
-  Creek
-  Munitions Response Site (MRS)
-  Schilling AFB FUDS

Figure 2.1
Site Location

Figure 2.2
Historical Site Features

Legend

 Munitions Response Site (MRS)

Note:
Aerial photograph dated 1954.

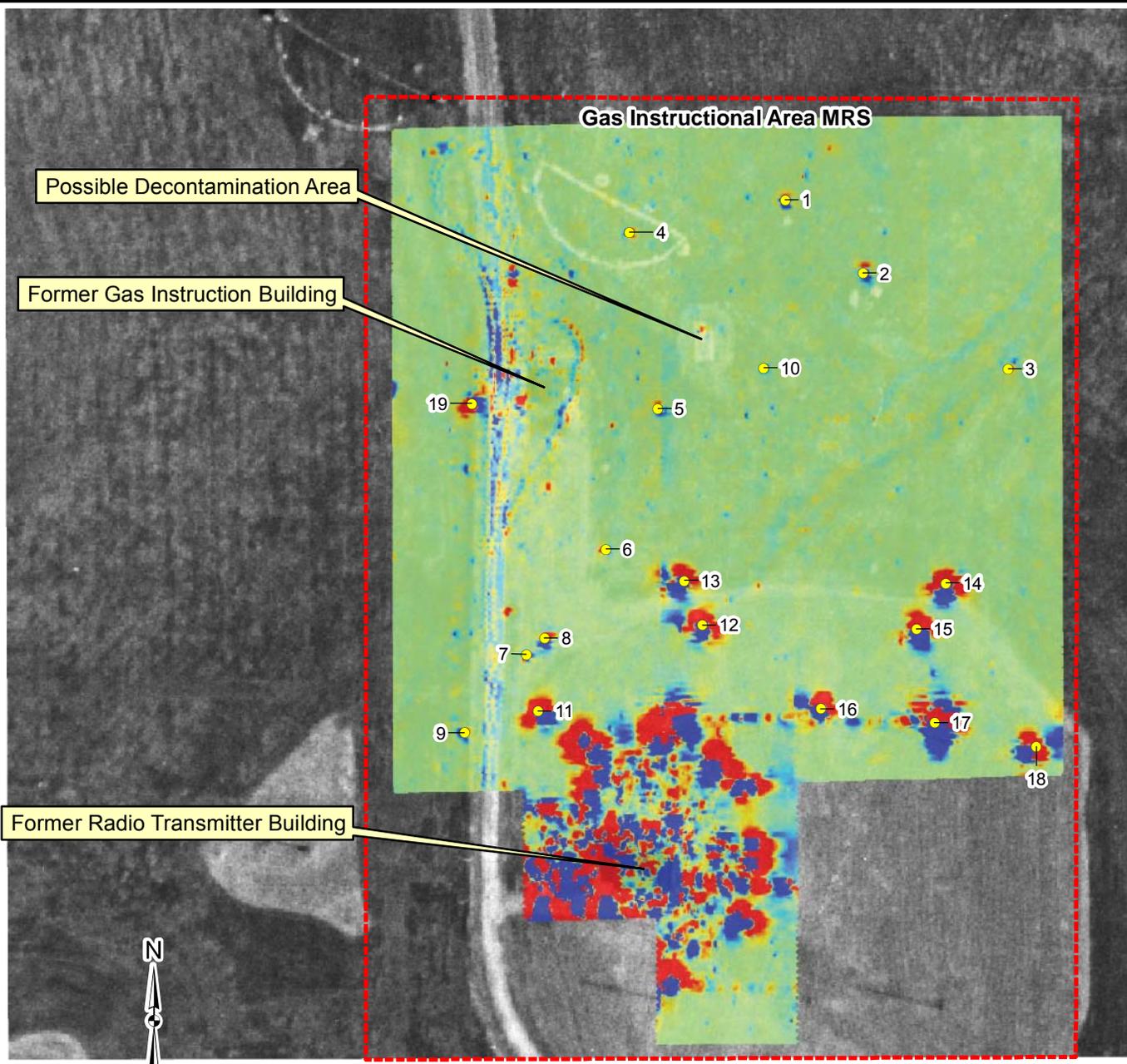


HGL—Proposed Plan—Former Schilling Air Force Base, KS

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(2-02)Historical_Features.mxd
8/27/2012 CNL
Source: HGL, U.S. Army Engineering & Support Center



Figure 2.3
2010 SI
Geophysical Data



Legend

- Anomaly
- ▭ Munitions Response Site (MRS)

Response (nT):

High: 20
 Low: -20

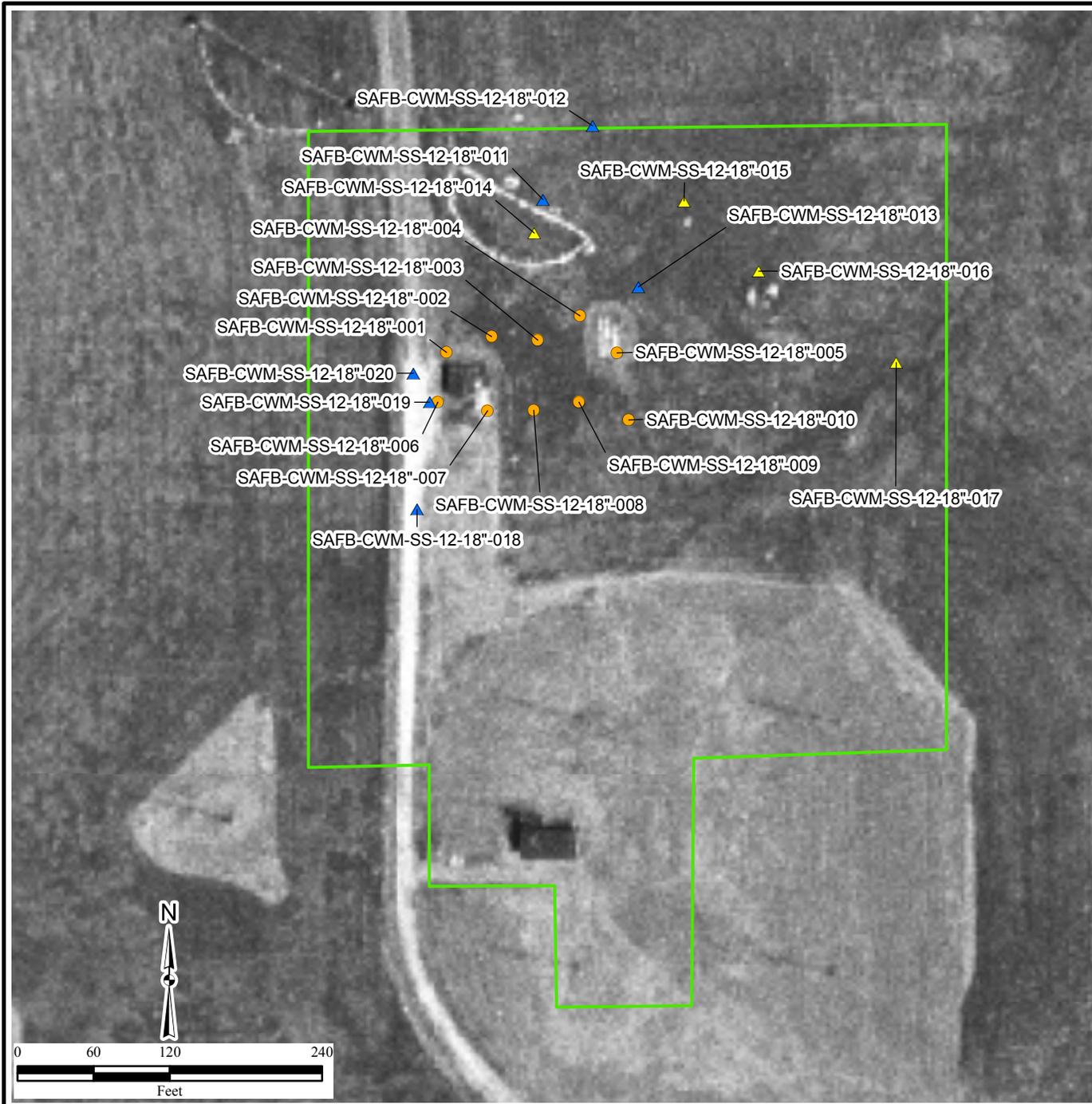
Notes:
 Aerial photograph dated 1954.
 nT=nanotesla
 SI=Site Investigation

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 Source: HGL, U.S. Army Engineering & Support Center

HGL—Proposed Plan—Former Schilling Air Force Base, KS



Figure 2.4 2010 SI Sampling Locations



Legend

● Predetermined Sampling Location

Discretionary Sampling Locations:

▲ Potential CAIS-burial Location

▲ Random

□ Geophysical Investigation Area

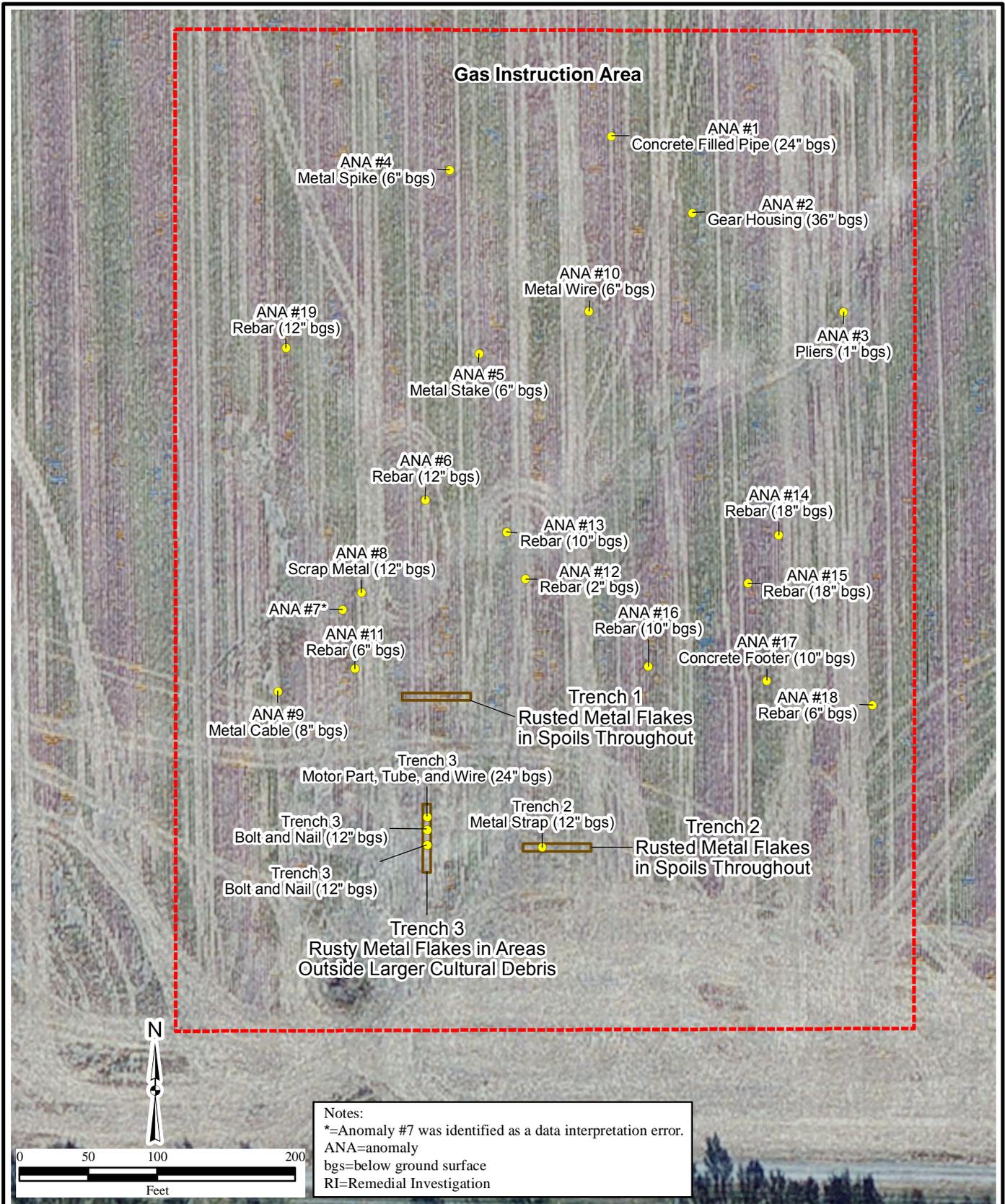
Notes:

Aerial photograph dated 1954.

CAIS=chemical agent identification set
SI=Site Inspection

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Source: HGL, U.S. Army Engineering & Support Center





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 11/28/2012 CNL
 Source: HGL
 ArcGIS Online Bing Maps Aerial



Legend

- Anomaly
- Trench
- Munitions Response Site (MRS)

Figure 3.1
2012 RI
Intrusive
Investigation Results

Glossary of Terms

This glossary defines specialized, technical terms used in this Proposed Plan. The terms are defined in the context of hazardous waste management and apply specifically to work performed under the CERCLA program. These terms may have other meanings when used in a different context.

Administrative Record: The body of documents that forms the basis for the selection of a particular response at a site.

Anomaly(ies): A subsurface irregularity observed by geophysical investigation. This irregularity should deviate from the expected subsurface ferrous and nonferrous material at a site (that is, pipes, power lines, etc.).

Archives Search Report (ASR): A detailed report on past ordnance and explosives (OE) activities conducted on an installation prepared by assembling historical records and available field data, assessing potential ordnance presence, and recommending follow-up actions.

Capital Costs: Direct cost of project installation, which includes construction costs.

Chemical Agent Identification Set (CAIS): Sets of glass vials or bottles that contained small amounts of chemical agent (CA). They were employed by the U.S. Armed Forces for the purpose of training in detection, handling and familiarization with chemical warfare.

Chemical Warfare Materiel (CWM): An item configured as munitions and containing a chemical that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. The term also includes V- and G- series nerve agents, H- and HN-series blister agents, and lewisite in nonmunitions configurations, such as chemical agent identification sets (CAIS). Due to their hazards, prevalence, and military-unique application, CAIS are also considered CWM.

Chloroform: Chloroform is a common solvent used to dilute certain chemical agents and industrial chemicals in K951/K952 and K953/K954 CAIS kits. It occurs naturally and also enters the environment as a manmade pollutant as a result of a chlorinated drinking water, municipal sewage, cooling water from electric power generating plants, atmospheric photodegradation of trichloroethenes, and auto exhaust.

Chloropicrin (PS): PS is a nonpersistent tearing or choking agent in the form of a colorless to faint yellow liquid with a stinging, pungent odor. In CAISs, PS was packaged as a 50 percent dilute solution with chloroform (K951/K952) or absorbed in charcoal (K955 and Navy X sets).

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): Also referred to as "Superfund, CERCLA (as amended by the Superfund Amendments and Reauthorization Act (SARA), and other amendments, 42 U.S. Code 9601 et seq.), authorizes federal action to respond to the release or threatened release of hazardous substances into the environment or a release or threat of release of a pollutant or contaminant into the environment that may present an imminent or substantial danger to public health or welfare.

Defense Environmental Restoration Program (DERP): Established in 1984, DERP promotes and coordinates efforts for the evaluation and cleanup of contamination at DoD installations (10 U.S. Code 2701).

Formerly Used Defense Sites (FUDS): Properties previously owned, leased, or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense; or manufacturing facilities for which real property accountability rested with DoD but were operated by contractors (U.S. Government-owned/contractor-operated) and that were later legally disposed of. FUDS is a subprogram of DERP. Restoration of military land was extended to formerly used sites in 1983 under Public Law 98-212 (DoD Appropriations Act of FY84). USACE is the lead agency on all FUDS sites.

Intrusive Investigation(s): An investigation involving penetration of the ground surface.

Lewisite: Lewisite is an organic arsenical blister agent in the form of an amber to dark brown (colorless when pure) oily liquid with a geranium-like odor. In CAIS, lewisite was only found absorbed in charcoal (K955 and Navy X sets) or as a 5 percent solution in chloroform in the K951/K952 sets.

Mustard: Mustard or sulfur mustard is a strong blister agent, or vesicant commonly referred to as “mustard gas.” Mustard is usually a yellow to brown oily liquid (colorless when pure) with a slight garlic or mustard odor. The mustards in CAISs were packaged in undiluted form, as a 5 percent solution, or absorbed in charcoal. Mustard is the most prevalent chemical agent found in CAISs, being found in all types of sets.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): Revised in 1990, the NCP provides the regulatory framework for responses under CERCLA. The NCP designates DoD as the removal response authority for OE hazards.

National Priorities List (NPL): The NPL is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the USEPA in determining which sites warrant further investigation.

Operation and Maintenance (O&M): Annual post-construction cost necessary to ensure the continued effectiveness of a remedial action.

Ordnance and Explosives (OE): Ammunition, ammunition components, chemical or biological warfare materiel or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried, or fired. Such ammunition, ammunition components, and explosives are no longer under accountable record control of any DoD organization or activity (Headquarters, Department of the Army Policy Memorandum “Explosives Safety Policy for Real Property Containing Conventional OE”).

Present-Worth: The amount of money that would need to be invested today to fund a stream of expenditures at given points in time.

Proposed Plan: The preferred alternative for a site as selected by the lead agency (USACE) and agreed to by USEPA and KDHE is presented to the public for review and comment in

the Proposed Plan. The Proposed Plan summarizes all relevant project information documenting the decision making process.

Remedial Investigation (RI): A study under CERCLA that determines how much and what kind of contamination exists at a site. An RI generally involves collecting and analyzing samples of groundwater, surface water, soil, sediment, and air.

Response Action: An action taken to mitigate a threat to human health or the environment. The action may be temporary in nature while a final action is developed.

Risk Assessment: In the context of public health, risk assessment is the process of quantifying the probability of a harmful effect to individuals or populations from exposure to chemicals found in the environment.

Superfund Amendments and Reauthorization Act (SARA): A congressional act that modified CERCLA. SARA was enacted to authorize additional funding for the Superfund Program in 1986 and in 1990.

