



**U.S. Army BRAC 2005  
Environmental Condition of Property Report  
Kansas Army Ammunition Plant  
Parsons, KS**

**Final  
15 November 2006**



**FINAL**

**ENVIRONMENTAL CONDITION OF PROPERTY REPORT  
KANSAS ARMY AMMUNITION PLANT  
15 NOVEMBER 2006**

Prepared for:



United States Army  
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Kansas Army Ammunition Plant

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# ACRONYMS

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The following list of acronyms, abbreviations, and definitions is intended to be comprehensive. These are contained in this report.

°F	Degrees Fahrenheit
AAI	All Appropriate Inquiry
AC	hydrogen cyanide
ACM	Asbestos-Containing Material
ACOM	Army Command
ACSIM	Assistant Chief of Staff for Installation Management
AE	Aguirre Engineers, Inc.
AEDBR	Army Environmental Database-Restoration
AFSC	Army Field Support Command
AMC	Army Materiel Command
AOC	Area of Concern
AOCNCERN	Area of Concern
AP	Ammonium Perchlorate
APOBS	Anti-Personnel Obstacle Breaching System
AR	United States Army Regulation
ARFO	Ammunition Returned from Overseas
U.S. Army	United States Army
ASCC	Army Service Component Command
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
ATK	A.T. Kearney, Inc.
BDM	Bunker Defeat Munitions
BEC	BRAC Environmental Coordinator
BIC	Business Initiative Council
BLRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
BRACD	Base Realignment and Closure Division
BROWNFIELDS	Brownfields Site Assessments
BRRM	Base Redevelopment and Realignment Manual
C&D	Construction and Demolition
CAIS	Chemical Agent Identification Sets
CBU	Cluster Bomb Unit
CC	Compliance Cleanup
CDL	Clandestine Laboratory
CEM	Combined Effects Munitions
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act

# ACRONYMS

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CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CERC-NFRAP	Comprehensive Environmental Response Compensation and Liability System and No Further Remedial Action Planned Report
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CG	carbonyl dichloride
CHMM	Certified Hazardous Materials Manager
CK	cyanogen chloride
CMD	Corrective Measures Decision
CMI (C)	Corrective Measures Implementation (Construction)
CMI (O)	Corrective Measures Implementation (Operation)
CMS	Corrective Measures Study
CONSENT	Superfund Consent Decrees
CORRACTS	Corrective Action Report
CRMP	Cultural Resources Management Plan
CS	Confirmation Sampling
CTC	Cost to Complete
CTT	Closed, Transferring and Transferred Range/Site Inventory Report
CWM	Chemical Warfare Materials
CWP	Contaminated Waste Processor
cy	cubic yards
DA	Department of the Army
DARCOM	United States Army Materiel Development Command
DERP	Defense Environmental Restoration Program
DES	Design
DMM	Discarded Military Munitions
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DRU	Direct Reporting Unit
DRYCLEANERS	Drycleaner Registration Database Listing
DU	depleted uranium
DZI	Day & Zimmermann, Inc.
EA	Environmental Assessment
EBS	Environmental Baseline Survey
ECP	Environmental Condition of Property
EDDA	Environmental Due Diligence Audit
EDR	Environmental Data Resources
EHA	Eugene A. Hickok and Associates
EP	Extraction Procedure

# ACRONYMS

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EQR	Environmental Quality Reporting
ER,A	Environmental Restoration, Army
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
ESMB	Explosive Standoff Minefield Breacher
EWI	Explosive Waste Incinerator
FDA	Food and Drug Administration
FINDS	Facility Index System/Facility Registry System
FRPC	Fiber Reinforced Polymeric Composite
FTTS	TSCA Tracking System
FUDS	Formerly Used Defense Sites
FY	Fiscal Year
G.O.	General Officer
Gal	gallons
GO/CO	Government-Owned, Contractor-Operated
GOMO	General Officer Management Office
gpm	gallons per minute
HE	High Explosive
HHA	Haloacetic Acids
HHBRA	Human Health Baseline Risk Assessment
HI	Hazard Index
HMIRS	Hazardous Materials Information Reporting System
HMX	cyclotetramethylenetetranitramine
HRR	Historical Records Review
IAP	Installation Action Plan
ICIS	Integrated Compliance Information System
ICM	Improved Conventional Munition
IMA	Installation Management Agency
IMAS	Interim Measures Assessment Study
in	inch
INDIAN RESERV	Indian Reservations
INDIAN UST	Underground Storage Tanks on Indian Land
INRMP	Integrated Natural Resources Management Plan
IRA	Interim Remedial Action
IRG	Interim Remedial Guideline
IRP	Installation Restoration Program
ISI	Initial Site Investigation
JMC	Joint Munitions Command
KBS	Kansas Biological Survey
KDHE	Kansas Department of Health and Environment
KOP	Kansas Ordnance Plant

## ACRONYMS

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KSAAP	Kansas Army Ammunition Plant
KSHS	Kansas State Historical Society
KU	University of Kansas
kV	kilovolt
kVA	kilovolt-Ampere
kW	kilowatt
LAP	Load, Assemble and Pack
LAST	Leaking Aboveground Storage Tank
LAW	Light Antitank Weapons
LBP	Lead-Based Paint
lbs	pounds
lbs/day	pounds per day
LCSS	Labette County Soil Survey
LEES	Law Engineering & Environmental Services, Inc.
LEST	Lockhead Environmental Systems and Technology
LQG	Large Quantity Generator
LSC	Linear Shaped Charges
LTM	Long Term Monitoring
LUST	Leaking Underground Storage Tank
MACT	Maximum Achievable Control Technology
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
MeV	mega electron volts
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MINES	Mines Master Index File
MLTS	Material Licensing Tracking System
mm	millimeter
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MRS	Munitions Response Site
msl	mean sea level
MW	Monitoring Well
NARA	National Archives and Records Administration
NGC	National Gypsum Company
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NRC	Nuclear Regulatory Commission
OB	Open Burning

# ACRONYMS

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OCE	Office of the Chief of Engineers
OD	Open Detonation
OD Grounds	Open Demolition Grounds
ODI	Open Dump Inventory
OE/OD	Ordnance and Explosives/Open Demolition
OSHA	Occupational Safety and Health Administration
OWS	Oil/Water Separator
PA	Preliminary Assessment
PADS	PCB Activity Database System
PAH	Polynuclear Aromatic Hydrocarbons
PAX	Picatinny Arsenal Explosive
PCB	Polychlorinated Biphenyl
PCE	tetrachloroethylene
pCi/L air	picocuries per liter of air
PEP	Propellants, Explosives and Pyrotechnics
POL	Petroleum, Oil and Lubricants
ppb	parts per billion
ppm	parts per million
PQL	Practical Quantitation Limit
PRG	Preliminary Remediation Goal
RA	Removal Action
RAATS	RCRA Administrative Action Tracking System
RC	Radian Corporation
RCRA	Resource Conservation and Recovery Act
RDT&E	Research, Design, Testing and Evaluation
RDX	cyclotrimethylenetrinitramine
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RIP	Remedy in Place
ROD	Records of Decision
RSK	Risk-Based Standards for Kansas
RSO	Radiation Safety Officer
SFW	Sensor-Fused Weapons
SI	Site Investigation
SINC	Species in Need of Conservation
SMAW-D	Shoulder Launch Multipurpose Assault Weapon-Disposal
SMC	Senior Mission Commander
SPILLS	Kansas Spills
SSTS	Section 7 Tracking Systems
SVOC	Semi-Volatile Organic Compound
SWF/LF	Permitted Solid Waste Facilities

# ACRONYMS

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SWMU	Solid Waste Management Unit
TCE	trichloroethylene
TNT	trinitrotoluene
TOC	Total Organic Carbon
TRIS	Toxic Chemical Release Inventory System
TRPH	Total Recoverable Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
TSDF	Treatment Storage and Disposal Facility
TTHM	trihalomethanes
UMTRA	Uranium Mill Tailings Sites
URS	URS Group, Inc.
US ENG CONTROLS	Engineering Controls Site List
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency
USATCES	United States Army Technical Center for Explosive Safety
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
US INST CONTROL	Sites with Institutional Controls
UV	Ultraviolet
UXO	Unexploded Ordnance
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Compound
VSI	Visual Site Inspection
WWII	World War II

## DEFINITIONS

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Base Closure Law	The provisions of Title II of the Defense Authorization Amendments and Base Closure and Realignment Act (Pub. L. 100-526, 102 Stat. 2623, 10 U.S.C. § 2687 note), or the Defense Base Closure and Realignment Act of 1990 (Pub. L. 101-510, Part A of Title XXIX of 104 Stat. 1808, 10 U.S.C § 2687 note).
BRAC Environmental Coordinator (BEC)	An employee assigned to provide work as the lead Base Realignment and Closure (BRAC) environmental coordinator for a wide variety of technical situations and activity operational requirements, directing actions with regard to schedules, priorities, methods, materials, and equipment. The role of the BEC is to provide principle oversight for the Activity Base Commander, Lead Organization, and Base Realignment and Closure Division (BRACD) regarding all BRAC related environmental programs for the installation.
Closure	All missions of the installation have ceased or have been relocated. All personnel positions (military, civilian and contractor) have either been eliminated or relocated, except for personnel required for caretaking, conducting any on-going environmental cleanup, and disposal of the base, or personnel remaining in authorized enclaves. In the context of this document, this may be referred to as “full closure”.
Chemical Warfare Materials (CWM)	Items generally configured as a munition containing a chemical compound that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. chemical warfare materials (CWM) includes V- and G-series nerve agents or H-series (mustard) and L-series (lewisite) blister agents in other-than-munition configurations; and certain industrial chemicals (e.g., hydrogen cyanide (AC), cyanogen chloride (CK), or carbonyl dichloride (called phosgene or CG)) configured as a military munition. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include: riot control devices; chemical defoliants and herbicides; industrial chemicals (e.g., AC, CK, or CG) not configured as a munition; smoke and other obscuration producing items; flame and incendiary producing items; or soil, water, debris or other media contaminated with low concentrations of chemical agents where no CA hazards exist.
Discarded Military Munitions	Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of, consistent with applicable environmental laws and regulations. (10 U.S.C. 2710(e)(2))

# DEFINITIONS

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Disposal	Per United States Army Regulation (AR 405-45), any authorized method of permanently divesting the Army of control of and responsibility for real estate and real property.
Environmental Baseline Survey (EBS)	A process by which a characterization of the environmental condition of a facility or property is conducted. An EBS is required by the Army for the transfer or acquisition of real property and identifies potential cleanup requirements and liabilities. See definition for Environmental Condition of Property (ECP).
Environmental Condition of Property (ECP)	A management approach for providing efficient and effective development of a comprehensive environmental condition / liability characterization for a facility or property. The ECP process applies industry best practices and standards; provides effective oversight and quality assurance, and unifies the EBS and the Munitions and Explosives of Concern (MEC) Archives Search Report steps taken in prior BRAC rounds into a unified effort. The ECP is based on the Initial Site Investigation (ISI) project approved by the Business Initiative Council (BIC). The Army's ECP Report meets Department of Defense (DOD) ECP Report requirement.
Environmental Professional	<p>United States Environmental Protection Agency's (USEPA's) All Appropriate Inquiry (AAI) Final Ruling (40 Code of Federal Regulations (CFR) Part 312) states the definition of an Environmental Professional establishes a balance between the merits of setting a high standard of excellence for the conduct of all appropriate inquiries through the establishment of stringent qualifications for environmental professionals and the need to ensure that experienced and highly competent individuals currently conducting all appropriate inquiries are not displaced. In summary, the definition of environmental professional included in the final rule includes individuals who possess the following qualifications:</p> <ul style="list-style-type: none"><li>• Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory and have the equivalent of three (3) years of full-time relevant experience; or</li><li>• Be licensed or certified by the federal government, a state, tribe, or U.S. territory to perform environmental inquiries as defined in Sec. 312.21 and have the equivalent of three (3) years of full-time relevant experience; or</li><li>• Have a Baccalaureate or higher degree from an accredited institution of higher education in science or engineering and the equivalent of five (5) years of full-time relevant experience; or</li><li>• Have the equivalent of ten (10) years of full-time relevant experience.</li></ul>

# DEFINITIONS

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The definition of “relevant experience” is “participation in the performance of environmental site assessments that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases to the subject property.” The final rule retains the proposed requirement that environmental professionals remain current in their field by participating in continuing education or other activities and be able to demonstrate such efforts.

- Excess Real Property** Per AR 405-45, any real property under the control of any Federal agency that the head of the agency determines is not required for agency needs and discharge of the responsibilities of the agency or the installation where the property is located. The excess status is assigned to the real property once a formal report of excess has been processed. Real property that has been determined excess to the Department of the Army must be screened with other Department of Defense elements before it is excess to Department of Defense.
- Garrison Commander** Per General Order 4, 22 August 2002, Garrison commanders, on behalf of the regions and the Installation Management Agency (IMA), will have a responsibility to provide a standard level of base support to installation customers listed on the Army Stationing and Installation Plan. The Garrison commander is responsible to ensure that training support and training enabler functions and activities are responsive to the needs of the senior mission commander on the installation in the execution of the senior mission commander’s duties.
- Installation** Per AR 405-45, an aggregation of contiguous or near contiguous, common mission-supporting real property holdings under the jurisdiction of or possession controlled by the Department of the Army or by a State, commonwealth, territory, or the District of Columbia, and at which an Army unit or activity (Active, Army Reserve, or Army National Guard) is assigned. An installation is a single site or a grouping of two or more sites for the purposes of real property inventory control. The real property accountability officer is at the installation level.
- Installation Commander** Per AR 600-20, the installation commander is normally the senior commander on the installation. In addition to mission functions, the installation commander has overall responsibility for all real estate, facilities, base support operations, and activities on the installation.

## DEFINITIONS

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Lead Organization	Per the BRAC 2005 Implementation Plan Guidance, the Army organization which will have the lead responsibility for preparation of an installation Implementation Plan. This will generally be the Army organization which has operational control of the installation identified in the BRAC recommendations.
Local Redevelopment Authority (LRA)	Any authority or instrumentality established by State or local government and recognized by the Secretary of Defense, through the Office of Economic Adjustment, as the entity responsible for developing the redevelopment plan with respect to the installation, or for directing implementation of the plan.
Material Potentially Presenting an Explosive Hazard (MPPEH)	Material potentially containing explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris); or material potentially containing a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization or disposal operations). Excluded from MPPEH are munitions within DOD's established munitions management system and other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions.
Military Installation	Per Section 2910 of Title XXIX, Defense Base Closure and Realignment Act of 1990, as amended, the term "military installation" means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the Department of Defense, including any leased facility. This term does not include any facility used primarily for civil works, rivers and harbors projects, flood control, or other projects not under the primary jurisdiction or control of the Department of Defense.
Munitions and Explosives of Concern (MEC)	Any materials originating from unexploded ordnance (UXO), discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S.C. 2710(e)(3)). MEC includes UXO, as defined in 10 U.S.C. 2710(e)(9); DMM, as defined in 10 U.S.C. 2710(e)(2); and munitions constituents (MC) (e.g., TNT, RDX) present in high enough concentration to pose an explosive hazard.

## DEFINITIONS

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Munitions Constituents	Any materials originating from UXO, DMM, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 U.S. C. 2710(e)(4)). Munitions constituents may be subject to other statutory authorities, including but not limited to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9601 et seq.) and Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901 et seq.).
Military Munitions	Military munitions means all ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants; explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives, and chemical warfare agents; chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges; and devices and components thereof. The term does not include wholly inert items; improvised explosive devices; and nuclear weapons, nuclear devices, and nuclear components, other than non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (10 U.S.C. 101(e)(4)(A) through (C))
Personal Property	According to 41 CFR 102-36.40, personal property is defined as: "Any property except real property. The term excludes records of the Federal Government, and naval vessels of the following categories: battleships, cruisers, aircraft carriers, destroyers, and submarines." "Related personal property" means any personal property that is an integral part of real property. It is: Related to, designated for, or specifically adapted to the functional capacity of the real property and removal of this personal property would significantly diminish the economic value of the real property, or Determined by the Administrator of General Services to be related to the real property
Realignment	Any action that both reduces and relocates functions and DOD civilian personnel positions, but does not include a reduction in force resulting from workload adjustments, reduced personnel or funding levels, skill imbalances, or other similar cause. A realignment may terminate the DOD requirement for the land and facilities on part of an installation. That part of the installation shall be treated as "closed", and in the context of this document referred to as a "partial closure".

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Senior Mission Commander	The Senior Mission Commander is a General Officer (G.O.) with command oversight of one or more non-G.O. Installation Commanders. The Senior Mission Commander (SMC) conveys Army Command (ACOM), Army Service Component Command (ASCC), and Direct Reporting Unit (DRU) mission priorities to the Installation Commander, and provides executive oversight and communicates installation management priorities not established by Headquarters, Department of the Army (HQDA) or IMA to the Installation Commander and Garrison Commander. Senior Mission Commanders' orders from the General Officer Management Office (GOMO) will specify the installations for which they will serve as SMC.
Special Installation	An Army installation which is under administrative control of IMA, yet operated and funded by ACOM, ASCC, and DRU (e.g., Army Ammo Plant, Hospital, etc.).
Uncontaminated Property	Per CERCLA 120(h)(4), uncontaminated property is a parcel of real property on which no hazardous substances and no petroleum product or their derivatives were known to have been released, or disposed of.
Unexploded Ordnance	Military munitions that (A) have been primed, fused, armed, or otherwise prepared for action; (B) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (C) remain unexploded whether by malfunction, design, or any other cause. (10 U.S.C. 101(e)(5)(A) through (C))

# Executive Summary

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## Purpose

The purpose of this Environmental Condition of Property (ECP) report is to characterize the existing environmental conditions at the Kansas Army Ammunition Plant (KSAAP). The ECP assessed the components identified in the Department of Defense (DOD) *Base Redevelopment and Realignment Manual (BRMM)* dated 1 March 2006, 4165.66-M, C.8.3 and AP2.

This ECP Report provides information for determining the suitability for transfer of KSAAP and meets the requirements of Title 40, Code of Federal Regulations (CFR), Part 373, § 373.1, and United States Army Regulation (AR) 200-1, *Environmental Quality, Environmental Protection and Enhancement*. AR 200-1 requires an Environmental Baseline Survey be prepared to determine the environmental conditions of properties being considered for disposal. While the ECP report assessed the components presented in the BRMM, it also closely parallels the American Society for Testing and Materials (ASTM) 6008-96 *Standard Practice for Conducting Environmental Baseline Surveys* (ASTM 2005). The ECP meets the appropriate requirements of federal and state laws as they apply to the disposal of federal properties.

The information gathered during this assessment can be used to assist the United States Army (U.S. Army), the General Services Administration, and the purchaser in making informed business decisions about the transfer of the property by reducing uncertainty regarding its environmental condition.

The Army prepares an ECP Report for the following purposes:

- Identify, characterize, and document the presence or likely presence of a release of any hazardous substances or petroleum products into the environment, which includes the ground, groundwater, or surface water of the property associated with the historical and current use of the installation.
- Identify, characterize, and document the release or possible release of any hazardous substances or petroleum products from an adjacent property that would likely cause or contribute to contamination at the installation.
- Provide a basis for determining if the property is suitable for transfer, lease, or assignment.

The ECP contains the information required to comply with the provisions of 40 CFR, Part 373 that require a notice to accompany contracts for the sale of, and deeds entered into the transfer of, federal property on which hazardous substances may have been stored, released or disposed. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §120(h) stipulates that a notice is required if certain quantities of designated hazardous substances have been stored on the property.

The ECP Report is not prepared to satisfy a real property purchaser's duty to conduct an "all-appropriate inquiry" to establish an "innocent purchaser defense" to CERCLA 107 liability. Any such use of the ECP Report by any party is outside the control of the Army and beyond the scope of the ECP Report. The Army, its officers, employees or contractors make no warranties or representations that any ECP Report satisfies any such requirements for any party.

# Executive Summary

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## Location

KSAAP is located in Labette County, Kansas, approximately 30 miles west of the Missouri border and 20 miles north of the Oklahoma border (**Figure ES-1**). It is located approximately 2 miles east of Parsons, Kansas (population approximately 12,000) and 3/4 mile north of Labette, Kansas (population 250). KSAAP consists of 13,727 acres (KSAAP 2005). The surrounding land use is primarily agricultural.

## Operations

KSAAP was constructed in 1941 to load, assemble and pack (LAP) munitions for use in World War II (WWII). KSAAP consists of production areas, operation ranges, administrative areas, storage areas, landfills, oxidation ponds and lagoons, ditches, burning grounds, sumps, and waste treatment facilities. Currently, KSAAP has very limited production and many areas are not active. KSAAP has experienced alternating periods of activity, during war years, and standby/layaway status, during peacetime.

Based on the operational history of the facility, explosives and metal residues are known or suspected to be present in many of the production buildings and disposal areas, and would therefore most likely require surveys and decontamination prior to transfer.

## Environmental Conditions

### *Resource Conservation and Recovery Act Status*

KSAAP manages hazardous waste in accordance with their USEPA ID number (# KS0213820467). KSAAP is a large quantity generator (LQG) generating more than 2,200 pounds of hazardous waste per month and may accumulate up to 13,200 pounds of hazardous waste at any one time.

A Resource Conservation and Recovery Act (RCRA) Permit became effective on December 7, 1989 and identified 25 Solid Waste Management Units (SWMUs) requiring investigation for possible contamination. Areas of investigation include production areas, landfills, open burning cages, open burning pads, an open detonation area, and miscellaneous maintenance and support areas. The RCRA Permit expired on December 7, 1994, though KSAAP is currently allowed to operate under Interim Status with the original permit while awaiting review by the KDHE of a permit renewal application, which was prepared and submitted in the proper time frame.

KSAAP also has an interim RCRA Subpart X permit for the operation of the Open Burn/Open Detonation grounds. This permit also lists all of the hazardous waste codes permitted for storage and treatment at KSAAP.

All hazardous wastes generated at KSAAP are transported off site through the Fort Riley Defense Reutilization and Marketing Office (DRMO) or treated at one of the on-site treatment facilities. KSAAP is permitted and currently operates the following hazardous waste treatment operations:

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## Open Burning Area

Burning Pad 5 (SWMU-108) and Flash Pad 6 (SWMU-109) are earthen bermed areas. Reactive wastes, off-specification and scrap explosives are treated in metal pans for open burning at Pad 5. Contaminated equipment is treated at Pad 6.

## Open Detonation Range

Off-specification and scrap munitions and components are treated by open detonation at the Open Detonation Range (SWMU-114). Items to be treated are buried in an earthen pit and remotely detonated.

## Explosive Waste Incinerator

The Explosive Waste Incinerator (EWI) (SWMUs-105 through 107) was used to treat off-specification explosives and scrap munitions and components. The EWI is currently under idling status and annual inspections are conducted by the Kansas Department of Health and Environment (KDHE).

## Landfills

KSAAP has a permit that allows the operation of an unlined, industrial, solid waste landfill (SWMU-146). The permit is renewed annually. Historically, this landfill was used for all types of sanitary waste including uncontaminated trash, boxes, office waste, construction and demolition (C&D) debris, fly ash from coal-fired boiler operations, asbestos, grenades, and non-hazardous thermal treatment residue from the 2700 Area (DZI EEPE 2006). However, in 2001 the waste stream was limited to C&D debris, excluding wood. Five historical landfills have been identified and are currently being addressed under the Installation Restoration Program (IRP).

## *Underground Storage Tanks, Aboveground Storage Tanks, and Oil/Water Separators*

There are currently no Underground Storage Tanks (USTs) at KSAAP. Thirty-one USTs were formerly located at KSAAP but have since been removed. The USTs were removed subsequent to the submission of the Leak Assessment reports. Leak Assessment documents were provided at the July 2005 ECP Workshop for all registered USTs with the exception of UST 24. The search of the KDHE database indicated all of the former USTs are classified as “closed” (**Appendix A**).

There are currently 40 aboveground storage tanks (ASTs) within the survey area, 9 of which are empty and are not currently in use. Permits for all of the ASTs have been issued by KDHE.

One oil/water separator (OWS) exists at KSAAP, which is located south of the 200 Area. This OWS separates oil and grease from the 200 Area wash rack and gas station, and discharges to grade from Outfall 002.

# **Executive Summary**

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## ***National Pollutant Discharge Elimination System***

KSAAP manages wastewater discharge under a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit includes seven outfalls.

KSAAP currently treats their sanitary wastewater at the Sewage Treatment Plant in the 2200 Area. There are four sewage lift stations across KSAAP. The wastewater is discharged through Outfall 004 and the sludge is treated by anaerobic digestion and dried on sand drying beds. The capacity of the system is 1,000,000 gallons per day.

## ***Air***

KSAAP has a Title V Class I Air Emission Source Operating Permit for a number of fuel oil powered boilers and emergency generators. KDHE conducted an annual compliance inspection on March 23, 2006. KDHE found that KSAAP was in compliance with Kansas Air Quality Regulations and the operating permit.

## ***Polychlorinated Biphenyls***

Historically, electrical transformers located throughout KSAAP contained polychlorinated biphenyl (PCB) dielectric fluid. All transformers at KSAAP have been sampled and analyzed for PCBs. PCBs were detected in numerous transformers. Thirty-four transformers are currently on-plant and have PCB concentrations greater than 50 parts per million (ppm).

In addition, some limited PCB wipe sampling was conducted as part of the 2004 RCRA Facility Assessment (RFA) of the 1200 Area (USACE 2004). Of the 48 samples collected, 16 samples tested positive for concentrations of PCBs (greater than 50 ppm).

## ***Asbestos-Containing Materials***

Based on visual observations and the date of construction of the majority the buildings, it is estimated that 98 percent of KSAAP buildings contain suspect asbestos-containing material (ACM). Non-friable suspect ACM, including 9-inch x 9-inch vinyl floor tiles and transite roofing and siding, are common throughout KSAAP. An asbestos survey and asbestos abatement of friable materials was reportedly performed, although no summary report was available during the 1998 EBS records review or 2006 ECP records review.

Friable ACM has been removed from Areas 200, 300, 500, 900, 1000, 1200, 3000, and 1414S Boiler House as of July 2005. Asbestos still needs to be abated from the 50's Buildings and the 1100 line.

## ***Lead and Lead-Based Paint***

Based on interviews during the 1998 EBS and the 2006 ECP, with the exception of the water towers, no LBP survey has been performed at KSAAP. DOD memorandum dated 31 October 1994 regarding asbestos, LBP, and radon policies at Base Realignment and Closure (BRAC) properties, states all facilities constructed prior to 1978 are assumed to contain LBP.

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## *Radon*

As a requirement of the U.S. Army Radon Reduction Program, KSAAP conducted monitoring of the indoor air for radon in 72 KSAAP buildings from May through August 1990. All results were less than the United States Environmental Protection Agency (USEPA) action level of 4.0 picocuries per liter of air (pCi/L air).

## *Radioactive Materials*

KSAAP holds a Nuclear Regulatory Commission (NRC) License (license #SUB-1283) for depleted uranium (DU) used in Building 1019's x-ray equipment.

Building 1019, the Quality Assurance and X-Ray Analysis Laboratory, operates one Varian 4 million electron volts (MeV) linear accelerator which contains 46 kilograms of DU. The Radiation Safety Officer (RSO) indicated KSAAP purchased a new linear accelerator, which uses lead and tungsten for x-ray shielding, but not DU. The NRC-licensed DU in the 4 MeV accelerator will be transferred to Varian's NRC license for possession of DU shielding plates. This transfer has not occurred as of the issuance of this report.

In addition to the 4 MeV linear accelerator, KSAAP also possesses two x-ray machines which do not pose any potential for environmental contamination by radioactive materials.

KSAAP does not have records of radiological commodities. Interviews with the RSO and personnel from the electrical shop suggested that there are currently no radiological commodities present at KSAAP.

## *Installation Restoration Program*

The Army's cleanup program under the Defense Environmental Restoration Program (DERP) is the KSAAP IRP. The goal of the IRP is to cleanup previously contaminated lands to an acceptable level of risk on active installations.

KSAAP currently has 15 active IRP sites. Areas of investigation include production areas, landfills, open burning cages, open burning pads, an open detonation area, and miscellaneous maintenance and support areas. Primary contamination of concern in the production areas and open burning areas are explosives and metals. Explosives in groundwater have been detected in some production areas. Contamination in the production areas was generally highest near the sumps and production facilities. Some contamination was detected at all landfill areas. Two closed landfill areas had volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals in surface soils and groundwater.

There are no compliance cleanup (CC) sites at KSAAP (USAEC 2006). However, Burn Pad 6 is not covered under Environmental Restoration, Army (ER,A), and is a potential CC site.

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## *Potentially Explosive Contaminated Structures*

Explosive residues may be present in production areas (buildings, ventilation systems, vacuum systems, sewer lines, dispensing lines) but have not yet been characterized or quantified. Explosives residues may be in specific production buildings such as screening/blending, melt/pour, cooling, pelleting, wash racks, and LAP; in ventilation, vacuum, and product distribution system piping; and settling tank systems and sumps. In addition, industrial and sanitary sewer lines, sumps, and settling tanks remain in the ground and have the potential to be contaminated with explosives and/or to have contaminated the surrounding soil.

## *Ranges (Active/Inactive)*

There are six ranges listed on the Active/Inactive Range Inventory (AMC 2002) including:

- Combined Effects Munitions (CEM) Research, Design, Testing and Evaluation (RDT&E) Range
- Sensor-Fused Weapons (SFW) RDT&E Range
- M42/46/77 Grenade Range
- Heavy Demolition Range Open Burning Grounds
- Pistol Range
- Light Maneuver Range

KSAAP has one site in the Military Munitions Response Program (MMRP), which is the Old Ammunition Storage Area.

## Conclusions

The conclusions are based on the available sources of information concerning both past and present uses of the property. Information included readily available data associated with adjacent property records; aerial photography; personnel interviews; Army environmental programs and associated documentation; current and historic investigations; and ongoing response actions. In addition, record sources were reviewed to determine if there have been spills, leaks, discharges, leaching, underground injections, dumping, abandonments, or storage of hazardous substances or petroleum products at the installation.

Discrete areas, referred to as parcels, were classified into one of seven standard ECP area types (categories) as defined by ASTM 5746-98, *Standard Classification of Environmental Condition of Property Area Types for Defense Base Closure and Realignment Facilities* (ASTM 2002). The parcels are depicted on **Figure ES-2**. A total of 49 parcels were identified for KSAAP.

## *ECP Category 1*

The parcel identified as ECP Category 1 is considered “uncontaminated” and is defined as areas where no release or disposal of hazardous substances or petroleum products or their derivatives has occurred, and to which there has been no migration of such substances from adjacent areas

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(ASTM 2002). The ECP Category 1 parcel contains 10,319.17 acres of land. There was no evidence that a documented release or disposal of hazardous substances or petroleum products or their derivatives has occurred in these areas. The ECP Category 1 parcel is identified in white on **Figure ES-2** as 1(1).

### *ECP Category 2*

ECP Category 2 consists of two parcels and 49.96 acres of land. The parcels are identified in blue on **Figure ES-2**.

### *ECP Category 3*

No parcels were identified as ECP Category 3 at KSAAP.

### *ECP Category 4*

ECP Category 4 consists of 13 parcels and 277.04 acres of land. The parcels are being addressed under the IRP program. The parcels are identified in dark green on **Figure ES-2**.

### *ECP Category 5*

ECP Category 5 consists of 9 parcels and 366.03 acres of land. The parcels are identified in yellow on **Figure ES-2**.

### *ECP Category 6*

ECP Category 6 consists of 1 parcel and 19.47 acres of land. This parcel is being addressed under the IRP program, and a removal action at Pad 5 is anticipated in 2007. The parcels are identified in red on **Figure ES-2**.

### *ECP Category 7*

ECP Category 7 consists of 23 parcels and 2,695.33 acres of land. The parcels are identified in gray on **Figure ES-2**. Based on available information obtained during the ECP process, the following sites have either not been evaluated or require additional evaluation.

- 2000 Area – This area includes the M42/46/77 Grenade Range (west) and the CEM Test Range (east). These ranges are currently active and no investigations have been completed. Munitions and explosives of concern (MEC) and hazardous substances may be present at these areas, which are depicted on **Figure ES-2** as 2(7)X and 3(7)HRX.
- Buildings 57 and 58 – These buildings are the Physical Testing Facility and Chemistry Laboratory. These areas have used various raw materials. There is a potential for MEC and hazardous substances contamination at these buildings, which are depicted on **Figure ES-2** as 4(7)HRX.
- 300, 500, 700, 800, 1000, 1100, 1200 Areas – These production areas have handled raw explosives materials for nearly 60 years. There is a reasonable probability that MEC and hazardous substances exists below and around the building foundations located within the production areas which have not been evaluated. These areas are depicted on **Figure ES-2** as

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9(7)HRX, 10(7)HRX, 24(7)HRX, 25(7)HRX, 26(7)HRX, 27(7)HRX, 14(7)HRX, and 41(7)HRX.

- 75 Area – Munitions were cut in the 75 Area as part of quality assurance testing. Currently, only a few concrete structures, likely former barriers, remain at this site. There is no documentation of the disposition of waste explosive cuttings and dust. There is a potential for hazardous substances at this area which has not been evaluated. This area is depicted on **Figure ES-2** as 29(7)HR.
- 300 Area Oxidation Pond – The oxidation pond is located north of the 300 area. Limited sampling has been completed at this area. There is a potential for hazardous substances at this area. This area is depicted on **Figure ES-2** as 31(7)HR.
- 200 Area – This area includes the Maintenance Area. There is historical and visible evidence of leaks and spills of several contaminants of concern. The primary concerns in the maintenance areas are from petroleum, oil, and lubricant (POL) contamination, lead acid batteries, gasoline and ethylene glycol. Additionally, the Salvage Yard Areas, also located in the 200 Area, may include heavy metals and explosive contamination. Limited sampling has been completed at this area. This area is depicted on **Figure ES-2** as 32(7)HRPR.
- 1300 Area – The Rail Classification Yard consists of eight parallel tracks and switches and currently only accepts empty rail cars. Historically, the area was used to load and unload rail cars with various items including raw materials. This area has not been previously investigated and is depicted on **Figure E-2** as 33(7)HR.
- Open Demolition – This site is used to treat off-specification and scrap munitions. The items to be treated are buried in an earthen pit and remotely detonated. Limited sampling has been completed in this currently active area which is depicted on **Figure ES-2** as 18(7) HRX.
- Pistol Range – This area is an active pistol range. Down gradient sediment sampling has been completed; however, the range itself was not evaluated. There is potential for metals contamination in the soil berm used as a gunnery backstop. This area is depicted on **Figure ES-2** as 40(7)HR.
- Building 67 Pesticide Storage – Pesticides are mixed and stored in this area. Clothes and equipment potentially contaminated with pesticides are washed in this building. The wash water then enters a septic system. This site has not been previously evaluated. This area is depicted on **Figure ES-2** as 42(7)HR.
- 1200 Area Downgradient – Subsurface water from the 1200 Area discharges to Pond 3. Sediment sampling of this area has been proposed but not initiated. This area is depicted on **Figure ES-2** as 46(7)HR.
- 2200 Area – This area includes the Wastewater Treatment Plant. Mercury lubricated bearings were historically used in each of the two trickling filters. At an unknown date, approximately one pint of mercury leaked out of each trickling filter bearing, potentially releasing, mercury to the surrounding environment. Initial limited sampling results of the outfall were unable to determine the location of the mercury spill. This area is depicted on **Figure ES-2** as 44(7)HR.
- Building 1406 – This area has not been previously evaluated. This area is depicted on **Figure ES-2** as 47(7)HR.

# Executive Summary

- Old Ammunition Storage Area - was used to store munitions that were returned to the United States following World War II. It was reported that many of the ammunition containers deteriorated due to environmental conditions and munitions may have been scattered on the ground. This parcel is classified as a Category 7 based on the potential for MEC to be present at this site. This area is depicted on **Figure ES-2** as 48(7)X.
- Storage Igloos - The 1500 Area, 1600 Area, 1700 Area, 1800 Area and 1900 Area storage igloos are used to store finished munitions, explosive compounds and bulk powder. Environmental investigations have not been completed within the igloo area. This parcel is classified as a Category 7 based on the potential for hazardous substances to be present at the site. These five area is depicted on **Figure ES-2** as 49(7)HR.

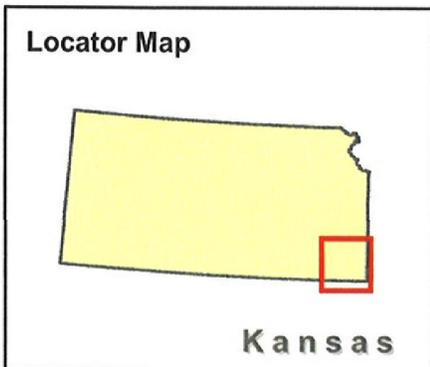
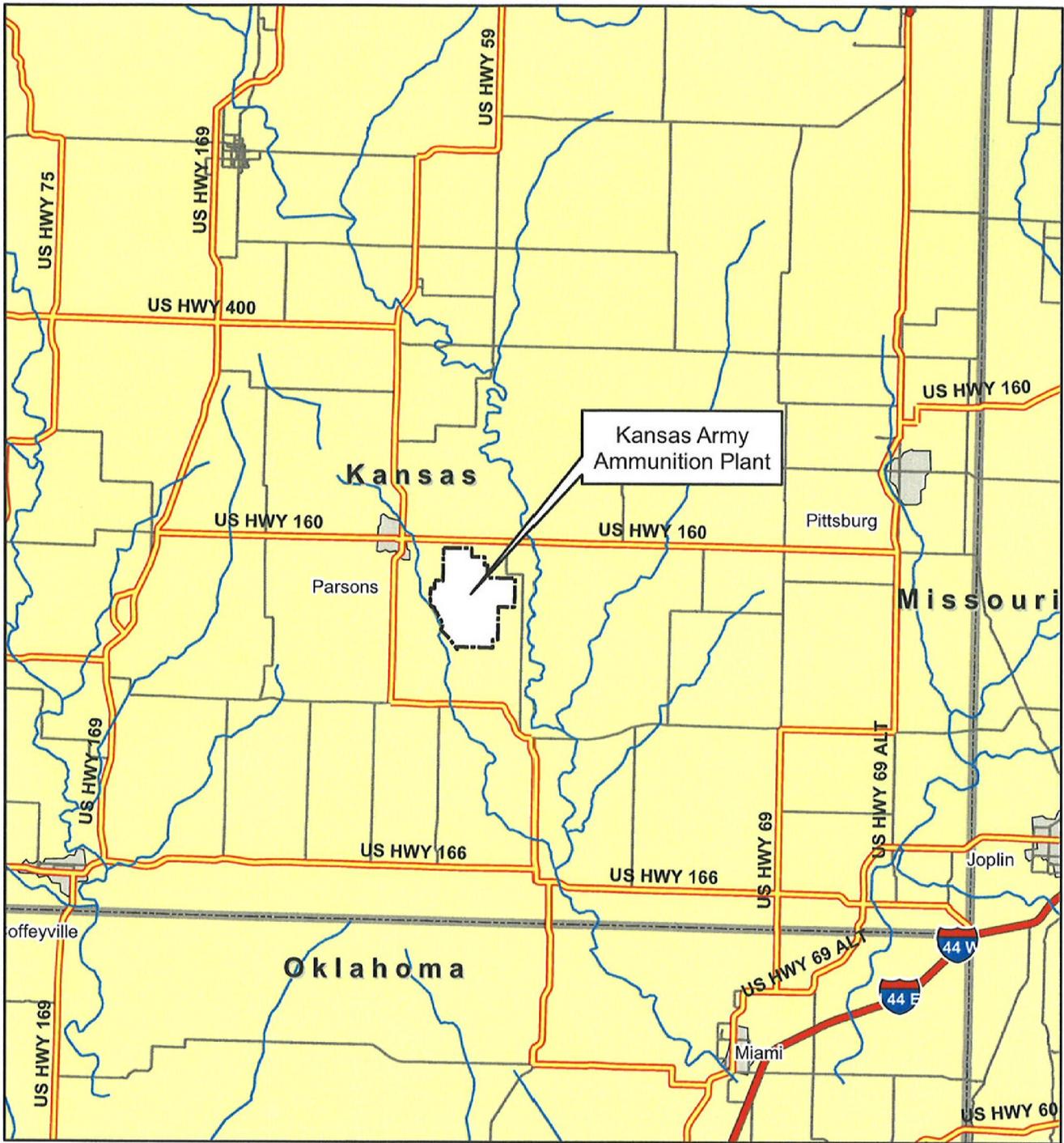
## ECP Category Parcel and Acreage Summary

The parcel categorizations are summarized in **Table ES-1** and depicted on **Figure ES-2**.

TABLE ES-1 KSAAP PROPERTY CATEGORIES			
ECP Category	Acres	Category Definition	Parcels
1	10,319.17	Areas where no release or disposal of hazardous substances or petroleum products has occurred, including no migration of these substances from adjacent areas.	1(1)
2	49.96	Areas where only release or disposal of petroleum products has occurred.	30(2)PR 43(2)PR
3	0	Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.	No parcels
4	277.04	Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken.	5(4)HR      20(4)HR 6(4)HR      23(4)HR 7(4)PR      36(4)HR 8(4)PR      37(4)HR 12(4)HR     38(4)HR 13(4)HR     39(4)HR 19(4)HR
5	366.03	Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required actions have not yet been implemented.	11(5)HR      22(5)HR 15(5)HR      34(5)HR 16(5)HR      35(5)HR 17(5)HR      45(5)HR 18(5)HRX

# Executive Summary

TABLE ES-1 KSAAP PROPERTY CATEGORIES					
6	19.47	Areas where release, disposal, and/or migration of hazardous substances have occurred, but required removal or remedial actions have not yet been initiated.	21(6)HR		
7	2695.33	Areas that are not evaluated or require additional evaluation.	2(7)X	25(7)HRX	41(7)HRX
			3(7)HRX	26(7)HRX	42(7)HR
			4(7)HRX	27(7)HRX	44(7)HR
			9(7)HRX	29(7)HR	46(7)HR
			10(7)HRX	31(7)HR	47(7)HR
			14(7)HRX	32(7)HRPR	48(7)X
			18(7)HRX	33(7)HR	49(7)HR
			24(7)HRX	40(7)HR	



**SITE MAP  
KANSAS ARMY AMMUNITION PLANT, KANSAS**

DRN. BY: DPG	DATE: 11/15/06	PROJECT NO. 16170064	FIG. NO. ES-1
CHK'D. BY:	REVISION:		

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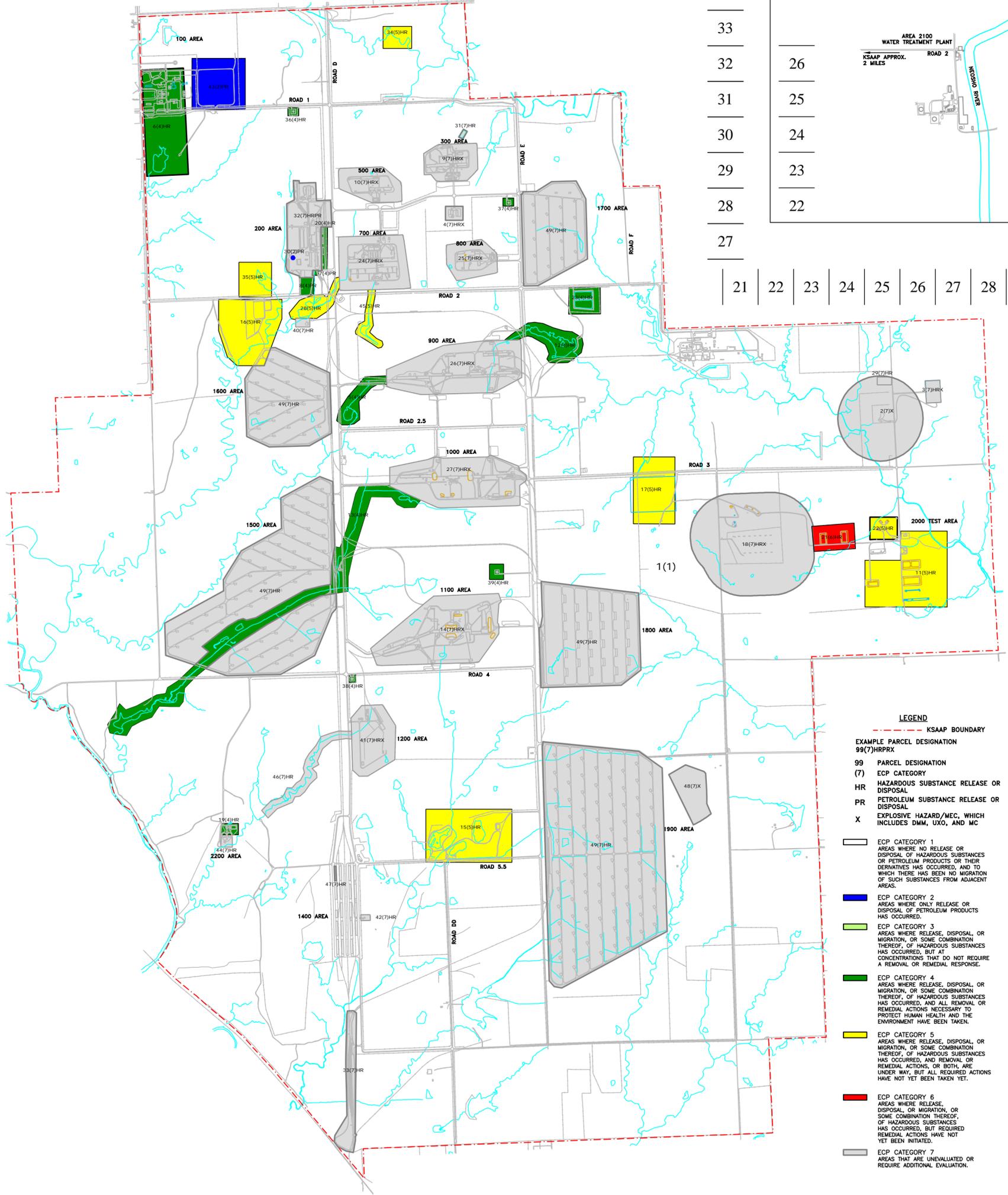
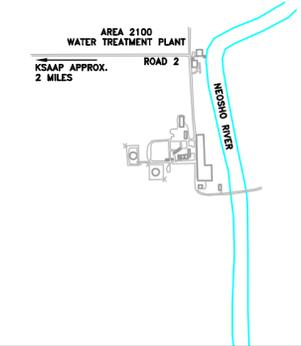
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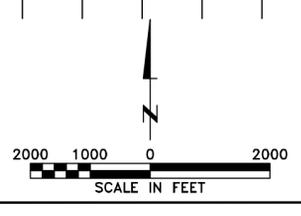
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NOTE: THE WATER TREATMENT PLANT IS LOCATED APPROX. 2 MILES EAST OF KSAAP AND IS INCLUDED AS PARCEL 1(1).



- LEGEND**
- KSAAP BOUNDARY
  - EXAMPLE PARCEL DESIGNATION 99(7)HRPRX
  - 99 PARCEL DESIGNATION
  - (7) ECP CATEGORY
  - HR HAZARDOUS SUBSTANCE RELEASE OR DISPOSAL
  - PR PETROLEUM SUBSTANCE RELEASE OR DISPOSAL
  - X EXPLOSIVE HAZARD/MEC, WHICH INCLUDES DMW, UXO, AND MC
  - ECP CATEGORY 1  
AREAS WHERE NO RELEASE OR DISPOSAL OF HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS OR THEIR DERIVATIVES HAS OCCURRED, AND TO WHICH THERE HAS BEEN NO MIGRATION OF SUCH SUBSTANCES FROM ADJACENT AREAS.
  - ECP CATEGORY 2  
AREAS WHERE ONLY RELEASE OR DISPOSAL OF PETROLEUM PRODUCTS HAS OCCURRED.
  - ECP CATEGORY 3  
AREAS WHERE RELEASE, DISPOSAL, OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, BUT AT CONCENTRATIONS THAT DO NOT REQUIRE A REMOVAL OR REMEDIAL RESPONSE.
  - ECP CATEGORY 4  
AREAS WHERE RELEASE, DISPOSAL, OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, AND ALL REMOVAL OR REMEDIAL ACTIONS NECESSARY TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT HAVE BEEN TAKEN.
  - ECP CATEGORY 5  
AREAS WHERE RELEASE, DISPOSAL, OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, AND REMOVAL OR REMEDIAL ACTIONS, OR BOTH, ARE UNDER WAY, BUT ALL REQUIRED ACTIONS HAVE NOT YET BEEN TAKEN YET.
  - ECP CATEGORY 6  
AREAS WHERE RELEASE, DISPOSAL, OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, BUT REQUIRED REMEDIAL ACTIONS HAVE NOT YET BEEN INITIATED.
  - ECP CATEGORY 7  
AREAS THAT ARE UNEVALUATED OR REQUIRE ADDITIONAL EVALUATION.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28



**URS**

ENVIRONMENTAL CONDITION OF PROPERTY PARCEL MAP  
KANSAS ARMY AMMUNITION PLANT, KANSAS

DRN. BY: DPG	DATE: 07/07/06	PROJECT NO. 16170064	FIG. NO. ES-2
CHK'D. BY:	REVISION: 0		

The Environmental Condition of Property (ECP) process is a systematic process that evaluates and documents the potential for environmental contamination and liability and identifies the scope of investigative effort required to confirm suspected potential contamination. The purpose of this ECP report is to characterize the existing environmental conditions at the Kansas Army Ammunition Plant (KSAAP). The ECP assessed the components identified in the Department of Defense (DOD) *Base Redevelopment and Realignment Manual (BRRM)* dated 1 March 2006, 4165.66-M, C.8.3 and AP2.

### 1.1 GENERAL

This ECP Report provides information for determining the suitability for transfer of KSAAP, and meets the requirements of Title 40, Code of Federal Regulations (CFR), Part 373, § 373.1, and United States Army Regulation (AR) 200-1, *Environmental Quality, Environmental Protection and Enhancement*. AR 200-1 requires an Environmental Baseline Survey (EBS) be prepared to determine the environmental conditions of properties being considered for disposal. While the ECP report assessed the components presented in the BRRM, it also closely parallels the American Society for Testing and Materials (ASTM) 6008-93 *Standard Practice for Conducting Environmental Baseline Surveys* (ASTM 2005). The ECP meets the appropriate requirements of federal and state laws as they apply to the disposal of federal properties.

The information gathered during this assessment can be used to assist the United States Army (Army), the General Services Administration, and the purchaser in making informed business decisions about the transfer of the property by reducing uncertainty regarding its environmental condition.

The Army prepares an ECP Report for the following purposes:

- Identify, characterize, and document the presence or likely presence of a release of any hazardous substances or petroleum products into the environment, which includes the ground, groundwater, or surface water of the property associated with the historical and current use of the installation.
- Identify, characterize, and document the release or possible release of any hazardous substances or petroleum products from an adjacent property that would likely cause or contribute to contamination at the installation.
- Provide a basis for determining if the property is suitable for transfer, lease, or assignment.

The ECP contains the information required to comply with the provisions of 40 CFR, Part 373 that requires a notice to accompany contracts for the sale of, and deeds entered into the transfer of, federal property on which hazardous substances may have been stored, released or disposed. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §120(h) stipulates that a notice is required if certain quantities of designated hazardous substances have been stored on the property.

The ECP Report is not prepared to satisfy a real property purchaser's duty to conduct an “all-appropriate inquiry” to establish an “innocent purchaser defense” to CERCLA 107 liability. Any

such use of the ECP Report by any party is outside the control of the Army and beyond the scope of the ECP Report. The Army, its officers, employees or contractors make no warranties or representations that any ECP Report satisfies any such requirements for any party.

## 1.2 SCOPE

The scope of work for this ECP requires conformance with AR 200-1 (paragraph 15-6) *Environmental Quality, Environmental Protection and Enhancement*, dated February 21, 1997 and CERCLA §120.

This ECP covers the 13,727 acre KSAAP, Labette County, Kansas. The property is located approximately 2 miles from Parsons, Kansas, and 20 miles north of the Oklahoma border. A site location map is provided in **Appendix E** as **Figure E-1** and a description of the property is provided in **Section 3.1**.

## 1.3 ASSUMPTIONS

The environmental conditions at KSAAP are based on information from the site reconnaissance, interviews, and collection and review of readily available information. New information or changes in property use could require a review and possible modification of the findings and conclusions contained in this report.

The information obtained from the U.S. Army, the U.S. Army's representatives, individuals interviewed and prior environmental reports was assumed to be accurate unless reasonable inquiries indicated otherwise. Conditions observed were considered representative of areas that were not accessible unless otherwise indicated.

## 1.4 LIMITATIONS

This ECP Report presents a summary of readily available information on the environmental conditions of, and concerns relative to, the land, buildings, and real property assets at KSAAP. The ECP Report findings are based on environmental investigations and reports, historical documents, and a site reconnaissance conducted June 5 through June 13, 2006. Information obtained from these other studies is reflected within this ECP Report by reference. A complete list of references is provided in **Section 7**. The ECP process recognizes that the condition of property can change many times before transfer. Property classifications can change as historical contamination is cleaned up or if a new source of contamination is identified. Records reviewed during the Phase I assessment were accepted as accurate and a reasonable effort was made to resolve discrepancies identified during the document review.

During the ECP Phase I assessment, consideration of all available sources of information concerning both past and present environmentally significant uses of the property was reviewed. This included readily available data associated with adjacent property records, aerial photography; personnel interviews; Army environmental programs and associated documentation; current and historic investigations; and ongoing response actions. In addition,

record sources were reviewed to determine if there have been spills, leaks, discharges, leaching, underground injection, dumping, abandonment, or storage of hazardous substances or petroleum products at the installation. The visual site inspection (VSI) and interview process included inquiries and requests into the existence and availability of records that support the environmental condition of the property.

The site reconnaissance consisted of tours for all load lines and non-production areas, building inspections, installation property line drive, and an automotive tour of the installation. A visual inspection of all buildings was conducted to the fullest extent possible; however, a complete inspection of all buildings was not practical because of the size of the installation and the number of buildings. Similarly, a visual inspection of all undeveloped areas could not be performed. No sampling or analysis was conducted during the VSI.

## 1.5 REPORT ORGANIZATION

The remainder of the ECP is organized as follows:

**Section 2 – Survey Methodology:** This section provides a description of the data collection methods employed and describes the methodology used.

**Section 3 – Property Description:** This section provides KSAAP location and description, the environmental setting, including climate, topography, geology and demography, the biological and cultural resources summary, and a description of KSAAP utilities, including water, industrial/sanitary sewer systems, stormwater systems, and the electrical system. This section also identifies uncontaminated property and describes the remaining contaminated property.

**Section 4 – Environmental Conditions:** This section provides a consolidated summary of the KSAAP ECP and identifies the location of off-site areas of environmental concerns, past hazardous substance/petroleum products practices and current hazardous substance/petroleum products practices.

**Section 5 – Summary and Conclusions:** This section provides a summary of the ECP and Resulting Parcel and Building Categories.

**Section 6 – Certification:** This section documents the certification of the ECP Report.

**Section 7 – References:** This section provides an inventory of the reference material used in the preparation of this ECP Report.

The appendixes are arranged as follows:

**Appendix A:** Methodology and Data Records

**Appendix B:** Building Hazard Classifications

**Appendix C:** KSAAP Permits

**Appendix D:** Interview Forms

**Appendix E:** Site Maps and Figures

**Appendix F:** Aerial Photographs

**Appendix G:** ECP Visual Site Inspections Photographs

**Appendix H:** Special-Status Species at KSAAP

**Appendix I:** Key Personnel Qualifications

This section provides a description of the various components of data collection and review conducted to support the findings of this ECP report.

### 2.1 DEVELOPMENT OF STUDY SECTIONS

KSAAP property was divided into study sections to assist with the data retrieval and management. Data (e.g., historical use and practices, process descriptions, current use, chemical usage and storage) were collected and organized by study section. Development of sections was based on the following considerations:

- Boundaries must be readily identifiable in the field;
- Boundaries must correspond closely with those of properties destined for transfer to specific entities;
- Boundaries must be of a manageable size for survey;
- Study sections must encompass all of KSAAP property;
- No land area can fall into more than one section.

Section boundaries were generally designated at the center of roads or streams, along fences, along township section lines, and currently identified work areas (e.g., administrative, housing, production, storage, maintenance, water treatment, and demolition). In addition, many of the parcels were determined based on solid waste management unit (SWMU) boundaries.

### 2.2 VISUAL SITE INSPECTIONS

A VSI of the real property and properties immediately adjacent to the subject property was also conducted by URS Group, Inc. (URS) as part of the ECP process. The URS field team conducted on-site visual inspections of KSAAP property and adjacent properties during the period of June 5, 2006 through June 13, 2006. The VSI included driving each paved road on the property, driving several secondary roads, and driving through several off-road areas. Driving the entire property boundary was not practical, but done to the extent possible on KSAAP property. Current aerial photographs were also reviewed to help identify potential areas of concern (AOCs) on the property boundary. The property boundary was also evaluated by driving all roads immediately surrounding KSAAP.

A visual inspection was also conducted as part of the 1998 EBS (AE 1998). General observations of KSAAP property and structures made during the 1998 EBS and 2006 ECP VSIs are included throughout **Section 4** of this report. General observations of adjacent properties from the 2006 ECP are included in **Section 4.16** of this report.

**Table 2-1** lists the property areas, facilities, and adjacent properties that were visually inspected during the 1998 EBS and the 2006 ECP. Visual inspections of open areas and agricultural tracts were performed by automobile surveys with a walking survey of points of interest.

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
A019	Storage Igloo	Walking Survey / Drive-by Inspection
A1012	Heavy Inert Storage	Walking Survey / Walking Survey
Burning Pads	Open Burning Pads	None / Walking Survey
Demolition Range	Open Demolition Range	Not Completed / Walking Survey
Pistol Range	Pistol Range	None / Walking Survey
Waste Processor	Contaminated Waste Processor	None / Walking Survey
53	Receiving and Inspection	Walking Survey / None
55	Dispatch Office	Walking Survey / None
57	Physical Testing Facility	Walking Survey / Walking Survey
58	Chemistry Laboratory	Walking Survey / Walking Survey
67	Insecticide Storage Facility	Walking Survey / Walking Survey
101	Consolidated Plant Operations Office	Walking Survey / Walking Survey
112	Laundry	Walking Survey / None
202	Locomotive and Auto Repair	Walking Survey / Walking Survey
203	Maintenance and Repair	Walking Survey / Walking Survey
207	Carpenter Shop	Walking Survey / Walking Survey
208	Offices and Change House	Walking Survey / Walking Survey
221	Warehouse	Walking Survey / Walking Survey
231	Tire Shop	Walking Survey / Walking Survey
243	Warehouse-Office	Walking Survey / Walking Survey
244	Warehouse	Walking Survey / Walking Survey
247	Paint Shop	Walking Survey / Walking Survey
300	Load Line	Walking Survey / Not Completed
302A	Storage Igloo	Walking Survey / Walking Survey
302B	Storage Igloo	Walking Survey / Walking Survey
304A	Storage Igloo	Walking Survey / Walking Survey
304B	Storage Igloo	Walking Survey / Walking Survey
304C	Storage Igloo	Walking Survey / Walking Survey
305	Screening Facility	Walking Survey / Walking Survey
306	Explosive Charge/Inert Storage	Walking Survey / Walking Survey
315	Assembly House	Walking Survey / Walking Survey
322	Group Office	Walking Survey / Walking Survey
502	Service Magazine	Walking Survey / None

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
503	Screening and Blending Facility	Walking Survey / None
504	Blended Tetryl Rest House	Walking Survey / None
505	Tetryl Pelleting Facility	Walking Survey / None
506	Detonator Service	Walking Survey / None
507	Final Fuse Assembly and Pack-Out House	Walking Survey / None
509	Boiler House	Walking Survey / None
511	Change House	Walking Survey / Drive-by Inspection
512	Detonator Service	Walking Survey / Drive-by Inspection
513	Assembly, Packing, and Shipping Facility	Walking Survey / None
515	Compressor House	Walking Survey / None
701	Pelleting Facility	Walking Survey / Drive-by Inspection
703	Heater House	Walking Survey / Drive-by Inspection
704	Azide Dry House	Walking Survey / Drive-by Inspection
705	Lead Azide Preparation	Walking Survey / Drive-by Inspection
706	Mercury Fulminate Preparation	Walking Survey / Drive-by Inspection
707	Azide Dry House	Walking Survey / Drive-by Inspection
708	Heater House	Walking Survey / Drive-by Inspection
709	Magazine	Walking Survey / Drive-by Inspection
710	Rest House	Walking Survey / Drive-by Inspection
711	Rest House	Walking Survey / Drive-by Inspection
712	Screening and Blending Facility	Walking Survey / Drive-by Inspection
713	Heating House	Walking Survey / Drive-by Inspection
715	Loading Facility	Walking Survey / Drive-by Inspection
716	Detonator Loading Bays	Walking Survey / Drive-by Inspection
717	Detonator Loading Bays	Walking Survey / Drive-by Inspection
719	Dry House #1	Walking Survey / Drive-by Inspection
720	Heater House #1	Walking Survey / Drive-by Inspection
721	Detonator Rest House	Walking Survey / Drive-by Inspection
722	Detonator Lacquering	Walking Survey / Drive-by Inspection
723	Final Inspection, Packing and Shipping House	Walking Survey / Drive-by Inspection
724	Boiler House	Walking Survey / Drive-by Inspection

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
725	Change House	Walking Survey / Drive-by Inspection
726	Change House	Walking Survey / Drive-by Inspection
727	Dry House	Walking Survey / Drive-by Inspection
728	Rest House	Walking Survey / Drive-by Inspection
729	RDX Layout Facility	Walking Survey / Drive-by Inspection
730	Heater House	Walking Survey / Drive-by Inspection
732	Primer Mix Bowling Facility	Walking Survey / Drive-by Inspection
733	Heater House	Walking Survey / Drive-by Inspection
734	Inert Screening Facility	Walking Survey / Drive-by Inspection
736	Heater House	Walking Survey / Drive-by Inspection
737	Dry House	Walking Survey / Drive-by Inspection
738	Dry House	Walking Survey / Drive-by Inspection
739	Heater House	Walking Survey / Drive-by Inspection
740	Initiating Explosive House	Walking Survey / Drive-by Inspection
742	Pelleting Rest House	Walking Survey / Drive-by Inspection
743	Magazine #1	Walking Survey / Drive-by Inspection
744	Compressor House	Walking Survey / Drive-by Inspection
745	Line Office	Walking Survey / Drive-by Inspection
747	Magazine #2	Walking Survey / Drive-by Inspection
749	Sewage Treatment Plan	Walking Survey / Drive-by Inspection
750	Boiler House	Walking Survey / Drive-by Inspection
802	Black Powder Magazine	Walking Survey / Drive-by Inspection
804	Black Powder Screening	Walking Survey / Drive-by Inspection
805	Black Powder Screening	Walking Survey / Drive-by Inspection
807	Fan House	Walking Survey / Drive-by Inspection
808	Boiler Auxiliary	Walking Survey / Drive-by Inspection
810	Black Powder Magazine	Walking Survey / Drive-by Inspection
811	Black Powder Magazine	Walking Survey / Drive-by Inspection
812	Primer Assembly House	Walking Survey / Drive-by Inspection
813	Boiler House	Walking Survey / Drive-by Inspection
814	Change House	Walking Survey / Drive-by Inspection
816	Press House	Walking Survey / Drive-by Inspection
818	Compressor House	Walking Survey / Drive-by Inspection

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
828	Latrine	Walking Survey / Drive-by Inspection
841	Primer Dry House	Walking Survey / Drive-by Inspection
902	Boiler House	Walking Survey / Drive-by Inspection
903	Paint Storage	Walking Survey / Drive-by Inspection
904	Maintenance Shop	Walking Survey / Drive-by Inspection
905	Melt and Pour Facility	Walking Survey / Drive-by Inspection
906	Ammonium Nitrate	Walking Survey / Drive-by Inspection
907	Red Water Treatment	Walking Survey / Drive-by Inspection
908	Service Magazine	Walking Survey / Drive-by Inspection
910	Rework Facility	Walking Survey / Drive-by Inspection
911	Service Magazine Primer	Walking Survey / Drive-by Inspection
912	Service Magazine Propellants	Walking Survey / Drive-by Inspection
913	Final Assembly and Packout Facility	Walking Survey / Drive-by Inspection
914	Inert Storage	Walking Survey / Drive-by Inspection
915	Loading Projectile Storage	Walking Survey / Drive-by Inspection
916	Inert Storage	Walking Survey / Drive-by Inspection
918	Change House	Walking Survey / Drive-by Inspection
920	Line Office	Walking Survey / Drive-by Inspection
922	Vacuum House	Walking Survey / Drive-by Inspection
923	Vacuum House	Walking Survey / Drive-by Inspection
924	Remote Disassembly Facility	Walking Survey / Drive-by Inspection
926	Inert Storage	Walking Survey / Drive-by Inspection
927	Screening Facility	Walking Survey / Drive-by Inspection
928	Vacuum House	Walking Survey / Drive-by Inspection
929	Vacuum House	Walking Survey / Drive-by Inspection
946	Sump Facility	Walking Survey / Drive-by Inspection
951	X-Ray Facility	Walking Survey / Drive-by Inspection
973	Vacuum House	Walking Survey / Drive-by Inspection
974	Vacuum House	Walking Survey / Drive-by Inspection
993	Fuse and Ignition Facility	Walking Survey / Drive-by Inspection
1002	Boiler House	Walking Survey / Walking Survey
1003	Process Storage/Line Office	Walking Survey / Walking Survey
1004	Oil and Paint Storage	Walking Survey / Walking Survey

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
1005	Receiving and Painting Facility	Walking Survey / Walking Survey
1006	Melting Loading Facility	Walking Survey / Walking Survey
1007	Service Magazine	Walking Survey / Walking Survey
1008	Red Water Treatment	Walking Survey / Walking Survey
1009	TNT Service Magazine	Walking Survey / Walking Survey
1011	Shipping Facility	Walking Survey / Walking Survey
1012	Service Magazine	Walking Survey / Walking Survey
1013	Miscellaneous Storage	Walking Survey / Walking Survey
1014	Change House	Walking Survey / Walking Survey
1015	Change House	Walking Survey / Walking Survey
1017	Screening Facility	Walking Survey / Walking Survey
1018	Compressor House	Walking Survey / Walking Survey
1019	Cooling Facility/X-Ray	Walking Survey / Walking Survey
1022	Storage Facility	Walking Survey / Walking Survey
1023	Storage Facility	Walking Survey / Walking Survey
1025	Compressor House	Walking Survey / Walking Survey
1048	Vacuum House	Walking Survey / Walking Survey
1064	Powder Storage Facility	Walking Survey / Walking Survey
1065	Cartridge Case Assembly	Walking Survey / Walking Survey
1066	Primer Storage Receiving	Walking Survey / Walking Survey
1067	Vacuum House	Walking Survey / Walking Survey
1068	Vacuum House	Walking Survey / Walking Survey
1072	Vacuum House	Walking Survey / Walking Survey
1078	Wash House	Walking Survey / Walking Survey
1080	Loading Dock	Walking Survey / Walking Survey
1082	Vacuum House	Walking Survey / Walking Survey
1090	Vacuum House	Walking Survey / Walking Survey
1102	Process Storage/Line Office	Walking Survey / Walking Survey
1104	Receiving and Painting	Walking Survey / Walking Survey
1105	Boiler Room	Walking Survey / Walking Survey
1109	Melt and Pour Facility	Walking Survey / Walking Survey
1113	Cooling Facility	Walking Survey / Walking Survey
1114	Cooling Facility	Walking Survey / Walking Survey

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
1123	Melt and Pour Facility	Walking Survey / Walking Survey
1124	Compressor House	Walking Survey / Walking Survey
1127	Red Water Treatment Facility	Walking Survey / Walking Survey
1136	Packaging and Shipping House	Walking Survey / Walking Survey
1144	Vacuum Pump Facility	Walking Survey / Walking Survey
1202	Change House	Walking Survey / None
1205	Boiler House	Walking Survey / None
1206	Neutral Liquor Storage	Walking Survey / None
1223	Warehouse	Walking Survey / None
1225	Loading Dock	Walking Survey / None
1232	Guard House	Walking Survey / None
1410	Warehouse	None / Walking Survey
1412	Warehouse	Walking Survey / Walking Survey
1415	Warehouse	Walking Survey / Drive-by Inspection
1420	Warehouse	None / Walking Survey
1502	Storage Igloo	None / Walking Survey
1533	Storage Igloo	None / Walking Survey
1541	Storage Igloo	None / Walking Survey
1542	Storage Igloo	None / Walking Survey
1555	Storage Igloo	Walking Survey / Drive-by Inspection
1601	Storage Igloo	None / Walking Survey
1607	Storage Igloo	None / Walking Survey
1612	Storage Igloo	None / Walking Survey
1616	Storage Igloo	None / Walking Survey
1620	Storage Igloo	None / Walking Survey
1621	Storage Igloo	Walking Survey / Drive-by Inspection
1702	Storage Igloo	None / Walking Survey
1703	Storage Igloo	None / Walking Survey
1705	Storage Igloo	Walking Survey / Drive-by Inspection
1709	Storage Igloo	Walking Survey / Drive-by Inspection
1710	Storage Igloo	Walking Survey / Drive-by Inspection
1711	Storage Igloo	Walking Survey / Drive-by Inspection
1712	Storage Igloo	Walking Survey / Drive-by Inspection

**TABLE 2-1  
VISUAL INSPECTIONS CONDUCTED AT KSAAP**

<b>Site/Area/Building</b>	<b>Facility</b>	<b>1998 EBS / 2006 ECP</b>
1715	Storage Igloo	None / Walking Survey
1717	Storage Igloo	Walking Survey / Drive-by Inspection
1718	Storage Igloo	None / Walking Survey
1721	Storage Igloo	Walking Survey / Drive-by Inspection
1804	Magazine	None / Walking Survey
1813	Magazine	None / Walking Survey
1818	Magazine	Walking Survey / Drive-by Inspection
1824	Magazine	None / Walking Survey
1900 Area	Old Ammunition Storage Area	None / Walking Survey
1906	Storage Igloo	Walking Survey / Drive-by Inspection
1907	Storage Igloo	None / Walking Survey
1910	Storage Igloo	None / Walking Survey
1914	Storage Igloo	None / Walking Survey
1915	Storage Igloo	None / Walking Survey
1916	Storage Igloo	None / Walking Survey
1917	Storage Igloo	None / Walking Survey
1934	Storage Igloo	None / Walking Survey
1958	Storage Igloo	None / Walking Survey
1961	Storage Igloo	None / Walking Survey
1963	Storage Igloo	None / Walking Survey
1974	Storage Igloo	None / Walking Survey
1976	Storage Igloo	None / Walking Survey
2000 Area	Grenade Test Facility	None / Walking Survey
2001	Test Control Facility	Walking Survey / Drive-by Inspection
2106	Filtration Facility	Walking Survey / Drive-by Inspection
2203	Sewage Treatment Plant	Walking Survey / Drive-by Inspection
2702	Explosive Waste Incinerator	Walking Survey / Walking Survey
2709	Storage Igloo	Walking Survey / Drive-by Inspection
3001	Administration Facility	Walking Survey / Drive-by Inspection
3002	Change House	Walking Survey / Drive-by Inspection
3005	Heating Plant Oil	Walking Survey / Drive-by Inspection
3006	Shop, Storage, and Office Facility	Walking Survey / Drive-by Inspection
3007	Warehouse	Walking Survey / Drive-by Inspection

TABLE 2-1 VISUAL INSPECTIONS CONDUCTED AT KSAAP		
Site/Area/Building	Facility	1998 EBS / 2006 ECP
3008	Chemistry Laboratory	Walking Survey / Drive-by Inspection
3009	Sample Storage House	Walking Survey / Drive-by Inspection
3010	Azide Sample Dry House	Walking Survey / Drive-by Inspection
3012	Drummed Azide Inspection House	Walking Survey / Drive-by Inspection
3013	Finished Product Storage	Walking Survey / Drive-by Inspection
3014	Pack House	Walking Survey / Drive-by Inspection
3016	Sodium Azide Manufacture	Walking Survey / Drive-by Inspection

## 2.3 AERIAL PHOTOGRAPHY ANALYSIS

Prior to the development of KSAAP in 1941, all of the property was occupied by farmsteads and agricultural land. Fire insurance maps were typically only generated for areas with high population densities and areas within commercial and business districts of towns and cities. Historical fire insurance maps are not available for areas currently occupied by KSAAP.

Aerial photographs were analyzed during the 1983 Installation Assessment (USEPA 1983), 1998 EBS (AE 1998), 2005 Historical Records Review (HRR) (TechLaw 2006), and the 2006 ECP. The following summarizes the aerial photograph analyses. **Appendix F** provides a copy of aerial photographs assessed as part of this ECP Report. All aerial photographs used for previous aerial photograph analysis could not be obtained. Obtainable aerial photographs from previous analyses are presented in **Appendix F** on **Figures F-1** through **F-21**. Aerial photographs used as part of the 2006 ECP are presented on **Figures F-22** through **F-27**.

### 2.3.1 1983 Installation Assessment Aerial Photography Analysis

Both KSAAP property and adjoining properties were included in the 1983 analyses completed by the United States Environmental Protection Agency (USEPA). The study focused on land use patterns, human activity, and direct and indirect evidence of potential environmental impacts.

The facility was divided into key areas which were labeled as “Photo Area A” through “Photo Area G”. The photography was taken in 1950, 1956, 1963, 1970, and 1973. However, every photo area is not represented in each of these periods. Some areas are only represented in a single year.

#### 2.3.1.1 *Photograph Area A (100 Area)*

An aerial photograph depicting the site in 1963 shows a pond that was previously dry. Near this dry pond are eight ditches that run parallel. There is no direct access to the site; however, a possible underground pipeline, evident in the 1963 imagery, leads to the eight ditches. This suggests that the ditches may be used for liquid waste treatment. (USEPA 1983)

### *2.3.1.2 Photograph Area B (300 Area)*

A lagoon appears to be in use in 1950; it is full and the ground surface around it is scarred. Some of the liquid from the lagoon has drained to the southeast and northwest parts of the site. Drainage to the southeast appears to bypass a system of berms which have probably been constructed to control spillage and overflow east of the lagoon. To the west, three shallow, ground-scarred ditches appear to direct runoff from the lagoon into the local natural drainage.

In 1963 the lagoon appears wet. The berms to the east are revegetated. However, the lagoon bed, the surface surrounding it, and the three shallow ditches to the west remain scarred through the study. Use of this area is undetermined; however, the continued ground scarring on the site appears to have been caused by liquid once stored in the lagoon. (USEPA 1983)

### *2.3.1.3 Photograph Area C (200 Area)*

In 1956, six contiguous open burning pits and a possible liquid burning pit are in use. In 1963, a liquid burning pit is clearly visible on the east side of the site, debris is piled outside of the burning pits and a possible storage shed is visible.

In addition to being used as a waste disposal site, Site 4 has contained an empty trench and various shed-like structures through the study period.

The maintenance area (Site 5) is active throughout the study period. From 1956 on, 4 areas are used for open storage of cases, piles of material and trailers. Evident on the 1963 imagery is only a storage bunker on the east side of the northern open storage area. The surface inside the bunker is discolored.

Two large rectangular areas on the west side of the site contain a series of linear north/south ground scars in all years of imagery indicating possible filled trenches. A landfill used between 1950 and 1975 was located just west of this site. The two rectangular areas may be the landfill. On the 1956 imagery, debris piles and possible drums with an associated possible liquid burning pit are apparent in these two areas. By 1963 all of the debris, the drums, and the liquid burning pit were removed. (USEPA 1983)

### *2.3.1.4 Photograph Area D (includes Site 6)*

In 1970, there are several borrow pits present and the area is still active. The trench method landfill, Site 6, appears in the image. Two large waste disposal trenches are in place. Associated with the trenches are a number of ground scars, possibly old trench scars, which lie parallel to them. A smaller waste disposal trench runs perpendicular to the southernmost waste disposal trench. (USEPA 1983)

### *2.3.1.5 Photograph Area E (2700 Area)*

In 1956, the southern section contains 16 ammunition ignition points. The presence of the bulldozer and the freshly graded appearance of the surface suggest that another one is under

construction. An ammunition storage bunker is visible in the northernmost corner of the site. (USEPA 1983)

#### **2.3.1.6 *Photograph Area F (2700 Area)***

Burning areas, debris, storage areas, and landfills are within the areas that drain directly into the Neosho River. Site 8A in 1970 had two ammunition storage bunkers, a third burning area in the southwest corner, and a third burning revetment. Debris is possibly present in two of the revetments.

Site 8B changes through time. In 1950 it is a burning ground that houses seven open burning pads. By 1973 the burning ground has disappeared. East of where it once stood is a landfill which exhibits increased use through the study period. In 1970 a possible liquid burning pit is seen in the area that will be occupied by the landfill. Drainage flows directly into the natural drainage system.

Site 8C contains two open burning areas which are active throughout the study period. At various times debris can be seen piled inside them waiting to be burned. East of the two burning areas is an area that has at various times contained debris. By 1973, two disposal trenches, each of which is partially filled with debris, are in place. The area north of the trenches may have been used as a disposal trench area. Drainage once again flows uninterrupted into the nearby natural drainage system. (USEPA 1983)

#### **2.3.1.7 *Photograph Area G (1200 Area)***

A ground stain inside the revetted tank area on the site, visible on the 1963 imagery, appears to have been caused by leakage from one of the three vertical tanks (LEST 1993).

### **2.3.2 1998 Environmental Baseline Study Aerial Photography Analysis**

Aerial photographs were analyzed as part of the 1998 EBS (AE 1998). Both KSAAP property and adjoining properties were included in the analyses which focused on land use patterns, human activity, and direct and indirect evidence of potential environmental impacts. General information gathered through the review of the aerial photographs is dispersed throughout the EBS report. No previously unidentified AOCs were discovered during the aerial photograph review.

### **2.3.3 2005 Historical Records Review Aerial Photography Analysis**

An aerial photograph review was conducted as part of the 2005 HRR (TechLaw 2006). The HRR was conducted with a focus on reviewing and supplementing existing information regarding Munitions Response Sites (MRSs). The findings of the aerial photograph survey are dispersed throughout the HRR report. No previously unidentified AOCs were discovered during the aerial photograph review.

### 2.3.4 2006 Environmental Condition of Property Aerial Photography Analysis

An aerial photograph review was conducted as part of the 2006 ECP to supplement previous aerial photograph analyses. The focus of the 2006 aerial photograph review was to assist with KSAAP property boundary and adjacent property surveys, identify new areas of soil disturbance, and verify the location of the Old Ammunition Storage Area and the 75 Area.

No previously unknown AOCs were identified during the aerial photograph review completed as part of the 2006 ECP. A structure was observed on an adjacent property near the north gate and verified as a vacant residential property with no AOCs noted. A structure was also identified on an adjacent property near the south gate and verified as a residential property. Several vehicles in various states of repair were present on the adjacent property near the south gate though no AOCs were identified.

## 2.4 RECORDS REVIEW

### 2.4.1 Primary Record Sources

The primary documents that were used to complete the ECP are presented in **Table 2-2**. The information reviewed includes environmental studies and other documents from:

- U.S. Army offices at KSAAP
- U.S. Army Environmental Center (USAEC)
- U.S. Army Field Support Command (AFSC) offices in Rock Island, Illinois
- U.S. Army Corps of Engineers (USACE)
- USEPA Region VII offices in Kansas City, Missouri
- Kansas Department of Health and Environment offices in Topeka, Kansas
- KSAAP Contractor, Day & Zimmermann, Inc. (DZI)

Existing documents were reviewed to evaluate the environmental conditions at the property. The documents presented in **Table 2-2** are the primary documents used in the preparation of this ECP Report. A complete list of documents used is presented in **Section 7, References**. **Appendix A** identifies the databases searched for preparation of this ECP report.

<b>TABLE 2-2 PRIMARY DOCUMENTS</b>			
<b>Document Title</b>	<b>Author</b>	<b>Date</b>	<b>Source of Evidence Document Identification Number</b>
Aerial Photographic Analysis of the Kansas Army Ammunition Plant, Parsons, Kansas	U.S. Environmental Protection Agency	June 1983	LEST 1983

<b>TABLE 2-2 PRIMARY DOCUMENTS</b>			
<b>Document Title</b>	<b>Author</b>	<b>Date</b>	<b>Source of Evidence Document Identification Number</b>
Resource Conservation and Recover Act (RCRA) Facility Assessment Report	A.T. Kearney, Inc.	March 1989	ATK 1989
Ordnance and Explosive Waste, Chemical Warfare Materials, Archives Search Report, Kansas Army Ammunition Plant, Parsons, Kansas	U.S. Army Corps of Engineers, St. Louis District	December 1993	USACE 1993
Final Report, Phase I RCRA Facility Investigation, Volume 1: Text, Kansas Army Ammunition Plant, Parsons, Kansas	Radian Corporation	August 1994	RC 1994b
Draft Human Health Baseline Risk Assessment, Volume I – Section 1 to 13, Kansas Army Ammunition Plant, Parsons, Kansas	Law Engineering & Environmental Services, Inc.	April 1998	LEES 1998
Final Report, Phase II RCRA Facility Investigation, Volume 1: Text, Kansas Army Ammunition Plant, Parsons, Kansas	Radian International, LLC	May 1998	RC 1998
Environmental Baseline Survey Report Kansas Army Ammunition Plant	Aguirre Engineers, Inc.	August 1998	AE 1998
U.S. Army Active/Inactive Range Inventory	Army Materiel Command	April 2002	AMC 2002
Final Data Gap Study Report, Kansas Army Ammunition Plant	Plexus Corp.	August 2002	Plexus 2002
Closed, Transferring, and Transferred Range/Site Inventory Report, Kansas Army Ammunition Plant	Army Materiel Command	September 2003	AMC 2003
After Action Report, ECP Workshop, Kansas Army Ammunition Plant	U.S. Army Environmental Center	July 2005	USAEC 2005d
Integrated Natural Resources Management Plant	Kansas Army Ammunition Plant	July 2005	KSAAP 2005
Historical Records Review, Kansas Army Ammunition Plant, 2006	TechLaw, U.S. Army Corps of Engineers	February 2006	TechLaw 2006
Kansas Army Ammunition Plant, Installation Action Plan, 2006	U.S. Army Environmental Center	April 2006	USAEC 2006
Final Corrective Measures Decision, Site Wide Corrective Measures Implementation, Kansas Army Ammunition Plant	U.S. Environmental Protection Agency	May 2006	USEPA 2006a

### 2.4.2 Additional Record Sources

Reasonably accessible Army environmental documents, county and city records, and aerial photographs of the property were reviewed to investigate land uses at the site. Local authorities were contacted to learn about historic uses of buildings and land on the site. Available information on past land uses and their potential impacts was assessed. Other documents and resources of historical importance that were used include:

- Readily available records and files documenting where hazardous materials are stored and used.
- Files at the United States Army Center for Health Promotion and Preventive Medicine (USACHPPM) reviewed for documents addressing human health matters.
- Historical documents and maps at the National Archives and Records Administration (NARA) (College Park, Maryland).
- Historical documents and maps at the NARA central plains region (Kansas City, Missouri).
- Copies of permits and permit applications.

### 2.4.3 Standard Environmental Record Sources

A search of state and federal environmental databases was undertaken for KSAAP property and any listed sites within standard search distances. The following environmental databases were searched by Environmental Data Resources (EDR):

<b>TABLE 2-3 STANDARD ENVIRONMENTAL RECORD SOURCES REVIEWED</b>		
<b>Record(s) Source</b>	<b>Number of Sites</b>	<b>Minimum Search Distance (miles)</b>
National Priorities List (NPL)	0	1.00 Miles
Proposed NPL	0	1.00 Miles
NPL Recovery	0	1.00 Miles
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	2	0.50 Miles
Comprehensive Environmental Response, Compensation and Liability System and No Further Remedial Action Planned Report (CERC-NFRAP)	0	0.25 Miles
Corrective Action Report (CORRACTS)	1	1.00 Miles
RCRA Treatment Storage and Disposal Facility (TSDF)	1	0.50 Miles

**TABLE 2-3  
STANDARD ENVIRONMENTAL RECORD SOURCES REVIEWED**

<b>Record(s) Source</b>	<b>Number of Sites</b>	<b>Minimum Search Distance (miles)</b>
RCRA Large Quantity Generator (LQG)	1	0.25 Miles
RCRA Small Quantity Generator	0	0.25 Miles
Emergency Response Notification System (ERNS)	7	Target Property
State Hazardous Waste	0	1.00 Miles
State Landfill	1	0.50 Miles
Leaking Underground Storage Tank (LUST)	3	0.50 Miles
Underground Storage Tank on Indian Land (INDIAN UST)	0	0.25 Miles
KS Voluntary Cleanup Program (VCP)	0	0.50 Miles
Superfund Consent Decrees (CONSENT)	0	1.00 Miles
Records of Decision (ROD)	0	1.00 Miles
Delisted NPL	0	1.00 Miles
Facility Index System/Facility Registry System (FINDS)	0	Target Property
Hazardous Material Licensing Tracking System (HMIRS)	0	Target Property
Material Licensing Tracking System (MLTS)	0	Target Property
Mines Master Index File (MINES)	0	0.25 Miles
NPL Leans	0	Target Property
polychlorinated biphenyl (PCB) Activity Database System (PADS)	1	Target Property
Indian Reservations (INDIAN RESERV)	0	1.00 Miles
Uranium Mill Tailings Sites (UMTRA)	0	0.50 Miles
Engineering Controls Site List (US ENG CONTROLS)	0	Miles
Open Dump Inventory (ODI)	0	0.50 Miles
Formerly Used Defense Sites (FUDS)	0	1.00 Miles

**TABLE 2-3  
STANDARD ENVIRONMENTAL RECORD SOURCES REVIEWED**

Record(s) Source	Number of Sites	Minimum Search Distance (miles)
DOD	1	1.00 Miles
RCRA Administrative Action Tracking System (RAATS)	1	Target Property
Toxic Chemical Release Inventory System (TRIS)	0	Target Property
Toxic Substance Control Act (TSCA)	0	Target Property
Section 7 Tracking Systems (SSTS)	0	Target Property
TSCA Tracking System (FTTS)	0	Target Property
Aboveground Storage Tank (AST)	0	Target Property
Kansas Spills (SPILLS)	1	Target Property
Integrated Compliance Information System (ICIS)	0	Target Property
Drycleaner Registration Database Listing (DRYCLEANERS)	0	0.25 Miles
Area of Concern (AOCNCERN)	0	Target Property
Manufactured Gas Plants	0	1.00 Miles
US Brownfields	0	0.50 Miles
Sites with Institutional Controls (US INST CONTROL)	0	0.50 Miles
Brownfields Site Assessments (BROWNFIELDS)	0	0.50 Miles
Clandestine Laboratory (CDL)	0	0.50 Miles

Information related to the databases is presented in **Appendix A**. The databases did not identify any new issues that were not previously detailed in other sources. KSAAP was identified on the following databases: DOD sites, LUSTs, SPILLS, Leaking Aboveground Storage Tanks (LASTs), PADS, CERCLIS, RCRA-LQG, RCRA TSDF, RAATS, CORRACTS, Industrial Hazardous Waste, FINDS, Permitted Solid Waste Facilities/Land Fills (SWF/LF), and US ENG CONTROLS) databases.

The EDR report included information on an additional 30 orphan facilities (not including those identified as KSAAP) that were not mapped by EDR due to inadequate address information. URS has conducted additional research in an attempt to evaluate the approximate locations of the orphan facilities. The evaluation indicated that the unmappable facilities were either located

beyond the approximate minimum search distance, or not located in the anticipated upgradient direction. The unmappable orphan sites pose no environmental concern to KSAAP. The complete EDR database search report is included in **Appendix A**.

## 2.5 INTERVIEWS

To facilitate the review of KSAAP's environmental history and practices, interviews of current and former KSAAP employees involved in operations were conducted as part of the 1998 EBS (AE 1998), 2006 HRR (TechLaw 2006), and 2006 ECP. To ensure the interview process was thorough, standardized interview forms were utilized. Statements regarding environmental impacts are included in this report where appropriate and on the interview forms completed during the 2006 ECP, which are included in **Appendix D**. **Table 2-4** lists the individuals who were interviewed.

TABLE 2-4 INTERVIEWS OF KSAAP AND OTHER PERSONNEL				
Name	Title	Organization	Period Associated with Area or Plant	Interview Program(s)
Andrea Austin	Environmental Scientist	KDHE-BWM	1994 to 2000	1998 EBS
Steve Belt	OE/OD Range Superintendent	DZI-KS Division	1976 to Present	2006 ECP
Lonnie Bradfield	Manager	Kansas Gas and Electric	Unknown	1998 EBS
Dean Cramer	Environmental Engineering Project Manager	DZI-KS Division	1974 to Present	1998 EBS, 2005 HRR, 2006 ECP
Chris Deurmyer	Natural Resources Manager	KSAAP-Army	2002 to Present	2005 HRR, 2006 ECP
Randy Farr	Environmental Geologist	KDHE-BER	1996 to Unknown	1998 EBS
Larry Grillot	Chief of Operations	KSAAP-Army	1968 to 2005	1998 EBS
Don Gullett	N/A	Retired	1956 to 1987	1998 EBS
Larry Hastings	General Foreman of Utilities and Grounds	DZI-KS Division	1973 to Present	1998 EBS
Al Hynek	Natural Resources Specialist	KSAAP-Army	1995 to 2001	1998 EBS
Danny Langerot	Manager of Warehousing and Assets	DZI-KS Division	1969 to Present	1998 EBS, 2005 HRR, 2006 ECP

TABLE 2-4 INTERVIEWS OF KSAAP AND OTHER PERSONNEL				
Name	Title	Organization	Period Associated with Area or Plant	Interview Program(s)
Patrick McReynolds	Manager of Maintenance Services	DZI-KS Division	1974 to Present	1998 EBS, 2006 ECP
Glen Parish	Operations Manager	KSAAP-Army	1991 to Present	1998 EBS, 2005 HRR, 2006 ECP
Bret Raines	Environmental Protection Specialist	KSAAP-Army	2005 to Present	2005 HRR, 2006 ECP
Richard Rice	Working Foreman (Lineman)	DZI-KS Division	1983 to 2000	1998 EBS
Drew Robertson	Demolition Technician	DZI-KS Division		
Clair Shaw	Radiation Safety Officer	DZI-KS Division	1967 to Present	2006 ECP
Carolyn Smalley	Environmental Engineering Manager	DZI-KS Division	1980 to Present	1998 EBS, 2005 HRR, 2006 ECP
Glenn Tisdale	Environmental Project Manager	USACE Kansas City District	2000 to present	2005 HRR, 2006 ECP
Richard Thomas	Agricultural Leasing	DZI-KS Division	1987-1996	2006 ECP
Ralph Walden	Environmental Compliance	DZI-KS Division	Unknown	2006 ECP
Larry Wetherell	Hospital Coordinator	DZI-KS Division	1967 to 2003	1998 EBS

## 2.6 DATA MANAGEMENT

Data obtained during the ECP assessment were provided in electronic and/or hard copy format. Electronic files were entered into the URS data management database that identifies the document title, date and author. **Section 7** of this report identifies all documents referenced in this report. Hard copy documents were filed in the project central file for project number 16170064 located in the URS Omaha office.

### 3.1 KSAAP LOCATION AND DESCRIPTION

KSAAP is located in Labette County, Kansas, approximately 30 miles west of the Missouri border and 20 miles north of the Oklahoma border (**Figure E-1**). It is located approximately 2 miles east of Parsons, Kansas (population approximately 12,000) and  $\frac{3}{4}$  mile north of Labette, Kansas (population 250). KSAAP consists of 13,727 acres and approximately 850 structures (KSAAP 2005). Active and standby production facilities occupy the improved lands; railroads, storage areas, roads, and parking lots are found on the semi-improved lands; and the unimproved lands are about 92 percent agricultural and 8 percent woodlands (RC 1994a). The surrounding land use is primarily agricultural. The KSAAP site plan is presented in **Figure E-2**.

#### 3.1.1 Area Descriptions

All improved and semi-improved areas have been assigned area numbers by the U.S. Army, which are used in the following descriptions and on **Figure E-3**. The following descriptions include current conditions as well as historical information. Most of the facilities at KSAAP were constructed in 1942, and unless otherwise noted, the following descriptions refer to that year of construction. Modifications to facilities are not described, and dates of building removal are given when available.

##### 3.1.1.1 75 Area – Test Area

This former test area occupied approximately 1.1 acres, and was located northwest of the 2000 Area (**Figure E-4**). The test area was used for activities described as quality control. Activities included cutting completed munitions in half for inspection and measurement. The practices for disposing of explosive waste cuttings and dust from the operations are unknown.

Only a concrete barricade remains in this area. The period during which this area was active is not known, although it is present on a map dated April 1947 and was last updated March 24, 1949. (U.S. Army 1978b)

##### 3.1.1.2 100 Area – Administration

This is the main administrative area, occupying approximately 30.19 acres (**Figure E-5**). It contains the KSAAP main administration office (Building 101), the protection offices (security), hospital, and communications center.

The original administration building (Building 102) was demolished after the construction of the new building (Building 101). Building 101 Annex is additional office space to Building 101. Laundry facilities were located in Building 112. Building 107, constructed in 1972, is currently used for archiving documents. It had previously been a computer and communications center.

The 100 Area had previously contained staff housing, barracks, a hospital, a cafeteria, a fire station, a coal-fired boiler house, a guardhouse, an employment building, and a few other small buildings. The barracks did not reside within the delineated boundary line of the 100 Area. The barracks were located along the northeastern boundary and extended eastwardly

(see **Figure E-5**). The staff housing was demolished in the early 1950s. Dates of demolition of the other buildings are not known.

A current employee indicated that each building in the staff housing area and barracks might have had an associated underground storage tank (UST) containing heating oil. The interviewed employee indicated that the USTs were removed at an unknown time. No closure records or reports are available for these removals.

### **3.1.1.3 200 Area – Central Maintenance Shops**

The 200 Area occupies approximately 71 acres (**Figure E-6**). This area includes the central machine shop, millwright shop, carpenter shop, paint shop, pipe shop, electric shop, vehicle shop, power distribution shop, boiler shop, roads and grounds shops, electric shops, general stores and operating stores warehouses and offices, salvage and excessing operations office, and central receiving offices. (AE 1998)

As-built drawings indicate that five petroleum USTs were located at the northeast corner of Building 221. The USTs were not in use since approximately 1960. A heavy rainstorm brought fuel oil to the surface in 1987. (AE 1998) Shortly thereafter, four USTs and surrounding contaminated soil were removed. Interviewed employees indicated that the excavation extended to native soil but no closure samples were collected. The existence and/or disposition of the fifth tank was unknown and later confirmed not to be present based on geophysical surveys (URS 2004) (see **Section 4.1.3**).

The electric distribution shop located in the north end of Building 221 is used for transformer maintenance and refilling. The shop foreman indicated during the ECP that there were no known spills in the shop. During the 2006 VSI approximately 15 minor (less than 1 inch diameter) oil stains on the concrete floor were identified. Sampling of the area has not occurred.

There is an open lead acid battery storage pit located west of Building 202. This is an open-air storage area containing approximately 30 automobile size batteries on wooden timbers over open ground. The Lead Acid Battery Storage Pit has not been investigated.

There is a gasoline dispensing area located south of Building 202. This area consists of ASTs piped underground to a dispenser area. The piping was upgraded to double wall piping in 1991.

An AST containing a sealant for roads was located near Building 200. The AST was used for storage of road sealant and was periodically filled and used.

The 200 Area Oil Landfarm (SWMU Group 3) was a former landfarming operation for the remediation of petroleum and oil-contaminated soils. It was located just south of the 200 Area approximately 700 feet west of Road D on the north side of Road 2. It started operations in 1984 and was last used in 1993. The landfarm consisted of three cells with natural occurring clay-containing soil. The landfarm was used for the treatment of oil-contaminated soil generated during spill cleanup activities at the facility and operated on the principle that naturally occurring soil microbes would degrade oily wastes. Oily soil wastes were placed in the landfarm cells and were periodically tilled for aeration.

**3.1.1.4 300 Area – 155 mm Projectile Assembly Line**

The 300 Area occupies approximately 33 acres (**Figure E-7**). During World War II (WWII) and the Korean War, this area was used for the assembly of fuses. In the 1960s the line manufactured explosive compounds for mines. In 1975-1976, the line was converted to a 155 millimeter (mm) Improved Conventional Munition (ICM) line. Currently, there is still activity taking place in some of the buildings within the 300 Area.

**3.1.1.5 500 Area – Pellet, Booster, and Fuse Assembly Line**

The 500 Area is located southwest of the intersection of Road 1 and Road E (**Figure E-8**). It occupies approximately 33 acres. During WWII and the Korean War, the 500 Area produced supplementary charges and boosters (M21A4). KSAAP was modified in 1967 to Load, Assemble and Pack (LAP) the XM 716 and 717 fuses. The area underwent layaway from the end of WWII to 1951, from 1957 to 1967, and from 1971 to the present (DA 1980, RC 1998). Limited research and development activities are currently being conducted at the 500 Area.

**3.1.1.6 700 Area – Grenade, Detonator, and Expulsion Charge Load Lines**

The 700 Area occupies approximately 67 acres (**Figure E-9**). The 700 Area is currently inactive. This area has been used as a LAP production facility for detonators, lead cup assemblies, and expulsion charge assemblies (DA 1980, RC 1998). The 700 Area was used to LAP the M-55 detonator, M-219 lead cup, boosters, and expulsion charges. Currently, there is still activity taking place in some of the buildings within the 700 Area.

**3.1.1.7 800 Area – Primer Explosive Manufacture Line**

The 800 Area occupies approximately 30 acres (**Figure E-10**). During WWII, the Korean War, and Vietnam conflict, the 800 Area was a LAP production facility for the M28B2 explosive primer. The area is presently inactive. In 1980 one building in this area was used to store M42 and M46 grenades. (DA 1980, RC 1998)

**3.1.1.8 900 Area – 81 mm Mortar and 105 mm Round Rework Lines**

This area, occupying approximately 105 acres, was originally used as a LAP production facility for the 105 mm shell during WWII and the Korean War (**Figure E-11**). In 1967 it was converted to a facility for loading the 81 mm mortar round with Composition B. The line was automated in 1975 and produced, on a trial basis, the M374A3 mortar cartridge. X-ray equipment was located in this area and was used to check loaded rounds for defects. The area has primarily been inactive since 1978, though one building was used in 1980 for reworking 155 mm projectiles prior to loading. (TechLaw 2006)

**3.1.1.9 1000 Area – 105 mm Shell Assembly Line**

The 1000 area is located in the central portion of KSAAP, south of the 900 Area and occupies approximately 103 acres (**Figure E-12**).

The 1000 Area was originally used as a LAP production facility for the 105 mm shell. In 1952, three Facilities (1064, 1065, 1066) were added and the line was converted to a facility for loading the 105 mm artillery round with Composition B (AE 1998). The line was deactivated for an unknown period between 1952 and February 1968. The exact deactivation date is unknown. (TechLaw 2006) In 1968, the line was reactivated, modernized and partially automated. X-ray equipment was located in this area and was used to check loaded rounds for defects. The area was inactive from 1978 to 2002; however, in 1980, Building 1008 was being used to treat wastewater, from another area, prior to discharge. (DA 1980, RC 1998) The line was reactivated in 2002, and is currently used in the production of 60 mm mortar and M795 projectiles (KSAAP 2006).

Prior to the construction of the wastewater treatment plant system, wastewater was discharged into unlined ditches and oxidation ponds within the area (USAEC 2006). Currently, the 1000 line has concrete in-ground sumps and open-topped troughs. The production water drains through the sumps and troughs to the wastewater treatment plant. An open-topped subsurface concrete trough surrounds 1000 Area to capture washdown water to direct it to the wastewater treatment facility. During the 2006 ECP visit, the concrete trough was observed to be cracked and in poor condition in some areas.

#### *3.1.1.10 1100 Area – Cluster Bomb Unit Production and Combined Effects Munitions Assembly Lines*

The 1100 Area occupies approximately 124 acres and is currently used for the production of Sensor-Fused Weapons (SFW) (**Figure E-13**). The 1100 Area was originally used as a bomb line. In 1968, it was converted to a LAP production facility for loading the cluster bomb unit (CBU) with Composition B. In 1984, the line underwent conversion to produce combined effects munitions (CEM) for the U.S. Air Force, and several buildings were demolished.

#### *3.1.1.11 1200 Area – Former Ammonium Nitrate Plant*

The 1200 Area was originally constructed as an ammonium nitrate production facility and is approximately 50 acres in size (**Figure E-14**). It operated from 1942 to April 1951 to produce ammonium nitrate, a chemical suitable both for use in explosive compounds and as a fertilizer. From June 1946 through July 1951, the Ammonium Nitrate Plant was leased to the Spencer Chemical Company, who produced fertilizer-grade ammonium nitrate. At the end of the lease, the facilities were decontaminated and returned to the U.S. Army. In 1953, the production line was converted to 105 mm cartridge case rework operations. The U.S. Army Environmental Hygiene Agency (USAEHA) report states it was active until 1974 while the USEPA RCRA Facility Assessment (RFA) indicates it was active until 1957. The 105 mm cartridge cases were cleaned, re-gauged, re-lacquered, and either reused at KSAAP or shipped for use at other plants. At an unknown date, the Ammonium Nitrate Plant was dismantled and sold. Many buildings have been demolished. The area is currently inactive.

***3.1.1.12 1300 Area – Railroad Classification Yard***

The 1300 Area, occupying approximately 29 acres, consists of the rail classification yard for incoming and outgoing shipments (**Figure E-15**). This area is currently active and contains eight parallel tracks and switches.

***3.1.1.13 1400 Area – Inert Storage***

The 1400 Area is currently used for the storage of inert materials and was used historically for shipping and receiving and is approximately 84 acres in size (**Figure E-16**). The types of materials typically stored include empty projectile bodies, packing materials, wooden crates, and machinery. A railroad track spur can be accessed at each building. Some of the warehouses in this area have been out-leased to private companies for storage use during the various standby periods. Building 1406 has been used for storing transformers, including PCB transformers. There is no visible evidence of leaks or spills. The structures in this area have not been altered since their construction with the exception of Building 1404. The north half of Building 1404 burned down and was not rebuilt (DZI EEPE 2006). Portions of the 1400 Area are currently active.

***3.1.1.14 1500, 1600, 1700, and 1900 Areas – Bulk Explosive, Bulk Powder, Finished Ammunition, and Hazardous Waste Storage***

These areas contain earth-covered concrete igloos that are used for the storage of explosive compounds, bulk powder, and finished ammunition (**Figure E-17**). Some of the igloos are also used for hazardous waste storage. **Table 4-1** identifies RCRA-permitted storage areas. The approximate sizes of the areas are as follows: 1500 Area – 358 acres, 1600 Area – 130 acres, 1700 Area – 105 acres and 1900 Area – 463 acres.

***3.1.1.15 1800 Area – Finished Ammunition and Hazardous Waste Storage***

This area consists of numerous brick buildings used for the storage of finished ammunition, and encompasses approximately 176 acres (**Figure E-18**). Building 1813 has been used for hazardous waste storage. Some of the warehouses in this area have been leased to private companies to use for storage during the various standby periods. The structures in this area have not been altered since their construction. All buildings in the 1800 Area are currently active.

***3.1.1.16 2000 Area – M42/46/77 Grenade Range***

The 2000 Area is a quality assurance testing facility for the M42 and M46 grenades and fuses (**Figure E-19**). Testing is conducted on a regular basis during production of these grenades. The site consists of two separate areas, and both comprise an area of approximately 38 acres. The western portion of the 2000 Area was constructed in 1976, and the eastern portion was constructed in 1986. Quality assurance testing of the M42 and M46 grenades and fuses is conducted within these areas and consists of a grenade reliability test (penetration test) and a fuse function test (flight test). The penetration tests involve detonation of six grenades simultaneously. These tests are performed on a regular basis and the area is currently active.

The facility operator indicated that on numerous occasions one of the six grenades did not detonate and was projected into the surrounding area by the force of explosion from the other five grenades. The grenades were sometimes recovered.

#### ***3.1.1.17 2100 Area – Water Treatment Plant***

The 2100 Area is the water treatment plant, which provides potable water to KSAAP. The plant is located 2 miles east of KSAAP (outside main boundary) on the Neosho River and includes two buildings. Building 2106 (Filtering Facility) is used for filtering, treatment, and pumping, and also contains an office and laboratory. Building 2106-A is used for pumping water from KSAAP Neosho River Dam. There are settling basins associated with the Filtering Facility, and a reservoir for storage of treated water. The water treatment plant capacity is 1,000,000 gallons per day (NPS 1984).

#### ***3.1.1.18 2200 Area – Sanitary Wastewater Treatment System***

This 4-acre area is the sewage and wastewater treatment plant. The system has a capacity of 1,000,000 gallons per day. The plant has an office building, which also has a testing laboratory. A digester, sludge drying beds, various treatment tanks, and two trickling filters are also located at the factory. (DA 1980)

#### ***3.1.1.19 2700 Area – Open Burning and Open Demolition Grounds, and Contaminated Waste Processor and Explosive Waste Incinerator***

The 2700 Area is known as the Open-Burning/Open Demolition (OB/OD) Grounds. The area includes two separate areas and encompasses approximately 270 acres. The eastern area was used for the open burning (OB) of explosive compounds-contaminated waste until 1981 (**Figures E-20 and E-21**). At that date, a Contaminated Waste Processor (CWP) was put into operation and has operated on an intermittent basis since that time to dispose of explosive compounds-contaminated waste. Prior to the construction of the CWP, burning cages were used to dispose of explosives-contaminated waste. The western area is used for the open detonation (OD) of waste explosive compounds too dangerous to burn and some testing (**Figures E-22 and E-23**). These areas have been active since initial KSAAP operation.

An Explosive Waste Incinerator (EWI) was put into operation in 1981 and is currently in idling status. It was installed and used for the purpose of incinerating residual raw explosive compounds and excess or off-specification loaded components that result from production activities. (NPS 1984, RC 1994a)

#### ***3.1.1.20 3000 Area – Lead Azide Production Facility***

The 3000 Area, approximately 53 acres, contains a lead azide plant, which was constructed during 1967-1968 (**Figure E-24**). The plant was operated only once to produce a trial batch of lead azide to assure that it was operational. It has remained in layaway since (NPS 1984, U.S. Army 1978b).

### *3.1.1.21 Miscellaneous Facilities*

The miscellaneous buildings throughout KSAAP include a variety of unrelated buildings that do not fit into the other classifications. These buildings include the Pesticide Storage Facility (Building 67), Fire Station (Building 52), Receiving and Inspection (Building 53), Dispatch Office (Building 55), Physical Test (Building 57), Metrology and Chemistry Laboratory (Building 58), Storage/Dunnage (Building 80), and Stone Quarry Pump House (Building 2105A).

## **3.2 HISTORIC LAND USE**

Prior to the establishment of KSAAP, the area consisted of farms, 80 to 160 acres in size. The land was used mainly for grazing livestock and farming the principal crops of corn, small grains, and hay. Two one-room schools were located in the area, Liberty School and Pleasant Valley School. Liberty School was located in the northwest corner of KSAAP on the west side of Section 27, T.31S, R.20E. Pleasant School was located in the center of KSAAP on the east side of Section 12, T.32S, R.20W. Houses, barns, schools, and churches located on the acquired property were either moved by their former owners or demolished by the U.S. Army. There are two private cemeteries, separately fenced, located within the KSAAP boundary. Franklin Cemetery covers about 1 acre of land and Fairview Cemetery covers about 1.5 acres of land. These cemeteries were in use between 1871 and 1941. (DA 1980) The locations of former homesteads and cemeteries are shown on **Figure E-36**.

Formerly, 16 oil and gas wells were located throughout KSAAP property. The wells were plugged in the early 1940s to prevent the escape of gas or oil which would constitute a fire hazard. (KSAAP 1942)

## **3.3 FACILITY HISTORY**

The project that ultimately led to KSAAP was authorized by the Secretary of War on May 31, 1940. Subsequently, site suitability surveys were conducted in the area lying between the towns of Parsons and Montana, Kansas, and a suitable site was identified. Land acquisition followed, and the site initially consisted of 17,321.89 acres but was reduced to 13,727 acres in 1946 through the sale of three parcels that were declared excess property at that time.

On August 4, 1941 the Secretary of War authorized construction of three load lines, one each for the 105 mm shell, the 155 mm shell and the 100-pound bomb. Also authorized at that time was the construction of facilities for production of fuses, boosters, detonators, and primers for the above referenced ammunition; facilities necessary for the manufacture of amatol and nitrate of ammonia; administrative, maintenance, and support facilities; and the requisite utilities. Amatol and ammonium nitrate are included in the RCRA permit; however, they are not produced on site.

Construction of the Kansas Ordnance Plant (KOP), the original name for KSAAP, was initiated in August 1941, was completed in November 1942 and continued to operate throughout WWII. Additional production activities are detailed in **Section 3.3.1**. In 1945, available undeveloped

land was leased to local farmers for agricultural purposes. This practice continues to the present, and many improvements, relative to soil management, have been accomplished. (AE 1998)

### 3.3.1 Operational History

KSAAP's mission has been to produce ammunition items and components. KSAAP experienced alternating periods of activity, during years of war, and standby/layaway status, during peacetime. The periods of activity coincided with WWII, the Korean War, and the Vietnam conflict. The activities on the site have included:

- LAP ammunition items including artillery shells, mortar shells, bombs;
- Manufacture ammunition component items including fuses, boosters, detonators, relays, and primers;
- Cartridge rework;
- Production of bulk ammonium nitrate;
- Receipt, storage, and issuance of ammunition components and explosive compounds;
- Preservation of Joint Army and Navy Materiel and industrial reserve equipment;
- Renovation and demilitarization of selected items;
- Leasing of available land to local farmers for agricultural purposes;
- Maintenance of facilities;
- Outleasing of idle facilities not required for storage of military materials to other government agencies and private firms; and
- Demilitarization of explosives and munitions by incineration and OB/OD.

The following general industrial process descriptions capture historical processes at the facility (AE 1998).

**Initial Operation 1942-1945:** Assembly of artillery ammunition, bombs, and components for artillery shells, such as fuses, boosters, detonators, relays, and primers. Ammonium nitrate production in 1200 Area.

**1945-1950:** KSAAP placed on standby. Operations consisted of receipt, storage, and issue of ammunition, ammunition components, and explosives, maintenance of facilities, preservation of industrial reserve equipment, ammunition renovation, and demilitarization of selected items. Following shutdown of WWII production activities, all available land was out-leased for agricultural purposes.

**1950-1957:** Ammonium nitrate area converted to a cartridge case rework area. Items produced consisted of bombs, artillery ammunition, and component parts, and reworked 105 mm cartridge cases. Upon completion of production orders, the areas were decontaminated and placed on standby.

**1957-1967:** KSAAP placed on standby. Activities consisted of maintenance of facilities, and receipt, storage, and issue of ammunition items. Various facilities were leased during this period. Lessees included Econo-Motels, a manufacturer of prefabricated motel units; Stocker Wood Products, a manufacturer of cabinets, desks and shelving; and Ruskin, Inc., a manufacturer of sheet metal products. From 1959 to 1961, the Department of Commerce, Bureau of the Census occupied the 100 Area and a portion of the inert storage area on a permit basis.

**1967:** All production facilities reactivated with the exception of the cartridge case rework area. The demolition bomb line (1100 Area) was converted to a cluster bomb line and a 105 mm shell line (900 Area) was equipped for loading 81 mm mortar rounds. Items produced consisted of cluster bombs, 105 mm shells, 81 mm mortars, detonators, fuses, primers, and lead cup assemblies.

A Lead Azide production area was completed in September 1968. KSAAP was tested and then placed in layaway status during 1970. The Lead Azide Area was never put into production.

**1975-1993:** By 1975, only three of the eight production lines remained in operation. The 300 line functioned as LAP for the 155 mm/M483 ICM projectile. Production began in December 1976 and continued through April 1989. Limited production of the M374 Mortar on the 900 line was completed in March 1976.

Production of the M864 began in September 1992 and was completed in November 1993.

**1996:** KSAAP acquires modifications for the RCRA permit to allow use of the EWI for demilitarization of DOD munitions. This action led to the award of a demilitarization project at KSAAP.

### 3.3.2 Current Activity

KSAAP is a government-owned, contractor-operated (GO/CO) installation under the jurisdiction of the Joint Munitions Command (JMC). KSAAP has been slated for closure as part of Base Realignment and Closure (BRAC) 2005 law which was enacted by Congress in November 2005. The Operating Contractor, DZI, has a Facility Use Contract for use in third party contracting of both DOD and non-DOD munitions items. The Operating Contractor has a production contract with DOD for the LAP of the SFW on the 1100 line, and the M795 and 60 mm on the 1000 Production line. (USAEC 2006)

### 3.3.3 Lease History

While the facility was in standby from 1957 to 1967 various facilities were leased. Lessees included Econo-motels, a manufacturer of prefabricated motel units; Stocker Wood Products, a manufacturer of cabinets, desks and shelving; and Ruskin, Inc., a manufacturer of sheet metal products. From 1959 to 1961, the Department of Commerce, Bureau of the Census occupied the 100 Area and a portion of the inert storage area on a permit basis. (AE 1998)

As of July 2006, the current operating contractor, DZI, leases various facilities described below:

- Magazines in the 1600 Area are leased to Dyno Nobel Inc. for the storage of explosives. This lease was initiated on March 24, 1999 and is on a month-to-month basis (DZI 1999).
- Rail car storage in the 1300 Area rail classification yard including Building 60 for the purpose of rail car repair and locomotive maintenance is leased to Lindsey & Osborne Partnership. This lease was initiated on September 27, 1999 and continued to July 31, 2002 with five successive options of five years each. The lease is now in Option Period 1 which will run through 2007 (DZI 1999).

The U.S. Army currently leases roughly 10,000 acres of property for agricultural use including grazing and crop production. The leased areas are listed in **Table 3-1**. The leases run for periods of up to 5 years and the current leases are in various stages of the lease period. The agricultural lease program is managed under the General Land Use Regulation for grazing, hay, hayseed, and crop production. Each tract has a tract management plan that details acreage availability, specific uses, and special requirements of leasing the particular tract. In accepting the lease, the lessee agrees to conduct all farming and grazing operations in accordance with the General Land Use Regulation and the Tract Management Plan. Requirements of the General Land Use Regulation include specific items for soils management, cultivated land, and hay/hayseed production and grazing. Soils management requirements include fertilization, liming, and reporting of crops and fertilizer used. Cultivated land requirements are crops to be grown and tilling and planting directions. Crops allowed include soybeans, sorghum, wheat, corn, oats, millet, other legumes (e.g., alfalfa, clover, etc.), and sunflowers.

TABLE 3-1 AGRICULTURAL OUTLEASE ACREAGES AT KSAAP					
	Prevalent Use	Leased Acres		Prevalent Use	Leased Acres
Tract 1	Farming	60	Tract 20	Farming	94
Tract 2	Farming	156	Tract 21	Grazing	355
Tract 3	Farming	139	Tract 22	Grazing	332
Tract 4	Grazing/Hay	797	Tract 23	Grazing	191
Tract 5	Farming	254	Tract 24	Grazing	651
Tract 6	Grazing	384	Tract 25	Grazing	273
Tract 7	Grazing	286	Tract 26	Grazing	301
Tract 8	Farming	120	Tract 27	Grazing	297
Tract 9	Grazing	160	Tract 28	Grazing	149
Tract 9E	Grazing	63	Tract 29	Hay	209
Tract 9S	Grazing	179	Tract 30	Grazing	177

TABLE 3-1 AGRICULTURAL OUTLEASE ACREAGES AT KSAAP					
	Prevalent Use	Leased Acres		Prevalent Use	Leased Acres
Tract 10	Grazing	433	Tract 31	Grazing	375
Tract 12	Grazing	403	Tract 1500	Grazing	398
Tract 13	Grazing	515	Tract 1600	Grazing	139
Tract 14	Grazing	241	Tract 1700	Grazing	106
Tract 15	Grazing /Farming	255	Tract 1800	Grazing	158
Tract 18	Grazing	167	Tract 1900	Grazing	471
Tract 19	Grazing /Farming	426	<b>Total</b>		9,714

Source: USACE 2005a

### 3.3.4 Range Operations

There are six ranges listed on the Active/Inactive Range Inventory (**Figure E-25**) (AMC 2002). During the ECP Workshop completed July 2005, a representative from the U.S. Army Technical Center for Explosive Safety (USATCES) conducted a site tour of the six ranges and an HRR was conducted to further review information previously documented (TechLaw 2006). All ranges were visually inspected as part of the 2006 ECP VSI. The information below has been extracted from the Final HRR completed in February 2006. **Table 3-2** provides a list of KSAAP Ranges.

TABLE 3-2 LIST OF KSAAP RANGES	
Name of Range/Location	Size of Land Range (Acres)
Light Maneuver Range (suspect, see <b>Section 3.3.4.1</b> )	73.84
Pistol Range	0.5
SFW Research, Design, Testing and Evaluation (RDT&E) Range	0.64
CEM RDT&E Range	29.93
M42/46/77 Grenade Range	38.11
Open Demolition Grounds	35.87

#### 3.3.4.1 Light Maneuver Range

The Light Maneuver Range was identified in the Range Inventory as an operational range located in the south central portion of KSAAP comprising approximately 73.84 acres (**Figure E-26**). The HRR indicated this range was a small arms range reportedly used by the National Guard, but weapons were never used at this site. The National Guard conducted

exercises in this area to train soldiers on water treatment/purification. KSAAP did not allow any live firing, and although the soldiers carried their weapons during the exercises, the bolts had been removed. Based on information provided by KSAAP, TechLaw staff contacted the David A. Brenner U.S. Army Reserve Training Center and Branch Maintenance Activity #38 in Parsons, Kansas, and spoke with the training division. The training division was unable to confirm that no munitions were used during training activities at KSAAP. They noted that the U.S. Army Reserves has a high turnover rate (approximately every 3 to 5 years) and that any personnel that would be able to confirm this statement are no longer stationed in Parsons. Additionally, TechLaw staff contacted the State Area Command for the Kansas Army National Guard, as well as the Cherryvale Armory, which is located approximately 15 miles west of Parsons, and the Coffeyville Armory, which is located approximately 30 miles southwest of Parsons. Information obtained from the Coffeyville Armory indicated that the unit has not conducted training activities at KSAAP. Additional information was not provided as part of the updated HRR dated February 2006.

Based on the HRR site visit to KSAAP, a portion of the area designated as the Light Maneuver Range represented a former construction waste landfill site designed as Installation Restoration Program (IRP) Site KAAP-02, (SWMU-13) Closed Landfill Construction Waste. See **Section 4.2.1.2** for further information.

Based on the information available regarding the Light Maneuver Range, it does not appear that any munitions were used at the site. The Environmental Specialist at KSAAP stated that there are no known plans to use this site for any training activities in the future. Although the training that occurred at this site meets the definition of a military range, no munitions were ever used during the training. Therefore, the area should not have been defined as an operational range and it is recommended that its status should be changed to other than operational range area.

#### **3.3.4.2** *Pistol Range, Facility*

The Pistol Range was identified in the Range Inventory as an operational range area comprising approximately 0.5 acres of land (**Figure E-27**). In the 2006 IAP (USAEC 2006), the range was identified as U.S. Army Environmental Database-Restoration (AEDBR) Number KAAP-040. The range is still operational and is located in the northwestern portion of KSAAP, approximately 800 feet south of Road 2 and 660 feet west of Road D, and approximately 0.25 miles south of the 200 Area. Munitions and explosives of concern (MEC) and MC probably would not be found beyond the actual Pistol Range boundary, because the area was used as a practice range, but only by security personnel for annual qualifying.

According to the 2006 Installation Action Plan (IAP) (USAEC 2006), the range is used for training and certification of KSAAP security personnel in the handling of firearms, as required by regulations. The Pistol Range was constructed in 1968 and consists of a covered shooting area, seven wooden target posts, and an earthen barricade or berm. The firing line and the earthen berm can be identified on a 2002 aerial photograph. According to an August 1998 EBS Report, this range contains projectiles from the ammunition used during training. (AE 1998) Although the types of projectiles were not identified during the research for this report, based on the size of the range and its use, it is assumed that .22 caliber, .38 caliber, .45 caliber, and 9 mm

ammunition were used at the range. During the June 2006 ECP site visit, several empty boxes of 9 mm shells were observed in a trashcan and on the ground.

According to the 2006 IAP (USAEC 2006), an RFA was completed at the Pistol Range in 1996. Next, the range was included in the Phase II RCRA Facility Investigation (RFI) completed in June 1998. The Phase II RFI indicated that surface water from the Pistol Range flows into a tributary that discharges into Labette Creek, approximately 2.5 miles south of the site. Research conducted during the Phase II RFI was designed to determine if lead was present in the stream sediments located adjacent to the Pistol Range. A total of three stream sediment samples were collected and analyzed from the stream located to the west of the Pistol Range; however, the actual Pistol Range was not evaluated during the Phase II RFI. The Phase II RFI detected low levels of lead in the three sediment samples; however, none exceeded the screening criteria. The Phase II RFI concluded that lead did not appear to have migrated from the Pistol Range into the adjacent stream. According to the EBS completed in 1998, a Human Health Baseline Risk Assessment (HHBRA) Report conducted for the Pistol Range recommended the collection of subsurface soil samples to see if lead was detected at concentrations greater than the background levels. If detected above background levels, the HHBRA Report recommended that sampling of groundwater beneath the site be considered as well as a re-evaluation of site risks (AE 1998). However, no documentation was found during the HRR regarding the status or results of lead testing in subsurface soil at the Pistol Range.

#### 3.3.4.3 SFW RDT&E Range

The SFW RDT&E Range was identified in the Range Inventory (AMC 2002) as an operational range comprising of approximately 0.6 acres (**Figure E-28**). This range was also identified as a 200-foot test range where SFW warhead testing is conducted at a static metal frame test fixture. The range is located within the 2700 Area at KSAAP, north of the Open Demolition Grounds (OD Grounds). The SFW RDT&E Range is also referred to as the 2700 Area Test Range. Based on review of aerial photography from 2002 and a July 2, 1975 map of the 2700 Area, it appears that the SFW RDT&E Range should be expanded beyond the area depicted during the Phase 2 Range Inventory (AMC 2002). Expanding the site would encompass all scarring visible on the aerial photographs and the known location of the testing facility. The revised boundary of the range based on the HRR recommendation is shown on **Figure E-28**.

An undated list of buildings in the 2700 Area indicates that Building 2706 was used for “Test Area F/ACM Warhead.” The building was constructed in 1981. A handwritten note indicates this area is referred to as the SFW site. According to a handwritten list dated November 27, 2001, the items tested at the 2700 Test Range included BLU 108 SFW submunitions, BLU 97 CEM submunitions, Explosive Standoff Minefield Breacher (ESMB) submunitions, Anti-Personnel Obstacle Breaching System (APOBS) submunitions, and Bunker Defeat Munitions (BDM). Currently, explosives used at test sites do not exceed 50 pounds per test. It is not known if this limit was used in KSAAP’s past operations as well (KSAAP EPS 2005). However, a September 30, 1983 memorandum regarding the Phase II Hazardous Waste Management Special Study of the OB/OD Area at KSAAP indicated that the OD Area was used to detonate up to 50 pounds of explosives.

The area surrounding the SFW RDT&E Range is swept once per year for unexploded ordnance (UXO) items and controlled burns are conducted in the area to remove vegetation (KSAAP EPS 2006, DZI MWA 2006). Security personnel have found debris outside of the range's kick-out area; however, it is not known if the items were from the test range or from the OD Grounds. One partial round that was found in a tree was treated as UXO by the Security Office, but the item turned out to be only scrap.

#### *3.3.4.4 Combined Effects Munitions RDT&E Range*

The CEM RDT&E Range was identified in the Range Inventory as an operational range comprising approximately 30 acres (**Figure E-29**). This site was identified as a test site within the 2000 Area at KSAAP, northeast of the M42/46/77 Grenade Range. In addition to CEM testing, sectioning of 60 mm, 81 mm, and 155 mm M795 trinitrotoluene (TNT) projectiles reportedly occurred at this test site in order to determine cast quality and base separation. The CEM RDT&E Range is also referred to as the 2005 Test Range. Based on the information collected for the HRR regarding the types of activities conducted at the CEM RDT&E Range, it is not anticipated that MEC or MC would extend beyond the fenced area surrounding the testing facility.

A handwritten note dated November 27, 2001 indicates items tested at the 2005 test range included BLU97 CEM submunitions, MK118 Rockeye submunitions, an M141 Shoulder Launched Multipurpose Assault Weapon – Disposal (SMAW-D), BDM, M72 Light Antitank Weapons (LAW), and reactivity tests. Buildings in the area include an observation shelter, a penetration test barricade, the test area, and various storage facilities. These buildings were constructed between 1976 and 1987.

#### *3.3.4.5 M42/46/77 Grenade Range*

The M42/46/77 Grenade Range was identified in the Range Inventory as an operational range comprising of approximately 16 acres (**Figure E-19**). This range is located within the 2000 Area at KSAAP. A fence encompasses a smaller area which appears to be the area where the actual testing activities are conducted at the range.

Submunitions penetration tests and spin-arming tests are conducted at this range. A handwritten list dated November 11, 2001 indicates items tested at the 2000 Test Range included M42 Grenades, M46 Grenades, M77 Grenades, M85 Grenades, M80 Grenades, Linear Shaped Charges (LSC) for Rockeye, LSC for CEM, BLU97 CEM submunitions, and ESMB submunitions. The EBS indicated that the 2000 Area is a quality assurance testing facility for the M42 and M46 grenades and fuzes. Testing is conducted in this area on a regular basis during the production of these grenades. According to the EBS, this area consists of two areas. The western portion of this area was constructed in 1976 and the eastern portion in 1986. Buildings in this area include control structures, a penetration test barricade, and storage structures, all of which were constructed between 1976 and 1987. Extensive scarring was visible in the western portion of this range during the HRR site visit.

Quality assurance testing of the M42 and M46 grenades and fuzes is conducted within this area and consists of a grenade reliability test or a “penetration test” and a fuze function test or a “flight test” (Aguirre). According to the EBS, the penetration tests involve the detonation of six grenades simultaneously. The EBS indicated that on numerous occasions, one of the six grenades did not detonate and was projected into the surrounding area by the force of the explosion from the other five grenades. Those grenades were only sometimes recovered. The EBS indicated that the grenade reliability tests are performed on a regular basis in the 2000 Area, and the area has been active as of the 1998 EBS.

According to a January 30, 1996 standard operating procedure for the M42/46/77 Grenade Range, personnel clear this range of misfires and failed flight test samples are retrieved. This range was not visited during the HRR site visit in October 2005 because testing operations were occurring and access to the area was restricted by a gate crossing the entrance road. The range was visited as part of the 2006 ECP site visit. Conditions observed at the range during the 2006 ECP VSI were similar to those previously identified during the 1998 EBS and 2006 HRR.

#### ***3.3.4.6 Open Demolition Grounds***

The OD Grounds were identified in the Range Inventory as an operational range. The OD Grounds are located in the east central portion of KSAAP, south of Road 3, and within the 2700 Area. The OD Grounds are located on the western half of the 2700 Area and are accessed from Road F, south of Road 3 (**Figure E-22**).

The OD Grounds comprise of an area approximately 36 acres in size and began use in 1942 for the detonation of rejected and loaded explosive items. At present the demolition grounds are used occasionally.

Early documentation of the OD Grounds includes a December 5, 1947 memorandum that discussed the demolition of rejected materials at KSAAP. According to the memorandum, the boundaries of the “demolition areas” were outlined with signs. It also indicated when demolition was in progress, road blocks were placed across the access roads to this area and a red flag was displayed from a pole near the demolition pits to serve as warning of demolition in progress.

Activities at the OD Grounds were evident in aerial photography from 1956. In a October 11, 1985 Disposal Activities document, items listed for disposal at the OD Grounds included M42/M46/XM77-loaded grenade bodies, dry sumpage, lead azide, tetracene, and other explosive items that could not be run through the EWI, which was located near the Open Burning Pads.

According to the Part B Permit application, the OD Grounds consist of linear earthen mounds aligned in three east-west oriented rows separated by aisles approximately 250 feet wide. The grounds are enclosed by a 6-foot chain link fence and warning signs for restricted entry are posted at all entrance locations. The OD Grounds can be seen in a 1956 aerial photograph of the area and approximately 19 U-shaped features can be seen in the area. There is also a significant change in the features of the OD Grounds from the 1956 aerial photograph to the 2000 aerial photograph.

The RCRA Permit application describes how wastes are treated at the OD Grounds and indicates that the wastes are placed in pits excavated on the south side of the earthen mounds. After the wastes are placed in the pits, they are covered with dirt and detonated. The detonations are triggered via an electrical train by a remote operator located in an earthen-protected bunker. All scrap metal and other visible residues are removed after the detonation is completed, and the pits are backfilled and graded to the natural ground elevation. Based on a February 10, 2000 Standing Operation Procedure, DZI has a requirement to annually conduct range cleanup procedures at the demolition area at KSAAP. According to the document, the cleanup includes a sweep of 100 percent of the fenced-in area and up to 200 yards outside the fence. The distance may be increased or reduced depending upon the concentration of ordnance found. The document also indicates that the range sweep is to be conducted immediately following the burning of the undergrowth by the Fire Department.

Based on a January 2004 Draft Human Health Ecological Risk Assessment for the OB/OD units at KSAAP, there are as many as 20 OD pits in this area. According to the risk assessment report, each OD pit is 44 feet by 44 feet, and surrounded by a six foot earthen berm. An undated form summarizing the OD site at KSAAP states that the OD range consists of 20 sites approximately 150 feet apart. Aboveground detonation is not allowed and each site contains a four-foot hole that is covered with a minimum of two feet of earth placed on top of the explosives. The OD range is available for use approximately 200 days per year. The September 30, 1983 memorandum regarding the Phase 2 Hazardous Waste Management Special Study of the OB/OD Area at KSAAP also indicated that the OD Area was used to detonate up to 50 pounds of explosives per site. This area also consists of Igloos 2707, 2708, and 2709. According to a January 10, 1985 RCRA Part B Permit Application for KSAAP, these igloos were used to store items treated at the OB/OD Grounds. An additional igloo, Igloo A019, is located in this area and is used to store items to be treated at the open burning grounds and the EWI.

According to the 2005 IAP, a preliminary assessment (PA) has been completed for the 2700 Area. In 1989, an RFA was completed and Phase I and Phase II RFIs were completed in August 1994 and June 1998, respectively. A total of 15 subsurface soil samples, 11 surface soil samples, and 7 groundwater samples were collected at the site as part of the Phase I RFI. Results of the analysis found volatile organic compounds (VOCs) and lead in the groundwater samples above regulatory limits. The Phase II RFI activities included the collection of 15 subsurface samples, 9 surface soil samples, 4 sediment samples, and 6 groundwater samples. Copper and cadmium were detected above the background levels in subsurface soil samples, but were below the screening criteria. Copper and cadmium were also identified above background levels in the sediment samples; however all results were below the screening criteria.

Groundwater samples contained concentrations of aluminum, cobalt, copper, or selenium in concentrations above the background levels but below the maximum contaminant level (MCL). The detection of lead in the groundwater, observed during the Phase I RFI, was not confirmed during the Phase II RFI and may have been a result of the sampling techniques used during the Phase I RFI (LEES 1997). Based on the data collected for the Phase II RFI, it was concluded that migration of constituents from the site did not appear to be occurring (TechLaw 2006). In May 2002 a data gap study of groundwater for VOCs and explosives was conducted at the

OD Grounds. Nothing was found above regulatory limits; however, according to the 2005 IAP, the sampling locations were different from those taken during the RFIs.

### **3.4 UTILITIES (HISTORIC AND CURRENT)**

#### **3.4.1 Water Systems**

Drinking water is supplied to KSAAP by a Water Filtration Plant located on the banks of the Neosho River approximately two miles east of KSAAP. Water is impounded by a concrete dam and treated at the Water Filtration Plant. The Water Filtration Plant is referred to as the 2100 Area and is owned and operated by KSAAP. The 2100 Area is comprised of two buildings. Building 2106 is the filtering facility and contains the treatment operations, a laboratory, and an office. Sludge from the filter bed of the Water Filtration Plant is transported by truck and is dumped into two ponds along 2 Road, south of 1700 Area. These sludge-drying beds were specifically constructed for this purpose in 1977 and were designed to meet USEPA's criteria for suspended solids. Building 2106-A pumps the water from KSAAP Neosho Dam. There is also a 1,000,000 gallon storage reservoir for potable water. The plant is able to treat 1,000,000 gallons of water per day. However, it only treats a fraction of that due to the decreased activity at KSAAP. Several residents, a school, and Westar Energy receive potable water from the KSAAP water system (ATK 1989).

#### **3.4.2 Industrial and Sanitary Sewers and Treatment Plants**

Sanitary wastes are treated by KSAAP Sanitary Wastewater Treatment System (SWMUs-86 through 97). The Treatment System has a capacity of 1,000,000 gallons and is located in the southwest portion of KSAAP. KSAAP manages wastewater discharge under a National Pollutant Discharge Elimination System (NPDES) permit. There are currently seven outfalls authorized by the NPDES permit. Further details of the NPDES permit are provided in **Section 4.1.4**.

The wastewater collection system consists of 6- to 12-inch diameter cast iron sewer lines (SWMU-86), which run from the Administrative Area, southward through the center of KSAAP. These sewer lines tie into all the production areas before entering the Treatment System. Wastewater enters the Treatment System at the Grit Chamber (SWMU-87) where large solids are removed. Grit Chamber effluent is discharged into two rectangular Primary Settling Tanks (SWMUs-88 and 89), a Dosing Tank (SWMU-90), two circular rock-media Trickling Filters (SWMUs-91 and 92), a rectangular Secondary Settling Tank (SWMU-93), a rectangular Final Clarifier (SWMU-94), an Anaerobic Sludge Digester (SWMU-95), and two Sludge Drying Beds (SWMUs-96 and 97). Wastewater flows by gravity through this system. Sludges are pumped from the Grit Chamber, Primary Settling Tanks, and Secondary Settling Tanks to the Anaerobic Digester. Sludge from the Anaerobic Digester is allowed to dry in the Drying Beds before it is disposed to the current Industrial Landfill Area 4 (SWMU-146). Drain pipes are located at the bottom of the Sludge Drying Beds to capture most of the water to return it to the Treatment System. The treated wastewater is discharged through NPDES Outfall 004 to a drainage ditch tributary to Labette Creek. In 2001 KSAAP installed an ultraviolet (UV) system at the Sewage Treatment Plant to complete treatment of the wastewater for fecal coliform to comply with new

NPDES standards. The NPDES standards are Kansas statutes annotated 65-164 and 65-165, and the Federal Water Pollution Control Act as amended.

**Table 3-3** provides capacities of the industrial wastewater treatment system. The stormwater outfall is not listed on this table.

<b>TABLE 3-3 WASTEWATER TREATMENT SYSTEM</b>				
<b>Name (System Identifier)</b>	<b>Peak Monthly Outflow/Treated Million Gallons per Month</b>	<b>Maximum Peak Daily Outflow/Treated Million Gallons per Day</b>	<b>Permitted Daily Treatment/System Capacity Million Gallons</b>	<b>Maximum Daily Treatment / System Capacity (Design) Million Gallons per Day</b>
Outfall 003 (300 Area Production Line)	0.04541	0.0137	0.0073	0.0288
Outfall 007 (700 Area Production Line)	0.004	0.004	0.0024	0.0072
Outfall 009 (900 Area production Line)	0	0	0.0096	0.0288
Outfall 010 (1000 Area Production Line)	0	0	0.0096	0.0288
Outfall 011 (1100 Area Production Line)	0.098982	0.043601	0.0288	0.0864
Outfall 004 (Sewage Treatment Plant)	8.074	0.86	0.92	1

**3.4.3 Stormwater System**

An organized storm sewer system is not present at KSAAP and stormwater is managed by surface runoff and infiltration. A single stormwater drain is located on the southern side of the 200 Area near the fueling area. This stormwater drain is connected to a nearby oil/water separator (OWS) and Outfall 002.

KSAAP is constructed on a ridge running in a north-south direction. Drainage to the east flows into the Neosho River. Drainage to the west flows into the Labette Creek. With the exception of the drainage course leading from the 1300 Area, surface water flows through ponds, which vary from less than 1 to 10 acres in size, prior to leaving KSAAP property. The terrain is rolling and well-sodded with prairie grass or seeded with cool season grasses. Surface water runoff is over grasslands; erosion problems are negligible. There are no perennial channels within the KSAAP area. Some drainage courses could be classified as wet-weather ditches since they are dry a portion of the year. The drainage areas range from 250 acres to two square miles and, in general, the slope ranges from 0.5 percent to 1.0 percent (RC 1994a).

## 3.4.4 Electrical System

Electrical power is supplied by Weststar Energy. The following table describes the electrical system output potential. **Table 3-4** summarizes the KSAAP electrical power system.

TABLE 3-4 KSAAP ELECTRICAL POWER SYSTEM		
Utility	Electrical Supply (Kilowatts [kW])	Steam British Thermal Unit
On-Plant Daily Capacity	0	539398000
Off-Plant Daily Capacity	1982	0
Normal Steady State Daily Load	1720	475000000
Peak Daily Demand for Fiscal Year (FY) 03	1982	539398000
Peak Daily Demand for FY00 to FY03	1782	500935

Based on information provided by KSAAP at the July 2005 ECP Workshop, KSAAP maintains 17 emergency generators, each with a day tank, at 17 fixed locations as listed below in **Table 3-5** (USAEC 2006).

TABLE 3-5 KSAAP EMERGENCY GENERATORS	
Emergency Generator Location Building No.	Capacity (kW)
52	30
101	250
107	160
112	25
202	15
314	75
315	150
511	15
750	125
902	75
1002	75
1006	75
1105W	25
1105E	60
1109	100
1123	100
2106	45

### 3.5 ENVIRONMENTAL SETTING – NATURAL AND PHYSICAL ENVIRONMENT

The following sections summarize the environmental setting at KSAAP including climate, topography, surface water hydrology, geology, hydrogeology, and demographics.

#### 3.5.1 Climate

The KSAAP area is characterized by wide variations in temperature with intermittent and alternate periods of excessive rainfall and drought. Temperatures average 79 degrees Fahrenheit (°F) during the summer and 27°F in winter. Extreme temperatures of 115°F and -17°F have been reported, but temperatures above 100°F or below 0°F are infrequent. The average precipitation is about 42 inches a year and this may vary from 27 to 62 inches. About one-quarter of the precipitation is snowfall, or it is present in some other frozen form such as sleet (AE 1998). The average seasonal snowfall is 11.7 inches. Monthly weather parameters collected by the National Oceanic and Atmospheric Administration's National Weather Service for Parsons, Kansas are shown in **Table 3-6**.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Avg. High</b>	40°F	47°F	57°F	67°F	76°F	85°F	91°F	90°F	81°F	71°F	56°F	44°F
<b>Avg. Low</b>	20°F	26°F	35°F	44°F	54°F	63°F	68°F	66°F	58°F	46°F	35°F	25°F
<b>Mean</b>	30°F	37°F	46°F	56°F	65°F	74°F	80°F	78°F	70°F	58°F	45°F	35°F
<b>Avg. Precip.</b>	1.37 in	1.78 in	3.37 in	3.82 in	5.39 in	4.82 in	3.83 in	3.42 in	4.93 in	4.04 in	3.29 in	2.03 in
<b>Record High</b>	77°F 1950	85°F 1962	92°F 1986	98°F 1972	95°F 1953	104°F 1980	115°F 1954	110°F 1956	105°F 1954	97°F 1963	83°F 1966	77°F 1966
<b>Record Low</b>	-17°F 1984	-16°F 1979	-2°F 1980	18°F 1996	31°F 1976	44°F 1983	49°F 1972	47°F 1988	28°F 1984	17°F 1993	6°F 1976	-17°F 1989

Winds are generally from the south and southwest in the spring and summer, and their average speed is about 11 miles per hour. The area falls within the tornado belt, and KSAAP has been damaged by tornadoes on numerous occasions (AE 1998).

#### 3.5.2 Topography

The surface topography at KSAAP varies from being relatively flat in the north to gently rolling in the south. The ground surface elevation ranges from 950 feet above mean sea level (msl) in the northwest near the Administration Area to 840 feet above msl near the western boundary. Except for locally steep slopes adjacent to drainages, the ground surface slopes throughout most

of the KSAAP range from 0.5 to 1.0 percent (AE 1998). A topographic map of KSAAP is included as **Figure E-31**.

### 3.5.3 Surface Water Hydrology

A well-developed surface water drainage system is present at KSAAP as shown on **Figure E-32**. KSAAP is bisected by a major drainage divide that trends northwest to southeast. This divide extends from the Administration Area near the northern boundary to the east of the 1900 Area near the southeast boundary. In the northeastern part of KSAAP, surface water drains east to the Neosho River, which is located about two miles east of KSAAP. In the southwestern portion of KSAAP, surface water drains westward to Labette Creek, which is located immediately west of KSAAP and coincides with the KSAAP boundary in the vicinity of the Sewage Treatment Plant. Labette Creek and the Neosho River both flow in a southerly direction and join about 15 miles south of KSAAP at the town of Chetopa (AE 1998).

There are 104 ponds on KSAAP property. All the ponds are man-made and range in size from 10 acres to less than 1 acre, but average 2 acres (KSAAP NRM 2006). Three of the ponds are in abandoned quarries, fifteen are associated with KSAAP processes (later referred to as oxidation ponds), and the remainder are located in the agricultural and woodland areas. KSAAP has 40 stocked and numbered fishing ponds with open fishing (KSAAP NRM 2006). Many of the oxidation ponds were constructed within natural surface runoff drainages with the intent to allow natural flushing of the ponds to oxidize contamination. Three ponds at KSAAP are not part of the natural drainage pattern. These include two Water Treatment Plant Sludge Lagoons (SWMUs-121 and 122), south of the 1700 Area, and the Evaporation Pond for the 300 Area (AE 1998).

Construction of reservoirs on the upper Neosho River during the 1950s has greatly reduced flooding. However, occasional flooding occurs for periods of up to four or five days. Approximately 200 acres are occasionally flooded for up to 24 hours during periods of heavy rainfall. Areas included in the 100-year floodplain are shown on **Figure E-33**. This flooding does not affect production or storage areas (RC 1994a).

### 3.5.4 Geology

KSAAP is situated within the southeastern part of the Osage Cuesta Division of the Central Lowland Physiographic Province. The region is characterized by low-relief, rolling prairie typical of eastern Kansas, interrupted intermittently by east-facing escarpments of limestone beds with relatively weaker beds of shale. (URS 2005)

The surficial geology at KSAAP consists of Pleistocene terrace alluvium (mainly clays), Holocene floodplain deposits (clays, sands, and gravels), and residuum from weathered bedrock. The alluvial deposits occur along major streams such as Labette Creek and the Neosho River and occur on the extreme east and west borders of KSAAP. Between the streams, the upland soils consist of residual silts and clays, derived from the weathering of underlying shales and limestones, and occur in the central portion of KSAAP. Pleistocene-age loess is also present in the upland areas. (URS 2005)

A series of silt loam and clay soils has been described by the U.S. Department of Agriculture Soil Conservation Service within KSAAP and can be grouped into the following five parent materials (AE 1998):

- Limestone bedrock residuum
- Sandstone and sandy shale residuum
- Shale residuum
- Pleistocene Age (or older) alluvium
- Recent alluvium

Specific soil series found at KSAAP that are derived from limestone bedrock residuum include Apperson silty clay loam, Caloosa silt loam, and Shider-Caloosa silt loams (**Figure E-34**). The Bates loam series is the only soil identified on KSAAP that is derived from sandstone and sandy shale residuum. Shale residuum-derived soils found on site include Dennis silt loam, Eram silty clay loam, and Zaar silty clay. Soils derived from the older alluvial deposits include Olpe-Dennis silt loams and Parsons silt loam. Finally, recent alluvial soil series found at KSAAP include Lanton silt loam, Osage silty clay, and Verdigris silt loam (AE 1998).

Bedrock units underlying KSAAP are of the Pennsylvanian-age Marmaton-group, which include (from oldest to youngest) the Fort Scott Limestone, Labette Shale, Pawnee Limestone, and the Bandera Shale formations. The Fort Scott Limestone consists of fossiliferous limestone, coal, carbonaceous shale, and non-fossiliferous limestone. The Labette Shale consists of a moderately dark gray clayey shale. Interbedded limestone and shale characterize the Pawnee Limestone. The Bandera Shale occurs at KSAAP as a series of interbedded sandstone, siltstone, and sandy shale (AE 1998). In general, limestone bedrock is present within 5 to 10 feet of the ground surface.

The Cherokee Group underlies the Marmaton Group and ranges in thickness from about 395 to 560 feet. The Cabaniss Formation is the first unit underlying the Marmaton Group. The shale and interbedded sandstone lenses of the Cherokee Group thicken toward the southwest in Labette County.

### 3.5.5 Hydrogeology

Groundwater at KSAAP is present in unconsolidated alluvial and floodplain deposits and in bedrock. Regionally, the alluvial aquifers generally offer the best potential for a potable and industrial water supply in Labette County. Groundwater in the unconsolidated aquifer is recharged by direct infiltration of rainfall and spring run-off, emanating from the consolidated rock bounding the valleys, and by infiltration of waters during flooding (URS 2005).

Potable water for local rural water districts is taken from these units near the Neosho River about 5 miles east of KSAAP. The bedrock aquifers do not generally yield sufficient quantities of water to make them viable water sources. The water tends to be hard and contains excessive amounts of chloride, nitrate, and hydrogen sulfide (AE 1998).

The most aerially extensive unconsolidated aquifer in Labette County is the Neosho River alluvium. It is about 35 feet thick, and wells constructed in it range from 10 to 20 feet deep. These deposits have an average long-term yield of about 50 gallons per minute (gpm), but may produce up to 100 gpm. The bedrock is the primary aquifer throughout much of KSAAP due to the impermeable nature of the fine-textured soils in the area. Groundwater flow velocities are highly variable and typically highest along joints and bedding planes within the bedrock. (RC 1994b)

Water table depths vary from 1 to 20 feet below the ground surface throughout KSAAP. The water table is generally deeper in upland areas, and it is generally shallower in small stream valleys and along Labette Creek and the Neosho River. Artesian conditions were reported for monitoring wells near the active landfill in the eastern part of KSAAP. Based on groundwater levels measured at KSAAP, the following conclusions have been drawn (AE 1998):

- A north-south trending groundwater divide subdivides the facility into two groundwater flow systems. In the north part of KSAAP, this groundwater divide roughly coincides with the surface water divide that separates the Labette Creek and Neosho River watersheds. More detailed localized groundwater flow is available in individual SWMU group RFI reports.
- West of the divide, groundwater flows west-southwest toward discharge areas along Labette Creek.
- East of the divide, groundwater flows generally east toward discharge areas along Neosho River. In the vicinity of the 900 and 1000 Areas, the groundwater flow direction has an east-northeast orientation.
- South of the 1100 Area, groundwater flows south toward discharge areas near the quarries on Road 5. A major tributary of Labette Creek is located in this area (AE 1998).

Local use of groundwater aquifers is limited. Farms and residences located within a one-mile radius of KSAAP receive potable water from rural water districts or from KSAAP. Surface-water reservoirs located at least 7 miles north and west of KSAAP are also sources of water for rural water districts. KSAAP obtains potable water from the Neosho River. A water filtration plant is owned and operated by KSAAP; it is located on the banks of the Neosho River approximately 2 miles east of KSAAP (AE 1998).

### 3.5.6 Demography and Land Use

KSAAP is situated in a sparsely populated area of southeastern Kansas. The town of Parsons, Kansas, located approximately 2 miles northwest of KSAAP, was founded in 1870. It has a population of 11,514 and covers 10.36 square miles according to the 2000 Census. Other nearby communities include Montana, Altamont, Oswego, Labette, Sherman, and Strauss. Montana is located on the eastern edge of KSAAP and was founded around 1857. Altamont is located 6.5 miles southwest of KSAAP, was founded in 1875, has a population of 1,092, and covers 1.61 square miles according to the 2000 Census. Oswego is located 5.5 miles to the southeast of KSAAP, was founded in 1866, has a population of 2,046, and covers 2.14 square miles according to the 2000 Census. Labette is located 2.5 miles to the south of KSAAP, was founded in 1857, has a population of 68, and covers 0.22 square miles according to the 2000 Census.

Sherman is located on the eastern edge of Montana. Strauss is located 3.0 miles to the northeast of KSAAP and was founded around 1870.

Larger cities in proximity to KSAAP include Pittsburg, Kansas and Joplin, Missouri. Pittsburg is located 30 miles east of KSAAP, was founded in 1876, has a population of 19,243, and covers 12.51 square miles according to the 2000 Census. Joplin is located 38 miles east-southeast of KSAAP, was founded in 1873, has a population of 45,504, and covers 31.50 square miles according to the 2000 Census.

KSAAP is bound on all sides by private property consisting of agricultural land and pasture. Scattered farmhouses are found within one mile of the property. The work force of KSAAP ranges from 200 to 300 people depending on production requirements. There are no full time residents at KSAAP, but there are some residents on the surrounding farms (AE 1998).

Most of KSAAP has undeveloped rural areas, comprised primarily of buffer areas surrounding storage and production areas. Unimproved and other areas (lakes, roads, buildings, land not available for development, etc.) account for most of KSAAP's land. KSAAP is an industrial complex with nine production areas, six storage areas (242 igloos-magazines), two test areas, a demilitarization operation area, and a maintenance area. The KSAAP mission determines land use patterns in the vicinity of production and storage areas on KSAAP. Outlying lands are used for a variety of purposes including agriculture, wildlife habitat, and forest land. **Table 3-7** shows primary land uses and acreage. An individual tract of land may have hay, crop production, and grazing in addition to wildlife habitat, protected riparian corridors, and production infrastructure. KSAAP vegetation coverage and land uses are highly variable, and uses overlap one another.

TABLE 3-7 KSAAP PRIMARY LAND USES	
Primary Land Use	Acreage
Production Lines	950
Storage Areas (spring grazing)	1,247
Cropland	938
Grazing*	7,846
Native Grass or Fescue Hay	822
Wildlife Habitat	2,257
Ponds	123

\* Includes year-round rotational, year-round continuous, summer, and winter grazing areas; areas may overlap.  
Source: (KSAAP 2005)

## 3.6 BIOLOGICAL AND CULTURAL RESOURCES SUMMARY

### 3.6.1 Biological Resources

KSAAP has a current Integrated Natural Resources Management Plan (INRMP) in place (KSAAP 2005). Areas on KSAAP listed in the KSAAP INRMP include the following:

### **3.6.1.1**    *Labette Creek Corridor*

Labette Creek is a perennial stream that drains into the Neosho River about 30 miles south of KSAAP. The corridor consists mostly of timber with a few fragments of native tallgrass prairie and go-back land (prairie reintroduction area). Timber immediately adjacent to Labette Creek is high quality and is considered one of the best examples of an eastern floodplain forest in the state of Kansas. The corridor encompasses the entire riparian area adjacent to the creek as well as associated drainages.

Most of the Labette Creek Corridor is either protected from livestock grazing or not within a grazing lease. Occasional floods may scour the area adjacent to the creek, but this is generally of short duration. In addition to native tallgrass prairie remnants, the corridor is an important neotropical bird migration stopover and breeding area.

### **3.6.1.2**    *Native Prairie*

There are about 40 high-quality and 70 low-quality native prairie areas on KSAAP. Most of the high-quality prairie areas are exempted from grazing or used for hay meadows. Some of the high-quality and many of the low-quality areas are part of a winter grazing management scheme. Winter grazing has proven effective for improving the native prairie species in these areas. Many of the low-quality areas are steadily undergoing a transition to a higher-quality native prairie community. Research recently completed through Kansas State University has documented some of these positive changes.

### **3.6.1.3**    *Flora*

Historical data for Labette County indicate that the natural vegetation in the vicinity of KSAAP was predominantly tall grass prairie, with cross-timbers forest along portions of Labette Creek. In addition, broad floodplains along Labette Creek and the Neosho River supported a variety of wetland vegetation. Historically, upland sites were dominated by tall and medium-tall grasses and supported a rich variety of graminoids and other herbaceous plants. Woody species were scattered or absent. Broadleaf deciduous forests dominated by oaks and hickories occupied the slopes of creek and river valleys, occasionally extending onto the uplands. Floodplains contained a mix of floodplain forests, low prairies, and freshwater marshes.

Detailed information has not been compiled concerning land use changes in Labette County since the 1850s. However, the natural vegetation clearly has undergone dramatic change. Conversion of large areas of native tallgrass prairie probably occurred before the turn of the last century, and many formerly timbered areas probably have been cleared or selectively cut. In addition, suppression of wild fires that formerly kept woody vegetation in check probably has resulted in the establishment of tracts of forests and woodlands in upland areas that formerly were dominated by grassland vegetation. Today, natural areas (i.e., tracts of land unaltered or minimally altered by human activities) exist largely at widely scattered sites surrounded by cropland, urban areas, and roads (KU 1995).

Five major natural community types are present at KSAAP: (1) terrestrial, (2) palustrine, (3) riverine, (4) lacustrine, and (5) successional and other disturbed areas. Two natural terrestrial community types are found at KSAAP: the eastern upland forest and the southeastern tallgrass prairie. However, most occurrences of the eastern upland forest that were observed during the University of Kansas, Kansas Biological Survey (KBS) study were moderately to severely disturbed and/or did not meet the minimum size requirements set by Kansas Natural Heritage Inventory for inclusion in the heritage database (KU 1995). The best occurrences are located along minor tributaries to Labette Creek in the southwestern quarter of KSAAP and along the unnamed tributary to the Neosho River that passes through the east-central part of KSAAP.

Prairie species most likely represented the dominant vegetation at KSAAP when public land surveys were conducted in the mid-1800s. Since then, most of KSAAP has been developed or converted to cool-season pastures, but some high-quality tracts of tallgrass prairie remain. Most of these are used as annually mowed hay meadows. Six southeastern tallgrass prairie element occurrences were mapped by the KBS and added to the Kansas Natural Heritage Inventory database (KU 1995). These six prairies collectively comprise nearly 150 acres and support 13 occurrences of eight state-rare species. Many small tracts (<5 acres) of high quality tallgrass prairie and a few larger tracts of low-quality tallgrass prairie (used mostly as rangeland) occur throughout KSAAP, adding substantially to the total area of native prairie. These prairie areas are extremely important to the overall species and habitat richness of KSAAP (KU 1995).

The only major palustrine (e.g., freshwater marsh) natural community type at KSAAP is the eastern floodplain forest. A 165-acre stand of floodplain forest is located along Labette Creek on the southwestern side of KSAAP (KU 1995). Although the entire forest comprises of approximately 600 acres, the KBS considers the 165 acres to be exemplary in quality. The floodplain forest and other riparian habitats provide habitats for a variety of plants and animals, help maintain water quality and quantity, and contribute to the overall aesthetics of the area.

The riverine natural communities at KSAAP are represented by intermittent streams, a perennial stream, and a perennial river. These surface water bodies provide a diversity of localized wetland habitats. The riverine communities vary in substrate composition, canopy coverage, water depth, and stream flows and provide habitat for a variety of aquatic species.

The lacustrine natural communities at KSAAP are represented by the numerous gamefish ponds. Successional and other disturbed areas at KSAAP include cool-season pastures, old fields, roadside ditches, and forest clearings. These habitats are similar in that these areas have been altered by major ecosystem disturbances, such as human disturbance or manipulation. When allowed to do so, these areas undergo a predictable series of vegetative stages, ultimately forming woodlands.

Large areas on the site are represented by introduced grasses, which contain remnant or colonizing prairie species. Currently, many of these areas are used for the grazing of cattle.

### 3.6.1.4 Fauna

The KBS conducted initial fauna inventories in 1994. However, these surveys were limited to federal- and state-listed species, but casual observations of non-listed species were denoted. KSAAP fauna inventories began in 1996 with a breeding bird survey, a herpetofaunal survey, and fish and mussel surveys of Labette Creek. In 1999 an American burying beetle (*Nicrophorus americanus*) survey, as well as a fish and mussel survey, were performed in the Neosho River below the KSAAP Intake Facility. The American burying beetle was not found during the survey. Specific survey reports are on file in the Natural Resources office.

#### Mammals

Mammals typically found on KSAAP include the white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), eastern fox squirrel (*Sciurus niger*), red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*), beaver (*Castor canadensis*), striped skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*). Thirty-one mammal species have been confirmed on KSAAP.

#### Birds

Breeding bird surveys were conducted annually on KSAAP from 1996 through 1998 and 2002 through 2004. Birds typically found on KSAAP include the wild turkey (*Meleagris gallopavo*), Northern bobwhite quail (*Colinus virginianus*), red-winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), ruby-throated hummingbird (*Archilochus solubris*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), American goldfinch (*Carduelis tristis*), rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), horned lark (*Eremophila alpestris*), red-bellied woodpecker (*Melanerpes carolinus*), European starling (*Sturnus vulgaris*), and American robin (*Turdus migratorius*).

Several species of migratory birds reside on KSAAP, including the Canada goose (*Branta canadensis*), wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), and mourning dove (*Zenaida macroura*). One hundred and eighty-one bird species have been confirmed on KSAAP.

#### Fish

Thirty-seven fish species have been confirmed in KSAAP waters. Fish species commonly found on KSAAP include the yellow and black bullhead (*Ameiurus natalis*, *A. melas*), common carp (*Cyprinus carpio*), channel catfish (*Ictalurus punctatus*), warmouth (*Lepomis gulosus*), green sunfish (*L. cyanellus*), bluegill (*L. macrochirus*), flathead catfish (*Pylodictis olivaris*), largemouth bass (*Micropterus salmoides*), white crappie (*Pomoxis annularis*), and black crappie (*P. negromaeulatus*). Aquatic surveys were conducted in Labette Creek in 1996, 1997, 1998, 1999, and 2002 and in the Neosho River in 1999.

### *Reptiles and Amphibians*

Herpetological surveys were conducted on KSAAP in 1996, 1997, and 2000. Twenty-seven reptile species and nine amphibian species have been confirmed on KSAAP. Reptiles occurring on KSAAP include the snapping turtle (*Chelydra serpentina*), painted turtle (*Chrysemys picta*), rat snake (*Elaphe obsoleta*), common kingsnake (*Lampropeltis getula*), plainbelly water snake (*Nerodia erythrogaster*), brown snake (*Storeria dekayi*), and common garter snake (*Thamnophis sirtalis*). Amphibians occurring on KSAAP include the American toad (*Bufo americanus*), smallmouth salamander (*Ambystoma texanum*), great plains narrowmouth toad (*Gastrophryne olivacea*), western chorus frog (*Pseudacris triseriata*), and bullfrog (*Rana catesbeiana*).

### *Mussels*

Aquatic surveys in Labette Creek in 1996, 1997, 1998, 1999, and 2002 and the Neosho River in 1999 have confirmed the presence of 20 species of mussels. Confirmed species include threeridge (*Amblema plicata*), white heel-splitter (*Lasmigona complanata*), common pond mussel (*Ligumia subrostrata*), pink papershell (*Potamilus ohioensis*), pimpleback (*Quadrula pustulosa*), and pistolgrip (*Tritogonia verrucosa*). Three species on the Kansas Species in Need of Conservation (SINC) list were documented in Labette Creek. They include the yellow sandshell (*Lampsilis teres*), washboard (*Megaloniais nervosa*), and fawnsfoot (*Truncilla donaciformis*).

### *Invertebrates*

A general invertebrate species inventory has not been performed on KSAAP. The exception is the American burying beetle, which is discussed in the following section. However, various invertebrates, such as worms, beetles, and grubs, are common on KSAAP.

#### **3.6.1.5 Protected Species**

Field surveys were conducted in 1994 to determine the status and locations of protected and rare species and outstanding examples of natural communities on KSAAP. Preliminary field assessments were conducted during March to determine the suitability of various habitats for protected and rare species. Currently, no federally listed threatened and endangered species occur on KSAAP, as denoted in the 1994 report by the KBS (KSAAP 2005).

The American burying beetle (*Nicrophorus americanus*) (federally-endangered) was surveyed for in 1994, 1996, and 1999. The last observation of this species in Kansas was in 1940, until a recent discovery in Wilson and Montgomery Counties, west of KSAAP. No American burying beetles have been found on KSAAP; however, the most recent survey revealed a large and diverse carrion beetle community comprising of over 1,200 individuals from 7 distinct species.

The Neosho madtom (*Noturus placidus*) (federally-threatened), a small, mottled dark and light brown fish with dark bars on the tail fin, was documented within 100 meters downstream of the KSAAP-owned dam on the Neosho River in 1999. KSAAP owns and operates a small dam and water intake facility on the Neosho River, east of KSAAP. The Neosho madtom is restricted to

mainstreams of the Neosho and Spring River drainages in southeastern Kansas. It is highly unlikely that this fish occurs for any length of time on U.S. Army-owned property due to the effects of the low water dam (KSAAP 2005).

The bald eagle (*Haliaeetus leucocephalus*) (federally-threatened) was sighted in 1997, 1999, and 2004 passing overhead, but no bald eagles have been documented roosting or nesting on KSAAP (KSAAP 2005).

In terms of state-listed species: ARs require consideration of state-listed species in all U.S. Army actions. The butterfly mussel (*Ellipsaria lineolata*) (state-threatened), was documented at the intake facility on the Neosho River in 1994 and 1999. The species is found in the Neosho, Spring, Fall, and Verdigris Rivers in southeastern Kansas (KSAAP 2005).

There are 15 Kansas special-status plant species and 24 special-status animal species confirmed at KSAAP. These species are shown in **Appendix H**. Other state-listed threatened or endangered species with the low potential to occur on KSAAP include the endangered flat floater mussel (*Anodonata suborbiculata*), the threatened flutedshell mussel (*Lasmigona costata*), the endangered Neosho mucket mussel (*Lampsilis rafinesqueana*), and the endangered rabbitsfoot mussel (*Quadrula cylindrica*). There is potential for all but the rabbitsfoot to occur in Labette Creek. However, surveys have not revealed any specimens. The threatened Ouachita kidneyshell mussel (*Ptychobranhus occidentalis*) is thought to be extirpated in the Neosho River and therefore unlikely to occur on KSAAP. The threatened broadhead skink (*Eumeces laticeps*), the threatened common map turtle (*Graptemys geographica*), threatened Snowy Plover (*Charadrius alexandrinus*), and the threatened Eastern spotted skunk (*Spilogale putorius*) have not been documented but potentially could occur at KSAAP. This information is provided in **Appendix H**.

#### 3.6.1.6 Wetlands

The U.S. Fish and Wildlife Service (USFWS) completed a wetland survey in 1998. There are approximately 212 acres of wetland habitat on KSAAP (**Figure E-35**). More than half of these (137 acres) are permanent aquatic beds from watershed ponds (DZI 1997).

### 3.6.2 Cultural Resources

In 1996, the Fort Worth District, Corps of Engineers, completed a Cultural Resources Management Plan (CRMP), which is on file at the Natural Resources Office. The CRMP was written such that implementation of the CRMP guidelines would meet the legal responsibilities of KSAAP to inventory, identify, evaluate, and preserve historic properties. **Figure E-36** shows the KSAAP cultural resources identified in the 1996 plan.

#### 3.6.2.1 Prehistory and History of the Region

In the remote past, Kansas was covered by seas, and much of its present landscape derives from the rock formations that developed at that time. The area eventually evolved into a plains or prairie region, with forests confined mainly to stream courses. The earliest inhabitants of Kansas were descended from Asian immigrants who entered North America by crossing into Alaska at

least 11,000 years ago. These early groups are known as Paleoindians. Paleoindians used spears tipped with large chipped stone projectile points. Points of this kind have been found in all parts of Kansas, indicating that Paleoindians were no strangers to the area (KSHS 2006).

During the early part of the Archaic, Kansas experienced a continuation of the warming trend that ended the Ice Age. The warming peaked around 7,000 years ago and greatly decreased the availability of big game animals. Indians adapted by shifting to the hunting of small game and increasing their use of plant foods. People became less nomadic, focusing more on local resources. Settlements became more permanent, and populations increased. The period between A.D. 1 and 1,000, the Woodland Period, was marked by great changes in social systems, subsistence practices, and technology. One of the most notable changes involved the widespread making of pottery vessels. Agriculture began with the cultivation of local plants and the introduction of tropical cultigens such as corn. Other notable changes included an emphasis on ceremonial burial and the building of burial mounds, especially in the eastern and northern parts of the state (KSHS 2006).

### *Village Gardiner Period A.D. 1000-1500*

The Protohistoric refers to the period of time shortly before and after the arrival of Europeans in the New World. Sites of this period occasionally yield a few European-derived artifacts, and often contain evidence of trade with the Southwest. Many of the Protohistoric Indians sites in Kansas can be identified with historically known tribes such as the Pawnee, Kansa, Wichita, and Apache. Most of those groups lived by a combination of bison hunting and agriculture, although some groups were much more nomadic than others and less involved in agriculture (KSHS 2006).

In Kansas, the Historic period began in 1541 with the arrival of Coronado and his band of Spanish explorers. The French were next, some 200 years later, entering the state from the east and forming an alliance with the Kansa, or Kaw Indians. The fur trade grew greatly during this period. Americans began arriving in the early 1800s, but settlement did not proceed in force until Kansas was made a territory in 1854. During the preceding 30 years Kansas was officially regarded as "Indian Territory." Various eastern Indian tribes – the Potawatomi, Kickapoo, and others – immigrated to reservations established as a result of the Indian removal policy. Nearly all of those tribes later moved to Oklahoma. Kansas became a state in 1861; Euro-American settlement increased drastically after the Civil War. The Historic period saw the construction of military forts in various parts of Kansas. During the 1870s the cattle business boomed, and the "cowboy era" arrived as railroads were built into the state (KSHS 2006).

### *3.6.2.2 Historic Structures*

In November 1984, the National Park Service (NPS), for the U.S. Army Materiel Development Command (DARCOM), conducted a survey of historical properties on KSAAP. The scope of this survey included documentary background research on the history of KSAAP, a field inventory of all properties on KSAAP, preparation of a combined architectural, historical, and technological overview of KSAAP, and evaluation of the historical properties and development of recommendations for preservation. The survey report concluded that although KSAAP as a

whole possessed limited historical significance as a typical WWII-era facility, the individual buildings did not possess any specific historical, architectural, or industrial significance.

### 3.6.2.3 Archeological Sites

Past actions have included the publication of an Archeological Overview and Management Plan for KSAAP in 1984 (NPS 1984). This report provided a summary of the environmental and cultural history of the site and surrounding area, as well as a context for the interpretation and evaluation of facility cultural resources. The 1984 Plan stated that due to the distribution of known and potential archeological sites at KSAAP, it is very likely that significant prehistoric and historic sites are located in those areas and are not badly disturbed by the construction of military-related structures. The 1984 Plan recommended the development of a preservation plan which would address the management of prehistoric, historic, architectural, and engineering resources on KSAAP and be developed with the cooperation of the Kansas State Preservation Officer and the Advisory Council on Historic Preservation.

Based on the findings of the 1984 Plan, no specific prehistoric or historic sites dating prior to construction at the facility have been identified, although these sites likely exist but have not been identified. Additionally, there are no records indicating that systematic cultural resource surveys oriented towards identifying these types of sites have been conducted. However as reported in the plan, a number of potential sites were identified on historic maps. These sites included two maintained cemeteries and numerous farmsteads. The latter sites, although demolished during KSAAP construction, may still be identifiable archeologically and may yield significant buried cultural materials and data. These sites are identified in **Table 3-8**.

An additional archeological survey is anticipated to begin in the fall of 2006.

Site Number, Name <sup>a</sup>	Reference <sup>b</sup>	Description	Research Value <sup>d</sup>
1	LCSS	Franklin Cemetery	2
2	LCSS	Pleasant Valley School	1
3	LCSS	Woods School	1
4	LCSS	Farmstead	1
5	LCSS	Farmstead	1
6	LCSS	Farmstead	1
7	LCSS	Farmstead	1
8	LCSS	Farmstead	1
9	LCSS	Farmstead	1
10	LCSS	Farmstead	1
11	LCSS	Farmstead	1

<b>TABLE 3-8</b>			
<b>POTENTIALLY IDENTIFIABLE ARCHEOLOGICAL RESOURCES AT KSAAP</b>			
<b>Site Number, Name <sup>a</sup></b>	<b>Reference <sup>b</sup></b>	<b>Description</b>	<b>Research Value<sup>d</sup></b>
12	LCSS	Farmstead	1
13	LCSS	Farmstead	1
14	LCSS	Farmstead	1
15	LCSS	Farmstead	1
16	LCSS	Farmstead	1
17	LCSS	Farmstead	1
18	LCSS	Farmstead	1
19	LCSS	Farmstead	1
20	LCSS	Farmstead	1
21	LCSS	Farmstead	1
22	LCSS	Farmstead	1
23	LCSS	Farmstead	1
24	LCSS	Farmstead	1
25	LCSS	Farmstead	1
26	LCSS	Farmstead	1
27	LCSS	Farmstead	1
28	LCSS	Farmstead	1
29	LCSS	Farmstead	1
30	LCSS	Farmstead	1
31	LCSS	Farmstead	1
32	LCSS	Farmstead	1
33	LCSS	Farmstead	1
34	LCSS	Farmstead	1
35	LCSS	Farmstead	1
36	LCSS	Farmstead	1
37	LCSS	Farmstead	1
38	LCSS	Farmstead	1
39	LCSS	Farmstead	1
40	LCSS	Farmstead	1
41	LCSS	Farmstead	1
42	LCSS	Farmstead	1
43	LCSS	Farmstead	1
44	LCSS	Farmstead	1

TABLE 3-8 POTENTIALLY IDENTIFIABLE ARCHEOLOGICAL RESOURCES AT KSAAP			
Site Number, Name <sup>a</sup>	Reference <sup>b</sup>	Description	Research Value <sup>d</sup>
89	LCSS	Farmstead	1
90	LCSS	Farmstead	1
91	LCSS	Farmstead	1
92	LCSS	Farmstead	1
93	LCSS	Farmstead	1
94	LCSS	Farmstead	1
95	LCSS	Farmstead	1
96	LCSS	Farmstead	1
97	LCSS	Franklin School	1
98	LCSS	Fairview Cemetery	2
99	LCSS	Liberty School	1
100	LCSS	Farmstead	1
101	LCSS	Farmstead	1
102	LCSS	Farmstead	1

Source: Archeological Overview and Management Plan, 1984

a Sites have been given “potential site register numbers” only within the context of this overview and planning effort, and are numbered sequentially across the facility.

b “LCSS” refers to Labette County soil survey, by Knobel, Von Treba, and Higbee (1926).

c Descriptions are taken from a soil survey map by Knobel, Von Treba, and Higbee (1926). Content of “Farmstead” type may vary considerably.

d A Research value of 1 denotes good locational data but severe construction damage; 2 denotes good locational data and good site integrity

### 3.7 SITE MAPS

All supporting maps and figures are provided in **Appendix E** of this ECP. The maps include:

- KSAAP Location
- KSAAP Layout
- Areas of Environmental Contamination (include IRP, MMRP, compliance cleanup [CC], operational range maps, and other areas of known environmental contamination)
- Hazardous Substance and Petroleum Storage Locations
- KSAAP Road and Building Maps
- Major Surface Water Features
- Biological Resources
- Cultural Resources

KSAAP is a non-NPL installation. The status of the various programs and individual sites are described in the following sections.

## 4.1 ENVIRONMENTAL PERMITS AND LICENSES

### 4.1.1 RCRA Status

KSAAP manages hazardous waste in accordance with their USEPA ID number (# KS0213820467). KSAAP is an LGQ generating more than 2,200 pounds of hazardous waste per month and may accumulate more than 13,200 pounds of hazardous waste at any one time.

A Part B permit application was submitted to KDHE in 1985. The RCRA permit became effective on December 7, 1989 and identified twenty-five SWMUs requiring investigation for possible contamination. Areas of investigation include production areas, landfills, open burning cages, open burning pads, open detonation area, and miscellaneous maintenance and support areas. A copy of the RCRA permit is included in **Appendix C**.

The RCRA permit expired on December 7, 1994 and KSAAP had submitted a Part B permit application (ID No. 4799) for renewal earlier that year. However, during the review process KDHE noted the existence of the RCRA Subpart X permit and determined it would be better if KSAAP had only one permit that covered both operations. KSAAP has revised the permit application several times over the years to reflect changes in the current operations. The most recent permit application was submitted in 2004. KSAAP is still awaiting approval from KDHE on the revised RCRA permit application (KSAAP EPS 2006). KSAAP is currently allowed to operate under Interim Status with the original permit. The RCRA permit information is provided below:

**RCRA Permit:**

FFID: KS215220467

State: KS

Permit Id: 4799

Permit #: KS0213820467

Statute: Hazardous Waste/RCRA-C

Agency: STATE

Issuance Date: 12/7/1989, Expiration Date: 12/7/1994

KSAAP also has a RCRA Subpart X permit for the operation of the Open Burn/Open Detonation grounds. This permit also lists all of the hazardous waste codes permitted for storage and treatment at KSAAP. It was originally issued under an interim status in 1991. The RCRA Subpart X permit is included in **Appendix C**. The permit information is provided below:

**RCRA Subpart X Permit:**

FFID: KS215220467

State: KS

Permit Id: 1390

Permit #: Interim Status

Statute: Hazardous Waste/RCRA-C  
Agency: STATE  
Issuance Date: 6/12/1991  
Expiration Date: 1/1/2020

In November 2005, the USEPA provided a Proposed (Draft) Modifications to Part II of the RCRA permit to the public for comment. On May 15, 2006, the USEPA submitted a letter to KSAAP including responses to public comment and the final modification to the hazardous waste permit. The USEPA also provided final cleanup levels for both industrial and residential scenarios, so that KSAAP would have standardized site specific numbers to use for all the Corrective Measures. This letter is included in **Appendix C**. All RCRA Corrective Action Orders are detailed in **Section 4.2.1**.

All hazardous wastes generated at KSAAP are transported off site through Defense Reutilization and Marketing Office (DRMO) or treated at one of the on site treatment facilities. KSAAP is permitted and currently operates the following hazardous waste treatment operations:

#### ***4.1.1.1 Open Burning Area***

Burn Pad 5 (SWMU-108) and Flash Pad 6 (SWMU-109), both located in the 2700 Area, are earthen bermed areas. Reactive waste, off-specification and scrap explosives are treated on Burn Pad 5. Contaminated equipment is treated on Flash Pad 6. The waste materials are burned in metal pans on Burn Pad 5 and on unlined soil on Flash Pad 6. Burn residue from the pads is tested for Extraction Procedure (EP) toxicity and is disposed of through DRMO. Residue from Flash Pad 6 is non-hazardous and is managed as scrap metal. Burn Pads 1-4 (SWMU-11) were used at KSAAP for similar activities until 1984. Metals and explosives were detected in soil samples collected around Burn Pads 1-4 at concentrations that required a removal. Therefore, there is a potential for contamination surrounding Pads 5 and 6 which has not been investigated.

#### ***4.1.1.2 Open Detonation Range***

Off-specification and scrap munitions and components are treated by open detonation at the Open Detonation Range (SWMU-17). Items to be treated are buried in an earthen pit and remotely detonated.

#### ***4.1.1.3 Explosive Waste Incinerator***

The EWI (SWMU-20) was used to treat off-specification explosives and scrap munitions and components. The residue is tested for reactivity and EP toxicity. The residue has regularly failed the EP toxicity test due to cadmium washers used on some of the grenades. The burn residue and fly ash from the treatment process are hazardous wastes and are stored in Building 1813 prior to being transported off site for disposal through DRMO.

The EWI was not operational at the time of the 2006 ECP site visit and cannot be operated without being upgraded to comply with the Maximum Achievable Control Technology (MACT) Standards. The EWI is currently under idling status and annual inspections are still required to be conducted by KDHE. The EWI was operational from 1981 through 1999 (DZI EEPE 2006).

#### 4.1.1.4 Other Areas

Additionally, KSAAP had eight thermal treatment areas located in the open burning grounds (**Figure E-21**) that are now closed, and have regulatory closure (DZI EEPE 2006). These include hazardous waste Open Burning Pads 1-4 (SWMUs-110 through 113), the former Open Burning Area (SWMU-118), and three burning cages (SWMUs-115 through 117). The Burning Pads and the Open Burning Area were closed in 1985. The Burning Cages were closed in 1995.

#### 4.1.1.5 Contaminated Waste Processor

The CWP (SWMUs-102 through 104) is not a RCRA-permitted treatment unit. This unit was permitted as a solid waste treatment unit in 2002 to treat commercial waste. Commercial waste has never been treated at the CWP. This treatment process burns explosive-contaminated solid waste below the regulatory limit. The ash generated from this unit is analyzed and has sometimes been found to be hazardous. The fly ash is stored at Building 1813 prior to being transported off site for disposal through DRMO. (DZI EEPE 2006)

#### 4.1.1.6 Hazardous Waste Permitted Units

There are a number of KSAAP facilities permitted to store containerized hazardous waste prior to being treated at one of the on-site treatment facilities or shipped off-site through the Fort Riley DRMO. Hazardous waste is also generated in a number of satellite accumulation areas located within the shop areas. Hazardous waste storage and satellite accumulation sites included in the February 2006 Oils, Hazardous Wastes and Hazardous Substances Spill Control and Contingency Plan are listed in **Table 4-1**. **Table 4-1** includes the location of each of the hazardous waste storage areas, types, statuses, descriptions of the waste stored in each area, waste codes, and the maximum volumes of waste stored in each area.

TABLE 4-1 RCRA PERMITTED UNITS HAZARDOUS WASTE STORAGE LOCATIONS						
Location	Area	Storage Type	Status	Waste Description	Waste Codes	Maximum Storage Volume (Gal)
58	Chemistry Lab	Satellite	Active	Toluene/Fuel Oil Mixture	F005	5
58	Chemistry Lab	Satellite	Active	Chemical Oxygen Demand Analysis Waste	D002, D007, D009, D011	30
58	Explosive Lab	Satellite	Active	Explosives/Water Mixture	D003	3
58	Explosive Lab	Satellite	Active	Solvent/Explosive Mixture	D001, D003, D022, F003, F005	2
58	Gage Lab	Satellite	Active	Adsol Degreaser	D001	2

**TABLE 4-1  
RCRA PERMITTED UNITS  
HAZARDOUS WASTE STORAGE LOCATIONS**

Location	Area	Storage Type	Status	Waste Description	Waste Codes	Maximum Storage Volume (Gal)
101	Administrative	Satellite	Active	Spent Aerosol Cans	D001	55
101	Administrative	Satellite	Active	Petroleum Naptha	D001	1
101	Administrative	Satellite	Active	Spent Batteries	D006	55
202	Maintenance Shops	Satellite	Active	Adsol Degreaser	D001	55
247	Paint Shop	Satellite	Active	Paint, Thinner and Acetone	D001, D006, D007, D008, D009, D035, F003	55
300 Area	Wastewater Sumps	Satellite	Active	Cartridge Filters	K044	8
300 Area	Wastewater Sumps	Satellite	Active	Bag Filters	K044	55
315	Stenciling Operations	Satellite	Active	Acetone Rags	F003	55
315	Stenciling Operations	Satellite	Active	Inks, Thinner and Acetone	D001, D006, D007, D008, D009, D035, F003	55
321	Cleaning Operations	Satellite	Active	Acetone Rags	F003	55
321	Cleaning Operations	Satellite	Active	Acetone/Explosive Mixture	D003, F003	55
321	Cleaning Operations	Satellite	Active	Adsol Degreaser/Explosive Mixture	D001, D003	55
321	Cleaning Operations	Satellite	Active	Adsol Degreaser	D001	55
327	Wastewater Treatment	Satellite	Active	Spent Carbon	K045	55
327	Wastewater Treatment	Satellite	Active	Diatomaceous Earth	D003	55
327	Wastewater Treatment	Satellite	Active	Sump Sludge	K044	55
700 Area	General Operations	Satellite	Active	Various	D001	1
749	Wastewater Treatment	Satellite	Active	Vacuum Sludge	D008	55
749	Wastewater Treatment	Satellite	Active	Sodium Nitrate	D008	55
749	Wastewater Treatment	Satellite	Active	Paint and Thinner	D002, K044, K046	55
1000 Area	Wastewater Treatment	Satellite	Active	Sump Sludge	K044	55
1000 Area	Wastewater Treatment	Satellite	Active	Wet Sumpage	K044	8
1008	Wastewater Treatment	Satellite	Active	Diatomaceous Earth	D003	55

**TABLE 4-1  
RCRA PERMITTED UNITS  
HAZARDOUS WASTE STORAGE LOCATIONS**

Location	Area	Storage Type	Status	Waste Description	Waste Codes	Maximum Storage Volume (Gal)
1008	Wastewater Treatment	Satellite	Active	Spent Carbon	K045	55
1011	Wastewater Treatment	Satellite	Active	Spent Aerosol Cans	D001	55
1100 Area	Cleaning Operations	Satellite	Active	Freon	F001	55
1100 Area	Cleaning Operations	Satellite	Active	Acetone, Freon and Silicone	F001, F003	55
1103	Storage	Satellite	Active	Various	D001, D005, D006, D007, D008, D035	55
1103	Storage	Satellite	Active	Paint Related Materials and Kerosene	D001, D005, D006, D007, D008, D035	55
1109	Stenciling Operations	Satellite	Active	Inks, Thinner and Acetone	D001, D005, D006, D007, D008, D035, F003	55
1109	Stenciling Operations	Satellite	Active	Acetone Rags	F003	55
1109	Cleaning Operations	Satellite	Active	Adsol Degreaser/Explosive Mixture	D001, D003	55
1109	Equipment Operations	Satellite	Active	Lithium Batteries	D002, D003	10 Each
1113	Stenciling Operations	Satellite	Active	Inks, Thinner and Acetone	D001, D005, D006, D007, D008, D035, F003	55
1113	Stenciling Operations	Satellite	Active	Acetone Rags	F003	55
1114	Stenciling Operations	Satellite	Active	Inks, Thinner and Acetone	D001, D005, D006, D007, D008, D035, F003	55
1114	Stenciling Operations	Satellite	Active	Acetone Rags	F003	55
1119	Stamp-Out Operations	Satellite	Active	Dry Sumpage	D003, D030	8
1127	Wastewater Treatment	Satellite	Active	Spent Carbon	K045	55
1127	Wastewater Treatment	Satellite	Active	Diatomaceous Earth	D003	55
1127	Wastewater Treatment	Satellite	Active	Sump Sludge	D030, K044	55
1127	Wastewater Treatment	Satellite	Active	Wet Sumpage	D030, K044	8

**TABLE 4-1**  
**RCRA PERMITTED UNITS**  
**HAZARDOUS WASTE STORAGE LOCATIONS**

Location	Area	Storage Type	Status	Waste Description	Waste Codes	Maximum Storage Volume (Gal)
1127	Wastewater Treatment	Satellite	Active	Anthracite	D003	8
1136	Stenciling Operations	Satellite	Active	Inks, Thinner and Acetone	D001, D005, D006, D007, D008, D035, F003	55
1136	Stenciling Operations	Satellite	Active	Acetone Rags	F003	55
1705	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
1709	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
1711	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
1712	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
1717	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
1721	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
1813	Storage Magazine	Permitted	Active	Various	Various	Unlimited
1914	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
1915	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
1916	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
1917	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
1958	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
1961	Storage Igloo	Permitted	Active	Various Solids	Various	Unlimited
1974	Storage Igloo	Permitted	Active	Various Solids	Various	Unlimited
1976	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
2700 Area	Burning Pad 5	Satellite	Active	Composition A5 Wet Sumpage Residue	K044	55
2700 Area	Burning Pad 5	Satellite	Active	Cyclotol Wet Sumpage Residue	D003, K044	55
2700 Area	Burning Pad 5	Satellite	Active	900 Area Sump Sludge Residue	D003, K044	55
2700 Area	Burning Pad 5	Satellite	Active	1100 Area Sump Sludge Residue	D003, K044	55
2700 Area	Burning Pad 5	Satellite	Active	M67 Propellant Residue	D003, K044	55
2702	Explosive Waste Incinerator	Satellite	Active	Liquid Air Pollution Control Residue	D006, D007, D008	55

**TABLE 4-1**  
**RCRA PERMITTED UNITS**  
**HAZARDOUS WASTE STORAGE LOCATIONS**

Location	Area	Storage Type	Status	Waste Description	Waste Codes	Maximum Storage Volume (Gal)
2702	Explosive Waste Incinerator	Satellite	Active	Solid Air Pollution Control Residue	D006, D008	55
2707	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
2708	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
2709	Storage Igloo	Permitted	Active	Various Liquids	Various	Unlimited
2712	Contaminated Waste Processor	Satellite	Active	Liquid Air Pollution Control Residue	D006, D007, D008	55
2712	Contaminated Waste Processor	Satellite	Active	Solid Air Pollution Control Residue	D006, D008	55
2712	Contaminated Waste Processor	Satellite	Active	Basket Ash	D006	55
A018	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited
A019	Storage Igloo	Permitted	Inactive	Various Liquids	Various	Unlimited

KSAAP also generates universal waste fluorescent lamps and electronic waste in accordance with federal, state, and local regulations. The lamp and electronic wastes are stored in Building 243 and are recycled through Air Cycle Corporation. These waste streams were historically stored at Building 203. Aerosol cans and batteries and potential universal waste streams are managed as hazardous waste at KSAAP. (DZI EEPE 2006)

#### 4.1.2 Solid Waste Permits

Solid waste generated within the survey area includes both hazardous and non-hazardous waste. Solid waste management at KSAAP is the responsibility of each individual or organization generating the waste. The disposal of general solid refuse (including paper, wood, and food waste) is collected by American Disposal Services, a private contractor. General solid refuse is disposed of at the Wheatland Landfill located in Scammon, Kansas. (DZI EEPE 2006)

##### 4.1.2.1 Active Landfill Permit

KSAAP currently operates an unlined permitted industrial solid waste landfill (KAAP-05, SWMU-15). The landfill is located in the northwest portion of KSAAP, south of Road 2 and west of the 200 Area (**Figure E-37**). The permit (KDHE Permit No. 0401) is renewed annually, and a copy of the May 30, 2006 renewal permit is included in **Appendix C**. The landfill currently only accepts uncontaminated construction and demolition (C&D) waste. (DZI EEPE 2006)

### 4.1.3 Underground Storage Tank and Aboveground Storage Tank Permits

A list of the ASTs, USTs, and specialty tanks, including septic tanks and OWSs, at KSAAP are summarized.

#### 4.1.3.1 Aboveground Storage Tanks

There are currently 40 ASTs within the survey area, nine of which are empty and are not currently in use. The ASTs are permitted by KDHE and are renewed annually. Copies of the AST permits are located in **Appendix C**. The ASTs are owned by KSAAP and are listed in **Table 4-2**. The table includes the location of each AST as well as the tank identification number, date of installation, maximum capacity, construction material and contents.

Seven ASTs that were removed from KSAAP are identified in **Table 4-2**. All of the piping was removed from the old ASTs with the exception of the piping from Tank 025. This tank supplied diesel fuel to the Old Boiler House Building 724. The piping ran underneath a road and therefore was abandoned in place. (DZI EEPE 2006)

There are also a number of smaller day tanks at KSAAP used to power emergency generators. These tanks are not required to be registered and are listed in the Title V Air Emission Source Operating Permit discussed in **Section 4.1.6** of this report.

<b>Building Location</b>	<b>Tank Number</b>	<b>Capacity (Gal)</b>	<b>Contents</b>	<b>Secondary Containment</b>	<b>Construction Material</b>	<b>Date Installed</b>	<b>Status</b>
52	001	8,000	Diesel	Concrete	Steel	Unknown	Active
53	002	10,000	Diesel	Concrete	Steel	Unknown	Active
58	003	10,000	Diesel	Concrete	Steel	Unknown	Active
60	004	5,000	Diesel	Concrete	Steel	Unknown	Active
101 North	006	5,000	Diesel	Concrete	Steel	Unknown	Active
101 South	007	5,000	Diesel	Concrete	Steel	Unknown	Active
112	008	10,000	Diesel	NA	Steel	Unknown	Removed
200	009	18,500	MC-800 Sealant	NA	Steel	Unknown	Removed
202 East	013	12,000	Gasoline	Concrete	Steel	Unknown	Active
202 Center	014	12,000	Gasoline	Concrete	Steel	Unknown	Active
202 West	015	12,000	Diesel	Concrete	Steel	Unknown	Active
204	010	10,000	Unknown	NA	Steel	Unknown	Removed
258	016	10,000	Diesel	Concrete	Steel	Unknown	Active
259	017	10,000	Diesel	Concrete	Steel	Unknown	Active

TABLE 4-2 ASTS LOCATED AT KSAAP							
Building Location	Tank Number	Capacity (Gal)	Contents	Secondary Containment	Construction Material	Date Installed	Status
261	011	990	Diesel	Concrete	Steel	Unknown	Active
264	012	1,000	Kerosene	Concrete	Steel	Unknown	Active
314 North	018	15,000	No. 2 Fuel Oil	Concrete	Steel	Unknown	Active
314 South	019	5,000	Diesel	Concrete	Steel	Unknown	Active
509	020	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
511	021	6,000	Diesel	NA	Steel	Unknown	Removed
745	025	5,000	Diesel	NA	Steel	Unknown	Removed
750 East	022	17,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Active
750 South	024	5,000	Diesel	Concrete	Steel	Unknown	Active
750 West	023	17,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Active
813	026	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
902 North	027	5,000	Diesel	Concrete	Steel	Unknown	Empty
902 Center	028	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
902 South	029	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
924	030	10,000	Diesel	Concrete	Steel	Unknown	Active
1002 East	031	30,500	No. 6 Fuel Oil	NA	Steel	Unknown	Removed
1002 Center	032	5,000	Diesel	Concrete	Steel	Unknown	Active
1002 West	033	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Active
1005 North	036	5,000	Diesel	Concrete	Steel	Unknown	Active
1005 Center	035	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Active
1005 South	034	15,000	No. 5 Fuel Oil	Concrete	Steel	Unknown	Active
1020	047	2,000	No. 2 Fuel Oil	Concrete	Steel	1998	Active
1139	046	1,000	No. 2 Fuel Oil	Concrete	Steel	1997	Active
1207	037	2,000	Diesel	Unlined Earth	Steel	Unknown	Active
1228	038	96,750	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
1229	039	96,750	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
1230	040	96,750	No. 5 Fuel Oil	Concrete	Steel	Unknown	Empty
1414	041	10,000	Diesel	NA	Steel	Unknown	Removed
2106	042	10,000	Diesel	Concrete	Steel	Unknown	Active
2203	043	13,000	Diesel	Concrete	Steel	Unknown	Active
2702	044	4,000	Diesel	Concrete	Steel	Unknown	Active

TABLE 4-2 ASTS LOCATED AT KSAAP							
Building Location	Tank Number	Capacity (Gal)	Contents	Secondary Containment	Construction Material	Date Installed	Status
2712	045	8,000	Diesel	Concrete	Steel	Unknown	Active
3037	005	54,200	No. 2 Fuel Oil	Lined Earth	Steel	Unknown	Empty

#### 4.1.3.2 Underground Storage Tanks

There are no active USTs at KSAAP. There are a total of twenty-six registered and five unregistered USTs, which have all been removed. Leak Assessment documents were provided at the July 2005 ECP Workshop for all registered USTs with the exception of UST 24. The KDHE LUST Database (**Appendix A**) indicates that each of the registered tanks has been closed. **Table 4-3** lists all of the former USTs and includes the location of each UST as well as the tank identification number, date of installation, date removed, maximum capacity, construction material and contents.

TABLE 4-3 FORMER USTs LOCATED AT KSAAP						
Building Location	Tank Number	Capacity (Gal)	Contents	Construction Material	Date Installed	Date Removed
55	22	8,000	Diesel	Steel	1942	November 1990
100 Area Staff Housing	Not Registered	Unknown	Heating Oil	Unknown	Unknown	Unknown
101 South	20	20,000	Fuel Oil/Diesel	FRPC	1985	June 1992
202 South	1	12,000	Gasoline	Steel	1970	June 1992
202 South	2	12,000	Diesel	Steel	1982	June 1992
202 South	3	12,000	Gasoline	Steel	1982	June 1992
209 East	4	17,111	Diesel	Steel	1976	June 1992
209 East	5	17,111	No. 5 Fuel Oil	Steel	1976	June 1992
221	Not Registered	Unknown	Unknown	Steel	Unknown	Late 1980s
221	Not Registered	Unknown	Unknown	Steel	Unknown	Late 1980s
221	Not Registered	Unknown	Unknown	Steel	Unknown	Late 1980s
221	Not Registered	Unknown	Unknown	Steel	Unknown	Late 1980s
313	300	10,000	Waste Oil/Toluene	Steel	May 1992	September 1993
314 West	8	20,563	Fuel Oil	Steel	1976	June 1992

TABLE 4-3 FORMER USTS LOCATED AT KSAAP						
Building Location	Tank Number	Capacity (Gal)	Contents	Construction Material	Date Installed	Date Removed
509 East	10	17,111	Fuel Oil	Steel	1942	March 1991
724 West	12	17,111	Fuel Oil	Steel	1942	May 1992
813 East	13	17,111	Fuel Oil	Steel	1942	October 1990
902 West	14	17,111	Fuel Oil	Steel	1942	April 1991
902 West	15	17,111	Fuel Oil	Steel	1942	March 1991
1002 West	16	17,111	Fuel Oil	Steel	1942	October 1990
1003 West	17	17,111	Fuel Oil	Steel	1942	October 1990
1105 West	18	17,111	Fuel Oil	Steel	1976	June 1992
1106 West	19	17,111	Fuel Oil	Steel	1976	June 1992
2105A	21	500	Gasoline	Steel	1942	November 1990
3006	23	1,500	Gasoline	Unknown	1971	June 1992
2702 (EWI)	24	10,000	Diesel	FRPC	1981	December 1989
2712 (CWP)	25	10,000	Diesel	Steel	1982	June 1992
Unknown	6	17,111	No. 5 Fuel Oil	Steel	1976	June 1992
Unknown	7	17,111	Other	Steel	1942	September 1993
Unknown	9	5,326	Diesel	Steel	1976	June 1992
Unknown	11	17,111	Other	Steel	1942	May 1992
Unknown	26	500	Unknown	Steel	Unknown	December 1991

FRPC – Fiber Reinforced Polymeric Composite  
Source: AE 1998

The 1998 EBS identified two former UST locations as potential areas of contamination. These sites are located at Building 221 and the staff housing area.

A 1947 map of KSAAP identifies five USTs at Building 221. The EBS indicated that four USTs were removed in the early 1980s when Petroleum, Oil and Lubricants (POL) floated to the surface after a rainstorm. No records exist of their removal except for six pictures taken during excavation. The photographs showed the USTs in place, after being partially excavated, and after removal. The excavated trench was partially full of POL product. The EBS also reported that the contaminated soil was removed and placed in the oil land farm. Due to the lack of documentation it is possible that contamination from the USTs was not entirely removed. A geophysical survey was conducted at the area in 2004 to investigate the potential existence of a fifth UST. The report concluded that there was no evidence of a UST in the area.

The second AOC is located within the 100 Area. This area had previously contained staff housing, barracks, a hospital, a cafeteria, a fire station, a coal-fired boiler house, a guardhouse, an employment building, and a few other small buildings. The staff housing was demolished in the early 1950s. Dates of demolition of the other buildings are not known. According to the

1998 EBS, each building in the staff housing area and barracks might have had an associated UST, which contained heating oil. The USTs were reportedly removed during the demolition of the buildings. No closure records or reports are available for these removals. The VSI did not identify any staining or piping.

Another AOC is near the Former Boiler House 313. The UST at this location was originally used to store fuel oil and then used to store waste toluene. The tank overflowed during a rain event, contaminating the surrounding soils. Soils were removed from the area (DZI EEPE 2006). The VSI did not identify any staining or piping.

#### 4.1.3.3 Specialty Tanks

There is one OWS, which is located south of the 200 Area. This tank separates oil and grease from the 200 Area wash rack and gas station, and discharges to grade from Outfall 002. The OWS is cleaned periodically as required (DZI EEPE 2006). See **Section 4.1.4** for more information on Outfall 002.

There are a total of seven active septic tanks at KSAAP. They are located at Buildings 55, 60, 67, 2001, 2106, and 2704, and at Area 1400. The tanks have not been cleaned in over five years (DZI EEPE 2006).

#### 4.1.4 National Pollutant Discharge Elimination System Permits

KSAAP manages wastewater discharge under a NPDES permit. The permit number is F-NE55-PO04 and is included in **Appendix C**. The NPDES permit was renewed on May 19, 2004 and will expire on December 31, 2008. There are currently seven outfalls authorized by the NPDES permit and are described as follows:

- Outfall 002 contains garage and vehicle wash rack wastewater, which flows through an OWS from the 200 Area and through a stormwater run-off near the gas pump stations. The volume authorized for discharge is 2,000 gallons per day.
- Outfall 003 contains wash water and stormwater run-off collected in a sump from the loading, assembling, and packing of M483 155 mm projectiles in the 300 Area. Batch treatment is performed through a combination of diatomaceous earth filters and carbon absorption columns. The volume authorized for discharge is 7,300 gallons per day.
- Outfall 004 contains sanitary sewage from the 700 and 2200 Areas, and pretreated process wastewater from the 700 Area (Outfall 007). The wastewater is treated in a grit chamber, two primary settling basins, a dosing tank, an anaerobic sludge digester, two rock media trickling filters and a secondary clarifier, and UV treatment. The wastewater is then discharged through a flow meter and the sludge is treated by anaerobic digestion and dried on sand drying beds. The volume authorized for discharge is 920,000 gallons per day.
- Outfall 007 contains ash water collected in 14 sumps from the 700 Area. Operations in this area include loading, assembling, and packing of M55 detonators. The wastewater is desensitized by acetic acid and sodium hydroxide, lead precipitation, coagulation, and vacuum filtration. It is then discharged to the sewage treatment plant (Outfall 004). The volume authorized for discharge is 2,400 gallons per day.

- Outfall 009 contains wash water collected in a sump from the 900 Area. Operations in this area include loading, assembling, and packing of 81 mm mortars. The wastewater is filtered through diatomaceous earth filters and carbon absorption filters prior to discharge. The volume authorized for discharge is 9,600 gallons per day.
- Outfall 010 contains wash water collected in a sump from the 1000 Area. Operations in this area include loading, assembling, and packing of 60 mm mortar and M795 projectiles. The wastewater is filtered through diatomaceous earth filters, carbon absorption filters, and an ion exchange unit prior to discharge. The volume authorized for discharge is 9,600 gallons per day.
- Outfall 011 contains wash water collected in sumps from the 1100 Area. Operations in this area are associated with the SFW. The wastewater is filtered through diatomaceous earth filters, carbon absorption filters, and two-chamber settling basins with anthracite bed filters prior to discharge to grade. The volume authorized for discharge is 28,800 gallons per day.

All outfalls currently discharge wastewater except for Outfalls 007 and 009. These outfalls have not been used since production ended in these areas. The remaining outfalls currently discharge into the Neosho River and Labette Creek.

There are three historic outfalls that have not discharged wastewater since the late 1990s. The inactive outfalls include 001 (wash water from the 100 Area laundry), 006 (annual discharge from the clear well at the treatment plant), and 013 (boiler blowdown from the 100 Area).

Monthly Discharge Monitoring Reports are submitted to KDHE. Monitoring reports from 2002 to present were reviewed during the site visit. **Table 4-4** lists effluent violations reported to KDHE during that time period.

<b>Outfall Location</b>	<b>Month Reported</b>	<b>Parameter</b>	<b>Permit Limitation</b>	<b>Measured Value</b>
010	Nov-04	pH	6	5.915
011	Dec-04	Total Oil and Grease	10 mg/L	13.4 mg/L
011	Dec-04	Total Oil and Grease	0.57 lbs/day	1.04 lbs/day
011	Dec-05	Total Suspended Solids (Daily)	30 mg/L	50.25 mg/L
011	Dec-05	Total Suspended Solids (Monthly)	20 mg/L	50.25 mg/L
011	Dec-05	Total Oil and Grease	10 mg/L	12.8 mg/L
011	Jan-06	Total Suspended Solids (Daily)	30 mg/L	30.5 mg/L
011	Jan-06	Total Suspended Solids (Monthly)	20 mg/L	30.5 mg/L

#### 4.1.5 Drinking Water Permits

Drinking water is supplied to KSAAP by a water treatment plant located on the banks of the Neosho River approximately three miles east of KSAAP. Potable water is treated in accordance with Drinking Water Permit 4796, which was issued on January 1, 1980. A copy of the permit is

included in **Appendix C**. Water Permit 1388 provides KSAAP with water rights to the Neosho River.

The Water Treatment Plant is referred to as the 2100 Area and is owned and operated by KSAAP. The plant is comprised of two buildings. Building 2106 is a filtering building and contains the treatment operations, a laboratory, and an office. Building 2106-A pumps the water from the KSAAP Neosho Dam. There is also a storage reservoir for potable water with a capacity of 1,000,000 gallons. The water filtration plant is able to treat 1,000,000 gallons per day; however, only a fraction of that is currently treated due to the decreased activity at KSAAP.

Sludge from the filter bed of the Water Treatment Plant is transported by truck and is dumped into two ponds along 2 Road, south of the 1700 Area. These sludge-drying beds were specifically constructed for this purpose in 1977 and were designed to meet USEPA's criteria for suspended solids.

There are four 250,000 gallon water towers at KSAAP. Tower One is located on 1 Road east of the 100 Area; Tower Two is west of the 1700 Area; Tower Three is near the intersection of 4 Road and D Road; and Tower Four is northwest of 1800 Area. Due to the decreased activity at KSAAP, Towers Two and Three are the only active towers. All of the towers have historically been painted with lead-based paint (LBP). The towers were repainted in 1985 (DZI EEPE 2006). Refer to **Section 4.7** of this report for more information regarding potential lead contamination surrounding these towers.

In addition to supplying water to KSAAP, the Water Treatment Plant supplies water to eight other residential and commercial properties identified in below:

- Westar Energy, Rt. 4 Box 88, Parsons, KS 67357
- Service Valley School, Rt. 4 Box 129, Parsons, KS 67357
- Mr. Darren Blackburn, 23030 Trego Rd., Parsons, KS 67357
- Mr. William Rehmert, 2362 22000 Rd., Parsons, KS 67357
- Mr. Charles Jones, Rt. 4 Box 92, Parsons, KS 67357
- Mr. Gary Stringer, 2169 22000 Rd., Parsons, KS 67357
- Mrs. Gertrude Elsworth, 23025 Trego Rd., Parsons, KS 67357
- Mr. John Chastain, 2244 22000 Rd., Parsons, KS 67357

Quarterly Water Quality Reports are submitted to KDHE. Quarterly reports from October 2005 to present were reviewed during the 2006 ECP site visit. KSAAP has had a difficult time meeting the new Total Organic Carbon (TOC) limits imposed by the 2005 Long Term 1 Enhanced Surface Water Treatment Rule. Additionally, the potable water from the treatment plant has exceeded haloacetic acids (HHA) and trihalomethanes (TTHM) in the past as a result of the disinfection process. The Water Treatment Plant has converted from a chlorination process to a chlorine dioxide system in November 2004 to meet the new treatment requirements.

#### 4.1.6 Air Permits

KSAAP has a Title V Class I Air Emission Source Operating Permit (Source ID No. 0990010) for a number of fuel oil-powered boilers and emergency generators. The air permit was issued on January 28, 2004 and expires on January 27, 2009. A copy of the operating permit is included in **Appendix C** and identifies all emission sources at KSAAP.

KSAAP is required by the Title V operating permit to submit a semiannual Sulfur Dioxide Emission Report. KSAAP is authorized to emit no more than 250 tons of sulfur dioxide per year. The January 23, 2006 Sulfur Dioxide Emission Report indicated that KSAAP emitted 17.4 tons of sulfur dioxide. KSAAP has never exceeded the limit for sulfur dioxide emissions. (DZI EEPE 2006)

KSAAP is also required by the Title V operating permit to submit a semiannual Routine, Continuous, or Periodic Monitoring Report.

The CWP is not a RCRA-permitted treatment unit; however, this unit was permitted as a solid waste treatment unit to treat commercial waste. Commercial waste was never treated in the CWP because the unit does not meet the current continuous emission monitoring requirements. Therefore, this treatment process has not been used since the new requirements became effective.

KDHE conducted an annual compliance inspection on March 23, 2006. KDHE found that KSAAP was in compliance with Kansas Air Quality Regulations and the operating permit. KSAAP is located in Labette County, Kansas, which is in attainment with the criteria pollutants defined by National Air Quality Standards.

#### 4.1.7 Nuclear Regulatory Commission Licenses

An assessment of radioactive sources and materials formerly used or in use at KSAAP was made during the 2006 ECP site visit. KSAAP holds an NRC License (SUB-1283) for depleted uranium (DU) used in Building 1019's x-ray equipment. The license will expire on May 31, 2013.

Building 1019, the Quality Assurance and X-Ray Analysis Laboratory, operates one Varian 4 million electron volts (MeV) linear accelerator used for x-ray analysis of munitions which contains 46 kilograms of DU used as shielding material. The Radiation Safety Officer (RSO) indicates that KSAAP is turning this linear accelerator in to Varian for replacement with a 4/6 MeV linear accelerator, which will use lead and tungsten for x-ray shielding, but not DU. This will happen during July-August 2006. The NRC-licensed DU in the 4 MeV accelerator will be transferred to Varian's NRC license for possession of DU shielding plates. This transfer has not occurred as of the issuance of this report.

In addition to the 4 MeV linear accelerator, KSAAP also possesses two 160 kilovolt (kV) x-ray machines, one real-time system and one Phillips cabinet system. None of the x-ray machines pose any potential for environmental contamination by radioactive materials.

A radiological commodity inventory was not available during the 2006 ECP site visit. Interviews with the RSO and personnel from the electrical shop suggested that there are currently no radiological commodities present at KSAAP.

### *4.1.7.1 Depleted Uranium Munitions Storage*

There is no evidence that DU munitions were assembled or stored at KSAAP. The U.S. Army Materiel Command's (AMC's) NRC License does not list KSAAP as one of the authorized storage facilities for DU munitions (i.e., DU kinetic energy penetrators, such as 120 mm and 25 mm munitions).

### *4.1.7.2 Health Clinic*

The former Health Clinic was demolished in 1986 and the medical x-ray machine was removed. This machine would not have been a source of environmental radioactive contamination. In addition, lead shielding in the walls of the diagnostic x-ray room was removed.

### *4.1.7.3 All Buildings*

According to the RSO, there are no currently installed Emergency Exit signs containing tritium (hydrogen-3), a form of radioactive material, or smoke detectors containing radioactive material in KSAAP buildings.

### *4.1.7.4 Radionuclides in Drinking Water*

Drinking water quality records for KSAAP indicate that laboratory results for water samples analyzed for naturally occurring radioactive contaminants were all non-detectable at the testing limit (MCL of 15 pCi/L gross alpha).

## 4.1.8 Other Permits/Licenses

KSAAP does not have any other permits or licenses.

## 4.2 ENVIRONMENTAL CLEANUP

### 4.2.1 Installation Restoration Program Overview

The Army's cleanup program under the Defense Environmental Restoration Program (DERP) is the IRP. The goal of the IRP is to cleanup previously contaminated lands to an acceptable level of risk on active installations. The sites at KSAAP described in this section represent the currently active and completed IRP sites. **Table 4-5** identifies all KSAAP IRP sites and status (USAEC 2006, AE 1998).

<p align="center"><b>TABLE 4-5 IRP SITE AND STATUS AT KSAAP</b></p>					
<b>USEPA SWMU Group</b>	<b>USEPA RFA SWMU</b>	<b>Area/Building</b>	<b>USAEHA SWMU</b>	<b>IRP AEDBR No.</b>	<b>IRP Status</b>
1	1	Building 112 sump	NA	KAAP-35	Response Complete
	124	Building 112 ditch	NA		
	124	Building 112 oxidation pond	KAAP-35		
2	8	200 Area oil/water separator	KAAP-26	KAAP-26	Response Complete
3	6	200 Area oil land farm	KAAP-25	KAAP-25	Response Complete
4	16	Building 314 waste oil/toluene tank	NA	KAAP-39	Response Complete
5	10	Buildings 315, 324, 326, and 327 sumps and troughs Building 305 sumps and troughs Building 302 sumps and troughs Building 311 sumps and troughs Ditches and oxidation pond (Pond 1) Ditches and former evaporation pond	KAAP-16	KAAP-16	Active
	11		KAAP-16		
	12		KAAP-16		
	13		KAAP-16		
	125/126		KAAP-30		
	127		KAAP-30		
6	19	Building 503 sump, troughs, and ditches	KAAP-17	KAAP-17	Active
	20	Building 505 sump, troughs, and ditches	KAAP-17		
	21	Buildings 513 and 529 sump, troughs, and ditches	KAAP-17		
7	47	Buildings 804 and 849 sump, troughs, and ditches Building 816 sump, troughs, and ditches	KAAP-19	KAAP-19	Active
	48		KAAP-19		
8	49	Building 907 – 900 Area wastewater treatment system Building 905 sump and troughs Building 907 sump and troughs Building 927 sump and troughs Building 946 sump and troughs Building 952 sump and troughs Ditch and Pond 8 Ditch and Pond 37 Ditch and Pond 43	KAAP-14	KAAP-20	Active
	50		KAAP-20		
	51		KAAP-20		
	52		KAAP-20		
	53		KAAP-20		
	54		KAAP-20		
	130		KAAP-32		
	131		KAAP-32		
	132		KAAP-32		

TABLE 4-5 IRP SITE AND STATUS AT KSAAP					
USEPA SWMU Group	USEPA RFA SWMU	Area/Building	USAEHA SWMU	IRP AEDBR No.	IRP Status
9	57	Building 1006 sump and troughs	KAAP-21	KAAP-21	Active
	58	Buildings 1007/1017, and 1018 sumps and troughs	KAAP-21		
	59	Buildings 1008/1078 sumps and troughs	KAAP-21		
	133	Ditch and Pond 39 (Pond 1001)	KAAP-33		
	134	Ditch and Pond 1501	KAAP-33		
	135	Ditch and Pond 31	KAAP-33		
10	65	Buildings 1109 and 1127 sumps and troughs	KAAP-22 (sumps-and drainages only)	KAAP-22	Active
	66	Building 1123 sump and troughs			
	67	Building 1126 sump and troughs			
	138	Oxidation pond 1101			
	NA	Oxidation pond 1102			
11	110-113	Open Burning Pads # 1-4	KAAP-10	KAAP-10	Active
12	NA	100 Area classification area (near gate 3)	KAAP-01	KAAP-01	Active
13	139	Closed/inactive landfill near quarry	KAAP-02	KAAP-02	Active
14	118	200 Area refuse burn pits	KAAP-03	KAAP-03	Active
	140, 141	200 Area closed/inactive landfill	KAAP-03		
15	146	Active landfill	KAAP-05	KAAP-05	Active
	147	Asbestos shingle burial site	KAAP-07		
	148	Grenade body disposal area	KAAP-06		
16	142-145	Closed/inactive landfill west of OD Grounds (2700 Area)	NA	KAAP-04	Active
17	96, 97	2200 Area (Sewage Treatment Plant) Sludge drying beds	KAAP-15	KAAP-15	Response Complete
18	NA	Coal-pile run-off catchment device and associated ditches	KAAP-28	KAAP-28	Response Complete
19	105 – 107	Explosive waste incinerator	NA	KAAP-24	Response Complete
20	78 – 85	Container storage units (hazardous waste) (19 units)	NA	KAAP-12	Response Complete
21	102, 103, 104	Contaminated waste processor (explosive-contaminated waste)	KAAP-24	KAAP-38	Response Complete

TABLE 4-5 IRP SITE AND STATUS AT KSAAP					
USEPA SWMU Group	USEPA RFA SWMU	Area/Building	USAEHA SWMU	IRP AEDBR No.	IRP Status
22	115 - 117	Burning Cages Nos. 14, 17, and 22	KAAP-09	KAAP-09	Active
23	108, 109	Open Burning Pads Nos. 5 and 6	KAAP-10	KAAP-10	Active
24	25 - 44 128 129	700 Area sumps and ditches 700 Area oxidation pond (No. 28) 700 Area oxidation pond (No. 15)	KAAP-18 KAAP-31 KAAP-31	KAAP-18	Active
NA	NA	Pistol range Active/Inactive Range Inventory No. 00023.	NA	KAAP-40	Response Complete
NA	NA	Water towers	KAAP-41	KAAP-41	Response Complete
NA	NA	1200 Area Ammonium Nitrate Production Building	NA	KAAP-43	Active
NA	AOC I	Former pesticide mixing and storage area at Lyons Pond (Pond 4)	NA	KAAP-11	Response Complete
NA	70	Building 1406 PCB storage area	NA	KAAP-13	Response Complete
NA	119-120	Building 58 hazardous waste accumulation areas (2)	NA	KAAP-23	Response Complete
NA	NA	Mercury fulminate burial site west of OD Grounds	NA	KAAP-27	Response Complete
NA	NA	Particulate emission control systems for coal-fired boilers, 200 and 1200 Areas	NA	KAAP-29	Response Complete
NA	NA	Water Detention Basin	NA	KAAP-42	Response Complete

Source: EA 1998 and USAEC 2006

As of July 2006, there were 15 active IRP sites (**Figure E-37**). Most of the IRP sites are related to associated SWMUs or AOCs identified as Corrective Action Requirements in the RCRA Permit and Modifications. A list of previous investigations at the IRP sites and years completed includes:

#### 1994

- Background Metals Study, KSAAP, Radian, June 1994
- Pre-Remedial Design Investigation for the 700 Area, Radian, August 1994
- Phase I RCRA Facility Investigation, KSAAP, Radian, August 1994

**1996**

- Final Interim Measures Assessment Study (IMAS), Law, May 1996
- Human Risk Assessment for the 700 Area, Radian, May 1996

**1997**

- Soil and Sediment Engineering Report for Remedial Action Alternatives for the 700 Area, Radian, May 1997

**1998**

- Phase II RCRA Facility Investigation, KSAAP, Radian, May 1998
- Phase II Facility Investigation, Law, June 1998

**1999**

- HHBRA, Law, March 1999
- Installation Wide Ecological Assessment, Radian, April 1999
- 700 Area Groundwater Assessment, Radian, July 1999

**2000**

- Hazardous and Medical Waste Study, Relative Risk Site Evaluation, USCHPPM, November 2000

**2001**

- Corrective Measures Study (CMS) for KAAP, USACE, Kansas City District, February 2001
- 700 Area Groundwater Engineering Report, Final, URS Group, Inc., June 2001

**2002**

- Data Gap Study, Plexus Scientific Corp., August 2002

**2004**

- 1100 Area Groundwater Investigation Report, USACE, Kansas City District, April 2004
- 900 Area Groundwater, CMS, USACE, June 2004
- 1000 Area Groundwater, CMS, USACE, August 2004
- SWMU Group 14 & 15 Groundwater CMS, USACE, November 2004
- SWMU Group 13 Groundwater CMS, USACE, June 2004

**2005**

- Groundwater CMS Report General Section, USACE, February 2005
- 300 Production Area Groundwater CMS, USACE, February 2005

- 800 Area Supplemental Groundwater Investigation Draft Final, USACE, February 2005
- Human Risk Assessment Report, USACE, March 2005
- 800 Area Groundwater CMS Final, USACE, August 2005
- RCRA Facility Assessment Report 1200 Area, URS Group, Inc., September 2004
- RCRA Facility Investigation Report 1200 Area, URS Group, Inc., November 2005
- Groundwater CMS Report General Section, USACE, February 2005
- Site-Wide Statement of Basis, USEPA December 2005

## ACTIVE IRP SITES

The following section describes the 2006 status at all active KSAAP IRP sites. The IRP sites at KSAAP are identified as KAAP-XY. With the exception of site KAAP-43, all IRP sites are associated with USEPA SWMU Groups and are identified according to IRP number and SWMU Group. Much of the information below is taken from the 2006 IAP (USAEC 2006). The listed cleanup strategies for each site have been updated to provide the most recent information or status which was obtained from the 2006 IAP. However, a Site-Wide Corrective Measures Decision (CMD) for KSAAP was issued by the USEPA in 2006 (USEPA 2006). The CMD mandates remediation goals for soil and groundwater site-wide. The duration of long term monitoring (LTM) activities obtained from the 2006 IAP may be suspended at several SWMUs pending a RCRA permit modification application if groundwater concentrations are below the specific list of contaminants mandated in the CMD. This pertains to a majority of the sites, excluding SWMUs-7, 10, 14, 16 and 25.

### 4.2.1.1 *KAAP-01 Classification Area Scrap Metal Waste (SWMU-12)*

TABLE 4-6 KAAP-01 CLASSIFICATION AREA SCRAP METAL WASTE (SWMU-12)		
Phases	Start	End
RFA	198708	198808
confirmation sampling (CS)	198708	198808
RFI/CMS	199109	200412
Corrective Measures Implementation (Construction) (CMI (C))	200507	200612
<b>Response Complete Expected: 200612</b>		

Source: USAEC 2006

**Site Description:**

This site consists of what was originally referred to as a solid waste landfill located near the north boundary of KSAAP (**Figure E-37**). It occupies approximately 4 acres. The site was used to dispose of construction debris generated during the construction of KSAAP in 1942. A 10,000-square-foot scrap metal pile had been located on the ground surface in one corner of the unit. Further investigation has determined that this was not a landfill, but rather a surface disposal area for scrap metal. Pond 50 is located near the northwest corner of the site (AE 1998).

Phase I and Phase II RFI included subsurface soil, surface soil, sediment, and surface water samples. Organic constituents were not detected at concentrations above available screening criteria. In general, inorganic constituents were detected at concentrations above screening criteria. (USAEC 2006)

**Surface and Subsurface Soil:**

Trace concentrations of 4-chloro-3-methylphenol, di-n-butyl phthalate, and total recoverable petroleum hydrocarbons (TRPH) were detected in the subsurface soil (no screening criteria are available for the two semi-volatile organic compounds [SVOCs] or TRPH). (USAEC 2006)

**Surface Water and Sediment:**

Bis(2-ethylhexyl)phthalate, a common contaminant resulting from sampling and laboratory procedures, was detected in one surface water sample. Inorganic constituents exceeded background levels most often in sediment samples collected farthest downstream from the landfill. The concentrations of metals in the surface soil are not above background; therefore, surface run-off does not appear to be the source of the elevated concentrations in the sediment. In addition, metal concentrations in surface water are not above background.

The results of the Phase I and Phase II RFI were unable to prove or disprove whether a subsurface transport pathway operates between the landfill and the stream. The gradual downstream increase in metal concentrations in the surface soil samples collected from the unnamed stream indicates a data gap with respect to the extent of contamination at SWMU Group 12. The Baseline Risk Assessment (BLRA) report recommended further characterization of the soil/sediment downstream of SWMU Group 12 and re-evaluation of the associated risk.

A data gap study for metals contamination (arsenic) was completed in May 2002. Some metals were found below regulatory limits. (USAEC 2006)

**Cleanup Strategy:**

The metal pile was removed in Summer 2005, a final inspection was completed in August 2005, and a Statement of Basis was presented to the public in December 2005 (USEPA 2005a). The modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989, state that institutional controls are required. A Final Decision was issued in 2006 and a closure document will be submitted to USEPA and KDHE.

## 4.2.1.2 KAAP-02 Closed Landfill Construction Waste (SWMU-13)

TABLE 4-7 KAAP-02 CLOSED LANDFILL CONSTRUCTION WASTE (SWMU-13)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200503
CMI(C)	200408	200612
LTM	200701	201001
<b>Response Complete Expected: 200612</b>		

Source: USAEC 2006

## Site Description:

This site is a closed landfill located in the south-central portion of the facility, immediately north of Road 5.5, and west of Quarry Pond Nos. 5, 6, and 7 (**Figure E-37**). The landfill is estimated to have received construction/demolition debris between 1942 and 1945, and was closed in 1947. Wastes disposed of in this landfill are reported to have included scrap metal parts, rubble, trash, and other inert material. Wastes were reportedly placed on the ground to a height of about 6 feet and then covered with 4 feet of soil (AE 1998). The site is circular in shape with a diameter of 150 feet, and covers approximately 0.4 acres.

Site investigations (SIs) included subsurface soil, surface soil, sediment, surface water, groundwater, and fish tissue samples. Metals detected in the surface and subsurface soils, sediments, groundwater, or surface water did not exceed the Interim Remedial Guidelines (IRG), MCL, or background levels, as applicable. (USAEC 2006)

## Groundwater:

Previous groundwater investigations at SWMU-13 include the Phase II RFI in 1996, and the Annual Landfill and Open Detonation Area Groundwater Monitoring. Analytical data obtained from the SWMU-13 wells indicate no VOCs or SVOCs were detected above the MCL or Risk-Based Standards for Kansas (RSK) values during any sampling rounds. Several metals were detected at concentrations above the MCL and RSK values, though the concentrations were within the upper background limit.

## Sediment and Surface Water:

Benzo(a)pyrene was detected in sediment samples from Quarry Pond 5 at concentrations which slightly exceeded the IRG of 0.4 milligrams per kilogram (mg/kg). Data Gap Study (May 2002) results found no metals above regulatory limits in the quarry ponds. (AE 1998)

## Soil:

Bis(2-ethylhexyl)phthalate was detected in only two subsurface soil samples at low concentrations (below the practical quantitation limit [PQL]) (AE 1998).

## Organisms:

Several metals and SVOCs were detected in fish tissue samples from the quarry ponds. No screening criteria were available for comparison to detected concentrations in fish tissue samples. However, due to the location of the quarry ponds in relation to the landfill (i.e., up-and cross-gradient), it is unlikely that SWMU Group 13 is a source for the detected contaminants. (AE 1998)

## Cleanup Strategy:

As a consolidation effort to minimize potential LTM requirements, KSAAP removed the landfill materials to an on-site landfill KAAP-005 in Summer 2005. The final inspection of this site was completed in August 2005. A Statement of Basis was completed and presented to the public in 2006 (USEPA 2005a). Currently, groundwater monitoring is being completed on an annual basis. Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group. USEPA is currently reviewing the removal action report. This SWMU group status may change based on subsequent USEPA review. A Final Decision was issued in 2006 and a closure document will be submitted to USEPA and KDHE.

## 4.2.1.3 KAAP-03 Closed Landfill with Refuse Burn Pits (SWMU-14)

TABLE 4-8 KAAP-03 CLOSED LANDFILL WITH REFUSE BURN PITS (SWMU-14)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200606
CMI(C)	200606	200706
Corrective Measures Implementation (Operation) (CMI(O))	200707	203707
<b>Response Complete Expected: 203707</b>		

Source: USAEC 2006

## Site Description:

This site is located in the northwest portion of KSAAP and consists of the 200 Area Closed Landfill and Burn Pits (**Figure E-37**). The area, in operation from 1950 to 1969 and approximately 2.5 acres in size, reportedly contained 15 burn pits and 8 landfill trenches. The location of the trenches and pits are no longer discernible. Trash and burned refuse were

reportedly placed in the landfill trenches and covered with 4 feet of earthen fill. The materials in the burn pits were believed to be inert. Based on the nature of operations at this site, there have been concerns that MEC may be present. Based on the investigations conducted at the site to date, no MEC has been discovered.

SIs included sampling and analyses of subsurface soil, surface soil, sediment, surface water, groundwater, and fish tissue samples. VOCs and SVOCs were detected in each sampled media at concentrations generally below PQLs. Groundwater monitoring began in March 1999. A data gap study for VOCs, SVOCs, explosives, dioxins, furans, and metals contamination was completed in May 2002. Some VOCs were found above regulatory limits. A CMS was completed in August 2004 with a recommendation for upgrading landfill cap and monitored natural attenuation (MNA) (AE 1998). (USAEC 2006)

#### Groundwater:

Methylene chloride, a common laboratory contaminant, and trichloroethene were detected in groundwater during the Phase I RFI at concentrations exceeding MCLs (RC 1994b). A data gap identified for SWMU Group 14 includes the need for confirmation of groundwater analytical data for well BH-3, which could not be re-sampled during the Phase II RFI because of an obstruction in the well. (AE 1998)

#### Surface Water:

Dioxins and furans were detected below applicable screening levels. The detection of dioxins/furans in the surface water samples is probably due to the presence of suspended material transported by storm run-off. The presence of dioxins/furans in samples obtained from outside the landfill and estimated burn pit areas may originate from additional burning that might have taken place outside the assumed burn areas or from off-site transport. In general, metals were detected at concentrations below applicable screening criteria. During the Phase I investigation, lead was detected at a concentration above background and the MCL. The elevated lead concentration was not confirmed in the Phase II investigation, most likely because of different sampling techniques. (AE 1998)

#### Soil:

VOCs and SVOCs were detected in the soil at concentrations below the PQL's. Data gaps identified for SWMU Group 14 include the need to further define the extent of dioxin/furan contamination in subsurface soils and the lack of soil data from the actual landfill and burn pit areas.

The BLRA recommended additional data gaps including collection of surface soil data from the landfill and burn pit areas, collection of surface water samples from Pond 36 for dioxin/furan analyses, continued access restrictions to SWMU Group 14 by recreational receptors and cattle until risks are re-evaluated using additional data, and a re-evaluation of human health risks using new results. (AE 1998) KSAAP plans to upgrade the landfill cover prior to 2007 (DZI EEPE 2006).

## Cleanup Strategy:

A landfill cover investigation was conducted in FY04 as part of the CMS; results indicate upgrades are needed (USAEC 2006). Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use, MNA, and soil cap repair are required at this SWMU group.

## 4.2.1.4 KAAP-04 Closed Landfill (SWMU-16)

TABLE 4-9 KAAP-04 CLOSED LANDFILL (SWMU-16)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200606
CMI(C)	200606	200706
CMI(O)	200707	203707
<b>Response Complete Expected: 203707</b>		

Source: USAEC 2006

## Site Description:

KAAP-04 is located in the east central portion of KSAAP, immediately south of Road 3, near the open detonation area (USAEC 2006) (**Figure E-37**). The landfill is approximately 50 acres and was operated between 1969 and 1981. The landfill consists of twelve landfill units, each occupying approximately one acre. Reportedly, ash from the burning pads at SWMU Group 24, as well as unspecified scrap metal, were disposed of at this landfill. Approximately 6 feet of waste was placed in 10-foot deep, unlined pits and covered with 4 feet of earthen fill material. The last unit was filled and covered in 1981. (AE 1998)

Surface and subsurface soil samples, sediment samples, surface water samples, groundwater samples and fish tissue samples were collected as part of the Phase I RFI investigation. Organic constituents detected were VOCs, SVOCs, TRPH, and dioxins/furans, but at concentrations below screening criteria with the exception of methylene chloride. (AE 1998)

## Groundwater:

Previous groundwater investigations at SWMU 16 include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2001 Data Gap Study, and the 2004 Annual Groundwater Monitoring. Analytical data obtained from the SWMU 16 wells indicate that the groundwater has been impacted with several explosives, VOC, and SVOC compounds. Although common laboratory contaminants were detected, no conclusive SVOCs or metals were detected above the MCL or RSK values during any sampling rounds from 1992 through 2004.

Several VOCs have been detected at concentrations above the MCL in a groundwater sample collected during several of the sampling rounds. Antimony was detected in two wells at concentrations above the MCL during the Phase I RFI, but was not detected in these same wells

during the Phase II RFI. Similarly, lead and arsenic were detected in groundwater at concentrations exceeding MCLs and background concentrations during the Phase I RFI, but were not detected in the same wells sampled during the Phase II RFI. These differences may be the result of different groundwater sampling techniques. (AE 1998)

**Soil, Sediment, and Surface Water:**

Several metals were detected at concentrations above their background concentrations but below their IRGs in the soil, sediment, and surface water analyzed at this SWMU group (AE 1998).

A data gap study for VOCs, SVOCs, explosives, and metals contamination was completed in May 2002. Some VOCs were found above regulatory limits. A CMS was completed in FY05 recommending the upgrade of existing cap and MNA. (USAEC 2006)

A landfill cover investigation was completed in FY04 as part of the CMS; results indicated upgrades are needed (USAEC 2006). A Statement of Basis was presented to the public in December 2005 which recommended capping and MNA (USEPA 2005b).

**Cleanup Strategy:**

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use, MNA, and soil cap repair are required at this SWMU group.

**4.2.1.5 KAAP-05 Inactive Landfill, Admin and Construction (SWMU-15)**

<b>TABLE 4-10 KAAP-05 INACTIVE LANDFILL, ADMIN AND CONSTRUCTION (SWMU-15)</b>		
<b>Phases</b>	<b>Start</b>	<b>End</b>
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200606
CMI(C)	200603	200706
CMI(O)	200707	
Remedy in Place (RIP)	200707	
<b>Response Complete Expected: 203707</b>		

Source: USAEC 2006

**Site Description:**

KAAP-05 is located in the northwest portion of KSAAP, immediately south of Road 2 and west of the 200 Area (**Figure E-37**). The site occupies approximately 12 acres of a 40-acre parcel permitted for landfill use. This 12-acre portion stopped receiving waste in 1982. Waste

disposed of in the past historically included inert grenade bodies, asbestos, fly ash from the CWP, maintenance operation waste, sludge from the anaerobic digester, and trash. Currently, waste is restricted to admin and construction in the active portion of the landfill. (USAEC 2006)

The Preliminary Assessment/Site Investigation (PA/SI) was completed in March 1989. The Phase I RFI was completed in August of 1994, the Phase II RFI in June 1998, and groundwater monitoring started in March 1999 (USAEC 2006). Subsurface soil samples, surface soil samples, sediment samples, surface water samples, and groundwater samples were collected as part of the investigations. With the exception of groundwater samples, inorganic constituents were not detected in the media sampled during either the Phase I or Phase II RFI at concentrations exceeding both background and the available IRGs. A data gap study for VOCs, SVOCs, explosives, and metals contamination was completed in May 2002. No organics or metals were found above regulatory limits. A CMS was completed in August 2004 recommending the upgrade of the cap and LTM. (USAEC 2006)

### Groundwater:

Barium and lead were detected in one well during the Phase RFI at concentrations exceeding both background and the MCL. However, these results were not confirmed when this well was re-sampled during the Phase II RFI. Organic constituents detected in the media sampled during the investigations did not exceed available screening criteria. (AE 1998)

### Cleanup Strategy:

A Statement of Basis was presented to the public in December 2005 recommending capping and LTM with dioxin/furan sampling of surface water and sediment in Pond 36 in conjunction with 5-year review (USEPA 2005b). Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use, LTM, demonstrating MNA, and soil cap repair are required at this SWMU group.

#### 4.2.1.6 KAAP-09 Burning Cages (SWMU-23)

TABLE 4-11 KAAP-09 BURNING CAGES (SWMU-23)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200306
Design (DES)	200203	200312
CMI(C)	200507	200612
LTM	200701	201212
<b>Response Complete Expected: 200612</b>		

Source: USAEC 2006

**Site Description:**

KAAP-09 is located in the east central portion of KSAAP (**Figure E-37**). These cages (Nos. 14, 17, 22) were used to burn explosive contaminated trash from the production lines prior to construction of the CWP. These burn cages were used from approximately 1952 to 1985. Each cage was surrounded on 3 sides by an 8-foot berm (USAEC 2006). The burning cages had natural soil bottoms upon which non-hazardous, explosive compounds-contaminated material was burned when the CWP was not operating. (USAEC 2006)

The PA/SI was completed in 1989. The Phase I RFI was completed in August 1994 and the Phase II RFI in June 1998 (RC 1998). Subsurface soil samples, surface soil samples, groundwater samples, and cyclotrimethylenetrinitramine (RDX) field screening samples were collected as part of the investigations. None of the field screen samples contained detectable levels of RDX. Contaminants detected in one or more of the media analyzed at SWMU Group 23 included SVOCs, VOCs, PCBs, explosive compounds, dioxins/furans, and total metals. (AE 1998)

**Soil:**

Explosives, PCBs, lead, dioxins and furans were detected in the soil. The concentrations of dioxins/furans in subsurface soils within Burning Cages 14 and 17 exceeded the IRG. However, concentrations of dioxins/furans in the surface soil around the burning cages were below the IRG. In general, the highest concentrations of metals were detected in soils collected from Burning Cage 17. Explosive compounds were detected in the surface soil samples within the burning cages during Phase I RFI. Other constituents were detected either at concentrations below screening criteria or were not present at levels of concern. (AE 1998)

A data gap study of the soil tested for explosives, dioxins, furans, and metals contamination was completed in May 2002. Lead and explosives exceeded their cleanup standards.

**Groundwater:**

Lead and antimony were detected in the groundwater at their MCLs (USAEC 2006).

**Cleanup Strategy:**

The contaminated soil removal was completed in Summer 2005 and a final inspection was completed in August 2005. Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group. USEPA is currently reviewing the removal action report. This SWMU group status may change based on subsequent USEPA review.

## 4.2.1.7 KAAP-10 Open Burning Pads (SWMUs-11 and 24)

TABLE 4-12 KAAP-10 OPEN BURNING PADS (SWMUS-11 AND 24)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200108
DES	200103	200109
CMI(C)	200108	200712
LTM	200801	201301
<b>Response Complete Expected: 200712</b>		

Source: USAEC 2006

## Site Description:

KAAP-10 is located in the east central portion of KSAAP (**Figure E-37**). Pads 1-6 were in use from 1967 to 1984 to burn propellants, explosives and pyrotechnics (PEP) waste on the ground. Use of Pads 1-4 (SWMU-11) stopped in 1984. Pans were installed in 1984 at Pad 5 (SWMU-24) to use for open burning of explosive waste, while Pad 6 (SWMU-24) was infrequently used for burning/flashing explosive-contaminated material too large for the CWP. (USAEC 2006) The residue from the process was either salvaged or disposed of in SWMU-15 (AE 1998).

An RFA was completed in March 1989. The Phase I RFI was completed August 1994 and the Phase II RFI in June 1998 (RC 1994b, RC 1998).

## Soil:

Soil sampling detected RDX, TNT, and lead above RSK. Dioxins/furans, PCBs, SVOCs, and explosives were detected below screening criteria. The metals and explosives-contaminated soil removal for Pads 1-4 was completed in Spring 2003. In 2005, it was determined that Pad 6 was not eligible for Environmental Restoration, Army (ER,A) funding since it is still active. (USAEC 2006)

## Groundwater:

Previous groundwater investigations at SWMU-11 include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2003 Supplemental Groundwater Investigation, and the 2004 Annual Groundwater Monitoring. Analytical data obtained from SWMU-11 wells indicated no VOCs or SVOCs were detected above the MCL or RSK values during any sampling rounds. Arsenic was detected at concentrations above the MCL and RSK values, though the concentrations were within the upper background limit.

## Cleanup Strategy

A Statement of Basis was presented to the public in December 2005 recommending groundwater monitoring for Pads 1-6 (USEPA 2005c). Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group.

A removal action at Pad 5 is scheduled for FY07.

#### 4.2.1.8 KAAP-16 300 Area Wastewater Sumps and Discharge Points (SWMU-5)

TABLE 4-13 KAAP-16 300 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-5)		
Phases	Start	End
RFA	198701	198808
CS	198701	198808
RFI/CMS	199109	200305
DES	200203	200306
CMI(C)	200303	200612
LTM	200701	201101
<b>Response Complete Expected: 200612</b>		

Source: USAEC 2006

#### Site Description:

KAAP-16 consists of wastewater sumps, ditches and oxidation ponds (**Figure E-37**). The site is located in the north central portion of KSAAP, north of Road 1.5. This site has been in use from 1941 to present. (USAEC 2006)

Prior to construction of a wastewater treatment system, wastewater was discharged into unlined ditches and ponds. The trough and sump systems are constructed of concrete and have no secondary containment. Spillage/overflows have occurred around the sumps. Currently, the sumps are pumped regularly to prevent overflow. The IRP is funding cleanups related to discontinued wastewater discharges to unlined ditches and ponds. (USAEC 2006)

The RFA was completed in March 1989. Phase I (August 1994) and Phase II RFI (June 1998) investigations included sampling and analyses of subsurface soil, surface soil, sediment, fish tissue, surface water, and groundwater. (AE 1998)

**Surface and Subsurface Soil:**

A soil CMS was completed in February 2001. Explosives were detected in the soil and groundwater at low levels. The data gap study (May 2002) tested for explosives and metals in soil and groundwater. RDX was found in the soil above regulatory limits. A Soil Decision Document was released in August 2002. Hot spots were removed in Spring 2003. The groundwater CMS was completed in February 2005 and recommended post-excavation groundwater monitoring. A Statement of Basis was presented to the public in December 2005. (USAEC 2006)

**Groundwater:**

Previous groundwater investigations at the 300 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2001 Data Gap Study, and the 2004 Annual Groundwater Monitoring. No explosives, VOCs, or SVOCs were detected above the MCL or RSK values during any sampling rounds from 1992 through 2004. Most metals detected in the 300 Area groundwater have been below background levels for KSAAP and no conclusive MCL or RSK exceedances have been reported.

Based on the groundwater data collected from other areas at this SWMU Group, risks from groundwater do not appear to be a concern (AE 1998). The February 2005 groundwater CMS for Area 300 recommends semi-annual groundwater monitoring for explosives and metals using the existing monitoring well network (USAEC 2004b).

**Surface Water and Sediment:**

Metals contamination exceeding screening levels extends in ditch sediments approximately 200 to 300 feet downstream of the sumps (headwaters of the ditches). Surface water in the pond contained some low levels of SVOCs exceeding screening levels. Sediments in the pond contain metals above screening levels and some VOCs and SVOCs exceeding screening levels; the contamination extends at least 1.4 feet vertically below the bottom of the pond. Samples from the pond berm show surface contamination with metals exceeding screening levels, as do shallow subsurface samples collected at the northeast corner of the pond (where seepage from the pond exists). (AE 1998)

**Cleanup Strategy:**

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required for this SWMU Group.

## 4.2.1.9 KAAP-17 500 Area Wastewater Sumps and Discharge Points (SWMU-6)

TABLE 4-14 KAAP-17 500 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-6)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200503
CMI(C)	200303	200612
LTM	200701	201101
<b>Response Complete:</b> 200612		

Source: USAEC 2006

#### Site Description:

KAAP-17 is located in the north central portion of KSAAP, north of Road 1.5 and west of the 300 Area (**Figure E-37**). It was used from 1942 to 1974. The sumps were open-topped, constructed of concrete, and designed to overflow to unlined ditches. Solids that collected into the sumps were removed and burned at the open burning grounds.

The Phase I RFI was completed in August 1994 and the Phase II RFI was completed in June 1998 (RC 1994b, RC 1998). A data gap study was completed in May 2002 including testing for explosives and metals in soil and groundwater. No additional exceedances were found. (USAEC 2006)

#### Soil:

Explosives, metals, and polynuclear aromatic hydrocarbons (PAHs) were found in the soil at high levels. Hot spot removal of contaminated soil was completed in Spring 2003. (USAEC 2006)

#### Groundwater:

Previous groundwater investigations at the 500 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2001 Data Gap Study, and the 2004 Annual Groundwater Monitoring. No conclusive explosives, VOCs, SVOCs, pesticides or PCBs were detected above the MCL or RSK values during any sampling rounds from 1992 through 2004. Beryllium and thallium were each detected once in groundwater samples collected at the 500 Area at concentrations above the MCL and RSK.

The March 2005 groundwater CMS for Area 500 recommended four years of groundwater monitoring for explosives and metals using the existing monitoring well network (USAEC 2005a). A Statement of Basis was presented to the public in December 2005 recommending semiannual groundwater monitoring (USEPA 2005c).

## Cleanup Strategy:

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group.

## 4.2.1.10 KAAP-18 700 Area Wastewater Sumps and Discharge Points (SWMU-25)

TABLE 4-15 KAAP-18 700 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-25)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200203
Interim Remedial Action (IRA)	199804	199806
DES	199605	200212
CMI(C)	200303	200405
CMI(O)	200405	203604
<b>RIP: 200405</b>		
<b>Response Complete Expected: 203604</b>		

Source: USAEC 2006

## Site Description:

KAAP-18 has been in use from the 1940s to present and is located in the north central portion of KSAAP, south of the 500 Area (**Figure E-37**). Prior to construction of the industrial wastewater treatment system in the 700 Area, wastewater was discharged into in-ground sumps. Wastewaters were then treated with acetic acid, sodium nitrate and sodium hydroxide and allowed to overflow into unlined ditches and ponds. The 700 Area was also used for loading, assembling, and packing detonator, boosters, and expulsion charges. Past processes resulted in lead being discharged to surrounding soils. (USAEC 2006)

A Consent Order between KSAAP and the KDHE was issued in March 1989, which focused on defining and cleaning up lead-contaminated soils and VOC/SVOC-contaminated groundwater present in the 700 Area. (USAEC 2006)

## Soil:

A soil IRA was completed in July 1998 and included the removal and disposal of explosive-contaminated soils to an off-site hazardous waste facility. The lead-contaminated soil and sediments were treated to non-hazardous levels and disposed of in a permitted (RCRA Subtitle D) landfill. Soil cleanup was approved by KDHE in March 1999 and no further soil remedial actions were required.

## Groundwater:

A Groundwater Assessment Monitoring Investigation was completed in July 1999 to fully define the extent of groundwater contamination (Radian 1999). The report identified several contaminants above MCLs. The chosen remedial action for groundwater was MNA. In April 2003 seven new shallow wells and two new deep wells were installed to meet the MNA Remedial Action well network requirement of 24 wells. The MNA remedial action was initiated in the third quarter of 2003. The MNA remedial action, as defined in the Groundwater Remedial Design Report and Remedial Action Work Plan, requires quarterly sampling (VOCs only) and reporting (USAEC 2003). A Closure/Post Closure Plan for the 700 Area was completed in December 2004.

## Cleanup Strategy:

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and MNA are required at this SWMU group.

#### 4.2.1.11 KAAP-19 800 Area Wastewater Sumps and Discharge Points (SWMU-7)

TABLE 4-16 KAAP-19 800 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-7)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200609
CMI(C)	200305	200706
CMI(O)	200707	203712
<b>RIP: 200707</b>		
<b>Response Complete Expected: 203712</b>		

Source: USAEC 2006

## Site Description:

KAAP-19 was in use from 1942 to 1974 and is located in the north central portion of KSAAP, west of Road 1.5 and the 1700 Area (**Figure E-37**). Opened in-ground sumps and troughs covered with metal gratings were used to convey explosive wastewater. Solids were allowed to settle out in the bottom of sumps and wastewater containing explosives discharged into the ditches around the sumps. (USAEC 2006)

The PA/SI was completed in 1989. The Phase I RFI was completed in August 1994, and the Phase II RFI was completed in June 1998. (USAEC 2006).

**Soil:**

Low levels of explosives and lead were detected in soils and sump sediments (USAEC 2006). A total of 420 cubic yards of metals- (lead) contaminated soils were removed in Spring 2003.

**Groundwater:**

Previous groundwater investigations at the 800 Area include the Phase II RFI in 1996, the 2002 Data Gap Study, the 2004 Annual Groundwater Monitoring and the 2004 Supplemental Groundwater Investigation. Various explosives have been detected at concentrations below the MCL and RSK values. Various VOCs and SVOCs have been detected above the MCL and RSK values during several sampling rounds. Most metals were detected in the 800 Area groundwater and have been within background levels for KSAAP. No conclusive MCL or RSK exceedances have been reported.

A Groundwater Data Gap Study completed in 2002 reported tetrachloroethylene (PCE) (15.8 parts per billion [ppb]) and trichloroethylene (TCE) (7.3 ppb) above regulatory limits in only one monitoring well (MW 10-5) (Plexus 2002). However, groundwater sampling results from March 2004 showed increased concentrations of PCE (219.54 ppb) and TCE (78.9 ppb) in well MW 10-5.

The 2005 Groundwater CMS for Area 800 indicates that MNA, with Facility and Land Use Controls, is the recommended alternative for groundwater at the site. The CMS report recommends semi-annual groundwater monitoring for VOCs and lead through the wells to be sampled and the suite of analytes may be periodically re-evaluated. Existing facility controls (fences and guards) should be continued for the 800 Area. As long as KSAAP continues to operate, these facility controls help reduce the likelihood of human exposure to the contamination in groundwater. Furthermore, land use controls should be implemented to notify any new owners and the community of past land use and groundwater contamination, and restrict use of groundwater for as long as necessary for removal of risk (USAEC 2005c).

**Cleanup Strategy:**

A Statement of Basis was presented to the public in December 2005, which recommended MNA with sampling for VOCs and lead on a semiannual basis (USEPA 2005d). Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and MNA are required at this SWMU group.

## 4.2.1.12 KAAP-20 900 Area Wastewater Sumps and Discharge Points (SWMU-8)

TABLE 4-17 KAAP-20 900 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-8)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200406
DES	200103	200406
CMI(C)	200303	200612
LTM	200701	201101
<b>Response Complete Expected: 200612</b>		

Source: USAEC 2006

#### Site Description:

KAAP-20 is located in the central portion of KSAAP, north of Road 2.5 (**Figure E-37**). Prior to construction of the 900 Area industrial wastewater treatment system, wastewater was discharged directly to the 900 Area unlined ditches and oxidation ponds. The site was in use from 1942 to 1975. (USAEC 2006)

#### Soil:

An RFA was completed in 1989. The Phase I RFI was completed in August 1994 and explosives and lead were detected in soil (USAEC 2006). Arsenic and cadmium were also found (TechLaw 2006). The Phase II RFI was completed in June 1998 and, with the exception of a common laboratory contaminant (bis(2-ethylhexyl)phthalate), no contaminants were detected. A soil removal was completed in Spring 2003. (USAEC 2006)

#### Groundwater:

Previous groundwater investigations at the 900 Area include the Phase I RFI in 1992 and the Phase II RFI in 1996. No conclusive explosives, VOCs, SVOCs, or metals were detected above the MCL or RSK values during any sampling rounds from 1992 through 2004.

The July 2004 groundwater CMS for Area 900 recommended semi-annual groundwater monitoring for explosives and metals using the existing monitoring well network (USAEC 2005e). A Statement of Basis was presented to the public in December 2005 recommending semiannual groundwater monitoring (USEPA 2005c).

## Cleanup Strategy:

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group.

## 4.2.1.13 KAAP-21 1000 Area Wastewater Sumps and Discharge Points (SWMU-9)

TABLE 4-18 KAAP-21 1000 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-9)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200407
DES	200101	200408
CMI(C)	200303	200612
LTM	200701	201101
<b>Response Complete Expected: 200612</b>		

Source: USAEC 2006

## Site Description:

KAAP-21 is located in the central portion of KSAAP, south of the 900 Area (**Figure E-37**). Prior to construction of the industrial wastewater treatment system in the 1000 Area, wastewater was discharged into the unlined ditches and oxidation ponds. In-ground sumps and troughs were constructed of concrete and are open-topped. This site was in use from 1942 to 1974. (USAEC 2006) During this time frame wastewater containing explosive compounds was discharged into the oxidation ponds via sumps and drainage ditches. Sludge was periodically removed from the sumps and incinerated at the burn pads (USAEC 2004d).

The RFA was completed in 1989. The Phase I RFI was completed in August 1994 and the Phase II RFI was completed in June 1998. (USAEC 2006)

## Soil:

Metals and explosives were detected in the soil. A contaminated soil removal was completed in Spring 2003.

## Groundwater:

Previous groundwater investigations at the 1000 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2001 Data Gap Study, 2003 Annual Groundwater Monitoring, and a 2004 Data Gap Study. Analytical data obtained from the 1000 Area wells indicate that the

groundwater has been impacted with several explosives. However, the contaminant levels in the groundwater have decreased between 1992 and 2003. No conclusive VOCs, SVOCs or metals were detected above the MCL or RSK values during any sampling rounds from 1992 through 2003.

The July 2004 groundwater CMS for Area 1000 recommended five years of semi-annual groundwater monitoring for explosives and metals using the existing monitoring well network (USAEC 2004a).

**Cleanup Strategy:**

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group.

**4.2.1.14 KAAP-22 1100 Area Wastewater Sumps and Discharge Points (SWMU-10)**

TABLE 4-19 KAAP-22 1100 AREA WASTEWATER SUMPS AND DISCHARGE POINTS (SWMU-10)		
Phases	Start	End
RFA	198708	198808
CS	198708	198808
RFI/CMS	199109	200606
CMI(C)	200108	200706
LTM	200707	203712
<b>Response Complete Expected: 200706</b>		

Source: USAEC 2006

**Site Description:**

KAAP-22 is located in the south central portion of KSAAP, north of Road 4 (**Figure E-37**). It has been used from 1942 to the present. Prior to construction of a wastewater treatment system, wastewater containing explosives was discharged to unlined ditches and oxidation ponds. Spills and overflows have occurred around the in-ground sumps. Currently, the sumps are pumped regularly to prevent overflow (USAEC 2006).

The PA/SI was completed in 1989. The Phase I RFI was completed in August 1994 and the Phase II RFI in June 1998. (USAEC 2006)

**Soil:**

Metals and explosives were detected in soils. In May 2003, a soil removal of approximately 1,200 cubic yards (cy) of metals-contaminated soil and 1,000 cy of explosive contaminated soil was completed. (USAEC 2006)

## Groundwater:

Previous groundwater investigations at the 1000 Area include the Phase I RFI in 1992, the Phase II RFI in 1996, the 2001 Data Gap Study, the 2003 Supplemental Groundwater Investigation, and the 2004 Annual Groundwater Monitoring. Analytical data obtained from the 1100 Area wells indicate that the groundwater near the sumps has been impacted with several explosives and related VOCs including RDX, in excess of the action level in groundwater. No conclusive SVOCs or metals were detected above the MCL or RSK values during any sampling rounds from 1992 through 2004.

The July 2004 groundwater CMS for Area 1100 indicates that LTM with Facility and Land Use Controls is the recommended alternative for groundwater at the site. The CMS report recommends semi-annual groundwater monitoring for explosives through the wells to be sampled and the suite of analytes may be periodically re-evaluated.

## Cleanup Strategy:

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at this SWMU group.

## 4.2.1.15 KAAP-43 1200 Area Ammonium Nitrate and 105 mm Rework

TABLE 4-20 KAAP-43 1200 AREA AMMONIUM NITRATE AND 105 MM REWORK		
Phases	Start	End
RFA	198905	198912
RFI/CMS	200209	200512
CMI(C)	200606	200712
LTM	200801	201301
<b>Response Complete Expected: 200712</b>		

Source: USAEC 2006

## Site Description:

KAAP-43 encompasses the entire 1200 Area (**Figure E-37**). This was an ammonium nitrate production facility from 1942 to 1951. From 1946 to 1951, the facility was leased to the Spencer Chemical Company, who produced fertilizer-grade ammonium nitrate. In 1953, the production line operations were altered to rework 105 mm cartridge cases and remained as such until 1957. In 1996, this line was used to assemble the payload module for the Tomahawk Missile. (USAEC 2006)

USCHPPM sampled around four building groups in fiscal FY2000. PCBs and lead were found above regulatory levels in soil.

The Relative Risk Site Evaluation was assigned in 2000 and the RFA was completed in FY04 (USAEC 2006).

An RFI was completed in November 2005 for the 1200 Area (USACE 2005a). The objectives of the RFI were to determine the nature, extent, and migration potential for chemical constituents suspected of being released to the environment; to provide data for a screening level human health and ecological risk assessment; and to address the data gaps identified in the following reports. To meet these objectives the U.S. Army performed the following tasks:

- Performed investigations of surface soil, subsurface soil, sediments, surface water, and ground water;
- Compared the chemical analytical results to specific screening levels (Region 9 Preliminary Remediation Goals (PRGs)) as a means of defining contamination (USEPA 2004a);
- Evaluated the chemical analytical data with respect to the site conditions and contaminant fate and transport properties; and
- Evaluated the lateral and vertical extent of contamination.

The following conclusions were based upon the RFA and RFI field activities, analytical laboratory reports, and risk assessment evaluations.

No further sampling and analysis activities are recommended for the following:

- On-Site Surface Soils (including ditches)
- On-Site Subsurface Soils
- Sediment (Tanks and/or Ponds)

Recommendations in the Draft Final RFI were made for the following items:

#### **Surface Soil (Ditch) Sampling:**

The confluence at Ditches D and E had PCB detections and total chromium exceedances above the RSK. The confluence of Ditch D and E flows west and off site of the defined 1200 Area to the south southwest into Pond 2 and then south southwest into Pond 3. Detections of PCBs and detections and exceedances of total chromium were reported for the sediment samples in Ponds 2 and 3. No data was collected west of the Ditch D and E confluence or north of the Pond 2 sediment samples. Additional incremental sampling for PCBs, total chromium, lead, and PAHs may be required downgradient of these areas.

#### **Surface Water, Sediment and Fish Tissue Sampling:**

In 1996, LAW performed an Interim Measures Study which evaluated the potential human health risk associated with consumption of fish, which included surface water, sediment and fish tissue samples. Pond 3 was one of thirteen ponds that were sampled. Samples collected at Pond 3 are listed below:

- 2 surface water samples were collected and analyzed for VOCs, SVOCs, pesticides/PCBs, explosives, dioxins/furans, herbicides, TRPH, total metals, and general chemistry.
- 2 sediment samples were collected and analyzed for VOCs, SVOCs, pesticides/PCBs, explosives, dioxins/furans, TRPH, total metals, and general chemistry.
- 24 fillet samples of Largemouth Bass were collected and analyzed for SVOCs, pesticides/PCBs, explosives, dioxins/furans, and total metals.

As a result of the analysis, trace levels of mercury were found in the fish tissue sample with the highest concentration being 0.467 mg/kg. "Risks were calculated for ingestion of largemouth bass at Pond 3 and the hazard index for adult fish ingestion is 0.2, which is less than the point of departure. For fish ingestion by a child, the calculated hazard index (HI) is 0.4, which is less than the point of departure. In addition, the cancer risk ( $8 \times 10^{-8}$ ) is below the target risk of  $1 \times 10^{-6}$ " (LAW 1996).

Based on the reported analytical results and their comparison to the Federal Drug Administration (FDA) and KDHE action levels, there is no reason to close any of the ponds sampled to public fishing, nor is there any reason to recommend issuance of fish consumption advisories (LEES 1996).

#### Cleanup Strategy:

Modifications to Part II of the RCRA Permit (ID #KS0213820467) originally issued by USEPA on November 7, 1989 state that institutional controls for groundwater use and LTM are required at the 1200 Area. An IRA is planned for the removal of lead and PCB-contaminated soils in 2006.

#### COMPLETED IRP SITES:

The following sites, which were assigned USEPA SWMU group numbers and investigated as part of the IRP and are now considered complete, are described in this section.

##### *4.2.1.16 KAAP-12 Container Storage Units (SWMU Group 21)*

KAAP-12 (SWMU Group 21) consists of the hazardous waste storage units located in the 1700, 1800, 1900, and 2700 Areas (**Figure E-37**). The storage units consist of 18 igloo structures in the 1700, 1900, and 2700 Areas and one explosives-storage magazine located in the 1800 Area.

The 19 RCRA-permitted container storage units were visually inspected during the Phase I RFI to determine if any contamination may have resulted from the storage of wastes in the units. No evidence inside, or outside, of the storage units was observed that would indicate release of stored material to the environment. Many of the igloos were also inspected during the ECP VSI. No evidence of a release was observed. **Appendix G** includes photographs of Hazardous Waste Storage Igloos. The Phase I RFI report recommended no further investigations, and this group was not investigated in the Phase II RFI. This site is listed as Response Complete in the AEDBR. (AE 1998) No visual indications of spills or releases were observed during the 2006 VSI.

**4.2.1.17 KAAP-15 Sewage Treatment Plant Sludge Drying Beds (SWMU Group 18)**

SWMU Group 18 consists of two sludge drying beds located at the 2200 Area, the Sewage Treatment Plant, in the southwest corner of KSAAP (**Figure E-37**). The sludge drying beds were constructed in 1941, with rehabilitation of the beds occurring in 1985. The sludge drying beds are still in operation, but rarely used. Sludge and solids from the primary settling tanks are transferred to an anaerobic sludge digester and then to the sludge drying beds. Wastewater from the drying beds is transferred to secondary settling tanks. Wastewater from the Sewage Treatment Plant is discharged through the NPDES outfall to a drainage ditch tributary to Labette Creek.

Surface and subsurface soil samples and groundwater samples were collected during the RFI investigations. Based on the analytical results, metals were the only constituents that exceeded screening criteria. Several metals were detected in the subsurface soil concentrations exceeding background concentrations but not IRGs. Arsenic was detected in one subsurface soil sample, collected at-depth, at a concentration of 142 mg/kg which exceeded both the background and the IRG concentration. Arsenic was not detected in the groundwater at this site. With the exception of thallium, which is not believed to be related to the sludge drying beds, no constituents were detected in groundwater at concentrations above the MCL.

Based on the nature and location of the constituents detected at SWMU Group 18, migration of constituents from the sludge drying beds does not appear to be occurring.

No potential data gaps were identified for SWMU Group 18. The HHBRA concluded that unacceptable risks to human health are not present at this SWMU and no further action was recommended (AE 1998).

The Final CMD indicates that LTM and institutional controls are necessary because the U.S. Army has not demonstrated soil and groundwater contamination below the cleanup standards for unrestricted use (USEPA 2006).

**4.2.1.18 KAAP-23 Waste Analysis Chemistry Laboratory (Building 58)**

The Waste Analysis Chemistry Laboratory (Building 58) was constructed in 1941, and has always been used as a chemistry laboratory. It is located in the north central portion of KSAAP (**Figure E-37**). Chemical analysis of various waste materials and discharge waters are completed at the waste analysis laboratory. Numerous laboratory chemicals are stored at this facility and laboratory wastes are generated and placed in appropriate containers prior to being sent off site. The 2006 IAP indicates that the Waste Analysis Chemistry Laboratory had a Response Complete status in December 1989. The laboratory was still active and no visual indications of spills or releases were identified during the 2006 ECP VSI.

**4.2.1.19 KAAP-24 Explosive Waste Incinerator (SWMU Group 20)**

KAAP-24 (SWMU Group 20) is located in the east 2700 Area, in the far east-central portion of KSAAP (**Figure E-37**). It consists of the EWI (SWMU-105) and associated cyclone separator (SWMU-106) and baghouse (SWMU-107).

The Phase I RFI investigation at this site consisted of only air modeling, which was done to characterize the emissions from the stack and to estimate the impact on both on-site and off-site potential receptors. No sampling was performed at the EWI.

The Phase I RFI report recommended no further investigation for this site. It was not investigated in the Phase II RFI. This site is listed as Response Complete in AEDBR (AE 1998). KSAAP has developed a schedule for the closure of the EWI. The schedule has been submitted to USEPA and closure is expected to be completed in 2010.

#### *4.2.1.20 KAAP-25 200 Area Oil Land-Farm (SWMU Group 3)*

KAAP-25 (SWMU Group 3) is located south of the 200 Area and consists of a former oil land-farm area (**Figure E-37**). The former land-farm consisted of three cells used for the treatment of oil-contaminated soil from POL spill cleanups. Use of the area for this purpose began in 1984, and was discontinued in 1993.

Phase I and Phase II RFI investigations included subsurface soil, surface soil, sediment, and groundwater samples. Metals in soil and sediment samples were detected at concentrations exceeding the background concentrations but below the IRG screening criteria. Metals that may be site-related were detected at concentrations above background concentrations in soil and sediment samples. Based on the collected data, metals above background concentrations are present outside of the land-farm cells, indicating that migration may have occurred to the surrounding and down gradient areas. However, the concentrations of these metals do not exceed their IRGs.

Site-related PAHs were detected at concentrations slightly exceeding (i.e. within one order of magnitude) screening criteria in surface soil samples collected from Cell 1. However, with the exception of trace concentrations of one phthalate and two PAHs that do not have screening criteria, constituents were not detected at concentrations above screening criteria in soil or sediment samples collected from areas outside the land-farm cells. Therefore, the detected contamination appears to be limited to the land-farm cells with limited migration of contaminants. Unacceptable risk is not present at SWMU Group 3 due to the release of site-related constituents. There were no potential data gaps identified for SWMU Group 3. This site is listed as Response Complete in AEDBR (AE 1998).

The Final CMD indicates institutional controls are necessary. The U.S. Army has not demonstrated soil and groundwater contamination below the cleanup standards for unrestricted use.

#### *4.2.1.21 KAAP-26 200 Area Oil/Water Separator (SWMU Group 2)*

KAAP-26 (SWMU Group 2) is the OWS located in the northwestern portion of KSAAP in the 200 Area (**Figure E-37**). It consists of a 10-foot wide concrete dike constructed across an open, unlined ditch. This ditch receives wastewater from the 200 Area, which includes a vehicle wash rack located in Building 202. Water discharges from the OWS to Pond 28 via four under drains.

Phase I and Phase II RFI investigations included subsurface soil, sediment, and surface water samples. Inorganic constituents detected in subsurface soil and sediment samples were below the IRG screening criteria. Lead was detected at a concentration exceeding the background concentration in two Pond 28 surface water samples; however, screening criteria for lead in surface water were not available for comparison.

Chlordane, detected at a concentration above the IRG in one ditch sediment sample, is believed to be an isolated incident and is not believed to be related to site activities. Trace levels, below the practical quantitation limit (PQL) of several SVOCs without screening criteria were detected in the subsurface soil and sediment samples. RDX and cyclotetramethylenetetranitramine (HMX) were detected at concentrations below the IRG in water samples from Pond 28. The presence of these explosive compounds is possibly a result of migration from the 700 Area, and is not believed to be related to activities at this area.

Based on the HHBRA (LEES 1998) there are no unacceptable risks at SWMU Group 2, no potential data gaps were identified, and no further action is recommended. This site is listed as Response Complete in AEDBR (AE 1998).

The Final CMD indicates institutional controls are necessary. The U.S. Army has not demonstrated soil and groundwater contamination below the cleanup standards for unrestricted use.

#### **4.2.1.22 KAAP-27 Mercury Fulminate Burial Site**

The Mercury Fulminate Burial Site (KAAP-27) was identified in the IRP Program as 1.55 acres located in the central portion of KSAAP, southwest of closed landfill KAAP-04, approximately 0.5 miles east of Road E, and south of Road 3. According to the Range Inventory, between 1942 and the late 1940s, percussion primers containing mercury fulminate were buried at this site. The final disposition of the mercury fulminate is unclear though several different accounts have been identified.

One account indicates that in the late 1940s, the U.S. Army arranged for the removal of the mercury fulminate and placed it in the KAAP-04 landfill. However, based on aerial photographic review, the KAAP-04 landfill did not exist during that time period (TechLaw 2006).

Another account is that the actual location of the mercury fulminate burial site was on the south side of the current industrial landfill (SWMU-146). The 1978 Installation Assessment refers to a "location No. 33;" however, no figures have been located to confirm the location (TechLaw 2006).

An additional account is that mercury fulminate was not buried, but instead was detonated in the OB/OD Grounds.

The 2006 IAP indicates the IRP identified Mercury Fulminate Burial Site (KAAP-27) had a Response Complete status in December 1989. KAAP-27 was given the Response Complete status because it was being addressed under KAAP-04. Based on interviews and document

reviews completed during the 2006 ECP VSI, there is no evidence supporting the burial of mercury fulminate at the site.

#### ***4.2.1.23 KAAP-28 Coal Pile Runoff (SWMU Group 19)***

This parcel is SWMU Group 19, which consists of a coal pile run-off catchment device and associated ditches located adjacent to and east of the 200 Area (**Figure E-37**). Constituents analyzed in the subsurface soils and groundwater did not exceed both the background concentrations and the IRG screening criteria. An identified data gap is the extent of down gradient metal and PAH contamination in sediment has not been defined. However, based on the results of the HHBRA, the risks associated with the source areas were considered acceptable. The Final CMD indicates LTM and institutional controls should be completed.

#### ***4.2.1.24 KAAP-35 Building 112 Sump, Ditch, Oxidation Pond (SWMU Group 1)***

KAAP-35 (SWMU Group 1) is located in the northwest portion of KSAAP in the 100 Area (**Figure E-37**). This SWMU group consists of the Building 112 laundry wash water sump, an underground drainage pipeline that has generally been referred to as a “ditch,” and an oxidation pond (Pond 30).

The sump was used as a settling tank for laundry process wastewater generated during the washing of miscellaneous powder-contaminated uniforms and rags used on the production lines. Discharge from the sump flowed via a drainage pipe to Pond 30. Pond 30 discharges to Labette Creek, approximately 3 miles downstream. This site was investigated based on the possibility that past discharges to Pond 30 may have contained explosive residues.

Based on Phase I and Phase II RFI analytical results, which included surface and subsurface soil, sediment, surface water, and groundwater samples, measured analytes appear to be present at concentrations generally below screening criteria (RC 1994b, RC 1998).

Based on the available Phase I RFI, IMAS, Phase II RFI data, and the results of the HHBRA, no potential data gaps were identified. This site is listed as Response Complete in AEDBR. However, the Final CMD (USEPA 2006) indicates institutional controls are necessary. The U.S. Army has not demonstrated soil and groundwater contamination below the cleanup standards for unrestricted use.

#### ***4.2.1.25 KAAP-38 Contaminated Waste Processor (SWMU Group 22)***

KAAP-38 (SWMU Group 22) is located in the east 2700 Area, in the far east-central portion of KSAAP (**Figure E-37**). It consists of the CWP (SWMU-102) and associated cyclone separator (SWMU-103) and baghouse (SWMU-104).

Phase I RFI activities included sediment sampling and air emissions modeling. No explosive compounds, SVOCs, or VOCs were detected in the samples collected.

The Phase I RFI report recommended sediment collection and analyses for metals, and investigation of the apparent landfills. However, this site was identified as not requiring further

investigation by the regulators and was not included in the Phase II RFI. This site is listed as Response Complete in the AEDBR. (AE 1998)

#### **4.2.1.26 KAAP-39 Building 314 Waste Oil/Toluene Underground Storage Tank (SWMU Group 4)**

KAAP-39 (SWMU Group 4) is located in the 300 Area, southwest of the intersection of Road 1 and Road E, and east of Building 314 (**Figure E-37**). This site consisted of a UST which was formerly used to store fuel oil but later was used to collect waste POL (No. 5 fuel oil and waste oil) and toluene. The mixture was burned in the waste oil boilers in Building 314. The installation date and history are not known, although a 1947 map of the 300 Area shows an apparent outline of a UST (AE 1998). The original tank was removed in 1992 after a new tank was installed. The new tank was subsequently removed in 1993.

The site was investigated during the Phase I RFI. It was closed in 1993 per RCRA Subtitle I subsequent to the Phase I investigation. Low levels of hydrocarbon contamination in soil were identified in the investigation, which did not require treatment. The Phase I report recommended no further action at this site, and it was not included in the Phase II RFI. This site is listed as Response Complete in the AEDBR (AE 1998).

Final CMD indicates institutional controls are necessary. The U.S. Army has not demonstrated soil and groundwater contamination below the cleanup standards for unrestricted use.

#### **4.2.1.27 KAAP-42 Sludge Drying Beds**

Sludge from the filter bed of the Water Treatment Plant is transported by truck and is dumped into two ponds along Road 2, south of 1700 Area (**Figure E-37**). These sludge-drying beds were specifically constructed for this purpose in 1977 and were designed to meet USEPA's criteria for suspended solids. The 2006 IAP indicates that the site has a status of Response Complete. The Final CMD indicates LTM and institutional controls should be completed because the U.S. Army has not demonstrated soil and groundwater contamination are below cleanup standards for unrestricted use.

### **4.2.2 Military Munitions Response Program**

KSAAP has one site in the MMRP, which is identified as KAAP-001-R-01 Old Ammunition Storage Area. The site is located in the south-central portion of KSAAP, adjacent to the northeast corner of the 1900 Area.

In 2002 USAEC, in conjunction with USACE, completed a Range Inventory at KSAAP. In 2003, a Closed, Transferring and Transferred Range/Site Inventory Report (CTT) was completed (AMC 2003). The CTT report identified three sites (Mercury Fulminate Burial Site, Old Burning Pads, and the Old Ammunition Storage Area) with possible UXO, discarded military munitions (DMM), and/or MC. Of the three sites identified, KAAP-27 Mercury Fulminate Burial site (now addressed under KAAP-04) and KAAP-10 Old Burning Pads were being

addressed under the IRP program and were therefore not included in the MMRP. The only site identified as eligible under the MMRP was the Old Ammunition Storage Area.

Based on the results of the Range Inventory and in support of the BRAC 05 action, a determination was made that additional information would be required pertaining to areas where munitions and explosives may present hazards at KSAAP. As a result, further records review was completed in November 2005 and finalized in February 2006 with the publication of the Final HRR for KSAAP (TechLaw 2006). The following section provides the findings and description of the Old Ammunition Storage Area as documented in the 2006 HRR.

#### *4.2.2.1 Old Ammunition Storage Area*

The Old Ammunition Storage Area was originally identified in the Range Inventory as comprising 3.02 acres of land located in the central portion of KSAAP (AMC 2003). However, an October 19, 2005 site visit to KSAAP by TechLaw staff and a review of aerial photography indicated that the location and acreage of the Old Ammunition Storage Area was misrepresented during the Range Inventory. Although it appears that a road/track leads into the location identified during the Range Inventory, storage activity does not appear to have occurred in that location due to the type of vegetation present and the lack of visible access to the area (TechLaw 2006). It appears that the actual location of the area extends further to the west, is closer to the fence of the igloo area (i.e., 1900 Area), and comprises approximately 26.76 acres.

The site was reportedly used as an open storage area for munitions containers returned to the United States following WWII. It is not known how long the munitions containers were stored there. An Installation Assessment of KSAAP dated August 1978 mentioned an area east of the 1900 Area as being used for open storage. The area was known as the "ARFO" (ammunition returned from overseas). Based on the 1978 Installation Assessment, the area was used as a storage area for high explosive (HE) munitions returned after WWII. The munitions were reportedly stored on gravel pads. The 1978 Installation Assessment indicated that the area was considered contaminated due to deterioration of the shipping containers and spreading of the munitions around the area, and soil cultivation was restricted due to suspected UXO (U.S. Army 1978b).

The 1978 Installation Assessment referred to a photograph and a figure depicting the location of the storage area; however, these were not located during the research for the 2006 HRR. An aerial photograph dated June 8, 1956 shows the area that was used as the Old Ammunition Storage Area. The area is crossed by what appears to be several dirt tracks that lead into three distinct areas and U-shaped features within each of the three areas. However, there does not appear to be any items stored at the site in the 1956 photograph. A 1973 aerial photograph was also reviewed; however, complete coverage of the Old Ammunition Storage Site area was not available. The 1973 aerial photograph included what appeared to be the two northernmost U-shaped features within the site, but no activities or stored materials were observed.

Munitions were reportedly stored at the site long enough for the shipping and storage containers to decompose. The Range Inventory report stated that munitions were scattered throughout the site due to the container decomposition; however, the types and quantities of munitions stored at

the Old Ammunition Storage Area could not be identified by KSAAP personnel at the time of the Range Inventory. The Old Ammunition Storage Area was used for cattle grazing, but the area has since been fenced (TechLaw 2006). On an aerial photograph dated 1996, it appears that the U-shaped berms are gone and a new perimeter fence that was installed around the 1900 Area transects the Old Ammunition Storage Area from the north to south. During the October 2005 HRR site visit, it was observed that the site was undeveloped and access to the area was limited by a closed gate and fence. According to interviews conducted at KSAAP for the HRR, interviewees stated that they had driven through the site, but that no DMM or scrap had been observed. In addition, personnel stated that no work had been conducted at the site to address munitions issues. No evidence of the Old Ammunition Storage Area or potential DMM and scrap was observed during the June 2006 ECP site visit.

#### 4.2.3 KSAAP Compliance Cleanup

There are currently no CC sites at KSAAP.

### 4.3 HAZARDOUS SUBSTANCES

Hazardous substances at KSAAP primarily consist of explosives and limited quantities of solvents. Many operations at KSAAP produce relatively small quantities of used hazardous materials (e.g., the silver recovery unit, laboratory cleaning activities, etc.). The materials from these operations are accumulated in production areas, stored in hazardous waste storage facilities, and shipped off site for recycling. Hazardous waste storage areas are presented in **Table 4-1**.

#### 4.3.1 Spent Solvents

Spent solvents are generated from KSAAP cleaning operations. Alcohol and acetone used for paint cleaning are generated in Areas 700 and 300. At the time of the 2006 VSI, less than 1 gallon of waste solvent was being generated on a weekly basis. Both wastes are accumulated in 55-gallon drums outside (SWMUs-14, 15, 44, and 45) the buildings where the waste is generated and stored in Hazardous Waste Storage Igloos until being shipped off site for recycling.

Spent toluene, from cleaning operations in Building 58, and waste oil were burned in the Area 300 Waste Oil Boilers (SWMUs-17 and 18). Both were mixed with fuel oil in a UST (SWMU-16) outside Building 314. The toluene is accumulated in five-gallon cans before being mixed for burning. The operation was regulated under KDHE Permit #190000.10. This operation was discontinued in the mid 1990's.

Methanol-soaked sawdust is used as a stabilizing, packaging material for explosives used in Area 700. The sawdust is considered potentially explosive and disposed of at the open-burning area.

A Paint Booth Sump (SWMU-5) in Area 200 produces a paint sludge/thinner mixture; the waste is considered hazardous due to EP toxic concentrations of lead and chromium. Areas 300 and 700 also produce spent paint sludge/thinner mixtures. Collectively, 5 gallons of paint

sludge/thinner mixture is produced each month at KSAAP. These waste streams are grouped together and treated as one waste stream. After accumulation, all paint wastes are stored in 55-gallon drums in Hazardous Waste Storage Igloos 1914 and 1917 (SWMUs-78 and 81) until they are shipped off site to recycling facilities.

### 4.3.2 Hazardous Waste Storage

Hazardous Waste Storage Igloos are located in the 1500, 1600, 1700, 1800 and 1900 Areas. The igloos are hemispherical, reinforced concrete vaults (all sides and floor are concrete) with a door at one end. The igloos are covered with two feet of earthen material on all sides except for the door. The floors slope toward the sides such that channels around the inside perimeter of the structure can collect spilled waste. Building 1813 (SWMU-77), the only hazardous waste storage building that is not an igloo, is a warehouse with concrete floors and tile walls. Materials in all buildings are stored on pallets.

### 4.3.3 Wastewater and Sludge

Wastewaters from the five munitions LAP lines (Areas 300, 700, 900, 1000, and 1100) are collected in sump and trough systems outside of the production buildings. The industrial wastewaters are suspected to contain explosives (HMX, RDX, TNT). The 300, 1000, and 1100 Areas are currently active. The 700 and 900 Areas are laid away, although some buildings are used for small-scale projects and research and development activities. The wastewater discharged from washing and cleanup operations on these lines is discharged to sumps via collection gutters that convey the wastewater from the production lines areas. The sumps are used as settling tanks for the wastewater and are cleaned out periodically.

#### 4.3.3.1 300 Area

The wastewater treatment facility in the 300 Area was constructed in 1981. Prior to 1981 wastewater was hauled from this area to one of the other treatment facilities located at KSAAP. 300 Area wastewater is not hazardous. 300 Area sludges are classified as hazardous wastes because they are listed wastes (K044 and K046). The sludges are collected in the sumps and stored on site before being sent to the burning grounds for destruction.

#### 4.3.3.2 700 Area

The 700 Area treatment facility was constructed in 1986. Area 700 wastewater was classified as hazardous (D008 and D002). Explosive-contaminated wastewater in the Area 700 Sumps and Trough Systems (SWMUs-25 through 44) was chemically “killed” by injecting sodium hydroxide/acetic acid and steam before discharging it to the area wastewater treatment facilities. The sludge from Area 700 was classified as hazardous because it was a listed waste (K044 and K046). The sludge was stored on-site before being transported off site for disposal.

**4.3.3.3 900 Area**

The 900 Area treatment facility was constructed in 1975. 900 Area wastewater is classified as hazardous (K047). Area 900 sludges were classified as hazardous wastes because they were listed wastes (K044 and K046). The sludges collected in the sumps were stored on site before being sent to the burning grounds for destruction.

**4.3.3.4 1000 Area**

The 1000 Area treatment facility was constructed in 1975. The Area 1000 Wastewater Treatment System provides backup wastewater treatment capacity for Areas 300, 900 and 1100.

**4.3.3.5 1100 Area**

The 1100 Area treatment facility was constructed in 1975. Area 1100 wastewater is classified as hazardous (K047). Area 1100 sludges are classified as hazardous wastes because they are listed wastes (K044 and K046). The sludges are collected in the sumps and stored on site before being sent to the burning grounds for destruction.

**4.3.4 Sanitary Waste**

Sanitary wastes are treated by the Sanitary Wastewater Treatment System (SWMUs-85 through 97) with primary and secondary settling.

**4.4 PETROLEUM AND PETROLEUM PRODUCTS**

According to facility personnel there are currently no active USTs at KSAAP. In the past, 25 USTs containing gasoline, diesel, or various fuel oils were identified at KSAAP. All former USTs have been removed (DZI EEPE 2006).

There are 40 registered ASTs in use at KSAAP. The details concerning former USTs and ASTs at KSAAP are provided in **Section 4.1.3** of this ECP. Current petroleum product storage at KSAAP includes ASTs containing diesel, gasoline and kerosene. Based on the inventory in the KSAAP Spill Control and Contingency Plan, the facility has used the following types of oil and petroleum products: (DZI 2001)

- Diesel fuel
- Kerosene
- Gasoline
- Waste Oil
- Nos. 2, 5 and 6 Fuel Oil
- MC 800 Road Oil

Used motor oil is generated during vehicle maintenance activities completed in the 200 Area. The used oil is collected at an accumulation point in the 200 Area. The accumulation point is an enclosed structure with a self-contained emergency spill basin. No signs of spills or releases were noted during the 2006 ECP site visit.

A landfarm operation was formerly used at KSAAP to provide treatment for oil-contaminated soil from spill cleanups and oil residues from old storage tanks. The Oil Landfarm (SWMU-6) consists of three cells and was used from the late 1980s until 1993. Contaminated soils were placed in the treatment cells and tilled/aerated monthly to enhance the treatment. Soil from the landfarm was sampled and analyzed quarterly to determine the level of VOCs still remaining. An estimated 5 tons of contaminated soil was treated before the site was closed (DZI EEPE 2006).

#### 4.5 POLYCHLORINATED BIPHENYLS

Historically, electrical transformers located throughout KSAAP contained PCB dielectric fluid. A comprehensive survey of all electrical transformers was completed in the mid-1990s to determine the PCB concentration in each transformer. Transformers with PCB concentrations less than 50 parts per million (ppm) are considered non-PCB-containing, transformers with PCB concentrations equal to or greater than 50 ppm but less than 500 ppm are PCB-contaminated, and transformers with PCB concentrations equal to or greater than 500 ppm are considered PCB transformers. Many of the transformers were determined to be non-PCB and none of the transformers met the criteria of a PCB transformer. However, the 34 transformers shown in **Table 4-21** contained concentrations of PCBs greater than 50 ppm and are considered PCB-contaminated (AE 1998).

Unit No.	Serial No.	Location	KVA	PCB Conc. (ppm)	Unit Status	PCB Quantity (kilograms)	Oil Quantity (gallons)
4746	13548	1109	UNK	76	In Service	UNK	UNK
67660	1789182	304	50	50	In Service	0.0067	40.00
67695	2514699	2433	3	95	In Service	0.0019	6.00
67721	3043938	704	5	83	In Service	0.0016	5.75
67832	3044627	2408	5	110	In Service	0.0021	5.75
67719	6044650	1119	5	62	In Service	UNK	UNK
67674	6140954	904	75	69	In Service	UNK	UNK
67670	6140956	203	75	58	In Service	UNK	UNK
67675	6140957	904	75	55	In Service	UNK	UNK
67671	6140961	203	75	60	In Service	UNK	UNK
89522	5X99904	1146	75	92	In Service	UNK	UNK

**TABLE 4-21**  
**PCB-CONTAINING TRANSFORMERS (GREATER THAN 50 PPM) IN USE AT KSAAP**

Unit No.	Serial No.	Location	KVA	PCB Conc. (ppm)	Unit Status	PCB Quantity (kilograms)	Oil Quantity (gallons)
67535	6551455	1201	37.5	230	In Service	0.024	31.50
67678	6606237	907	75	270	In Service	0.045	50.00
67676	6606244	907	75	240	In Service	0.04	50.00
61544	6704508	908	50	120	In Service	0.015	37.00
67664	6704515	908	50	240	In Service	0.03	37.00
67662	6704516	503	50	140	In Service	0.017	37.00
67663	6704517	503	50	140	In Service	0.017	37.00
67665	6704518	908	50	240	In Service	0.03	37.00
67661	6704519	503	50	280	In Service	0.034	37.00
67572	6705531	2420	37.5	170	In Service	0.018	32.00
67573	6705549	2420	37.5	270	In Service	0.029	32.00
67515	6705643	1011	10	240	In Service	0.0084	10.50
67601	6706127	702	25	150	In Service	0.015	30.00
67602	6706159	702	25	240	In Service	0.024	30.00
67641	6706369	1117	25	210	In Service	0.021	30.00
67640	6706370	921	25	270	In Service	0.027	30.00
67619	6706401	921	25	240	In Service	0.024	30.00
67642	6707830	1117	25	120	In Service	0.012	30.00
67643	6707832	1117	25	140	In Service	0.014	30.00
	680453	1406	UNK	410	In Service	UNK	UNK
67517	694313	1018	10	52	In Service	0.0022	13.00
67521	698662	1112	10	88	In Service	0.0038	13.00
96401	L477018PG LA	304	250	51	In Service	UNK	UNK

UNK –Unknown, no additional information identified during the 2006 ECP process.

KVA – Kilovolt-Ampere

Excess capacitors and transformers containing PCBs are currently stored on site in an indoor unit located in Building 1406 (SWMU-70). Decommissioned or leaking transformers or capacitors are placed in a shallow metal pan approximately 15 feet long and 6 feet wide with 6 inch high sides. The pan sits on a wooden pallet over a concrete slab floor. None of the transformers or capacitors are stored in this unit for longer than 9 months before they are shipped off site for disposal or reconditioning. Concentrations of PCBs found in equipment range from 50 to

500 ppm. There were no releases or spills of PCBs noted in the file information or found in the records review.

In addition some limited PCB wipe sampling was conducted as part of the 2004 RFA of the 1200 Area (USACE 2004). Wipe samples were collected from the floors of existing 1200 Area buildings, equipment inside the buildings, on transformer pads, and from a steam line valve. These samples were tested using field analysis test kits. Of the 48 samples collected, 16 samples tested positive for concentrations of PCBs.

#### **4.6 ASBESTOS-CONTAINING MATERIALS**

Practically every building on KSAAP contains suspect asbestos-containing materials (ACMs) since nearly all buildings were built prior to 1978. DOD memorandum dated 31 October 1994 regarding asbestos, LBP, and radon policies at BRAC properties, states ACM should be assumed for all buildings built prior to 1978. Non-friable suspect ACM including 9-inch x 9-inch vinyl floor tiles and transite roofing and siding are common throughout KSAAP. An asbestos survey and asbestos abatement of friable materials was reportedly performed, although no summary report was available during the 1998 EBS records review or 2006 ECP records review. Table B-1 lists each of the buildings that are assumed to contain ACM.

During the ECP Workshop (July 2005) KSAAP personnel confirmed the following status for asbestos abatement: Friable ACM has been removed from Areas 200, 300, 500, 700, 800, 900, 1000, 3000, and 1414S Boiler House as of July 2006. The 1200 line is free of asbestos. Friable, thermal systems insulation, and non-friable asbestos (e.g., transite panels) exist in the 50's Buildings (52, 53, 55, 57, and 58) and 1100 line. The asbestos siding and transite roofs have not been addressed in this survey or abatement projects.

#### **4.7 LEAD AND LEAD-BASED PAINT**

Based on interviews during the 1998 EBS and the 2006 ECP, with the exception of the water towers, no LBP survey has been performed at KSAAP. DOD memorandum dated 31 October 1994 regarding asbestos, LBP, and radon policies at BRAC properties, states all facilities constructed prior to 1978 are assumed to contain LBP. Table B-1 lists each of the buildings that are assumed to contain LBP.

The water towers were built in 1941. As part of routine maintenance, the water towers were periodically sandblasted and repainted. The water towers are currently painted with lead-free paint. The water towers were reportedly sandblasted in 1968 and 1982, with each episode lasting approximately four weeks. As a result of the sandblasting operation, LBP residue accumulated at the base of the towers. Each water tower is enclosed within a secured fence. The ground surface at the base of each tower consists of a 1- to 2-inch layer of gravel overlying fill material.

Surficial lead-contaminated soils were removed from the base of each tower in 2002. The goal of the removal action was to remove surface soil with lead concentrations exceeding 1,000

mg/kg. CS following the removal action indicates the soil at the base of each water tower has lead concentrations less than 1,000 mg/kg, allowing for industrial use. (USAEC 2006)

## 4.8 RADIOACTIVE MATERIAL

Building 1019, the Quality Assurance and X-Ray Analysis Laboratory, operates one Varian 4 MeV linear accelerator used for x-ray analysis of munitions which contain 46 kilograms of DU, used as shielding material. The RSO indicates that KSAAP is returning this linear accelerator to Varian for replacement with a 4/6 MeV linear accelerator, which will use lead and tungsten for x-ray shielding, but not DU. This will happen during July – August 2006. No other radioactive materials are known to be present currently or historically at KSAAP.

## 4.9 LANDFILLS

### 4.9.1 Current Landfill Operations

Currently, the Industrial Landfill Area (SWMU-146) is used for the disposal of non-hazardous construction debris including concrete, brick and tile rubble. In the past, this landfill has also accepted fly ash from coal-fired boiler operations, asbestos, grenades, and non-hazardous CWP (SWMUs-102 through 104) thermal treatment residue from the 2700 Area.

Historically, this landfill was used for all types of sanitary waste including uncontaminated trash, boxes, office waste, C&D debris, fly ash from coal-fired boiler operations, asbestos, grenade, and non-hazardous thermal treatment residue from the 2700 Area (DZI EEPE 2006). However, in 2001 the waste stream was limited to C&D waste, excluding wood waste. American Disposal Services managed the other waste streams.

The size of the original landfill was thirteen acres and was filled in 1990. The landfill then expanded to fifty acres west of the original landfill. There are a total of four closed and one open asbestos pits in this landfill. SWMU-13 was remediated in 2005 and buried in the northwest corner of this landfill. Refer to **Section 4.2.1** of this report for more information on SWMU-13, IRP site KAAP-02. (DZI EEPE 2006)

### 4.9.2 Closed / Inactive Landfill Operations

Five closed/inactive landfills have been identified and are currently being addressed under the IRP Program. These sites are also described in more detail in **Section 4.2.1**, IRP Program, of this ECP. The locations of the historic landfills are identified on **Figure E-37**.

#### 4.9.2.1 *KAAP-01 Classification Area Construction Waste (SWMU-12)*

This site is an approximately 4-acre uncapped construction debris landfill site and is located 0.25 miles southeast of Gate 3 on the northern boundary of KSAAP. This site was used to dispose of construction waste generated during construction of KSAAP in 1942. Further investigation has determined that this was not a landfill, but rather a surface disposal area. (USAEC 2006)

**4.9.2.2 KAAP-02 Closed Landfill Construction Waste (SWMU-13)**

This site was a closed landfill that was located in the south-central part of KSAAP. This site was used between 1941 and 1945 and was located immediately north of Road 5.5 between Quarry Pond 6 and 7. The site was circular in shape with a diameter of 150 feet, and covered approximately 0.4 acres. This landfill was remediated in 2005 and buried in the northwest corner of the current Industrial Landfill (SWMU-146). (USAEC 2006)

**4.9.2.3 KAAP-03 Closed Landfill with Refuse Burn Pits (SWMU-14)**

This site is located in the northwest portion of the facility and consists of the 200 Area Closed Landfill and Burn Pits. The area, in operation from 1950 to 1969 and approximately 2.5 acres in size, reportedly contained 15 burn pits and 8 landfill trenches. The location of the trenches and pits are no longer discernible. Trash and burned refuse were reportedly placed in the landfill trenches and covered with 4 feet of earthen fill. The materials in the burn pits were believed to be inert. It is unknown if hazardous constituents were disposed of in the landfill. MEC may be present but has not yet been confirmed. (USAEC 2006)

**4.9.2.4 KAAP-04 Closed Landfill (SWMU-16)**

This site is located in the east central portion of KSAAP, immediately south of Road 3, near the open detonation area. The landfill is approximately 50 acres and was operated between 1969 and 1981. Waste disposed of includes ashes from burning operations and non-salable scrap metal. (USAEC 2006)

**4.9.2.5 KAAP-05 Inactive Landfill, Admin and Construction (SWMU-15)**

This site is located in the northwest portion of KSAAP, immediately south of Road 2 and west of the 200 Area. The site occupies approximately 12 acres of a 40-acre parcel permitted for landfill use. This 12-acre portion stopped receiving waste in 1982. Waste disposed of in the past included inert grenade bodies, asbestos, fly ash from the CWP, maintenance operation waste, sludge from the anaerobic digester, and trash. Currently waste is restricted to admin and construction in the active portion of the landfill. (USAEC 2006)

**4.10 POTENTIALLY EXPLOSIVE CONTAMINATED STRUCTURES**

Explosive residues may be present in production areas (buildings, ventilation systems, vacuum systems, sewer lines, dispensing lines) but have not yet been characterized or quantified. Explosives residues may be in specific production buildings such as screening/blending, melt/pour, cooling, pelleting, wash racks, and LAP; in ventilation, vacuum, and product distribution system piping; and settling tank systems and sumps. In addition, industrial and sanitary sewer lines, sumps, and settling tanks remain in the ground and have the potential to be contaminated with explosives and/or to have contaminated the surrounding soil. Although many production area buildings indicate explosives decontamination levels (1X, 3X, and 5X), assigned decontamination levels only apply to the equipment remaining in the buildings at KSAAP. The

Army Technical Bulletin 700-4, *Decontamination of Buildings and Equipment* (U.S. Army 1978a) defines the decontamination levels as:

- 1X indicates that the equipment or facilities have been partially decontaminated and require additional decontamination.
- 3X indicates the equipment or facilities have been examined and decontaminated by approved procedures and no contamination can be detected by appropriate instrumentation, test solutions or by visual inspection on easily accessible surfaces or in concealed housings, and are considered safe for the intended use. (Note: All standby contaminated items that remain in place or in storage at an installation will be decontaminated to a minimum of 3X (U.S. Army 1978a).
- 5X indicates the equipment or facilities have been completely decontaminated, are free of hazard and may be released for general use or to the general public.
- Zero indicates the item, although located in a contaminated area, was never directly exposed to contamination.

In addition, KSAAP buildings also underwent a more thorough explosive residue presence classification based upon operations associated with that building. The Interim Guidance Document 06-03 *Buildings and Installed Equipment Containing Explosives Residues That Present Explosion Hazards* (USACE 2006) was used to assign specific production building types with an explosives residue presence classification of “significant” or “limited.” A significant presence classification was assigned to buildings that have operations that can result in extensive migration of explosive contamination in the buildings or the installed equipment. A limited presence classification was assigned to buildings that have a minor potential for release of explosives with no potential to migrate. A “non-suspected” classification was assigned to buildings that had no known explosive operations or storage. The explosive residue classification for KSAAP buildings is presented in **Appendix B, Table B-2**.

KSAAP is comprised of numerous production lines that have undergone several periods of active and inactive status. The production lines are identified as “areas”. Several of these areas have been identified as AOCs and are discussed in detail in the subsections below. Two of the areas analyzed, the 200 Area and the 1400 Area, were determined to have no munitions or explosives issues. The 200 Area was identified as a maintenance area and the 1400 Area was identified as inert storage warehouses. No information pertaining to munitions or explosives issues for these two areas was identified during the various research and interview activities.

The following subsections present information on potential explosives-contaminated AOCs that are not MMRP-eligible. The following information was primarily obtained from the 2006 HRR (TechLaw 2006).

#### 4.10.1 300 Area – 155 mm Projectile Assembly Line

The 300 Area comprises approximately 33 acres of land with 20 buildings as shown on **Figure E-7** (AE 1998). According to a Decontamination and Shut-Down Log (August 1945 – May 1946), the 300 Area was officially accepted as decontaminated by the Safety Department on

October 5, 1945. On May 11, 1946, testing was completed to determine if contamination was present in the 300 Area. Tests were conducted near Buildings 306, 311, 314, 323, and 337, as well as sumps located near these buildings. TNT contamination was detected near Buildings 311 and 337, as well as a sump pit near Building 337. The Decontamination and Shut-Down Log recommended that extreme caution be followed in any activity within the 300 Area, the 300 Area sump pit, as well as any streams or ravines that drain from that area. It was also recommended that no farming activities be carried out in the 300 Area, the sump pit, or along the drainage creeks, ravines, and ditches within or near the area. According to the Decontamination and Shut-Down Log, there was no evidence of any activities occurring within the 300 Area to eliminate the TNT contamination; however, the ditches and drainage places in the area were cleaned and conditioned before activities were terminated (KOP 1945-1946). The 300 Area was subsequently used for further munitions production after the 1945 decontamination activities, as detailed below.

- Fuze assembly during WWII and the Korean War.
- Manufacturing of explosive compounds for mines during the 1960s.
- Line converted to a 155 mm ICM line during 1975 to 1976 (AE 1998).
- Former fuze line was modified to LAP activities for the 155 mm/M483 (ICM) until 1976 when production ended (Bailey 1972).
- Grenade loading and packaging area (RC 1993).
- LAP production facility for the 155 mm/M864 I M round (AE 1998).
- The majority of the 300 Area line buildings were not active during the June 2006 ECP site survey activities. However, some of the buildings are occasionally used for rework activities and small-scale productions.

The 1978 Installation Assessment indicated that explosive contaminants such as Composition B, lead azide, tetryl, black powder, Composition A5, and mid-propellant were suspected in the 300 Area. The explosive contaminants were collected in sumps and transported to a load line, red water filter system for disposal (U.S. Army 1978b). Building 327, constructed in 1981, is the pink water treatment facility for the 300 Area.

The oxidation ponds outside of the 300 Area contained explosives (DZI EEM 2005). Each production area reportedly had oxidation ponds for explosive treatment and there were ditches that carried the overflow from the sumps to the oxidation ponds. Some sampling has been conducted at this area, and TNT was reportedly found (DZI EEM 2005).

In general, the buildings within the 300 Area have a 3X explosives classification (i.e., buildings/equipment that retain a potential explosive hazard) and limited-to-significant explosive hazard classifications based on the historic activities at the site.

#### 4.10.2 500 Area – Pellet, Booster, and Fuze Assembly Line

The 500 Area comprises approximately 33 acres of land with 14 buildings as shown on **Figure E-8** (AE 1998). According to the Decontamination and Shut-Down Log, the 500 Area

was accepted as completely decontaminated and ready for standby status on September 25, 1945. Various tests were conducted to determine the contamination of the 500 Area near Buildings 502, 503, 505, and 507. TNT contamination was detected near Building 505; however, there was no evidence that activities had occurred to decontaminate the area (KOP 1945-1946). The 500 Area was subsequently used for further munitions production after the 1945 decontamination activities as detailed below.

- Production of charges and boosters (M21A4) during WWII and the Korean War.
- Production of pellets, boosters, and fuze assemblies during WWII, the Korean War, and the Vietnam War.
- Area converted to layaway status from the end of WWII until 1951, from 1957 to 1967, and again from 1971 to the present (Bailey 1972, AE 1998, U.S. Army 1978b).
- Line modified for LAP of the Fuze XM716 and the Fuze XM717 in October 1967.
- A 600-ton press is still in use for research and development work.
- The majority of the 500 Area line is currently in layaway status, although some of the buildings are occasionally used for small-scale research and development activities.

The 1978 Installation Assessment indicated that explosive contaminants, such as tetryl, and explosive mixes used to manufacture detonators were suspected in the 500 Area. The wastewater that resulted from cleanup operations was discharged into sumps, and the contaminants were chemically killed. Settlings in the sumps were collected and transported to the burning grounds and burned (U.S. Army 1978b).

In general, the buildings within the 500 Area have a 1X explosives classification (i.e., highest level of explosive contamination) and limited-to-significant explosive hazard classifications based on the historic activities at the site.

#### 4.10.3 700 Area – Grenade, Detonator, and Expulsion Charge Load Lines

The 700 Area comprises of approximately 67 acres of land with 40 buildings as shown on **Figure E-9** (AE 1998). According to the Decontamination and Shut-Down Log, the 700 Area was deactivated in the early stages of the production period at KSAAP and one employee was kept on the production line until September 1945. Due to this, the Decontamination and Shut-Down Log indicated that the 700 Area was cleaned better than any of the other areas at KSAAP. Issues pertaining to TNT, mercury fulminate, lead azide, and tetryl contamination were suspected in several of the buildings due to the production operations at the 700 Area. Sampling and decontamination processes were completed in and around buildings with suspected contamination issues. The 700 Area was accepted by the Safety Department as completely decontaminated on September 7, 1945 (KOP 1945-1946). The 700 Area was subsequently used for further munitions production after the 1945 decontamination activities as detailed below.

- LAP production facility for detonators and expulsion charge assemblies during WWII, the Korean War, and the Vietnam War.

- In 1968, the 700 Area was reactivated for the production of the Detonator, M55, and the Lead Cup, M219. The Detonator, M17 was also produced from June 1968 to June 1969. The Detonator, M17 and the Lead Cup for Grenade M42 and Grenade M46 were produced in support of ICM items (Bailey 1972).
- In 1985, Building 719 and the adjacent wastewater sump were reactivated, and Building 706 was modified to produce the M483 Expulsion Charge Assembly (DZI 1985).
- The 700 Area line was not active during the June 2006 ECP site survey activities. One building in the 700 Area is occasionally used for small-scale research and development activities.

An April 23, 1976 Real Estate Utilization Inspection Report stated that Building 714 was destroyed by an explosion and fire. Building 714 was used for tetryl pelleting (OCE 1942, Hutcherson 1976). Building 714 was replaced with Building 701 and was still used occasionally for small quantity work (DZI EEM 2005). Additionally, Buildings 705 and 706 have had several detonations in the past where the roof was blown off. Lead azide was used in the two buildings (DZI EEM 2005).

The 1978 Installation Assessment identified the 700 Area as a detonator and M10 expulsion charge load line. Explosive contaminants from the production years of this line during WWII, the Korean War, and the Vietnam War included lead azide, mercury fulminate, RDX, and tetryl. Contaminants in the wastewater that resulted from washing and cleanup operations were chemically killed, and solid materials that were collected in sumps were removed and burned at the burning ground area (U.S. Army 1978b).

In general, the buildings within the 700 Area have a 1X explosives classification (i.e., highest level of explosive contamination) and limited-to-significant explosive hazard classifications based on the historic activities at the site.

#### 4.10.4 800 Area – Primer Explosive Manufacture Line

The 800 Area comprises approximately 30 acres of land with 20 buildings as shown on **Figure E-10** (AE 1998). The HRR indicates that the 800 Area has been used as follows:

- A LAP production facility for the M28B2 explosive primer during WWII and the Korean and Vietnam Wars.
- Area was reactivated in December 1968 for production of the Primer, M23B2.
- In February 1971, the primer schedules were completed and the line was placed on layaway status (Bailey 1972).
- The line was taken out of service in 1974 (USACE 2005b, RC 1994b).
- In 1980, one building in this area was used for the storage of M42 and M46 grenades (AE 1998).
- The 800 Area line is in layaway status and was not active during the June 2006 ECP site survey activities.

The 1978 Installation Assessment indicated that the area was suspected to be contaminated with Composition A5, RDX, and black powder as a result from past production operations. Contaminated wastewater was generated as a result of cleanup operations. The wastewater was discharged into open drainage ditches and into settling ponds which discharged into streams that flowed off the KSAAP boundary. The 1978 Installation Assessment indicated that decomposition of black powder, RDX, and Composition A settlings were collected and transported to the burning grounds for destruction (U.S. Army 1978b).

In general, the buildings within the 800 Area have 3X explosives classifications and limited-to-significant explosive hazard classifications based on the historic activities at the site.

#### 4.10.5 900 Area – 81 mm Mortar and 105 mm Round Rework Lines

The 900 Area comprises of approximately 105 acres of land with 35 buildings as shown on **Figure E-11** (AE 1998). The HRR indicates that the 900 Area has been used as follows:

- A LAP production facility designed and equipped for the loading of medium caliber ammunition ranging from 75 mm up to and including 105 mm (KOP 1943) during WWII and the Korean War.
- Area converted in 1967 to load the 81 mm mortar round with Composition B (AE 1998). The 105 mm shells and CBU systems were also loaded with Composition B in the 900 Area (U.S. Army 1978b).
- Line automated in 1975 and, on a trial basis, produced the M37413 mortar cartridge.
- Line inactive since 1978; however, in 1980, one building in this area was used for reworking 155 mm projectiles prior to loading (AE 1998).
- The 900 Area line was not active during the June 2006 ECP site survey activities.

The 1978 Installation Assessment indicated that the wastewater generated from cleanup and washout operations at the melt-pour facility was collected in sumps. The solids were removed and burned at the burning grounds. A filter system was also used to recirculate and filter the wastewater prior to discharge into open drains, and then off KSAAP. Acids from the rework area at the 1200 Area were dumped in a surface drain at the entrance of the 900 Area (U.S. Army 1978b).

Building 904 was identified as a building that may have explosive issues due to its past melt-pour operations where wash down practices took place within the whole structure (i.e. walls, floors, etc.) (DZI MWA 2005). Based on the 2006 ECP, Building 905 was actually used for melt-pour operations, not Building 904 (DZI EEPE 2006).

In general, the buildings within the 900 Area have 3X explosives classifications and limited to significant explosive hazard classifications based on the historic activities at the site.

#### 4.10.6 1000 Area – 105 mm Shell Assembly Line

The 1000 Area comprises of approximately 103 acres of land with 32 buildings as shown on **Figure E-12** (AE 1998). The HRR indicates that the 1000 Area has been used as follows:

- A LAP production facility designed and equipped for the loading of the 105 mm shell starting in 1942.
- In 1952, three new facilities (1064, 1065, and 1066) were added to the area, and the line was converted for loading the 105 mm artillery round with Composition B (AE 1998). The 81 mm mortar and CBU systems were also loaded with Composition B in this area (U.S. Army 1978b).
- Prior to February 1968, it appears that the LAP production facility was deactivated; however, the deactivation date is not known.
- In February 1968, the 1000 Area was reactivated, modernized, and partially automated for production of the Cartridge, 105 mm, HE, M1. During this production period, modernized dual automated assembly lines were installed and utilized (Bailey 1972).
- The 1000 Area line was active during the June 2006 ECP site survey activities. Activities included melt-pour operations and munitions assembly.

The 1978 Installation Assessment indicated that the wastewater generated from cleanup and washout operations at the melt-pour facility was collected in sumps and the solids were removed and burned at the burning grounds. A filter system was also used to recirculate and filter the wastewater prior to discharge into open drains, and then off KSAAP.

7.95 and 60 mm melt-pour operations, as well as some pack-out operations were conducted at the 1000 Area during past operations. The melt-pour operations consisted mainly of TNT and RDX. Building 1006 was also identified as a building that may have explosive issues due to its past melt-pour operations. Wash down practices took place within the whole structure (i.e. walls, floors, etc) (DZI MWA 2005).

In general, the buildings within the 1000 Area have a 1X classification (i.e., highest level of explosive contamination) and limited-to-significant explosive hazard classifications based on current and historic activities at the site.

#### 4.10.7 1100 Area – Cluster Bomb Unit Production and Combined Effects Munitions

The 1100 Area comprises of approximately 124 acres of land with 38 buildings as shown on **Figure E-13** (AE 1998). The HRR indicates that the 1100 Area has been used as follows (TechLaw 2006):

- An active area originally used as a bomb loading line that produced both 250- and 1,000-pound bombs. The last 250-pound bomb was poured on April 14, 1943 (KOP 1943).
- Prior to February 1968, it appears that the 1100 Area was deactivated; however, the deactivation date is not known.

- Area converted to a LAP production facility for loading the CBU with Composition B in 1968. During this time, 81 mm mortar and 105 mm shells were also loaded with Composition B in this area (U.S. Army 1978b). Production continued until February 1972.
- Line placed on layaway status in 1974 (Bailey 1972).
- In 1984, the line was converted to produce CEM for the Air Force (AE 1998).
- The 1100 Area line was active during the June 2006 ECP site survey activities. Activities included melt-pour operations and munitions assembly.

The 1978 Installation Assessment indicated that the wastewater generated from cleanup and washout operations at the melt-pour facility was collected in sumps. The solids were removed and burned at the burning grounds. A filter system was also used to recirculate and filter the wastewater prior to discharge into open drains, and then off KSAAP.

The SFW operations have been conducted at the 1100 Area in the past; however, no documentation detailing these operations was located (DZI EEM 2005). Building 1109 was identified as a building that may have explosive issues due to its past melt-pour operations. Wash down practices took place within the whole structure (i.e. walls, floors, etc.) (DZI MWA 2005).

In general, the buildings within the 1100 Area have a 1X classification (i.e., highest level of explosive contamination) and a significant explosive hazard classification based on current and historic activities at the site. During the June 2006 ECP site visit, inactive equipment on the second and third floor of Building 1109 displayed painted 3X labels.

#### 4.10.8 1200 Area – Former Ammonium Nitrate Plant

The 1200 Area comprises of approximately 48 acres of land with 17 buildings as shown on **Figure E-14** (AE 1998). The HRR indicates that the 1200 Area has been used as follows:

- Originally constructed as an ammonium nitrate production facility.
- From June 1946 to April 24, 1951, the production facility was leased to the Spencer Chemical Company for the production of fertilizer-grade ammonium nitrate. At the end of the Spencer Chemical Company's lease of the facility in July 1951, the facility was decontaminated and returned to U.S. Army control.
- In 1953, the production line operations were altered to rework 105 mm cartridge cases and remained as such until 1957.
- A USAEHA report stated that the former Ammonium Nitrate Plant was active until 1974, while a USEPA RFA stated that KSAAP was active until 1957 (AE 1998). The discrepancy between the two dates is unclear; however, the 1200 Area may have been deactivated after the Korean War and reactivated for the Vietnam War.
- In 1996, the line was used to assemble the payload module for the Tomahawk Missile (KOP 1951, USACE 2005b, AE 1998).
- The 1200 Area line was not active during the June 2006 ECP site survey activities.

In general, several buildings within the 1200 Area have a 3X classification and a limited explosive hazard classification based on historic activities at the site.

#### **4.10.9 1500, 1600, 1700, and 1900 Areas – Bulk Explosive, Bulk Powder, Finished Ammunition, and Hazardous Waste Storage**

The 1500, 1600, 1700, and 1900 Areas comprise approximately 358 acres, 130 acres, 105 acres, and 463 acres of land respectively within KSAAP, as shown on **Figure E-17**. These areas are used for the storage of explosive compounds, bulk powder, finished ammunition, and some are used for hazardous waste storage. The areas contain earth-covered concrete igloos and are partially active (AE 1998). Based on the August 31, 1942 Completion Report for KSAAP, these four areas were part of the initial construction of KSAAP.

Based on the June 8, 1967 memorandum regarding contaminated facilities and grounds at KSAAP, the 1500, 1600, 1700, and 1900 Areas were used for the storage of packaged materials. A short description of each area follows:

The 1500 Area was constructed for high explosive storage, and consists of Igloos 1502 to 1556. The 1500 Area was reportedly contaminated with TNT, Tetryl, Composition B, and Black Powder (TechLaw 2006).

During the June 2006 ECP site visit, the inside of Igloos 1502, 1533, 1541, and 1542 were visually inspected as a representative sample of the 1500 Area storage facilities. All four of the Igloos were being used for general munitions and explosive material storage (i.e., HMX and picatinny arsenal explosive [PAX]-21).

The 1600 Area was constructed for smokeless powder storage, and consists of Igloos 1602 to 1625. The 1600 Area was reportedly contaminated with Smokeless Powder constituents (TechLaw 2006).

During the June 2006 ECP site visit, the inside of Igloos 1607, 1616, 1617, and 1620 were visually inspected as a representative sample of the 1600 Area storage facilities. All of the igloos, except Igloo 1620, were being used for general munitions storage. Igloo 1620 contained expired production line materials.

The 1700 Area was constructed for fuze and booster storage, and consists of Igloos 1702 to 1717 and 1718 to 1721. The 1700 Area was reportedly contaminated with Lead Azide Fuzes (TechLaw 2006). According to a January 10, 1985 RCRA Part B Permit application, Igloos 1705, 1709, 1711, 1712, 1717, and 1721 are permitted hazardous waste storage areas.

During the June 2006 ECP site visit, Igloos 1702 and 1703 were visually inspected as a representative sample of the 1700 Area storage facilities. Solid form hazardous material was observed inside Igloos 1702 and 1703. Access to Igloos 1715 and 1718 was not available.

The 1900 Area was constructed for finished ammunition storage consisting of Igloos 1902 to 1989, and housed TNT, Tetryl, Black Powder, Composition B, Fuzes, Detonators, Primers, and Relay and Delay Elements (KSAAP 1967). No additional information pertaining to the contamination of these areas was located.

During the June 2006 ECP site visit, the inside of Igloos 1910, 1907, 1934, and 1963 were visually inspected as a representative sample of the 1900 Area storage facilities. All but Igloo 1907 was being used for general munition storage. Igloo 1907 contained general use materials used during production of the stored munitions such as tape and lock-tite compound.

According to the January 10, 1985 RCRA Part B Permit application for KSAAP, Igloos 1914, 1915, 1916, 1917, 1958, 1961, 1974, and 1976 were used to store production line wastes, off-specification and reject munitions items, thermal treatment residue, sump sludge, paint sludge, and spent cleaning solvents (EHA 1985). During the June 2006 ECP site visit, all 8 of these igloos were visually inspected. Both liquid and solid forms of hazardous waste were observed.

In general, the structures within the 1500, 1600, 1700, and 1900 Areas have a 1X classification (i.e., highest level of explosive contamination) and a limited explosive hazard classification based on historic activities at the site.

#### 4.10.10 1800 Area – Finished Ammunition and Hazardous Waste Storage

The 1800 Area is located in the southeastern portion of KSAAP and comprises approximately 176 acres of land and includes 25 buildings (**Figure E-18**). An August 31, 1942 Completion Report indicates that the 1800 Area buildings were initially constructed for the storage of finished ammunition and the EBS states that the use of this area did not change throughout KSAAP's years of operation (AE 1998). The EBS also identified Magazine 1813 as being used for hazardous waste storage in the past. During periods of standby status, some of the warehouses in this area have been outleased to private companies for storage.

Based on the June 8, 1967 memorandum regarding contaminated facilities and grounds at KSAAP, the 1800 Area housed ammunition including 105 mm shells, fuzes, and adapter boosters (KSAAP 1967). During the June 2006 ECP site visit, the inside of Magazines 1813 and 1824 were visually inspected as a representative sample of the 1800 Area storage facilities. No explosive material was observed.

According to the January 10, 1985 RCRA Part B Permit application for KSAAP, Magazine 1813 was used to store production line waste, off-specification and reject munitions items, spent cleaning solvents, thermal treatment residue, sump sludge, and paint sludge. According to the permit application, this magazine is used on a contingency basis (EHA 1985). A visual inspection of the contents inside Magazine 1813 was completed during the June 2006 ECP site visit. One 55-gallon drum of spent carbon was observed. The magazine also contained numerous drums containing material that had been tested and determined to be non-hazardous, along with numerous empty drums.

In general, the structures within the 1800 Area have a 1X classification (i.e., highest level of explosive contamination) and a limited explosive hazard classification based on historic activities at the site.

#### 4.10.11 3000 Area – Lead Azide Production Facility

The 3000 Area comprises of approximately 53 acres of land with 12 buildings as shown on **Figure E-24**. This area contains a lead azide plant that was constructed during 1967 to 1968 and has operated only once since its construction. The Lead Azide Facility produced a trial batch of lead azide to assure that it was operational. The facility has remained in layaway status since the lead azide production (AE 1998).

The 1978 Installation Assessment noted that due to the limited production of the area, there was a slight potential for contamination. According to the 1978 Installation Assessment, a waste retention pond adjacent to the 3000 Area was constructed to accept wastewater from the lead azide manufacturing process; however, the pond was never used and contained rainwater (U.S. Army 1978b).

In general, the structures within the 3000 Area have a 1X classification (i.e., highest level of explosive contamination) and a limited explosive hazard classification based on historic activities at the site.

#### 4.10.12 Test Area 75

Test Area 75 was thought to comprise an area of approximately 51 acres, located in the far east-central portion of KSAAP, on the west side of Road G, and approximately 1,100 feet north of the 2000 Area (AE 1998) as shown on **Figure E-4**. However, based on historic maps and historic aerial photographs, and an area identified in the 1978 Installation Assessment, Test Area 75 comprises only approximately 1.10 acres and is located just north of the 2000 Area and just west of Road G (AE 1998 and Photo 1950) (KSAAP EPS 2006).

Test Area 75 is currently inactive and no information has been found regarding the period of use or waste handling practices. Only a concrete barrier remains at the site. The EBS indicated that this area was used to determine cavitations and qualify dimensions with reference to design criteria. The process used for these activities was described as “quality control personnel cutting completed munitions in half for inspection and measurement.” The disposal practices for explosive waste cuttings and dust from the operations are unknown; however, according to the EBS, this process could have produced cuttings of explosives and metals, which may have been released to the environment (AE 1998).

The 1978 Installation Assessment discussed an “Old Test Area 75” that had operated since 1976. The test area was designated Area 2000 and UXO contamination was suspected in the area. Test Area 75 is found on KSAAP maps from 1947 to 1981 (DZI 1972, DZI 1970a, DZI 1970b, NGC 1955, KOP 1947).

The concrete barrier located at Test Area 75 site has a 1X explosives classification (i.e., highest level of explosive contamination) and a limited-to-significant explosive hazard classification based on the historic activities at the site.

### 4.11 RADON

As a requirement of the U.S. Army Radon Reduction Program, KSAAP conducted monitoring of the indoor air for radon in 72 KAAP buildings during May through August 1990. All results were less than the USEPA action level of 4.0 picocuries per liter of air (pCi/L air). Records are on file with DZI, with results for each building monitored (DZI 1991).

### 4.12 PESTICIDES

Pesticides have been stored and used at KSAAP. Historically, pesticides were mixed and stored in a former building located on the north side of Pond No. 4. The area was referred to as the "Old Pesticide Storage Area" (KAAP-11) and was used until approximately 1980. A concrete pad was the only remaining remnant of the Old Pesticide Storage Area identified during the 2006 ECP.

Pesticide use and storage at KSAAP is currently conducted according to the KSAAP Integrated Pest Management Plan (DZI 2005). Pesticides are stored in Building 67 along Road D east of the 1400 Area. Approximately 90 percent of KSAAP pesticide usage is used on agricultural crops by agricultural leases (KSAAP NRM 2006). The remainder (approximately one half pound per year of active ingredient) of insecticide is used on an annual basis. Ninety-five percent of pesticide application is done by hand and is focused around buildings. Pesticides were not sprayed along roads. In addition, there are 35 leases on KSAAP, and the agricultural leaseholders are responsible for controlling noxious weeds on their leases. All lessees conducting pest management operations, or the contractors they hire to provide pest management services, are required to adhere to the following conditions documented in the KSAAP Integrated Pest Management Plan:

- Use only USEPA and state-registered pesticides.
- Application of pesticides will be in accordance with label directions.
- The applicator must comply with all federal, state, and local regulations.
- Pesticides must be mixed, stored, and disposed of in accordance with federal, state, and local regulations, and with procedures established by KSAAP.
- The lessee or contractor will bring all pesticides and application equipment onto KSAAP each day services are provided. No pesticides or pesticide application equipment will be stored or maintained on KSAAP.

### 4.13 OTHER IDENTIFIED CONCERNS

Additional issues identified as a result of the ECP Workshop (July 2005) and ECP site visit interviews (July 2006) and are summarized below:

- **Ammonium Perchlorate.** Based on discussion at the ECP Workshop (July 2005) Ammonium Perchlorate (AP) was identified as having been used in one explosives compound (PAX 21 powder, used in 60 mm rounds). As a result, the locations and use of

AP at KSAAP needs further clarification along with a review of groundwater sampling conducted to date. Under the NPDES permit program KSAAP routinely analyses samples of treated wastewater from Building 1008 for perchlorates. No other sampling/analysis is performed unless it is specifically mandated (DZI EEPE 2006). Perchlorate has not been sampled under the IRP program, because there was no reason to believe that previously releases had occurred (KSAAP EPS 2005).

- **Final Disposition of WWI Chemical Weapons Round.** During the ECP Workshop (July 2005) USATCES identified an Archive Search Report concerning the temporary storage of a World War I 75 mm chemical round at KSAAP. The round was apparently found in the local community in September 1958. The round was stored in Magazine 1989. KSAAP was given permission to dispose of the round on-site though the exact location of the disposal area is unknown (USACE 1993). There are no documents concerning final disposition. KSAAP personnel interviewed had no knowledge of this incident. This incident may require additional research through archive sources (USATCES 2005).
- **Mercury in Facilities/Construction Components.** Several facilities/construction components are expected to contain small quantities of mercury (such as mercury vapor lights, mercury switches). Mercury lubricated bearings were formerly used at the Wastewater Treatment Plant (AE 1998).
- **Old Pesticide Storage Facility: KAAP-11.** The former Pesticide Storage Facility was located in the south-central portion of KSAAP on the north side of Pond 4. During the 2006 ECP VSI, building footings and floor slabs were identified. No other building materials were present. The IAP indicates a Response Complete in December 1989.
- **KSAAP Rail Lines.** The environmental condition of the rail lines located throughout KSAAP has not been assessed. The rail lines were installed during the initial construction of KSAAP and it is likely that the associated ballast contains *de minimus* quantities of oils and lubricants from railroad activities.

#### 4.14 NATIONAL ENVIRONMENTAL POLICY ACT

The USACE Mobile District recently awarded a contract to conduct an Environmental Assessment (EA) to Marstel-Day LLC, and a kick-off was held July 11, 2006, followed by a data gathering effort. The EA was not completed at the time this ECP report was issued. In addition, an Archeological Survey is anticipated to begin in the fall of 2006.

#### 4.15 APPLICABLE REGULATORY COMPLIANCE ISSUES

A detailed compliance assessment was not performed as part of the ECP process. However, a list of past environmental violations was provided from the KSAAP Environmental Quality Reporting (EQR) database. There were a total of nine compliance findings within the survey area. The findings are related to wastewater, hazardous waste, solid waste, and PCBs. The compliance issues reported in the EQR database are listed below:

- Groundwater contamination was detected near the 700 Area detonator production facility on March 29, 1989. The contamination was a result from discharging hazardous waste from the wastewater sumps. All requirements of the consent order have been completed and groundwater monitoring is required as part of the post closure plan.
- KDHE issued a violation on October 22, 1996 because the contingency plan did not describe the evacuation routs for each hazardous waste storage area. The evacuation routs have been added to the plan and the finding has been closed.
- KDHE issued a violation on February 25, 1994 because the alternate hazardous waste coordinator was not properly trained. The training has been completed and the finding has been closed.
- KDHE issued a violation on March 15, 1995 because there was no record of the weekly hazardous waste inspection of building 1705 for July 24, 1994. Employees have been retrained on the requirement and the finding has been closed.
- KDHE issued a violation on May 14, 1996 because a cover was not placed on the landfill resulting in litter to be blown from the pit. The landfill is now policed and covered and the finding has been closed.
- The USEPA issued a violation on May 14, 1993 because a one year exception report was not submitted to the regional administrator for PCB articles stored for more than one year. The report has been filed and the finding has been closed.
- The USEPA issued a violation on June 25, 1998 because non-permitted office waste was found in the industrial landfill. The non-permitted waste was removed from the landfill and the finding has been closed.
- KDHE issued a violation on April 7, 2000 because non-permitted hazardous waste was found in the industrial landfill. The non-permitted waste was removed from the landfill and the finding has been closed.
- KDHE issued a violation on July 11, 2000 because personnel operating the EWI were not properly trained to manage hazardous waste. Four additional violations were issued on November 11, 2000 regarding similar EWI operations. The deficiencies have been corrected and the finding has been closed.
- KDHE issued a violation on March 14, 2002 because LBP removed from the water towers was not transported to a permitted treatment and disposal facility. The hazardous waste has since been shipped through DRMO and the finding has been closed.

As stated above, all of the findings have been closed and none of the compliance issues are expected to have adversely impacted KSAAP.

The USEPA recently conducted an inspection of the Wastewater Treatment Plant on May 16, 2005 and an inspection for compliance with the Section 114 of the Clean Air Act on July 14, 2005. As of August 2005, the USEPA is reviewing the findings to determine if KSAAP is in compliance with applicable statutes, permits, and regulations.

**4.16 ADJACENT PROPERTIES**

Adjacent property was assessed to determine no AOCs on adjacent properties were identified in the EDR database search. The complete EDR Report is presented in **Appendix A**.

Farms generally occupy the adjacent and surrounding properties. A number of the farms have ASTs for POL storage and a few of the farms have heavy equipment maintenance and storage areas. Pesticides and herbicides are commonly used on farms, and the potential for releases from mixing and loading areas may exist.

Several businesses are found a half mile northwest of KSAAP. These include a church, motel, clothing store, piano store, tanning salon, miniature golf course, golf driving range, mobile home moving and storage, automotive sales, and a former drive-in theater. There was no evidence of hazardous materials or releases at the surrounding properties.

A vacant residential property with no AOCs was observed near the north gate. A residential property was also identified near the south gate. Several vehicles in various states of repair were present on the property though no potential environmental impact to KSAAP was identified. The property boundary VSI was conducted by a driving tour and a walking inspection. In addition, an EDR database search was completed.

## 5.1 SUMMARY

KSAAP is a GO/CO, shell-loading installation that was constructed during WWII located in Labette County, Kansas, approximately 30 miles west of the Missouri border and 20 miles north of the Oklahoma border. It is located 2 miles east of Parsons, Kansas, and ¾ mile north of Labette, Kansas. The 2005 BRAC Commission directed the closure of KSAAP and disposal of 13,727 acres of land at KSAAP.

Production areas at the installation are or were used for the LAP operations of ammunition items. Non-production areas included inert materials storage, munitions and raw materials storage, administrative and support facilities, landfills, and munitions destruction areas. DZI has been the operating contractor since 1970 (AE 1998). Prior to the construction of the facility the surrounding area was used primarily for agricultural use.

This ECP Report was prepared to characterize the existing environmental conditions at KSAAP. It is intended to be an aid in the disposal of real property under the BRAC 2005 Program and is a basis for determining if the property is suitable for transfer, lease, or assignment. The ECP Report findings are based on environmental investigations and reports, historical documents, aerial photography, and a site reconnaissance conducted June 5 through June 13, 2006. As part of the ECP Process, key elements that were evaluated included the installation's RCRA (hazardous waste), landfill, NPDES, air, UST/AST, ACM, lead/LBP, PCB, pesticides, IRP, MMRP, ranges, radon, radioactive materials, and natural/cultural resource programs.

## 5.2 CONCLUSIONS

The following identifies the conclusions made following the ECP process. The conclusions were based on the available sources of information concerning both past and present environmentally significant uses of property. Information included readily available data associated with adjacent property records; aerial photography; personnel interviews; Army environmental programs and associated documentation; current and historic investigations; and ongoing response actions. In addition, record sources were reviewed to determine if there have been spills, leaks, discharges, leaching, underground injections, dumping, abandonments, or storage of hazardous substances or petroleum products at the installation. The VSI and interview process included inquiries and requests into the existence and availability of records that support the environmental condition of the property.

Discrete areas, referred to as parcels, were classified into one of seven standard ECP area types (categories) as defined by ASTM 5746-98, *Standard Classification of Environmental Condition of Property Area Types for Defense Base Closure and Realignment Facilities* (ASTM 2002). A total of 47 parcels were identified and classified into one of seven standard ECP categories as described in the next section.

Each parcel was assigned a unique parcel identification number, ECP Category classification (in parenthesis), and the type(s) of release(s) that has been identified or suspected for that parcel. An example parcel designation is provided below.

**99(7)HRPRX**

99 = Parcel Designation

(7) = ECP Category

HR = Hazardous Substance Release or Disposal

PR = Petroleum Substance Release or Disposal

X = Explosive Hazard/Munitions and Explosives of Concern (MEC), which includes DMM, UXO, and MC.

The following sections present the results of the ECP process by ECP category. **Tables 5-1** through **5-5** list the parcels for each ECP Category. Details of each individual parcel and the basis for determining their appropriate ECP category are presented in **Table 5-6**. A map showing the location of all parcels and their classification is included as **Figure 5-1**. The KSAAP building explosive hazard classifications and building qualifications are presented in **Appendix B**.

**5.2.1 ECP Category 1**

ECP Category 1 is defined as areas where no release or disposal of hazardous substances or petroleum products or their derivatives has occurred, and to which there has been no migration of such substances from adjacent areas (ASTM 2002). The ECP Category 1 parcel contains 10,319.17 acres of land. This parcel primarily consists of undeveloped land outside the production areas. There was no evidence that a documented release or disposal of hazardous substances or petroleum products or their derivatives has occurred in these areas. The Category 1 parcel is identified in white on **Figure 5-1** as 1(1).

**5.2.2 ECP Category 2**

ECP Category 2 is defined as “areas where only release or disposal of petroleum products has occurred” (ASTM 2002). ECP Category 2 consists of 2 parcels and 49.96 acres of land. The parcels are identified on **Figure 5-1** and summarized in **Table 5-1**.

<b>TABLE 5-1</b>	
<b>ECP CATEGORY 2 PARCELS</b>	
<b>Acres</b>	<b>Parcels</b>
49.96	30(2)PR 43(2)PR

**5.2.3 ECP Category 3**

ECP Category 3 is defined as “areas where release, disposal, migration, or some combination thereof, of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response” (ASTM 2002). No parcels were identified as ECP Category 3.

**5.2.4 ECP Category 4**

ECP Category 4 is defined as “areas where release, disposal, migration, or some combination thereof, of hazardous substances has occurred, and all removal or remedial actions necessary to protect human health and the environment have been taken” (ASTM 2002). ECP Category 4 consists of 13 parcels and 277.04 acres of land. The parcels are being addressed under the IRP program. The parcels are identified on **Figure 5-1** and summarized in **Table 5-2**.

<b>TABLE 5-2 ECP CATEGORY 4 PARCELS</b>		
<b>Acres</b>	<b>Parcels</b>	
277.04	5(4)HR 6(4)HR 7(4)PR 8(4)PR 12(4)HR 13(4)HR 19(4)HR	20(4)HR 23(4)HR 36(4)HR 37(4)HR 38(4)HR 39(4)HR

**5.2.5 ECP Category 5**

ECP Category 5 is defined as “areas where release, disposal, migration, or some combination thereof, of hazardous substances has occurred, and removal or remedial actions, or both, are underway, but all required actions have not yet been taken” (ASTM 2002). ECP Category 5 consists of 9 parcels and 366.03 acres of land. The parcels are identified on **Figure 5-1** and summarized in **Table 5-3**.

<b>TABLE 5-3 ECP CATEGORY 5 PARCELS</b>		
<b>Acres</b>	<b>Parcels</b>	
366.03	11(5)HR 15(5)HR 16(5)HR 17(5)HR 22(5)HR	28(5)HR 34(5)HR 35(5)HR 45(5)HR

**5.2.6 ECP Category 6**

ECP Category 6 is defined as “areas where release, disposal, migration, or some combination thereof, of hazardous substances has occurred, but required remedial actions which have not yet been initiated” (ASTM 2002). One parcel was identified as ECP Category 6. This parcel is identified on **Figure 5-1** and summarized in **Table 5-4**.

<b>TABLE 5-4 ECP CATEGORY 6 PARCELS</b>	
<b>Acres</b>	<b>Parcel</b>
19.47	21(6)HR

**5.2.7 ECP Category 7**

ECP Category 7 is defined as “areas that are unevaluated or require additional evaluation” (ASTM 2002). ECP Category 7 consists of 23 parcels and 2,695.33 acres of land. Based on available information obtained during the ECP process, the following sites were either unevaluated or require additional evaluation, which may involve a Phase II evaluation. The parcels are identified on **Figure 5-1** and summarized in **Table 5-5**.

<b>TABLE 5-5 ECP CATEGORY 7 PARCELS</b>			
<b>Acres</b>	<b>Parcels</b>		
2,695.33	2(7)X	25(7)HRX	41(7)HRX
	3(7)HRX	26(7)HRX	42(7)HR
	4(7)HRX	27(7)HRX	44(7)HR
	9(7)HRX	29(7)HR	46(7)HR
	10(7)HRX	31(7)HR	47(7)HR
	14(7)HRX	32(7)HRPR	48(7)X
	18(7)HRX	33(7)HR	49(7)HR
	24(7)HRX	40(7)HR	

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
1(1)	Various	10,276.71	Various	1	This parcel is associated with the undeveloped open areas of KSAAP. This parcel includes the areas where there has been no documented release, disposal, or known migration from adjacent properties of hazardous substances or petroleum products.	AE 1998 URS 2006a	None
2(7)X	25,22	103.84	West 2000 Area M42/46/77 Grenade Range	7	This parcel is classified as a Category 7 based on the potential for MEC to be present at the site.  The M42/46/77 Grenade Range is currently active. Investigation and potential remediation efforts will be required in the future when range closes.	AE 1998 TechLaw 2006 URS 2006a	None, the range is active
3(7)HRX	26,23	6.01	East 2000 Area CEM Test Range	7	This parcel is classified as a Category 7 based on the potential for MEC and explosives to be present at the site.  The CEM Test Range is currently active. Investigation and potential remediation efforts will be required in the future when range closes.	AE 1998 TechLaw 2006 URS 2006a	None, the range is currently active

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
4(7)HRX	13,28	4.49	Buildings 57 and 58	7	<p>Building 57 (Physical Testing Facility) and building 58 (Chemistry Laboratory) are classified as a Category 7 based on the potential for hazardous substances and explosives to be present in and surrounding the buildings.</p> <p>Environmental investigations have not been completed at either of these currently active buildings.</p>	URS 2006a	None, the buildings are currently active
5(4)HR	10,22	16.69	<p>West 900 Area Waste Water Sumps and Discharge Points</p> <p>SWMU Group 8 KAAP-20</p>	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is the area where the ditches were affected by downgradient contamination from SWMU Group 8. The parcel boundaries were drawn assuming a conservative buffer zone around the ditch of 100 feet. An RFA was completed in 1989. The RFI Phase I was completed in August 1994 and the RFI Phase II was completed in June 1998. Explosives and lead were found in soil, sediments, and groundwater. Soil removal completed spring 2003. CMS was completed in July 2004.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	<p>RC 1998 USAEC 2006 USEPA 2006</p>	<p>Long term monitoring Institutional controls</p>

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
6(4)HR	5,30	80.68	100 Area Laundry Sump and Pond  SWMU Group 1 KAAP-35	4	<p>This parcel is classified as a Category 4 because there are no unacceptable risks to human health present at this site.</p> <p>This parcel is SWMU Group 1, which is located in the northwest portion of KSAAP in the 100 Area. It consists of the Building 112 laundry wash water sump, an underground drainage pipeline, and an oxidation pond. Explosives contaminated water was released. Constituents were not detected in environmental media at concentrations exceeding the screening criteria. Based on the results of the human health baseline risk assessment there are not unacceptable risks to human health present and no further action is recommended.</p> <p>The Final Corrective Measures Decision states institutional controls are required.</p> <p>NFA received 200503 (USAEC 2006).</p>	Aguirre 1998 LEES 1998 USEPA 2006 USAEC 2006	Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
7(4)PR	9,26	0.55	200 Area Washrack Discharge Point  SWMU Group 2 KAAP-26	4	<p>This parcel is classified as a Category 4 because there are no unacceptable risks to human health present at this site.</p> <p>This parcel is SWMU Group 2, which is the oil/water separator located in the northwestern portion of KSAAP in the 200 area. The site related constituents did not exceed the background concentrations or the IRG screening criteria. Based on the results of the human health baseline risk assessment there are not unacceptable risks to human health present and no further action was recommended.</p> <p>The Final Corrective Measures Decision states institutional controls are required.</p> <p>NFA received 200112 (USAEC 2006).</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>USEPA 2006</p> <p>USAEC 2006</p> <p>URS 2006a</p>	Institutional controls

TABLE 5-6 PARCEL CLASSIFICATION							
Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
8(4)PR	9,26	4.41	200 Area Oil Spill Residue Land Farm  SWMU Group 3 KAAP-25	4	<p>This parcel is classified as a Category 4 because there are no unacceptable risks to human health present at this site.</p> <p>This parcel is SWMU Group 3, which is located south of the 200 Area and consists of a former oil land-farm. Use of this area for this purpose began in 1984 and discontinued in 1993. There is documented contamination present in this SWMU group. Based on the results of the human health baseline risk assessment there are not unacceptable risks to human health present and no further action is recommended.</p> <p>The Final Corrective Measures Decision states institutional controls are required.</p> <p>NFA received 200112 (USAEC 2006).</p>	AE 1998 LEES 1998 USEPA 2006 USAEC 2006 URS 2006a	Institutional controls

# SECTION FIVE

## Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
9(7)HRX	13,29	32.68	300 Area  Including SWMU Group 4 KAAP-39  and SWMU Group 5 KAAP-16	7	<p>The 300 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings. SWMU Groups 4 and 5 are located within this parcel.</p> <p><b>SWMU Group 4</b> KAAP-39 is the location of a former underground storage tank used to collect waste POL and toluene. SWMU Group 4 obtained clean closure in 1993 per RCRA Subtitle I. Low levels of hydrocarbon contamination did not require remediation. The Phase I RFI Report recommended no further action. NFA received 199709 (USAEC 2005f). The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required for SWMU Group 5.</p> <p><b>SWMU Group 5</b> KAAP-16 consists of the 300 Area sumps, ditches, pink water ditches, and oxidation ponds. Explosive-contaminated wastewaters were discharged to the sumps for settling of explosive particulates and the remaining wastewaters discharge through the ditches to the ponds. The RFA was completed in March 1989. The RFI Phase I was completed in August of 1994 and the Phase II RFI was completed in June 1998. Explosives were detected in the soil and groundwater at low levels. RDX was found in the soil above regulatory limits during the data gap study (May 2002). Hot spots were removed in spring 2003. CMS was completed in February 2005.</p> <p>The Final Corrective Measures Decision states institutional controls are required for SWMU Group 4.</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>USAEC 2006</p> <p>USEPA 2006</p> <p>USAEC 2006</p> <p>URS 2006a</p>	<p><b>SWMU Group 4</b></p> <p>NFA 199709 (USAEC 2006)</p> <p>Institutional controls</p> <p><b>SWMU Group 5</b></p> <p>Long term monitoring</p> <p>Institutional controls</p>

# SECTION FIVE

## Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
10(7)HRX	11,28	33.17	500 Area  Including SWMU Group 6 KAAP-17	7	<p>The 500 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings. SWMU Group 6 is located within this parcel.</p> <p>SWMU Group 6 KAAP-17, is associated with the 500 Area sumps. Explosive-contaminated wastewaters were discharged to the sumps for settling of explosive particulates. Metals, explosives, and PAH contamination have been detected at this SWMU group. RFI Phase I was completed in August 1994 and the Phase II RFI was completed in June 1998. Explosives, metals, and PAHs were found in the soil at high levels. Metals and explosives were found in groundwater.</p> <p>During the data gap study (May 2002) soil and groundwater were tested for explosives and metals. No additional exceedances were found. Hot spot removal of contaminated soil was completed Spring 2003.</p> <p>The parcel boundaries were drawn assuming a conservative downgradient migration of undefined groundwater contamination of ½ mile.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 LEES 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional Controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
11(5)HR	26,17	94.52	East 2700 Area Open Burn Pads 1-4, Explosive Waste Incinerator and Contaminated Waste Processor  SWMU Group 11 and 24 KAAP-10  SWMU-11 SMWU Group 20 SWMU Group 22	5	<p>This parcel is classified as a Category 5 because all removal actions have not been completed.</p> <p>This parcel is SWMU Group 11 KAAP-10 and consists of Open Burning Pads 1, 2, 3, and 4. It is located in the eastern portion of the 2700 Area. RFA was completed in March 1989. The RFI Phase I was completed August 1994 and the RFI Phase II was completed in June 1998.</p> <p>Soil sampling detected RDX, TNT, and lead above RSK. Dioxins/furans, PCBs, SVOCs, and explosives were detected below screening criteria. No significant contamination was found in groundwater.</p> <p>The metals and explosives contaminated soil removal at Pads 1-4 was completed Spring 2003.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at SWMU Group-11. Institutional controls are also required for SWMU Groups 20 and 22.</p> <p>The Explosive Waste Incinerator is scheduled to be decommissioned by 2010.</p>	AE 1998 LEES 1998 USAEC 2006 URS 2006a	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
12(4)HR	13,24	28.27	East 900 Area Waste Water Sumps and Discharge Points  SWMU Group 8 KAAP-20	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is the area where groundwater may have been affected by downgradient contamination from SWMU Group 8. RFA was completed in 1989. The RFI Phase I was completed in August 1994 and the RFI Phase II was completed in June 1998. Explosives and lead were found in soil, sediments, and groundwater. Soil removal completed spring 2003. CMS was completed in July 2004. The parcel boundaries were drawn assuming a conservative downgradient migration of undefined groundwater contamination of ½ mile.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	RC 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional controls

# SECTION FIVE

## Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
13(4)HR	7,16	112.54	1000 Area Waste Water Sumps and Discharge Points  SWMU Group 9 KAAP-21	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is the area where the ditches were affected by downgradient contamination from SWMU Group 9. SWMU Group 9 consists of 4 sumps, 3 oxidation ponds, and interconnecting drainage ditches in and around the 1000 Area. The RFA was completed in 1989. The RFI Phase I was completed in August 1994 and the RFI Phase II was completed in June 1998. Metals and explosives were detected in the soil. Metals and explosives in excess of action levels were detected in groundwater near the sumps. Soil removal was completed spring 2003. The RFI found explosives in the groundwater above regulatory limits. No additional explosives were found in the groundwater during the data gap study. CMS was completed in July 2004.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 RC 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
14(7)HRX	11,16	123.66	1100 Area  Including SWMU Group 10 KAAP-22	7	<p>The 1100 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings. SWMU Group 10 is located within this parcel. SWMU Group 10 consists of 3 sets of sumps and trough systems that were used to convey wastewater via unlined drainage ditches to the oxidation ponds. The PA/SI was completed in 1989. The RFI Phase I was completed August 1994 and the RFI Phase II was completed in June 1998. Metals and explosives were detected in the soil. Explosives in excess of action levels were detected in groundwater near the sumps.</p> <p>A RD for remediation of contaminated soils was started in March 1999. The soil RA is removal of approximately 1,200cubic yards of metals-contaminated soil and 1,000cy of explosive-contaminated soil was completed in FY03. The Groundwater Delineation study has been completed. CMS was completed in July 2004 and indicated no contaminant migration to the area outside the Area 1100 fenced area.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 LEES 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
15(5)HR	13,10	82.95	Closed Landfill Construction Waste  SWMU Group 13 KAAP-02	5	<p>This parcel is classified as a Category 5 because the removal action report is currently undergoing EPA review for this site. SWMU Group 13 is a closed landfill. Thallium was detected in groundwater above the MCL but below background. Benzo(a)pyrene was detected in sediment samples from Quarry Pond 5 and slightly exceeded the soil IRG. Contamination does not appear to be migrating from the landfill, and it does not appear to be the source of contamination in the quarries. No data gaps were identified. The human health baseline risk assessment identified that unacceptable risks to human health are not present. Several metals and SVOCs were detected in fish tissue samples from the quarry ponds though no screening criteria were available for comparison. However, due to the location of the quarry ponds in relation to the landfill (i.e., upgradient and crossgradient), it is unlikely that SWMU Group 13 is a source for the detected contaminants.</p> <p>During the Data Gap Study (May 2002), no metals were found above regulatory limits in the quarry ponds.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group. USEPA is currently reviewing the removal action report. This SWMU group status may change based on subsequent USEPA review.</p>	AE 1998 LEES 1998 USAEC 2006	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
16(5)HR	7,24	64.43	Landfill, Admin and Construction Waste  SWMU Group 15  KAAP-05	5	<p>This parcel is classified as a Category 5 based on the requirement for monitored natural attenuation.</p> <p>This parcel is SWMU Group 15, which is the active base landfill located to the northwest of 1600 Area immediately South of Road 2. The PA/SI was completed in March 1989. The RFI Phase I was completed August 1994 and the RFI Phase II was completed in June 1998. Groundwater monitoring started in March 1999. Subsurface soil samples, surface soil samples, sediment samples, surface water samples, and groundwater samples were collected as part of the investigations. With the exception of groundwater samples, inorganic constituents were not detected in the media sampled during either the Phase I or Phase II RFI at concentrations exceeding both background and the available IRGs. Barium and lead were detected in one groundwater sample during the Phase RFI at concentrations exceeding both the background level and the MCL. However, these results were not confirmed when this well was re-sampled during the Phase II RFI. Organic constituents detected in the media sampled during the investigations did not exceed available screening criteria. A data gap study for VOC, SVOCs, explosives, metals contamination was completed in May 2002. No organics or metals were found above regulatory limits. CMS was completed in August 2004.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use, long term monitoring, demonstrating monitored natural attenuation, and soil cap repair are required at this SWMU group.</p>	AE 1998 LEES 1998 USAEC 2006 USEPA 2006	Long term monitoring Institutional controls Landfill soil cap to be upgraded

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
17(5)HR	19,20	50.68	Closed Landfill  SWMU Group 16 KAAP-04	5	<p>This parcel is classified as a Category 5 based on the requirement for monitored natural attenuation.</p> <p>This parcel is SWMU Group 16, which is the former demolition landfill located in the northeast portion of KSAAP, southwest of 3000 Area. The PA/SI was completed in March 1989. The RFI Phase I was completed August 1994 and the RFI Phase II was completed in June 1998. Low levels of nitrobenzene and other VOCs were found in the groundwater.</p> <p>A data gap study for VOC, SVOCs, explosives, metals contamination was completed in May 2002. Some VOCs were found above regulatory limits. CMS was completed in FY05. This site also roughly corresponds to the Mercury Fulminate Burial Site as identified in the Range Inventory. Based on the HRR findings there is no clear record of evidence that mercury fulminate was buried at this location.</p> <p>A landfill cover investigation was completed in FY04; results indicate only small repairs are required.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use, long term monitoring, demonstrating monitored natural attenuation, and soil cap repair are required at this SWMU group.</p>	AE 1998 LEES 1998 TechLaw 2006 USEPA 2006 USAEC 2006	Long term monitoring Institutional controls Landfill soil cap to be upgraded

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
18(7)HRX	22,18	194.63	SWMU Group 17 2700 Area  Open Detonation Grounds	7	<p>This parcel is classified as a Category 7 based on the potential for hazardous substances and MEC to be present at the site.</p> <p>This parcel is SWMU Group 17, which are the active open detonation grounds located in the west part of the 2700 Area on the eastern portion of KSAAP. This is a RCRA Regulated Unit not addressed under IRP. While initial soil sampling results completed in 1989 and data gap groundwater samples collected in 2002 indicate concentrations below regulatory limits, the site is currently active and the potential for contamination exists. The site is currently in LTM per the RCRA permit, and will require clean closure as a permit requirement. The kick out area has not been evaluated and the parcel boundary is approximately 1200' outside the fenced area.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>USEPA 2006</p> <p>URS 2006a</p>	<p>Long term monitoring</p> <p>Institutional controls</p> <p>UXO and explosives contamination removal</p>

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
19(4)HR	7,10	3.68	2200 Area Sewage Treatment Plant Area Sludge Drying Beds  SWMU Group 18 KAAP-15	4	<p>This parcel is classified as a Category 4 because there are no unacceptable risks to human health present.</p> <p>This parcel is SWMU Group 18, consisting of two sludge-drying beds located at the 2200 Area, Sewage Treatment Plant, in the southwest corner of KSAAP. Based on the nature and location of the constituents detected, migration of constituents from the sludge drying beds does not appear to be occurring. No potential data gaps were identified. Based on the results of the human health baseline risk assessment there are and no further action was recommended.</p> <p>The Final Corrective Measures Decision states institutional controls are required. NFA was received in 200503 (USAEC 2006).</p>	AE 1998 LEES 1998 USEPA 2006 USAEC 2006	Institutional controls NFA 200503 (2006)

# SECTION FIVE

# Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
20(4)HR	9,27	4.66	200 Area Coal Pile Run Off  SWMU Group 19 KAAP-28	4	<p>This parcel is classified as a Category 4 because there are no unacceptable risks to human health present.</p> <p>This parcel is SWMU Group 19, which is a coal pile run-off catchment device and associated ditches located adjacent to and east of the 200 Area. Constituents analyzed in the subsurface soils and groundwater did not exceed the background concentrations or the IRG screening criteria. An identified data gap is: The extent of downgradient metal and PAH contamination in sediment has not been defined. However, based on the results of the human health baseline risk assessment the risks associated with the source areas were considered acceptable.</p> <p>The Final Corrective Measures Decision states institutional controls are required at this SWMU group. NFA received 200503 (USAEC 2006).</p>	AE 1998 LEES 1998 USEPA 2006 USAEC 2006	Institutional controls
21(6)HR	24,18	19.47	East 2700 Area Open Burn Pads 5 and 6  SWMU Group 24	6	<p>This parcel is classified as a Category 6 because all removal actions have not been initiated.</p> <p>This SWMU consists of Burn Pads 5 and 6. Removal action is anticipated for Pad 5 in FY07. Pad 6 is still in use.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 LEES 1998 USAEC 2006 USEPA 2006	Soil removal Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
22(5)HR	25,19	12.45	East 2700 Area Burn Cages  SWMU Group 23 KAAP-09	5	<p>This parcel is classified as a Category 5 because the removal action report is currently undergoing EPA review for this site.</p> <p>This parcel is associated with SWMU Group 23 and consists of the area surrounding the Burning Cages 014, 017, and 022 and is located in the east portion of the 2700 Area in the eastern portion of KSAAP. The PA/SI was completed in 1989. The RFI Phase I was completed August 1994 and the RFI Phase II was completed in June 1998. Explosives, PCBs, lead, dioxins and furans were detected in the soil. Lead and antimony at MCLs were detected in the groundwater.</p> <p>A data gap study of the soil tested for explosives, dioxins, furans, metals contamination was completed in May 2002. Lead and explosives exceeded cleanup standards. Contaminated soil and cages removal was completed in the summer of FY05. A final inspection was completed in August 2005.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group. EPA is currently reviewing the removal action report. This SWMU group status may change based on subsequent EPA review.</p>	AE 1998 LEES 1998 USAEC 2006 USEPA 2006	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
23(4)HR	17,25	15.46	Water Detention Basin  KAAP-42	4	<p>This parcel is classified as a Category 4 because there are no unacceptable risks to human health present.</p> <p>This parcel consists of two unlined sludge lagoons for settling and drying sludge from the water treatment plant. It is located in the northeast portion of KSAAP, southeast of 1700 Area. Sampled in Phase II RFI. Organic and inorganic constituents detected in the media sampled did not exceed background concentrations or screening criteria. No potential data gaps were identified. Based on the results of the human health baseline risk assessment there are not unacceptable risks to human health present and no further action was recommended.</p> <p>The Final Corrective Measures Decision states that institutional controls are required.</p> <p>NFA received 200112 (USAEC 2006)</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>USEPA 2006</p> <p>USAEC 2006</p>	Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
24(7)HRX	11,26	66.69	700 Area  Including SWMU Group 25 KAAP-18	7	<p>The 700 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings.</p> <p>SWMU Group 25 is located within this parcel. A Consent Agreement was issued March 1989 to cleanup lead contaminated soils and contaminated groundwater. Wastewater contaminated with explosives and metals flowed through the area ditches and sumps to Ponds 28 and 15. A soil IRA was completed in July 1998. It included the removal and disposal of explosive-contaminated soils to an off-site hazardous waste facility. The lead-contaminated soil and sediments were treated to non-hazardous levels and disposed of in a permitted (RCRA Subtitle D) landfill. Soil cleanup was approved by regulators in March 1999. A Groundwater Assessment Monitoring Investigation was completed in July 1999 to fully define the extent of groundwater contamination. The report identified contaminants above MCLs including PCE and 1,2,3-TCPA. The chosen remedial action for groundwater was MNA. In April 2003, seven new shallow wells and two new deep wells were installed to meet the MNA RA well network requirement of 24 wells. Beginning with the 3<sup>rd</sup> quarter 2003 sampling event the MNA RA was initiated. The MNA RA requires quarterly sampling.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 USAEC 2006 USEPA 2006	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
25(7)HRX	13,26	30.06	800 Area  Including SWMU Group 7  KAAP-19	7	<p>The 800 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings.</p> <p>SWMU Group 7 is also located within this parcel. The PA/SI was completed in 1989. The RFI Phase I was completed in August 1994, the RFI Phase II was completed in June 1998. Low levels of explosives and lead were detected in soils and sump sediments. A total of 420 cubic yards of metals (lead) contaminated soils were removed in the Spring of 2003.</p> <p>A Groundwater Data Gap Study completed in 2002 reported PCE (15.8 ppb) and TCE (7.3 ppb) above regulatory limits in only one monitoring well (MW 10-5) (Plexus 2002). However, groundwater sampling results from March 2004 showed increased concentrations of PCE (219.54 ppb) and TCE (78.9 ppb) in well MW 10-5. A Groundwater Corrective Measures Study was completed in May 2005 which recommended monitored natural attenuation with institutional controls. (USACE 2005c)</p> <p>The Final Corrective Measures Decision originally issued by EPA on November 7, 1989 indicate institutional controls groundwater use and long term monitoring, demonstrating monitored natural attenuation, is required at this SWMU group.</p>	<p>AE 1998 LEES 1998 USEPA 2006 USAEC 2006 URS 2006a</p>	<p>Long term monitoring Institutional controls</p>

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
26(7)HRX	13,23	104.97	900 Area  Including SWMU Group 8 KAAP-20	7	<p>The 900 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings.</p> <p>SWMU Group 8 is also located within this parcel. Explosive and metal contaminated wastewater flow through the area sumps and ditches to three ponds. There is documented explosives, metals, PAH, and SVOC contamination present in SWMU Group 8. Based on the results of the human health baseline risk assessment there was unacceptable risks to human health present from 2,4,6-trinitrotoluene contamination in the surface soil. RFA was completed in 1989. The RFI Phase I was completed in August 1994, explosives and lead were detected in soil and no contaminants were detected above MCLs or RSK in groundwater. The RFI Phase II was completed in June 1998 no contaminants were detected above respective MCLs (except the common laboratory contaminant bis (2-ethylhexyl phthalate). A soil removal was completed in the spring of 2003. A CMS was completed in July 2004 which recommended five years of groundwater monitoring for explosives and metals.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	RC 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
27(7)HRX	13,20	103.34	1000 Area  Including SWMU Group 9  KAAP-21	7	<p>The 1000 Area is classified as a Category 7 based on the potential for releases of explosives within the production facilities and migration of explosive contamination beneath the buildings.</p> <p>SWMU Group 9 is also located within this parcel. The RFA was completed in 1989. The RFI Phase I was completed August 1994 and the RFI Phase II was completed in June 1998. Metals and explosives were detected in soil and RDX was detected in groundwater in concentrations greater than the action levels. A soil removal was completed 2003 and a Data Gap Study was completed in 2004.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 RC 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional controls

# SECTION FIVE

## Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
28(5)HR	9,25	16.56	700 Area Wastewater Sumps and Discharge Points  SWMU Group 25  KAAP-18	5	<p>This parcel is classified as a Category 5 based on the requirement for monitored natural attenuation.</p> <p>This parcel is associated with potential downgradient groundwater contamination from SWMU Group 25. SWMU Group 25 is located in the north-central portion of KSAAP, northeast of the intersection of Road 2 and Road D in the 700 Area. A Groundwater Engineering Report (EE/CA) was completed to evaluate cleanup options. Additional wells were installed in FY03. The MNA well system has been installed and is operational. See Basis for Parcel 24.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 USAEC 2006 USEPA 2006 URS 2006a	Long term monitoring Institutional controls
29(7)HR	25,23	2.09  This parcel is encompassed by parcel 2(7)X	75 Area  Former Munitions Test Area	7	<p>This parcel is classified as a Category 7 due to the potential for explosives to be near or under the concrete foundation.</p> <p>This parcel is associated with a former Munitions Test Area located in the northeast portion of KSAAP, north of 2000 Area. Munitions were cut in this area to identify casting voids for evaluation of the explosives casting processes in the production areas. There is no documentation of the disposition of waste explosive cuttings and dusts.</p>	AE 1998. URS 2006a	To be determined

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
30(2)PR	9,26	0.5	Former UST at Building 221	2	<p>This parcel is classified as a Category 2 because of a former petroleum release.</p> <p>This parcel is associated with the previously removed USTs at Building 221. A 1947 map of KSAAP shows the location of five USTs. Personnel with the U. S. Army and DZI indicated that four tanks had been removed in the early 1980s after their discovery of POL. The POL had floated to the ground surface after a rainstorm deluged the area. No records exist of the UST removal, although there are six pictures taken during UST excavation (US Army, undated). State-approved closure was not obtained (Cramer and Grillot, 1998). However, closure approval or LUST reporting was not required at the time the tanks were removed. A geophysical survey was conducted at the area in 2004 to investigate the potential existence of a fifth un-removed UST. As concluded in the report, no substantive evidence of a potential UST was discovered. The area was recommended for closure in accordance with KDHE requirements. (URS 2004)</p>	AE 1998 LEES 1998 URS 2004a	To be determined
31(7)HR	13,30	0.71	300 Area Oxidation Pond	7	<p>This parcel is classified as a Category 7 based on the potential for hazardous substances (lead azide) to be present at this site.</p> <p>The oxidation pond is located north of the 300 area. Limited sampling has been completed at this area.</p>	URS 2006a	To be determined

TABLE 5-6 PARCEL CLASSIFICATION							
Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
32(7)HRPR	9,28	58.48	200 Area	7	<p>This parcel is classified as a Category 7 based on the potential for hazardous substances and petroleum products to be present at the site.</p> <p>This area includes the Maintenance Area. There is historical and visible evidence of leaks and spills of several contaminants of concern. The primary concerns in the maintenance areas are from POL contamination, lead acid batteries, gasoline and ethylene glycol. Additionally, the Salvage Yard Areas, also located in the 200 Area, may include heavy metals and explosive contamination. Limited sampling has been completed at this area.</p>	AE 1998 URS 2006a	To be determined
33(7)HR	10,4	28.56	1300 Area Rail Classification Yard	7	<p>This parcel is classified as a Category 7 based on the potential for hazardous substances including explosives to be present at the site.</p> <p>The Rail Classification Yard contains eight parallel tracks and switches. The site is currently active and only accepts empty rail cars. Historically, raw materials and finished munitions were loaded and unloaded at this site. This area has not been previously evaluated.</p>	AE 1998 URS 2006a	To be determined

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
34(5)HR	12,33	11.47	Classification Area Construction Waste  SWMU Group 12 KAAP-01	5	<p>This parcel is classified as a Category 5; documentation of all removal actions has not been completed.</p> <p>This parcel is associated with SWMU Group 12, the 100 Area and consists of a solid waste landfill used to dispose of construction debris generated during the construction of KSAAP in 1942. It is located near the north boundary of KSAAP. Organic and inorganic constituents were not detected above available screening criteria. However, there were increasing metal concentrations in the sediments of the unnamed stream downstream. The Phase I and II RFIs were unable to prove or disprove whether a transport pathway operates between the stream and the landfill and the Human Health Risk Assessment was inconclusive. The baseline risk assessment report recommended further characterization of the soil/sediment downstream of SWMU Group 12 and re-evaluation of the associated risk.</p> <p>A data gap study for metals contamination (arsenic) was completed in May 2002. Some metals were found below regulatory limits. The metal pile was removed in the summer of 2005 and a final inspection was completed in August 2005.</p> <p>The Final Corrective Measures Decision states institutional controls are required at this SWMU group.</p>	AE 1998 LEES 1998 USAEC 2006 USEPA 2006	Institutional controls

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
35(5)HR	7,26	22.48	Closed Landfill with Refuse Burn Pits  SWMU Group 14  KAAP-03	5	<p>This parcel is classified as a Category 5 based on the requirement for monitored natural attenuation.</p> <p>This parcel is associated SWMU Group 14 and consists of the 200 Area Closed Landfill and Burn Pits. It is located on the northwest portion of KSAAP. Trichloroethene was detected in groundwater during the Phase I RFI at concentrations exceeding MCLs. Groundwater monitoring began in March 1999. A data gap study for VOC, SVOCs, explosives, dioxins, furans, metals contamination was completed in May 2002. Some VOCs were found above regulatory limits. A Corrective Measures Study was completed in August 2004 with a recommendation for upgrading landfill cap and monitored natural attenuation. A landfill cover investigation was conducted in FY04 and results indicate only small repairs are needed.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use, long term monitoring, demonstrating monitored natural attenuation, and soil cap repair are required at this SWMU group.</p>	AE 1998 LEES 1998 USAEC 2006  USEPA 2006	Long term monitoring, institutional controls, and landfill soil caps to be upgraded

TABLE 5-6 PARCEL CLASSIFICATION							
Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
36(4)HR	9,30	2.13	Water Tower No. 1	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is associated with Water Tower No. 1 and is located just south of Road 1 and approximately 1000 feet west of Road D. Periodic sandblasting and repainting of the water tower deposited lead contamination from the paint on to the surrounding ground. Lead was detected at concentrations exceeding background and IRGs. A soil removal was completed and the lead concentrations remaining are below unrestricted use criteria.</p> <p>The Final Corrective Measures Decision states that institutional controls are required.</p> <p>NFA received in 200209 (USAEC 2006)</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>EPA, 2006a</p> <p>USAEC 2006</p>	Institutional controls

# SECTION FIVE

## Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
37(4)HR	15,28	1.99	Water Tower No. 2	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is associated with Water Tower No. 2 and is located immediately southwest of the intersection of Road 1.5 and Road E. Periodic maintenance of the water tower deposited lead contamination from the paint on to the surrounding ground. Lead was detected at concentrations exceeding background and IRGs. A soil removal was completed and the remaining soil has lead concentrations below unrestricted use criteria.</p> <p>The Final Corrective Measures Decision states that institutional controls are required.</p> <p>NFA received in 200209 (USAEC 2006).</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>EPA, 2006a</p> <p>USAEC 2006</p>	Institutional controls
38(4)HR	10,14	1.99	Water Tower No. 3	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is associated with Water Tower No. 3 and is located immediately southeast of the intersection of Road 4 and Road D. Lead was detected at concentrations exceeding background and IRGs. A soil removal was completed and the remaining soil has lead concentrations below unrestricted use criteria.</p> <p>The Final Corrective Measures Decision states that institutional controls are required.</p> <p>NFA received in 200209 (USAEC 2006).</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>EPA, 2006a</p> <p>USAEC 2006</p>	Institutional controls

TABLE 5-6 PARCEL CLASSIFICATION							
Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
39(4)HR	14,18	3.99	Water Tower No. 4	4	<p>This parcel is classified as a Category 4 because all removal and remedial actions have been completed at this site.</p> <p>This parcel is associated with Water Tower No. 4 and is located north of the 1100 Area and approximately 1000 feet west of Road E. Lead was detected at concentrations exceeding background and IRGs. A soil removal was completed and the remaining soil has lead concentrations below unrestricted use criteria.</p> <p>The Final Corrective Measures Decision states that institutional controls are required.</p> <p>NFA received in 200209 (USAEC 2006).</p>	<p>AE 1998</p> <p>LEES 1998</p> <p>EPA, 2006a</p> <p>USAEC 2006</p>	Institutional controls

# SECTION FIVE

## Summary and Conclusions

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
40(7)HR	9,25	0.49	Active Pistol Range  Operational Range	7	<p>This parcel is classified as a Category 7 based on the potential for hazardous substances at this site.</p> <p>This parcel is associated with the active pistol Range and is located approximately 800 feet south of Road 2 and 660 feet west of Road D. This site was identified as Facility # 00023 in the Range Inventory. The pistol range consists of a berm used as a gunnery backstop. The Phase II RFI identified lead in the downgradient sediments at concentrations below both the background and IRG concentrations. The actual pistol range itself was not evaluated and it is not known if contamination exists at the site. The human health baseline risk assessment recommends further sampling of the pistol range and re-evaluation of the associated risks.</p> <p>The Final Corrective Measures Decision states institutional controls are required at this AOC.</p> <p>Investigation and potential remediation efforts will be required in the future when range closes.</p>	<p>AE 1998 LEES 1998 TechLaw 2006 USEPA 2006 URS 2006a</p>	<p>Range is currently active Institutional controls</p>

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
41(7)HRX	10,13	50	1200 Area  Site KAAP-43	7	<p>This parcel is classified as a Category 7 based on the potential for MEC and explosives to be present at the site.</p> <p>KAAP-43 encompasses the entire 1200 area. This was an ammonium nitrate production plant from 1942 to 1951. From 1946 to 1951, KSAAP was leased to the Spencer Chemical Company, who produced fertilizer-grade ammonium nitrate. In 1953, the production line operations were altered to rework 105 mm cartridge cases and remained as such until 1957. In 1996, this line was used to assemble the payload module for the Tomahawk Missile.</p> <p>USACHPPM sampled around four building groups FY 2000. PCBs and lead were found above regulatory levels in soil.</p> <p>Soil removal completed per 2003 EPA Corrective Measures. Contamination concentration goals for industrial use have been met.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at the 1200 Area.</p>	AE 1998 USEPA 2006 URS 2006a	Long term monitoring Institutional controls

TABLE 5-6 PARCEL CLASSIFICATION							
Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
42(7)HR	11,8	0.98	Bldg. 67 Pesticide Storage Building	7	<p>This parcel is classified as a Category 7 due to the potential for pesticide contamination associated with the septic system.</p> <p>This parcel is associated with the Pesticide Storage Building (Facility 67) and is located east of the 1400 Area. This building is used for the storage of pesticides. The building has a washing machine, shower, and sink draining to a septic tank. Pesticide-contaminated clothing is washed on a daily basis. The septic tank and leach field have not been sampled.</p> <p>Building is still in use as of 2006 for the storage of pesticides. The pesticide use and storage requirements are outlined in the KSAAP Integrated Pest Management Plan.</p>	AE 1998 URS 2006a	To be determined

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
43(2)PR	6,31	49.46	100 Area Status of former Fuel Oil USTs	2	<p>This parcel is classified as a Category 2 because of a former petroleum release.</p> <p>This parcel is associated with the former staff housing and barracks in the 100 Area, Administration Area. Staff housing and barracks buildings reportedly used fuel oil heat and had associated USTs. The buildings in this area were demolished. There is no evidence or documentation that the fuel oil tanks were removed.</p> <p>As part of 1998 EBS interview, an employee indicated that the tanks were removed but no records were available. No records have yet been found to document the removals.</p>	AE 1998 URS 2006a	To be determined

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
44(7)HR	7,10	2.57	2200 Area  SWMU-18  KAAP-15	7	<p>This parcel is classified as a Category 7 based on the potential for mercury contamination associated with the trickle filters at this site.</p> <p>This parcel is associated with the 2200 Area, Wastewater Treatment Plant. The plant is located in the southwest corner of KSAAP. The Wastewater Treatment Plant has two trickle filter basins with rotating spray bars. They were originally equipped with mercury-lubricated bearings. At some unknown date, the mercury, which amounted to approximately a pint in each trickle filter bearing, leaked out. In the early 1980s the bearings were rebuilt, and a petroleum lubricant was used in place of mercury.</p> <p>No evidence exists to suggest that the mercury has entered the environment, so a release may not have occurred. It may still be in the basins of the trickle filter or in one of the downstream treatment basins.</p>	AE 1998 URS 2006a	To be determined

**TABLE 5-6  
PARCEL CLASSIFICATION**

Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
45(5)HR	11,24	10.49	700 Area Wastewater Sumps and Discharge Points  SWMU Group 25 KAAP-18	5	<p>This parcel is classified as a Category 5 based on the requirement for monitored natural attenuation.</p> <p>This parcel is associated with potential downgradient groundwater contamination from SWMU Group 25. SWMU Group 25 is located in the north-central portion of KSAAP, northeast of the intersection of Road 2 and Road D in the 700 Area. A groundwater Engineering report (EE/CA) was completed to evaluate cleanup options. Additional wells were installed in FY03. The MNA well system has been installed and is operational. See Basis for Parcel 24.</p> <p>The Final Corrective Measures Decision states institutional controls for groundwater use and long term monitoring are required at this SWMU group.</p>	AE 1998 USAEC 2006 USEPA 2006	Long term monitoring and institutional controls
46(7)HR	9,13	536.11	1200 Area Southwest Downgradient	7	<p>This parcel is classified as a Category 7 based on the potential for hazardous substances at this site.</p> <p>This parcel is downgradient of the 1200 Area. Sediment sampling of this area was previously proposed but not yet initiated.</p>	URS 2006a	To be determined

TABLE 5-6 PARCEL CLASSIFICATION							
Parcel No. & Label <sup>a</sup>	Location (X,Y Coordinates)	Approx Size (Acres)	Area <sup>b</sup>	ECP Category	Basis	Source of Evidence <sup>c</sup>	Remediation / Mitigation
47(7)HR	10,9	0.5	Building 1406	7	<p>This parcel is classified as a Category 7 based on the potential for PCBs to be present at this site.</p> <p>PCB equipment is currently stored in building 1406. No environmental investigations have been completed in the 1400 Area.</p>	AE 1998 URS 2006a	To be determined
48(7)X	20,11	26.72	Old Ammunition Storage Area	7	<p>This parcel is classified as a Category 7 based on the potential for MEC to be present at this site.</p> <p>The Old Ammunition Storage Area was used to store munitions that were returned to the United States following World War II. It was reported that many of the ammunition containers deteriorated due to environmental conditions and munitions may have been scattered on the ground.</p>	AE 1998 URS 2006a	To be determined

**TABLE 5-6  
PARCEL CLASSIFICATION**

<b>Parcel No. &amp; Label<sup>a</sup></b>	<b>Location (X,Y Coordinates)</b>	<b>Approx Size (Acres)</b>	<b>Area<sup>b</sup></b>	<b>ECP Category</b>	<b>Basis</b>	<b>Source of Evidence<sup>c</sup></b>	<b>Remediation / Mitigation</b>
49(7)HR	8,18	316.79	1500 Area	7	This parcel is classified as a Category 7 based on the potential for hazardous substances to be present at the site.  The storage igloos are used to store finished munitions, explosive compounds and bulk powder. Environmental investigations have not been completed within the igloo area.	AE 1998 URS 2006a	To be determined
	8,23	127.06	1600 Area				
	16,28	104.6	1700 Area				
	16,16	176.14	1800 Area				
	16,10	463.14	1900 Area				
		Total 1,186.73					

<sup>a</sup> Environmental parcel label definitions are as follows:

<sup>b</sup> Acreage figures are approximate; they have been calculated using AutoCAD 2004.

**99(7)HRPRX**

<sup>c</sup> Source of Evidence Numbers Refer To Section 7 of this report.

(7) = ECP Category

DMM – Discarded Military Munitions

99 = Parcel Designation

ECP – Environmental Condition of Property

HR = Hazardous Substance Release or Disposal

MEC – Munitions and Explosives of Concern

PR = Petroleum Release or Disposal

MC – Munitions Constituents

X = Explosive Hazard/MEC, which includes DMM, UXO, and MC UXO – Unexploded Ordnance

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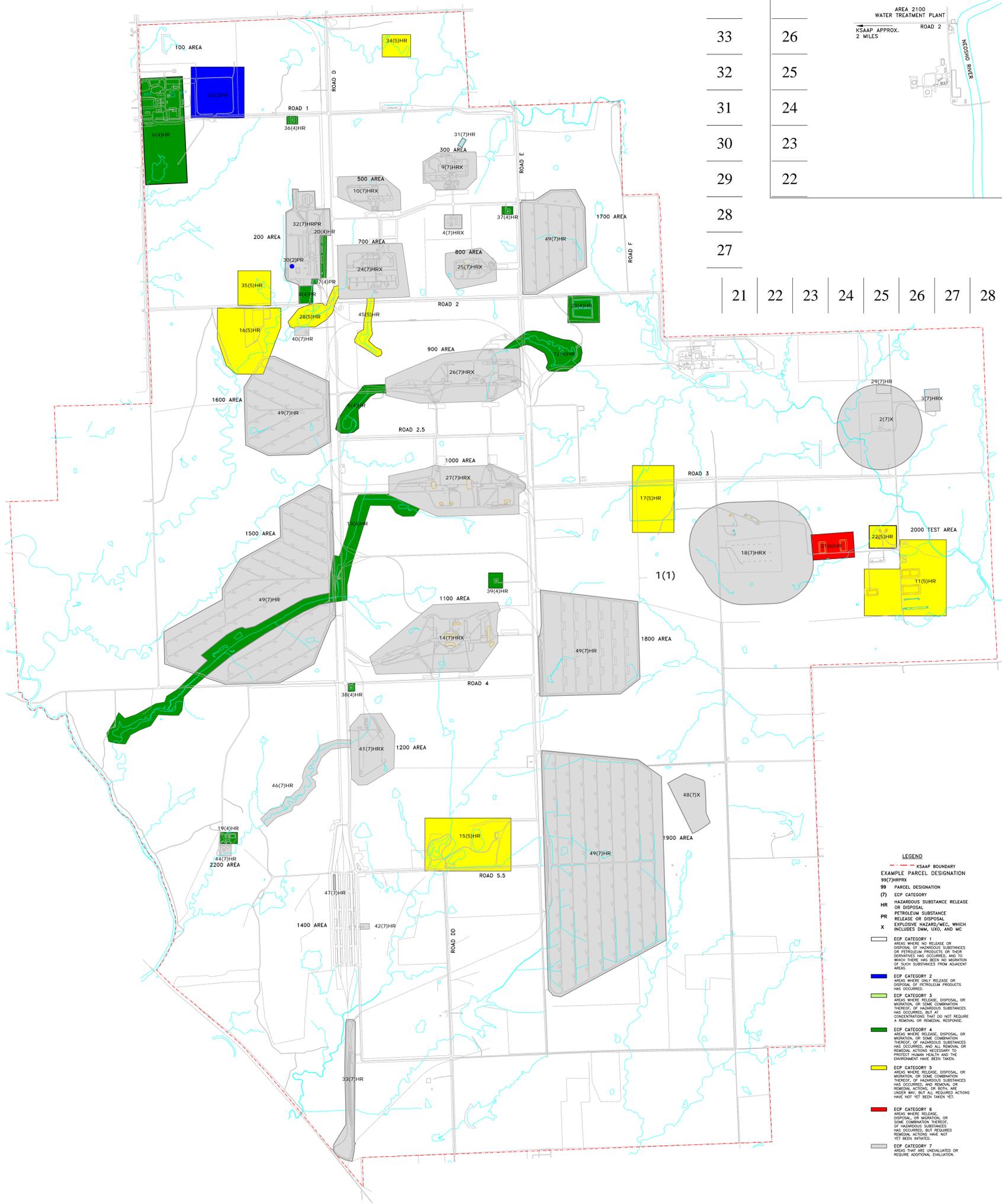
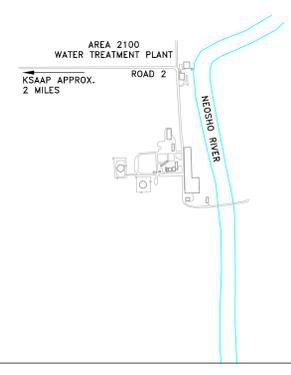
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NOTE: THE WATER TREATMENT PLANT IS LOCATED APPROX. 2 MILES EAST OF KSAAP AND IS INCLUDED AS PARCEL 1(1).



- LEGEND**
- KSAAP BOUNDARY
  - EXAMPLE PARCEL DESIGNATION 99(7)HRX
  - 99 PARCEL DESIGNATION
  - (7) ECP CATEGORY
  - HR HAZARDOUS SUBSTANCE RELEASE OR DISPOSAL
  - HRX HAZARDOUS SUBSTANCE RELEASE OR DISPOSAL PETROLEUM SUBSTANCE
  - PR RELEASE OR DISPOSAL EXPLOSIVE HAZARD/MEC, WHICH INCLUDES DMU, UXO, AND MC
  - X ECP CATEGORY 1 AREAS WHERE NO RELEASE OR DISPOSAL OF HAZARDOUS SUBSTANCES OR PETROLEUM PRODUCTS OR THEIR DERIVATIVES HAS OCCURRED, AND TO WHICH THERE HAS BEEN NO MIGRATION OF SUCH SUBSTANCES FROM ADJACENT AREAS
  - ECP CATEGORY 2 AREAS WHERE ONLY RELEASE OR DISPOSAL OF PETROLEUM PRODUCTS HAS OCCURRED
  - ECP CATEGORY 3 AREAS WHERE RELEASE, DISPOSAL OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, BUT AT CONCENTRATIONS THAT DO NOT REQUIRE A REMEDIAL OR REMEDIAL RESPONSE
  - ECP CATEGORY 4 AREAS WHERE RELEASE, DISPOSAL OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, AND ALL REMEDIAL OR REMEDIAL ACTIONS NECESSARY TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT HAVE BEEN TAKEN
  - ECP CATEGORY 5 AREAS WHERE RELEASE, DISPOSAL OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, AND REMEDIAL OR REMEDIAL ACTIONS, OR BOTH, ARE UNDERWAY, BUT ALL REQUIRED ACTIONS HAVE NOT YET BEEN TAKEN
  - ECP CATEGORY 6 AREAS WHERE RELEASE, DISPOSAL OR MIGRATION, OR SOME COMBINATION THEREOF, OF HAZARDOUS SUBSTANCES HAS OCCURRED, BUT REMEDIAL OR REMEDIAL ACTIONS HAVE NOT YET BEEN TAKEN
  - ECP CATEGORY 7 AREAS THAT ARE UNEVALUATED OR REQUIRE ADDITIONAL EVALUATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

## SECTION SIX

## Certification

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All information/documentation provided accurately reflects the condition of the property. This report meets the DOD requirements for completion of an Environmental Condition of Property Report.



Bret Raines  
BRAC Environmental Coordinator  
Kansas Army Ammunition Plant



Todd Beckwith  
Environmental Engineer  
U.S. Army Environmental Center

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Appendices redacted.



Appendices redacted.



**Hazardous Waste Facility Permit**

PART B

# STATE OF KANSAS

DEPARTMENT OF HEALTH AND ENVIRONMENT  
DIVISION OF ENVIRONMENT

## PERMIT

### Hazardous Waste Facility

In accordance with the provisions of Kansas Statutes Annotated 65-3430 et. seq.

#### PERMISSION IS HEREBY GRANTED

KANSAS ARMY AMMUNITION PLANT

to DEPARTMENT OF THE ARMY AND DAY AND ZIMMERMANN, INC.

(OWNER AND OPERATOR RESPECTIVELY)

E.P.A. Identification Number KS 0213820467

to operate a HAZARDOUS WASTE STORAGE AND TREATMENT FACILITY

located at PARSONS, KANSAS

in accordance with rules and regulations of the Department of Health and Environment, and the following-named conditions and requirements to wit:

The Permittee must comply with all terms and conditions in Sections I, II, III, IV, V and VI of this permit. This permit consists of the conditions contained herein, including those in any attachments, the permit application, including all revisions and all applicable hazardous waste regulations contained in K.A.R. 28-31-1 through 28-31-14 in effect on the date of issuance of this permit.

This permit shall become effective at midnight on December 7, 1989 and shall remain in effect until December 7, 1994 unless revoked and reissued, or terminated or continued in accordance with K.A.R. 28-31-9.

Done at Topeka, this 1st day of December 19 89



DEPARTMENT OF HEALTH AND ENVIRONMENT  
Forbes Field Topeka, KS 66620-7200

(913) 296-1500

SECTION I

STANDARD PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

Department of the Army, Kansas Army Ammunition Plant, hereinafter referred to as the Permittee, is allowed to treat and store hazardous waste in accordance with the conditions of this Permit. Any treatment, storage or disposal of hazardous waste not authorized in this Permit is prohibited. Operation of the open burning/open detonation area is allowed under 40 CFR 265.382. Subject to 40 CFR 270.4 compliance with this Permit generally constitutes compliance, for purposes of enforcement, with K.S.A.65-3430 et seq. and K.A.R. 28-31-1 through 28-31-14 and Subtitle C of the Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984. Issuance of this Permit does not convey any property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3008(a), 3008(h), 3013, or 7003 of RCRA; Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment. [40 CFR 270.4, 270.30(g)]

I.B. PERMIT ACTIONS

I.B.1. Permit Modification, Revocation and Reissuance, and Termination

This Permit may be modified, revoked and reissued, or terminated for cause, as specified in 40 CFR 270.41, 270.42, and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition. [40 CFR 270.4(a) and 270.30(f)]

I.B.2. Permit Renewal

This Permit may be renewed as specified in 40 CFR 270.30(b) and Permit Condition I.E.2. Review of any application for a Permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations. [40 CFR 270.30(b), HSWA Sec. 212]

I.C. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. [40 CFR 124.16(a)]

I.D. DEFINITIONS

For purposes of this Permit, terms used herein shall have the same meaning as those in K.S.A. 65-3430 and K.A.R. 28-31-1 and 28-31-2 and 40 CFR Parts 124, 260, 264, 266, 268, and 270, unless this Permit specifically provides otherwise. When the same word is defined in the Kansas statutes and in the federal regulations and the definitions are not identical, the definition in the Kansas statutes shall control. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. "Secretary" means the Secretary of the Kansas Department of Health and Environment, or a designee or authorized representative.

I.E. DUTIES AND REQUIREMENTS

I.E.1. Duty to Comply

The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency Permit. Any Permit noncompliance, other than noncompliance authorized by an emergency Permit, constitutes a violation of RCRA and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a Permit renewal application. [40 CFR 270.30(a)]

I.E.2. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee shall submit a complete application for a new Permit at least 180 days prior to Permit expiration unless permission for a later submission date has been granted. However, the application for a new Permit must be submitted prior to the expiration date of this Permit. [40 CFR 270.10(h), 270.30(b)]

I.E.3. Permit Expiration

Pursuant to 40 CFR 270.50, this Permit shall be effective for a fixed term not to exceed five years. As long as KDHE is the Permit-issuing authority, this Permit and all conditions herein will remain in effect beyond the Permit's expiration date, if the Permittee has submitted a timely, complete application (see 40 CFR 270.10, 270.13 through 270.23) and, through no fault of the Permittee, the Secretary has not issued a new Permit, as set forth in 40 CFR 270.51.

I.E.4. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee, in an enforcement action that it would have been necessary, to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit. [40 CFR 270.30(c)]

I.E.5. Duty to Mitigate

In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures, as are reasonable, to prevent significant adverse impacts on human health or the environment. [40 CFR 270.30(d)]

I.E.6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper

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operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit. [40 CFR 270.30(e)]

I.E.7. Duty to Provide Information

The Permittee shall furnish to the Secretary, within a reasonable time, any relevant information which the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this Permit. 40 CFR 264.74(a), 270.30(h)

I.E.8. Inspection and Entry

Pursuant to [40 CFR 270.30(i)] and K.A.R. 28-31-12, the Permittee shall allow the Secretary, or an authorized representative, upon the presentation of credentials and other documents, as may be required by law, to:

I.E.8.a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

I.E.8.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;

I.E.8.c. Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

I.E.8.d. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

I.E.9. Monitoring and Records

I.E.9.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by the Secretary. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, Standard Methods of Wastewater Analysis, or an equivalent method, as specified in the Waste Analysis Plan, Permit Attachment 1. [40 CFR 270.30(j)(1)]

I.E.9.b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit, the certification required by 40 CFR 264.73(b)(9), and records of all data used to complete the application for this Permit for a period of at least 3 years from the date of the sample, measurement, report, record, certification, or application. These periods may be extended by request of the Secretary at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility. [40 CFR 264.74(b) and 270.30(j)(2)]

I.E.9.c. Pursuant to 40 CFR 270.30(j)(3), records of monitoring information shall specify:

- i. The dates, exact place, and times of sampling or measurements;
  - ii. The individuals who performed the sampling or measurements;
  - iii. The dates analyses were performed;
  - iv. The individuals who performed the analyses;
  - v. The analytical techniques or methods used; and
  - vi. The results of such analyses.
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I.E.10. Reporting Planned Changes

The Permittee shall give notice to the Secretary, as soon as possible, of any planned physical alterations or additions to the Permitted facility. [40 CFR 270.30(1)(1)]

I.E.11. Reporting Anticipated Noncompliance

The Permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 270.30(1)(2)]

I.E.12. Certification of Construction or Modification

The Permittee may not commence treatment of hazardous waste in the modified portion of the facility until the Permittee has submitted to the Secretary, by certified mail or hand delivery, a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the Permit; and

I.E.12.a. The Secretary has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the Permit; or

I.E.12.b. The Secretary has either waived the inspection or has not within 15 days notified the Permittee of an intent to inspect. [40 CFR 270.30(1)(2)]

I.E.13. Transfer of Permits

This Permit is not transferable to any person, except after notice to the Secretary. The Secretary may require modification or revocation and reissuance of the Permit pursuant to 40 CFR 270.40. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270 and this Permit. [40 CFR 270.30(1)(3), 264.12(c)]

I.E.14. Twenty-Four Hour Reporting

I.E.14.a. The Permittee shall report to the Secretary any noncompliance which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. The report shall include the following:

i. Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies.

ii. Any information of a release or discharge of hazardous waste, or of a fire or explosion from the hazardous waste management facility which could threaten the environment or human health outside the facility.

I.E.14.b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of materials involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

I.E.14.c. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Secretary may waive

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the five-day written notice requirement in favor of a written report within 15 days. [40 CFR 270.30(1)(6)]

I.E.15. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, Permit Conditions I.E.10. - 14., at the time monitoring reports are submitted. The reports shall contain the information listed in Permit Condition I.E.14. [40 CFR 270.30(1)(10)]

I.E.16. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application or in any report to the Secretary, the Permittee shall promptly submit such facts or information. [40 CFR 270.30(1)(11)]

I.E.17. Other Requirement

The Permittee shall defend, indemnify, and hold harmless the State of Kansas, its officers, agents, and employees officially or personally against all actions, claims, demands whatsoever which may arise from or on account of the issuance of this Permit or the construction or maintenance of any facility hereunder.

I.F. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to or requested by the Secretary, or an authorized designee or representative, shall be signed and certified in accordance with 40 CFR 270.11 and 270.30(k).

I.G. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE SECRETARY  
OR THE REGIONAL ADMINISTRATOR

All reports, notifications, or other submissions which are required by this Permit shall be sent or given to the Secretary or a designee of the Kansas Department of Health and Environment.

I.H. CONFIDENTIAL INFORMATION

In accordance with 40 CFR 270.12, the Permittee may claim confidential any information required to be submitted by this Permit.

I.I. DOCUMENTS TO BE SUBMITTED

I.I.1. The Permittee shall submit the following documents to the Secretary by the dates shown:

<u>Document</u>	<u>Due Date</u>
Trial Burn Reports and Certifications specified in 40 CFR 270.62(b)(7), (8) and (9).	within 90 days of completion of the trial burn

If not addressed in the Trial Burn Reports, the data and information specified in 40 CFR 270.19(c) is to be submitted to demonstrate that diphenylamine will be adequately treated in an incinerator identical to the incinerator unit which is subject to this Permit.

I.I.2. Prior to operation, the Permittee shall submit as-built plans of the incinerator. These plans shall provide detailed drawings and information on the incinerator design and materials of construction and shall include:

- I.I.2.a. the exact location of the operational monitors,
- I.I.2.b. the drawing of the retort discharge device,
- I.I.2.c. the configuration of the storage area at the site of the incinerator,
- I.I.2.d. the as-built configuration of the shroud, and
- I.I.2.e. the incinerator prove-out schedule specified in Special Provision IV.A.8.

I.I.3. The Permittee must provide notification that a notice in

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the deed to the property has been filed in accordance with the requirements found at K.A.R. 28-31-8(c) within 30 days of permit issuance.

I.I.4. The Permittee must provide notification that a copy of the final contingency plan has been distributed to all of the local authorities identified in the Contingency Plan located in Appendix G of the Part B permit application within 30 days of permit issuance.

I.J. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent, registered professional engineer, the following documents and all amendments, revisions and modifications to these documents:

I.J.1. Waste Analysis Plan, as required by 40 CFR 264.13 and this Permit.

I.J.2. Inspection schedules, as required by 40 CFR 264.15(b)(2) and this Permit.

I.J.3. Personnel training documents and records, as required by 40 CFR 264.16(d) and this Permit.

I.J.4. Contingency Plan, as required by 40 CFR 264.53(a) and this Permit.

I.J.5. Operating record, as required by 40 CFR 264.73 and this Permit.

I.J.6. Closure Plan, as required by 40 CFR 264.112(a) and this Permit.

I.J.7. All other documents required by Permit Condition I.E.9.

I.K. AVAILABILITY, RETENTION AND DISPOSITION OF RECORDS  
(40 CFR 264.74)

I.K.1. The Permittee must furnish all required records, including plans, upon request and will make those records available at all reasonable times for inspection, by any officer, employee or

representative of the Department who is duly designated by the Secretary.

I.K.2. Unless otherwise specified, all records and/or copies thereof required to be maintained by terms of this permit will be kept on-site for at least three years.

I.K.3. The retention period for all required records is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Secretary.

#### I.L. COMPLIANCE

In the event that the incinerator does not attain the performance standard specified in III.B.3. - III.B.6., the Permittee will be required to modify the operation of the unit until a succeeding trial burn documents that the performance standard can be achieved with a set of specific operating conditions. The Permittee will have the option of implementing closure for the incinerator or modifying the waste fed to the incinerator to include waste that will allow the operation to qualify for the exemption found at 40 CFR 264.340. If the exemption or closure is chosen by the Permittee, a permit modification as specified in 40 CFR 270.41 or 270.42 will be required.

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SECTION II

GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

The Permittee shall construct, maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned, sudden or nonsudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment, as required by 40 CFR 264.31. This includes adherence to operating conditions and procedures, and emergency shutdown procedures specified in the permit application and this Permit.

II.B. GENERAL WASTE ANALYSIS

The Permittee shall follow the waste analysis procedures required by 40 CFR 264.13, as described in the attached Waste Analysis Plan, Permit Attachment 1.

The Permittee shall verify the analysis of each waste stream annually as part of its quality assurance program, in accordance with Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846, or equivalent methods approved by the Secretary. At a minimum, the Permittee shall maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations. If the Permittee uses a contract laboratory to perform analyses, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis conditions set forth in this Permit.

II.C. SECURITY

The Permittee shall comply with the security provisions of 40 CFR 264.14(b) and (c).

II.C.1. The Permittee must prevent the unknowing entry, and minimize the possibility for unauthorized entry, of persons or livestock onto the active portions of this facility. An artificial or natural barrier which completely surrounds the active portion of the facility and a means to control entry through gates or other entrances to the active portion of the facility must be maintained at all times.

II.C.2. In addition, the Permittee must post signs bearing the legend "Danger - Authorized Personnel Only," at each entrance to the treatment and storage portions of the facility and at other locations in sufficient numbers to be seen from any approach to each portion of the facility in compliance with 40 CFR 264.14(c). This legend must be written in English and must be legible from a distance of 25 feet.

II.C.3. The Permittee will advise KDHE if unauthorized entry occurred at the facility which caused hazardous waste to be discharged, the nature of problems, if any, that resulted from this occurrence, and corrective action taken by the facility to prevent future happenings. This includes any tampering, destruction or loss at the facility which caused release of hazardous waste.

II.D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedule set out in Permit Attachment 2. The Permittee shall remedy any malfunction discovered by an inspection, as required by 40 CFR 264.15(c). Records of inspection shall be kept, as required by 40 CFR 264.15(d).

II.E. PERSONNEL TRAINING

The Permittee shall conduct personnel training, as required by 40 CFR 264.16. This training program shall follow the outline Permit Attachment 3. The Permittee shall maintain training documents and records, as required by 40 CFR 264.16(d) and (e).

II.F. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of 40 CFR 264.17(a). The Permittee shall follow the procedures for handling ignitable, reactive, and incompatible wastes set forth in the permit application.

II.G. LOCATION STANDARDS

This facility has no units located within the 100 year flood plain. The facility is not located in an area identified in Appendix VI of 40 CFR 264. Hence, no specific location standards apply to this facility.

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II.H. PREPAREDNESS AND PREVENTION

II.H.1. Required Equipment

At a minimum, the Permittee shall maintain at the facility the equipment set forth in the Contingency Plan, Permit Attachment 4, as required by 40 CFR 264.32.

II.H.2. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.H.1, as necessary, to assure its proper operation in time of emergency, as required by 40 CFR 264.33.

II.H.3. Access to Communications or Alarm System

The Permittee shall maintain access to the communications or alarm system, as required by 40 CFR 264.34.

II.H.4. Required Aisle Space

At a minimum, the Permittee shall maintain aisle space, as required by 40 CFR 264.35.

II.H.5. Arrangements with Local Authorities

The Permittee shall maintain arrangements with state and local authorities, as required by 40 CFR 264.37. If state or local officials refuse to enter into preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

II.I. CONTINGENCY PLAN

II.I.1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the Contingency Plan, Permit Attachment 4, whenever there is a fire, explosion, or release of hazardous waste or constituents which could threaten human health or the environment.

II.I.2. Copies of Plan

The Permittee shall comply with the requirements of 40 CFR 264.53.

II.I.3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan, as required by 40 CFR 264.54.

II.I.4. Emergency Coordinator

A trained emergency coordinator shall be available at all times in case of an emergency, as required by 40 CFR 264.55. The names, addresses, and phone numbers of all persons qualified to act as emergency coordinators shall be supplied to the Secretary as specified in Permit Condition I.G.

II.J. MANIFEST SYSTEM

The Permittee shall comply with the manifest requirements of 40 CFR 264.71, 264.72, and 264.76.

II.K. RECORDKEEPING AND REPORTING

In addition to the recordkeeping and reporting requirements specified elsewhere in this Permit, the Permittee shall do the following:

II.K.1. Operating Record

The Permittee shall maintain a written operating record at the facility, in accordance with 40 CFR 264.73.

II.K.2. Biennial Report

The Permittee shall comply with the biennial reporting requirements of 40 CFR 264.75.

II.L. GENERAL CLOSURE REQUIREMENTS

II.L.1. Performance Standard

The Permittee shall close the facility, as required by 40 CFR 264.111 and in accordance with the Closure Plan, Permit Attachment 5.

II.L.2. Amendment to Closure Plan

The Permittee shall amend the Closure Plan, in accordance with 40 CFR 264.112(c), whenever necessary.

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II.L.3. Notification of Closure

The Permittee shall notify the Secretary in writing at least 45 days prior to the date on which closure of the facility is expected to begin, as required by 40 CFR 264.112(d).

II.L.4. Time Allowed For Closure

After receiving the final volume of hazardous waste, the Permittee shall treat, remove from the unit or facility, or dispose of on site all hazardous waste and shall complete closure activities, in accordance with 40 CFR 264.113 and the schedules specified in the Closure Plan, Permit Attachment 5.

II.L.5. Disposal or Decontamination of Equipment, Structures, and Soils

The Permittee shall decontaminate and/or dispose of all contaminated equipment, structures, and soils, as required by 40 CFR 264.114 and the Closure Plan, Permit Attachment 5.

II.L.6. Certification of Closure

The Permittee shall certify that the facility has been closed in accordance with the specifications in the Closure Plan, as required by 40 CFR 264.115.

SECTION III

INCINERATION

III.A. IDENTIFICATION CRITERIA FOR PERMITTED AND PROHIBITED WASTE

Except during the periods specified in the conditions for Short-Term Incineration under the Shakedown Period and the Trial Burn, the Permittee may incinerate the following hazardous wastes, as specified in this Permit and only under the terms of this Permit. The Permittee may only feed the hazardous wastes as identified in Permit Condition III.A. at the facility subject to Permit Conditions III.B. through III.E., and III.G.

III.A.1. The Permittee may incinerate only the following hazardous wastes:

<u>Hazardous Waste No.</u>	<u>Description</u>	<u>Maximum Feed Rate</u>
D003	A solid waste that exhibits the characteristic of explosive reactivity, but is not listed as a hazardous waste in 40 CFR 261, Subpart D.	* (400 lb./hr.)
D008	A representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing lead at a concentration equal to or greater than 5 milligrams per liter.	

(waste feed rate for D008 is included with the D003 rate)

\* This feed rate may be altered to reflect results of the trial burn. The feed rate includes the weight resulting from the explosives, only. The weight of explosives fed is not to exceed 400 pounds per hour.

\* The weight of military hardware which will be introduced to the incinerator is not included in the feed rate. The combined feed rate can be found in Permit Attachment 6 which is the trial burn

plan found in the Permit Application.

III.A.1.a. Wastes may not exist in the form of sludges as defined by 40 CFR 260.10 or as hazardous wastes having the hazardous waste numbers K044, K045 or K046.

III.A.1.b. No liquids containing explosives may be introduced into the incinerator. No lead azide sumpage may be introduced into the incinerator.

III.A.1.c. The total halogen content of any hazardous waste fed to the incinerator may not exceed a feed rate of four pounds per hour.

III.A.1.d. Wastes containing hazardous constituents that are more difficult to destroy than those POHCs successfully demonstrated during the trial burn may not be introduced into the incinerator. The low oxygen thermal stability index or heat of combustion index shall be used to determine the difficulty of destruction ranking of hazardous constituents. The Permittee may, however, provide a demonstration to support a permit modification developed in accordance with the provisions of 40 CFR 270.19 and 270.62. Upon approval by the KDHE, the Permit shall be modified to include the subject waste stream.

III.A.2. Throughout operation, the Permittee shall conduct sufficient analysis in accordance with the Waste Analysis Plan of the Permit Attachment 1, to verify that waste fed to the incinerator is within the physical and chemical composition limits specified in this Permit.

III.B. CONSTRUCTION, INSTRUMENTATION, AND OPERATIONAL PERFORMANCE REQUIREMENTS

III.B.1. The Permittee shall construct and maintain the incinerator, associated air pollution control equipment and monitoring equipment in accordance with the design plans and specifications contained in the Permit Application and the Trial Burn Plan. The Permittee shall not make modifications to the incinerator without prior approval of the KDHE.

The Permittee shall not feed hazardous wastes to the incinerator until Permit Condition I.E.12 (Certification of Construction or Modification) has been complied with.

III.B.2. The Permittee shall install and test all instrumentation in accordance with the design plans, performance specifications, and maintenance procedures contained in the Permit Application prior to treating hazardous wastes in the incinerator unit.

The Permittee shall construct, and maintain the incinerator so that when operated, in accordance with the operating requirements specified in this Permit, it will meet the performance standards specified in Permit Conditions III.B.3. through III.B.6. [40 CFR 264.343]

III.B.3. The incinerator shall achieve a destruction and removal efficiency (DRE) of 99.99 percent for each of the following principal organic hazardous constituents (POHC) for each waste feed. The DRE value shall be determined using the method specified in 40 CFR 264.343(a)(1).

<u>Waste</u>	<u>Test Parameter</u>
M1 Propellant	Particulate Dinitrotoluene (POHC)
M30 Propellant	Particulate Nitroglycerine (POHC)
Black Powder	Particulate
M223 Fuze	Metals/Fugitive Emissions/ Particulate/ Cyclotrimethylene- trinitramine (POHC)

III.B.4. The Permittee is to select another POHC from the low oxygen stability index or, if no acceptable surrogate can be specified, a technical rationale strategy must be provided.

III.B.5. The Permittee shall not introduce waste that will yield hydrogen chloride (HCl) or any halogen emission at a rate greater than 1.8 kilograms per hour (4 pounds/hour). [40 CFR 264.343(b)]

III.B.6. The incinerator shall not emit particulate matter in excess of 180 milligrams per dry standard cubic meter (0.08 grains per dry standard cubic foot) when corrected for the amount of oxygen in the stack gas, in accordance with the formula specified in 40 CFR 264.343(c). [40 CFR 264.343(c)]

III.B.7. Except during the periods specified in the Permit Conditions for Short-Term Incineration under the Trial Burn Period, the Permittee shall feed the wastes described in Permit Condition III.A.1. to the incinerator only under the following conditions: [40 CFR 264.345]

III.B.7.a. Carbon monoxide concentration in the stack exhaust gas, monitored as specified in Permit Condition III.D., and corrected to seven percent oxygen in the stack gas, shall not exceed 100 ppm over a one hour rolling average. Oxygen concentrations in the incinerator off gases must be at or exceed three percent.

III.B.7.b. The Permittee shall be limited to a waste explosive feed rate of 400 lb./hr. as specified in the Permit Application and in accordance with Permit Condition III.A.1.

III.B.7.c. Kiln combustion temperature, monitored as specified in Permit Condition III.D., shall be maintained at a temperature between 800°F and 900°F at the ash discharge end of the retort. The operating temperature at the feed end of the retort will be maintained at a range of 250°F to 450°F. The operating temperature for the afterburner monitored as specified in Permit Condition III.D. shall be maintained at a temperature between 1200°F and 1850°F. *Exit 1400 + Below*

III.B.7.d. Combustion gas velocity, monitored as specified in Permit Condition III.D., shall be maintained at a rate between 30 and 50 feet per second. *350 to 1100 - Entrance*

III.B.7.e. The mass feed rates of toxic metals to the incinerator shall not exceed\*:

Antimony:	<u>0.1</u>	(lb/hr.)	Barium:	<u>17</u>	(lb/hr.)
Lead:	<u>0.031</u>	(lb/hr.)	Chromium:	<u>0.00029</u>	(lb/hr.)
Mercury:	<u>0.1</u>	(lb/hr.)	Beryllium:	<u>0.0014</u>	(lb/hr.)
Silver:	<u>1.0</u>	(lb/hr.)	Cadmium:	<u>0.0019</u>	(lb/hr.)
Thallium:	<u>0.1</u>	(lb/hr.)	Arsenic:	<u>0.0001</u>	(lb/hr.)

\* Upon submission of an acceptable modeling by the Permittee based on data from the trial burn, the KDHE may allow higher toxic metal feed rates. The data will be subject to review and limitation by the KDHE's Air Toxics Strategy.

III.B.7.f. The auxiliary fuel burner, incinerator and associated air pollution control equipment must be operated in accordance with specifications provided by the equipment manufacturer or in accordance with modifications approved by the KDHE.

III.B.7.g. Pressure drop across the baghouse, monitored as specified in Permit Condition III.D., shall be no less than two inches of water nor greater than six inches of water. (The pressure drop across the cyclone shall be no less than two inches of water nor more than five inches of water. The pressure drop across the low temperature gas coolers shall be 2.8 inches of water. The pressure drop across the high temperature gas cooler shall be 3.0 inches of water. All specific pressures monitored as specified in Permit Condition III.D. may have the tolerance of plus or minus one half inch of water.

III.B.7.h. The Permittee shall control fugitive emissions from the combustion zone of the incinerator by maintaining a negative pressure in the primary combustion chamber, monitored as specified in Permit Condition III.D., to be maintained at negative 0.15 to negative 0.25 inches of water. The shroud is to be maintained at a negative pressure of at least 0.1 inches of water. [40 CFR 264.345(d)]

*secondary (afterburner)*  
*primary (kiln)*  
*Need to check 2/2*

III.B.7.i. The rotary kiln feed rate has been determined for each waste stream burned at the facility and can be found in Permit Attachment 6. These may be modified upon review of the Trial Burn Reports and Condition III.A.1. of this permit.

III.B.7.j. The rotary kiln rotation rates may vary from 1.5 to 3 revolutions per minute. The exact rotation rate is waste specific and shall be as specified by the facility's current standard operating procedures in place as of the date of issuance of this permit.

III.B.7.k. The exit temperature of the high temperature gas cooler shall be 850°F or less. The exit temperature of the low temperature gas cooler shall be less than 350°F and greater than 225°F.

III.B.7.1. The bag house by-pass must be activated during 1) start-up procedures prior to introduction of waste into the incinerator and 2) when the influent baghouse temperature exceeds 350° F. No hazardous waste may be introduced into the incinerator when the baghouse by-pass is activated.

III.B.7.m. Compliance with the operating conditions specified in Permit Conditions III.B.7.a. through III.B.7.l. will be regarded as compliance with the required performance standards in Permit Conditions III.B.3. through III.B.6. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, may justify modification, revocation, or reissuance of the Permit pursuant to 40 CFR 270.41. [40 CFR 264.343(d)]

### III.C. INSPECTION REQUIREMENTS

The Permittee shall inspect the incineration unit in accordance with the Inspection Schedule of the permit application, and shall complete the following as part of these inspections:

III.C.1. The Permittee shall thoroughly, visually inspect the incinerator and associated equipment (including pumps, valves, conveyers, pipes, etc.) for leaks, spills, fugitive emissions, and signs of tampering at least daily when operating the incinerator. [40 CFR 264.347(b)]

III.C.2. The Permittee shall thoroughly, visually inspect the instrumentation for out-of-tolerance monitored and/or recorded operational data in accordance with time frames specified in Permit Condition III.D.1.

III.C.3. The Permittee shall test the emergency waste feed cut-off system and associated alarm as specified in Permit Condition III.E.1. at least weekly to verify operability. [40 CFR 264.347(c)]

III.C.4. During start-up and shut-down of the incinerator, hazardous waste must not be introduced into the incinerator unless the incinerator is operating within the conditions specified in Conditions III.B.7 through III.B.18.

III.C.5. The Permittee must control fugitive emissions from the incinerator by maintaining adequate seals on each end of the rotary kiln and the feed ports, by maintaining the shroud over the rotary kiln at a negative pressure and by operating the kiln at a negative pressure. If fugitive emissions are detected from the incinerator, the waste feed cut-off must be activated and waste must not be fed to the incinerator until the situation has been corrected.

III.C.6. The permittee must install, maintain and calibrate the systems described in permit condition III.D.1 to automatically take corrective action at the levels and/or conditions specified when the operating conditions deviate from the limits specified in permit conditions III.B.7 through III.B.18.

III.D. MONITORING REQUIREMENTS.

III.D.1. The Permittee shall maintain, calibrate, and operate monitoring equipment and record the data while incinerating hazardous waste, as specified below:

<u>Parameter, Monitoring Device</u>	<u>Location</u>	<u>Recording Process</u>	<u>Calibratic</u>
CO NDIR	Exhaust Stack	Strip Chart and Disk	Frequency 1/Day
O <sub>2</sub> Oxygen Monitor	Exhaust Stack	Strip Chart and Disk	Frequency 1/Day
Temperature Thermocouple	Exhaust Stack	Disk	Annual
Gas Velocity Pitot Tubes	Exhaust Stack	Strip Chart and Disk	Semi-Annua
Pressure Differential Water Gauge	Baghouse	Disk	Semi-Annua
Temperature Thermocouple	Duct After Baghouse	Disk	Annual

Temperature Thermocouple	Duct After Low Temp Cooler	Disk	Annual
Temperature Thermocouple	Duct After High Temp Cooler	Disk	Annual
Temperature Thermocouple	Duct After Afterburner	Disk and Strip Chart	Annual
Pressure Differential Water Gauge	Afterburner	Disk	Annual
Temperature Thermocouple	Duct After Retort	Disk and Strip Chart	Annual
Pressure Water Gauge	Retort	Disk	Annual
Motion Sensor	Primary Conveyor	Disk	N/R
Motion Sensor	Secondary Conveyor	Disk	N/R
Motion Sensor	Discharge Conveyor	Disk	N/R
Motion Sensor	Retort	Disk	N/R
Fuel Flow Meter	Main Fuel Line	Strip Chart and Disk	Semi-Annual
Waste Feed Rate	Waste Feed Conveyor	Disk	Semi-Annual

III.D.2. Upon request by the Secretary, or at least once during the life of the permit, the Permittee shall perform the test required by 40 CFR 264.347(a)(3). The permittee shall notify the Secretary at least 90 days prior to performance of the test and submit the test plan for approval. All testing must be completed 180 days prior to expiration of the permit. The results of the test must be submitted in accordance with 40 CFR 270.62(b)(7), (8), and (9) and must be submitted with any new permit application under Section I.E.2. [40 CFR 264.347(a)(3)]

III.E. WASTE FEED CUT-OFF REQUIREMENTS

Kansas Army Ammunition Plant  
Parsons, Kansas  
KS0213820467  
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III.E.1. The Permittee shall construct and maintain the systems specified below to automatically cut off the hazardous waste feed to the incinerator at the levels specified below. Hazardous wastes shall be fed to the incinerator only when all instruments required by this condition are on line and operating properly.

WASTE FEED CUT OFF

<u>Parameter</u>	<u>Cut Off Limit</u>	<u>Test Frequency</u>
Waste Feed Rate Exceeded	Item Specific (See permit condition III. A.1.)	Each cycle
High Temp Retort (ash discharge end)	>900°F	Continuous
Low Temp Retort (ash discharge end)	<800°F	Continuous
<del>Combustion Zone Kiln Low Shroud Vacuum</del>	<0.10" wg	Continuous
Low Temp Afterburner	<1200°F	Continuous
High Temp Afterburner	>1850°F	Continuous
High Temp Gas Cooler High Temp	>850°F	Continuous
Low Temp Gas Cooler High Temp	>350°F	Continuous
Low Temp Gas Cooler Low Temp	<225°F	Continuous
Baghouse High Temp	>350°F	Continuous
Baghouse Low Temp	<225°F	Continuous
Baghouse Pressure Differential High	>6" wg	Continuous
Baghouse Pressure Differential Low	<2" wg	Continuous

CO	>100 ppm one hour rolling average	Continuous
O <sub>2</sub>	>21%	Continuous
O <sub>2</sub>	<3%	Continuous
Gas Velocity High	>50 ft/sec	Continuous
Gas Velocity Low	<30 ft/sec	Continuous
Conveyor & Retort Motion Sensors	Loss of motion	Continuous
All Motors	Failure	Continuous
Fuel Rate	Loss of fuel flow	Continuous
Retort Burner Flame Out	Loss of flame	Continuous
Afterburner Flame Out	Loss of flame	Continuous
Controls	Failure of any device	Continuous
Gas Monitor	Failure	Continuous
Waste Feed Monitor	Failure	Continuous
Retort Combustion Air	Failure	Continuous
Retort Burner Controller	Failure	Continuous
Afterburner Burner Controller	Failure	Continuous
Afterburner Propane	Failure	Continuous
Afterburner Combustion Air Failure	Failure	Continuous
Low Temp Gas Cooler Controller	Failure	Continuous
Baghouse Bypass Damper	Open	Continuous

Draft Fan	Failure	Continuous
Draft Fan Controller	Failure	Continuous

All operating conditions are subject to modification following the trial burn in accordance with the provisions of 40 CFR 270.42.

III.E.2. In case of a malfunction of the automatic waste feed cut-off systems, the Permittee shall immediately perform manual waste feed cut-off and shutdown. The Permittee shall not restart the incinerator until the problem causing the malfunction has been located and corrected. All conditions are subject to modification to reflect trial burn results in accordance with 40 CFR 270.42.

### III.F. CLOSURE

The Permittee shall follow the procedures in the Closure Plan, Permit Attachment 5.

### III.G. RECORDKEEPING

III.G.1. The Permittee shall record and maintain, in the operating record for this permit, all monitoring and inspection data compiled under the requirements of this Permit (see Permit Condition I.E.9.). [40 CFR 264.73 and 40 CFR 264.347(d)]

III.G.2. The Permittee shall record in the operating record for this permit the date and time of all automatic waste feed cut-offs, including the triggering parameters, reason for the cut-off, and corrective actions taken. The Permittee shall also record all failures of the automatic waste feed cutoffs to function properly and corrective actions taken.

### III.H. COMPLIANCE SCHEDULE

III.H.1. The Permittee shall submit the following documents to the Secretary by the dates shown:

Document

Due Date

Trial burn reports  
and Certifications  
specified in 40 CFR  
270.62(b)(7), (8),  
and (9)

within ninety days of completion  
of the trial burn

If not addressed in the Trial Burn Reports, the data and information specified in 40 CFR 270.19(c) must be submitted to demonstrate that diphenylamine will be adequately treated in an incinerator identical to the incinerator unit which is subject to this permit.

III.H.2. Prior to operation, the Permittee shall submit as-built plans of the incinerator. These plans shall provide detailed drawings and information on the incinerator design and materials of construction and shall include:

III.H.2.a. the exact location of the operational monitors;

III.H.2.b. the drawing of the retort discharge device;

III.H.2.c. the configuration of the storage area at the site of the incinerator;

III.H.2.d. the as-built configuration of the shroud; and

III.H.2.e. the incinerator prove-out schedule specified in Permit Condition IV.A.8.

III.I. OPERATING CONDITIONS

During start-up and shut-down of the incinerator, hazardous wastes shall not be introduced into the incinerator unless the incinerator is operating within the conditions specified in this Permit. The afterburner must be brought up to operating conditions before the retort is ignited if shutdown had occurred with waste in the incinerator. [40 CFR 264.345(e)]

The Permittee shall cease waste feed when changes in waste feed or operating conditions exceed limits designated in this Permit. [40 CFR 264.345(f)]

SECTION IV

SHORT-TERM TEST INCINERATION

IV.A. SHAKEDOWN PHASE

During the shakedown phase (the period beginning with the initial introduction of hazardous wastes into the incinerator and ending with the start of the trial burn) the Permittee shall comply with the following conditions:

IV.A.1. DURATION OF THE SHAKEDOWN PHASE

The shakedown phase shall not exceed 720 hours of operation when burning hazardous wastes. [40 CFR 264.344(c)(1)]

IV.A.2. ALLOWABLE WASTE FEED

During the shakedown phase, the Permittee may feed only wastes identified in Permit Condition III.A.1. to the incinerator, at the feed rates specified in the Incinerator Prove-out Schedule

IV.A.3. INSTRUMENTATION AND OPERATIONAL PERFORMANCE REQUIREMENTS

During the shakedown phase, the Permittee shall feed the wastes described in Permit Condition III.A.1. to the incinerator only under the following conditions:

IV.A.3.a. Carbon monoxide concentration in the stack exhaust gas, monitored as specified in Permit Condition IV.A.5., and corrected to seven percent oxygen in the stack gas, shall not exceed 100 ppm over a one hour rolling average.

IV.A.3.b. Combustion temperature, monitored as specified in Permit Condition IV.A.5., shall be maintained between 1200 °F and 1850°F in the afterburner. The temperature at the ash discharge end of the retort shall be maintained at a temperature greater than 800°F and less than 900°F.

IV.A.3.c. Combustion gas velocity, monitored as specified in Permit Condition IV.A.5., shall be less than 50 ft./sec. and greater than 30 ft./sec.

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IV.A.3.d. Oxygen concentration in the stack gases, monitored as specified in Permit Condition IV.A.5., shall be greater than three percent.

IV.A.3.e. Pressure drop across the baghouse, monitored as specified in Permit Condition IV.A.5., shall be greater than two inches of water, and less than six inches of water.

IV.A.3.f. The Permittee shall control fugitive emissions from the combustion zone of the incinerator by maintaining the pressure in the primary combustion chamber, monitored as specified in Permit Condition IV.A.5., at no less than 0.1 inches of water. [40 CFR 264.345(d)]

IV.A.3.g. Compliance with the operating conditions specified in Permit Conditions IV.A.3.a. through IV.A.3.f. will be regarded as compliance with the required performance standards 40 CFR 264.343 and Permit Condition III.B.3. to III.B.6. However, the Permittee must cease operations if evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards. [40 CFR 264.343(d)]

#### IV.A.4. INSPECTION REQUIREMENTS

The Permittee shall inspect the incineration unit in accordance with the Inspection Schedule of the Permit Application, which includes but is not be limited to the following:

IV.A.4.a. The Permittee shall thoroughly, visually inspect the incinerator and associated equipment (including pumps, valves, conveyors, pipes, etc.) for leaks, spills, fugitive emissions, and signs of tampering at least daily when operating. [40 CFR 264.347(b)]

IV.A.4.b. The Permittee shall thoroughly, visually inspect the instrumentation for out-of-tolerance monitored and/or recorded operational data in accordance with Permit Condition IV.A.5.a.

IV.A.4.c. The Permittee shall test the emergency waste feed cut-off system and associated alarm at least weekly to verify operability, as specified in Permit Condition IV.A.5. [40 CFR 264.347(c)]

#### IV.A.5. MONITORING REQUIREMENTS

IV.A.5.a. The Permittee shall maintain, calibrate, and operate monitoring equipment and record the data while incinerating hazardous waste, as specified below:

<u>Parameter Monitor Device</u>	<u>Location</u>	<u>Recording Process</u>	<u>Calibrati</u>
CO NDIR	Exhaust Stack	Strip Chart and Disk	Frequency 1/Day
O <sub>2</sub> Oxygen Monitor	Exhaust Stack	Strip Chart and Disk	Frequency 1/Day
Temperature Thermocouple	Exhaust Stack	Disk	Annual
Gas Velocity Pitot Tubes	Exhaust Stack	Strip Chart and Disk	Semi-Annua
Pressure Differential Water Gauge	Baghouse	Disk	Semi-Annua
Temperature Thermocouple	Duct After Baghouse	Disk	Annual
Temperature Thermocouple	Duct After Temp Cooler	Low Disk	Annual
Temperature Thermocouple	Duct After High Temp Cooler	Disk	Annual
Temperature Thermocouple	Duct After Afterburner	Disk and Strip Chart	Annual
Pressure Differential Water Gauge	Afterburner	Disk	Annual
Temperature Thermocouple	Duct After Retort	Disk	Annual

Pressure Water Gauge	Retort	Disk	Annual
Motion Sensor	Primary Conveyor	Disk	N/R
Motion Sensor	Secondary Conveyor	Disk	N/R
Motion Sensor	Discharge Conveyor	Disk	N/R
Motion Sensor	Retort	Disk	N/R
Fuel Flow Meter	Main Fuel Line	Strip Chart and Disk	Semi-Annua
Waste Feed Rate (See III.A.1)	Waste Feed Monitor	Disk	Semi-Annua

IV.A.6. WASTE FEED CUT-OFF REQUIREMENTS

IV.A.6.a. The Permittee shall construct and maintain the systems specified below to automatically cut off the hazardous waste feed to the incinerator at the levels specified below. Hazardous wastes shall be fed to the incinerator only when all instruments required by this condition are on line and operating properly.

<u>Parameter</u>	<u>Cut Off Limit</u>	<u>Test Frequency</u>
Waste Feed Exceeded	See Permit Condition III.A.1.	Each cycle
High Temp Retort	>900°F	Continuous
High Temp Retort	<800°F	Continuous
Low Temp Retort	<350°F	Continuous
<sup>Kiln</sup> Low Shroud Vacuum	<0.1 wg	Continuous
Low Temp Afterburner	<1200°F	Continuous
High Temp Afterburner	>1850°F	Continuous
High Temp Gas Cooler	>850°F	Continuous
High Temp		Continuous

Low Temp Gas Cooler High Temp	>350°F	Continuous
Low Temp Gas Cooler Low Temp	<225°F	Continuous
Baghouse High Temp	>350°F	Continuous
Baghouse Low Temp	<225°F	Continuous
Baghouse Pressure Differential High	>6" wg	Continuous
Baghouse Pressure Differential Low	<2" wg	Continuous
CO	>100 ppm one hour rolling average	Continuous
O <sub>2</sub>	>21%	Continuous
O <sub>2</sub>	<3%	Continuous
Gas Velocity High	>50 ft/sec	Continuous
Gas Velocity Low	<30 ft/sec	Continuous
Conveyor & Retort Motion Sensors	Loss of motion	Continuous
All Motors	Failure	Continuous
Fuel Rate	Loss of fuel flow	Continuous
Retort Burner Flame Out	Loss of flame	Continuous
Afterburner Flame Out	Loss of flame	Continuous
Controls	Failure of any device	Continuous
Gas Monitor	Failure	Continuous
Waste Feed Monitor	Failure	Continuous

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Retort Combustion Air	Failure	Continuous
Retort Burner Controller	Failure	Continuous
Afterburner Burner Controller	Failure	Continuous
Afterburner Propane	Failure	Continuous
Afterburner Combustion Air	Failure	Continuous
Low Temp Gas Cooler Controller	Failure	Continuous
Baghouse Bypass Damper	Open	Continuous
Draft Fan	Failure	Continuous
Draft Fan Controller	Failure	Continuous

IV. A.6.b. In case of a malfunction of the automatic waste feed cut-off systems, the Permittee shall perform manual shut downs in accordance with the approved procedures in the Permit Application. The Permittee shall not restart the incinerator until the problem causing the malfunction has been located and corrected.

IV.A.7. RECORDKEEPING

IV.A.7.a. The Permittee shall record and maintain, in the operating record for this Permit, all monitoring and inspection data compiled under the requirements of this Permit (see Permit Condition I.E.9.). [40 CFR 264.73 and 40 CFR 264.347(d)]

IV.A.7.b. The Permittee shall record in the operating record for this permit the date and time of all automatic waste feed cut-offs, including the triggering parameters, reason for the cut-off, and corrective actions taken. The Permittee shall also record all failures of the automatic waste feed cut-offs to function properly and corrective actions taken.

IV.A.8. The Permittee shall provide the following information to the Secretary:

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<u>Item</u>	<u>Date Due to the Secretary</u>
Incinerator Prove-out Schedule*	Due thirty days prior to initiation incinerator operation
Monthly operating record for the incinerator	Due every thirty days until the trial burn whenever hazardous waste are incinerated

\* The Incinerator Prove-out Schedule is to specify incremental increases of waste feed so that no instance of permit noncompliance occurs. It must also provide for immediate notification of the KDHE in the event that Permit Conditions are not being achieved.

IV.B. TRIAL BURN PHASE

IV.B.1. CONFORMITY TO TRIAL BURN PLAN

The Permittee shall operate and monitor the incinerator during the trial burn phase as specified in the Trial Burn Plan in the permit application.

IV.B.2. TRIAL POHCs

The principal organic hazardous constituents (POHCs) for which DRES must be determined are:

<u>Waste Feed</u>	<u>POHC(s)</u>
M1 Propellant	Dinitrotoluene (POHC) Particulate
-----	
M30 Propellant	Nitroglycerine (POHC) Particulate
-----	
Black Powder	Particulate
-----	
M223 Fuze	Metals/Fugitive Emissions/Particulate Cyclotrimethylene trinitramine (POHC)

IV.B.3. TRIAL BURN DETERMINATIONS

During the trial burn (or as soon after the trial burn as practicable), the Permittee shall make the determinations required by 40 CFR 270.62(b)(6)(i)-(ix).

IV.B.4. TRIAL BURN DATA SUBMISSIONS AND CERTIFICATIONS

The Permittee shall submit a copy of all data collected during the trial burn to the Secretary upon completion of the burn. The Permittee shall submit to the Secretary the results of the determinations required by Condition IV.B.3 within ninety (90) days of the completion of the trial burn. All submissions must be certified in accordance with 40 CFR 270.11. [40 CFR 270.62(b)(7) and (9)]

IV.B.5. Authority to Cease Operations

The permitting agency shall have the authority to sample, observe and cease incinerator operation when the KDHE determines that continued operation threatens human health and the environment.

IV.C. POST-TRIAL BURN PHASE

IV.C.1. ALLOWABLE WASTE FEED

During the post trial burn phase which begins with the end of the trial burn and ends when the KDHE provides final permit conditions, the Permittee may feed only wastes that are not defined as hazardous by the provisions of 40 CFR 261 and as further defined in current EPA policy. No hazardous waste may be burned in the incinerator during the post trial burn phase.

SECTION V

CONTAINERS

V.A. UNIT DESCRIPTION

Hazardous waste generated at the installation are stored in a permitted storage area onsite for treatment onsite or disposal offsite at a permitted hazardous waste facility. The permitted storage facilities consist of 18 igloo structures in the 1700, 1900 and 2700 Areas and one magazine located in the 1800 Area. The combined storage capacity is 206,720 gallons in the igloos and 118,800 gallons in the above-ground magazine.

V.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

IV.B.1. The Permittee may store the following wastes in containers at the facility, subject to the terms of this Permit and as follows:

<u>EPA HAZARDOUS WASTE NO.</u>	<u>DESCRIPTION</u>
F001	The following spent halogenated solvents used in degreasing: trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005, and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent

mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F003

The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of these solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F005

The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

D001

A solid waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste in 40 CFR Part 261, Subpart D.

- D002 A solid waste that exhibits the characteristic of corrosivity, but is not listed as a hazardous waste in 40 CFR Part 261, Subpart D.
- D003 A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in 40 CFR Part 261, Subpart D.
- D005 A representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing barium at a concentration equal to or greater than 100 milligrams per liter.
- D006 A representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing cadmium at a concentration equal to or greater than 1 milligram per liter.
- D007 Representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing chromium at a concentration equal to or greater than 5 milligrams per liter.
- D008 A representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing lead at a concentration equal to or greater than 5 milligrams per liter.
- D009 A representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing mercury at a concentration equal to or greater than 0.2 milligrams per liter.
- D011 A representative sample of a solid waste exhibiting the characteristic of EP Toxicity containing silver at a concentration equal to or greater than 5 milligrams per liter.
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K044	Wastewaternt sludges from the manufacture and processing of explosives.
K045	Spent carbon from the treatment of wastewater containing explosives.
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.
K047	Pink/red water from TNT operations.
U036	Chlordane
U122	Formaldehyde
U132	Hexachlorophene

V.B.2. The Permittee is prohibited from storing hazardous waste that is not identified in Permit Condition V.B.1.

V.C. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this Permit. [40 CFR 264.171]

V.D. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall assure that the ability of the container to contain the waste is not impaired, as required. [40 CFR 264.172]

V.E. MANAGEMENT OF CONTAINERS

The Permittee shall keep all containers closed during storage, except when it is necessary to add or remove waste, and shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak. [40 CFR 264.173]

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V.F. CONTAINMENT SYSTEM

The Permittee shall maintain the containment system in accordance with the attached plans and specifications, contained in the permit application. [40 CFR 264.175]

V.G. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the container area weekly, in accordance with the Inspection Schedule in Attachment 2 to detect leaking containers and deterioration of containers and the containment system caused by corrosion and other factors. [40 CFR 264.174]

V.H. RECORDKEEPING

The Permittee shall place the results of all waste analyses and trial tests and any other documentation used to demonstrate compliance with the requirements of Permit Conditions V.B.1. and V.B.2. and 40 CFR 264.17(b) and 264.177 in the facility operating record. [40 CFR 264.73]

V.I. CLOSURE

At closure of the container area, the Permittee shall remove all hazardous waste and hazardous waste residues from the containment system, in accordance with the procedures in the Closure Plan in Attachment 5. [40 CFR 264.178]

V.J. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE OR REACTIVE WASTE

V.J.1. The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line. [40 CFR 264.176]

V.J.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste and follow the procedures specified in the attached permit application. [40 CFR 264.17(a) and 264.176]

V.K. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTE

V.K.1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container unless the procedures in the permit application are followed. [40 CFR 264.177(a)]

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V.K.2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material. [40 CFR 264.177(b)]

V.K.3. The Permittee shall separate containers of incompatible wastes. [40 CFR 264.177(c)]

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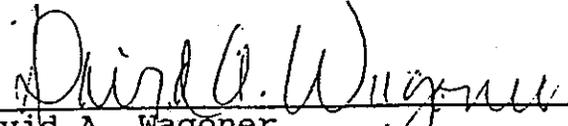
EPA AUTHORIZATION UNDER THE HAZARDOUS AND  
SOLID WASTE AMENDMENTS OF 1984

Pursuant to Section 227 of the Hazardous and Solid Waste Amendments of 1984 (hereinafter "HSWA") EPA is granted authority to issue or deny permits for those portions of permits affected by the requirements established by HSWA. By this authority and pursuant to Sections 3002(b) and 3004(u) of the Resource Conservation and Recovery Act (RCRA) as amended HSWA, 42 U.S.C. §6922(b) and 42 U.S.C. §6924(u), EPA hereby grants to the Kansas Army Ammunition Plant, Department of the Army and Day and Zimmermann, Inc., (Owner and Operator respectively), EPA ID Number KS0213820467, permission to perform investigation activities at their facility located east of Parsons, Kansas.

This permit addresses the corrective action requirement for solid waste management units as administered and enforced by EPA. Applicable regulations are found in 40 CFR Parts 260 through 264, 270, and 124, as specified in this permit. Further, this permit incorporates by reference those conditions specified in the Standard Permit Conditions section of the KDHE permit attached hereto.

This permit shall become effective at Midnight on December 7, 1989, and shall remain in effect until December 7, 1994, unless revoked and reissued, terminated (40 CFR 270.41 and 270.43) or continued in accordance with 40 CFR 270.51.

Done at Kansas City, Kansas, this 8th day of January, 1990.

  
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David A. Wagener  
Director, Waste Management Division

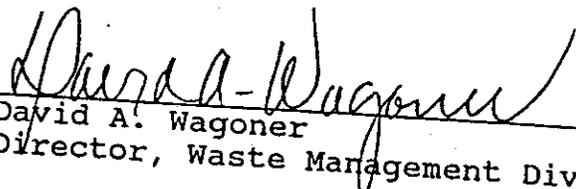
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This permit addresses the corrective action requirement for solid waste management units as administered and enforced by EPA. Applicable regulations are found in 40 CFR Parts 260 through 264, 270, and 124, as specified in this permit. Further, this permit incorporates by reference those conditions specified in the Standard Permit Conditions section of the KDHE permit attached hereto.

This permit shall become effective at Midnight on ~~December 7, 1989~~ and shall remain in effect until ~~December 7, 1994~~, unless revoked and reissued, terminated (40 CFR 270.41 and 270.43) or continued in accordance with 40 CFR 270.51.

Done at Kansas City, Kansas, this 7th day of November, 1989.

  
\_\_\_\_\_  
David A. Wagoner  
Director, Waste Management Division

SECTION VI

**HAZARDOUS AND SOLID WASTE AMENDMENTS (HWA) PERMIT  
CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS**

**1. SUMMARY OF RFA FINDINGS/RESULTS**

Following is a list of the specific solid waste management units (SWMUs) identified as a result of the RFA.

- a. Building 112 Sump, Ditch and Oxidation Pond
- b. Oil and Water Separator at Area 200
- c. Oil Land Farm at Area 200
- d. Building 314 Waste Oil Storage Tank
- e. Area 300 (3) Sumps, Ditches, Pink Water Ditches, and (2) Oxidation Ponds
- f. Area 500 (5) Sumps and Ditches
- g. Area 800 (2) Sumps, Ditches and Oxidation Pond
- h. Area 900 (5) Sumps, Ditches, Pink Water Ditches and (3) Oxidation Ponds
- i. Area 1000 (5) Sumps, Ditches, Pink Water Ditches and (3) Oxidation Ponds
- j. Area 1100 (7) Sumps, Ditches and Oxidation Pond
- k. Open Burning Pads Numbered 1, 2, 3, and 4
- l. Classification Area at Area 100 by Gate 3
- m. Closed Landfill near the Quarry
- n. Closed Landfill and Refuse Burn Pits near Area 200
- o. Current Landfill with Asbestos and Grenade Disposal Area
- p. Closed Landfill near the Open Detonation Area
- q. Open Detonation Field
- r. Waste Water Sludge Drying Beds
- s. Coal Pile Run-off Catchment Device and Associated Ditches
- t. Explosive Waste Incinerator
- u. Container Storage Units
- v. Contaminated Waste Processor

Solid Waste Management Units with documented releases include:

- a. Burning Cages 14, 17 and 22
- b. Open Burning Pads 5 and 6
- c. Area 700 Sumps, Ditches and (2) Oxidation Ponds

The specifying of each waste management unit on the lists above will serve only to identify units that need additional activities. The additional activities are specified below.

## 2. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as those in RCRA and 40 CFR Parts 124, 260, 261, 264, and 270, unless this permit specifically provides otherwise; where terms are not defined in the regulations, the permit or EPA guidances or publications, the meaning associated with such terms shall be defined by a standard dictionary reference of the generally accepted scientific or industrial meaning of the term.

"Area" means those locations or units identified as "areas" by the Permittee and indicated on the attached topographic map.

"Facility" means all contiguous land and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste and under control of the owner or operator seeking a permit for that property under Subtitle C of RCRA. A facility may consist of several treatment, storage, or disposal operational units.

"Hazardous constituent" means any constituent identified in Appendix VIII of 40 CFR Part 261 where analytical methods exist, or any constituent identified in Appendix IX of 40 CFR Part 264.

"Hazardous Waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. The term hazardous waste includes hazardous constituent as defined above.

"Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents).

"Quarterly Reporting Schedule" means the submission of reports for the three month period preceding January 1, April 1, July 1, and October 1 with the reports due January 30, April 30, July 30, and October 30, respectively.

"Solid waste management unit (SWMUs)" means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released. One time spills which are cleaned up are not SWMUs.

### 3. STANDARD CONDITIONS

A. Section 3004(u) of RCRA, as amended by HSWA, and 40 CFR 264.101 require that permits issued after November 8, 1984, address corrective action for releases of hazardous wastes including hazardous constituents from any solid waste management unit (SWMU) at the facility, regardless of when the waste was placed in the unit.

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B. Failure to submit the information required in this Corrective Action Schedule of Compliance, or misrepresentation or failure to disclose all relevant facts, is grounds for termination of this permit (40 CFR 270.43), civil penalty or both. The Permittee shall ensure that all plans, reports, notifications, and other submissions to the Regional Administrator required in this Corrective Action Schedule of Compliance are signed and certified in Accordance with 40 CFR 270.11. Three copies of these plans, reports, notifications or other submissions shall be submitted to the Regional Administrator and sent by certified mail or hand delivered to:

RCRA Branch Chief  
U.S. Environmental Protection Agency  
Region VII  
726 Minnesota Avenue  
Kansas City, Kansas 66101  
913/236-2930

C. All plans and schedules required by the conditions of this Corrective Action Schedule of Compliance are, upon approval of the Regional Administrator, incorporated into this Schedule of Compliance by reference and become an enforceable part of this permit. Any noncompliance with such approved plans and schedules shall be deemed noncompliance with this permit. Extensions of the due dates for submittals may be granted by the Regional Administrator.

D. If the Regional Administrator determines that further actions beyond those provided in this Corrective Action Schedule of Compliance, or changes to that which is stated herein, are warranted, the Regional Administrator may modify the Schedule of Compliance according to procedures in Section VI.17 of this permit.

E. All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Corrective Action Schedule of Compliance shall be maintained at the facility [or other location approved by the Regional Administrator] during the term of this permit, including the terms of any reissued permits.

F. KAAP shall seek sufficient funding through the Department of Defense budgetary process to fulfill its obligations under Section VI of this permit, such that all obligations shall be fully funded. If necessary, KAAP shall seek new authorizations from Congress to achieve the most expeditious schedule of compliance in accordance with Sections 1-4 and 1-5 of Executive Order 12088 as implemented by the Office of Management and Budget Circular A-106 (as amended). Failure to obtain adequate funds or appropriations does not in any way release KAAP or the Department of the Army from its obligation to comply with Section VI of this permit. However, no provision of Section VI will be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 USC 1341. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds will be appropriately adjusted. However, the obligation shall not otherwise be affected.

#### 4. REPORTING REQUIREMENTS

A. The Permittee shall submit to the Regional Administrator signed quarterly progress reports of all activities (i.e., SWMU Assessment, Interim Measures, RCRA Facility Investigation, Corrective Measures Study) in accordance with the Quarterly Reporting Schedule. These reports shall contain:

1. A description of the work completed;
2. Summaries of all findings, including summaries of laboratory data;

3. Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems; and

4. Projected work for the next reporting period.

B. Copies of other reports (e.g., inspection reports), drilling logs and laboratory data shall be made available to the Regional Administrator upon request.

C. As specified under permit Condition VI.3.D, the Regional Administrator may require the Permittee to conduct new or more extensive assessments, investigations, or studies, as needed, based on information provided in these progress reports or other supporting information.

**5. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNITS**

A. The Permittee shall notify the Regional Administrator in writing of any newly-identified SWMU(s) (i.e., a unit not specifically identified during the RFA), discovered during the course of ground water monitoring, field investigations, environmental audits, or other means, no later than ten (10) working days after discovery.

B. After such notification, the Regional Administrator may request, in writing that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this permit.

C. Within one hundred eighty (180) calendar days after receipt of the Regional Administrator's request for a SWMU Assessment Plan, the Permittee shall prepare a SWMU Assessment Plan and a proposed schedule for implementation for determining past and present operations at the unit, as well as any sampling and analysis of ground water, land surface and subsurface strata, surface water or air, as necessary to determine whether a release of hazardous waste including hazardous constituents from such unit(s) has occurred, is likely to have occurred, or is likely to occur. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste including hazardous constituents from newly discovered SWMU(s) to the environment.

D. After the Permittee submits the SWMU Assessment Plan, the Regional Administrator shall either approve or disapprove the Plan in writing.

If the Regional Administrator approves the Plan, the Permittee shall begin to implement the Plan in accordance with the schedule contained therein.

If the Regional Administrator disapproves the Plan, the Regional Administrator will notify the Permittee in writing of the plan's deficiencies and specify a due date for submittal of a revised plan.

E. The Permittee shall submit a SWMU Assessment Report to the Regional Administrator in accordance with the schedule specified in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. At a minimum, the Report shall provide the following information for each newly-identified SWMU:

1. The location of the newly-identified SWMU on the topographic map;
2. The type and function of the unit;
3. The general dimensions, capacities, and structural description of the unit (supply any available drawings);
4. The period during which the unit was operated;
5. The specifics on all wastes that have been or are being managed at the SWMU, to the extent available; and
6. The results of any sampling and analysis required for the purpose of determining whether releases of hazardous wastes including hazardous constituents have occurred, or are occurring.

F. Based on the results of this Report, the Regional Administrator shall determine the need for further investigations at specific unit(s) covered in the SWMU Assessment. If the Regional Administrator determines that such investigations are needed, the Regional Administrator may require the Permittee to prepare a plan for such investigations. This plan will be reviewed for approval as part of the RFI Workplan under permit Condition VI.7.C of this Corrective Action Schedule of Compliance.

**6. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMUS**

The Permittee shall notify the Regional Administrator, in writing, of any release(s) of hazardous waste including hazardous constituents discovered during the course of ground-water monitoring, field investigation, environmental auditing, or other activities undertaken after the commencement of the RFI, no later than ten (10) working days after discovery. Such newly-discovered releases may be from newly-identified units, from units for which, based on the findings of the RFA, the Regional Administrator had previously determined that no further investigation was necessary, or from units investigated as part of the RFI. The Regional Administrator may require further investigation of the newly-identified release(s). A plan for such investigation will be reviewed for approval as part of the RFI Workplan under permit Condition VI.7.C.

7. RCRA FACILITY INVESTIGATION (RFI) WORKPLAN

A. On or before one hundred eighty (180) calendar days after the effective date of this permit, the Permittee shall submit a Workplan to the Regional Administrator to address those units, releases of hazardous waste including hazardous constituents, and media of concern which, based on the results of the RFA, require further investigation.

1. The Workplan shall describe the objectives of the investigation and the overall technical and analytical approach for completing all actions necessary to characterize the nature, direction, rate, movement, and concentration of releases of hazardous waste including hazardous constituents from specific units or groups of units, and their actual or potential receptors. The Workplan shall detail all proposed activities and procedures to be conducted at the facility, the schedule for implementing and completing such investigations, the qualifications of personnel performing or directing the investigations, including contractor personnel, and the overall management of the RFI.

2. In addition, the Workplan shall discuss sampling and data collection quality assurance and data management procedures, including formats for documenting and tracking data and other results of investigations, and health and safety procedures.

B. After the Permittee submits the Workplan, the Regional Administrator will either approve or disapprove the Workplan in writing.

If the Regional Administrator disapproves the Plan, the Regional Administrator will notify the Permittee in writing of the plan's deficiencies, or modify the Plan and specify a due date for submittal of a revised plan.

C. The Regional Administrator shall review for approval as an amendment to or a modification of part of the RFI Workplan any plans developed pursuant to permit Condition VI.5.F, addressing further investigations of newly-identified SWMUs, or Section VI.6, addressing new releases from previously-identified units. The Regional Administrator shall modify the Schedule of Compliance to incorporate these units and releases into the RFI Workplan.

**8. RCRA FACILITY INVESTIGATION WORKPLAN IMPLEMENTATION**

After the Permittee has received written approval from the Regional Administrator for the RFI Workplan, the Permittee shall begin implementation of the RCRA Facility Investigation according to the schedules specified in the RFI Workplan. Pursuant to permit Condition VI.3.C, the RFI shall be conducted in accordance with the approved RFI Workplan.

**9. RCRA FACILITY INVESTIGATION FINAL REPORT AND SUMMARY REPORT**

A. Within one hundred eighty (180) calendar days after the completion of the RFI, the Permittee shall submit an RFI Final Report and Summary Report. The RFI Report shall describe the procedures, methods, and results of all facility investigations of SWMUs and their releases, including information on the type and extent of contamination at the facility, sources and migration pathways, and actual or potential receptors. The RFI Final Report shall present all information gathered under the approved RFI Workplan. The Final Report must contain adequate information to support further corrective action decisions at the facility. The report shall recommend a priority scheme for corrective action at all units. The Summary Report shall describe more briefly the procedures, methods, and results of the RFI.

B. After the Permittee submits the RFI Final Report and Summary Report, the Regional Administrator shall either approve or disapprove the Reports in writing.

If the Regional Administrator approves the RFI Report and Summary Report, the Permittee shall mail the approved Summary Report to all individuals on the facility mailing list established pursuant to 40 CFR 124.10(c)(1)(viii), within thirty (30) calendar days of receipt of approval.

If the Regional Administrator determines the RFI Final Report and Summary Report do not fully detail the objectives stated under permit Condition VI.7.A, the Regional Administrator may disapprove the RFI Final Report and Summary Report. If the Regional Administrator disapproves the Reports, the Regional Administrator shall notify the Permittee in writing of the Reports' deficiencies and specify a due date for submittal of a revised Final and Summary Report.

#### 10. INTERIM MEASURES

A. The following specific interim measures have been identified by the Regional Administrator and have been developed consistent with the provisions of 40 CFR 271. The Permittee shall begin or continue to implement all corrective action in accordance with the schedule contained in the order negotiated by Kansas Army Ammunition Plant and the Kansas Department of Health and Environment. No portion of this permit is to set aside any provision of the order or modify any provision of the order issued by the State of Kansas.

**11. CORRECTIVE MEASURES STUDY (CMS) PLAN**

A. If the Regional Administrator has reason to believe a SWMU has released hazardous constituents in concentrations that threaten human health and the environment, given site-specific exposure conditions, the Regional Administrator shall notify the Permittee in writing that a corrective measures study plan is required. This notice shall identify the hazardous constituent(s) of concern which have been determined to threaten human health and the environment given site-specific exposure conditions. The notification may also specify remedial alternatives to be evaluated by the Permittee during the CMS.

B. The Permittee shall submit a CMS Plan for approval to the Regional Administrator within one hundred eighty (180) calendar days from the Regional Administrator's notification of the requirement to conduct a CMS.

The CMS Plan shall provide the following information:

1. A description of the general approach to investigating and evaluating potential remedies;
2. A definition of the overall objectives of the study including a proposal for reduction of the risks associated with any residual contaminant concentrations to levels that EPA may deem acceptable taking into consideration health-based and environmental standards.
3. The specific plans for evaluating remedies to ensure compliance with remedy standards;
4. The schedules for conducting the study; and
5. The proposed format for the presentation of information.

The Regional Administrator will review the CMS plan and notify the Permittee of his decision in writing. The Regional Administrator will either:

1. Approve the CMS plan as prepared by the permittee;  
or
2. Disapprove the CMS plan and require resubmittal;;  
or
3. Approve the CMS plan with modifications the Regional Administrator deems necessary to achieve completion the tasks specified above.

C. If the Regional Administrator disapproves the CMS Plan, the Regional Administrator shall notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised Plan.

D. Approval of the CMS plan shall not preclude the Regional Administrator from requiring continued or periodic monitoring of air, soil, ground water, or surface water, when site-specific circumstances indicate that releases of hazardous wastes including hazardous constituents may occur in the future.

E. Approval of the CMS plan shall not preclude the Regional Administrator from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility is likely to pose a threat to human health or the environment. In such a case, the Regional Administrator shall initiate either a modification to the Corrective Action Schedule of Compliance according to procedures in Section VI.17 of this permit, or a major permit modification according to 40 CFR 270.41.

## 12. Corrective Measures Study Implementation

No later than sixty (60) calendar days after the Permittee has received written approval from the Regional Administrator for the CMS Plan, the Permittee shall begin to implement the Corrective Measures Study according to the schedules specified in the CMS Plan. Pursuant to permit Condition VI.3.C, the CMS shall be conducted in accordance with the approved Plan.

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13. CORRECTIVE MEASURES STUDY FINAL REPORT

A. In accordance with the quarterly reporting schedule or within sixty (60) calendar days after the completion of the CMS, which ever is later, the permittee shall submit a CMS Final Report. The CMS Final Report shall summarize the results of the investigations for each remedy studied and of any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The final report must contain adequate information to support the Regional Administrator in the remedy selection decision making process, described under Section VI.15 of the Corrective Action Schedule of Compliance.

B. If the Regional Administrator determines that the CMS Final Report does not fully satisfy the information requirements specified under Permit Condition VI.11.B, the Regional Administrator may disapprove the CMS Final Report. If the Regional Administrator disapproves the CMS Final Report, the Regional Administrator shall notify the Permittee in writing of deficiencies in the Report and specify a due date for submittal of a revised Final Report within thirty (30) calendar days after notification.

C. As specified under Permit Condition VI.3.D, based on preliminary results and the CMS Final Report, the Regional Administrator may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

14. REMEDY SELECTION

A. Based on the results of the CMS and any further evaluations of additional remedies under this study, the Regional Administrator shall select a remedy from the remedial alternatives evaluated in the CMS that will (1) be protective of human health and the environment; (2) reduce the residual concentrations of hazardous constituents in each medium; (3) control the source(s) of release(s) so as to reduce or eliminate, to the maximum extent practicable, further releases that might pose a threat to human health and the environment; and (4) meet all applicable waste management requirements.

15. PERMIT MODIFICATION FOR REMEDY

A. Based on information the Permittee submits in the RFI Final and Summary Reports, the CMS Final Report, and other information, the Regional Administrator will select a remedy and initiate a permit modification to this permit.

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16. MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE

A. If at any time modification of the Corrective Action Schedule of Compliance is necessary, the Regional Administrator may initiate a modification to the Schedule of Compliance. The Regional Administrator will initiate a modification by:

1. Notifying the Permittee in writing of the proposed modification and the date by which comments on the proposed modification must be received; and

2. Publishing a notice of the proposed modification in a locally distributed newspaper, mail a notice to all persons on the facility mailing list maintained according to 40 CFR 124.10(c)(1)(viii), and place a notice in the facility's information repository (i.e., a central source of all pertinent documents concerning the remedial action, usually maintained at the facility or some other public place, such as a public library, that is accessible to the public) if one is required.

a. If the Regional Administrator receives no written comment on the proposed modification, the modification shall become effective five (5) calendar days after the close of the comment period.

b. If the Regional Administrator receives written comment on the proposed modification, the Regional Administrator shall make a final determination concerning the compliance schedule modification.

3. Notifying the Permittee in writing of the final decision.

a. If no written comment was received, the Regional Administrator shall notify individuals on the facility mailing list in writing that the modification has become effective and shall place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

Kansas Army Ammunition Plant  
Parsons, Kansas  
KS0213820467  
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b. If written comment was received, the Regional Administrator shall provide notice of the final modification decision in a locally distributed newspaper and place a copy of the modified Corrective Action Schedule of Compliance in the information repository, if a repository is required for the facility.

B. Modifications to the Corrective Action Schedule of Compliance do not constitute a reissuance of the permit.

**17. DISPUTE RESOLUTION**

A. If the Permittee disagrees, in whole or in part, the Permittee shall notify EPA in writing of his objections and basis, therefore, within ten (10) calendar days of receipt of EPA's disapproval, decision or directive. Said notice shall set forth the specific points of the dispute, the position the Permittee is maintaining should be adopted as consistent with the requirements of this permit, the factual and legal basis for the Permittee's position, and all matters it considers necessary for EPA's determination. EPA and the permittee shall then have an additional thirty (30) days from EPA's receipt of the permittee's objection to attempt to resolve the dispute. If agreement is reached, the resolution shall be reduced to writing, signed by representatives of each party and become either an amendment to or a modification of this permit. If the parties are unable to reach agreement within this 30-day period, the matter will be submitted to the Regional Administrator or representative of the Regional Administrator for resolution. The resolution shall then be incorporated into this permit.

B. The existence of a dispute as defined herein and EPA's consideration of such matters as placed in dispute shall not excuse, toll or suspend any obligation or deadline required pursuant to this permit during pendency of the dispute resolution process.

**18. INSPECTION AND ENTRY**

In accordance with 40 CFR 270.30(i) the Permittee shall allow the EPA Regional Administrator or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

- A. Enter at reasonable times upon the Permittees premises where a regulated activity is located or where records must be kept under the conditions of this permit.
  - B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.
  - C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
  - D. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substance or parameter at any location.
- Such entry, inspection, sampling and monitoring will be conducted in a manner that minimizes interference with production operations.

**19. OTHER AUTHORITIES**

No provision of this permit shall be construed to set aside the provisions of any other federal, state, or local regulation. If any provision of this permit conflicts with any regulation or administrative proceeding based on the regulations, the permittee shall bring the apparent conflict to the attention of the Regional Administrator for resolution. The permittee shall provide the requested notice by certified mail to the address specified in Section 3 of this permit.

**Hazardous Waste Management Permit Modification**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
7004 2510 0006 9726 6858

15 MAY 2006

Commander  
Kansas Army Ammunition Plant  
Attn: Bret Raines  
23018 Rooks Rd, Suite AA  
Parsons, KS 67357-8403

Re: Final Permit Decision  
Kansas Army Ammunition Plant  
Parsons, Kansas  
RCRA ID# KS0213820467

Dear Mr. Raines:

Enclosed please find final modifications to the Hazardous Waste Management Permit issued to Kansas Army Ammunition Plant, Parsons, Kansas facility, our responses to public comments and our final corrective measures decision. Since comments were filed, the permit will not become effective until 30 days after your receipt of this letter in accordance with 40 CFR 124.15(b)(1). Any commenter may petition the Environmental Appeals Board (EAB), pursuant to 40 CFR 124.19(a), to review any condition of the permit decision to the extent of their comments made during the comment period. Any person who failed to file comments may petition for administrative review only to the extent of the changes from the draft to the final permit. All petitions for review must be received by the EAB no later than the date thirty days after your receipt of this letter.

Any petition for review shall include a statement of the reasons supporting the review, including a demonstration that any issues being raised were raised during the public comment period to the extent required by 40 CFR 124.19 and when appropriate, a showing that the condition in question is based on: (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the EAB should, in its discretion, review. Submission made by mail to the EAB should be sent to the following address with sufficient time allowed for delivery so that it is received by the EAB no later than 30 days following your receipt of the permit. Please see the enclosed FAQ regarding the EAB for additional information and procedures for filing an appeal.

U.S. Environmental Protection Agency  
Clerk of the Board, Environmental Appeals Board (MC-1103B)  
Ariel Rios Building  
1200 Pennsylvania Ave., N.W.  
Washington, DC 20460-0001



Submissions made by hand-delivery including couriers and delivery services should be made at the following address.

U.S. Environmental Protection Agency  
Clerk of the Board, Environmental Appeals Board  
Colorado Building  
1341 G St., N.W., Ste. 600  
Washington, DC 20005

The EAB may be reached by telephone at (202) 233-0122.

Thank you for your cooperation in this matter. Please call me at (913) 551-7631 if you have any questions.

Sincerely,



Kenneth Herstowski  
Project Manager  
Air, RCRA and Toxics Division

Enclosures

cc: Mostafa Kamal (w/encl.)  
KDHE  
Fred Molloy (w/encl.)  
KDHE

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

## FINAL CORRECTIVE MEASURES DECISION

### SITE WIDE CORRECTIVE MEASURES IMPLEMENTATION KANSAS ARMY AMMUNITION PLANT PARSONS, KANSAS

RCRA ID# KS0213820467

The United States Environmental Protection Agency (hereafter referred to as "EPA") prepared a Statement of Basis dated November 16, 2005, for implementing corrective measures at all solid waste management units (SWMUs) and areas of concern (AOCs) at the facility (site wide corrective action). The Statement of Basis describes the corrective measures considered and identifies the preferred corrective measures with the rationale for this preference. EPA also prepared a draft permit modification to require the implementation of the corrective measures. EPA is requiring implementation of the corrective measures at KSAAP pursuant to the Hazardous and Solid Waste Amendments of 1984 to the Resource Conservation and Recovery Act (RCRA) (1976) 42 U.S.C. § 6901 et. seq. The Kansas Department of Health and Environment (KDHE) has not received final authorization to implement RCRA corrective action in lieu of EPA.

Public Participation activities associated with the draft and final permits have been conducted in accordance with 40 Code of Federal Regulations (CFR) Part 124. EPA provided both the draft permit and Statement of Basis for public comment. The Administrative Record for EPA's draft permit was available throughout the comment period at the Parsons Public Library and at EPA Region 7, Information Resource Center.

The public comment period was from November 23, 2005, until January 6, 2005. Notice of the draft permit and public comment period was provided to the public that included the following:

- Fact Sheet mailed to the mailing list, Tuesday, Nov. 15, 2005
- Fact Sheet placed on R7's web site, Wednesday, Nov. 16, 2005
- Public notice published as a display ad in the Parsons Sun on Tuesday, Nov. 22, 2005
- Public notice aired from Nov. 23, 2005 through Jan. 6, 2006 on KLKC radio

A public availability session was held from 4 pm to 8 pm on April 20, 2005, at the Parsons Public Library in Parsons, Kansas. EPA did not receive any written notices of opposition to the draft permit or requests for a public hearing on the draft permit.

This summary of comments, prepared according to the requirements of 40 CFR 124.17, considers written comments received during the public comment period. EPA thanks all the commenters for their comments and their time and participation in the corrective measures selection process. The full text of the comments received is included in the administrative record. All the comments were carefully reviewed during the final selection of the corrective measures. The following summarizes the written comments and sets out EPA's responses and identifies any conforming changes made to the final permit modifications necessary to complete our response to written comments on the Statement of Basis.

\*\*\*\*\*  
RESPONSE TO COMMENTS  
\*\*\*\*\*

EPA received comments on the Statement of Basis from KSAAP. The following summarizes their comments and provides our response.

1. The Fact Sheet prepared to accompany the Statement of Basis and draft permit modifications is inconsistent with the Statement of Basis. The Fact Sheet describes the Army conducting cleanups at all SWMUs and AOCs to unrestricted standards including SWMUs and AOCs where the previous cleanup was conducted to restricted (non-residential) standards. The Army believes that it is premature to state that the entire site will be cleaned up to unrestricted standards. The facility is included on the 2005 Base Realignment and Closure (BRAC) list and a Local Reuse Authority (LRA) will propose future uses for the facility.

EPA agrees with the Army that the Fact Sheet and Statement of Basis contemplate the Army conducting additional cleanup at sites where previous cleanup was conducted to non-residential standards. The Statement of Basis properly determined that no reuse plans have been established for the facility and that the prevailing local land use surrounding the facility is rural residential. Accordingly, EPA established cleanup standards for unrestricted use (rural residential use). EPA is aware that a LRA has been established to prepare a reuse plan for the facility and the future use of the facility may include commercial, industrial, or other uses besides rural residential. EPA is not persuaded by the Army's comments that establishment of cleanup standards for unrestricted use (rural residential use) are inappropriate based upon the current prevailing local land use.

However, EPA believes that establishment of non-residential cleanup levels in this Final Corrective Measures Decision is appropriate for those portions of the property where industrial uses will continue. EPA has included, in this Final Corrective Measures Decision, cleanup standards for non-residential use and has included conforming changes for same in the final permit modification [see discussion below].

2. The Army comments that the Statement of Basis should include discussion that cleanup standards for industrial uses combined with institutional controls [enforceable land use restrictions] can be just as protective of human health in an industrial scenario and is often more cost effective.

EPA's level of protectiveness for corrective measures is not varied dependent on the future land use. EPA has established that the risk from carcinogens can be no more than 1 in 10,000 [with a preference for the establishment of cleanup standards that result in cancer risk of no more than 1 in 1,000,000] and that the exposure to non-carcinogens will have no adverse health effects, such as organ damage. EPA does not adjust these health thresholds based upon whether the exposure to chemicals is at an industrial facility or at a residence. A worker at an industrial facility undergoing a cleanup would not face a greater health risk than a person whose residence was undergoing a cleanup or vice versa.

3. The Army believes that the discussion, in the section titled "Proposed Corrective Measures" on page 3 of the Statement of Basis requires clarification. That section discusses previous cleanups, the establishment of institutional controls, the establishment of cleanup standards for unrestricted use (rural residential) and the requirement to conduct additional cleanup to achieve unrestricted use at areas previously cleaned up for industrial use. The Army states that paragraph two of this section is inconsistent with paragraph three.

One purpose of the Statement of Basis is to describe the corrective measures considered and identify the preferred corrective measures with the rationale for this preference. EPA believes that the Statement of Basis achieves this goal regardless of any potentially inconsistent or unclear construction of the discussion in paragraphs two and three. However, the Army's request for clarification is not unreasonable and EPA provides the following clarification in the form of a revised paragraph two.

*Remedial actions and interim removal actions conducted to date have been completed assuming continued industrial use of the facility. The KSAAP has been included in the list of facilities to be closed by the Department of Defense as part of the 2005 Base Realignment and Closure (BRAC) effort, Public Law 101-510, as amended. Since contamination remains onsite above levels that would allow for unrestricted use of the facility, institutional controls are required to ensure that future uses of the facility restricted as necessary will be protective of human health and the environment until additional cleanup is completed to allow for unrestricted use of the facility.*

4. The Army believes that it is premature to require cleanup of soil to unrestricted use standards since the LRA has not prepared a reuse plan for the facility and the Army has not agreed to a reuse plan. The final BRAC list was only recently final [November 9, 2005]. The Army notes that the development of a reuse plan by the LRA is one part of its process for closing and transferring bases pursuant to BRAC. The section titled "Unrestricted Use Cleanup Levels for Soil Contamination" beginning on page 7 of the Statement of Basis discusses EPA's proposed cleanup levels.

EPA included discussion of the role of the LRA in preparing a reuse plan for the facility in the section titled "Unrestricted Use Cleanup Levels for Soil Contamination" beginning on page 7 of the Statement of Basis. As discussed above, EPA properly determined in the Statement of Basis that no reuse plans have been established for the facility and that the prevailing local land use surrounding the facility is rural residential. Accordingly, EPA established soil cleanup standards for unrestricted use (rural residential use).

EPA recognizes the important role the community plays in the development of a reuse plan for the facility, through its LRA, and that the reuse plan has not been completed by the LRA. EPA notes that the Army has not provided any timelines for the completion of the reuse plan by the LRA and the Army's approval of such a plan. It is inappropriate to delay cleanup decisions necessary to protect human health and the environment for an indeterminate amount of time for that process to be completed. Therefore, EPA is finalizing its cleanup standards for unrestricted use. The Army may request a permit modification in accordance with 40 CFR 270.42 if future conditions warrant the application of different soil cleanup standards.

EPA is aware that the LRA is reviewing potential continued industrial use of the facility. To avoid any unnecessary administrative burden associated with permit modifications to support non-residential use of the facility for either EPA or the Army, EPA is also finalizing cleanup standards for future non-residential use. EPA has included in this Final Corrective Measures Decision soil cleanup standards for non-residential use and has included conforming changes for same in the final permit modification.

5. The Army requests the opportunity to add or remove SWMUs or AOCs from the list of SWMUs and AOCs for which institutional controls are required. The section titled "Institutional Controls at SWMU Groups Proposed for No Further Action" on page 8 of the Statement of Basis discusses EPA's requirement for institutional controls at certain SWMU Groups. The Army requests the inclusion of SWMU Group 8 (900 Area), SWMU Group 9 (1000 Area), SWMU Group 10, (1100 Area), SWMU Group 11 (Open Burn Pads 1, 2, 3 and 4) and the Water Towers AOC to those SWMUs and AOCs requiring institutional controls. The Army also questions the inclusion of SWMU Group 12 (100 Area Classification Area) in the list of SWMUs and AOCs requiring institutional controls as the solid waste at this SWMU has been removed.

EPA disagrees that specific language is necessary to allow the Army to add or remove institutional controls at SWMUs or AOCs. The Army may request a permit modification in accordance with 40 CFR 270.42 if future conditions warrant the removal of or application of institutional controls.

EPA's discussion of the requirement for institutional controls in the section titled "Institutional Controls at SWMU Groups Proposed for No Further Action" on page 8 of the Statement of Basis was limited to those SWMU Groups for which the Army proposed "No Further Action" in the Corrective Measures Study dated February 2001. The Army proposed no further action at those sites based upon continued industrial use of the facility by the Army. EPA appropriately determined that institutional controls are necessary for SWMU Groups 1, 2, 3, 4, 12, 18, 19, 20, 21, 22 and Sludge Lagoons because the Army has not demonstrated that soil and groundwater contamination are below the cleanup standards for unrestricted use. Furthermore, with respect specifically to SWMU 12, the Army has not provided any documentation of the removal of the solid waste contained there.

EPA reviewed Part II of the Permit, Section VI, Permit Condition 20.D, Institutional Controls at SWMUs and AOCs, in the draft permit in response to the Army's comments. Institutional controls are required for all the SWMUs and AOCs listed in the draft permit (Part II of the

Permit, Section VI, Permit Condition 1) which includes SWMU Groups 8, 9, 10, 11 and the Water Towers AOC. EPA did identify one SWMU, SWMU Group 25 (700 Area), which was inadvertently excluded from the list of SWMUs for which institutional controls preventing any use of groundwater are required. EPA will include SWMU Group 25 in Part II of the Permit, Section VI, Permit Condition 20.D.2., as part of the final permit modification.

EPA must emphasize that it is the Army's responsibility to review information it has or may receive in the future and include additional SWMUs or AOCs in Part II of the Permit, Section VI, Permit Condition 1, and complete any investigations, studies, interim measures and corrective measures necessary to protect human health and the environment regardless of when such SWMUs or AOCs were used or continue to be used.

6. The Army believes that it is premature to require groundwater cleanup to unrestricted use standards since the LRA has not prepared a reuse plan for the facility and the Army has not agreed to a reuse plan. The final BRAC list was only recently made final [November 9, 2005]. The Army notes that the development of a reuse plan by the LRA is one part of its process for closing and transferring bases pursuant to BRAC. The Army specifically objects to the last sentence of the paragraph beginning "Of these scenarios, ..." on page 10 of the Statement of Basis. This paragraph is reproduced as follows:

*Of these scenarios, commercial/industrial workers receive the greatest exposure to groundwater contaminants. Any corrective action objectives selected to be protective for these workers will therefore be adequately protective to other industrial exposure scenarios as long as the facility is used for industrial purposes. Cleanup levels for industrial exposure scenarios are not suitable for unrestricted use of groundwater that would be required for rural residential exposure scenarios. EPA is proposing cleanup levels that would be protective for rural residential uses of groundwater.*

EPA is not persuaded by the Army's comments that the proposed groundwater cleanup standards are inappropriate. The CMS submitted by the Army proposed long term monitoring and, in certain cases, monitored natural attenuation in addition to long term monitoring for contaminated groundwater. EPA did not propose the inclusion of barriers to prevent continued migration of contaminated groundwater as a corrective measure in the Statement of Basis. As discussed above, EPA properly determined in the Statement of Basis that no reuse plans have been established for the facility and that the prevailing local land use surrounding the facility is rural residential. Accordingly, EPA established groundwater cleanup standards for unrestricted use consistent with surrounding land use (rural residential use) to protect human health and the environment. EPA is finalizing those standards as proposed.

7. The Army states that all soils were removed at SWMU Group 13 (Landfill Site) and SWMU Group 23 (Burn Cages) to the proposed soil cleanup standards for unrestricted use although documentation has not been submitted to support its claim.

EPA notes its receipt on January 23, 2006, of a report of the removal action undertaken at SWMU Groups 13 and 23. EPA has not completed review of that report and believes that it would be inappropriate to delay making a final corrective measures decision until such a review

could be completed. If EPA determines that soil contamination is below unrestricted use cleanup standards at SWMUs 13 and 23, the Army may request a modification to Part II of the Permit to reflect such a determination.

\*\*\*\*\*  
 END OF RESPONSE TO COMMENTS  
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**DECLARATION OF FINAL SITEWIDE CORRECTIVE MEASURES DECISION**

Based upon careful review of the comments received on EPA’s Statement of Basis, no modifications to the proposed corrective measures for site wide corrective action is being made. However, non-residential soil cleanup standards are being established for use when appropriate based upon the final use of all or portions of the facility.

The corrective measures, based upon EPA’s November 11, 2005, Statement of Basis and our responses above to comments received, are as follows:

- A presumptive remedy for contaminated soil and sediments consisting of excavation, onsite treatment (if necessary to meet disposal requirements) and offsite disposal.
- Long term monitoring of groundwater contamination at SWMUs 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 23, 24, 25 and 1200 Area.
- Natural attenuation for contaminated groundwater at SWMUs 7, 14, 16, and 25.
- Institutional Controls to prevent inappropriate uses of the facility including groundwater use.
- Soil Cleanup Standards below.

Contaminant	Health Effect	Non-Residential Soil Clean-up Target (mg/kg)	Unrestricted Use Clean-up Target (mg/kg)
TNT	Cancer	21	16
RDX	Cancer	6	4.4
HMX	Toxicity	3300	3100
PCB (total)	Cancer	1	0.74
TPH-DRO	Toxicity	2000	2000
TPH-GRO	Toxicity	220	220
Arsenic	Cancer	Background	Background
Cadmium	Toxicity	76	37
Chromium (hexavalent)	Cancer	64	30

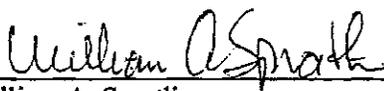
Contaminant	Health Effect	Non-Residential Soil Clean-up Target (mg/kg)	Unrestricted Use Clean-up Target (mg/kg)
Lead	Toxicity	1000	400

- Groundwater Cleanup Standards below.

Contaminant	Groundwater PRG	Basis of Selection
Arsenic	10µg/L	MCL
Lead	15µg/L	EPA Action Level
Cadmium	5µg/L	MCL
Chromium (total)	100µg/L	MCL
RDX	0.61µg/L	Cancer Risk @ $1 \times 10^{-6}$
Tetryl	160µg/L	KDHE RSK
TNT	2µg/L	Cancer Risk @ $1 \times 10^{-6}$
HMX	780µg/L	KDHE RSK
Vinyl Chloride	2 µg/L	MCL
Trichloroethene	5 µg/L	MCL
Tetrachloroethene	5 µg/L	MCL
1,1-Dichloroethene	7 µg/L	MCL

Based upon the administrative record compiled for this corrective action, I have determined that the selected corrective measures are appropriate and will be protective of human health and the environment.

Done at Kansas City, Kansas, this 12<sup>th</sup> day of April, 2006.



William A. Spratlin

Director

Air, RCRA, and Toxics Division

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
FINAL PERMIT**

**MODIFICATIONS TO PART II OF THE PERMIT  
ORIGINALLY ISSUED BY EPA ON NOVEMBER 7, 1989**

**KANSAS ARMY AMMUNITION PLANT  
PARSONS, KANSAS  
RCRA ID# KS0213820467**

In accordance with 40 CFR 270.41(a)(2), EPA has determined that changes are necessary to Part II of the Permit issued on November 7, 1989, to Kansas Army Ammunition Plant, Parsons, Kansas, RCRA ID# KS0213820467 to:

- Designate additional Solid Waste Management Unit (SWMU) Groups, and
- Require implementation of corrective measures at SWMU Groups and at Areas of Concern (AOC).

The Director referenced in 40 CFR 270.41 is defined in 40 CFR 270.2 as the EPA Regional Administrator. The Regional Administrator of EPA Region 7 has delegated authority to perform all actions necessary to issue, deny, modify, or revoke and reissue permits for owners and operators of hazardous waste treatment, storage, and disposal facilities pursuant to Section 3005 of RCRA to the Director of the Air, RCRA, and Toxics Division of EPA Region 7 (hereafter referred to as "Director") or the Director's designated representative, by delegation No. R7-8-6; January 1, 1995.

1. Since Part II of the Permit was issued, additional solid waste management units (SWMUs) and areas of concern (AOCs) have been identified. Therefore, the Director has cause to modify Part II of the Permit pursuant to 40 CFR 270.41(a)(2). The following table replaces the list of SWMUs and AOCs in Part II of the Permit, Section VI, Permit Condition 1.

<i>SWMU<sup>1</sup> Group</i>	<i>AEDB, R<sup>2</sup> Number</i>	<i>Description</i>
<i>1</i>	<i>KAAP-035</i>	<i>Building 112 Sump, Ditch and Oxidation Pond</i>
<i>2</i>	<i>KAAP-026</i>	<i>200 Area Wash Rack</i>
<i>3</i>	<i>KAAP-025</i>	<i>Oil Spill Residue Landfarm</i>
<i>4</i>	<i>KAAP-039</i>	<i>Hazardous Waste UST</i>
<i>5</i>	<i>KAAP-016</i>	<i>300 Area SWMUs</i>

Final Permit Modifications  
 Site Wide Corrective Measures Implementation

KSAAP, Parsons, KS  
 RCRA ID# KS0213820467

6	KAAP-017	500 Area SWMUs
25	KAAP-018	700 Area SWMUs
7	KAAP-019	800 Area SWMUs
8	KAAP-020	900 Area SWMUs
9	KAAP-021	1000 Area SWMUs
10	KAAP-022	1100 Area SWMUs
11	KAAP-010	Open Burning Pads 1,2,3 and 4
12	KAAP-001	100 Area Classification Area
13	KAAP-002	Closed Landfill near Quarry
14	KAAP-003	200 Area Closed Landfill and Burn Pits
15	KAAP-005	Active Landfill
16	KAAP-004	Closed Landfill near Open Detonation Area
17	KAAP-037	Open Detonation Field
18	KAAP-015	STP Sludge Drying Beds
19	KAAP-028	Coal Pile Run-Off Catchment Device and Ditches
20	KAAP-024	Explosive Waste Incinerator
21	KAAP-012	Hazardous Waste Container Storage Units
22	KAAP-038	Contaminated Waste Processor
23	KAAP-009	Burning Cages 14, 17 and 22
24	KAAP-010	Open Burning Pads 5 and 6
1200 Area		1200 Area
Pistol Range AOC <sup>3</sup>	KAAP-040	Pistol Range
Sludge Lagoons AOC <sup>3</sup>	KAAP-042	Sludge Lagoons
Water Towers AOC <sup>3</sup>	KAAP-041	Water Towers
Old Pesticide Storage Building	KAAP-011	Old Pesticide Storage Building
PCB Storage Building	KAAP-013	PCB Storage Building
Waste Analysis Chemistry Laboratory	KAAP-023	Waste Analysis Chemistry Laboratory
Mercury Fulminate Disposal Site	KAAP-027	Mercury Fulminate Disposal Site

Coal Fired Boiler Air Pollution Control Equipment (flyash handling)	KAAP-029	Coal Fired Boiler Air Pollution Control Equipment (flyash handling)
200 Area Paint Booth	KAAP-036	200 Area Paint Booth

<sup>1</sup> SWMUs from the RFA were grouped together for convenience for the RCRA Facility Investigations

<sup>2</sup> AEDB,R is the "Army Environmental Database, Restoration" used by the Army to track corrective action at KSAAP

<sup>3</sup> This is an Area of Concern (AOC) as defined in Part II of this permit.

2. The EPA has new information to now designate areas of concern (AOCs) at KSAAP. Therefore, the Director has cause to modify Part II of the Permit pursuant to 40 CFR 270.41(a)(2). The definition of area of concern to be added to Part II of the Permit, Section VI, Permit Condition 2 is as follows:

*"Area of Concern (AOC)" means any area of the facility where a release to the environment of hazardous waste(s) or hazardous constituents has occurred, is suspected to have occurred, or may occur, regardless of the frequency or duration of the release.*

3. Part II of the Permit was issued to Kansas Army Ammunition Plant by EPA to address the requirements of the Hazardous and Solid Waste Amendments of 1984 to the Resource Conservation and Recovery Act because Kansas was not authorized to permit those RCRA requirements. The information necessary to require implementation of corrective measures at solid waste management units (SWMUs) was not available when Part II of the Permit was originally issued. The EPA has new information to now propose permit conditions to require corrective measure implementation. Therefore, the Director has cause to modify Part II of the Permit pursuant to 40 CFR 270.41(a)(2).

EPA prepared a draft permit which included permit conditions for corrective measure implementation consistent with our "Statement of Basis Corrective Measure Implementation Contaminated Soil SWMU Groups 8, 9, 10 AND 11 and the Water Tower AOC" dated May 16, 2001. Following completion of the public comment period for the May 16, 2001, Statement of Basis, EPA reviewed public comments and issued a "Final Corrective Measures Decision SWMU Groups 8, 9, 10 and 11 and the Water Tower AOC" dated April 18, 2003. However, EPA did not finalize the May 2001 draft permit.

EPA is now issuing permit modifications to require corrective measure implementation. These draft permit modifications are based upon both the May 16, 2001, Statement of

Basis and the "Statement of Basis Site Wide Corrective Measures Implementation" dated November 11, 2005.

The following is EPA's addition of corrective measures implementation requirements as Part II of the Permit, Section VI, Permit Condition 20.

**20. Corrective Measures Implementation**

**A. Contaminated Soil Corrective Measure Implementation at SWMU Groups 8, 9, 10 and 11 and the Water Towers AOC**

*The Director made a final decision to select corrective measures for SWMU Groups 8, 9, 10 and 11 and the Water Towers AOC on April 18, 2003. The corrective measures implemented were excavation, on-site treatment and disposal in an approved off-site landfill of contaminated soil. Explosive contaminated soil was treated on-site with thermal desorption and inorganic contaminated soil was treated on-site with stabilization. Soil contaminated with both explosives and inorganics were sent off-site for treatment and disposal. The Army has completed the excavation, treatment and disposal of contaminated soil to levels that support continued industrial use of the facility.*

**1. Corrective Measures Implementation Work Plan**

- (1) *Within 180 days of the effective date of this Permit, the Permittee shall submit a CMI Work Plan for to implement the selected corrective measure. The CMI Work Plan is subject to approval by EPA and shall be developed in a manner consistent with the CMI Scope of Work in the "RCRA Corrective Action Plan" EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein.*
- (2) *The CMI Work Plan shall detail the design, construction, operation, maintenance, and monitoring of the selected corrective measure. Within ten days of a request by EPA, the Permittee shall provide an editable version of the CMI Work Plan in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc. In accordance with the RCRA Corrective Action Plan, the CMI Work Plan shall include the following sections:*

*Program Management  
Public Involvement  
..... Design Plans and Specifications  
Operation and Maintenance  
Monitoring and Recordkeeping Plan  
Cost Estimate  
Project Schedule*

*Construction Quality Assurance  
Quality Assurance Project Plan  
Data Management  
Periodic Reports*

- (3) *Concurrent with the submission of a CMI Work Plan, the Permittee shall submit to EPA a CMI Health and Safety Plan.*
- (4) *The Director will review the CMI Work Plan for approval in accordance with the procedures set forth below. Upon approval thereof by EPA, the Permittee shall implement the plan in accordance with the schedule contained therein. The Permittee shall also submit an electronic copy of the work plan in PDF format on a CD-ROM that incorporates all changes and/or revisions required for or as a condition of approval.*

**2. Corrective Measures Implementation Report**

- (1) *The Permittee shall submit a Corrective Measures Implementation Report (CMI Report) to EPA in accordance with the EPA approved CMI work plan schedule. Within ten days of a request by EPA, the Permittee shall provide an editable version of the CMI Report in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc. The report shall meet the requirements of the RCRA Corrective Action Plan.*
- (2) *The CMI Report shall specifically include:*
  - (a) *As-built drawings showing the final depths of all excavations, the locations of all samples collected for the RFI, CMS and CMI, topographic contours of the area, monitoring wells, buildings, roads, ponds, streams, drainage ditches, etc. The scale shall be 1 inch equals 200 feet.*
  - (b) *Tabulation of all analytical results for all samples collected for the RFI, CMS and CMI. An electronic database of these results shall also be provided.*
  - (c) *A drawing showing all confirmation sample locations with the results for each COPC in milligrams per kilogram. The scale shall be 1 inch equals 200 feet.*
  - (d) *The Director will review the CMI Report for approval in accordance with the procedures set forth below. The Permittee shall also submit an electronic copy of the report*

*in PDF format on a CD-ROM that incorporates all changes and/or revisions required for or as a condition of approval.*

**B. Cleanup Levels for Soil Contamination**

- The following table shall be for soil cleanups. The Permittee shall complete a cleanup to the levels specified below for unrestricted use unless the Permittee demonstrates to the Director's satisfaction that restricted use soil cleanup levels are appropriate.*

<i>Contaminant</i>	<i>Health Effect</i>	<i>Restricted Use (mg/kg)</i>	<i>Unrestricted Use (mg/kg)</i>
<i>TNT</i>	<i>Cancer</i>	<i>21</i>	<i>16</i>
<i>RDX</i>	<i>Cancer</i>	<i>6</i>	<i>4.4</i>
<i>HMX</i>	<i>Toxicity</i>	<i>3300</i>	<i>3100</i>
<i>PCB (total)</i>	<i>Cancer</i>	<i>1</i>	<i>0.74</i>
<i>TPH-DRO</i>	<i>Toxicity</i>	<i>2000</i>	<i>2000</i>
<i>TPH-GRO</i>	<i>Toxicity</i>	<i>220</i>	<i>220</i>
<i>Arsenic</i>	<i>Cancer</i>	<i>Background</i>	<i>Background</i>
<i>Cadmium</i>	<i>Toxicity</i>	<i>76</i>	<i>37</i>
<i>Chromium (hexavalent)</i>	<i>Cancer</i>	<i>64</i>	<i>30</i>
<i>Lead</i>	<i>Toxicity</i>	<i>1000</i>	<i>400</i>

- The Permittee shall modify the table above to add additional contaminants or modify the cleanup levels using the procedures for Class 2 permit modifications in 40 CFR 270.42.*

**C. Presumptive Remedy for Soil Contamination**

*The Permittee shall excavate, treat on-site [if necessary to meet or facilitate off-site disposal requirements], and dispose of off-site contaminated soil and sediment as the presumptive corrective measure for contaminated soil. The Permittee shall implement this corrective measure whenever the Director determines corrective action is necessary to protect human health or the environment from soil contamination. The Permittee shall remove contaminated soil until the contaminants remaining in soil are below the unrestricted use standards in Permit Condition, 20.B. unless the Director approves the use of the non-residential standards.*

**I. Corrective Measures Implementation Work Plan**

- (1) *Within 180 days of the Director's determination that corrective action is necessary to protect human health or the environment from contaminated soil, the Permittee shall submit a CMI Work Plan for to implement excavation, on-site treatment [if necessary to meet or facilitate off-site disposal requirements], and off-site disposal of soil and sediment. The CMI Work Plan is subject to approval by EPA and shall be developed in a manner consistent with the CMI Scope of Work in the "RCRA Corrective Action Plan" EPA 520-R-94-004, OSWER Directive 9902.3-2A, May 1994, incorporated herein.*
- (2) *The CMI Work Plan shall detail the design, construction, operation, maintenance, and monitoring of the selected corrective measure. Within ten days of a request by EPA, the Permittee shall provide an editable version of the CMI Work Plan in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc. In accordance with the RCRA Corrective Action Plan, the CMI Work Plan shall include the following sections:*
  - Program Management*
  - Public Involvement*
  - Design Plans and Specifications*
  - Operation and Maintenance*
  - Monitoring and Recordkeeping Plan*
  - Cost Estimate*
  - Project Schedule*
  - Construction Quality Assurance*
  - Quality Assurance Project Plan*
  - Data Management*
  - Periodic Reports*
- (3) *Concurrent with the submission of a CMI Work Plan, the Permittee shall submit to EPA a CMI Health and Safety Plan.*
- (4) *Concurrent with the submission of a CMI Work Plan, the Permittee shall submit any necessary modification requests for authorization of the on-site treatment unit to Part I and Part II of this Permit.*
- (5) *The Director will review the CMI Work Plan for approval in accordance with the procedures set forth below. Upon approval thereof by EPA, The Permittee shall implement the plan in accordance with the schedule contained therein. The Permittee shall also submit an electronic copy of the work plan in PDF*

*format on a CD-ROM that incorporates all changes and/or revisions required for or as a condition of approval.*

**2. Corrective Measures Implementation Report**

- (1) *The Permittee shall submit a Corrective Measures Implementation Report (CMI Report) to EPA in accordance with the EPA approved CMI work plan schedule. Within ten days of a request by EPA, the Permittee shall provide an editable version of the CMI Report in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc. The report shall meet the requirements of the RCRA Corrective Action Plan.*
- (2) *The CMI Report shall specifically include:*
  - (a) *As-built drawings showing the final depths of all excavations, the locations of all samples collected for the RFI, CMS and CMI, topographic contours of the area, monitoring wells, buildings, roads, ponds, streams, drainage ditches, etc. The scale shall be 1 inch equals 200 feet.*
  - (b) *Tabulation of all analytical results for all samples collected for the RFI, CMS and CMI. An electronic database of these results shall also be provided.*
  - (c) *A drawing showing all confirmation sample locations with the results for each COPC in milligrams per kilogram. The scale shall be 1 inch equals 200 feet.*
  - (d) *The Director will review the CMI Report for approval in accordance with the procedures set forth below. The Permittee shall also submit an electronic copy of the report in PDF format on a CD-ROM that incorporates all changes and/or revisions required for or as a condition of approval.*

**D. Institutional Controls at SWMUs and AOCs**

*The Permittee is only allowed to continue industrial use of the SWMU Groups and AOCs in Part II of the Permit, Section VI, Permit Condition 1. The Permittee shall provide enforceable institutional controls that run with the land for all of the SWMU Groups and AOCs. The institutional controls shall allow for continued access to SWMU Groups and AOCs for the purposes of inspection, monitoring or new and/or additional corrective measures by the Army, EPA and KDHE. The Permittee shall provide the final executed enforceable institutional*

*controls no later than <<insert date 1 year following permit modification date>>.*

*The Permittee shall:*

- 1. Provide and maintain enforceable institutional controls including, but not limited to, restrictive covenants, restrictive easements to prevent any use other than industrial use of a SWMU Group or AOC in Part II of the Permit, Section VI, Permit Condition 1 except for SWMU Groups 11, 14, 15, 16, 17, 23 and 24 which shall have no approved future use,*
- 2. Provide and maintain enforceable institutional controls including but not limited to restrictive covenants, restrictive easements to prevent any use of groundwater at SWMU Groups 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 23, 24, 25 and 1200 Area,*
- 3. Enroll each SWMU Group and AOC into the "Kansas Environmental Use Control Program,"*
- 4. Monitor and enforce all institutional controls established, and*
- 5. Provide for access to all SWMU Groups and AOCs by the Army, EPA and KDHE in order to monitor, inspect or conduct any corrective measure necessary to protect human health or the environment.*

**E. Contaminated Groundwater Corrective Measures Implementation for SWMU Groups 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 23, 24, 25 and 1200 Area**

*The corrective measure for groundwater at SWMU Groups 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 23, 24, 25 and 1200 Area requires Long Term Monitoring (LTM) to determine if groundwater contamination is increasing, decreasing or remaining the same. SWMU Groups 14, 15 and 16 require the landfill soil caps to be upgraded to current Kansas Department of Health and Environment solid waste landfill design standards in addition to LTM. At SWMU Groups 7, 14, 16 and 25, the LTM shall demonstrate Monitored Natural Attenuation (MNA).*

- 1. No later than <<insert date 90 days following permit modification date>>, the Permittee shall submit a long term groundwater monitoring plan to the Director. Within ten days of a request by EPA, the Permittee shall provide an editable version of the CMI Work Plan in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc. In accordance with the RCRA Corrective Action Plan, the CMI Work Plan shall include the following sections:*

*Program Management*

*Public Involvement  
Design Plans and Specifications  
Operation and Maintenance  
Sampling and Analysis Plan  
Recordkeeping Plan  
Cost Estimate  
Project Schedule  
Construction Quality Assurance  
Quality Assurance Project Plan  
Data Management  
Periodic Reports*

2. *The Director will review the plan for approval in accordance with the procedures set forth below. Upon approval thereof by EPA, the Permittee shall implement the plan and submit the required reports. The Permittee shall also submit an electronic copy of the plan in PDF format on a CD-ROM that incorporates all changes and/or revisions required for or as a condition of approval.*
3. *No later than <<insert date 90 days following permit modification date>>, the Permittee shall submit a work plan to upgrade the soil caps at SWMU Groups 14, 15 and 16 to to current Kansas Department of Health and Environment solid waste landfill design standards. The Director will review the plan for approval in accordance with the procedures set forth below. Upon approval thereof by EPA, the Permittee shall implement the plan and submit the required reports. The Permittee shall also submit an electronic copy of the plan in PDF format on a CD-ROM that incorporates all changes and/or revisions required for approval.*
4. *The Permittee shall report annually no later than March 1 of each calendar year of the prior calendar year's groundwater monitoring. The annual report shall include documentation of all samples and data collected and their analysis. The Permittee shall also submit an electronic copy of the report in PDF format on a CD-ROM.*
5. *The Permittee shall continue long term groundwater monitoring until it can be demonstrated that there is no longer groundwater contamination or the threat of groundwater contamination which would exceed the unrestricted use cleanup levels for groundwater contamination below.*
6. *At the completion of long term monitoring of contaminated groundwater at any SWMU Group or AOC, the Permittee shall submit a Corrective Measures Completion Report within ninety (90) days of the completion of all remedial activities meeting the requirements of the RCRA Corrective Action Plan to the Director. Within ten days of a request by EPA, the Permittee shall provide an editable version of the Corrective Measures*

*Completion Report in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc.*

7. *The Director will review the Corrective Measures Completion Report for approval in accordance with the procedures set forth below. The Permittee shall also submit an electronic copy of the report in PDF format on a CD-ROM that incorporates all changes and/or revisions required for or as a condition of approval.*
8. *The Director may require the Permittee to conduct additional investigation and/or study (an additional RFI and/or CMS conducted in accordance with Part II of this Permit) in order to modify the existing remedy or select a new remedy. If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, the Director may require the Permittee to implement Interim Measures.*

**F. Unrestricted Use Cleanup Levels for Groundwater Contamination**

1. *The following table shall be used for groundwater cleanups to allow unrestricted use of groundwater.*

<b>Contaminant</b>	<b>Groundwater PRG</b>	<b>Basis of Selection</b>
<i>Arsenic</i>	<i>10 µg/L</i>	<i>MCL</i>
<i>Lead</i>	<i>15 µg/L</i>	<i>EPA Action Level</i>
<i>Cadmium</i>	<i>5 µg/L</i>	<i>MCL</i>
<i>Chromium (total)</i>	<i>100 µg/L</i>	<i>MCL</i>
<i>RDX</i>	<i>0.61 µg/L</i>	<i>Cancer Risk @ 1x10<sup>-6</sup></i>
<i>Tetryl</i>	<i>160 µg/L</i>	<i>KDHE RSK</i>
<i>TNT</i>	<i>2 µg/L</i>	<i>Cancer Risk @ 1x10<sup>-6</sup></i>
<i>HMX</i>	<i>780 µg/L</i>	<i>KDHE RSK</i>
<i>Vinyl Chloride (VC)</i>	<i>2 µg/L</i>	<i>MCL</i>
<i>Trichloroethene (TCE)</i>	<i>5 µg/L</i>	<i>MCL</i>
<i>Tetrachloroethene (PCE)</i>	<i>5 µg/L</i>	<i>MCL</i>
<i>1,1-Dichloroethene (DCE)</i>	<i>7 µg/L</i>	<i>MCL</i>

2. *The Permittee shall request modifications to the table above to add additional contaminants or modify the cleanup levels using the procedures for Class 2 permit modifications in 40 CFR 270.42.*

**G. Corrective Measures Implementation Review**

*The Permittee shall submit a work plan for an evaluation of the corrective measure effectiveness and performance every five (5) years to the Director. The first work plan shall be due no later than December 31, 2007, and every fifth year anniversary thereafter. The evaluation shall be consistent with the CERCLA Comprehensive Five-Year Review Guidance, OSWER 9355.7-03B-P. The Director will review the plan for approval in accordance with the procedures set forth below. Upon approval thereof by EPA, the Permittee shall implement the plan and submit the evaluation report. Within ten days of a request by EPA, the Permittee shall provide an editable version of the work plan or report in an electronic format such as Word<sup>®</sup>, AutoCAD<sup>®</sup>, etc. The Permittee shall also submit an electronic copy of the report in PDF format on a CD-ROM.*

*Based upon the evaluation, the Director may require the Permittee to conduct additional investigation and/or study (an additional RFI and/or CMS) in order to modify the existing remedy or select a new remedy. If action is needed to protect human health or the environment from releases or to prevent or minimize the further spread of contamination while long-term remedies are pursued, the Director may require the Permittee to implement Interim Measures.*

#### **H. Review and Approval Procedures**

1. *After submission of any plan or report pertaining to corrective action activities (excluding the Quarterly Progress Report), the Director will either approve or disapprove the plan or report in writing. EPA will rely on both the RCRA Facility Investigation Guidance and the RCRA Corrective Action Plan in its reviews to ensure the completeness and consistency of corrective action activities. EPA intends to use the most recent versions of those guidance documents in its review as they would incorporate advancements in the conduct of corrective action activities. Strict adherence to these guidance documents is not an enforceable condition of Part II of this Permit. The Permittee may dispute using the procedures outlined Part II of the Permit, Section VI, Permit Condition 17 entitled, "Dispute Resolution," EPA's disapproval, modification, or other decision or directive that the Permittee believes is an inappropriate reliance on existing or subsequently issued guidance documents. The Permittee shall implement all plans according to the schedule contained in the approved plan.*
2. *If the Director disapproves the plan or report, the Director will notify the Permittee in writing of the plan's deficiencies and specify a due date for submittal of a revision.*
3. *If the Director disapproves the revised plan or report, the Director may modify the plan or report and will notify the Permittee of any*

Final Permit Modifications  
Site Wide Corrective Measures Implementation

KSAAP, Parsons, KS  
RCRA ID# KS0213820467

*modifications. The plan or report, as modified by the Director, is the approved plan or report.*

Done this 12<sup>th</sup> day of April, 2006.



---

William A. Spratlin  
Director  
Air, RCRA and Toxics Division

**Permit for Supplying Water to the Public for Domestic Purposes**

Copy 5/BRAC

STATE OF KANSAS  
DEPARTMENT OF THE STATE BOARD OF HEALTH  
DIVISION OF SANITATION

PERMIT

No. 7865

For Supplying Water to the Public for  
Domestic Purposes

In accordance with the provisions of G. S. 1949, 65-161 to 65-171f, inclusive,

PERMISSION IS HEREBY GRANTED

to Kansas Ordnance Plant, Parsons, Labette County, Kansas

NAME OF CITY, INSTITUTION, CORPORATION OR PERSON

to supply for domestic purposes to the public within the State of Kansas, water derived

from Neosho River

SOURCE OF SUPPLY

application No. 7865 filed January 30 195 63

in conformity with plans and specifications on file in the office of the chief engineer of the State Board of Health, and the following named conditions and requirements, to wit:

- Provided, that if water from the alternate source of supply is used all water pumped into the system be subjected to continuous chlorination treatment.
- Provided, that all water delivered to the public is of satisfactory bacteriological and chemical quality.
- Provided, that copies of all bacteriological and chemical analysis reports, and treatment plant operating reports are submitted to the Kansas State Board of Health.

Done at Topeka, this 6th day of February, 195 63

THE KANSAS STATE BOARD OF HEALTH

BY \_\_\_\_\_  
EXECUTIVE SECRETARY.

**Kansas Water Pollution Control Permit**

Copy f/BPAC



K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

May 19, 2004

Kansas Army Ammunition Plant  
23018 Rooks Road, Suite AA  
Parsons, KS 67357

Re: Kansas Water Pollution Control  
Permit No. F-NE55-PO04

Dear Permittee:

You have fulfilled all the filing requirements for a Kansas Water Pollution Control Permit and Authorization to Discharge under the National Pollutant Discharge Elimination System (NPDES). We are pleased to forward your new permit. While it is permissible to make as many copies as needed for monitoring and reporting purposes, you need to retain the original permit for your files.

We suggest you carefully read the terms and conditions of your permit and understand these terms and conditions are enforceable under both State and Federal law.

Please notice the reporting paragraph on page 2 of your permit, where all reports are due by the 28th day of the schedule noted. Please submit reports to the, Technical Services Section, Bureau of Water, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367.

If you have any questions concerning this permit, please contact the Permit Clerk at (785) 296-5513.

Sincerely,

Karl Mueldener, P.E.  
Director, Bureau of Water

pc: SE - District Office  
OA - Permit File

DIVISION OF ENVIRONMENT

Bureau of Water

CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 420, TOPEKA, KS 66612-1367

Voice 785-296-5500

Fax 785-296-0086

<http://www.kdhe.state.ks.us>

KANSAS WATER POLLUTION CONTROL PERMIT AND  
AUTHORIZATION TO DISCHARGE UNDER  
THE NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM

Pursuant to the Provisions of Kansas Statutes Annotated 65-164 and 65-165, the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251 et seq; the "Act"),

Owner: Kansas Army Ammunition Plant

Owner's Address: 23018 Rooks Road, Suite AA  
Parsons, Kansas 67357

Operator/Permittee: Day and Zimmerman, Inc.

Facility Name: Kansas Army Ammunition Plant

Facility Location: 23018 Rooks Road  
Parsons, Kansas 67357

Receiving Stream: Neosho River via Labette Creek except 003 and 009 discharge  
via Unnamed Tributary; Neosho River Basin.

is authorized to discharge from the wastewater treatment facility described herein, in accordance with effluent limitations and monitoring requirements as set forth herein.

This permit shall become effective June 1, 2004, will supersede all previous wastewater permits and/or agreements in effect for the facility described herein between the Kansas Department of Health and Environment and the permittee, and will expire December 31, 2008.

**FACILITY DESCRIPTION:**

This facility is a government-owned, contractor-operated military industrial installation engaged in an ammunition load/assemble/pack operation. The operator of this facility is Day and Zimmerman, Inc. (herein after referred to as "Permittee"). Discharge occurs from the following outfalls:

002 Garage and vehicle wash rack waste through an oil and grease trap from 200 area and stormwater run-off; 2000 gallons/day.

Continued on next page



Secretary, Kansas Department of Health and Environment

May 20, 2004  
Date

**FACILITY DESCRIPTION:** Continued

- 003 Load, assemble and pack of M483 155mm projectiles (RDX) in area (300); wash water collected in a sump; batch treatment thru a combination of diatomaceous earth filters & carbon absorption columns, and stormwater run-off; 7300 gpd.
- 004 Sanitary sewage from Areas 2200 and 700 and pretreated process wastewater from area 700 (outfall 007) is treated in a grit chamber, two primary settling basins, a dosing tank, an anaerobic sludge digester, two rock media trickling filters and a secondary clarifier; and UV treatment, is discharged thru a flow meter/ totalizer; sludge is treated by anaerobic digestion, dried on sand drying beds, and periodically disposed at a landfill; 0.92 mgd.
- 007 Load, assemble and pack of M55 detonators (Lead azide, RDX, Antimony Sulfide etc.) in area (700); wash water collected in 14 sumps, is desensitized by acetic acid and NaOH, lead precipitation, coagulation, vacuum filtration, then discharged to sewage treatment plant (004); 2400 gpd.
- 009 Load, assemble and pack of 81 mm mortars (RDX,, HMX and TNT) in area (900); wash water collected in sump, filtered thru diatomaceous earth filter and carbon absorption filters prior to discharge to surface; 9600 gpd.
- 010 Load, assemble and pack of 60 mm mortars (RDX, HMX and TNT and PAX-21, an RDX based explosive which contains ammonium perchlorate) in area (1000); wash water collected in sump, filtered thru diatomaceous earth filter, carbon absorption filters, and the addition of ion exchange units prior to discharge; 9600 gpd.
- 011 Load, assemble and pack of sensor fuze weapon (RDX, HMX, and TNT) in area (1100); wash water collected in sumps, filtered thru diatomaceous earth filter, carbon absorption filters, two chamber settling basin with anthracite bed filter prior to discharge to surface; 28,800 gpd.

The abbreviations, HMX, RDX and TNT are defined as follows:

HMX = cyclo-tetramethylene tetranitramine

RDX = cyclo-trimethylene trinitramine

TNT = trinitrotoluene

BOD<sub>5</sub> = Biochemical Oxygen Demand

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in this permit. The effluent limitations shall become effective on the dates specified herein. Such discharges shall be controlled, limited, and monitored by the permittee as specified. There shall be no discharge of floating solids or visible foam in other than trace amounts.

Monitoring reports shall be submitted on or before the 28th day of each month. In the event no discharge occurs, written notification is still required.

<u>Effective Date</u>	<u>EFFLUENT LIMITATIONS</u>		<u>MONITORING</u>	
	<u>Final Upon Issuance</u>		<u>REQUIREMENTS</u>	
<u>Outfall Number and Effluent Parameter(s) Units</u>	<u>Daily Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>

002 - Discharge From The Pipe At The Control Structure In The Maintenance Area

Flow - mgd		Monitor	Daily	Estimate
Oil and Grease - mg/l	10	15	Monthly	grab

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Effective Date Outfall Number and Effluent Parameter(s) Units	EFFLUENT LIMITATIONS Final Upon Issuance		MONITORING REQUIREMENTS	
	Daily Average	Daily Maximum	Measurement Frequency	Sample Type

002 - Discharge From The Pipe At The Control Structure In The Maintenance Area Continued

pH-Standard Units	within the range of 6.0 to 9.0		Monthly	grab
Volatile Organic Compounds - µg/l	Monitor <sup>(1)</sup>		Annually	grab

<sup>(1)</sup> A representative sample of the discharge through Outfall 002 shall be collected and analyzed in April of each year for the Volatile Organic Compounds listed on **Attachment A**. These analyses shall be performed by a KDHE-certified laboratory. Permittee shall submit the results of these analyses to KDHE by June 28th of each year.

003 - Discharge From The Area 300 Wastewater Treatment Facility

Flow - MGD		Monitor	Daily	estimate
RDX- mg/l	0.5	1.0	Monthly	Composite
TNT - mg/l	0.5	1.0	Monthly	Composite
Total Suspended Solids - Lbs./day	0.53	1.56	Monthly	Composite
- mg/l	20	30		
Oil and Grease - Lbs./day	0.21	0.66	Monthly	grab
- mg/l	10	15		
pH-Standard Units	within the range of 6.0 to 9.0		Monthly	grab

004 - Sanitary Wastewater Discharge from Sewage Treatment Plant (Areas 2200 & 700)

Flow - MGD		Monitor	Daily	Ultra meter
Total Suspended Solids - mg/l	45	65	2/month	grab
Oil and Grease - mg/l	10	15	2/month	grab
Ammonia - mg/l			2/month	grab
November to February	11.3	11.3		
March - April	10.4	11.3		
May	7.5	11.3		
June to September	5.0	11.3		
October	9.3	11.3		
BOD <sub>5</sub> - mg/l	30	45	2/month	grab
Antimony - µg/l	47	70.5	2/month	grab
Lead, Total - µg/l	23	35	2/month	grab
Whole Effluent Toxicity	See Supplemental Condition No. 1			

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS** (continued)

<u>Effective Date</u> <u>Outfall Number and</u> <u>Effluent Parameter(s) Units</u>	<u>EFFLUENT LIMITATIONS</u>		<u>MONITORING</u>	
	<u>Final</u>	<u>Upon Issuance</u>	<u>Measurement</u>	<u>Sample</u>
	<u>Daily</u>	<u>Daily</u>	<u>Frequency</u>	<u>Type</u>
	<u>Average</u>	<u>Maximum</u>		
<u>004 - Sanitary Wastewater Discharge from Sewage Treatment Plant (Areas 2200 &amp; 700) Continued</u>				
pH-Standard Units	within the range of 6.0 to 9.0		2/month	grab
Fecal Coliform CFU/100ml			2/month	grab
April to October	200		Monthly geometric average	
November to March	2000		Monthly geometric average	
<u>007 - Discharge From 700 Area to Sewage Treatment Plant</u>				
Flow - MGD		Monitor	Daily	estimate
RDX- mg/l	0.5	1.0	Monthly	Composite
Lead - µg/l		1600	Monthly	Composite
pH-Standard Units	within the range of 6.0 to 9.0		Monthly	grab
<u>009 - Discharge From 900 Area Wastewater Treatment Plant and</u> <u>010 - Discharge From 1000 Area Wastewater Treatment Plant and</u> <u>011 - Discharge From 1100 Area Wastewater Treatment Plant</u>				
Flow - MGD		Monitor	Daily	estimate
Total Suspended Solids - Lbs./day	1.44	4.26	Monthly	grab
- mg/l	20	30		
Oil and Grease - Lbs./day	0.57	1.8	Monthly	grab
- mg/l	10	15		
RDX + HMX - mg/l	0.5	1.0	Monthly	grab
TNT - mg/l	0.5	1.0	Monthly	grab
Perchlorate <sup>(1)</sup> , Total - µg/l	ND	ND	Weekly	grab
Whole Effluent Toxicity	See Supplemental Condition No. 1 for 010 and 011 and No. 2 for 009			
pH-Standard Units	within the range of 6.0 to 9.0		Monthly	grab

<sup>(1)</sup> Applicable to outfall 010 only or any other outfall which may potentially contain perchlorate in the discharge. Perchlorate concentration in the discharge sample shall be non-detect (ND) at a minimum practicable quantification level (PQL) of 20 µg/l when analyzed using EPA method 314.0. Permittee shall sample for perchlorate prior to the wastewater entering the final ion exchange resin unit.

**B. STANDARD CONDITIONS**

In addition to the specified conditions stated herein, the permittee shall comply with the attached Standard Conditions dated August 1, 1996.

**C. SCHEDULE OF COMPLIANCE**

The permittee shall develop and implement, within one year of the effective date of this permit, a storm water pollution prevention (SWP2) plan in accordance with the **ATTACHMENT B.**

**D. SUPPLEMENTAL CONDITIONS**

1. Chronic Whole Effluent Toxicity (WET) testing shall be conducted once within 180 days of issuance of this permit on the effluent from outfall 004 and flow weighted sample from outfalls 010 and 011.
  - a. The No Observed Effect Concentration, NOEC, shall be equal to or greater than 22% effluent for outfall 004 or 11% effluent for outfalls 010 and 011. Test results less than 22% effluent for outfall 004 or 11% effluent for outfalls 010 and 011 are violations of this permit. The test procedures shall be in accordance with the EPA document, Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition, July 1994, (EPA/600/4-91/002) using test organisms *Pimephales promelas* (fathead minnow) and *Ceriodaphnia dubia* (water flea) within a dilution series of 0, 6.25, 11, 22, 36, 50, and 100% effluent for 004 or 0, 5.5, 11, 17, 50, and 100 % effluent for 010 & 011. KDHE reserves the right to increase or decrease testing frequency based upon compliance history and toxicity testing results.
  - b. If the WET test results indicate the NOEC is equal to or greater than 22% effluent for outfall 004 or 11% effluent for outfalls 010 and 011, the effluent has passed the toxicity test and the test report shall be due with the next scheduled Discharge Monitoring Report.
  - c. If the WET test results indicate the NOEC is less than 22% effluent for outfall 004 or 11% effluent for outfalls 010 and 011, the effluent has failed the toxicity test and the permittee shall immediately notify KDHE by telephone at (785) 296-5517 and submit to KDHE a copy of the test report within five days of receipt of the information. KDHE reserves the right to require the permittee to take such actions as are reasonable to identify and remedy any identified or predicted toxic conditions in the receiving stream outside of the mixing zone which is caused by the permittee's effluent.
  - d. Permittee shall also test a portion of the same effluent sample used for the WET test for the following substances (required minimum reportable detection levels are in parenthesis):

D. **SUPPLEMENTAL CONDITIONS** (Continued)

Antimony (6 µg/L)*	Nickel (50 µg/L)*
Arsenic (10 µg/L)*	Selenium (5 µg/L)*
Beryllium (5 µg/L)*	Silver (10 µg/L)*
Cadmium (3 µg/L)*	Thallium (10 µg/L)*
Chromium (10 µg/L)*	Zinc (20 µg/L)*
Ammonia as "N"(0.2 mg/L)	Copper (10 µg/L)*
Total Hardness as CaCO <sub>3</sub> mg/L	Lead (5 µg/L)*
Mercury (0.2 µg/L-Cold Vapor Method)	pH
Effluent Temperature	

\* Parameter shall be tested and reported as "total recoverable" metals.

Permittee shall coordinate sampling for this test with other monitoring requirements of this permit and may use the test results to satisfy this and other corresponding testing requirements. The permittee shall use a laboratory approved by KDHE for Whole Effluent Toxicity testing.

2. An acute Whole Effluent Toxicity (WET) testing shall be conducted once on a sample from Outfall 009 either within 180 days of issuance of this permit or 90 days from the start of discharge, whichever is later.
  - a. The median lethal concentration, LC<sub>50</sub>, shall be equal to or greater than 76% effluent. Test results less than 76% are violations of this permit. The test procedures shall be in accordance with the EPA document, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, fourth edition as published in August, 1993, (EPA/600/4-90/027F) using test organisms *Pimephales promelas* (fathead minnow) and any of the following daphnia (water flea) species: *Daphnia Pulex*, *Daphnia magna*, or *Ceriodaphnia dubia* within a dilution series of 0, 50, 64, 76, 88, 100% effluent. KDHE reserves the right to increase or decrease testing frequency based upon compliance history and toxicity testing results.
  - b. If the WET test results indicate the LC<sub>50</sub> is equal to or greater than 76% effluent, the effluent has passed the toxicity test and the test report shall be due with the next scheduled Discharge Monitoring Report.
  - c. If the WET test results indicate the LC<sub>50</sub> is less than 76% effluent, the permittee shall immediately notify KDHE by telephone (785) 296-5517 and submit to KDHE a copy of the test report within five days of receipt of the information. KDHE reserves the right to require the permittee to take such actions as are reasonable to identify and remedy any identified or predicted toxic conditions in the receiving stream outside of the zone of initial dilution which is caused by the permittee's effluent.
  - d. The Permittee shall also test a portion of the same effluent sample used for the WET test for the following substances (required minimum reportable detection levels are in parenthesis):

D. SUPPLEMENTAL CONDITIONS (Continued)

Antimony (6 µg/L)*	Nickel (50 µg/L)*
Arsenic (10 µg/L)*	Selenium (5 µg/L)*
Beryllium (5 µg/L)*	Silver (10 µg/L)*
Cadmium (3 µg/L)*	Thallium (10 µg/L)*
Chromium (10 µg/L)*	Zinc (20 µg/L)*
Ammonia as "N"(0.2 mg/L)	Copper (10 µg/L)*
Total Hardness as CaCO <sub>3</sub> mg/L	Lead (5 µg/L)*
Mercury (0.2 µg/L-Cold Vapor Method)	pH
Effluent Temperature	

\* Parameter shall be tested and reported as "total recoverable" metals.

Permittee shall coordinate sampling for this test with other monitoring requirements of this permit and may use the test results to satisfy this and other corresponding testing requirements. The permittee shall use a laboratory approved by KDHE for Whole Effluent Toxicity testing.

3. Permit limits are based on the load, assemble and packing operations only in the areas 300, 700, 900, 1000, and 1100. Prior to resuming production of explosives in any of these areas, this permit will need to be modified. KDHE-BOW will need to be notified at least 180 days prior to changing the activities which may change the character of the wastewater discharge in any area or any proposed discharge(s) not addressed in this permit.
4. Permittee, if necessary, shall modify the standard operating procedures for operation of the carbon columns including methods to detect and avoid a contaminant breakthrough of the carbon columns at the wastewater treatment units in the 300, 700, 900, 1000, or 1100 production areas. Permittee shall submit to KDHE copies of any modifications to these procedures within 30 days of the modification.
5. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301 (b)(2), (C), and (D), 304 (b)(2), and 307 (a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
  - a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit, or
  - b. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

6. The permittee shall notify the Director as soon as it knows or has reason to believe:
  - a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

**D. SUPPLEMENTAL CONDITIONS** (Continued)

- (1) One hundred micrograms per liter (100 µg/l);
  - (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
  - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application.
- b. That any activity has occurred or will occur which result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit if that discharge will exceed the highest of the following notification levels".
- (1) Five hundred micrograms per liter (500 µg/l);
  - (2) One milligram per liter (1 mg/l) for antimony;
  - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application.
7. In the event the Environmental Protection Agency amends or promulgates the BPT, BAT, and/or BCT effluent guideline limitations for a specific Point Source Category or any of the subcategories covering your industry, this permit will be revoked and reissued to incorporate the new limitation(s).
8. Toxic Substances - Water Treatment Additives. If the permittee utilizes or changes water treatment additives:
- a. After the mixing zone provided by Kansas Water Quality Standards, the discharge of water treatment additives shall not be harmful to human, animal or plant life uses in the receiving water.
  - b. The permittee shall keep an ongoing log of the water treatment chemicals used, their potential concentration in the facility discharge, and the associated toxicity data for each chemical. A sample chemical additives evaluation log can be obtained from KDHE.
  - c. The permittee shall provide KDHE, upon request, toxicity tests and/or a chemical additives evaluation log the permittee uses to determine if the requirements in the paragraphs above are being achieved. In the event the data indicate the requirements in the paragraphs above are not achieved, KDHE reserves the right to amend the facility's NPDES permit to specify additional terms and conditions for toxic substances.
9. Spent filter cartridges and other solid waste shall be disposed in a manner approved by KDHE - Bureau of Waste Management.

## ATTACHMENT A

The following detection limits are routinely obtained for Method 624 of volatile organic chemicals (VOCs) performed by the Kansas Department of Health and Environment Laboratory. Detection limits for any VOC analyses performed in conjunction with this permit must be less than or equal to those indicated or MCL or limits proposed.

## VOLATILE ORGANIC COMPOUND DETECTION LIMITS

ANALYTICAL PARAMETER	CAS NUMBER	Quantitative Limit (µg/l or ppb)
✓ benzene	71-43-2	0.5
✓ Bromoform (Tribromomethane)	75-25-2	1.5
✓ bromomethane	74-83-9	1.2
✓ bromodichloromethane	75-27-4	0.5
✓ chlorobenzene	108-90-7	0.5
✓ chloroethane	75-00-3	3.7
✓ chloromethane	74-78-3	5.0
✓ dibromochloromethane	124-48-1	0.7
✓ Di chlorobenzene, 1,2-	95-50-1	1.0
✓ di chlorobenzene, 1,3-	541-73-1	1.0
✓ di chlorobenzene, 1,4-	106-46-7	1.0
✓ dichloroethane, 1,1-	75-34-3	0.5
✓ dichloroethane, 1,2-	107-06-2	0.5
✓ dichloroethylene, 1,1-	75-35-4	0.6
✓ dichloroethylene, cis 1,2-	540-59-0	0.5
✓ dichloroethylene, trans 1,2-	540-59-0	0.5
✓ dichloromethane (methylene chloride)	75-09-2	0.9
✓ dichloropropane, 1,2-	78-87-5	0.5
✓ dichloropropene, cis 1,3-	542-75-6	0.9
✓ dichloropropene, trans 1,3-	542-75-6	0.8
✓ ethylbenzene	100-41-4	0.7
✓ tetra chloroethane, 1,1,2,2-	79-34-5	0.6
✓ tetrachloroethylene	127-18-4	1.1
✓ tetrachloromethane (carbon tetrachloride)	56-23-5	0.7
✓ toluene	108-88-3	0.5
✓ trichloroethane, 1,1,1-	71-55-6	0.6
✓ trichloroethane, 1,1,2-	79-00-5	0.6
✓ trichloroethylene	79-01-6	0.6
✓ trichlorofluoromethane	75-69-4	0.5
✓ trichloromethane (chloroform)	67-66-3	0.5
✓ vinyl chloride	75-01-4	0.8
✓ xylene, o-,m-,p- (total)	1330-20-7	0.6

**ATTACHMENT B****STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS AND GUIDELINES**

The Storm water Pollution Prevention plan (SWP2 plan) shall be specific to the industrial activities and site characteristics occurring at the location described in this permit. The permittee shall fully implement the provisions of the SWP2 plan required under this permit as a condition of this permit.

The purpose of the SWP2 plan is to ensure the design, implementation, management, and maintenance of Best Management Practices (BMPs) in order to reduce the amount of pollutants in storm water discharges associated with the industrial activities at the facility. The SWP2 plan shall evaluate BMPs from each of three major classes: managerial/administrative; structural controls and non-structural controls.

The permittee shall evaluate, select, install, utilize, operate and maintain the BMPs in accordance with the concepts and methods described in Environmental Protection Agency (EPA) document number EPA 832-R-92-006, entitled *Storm water Management for Industrial Activities - Developing Pollution Prevention Plans and Best Management Practices*, published in September, 1992<sup>1</sup>; and the U.S. Environmental Protection Agency's *Final NPDES Storm Water Multi-Sector General Permit for Industrial Activities*; Notice dated Sept. 29, 1995, and subsequent modifications.

The SWP2 plan and any amendments shall be prepared by, or under the supervision of, and sealed by a Kansas licensed professional engineer. The SWP2 plan shall be reviewed and re-certified for compliance with accepted engineering standards for storm water pollution prevention at least once every five years. The plan shall contain, at a minimum, the following items:

1. Pollution Prevention Team - Specific individuals shall be identified within the facility organization as members of a Storm water Pollution Prevention Team who are responsible for developing, implementing, maintaining and revising the plan. Each member's responsibilities shall be clearly identified in the plan. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.
2. Description of potential pollutant sources - pollutant sources which may reasonably be expected to add significant amounts of pollutants to the storm water discharge shall be described. The description shall include, at a minimum:
  - a. Site Map - a site map identifying: the outline drainage areas of each storm water outfall; the location of significant materials exposed to precipitation; storage tanks; scrap yards and general refuse areas; fuel storage and distribution areas; vehicle and equipment maintenance and storage areas; loading/unloading areas; waste treatment, storage or disposal areas; short and long term material storage areas (including but not limited to: supplies, construction materials, plant equipment, oils, fuels, used and unused solvents, cleaning materials, paint, water treatment chemicals, fertilizers, and pesticides); landfills; construction sites; stock piles; major spills or leaks; surface water bodies and existing structural control measures to reduce pollutants in storm water runoff (such as bermed areas, grassy swales, etc.).
  - b. Inventory of Exposed Materials - a narrative description of significant materials handled, treated, stored, leaked, spilled or disposed of in a manner to allow exposure to storm water within the period starting three years prior to the date of this permit; existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and any treatment the storm water receives. A list of significant spills and leaks of toxic / hazardous materials in exposed areas shall be maintained and kept updated.
  - c. Sampling Data - a summary of existing sampling data.
  - d. Risk Identification and Summary of Potential Pollutant Sources - A narrative description of the potential pollutant sources and pollutant parameter of concern shall be identified.

3. Measures and Controls - A description of storm water management controls appropriate for the facility which addresses the following minimum components, including a schedule for implementing such controls to the extent practical:
- a. Good housekeeping requiring the maintenance of areas in a clean, orderly manner including handling and storage areas (exposed to precipitation) for raw metals, scrap metals, fines, paints and other process areas.
  - b. Preventive Maintenance - Including timely inspection and maintenance of storm water management devices, like oil water separators, catch basins etc.
  - c. Spill Prevention and Response Procedures - Appropriate material handling procedure, storage requirements, use of equipment such as diversion valves, and procedures for cleaning up spills should be identified. Availability of the necessary equipment to implement a clean up should be addressed. The following areas should be addressed:
    - (1) Metal fabrication and finishing areas - include measures for maintaining clean, dry, orderly conditions and use of dry clean-up techniques;
    - (2) Receiving, Unloading and Storage Areas and Raw Material Storage Areas - include measures to prevent spills & leaks; easy access for spill clean-up; quick and correct identification of materials; and train employees on clean-up techniques.
    - (3) Storage of Equipment - include procedures for proper clean-up and/or covering of equipment before storing outdoors.
    - (4) Storage of Metal Working Fluids - measures to identify proper controls.
    - (5) Cleaners and Rinse Water - Include measures to control spills, build-up and disbursement of sand from sand blasting, and use of less toxic cleaners.
    - (6) Lubricating Oils and Hydraulic Fluids - include procedures for using detecting and control devices to reduce, prevent, and contain leaks and overflows.
    - (7) Chemical Storage Areas - include a program to inspect containers, and identify proper disposal and spill controls to prevent storm water contamination.
  - d. Inspections: Identification of qualified facility personnel to inspect at appropriate intervals designated equipment and storage areas for raw metal, finished product, materials and chemicals, recycling, equipment, paint, fueling and maintenance; and loading, unloading, and waste management areas. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained on-site for at least three years after the date of the inspection.
  - e. Employee Training: Employee training programs to inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management, at all levels of responsibility, of the components and goals of the storm water pollution prevention plan. The pollution prevention plan shall consider periodic dates for such training, but in all cases training must be held at least annually.
  - f. Record keeping and Internal Reporting Procedures: A log to document a description of incidents (such as spills, or other discharges), along with other information which may impact the quality and quantity of storm water discharges needs to be developed and maintained. Reporting procedures, inspections and maintenance activities shall be developed and included in the SWP3 plan.
  - g. Non-storm water Discharges -include a certification that the discharge has been tested or evaluated for the presence of dry weather flows. The certification should include all potential significant sources of dry weather flows, all analytical data for quality and quantity of such flows, and signature of the authorized person. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the dry weather flow component(s) of the discharge.



STANDARD CONDITIONS FOR  
KANSAS WATER POLLUTION CONTROL AND  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

1. Representative Sampling:

- A. Samples and measurements taken as required herein shall be representative of the nature and volume of the monitored discharge. All samples shall be taken at the location designated in this permit, and unless specified, at the outfall(s) before the effluent joins or is diluted by any other water or substance.
- B. Monitoring results shall be recorded and reported on forms acceptable to the Division and postmarked no later than the 28th day of the month following the completed reporting period. Signed and certified copies of these, prepared in accordance with KAR 28-16-59 and all other reports required herein, shall be submitted to:

Kansas Department of Health & Environment  
Bureau of Water-Technical Services Section  
1000 SW Jackson Street, Suite 420  
Topeka, KS 66612-1367

2. Schedule of Compliance: No later than 14 calendar days following each date identified in the "Schedule of Compliance," the permittee shall submit to the above address, either a report of progress or, in the case of specific action being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements, or, if there are no more scheduled requirements, when such noncompliance will be corrected.

3. Definitions:

- A. The "daily average" discharge means either the total discharge by weight during a calendar month divided by the number of days in the month that the facility was operating or the average concentration for the month. The daily average discharge shall be determined by the summation of all measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made, or by the summation of all concentrations determined during the calendar month divided by the number of samples collected and analyzed.
- B. The "daily maximum" discharge means the total discharge by weight or average concentration during a 24 hour period.
- C. The "monthly average", other than for fecal coliform bacteria, is the arithmetic mean of the value of effluent samples collected in a period of 30 consecutive days. The monthly average for fecal coliform bacteria is the geometric mean of the value of the effluent samples collected in a period of 30 consecutive days.
- D. The "weekly average", other than for fecal coliform bacteria, is the arithmetic mean of the value of effluent samples collected in a period of 7 consecutive days. The weekly average for fecal coliform bacteria is the geometric mean of the value of effluent samples collected in a period of 7 consecutive days.
- E. A "grab sample" is an individual sample collected in less than 15 minutes.

- F. A "composite sample" is a combination of individual samples in which the volume of each individual sample is proportional to the discharge flow, the sample frequency is proportioned to the flow rate over the sample period, or the sample frequency is proportional to time.
  - G. The "act" means the Clean Water Act, 30 USC Section 1251 et seq.
  - H. The terms "Director", "Division", and "Department" refer to the Director, Division of Environment, Kansas Department of Health and Environment, respectively.
  - I. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
  - J. "Bypass" means any diversion of waste streams from any portion of a treatment facility or collection system.
4. Test Procedures: All analysis required by this permit shall conform to the requirements of 33 USC Section 1314(h), and shall be conducted in a laboratory certified by this Department. For each measurement or sample, the permittee shall record the exact place, date, and time of sampling; the date of the analyses, the analytical techniques or methods used, and the individual(s) who performed the sampling and analysis and, the results. If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved procedures, the results shall be included in the Discharge Monitoring Report form required in 1.B. above. Such increased frequencies shall also be indicated.
5. Records Retention: All records and information resulting from the monitoring activities required by this permit, including all records of analyses and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation, shall be retained for a minimum of 3 years, or longer if requested by the Division.
6. Change in Discharge: All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant not authorized by this permit or of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of this permit. Any anticipated facility expansions, productions or flow increases, or process modifications which result in a new, different, or increased discharge of pollutants shall be reported to the Division at least one hundred eighty (180) days before such change.
7. Noncompliance Notifications: If for any reason, the permittee does not comply with, or will be unable to comply with any daily maximum or weekly average effluent limitations specified in this permit, the permittee shall provide the Department with the following information in writing within five days of becoming aware of such condition:
- A. A description of the discharge and cause of noncompliance, and
  - B. the period of noncompliance including exact dates and times or if not corrected, the anticipated time the noncompliance is expected to continue and steps taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

The above information shall be provided with the submittal of the regular Discharge Monitoring Report form for violations of daily average or monthly average effluent limitations.

8. **Facilities Operation:** The permittee shall at all times maintain in good working order and efficiently and effectively operate all treatment, collection, control systems or facilities, to achieve compliance with the terms of this permit. Such proper operation and maintenance procedures shall also include adequate laboratory controls and appropriate quality assurance procedures. Maintenance of treatment facilities which results in degradation of effluent quality, even though not causing violations of effluent limitations shall be scheduled during noncritical water quality periods and shall be carried out in a manner approved in advance by the Division. The permittee shall take all necessary steps to minimize or prevent any adverse impact to waters of the State resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge. When necessary to maintain compliance with the permit conditions, the permittee shall halt or reduce those activities under its control which generate wastewater routed to this facility.
9. **Immediate Reporting Required:** Any diversion from, or bypass of facilities necessary to maintain compliance with the permit is prohibited, except: where no feasible alternatives to the bypass exist and 1) where necessary to prevent loss of human life, personal injury or severe property damage; or 2) where excessive stormwater inflow or infiltration would damage any facilities necessary to comply with this permit or 3) where the permittee notifies the Director seven days in advance of an anticipated bypass. The Director or Director's designee may approve a bypass, after considering its adverse effects, if any of the three conditions listed above are met. The permittee shall immediately notify the Division by telephone [(913) 296-5517 or the appropriate KDHE District Office] of each bypass and shall confirm the telephone notification with a letter explaining what caused this spill or bypass and what actions have been taken to prevent recurrence. Written notification shall be provided to the Director within five days of the permittee becoming aware of the bypass. The Director or Director's designee may waive the written report on a case-by-case basis.
10. **Removed Substances:** Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner acceptable to the Division.
11. **Power Failures:** The permittee shall provide an alternative power source sufficient to operate the wastewater control facilities or otherwise control pollution and all discharges upon the loss of the primary source of power to the wastewater control facilities.
12. **Right of Entry:** The permittee shall allow authorized representatives of the Division of Environment or the Environmental Protection Agency upon the presentation of credentials, to enter upon the permittee's premises where an effluent source is located, or in which are located any records required by this permit, and at reasonable times, to have access to and copy any records required by this permit, to inspect any monitoring equipment or monitoring method required in this permit, and to sample any influents to, discharges from or materials in the wastewater facilities.
13. **Transfer of Ownership:** The permittee shall notify the succeeding owner or controlling person of the existence of this permit by certified letter, a copy of which shall be forwarded to the Division. The succeeding owner shall secure a new permit. The permit is not transferable to any person except after notice and approval by the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.
14. **Availability of Records:** Except for data determined to be confidential under 33 USC Section 1318, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential. Knowingly making any false statement on any such report or tampering with equipment to falsify data may result in the imposition of criminal penalties as provided for in 33 USC Section 1319 and KSA 65-170c.

15. Permit Modifications and Terminations: As provided by KAR 28-16-62, after notice and opportunity for a hearing, this permit may be modified, suspended or revoked or terminated in whole or in part during its term for cause as provided, but not limited to those set forth in KAR 28-16-62 and KAR 28-16-28b through f. The permittee shall furnish to the Director, within a reasonable amount of time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request, copies of all records required to be kept by this permit.
16. Toxic Pollutants: Notwithstanding paragraph 15 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified at such effluent standards) is established under 33 USC Section 1317(a) for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition. Nothing in this permit relieves the permittee from complying with federal toxic effluent standards as promulgated pursuant to 33 USC Section 1317.
17. Civil and Criminal Liability: Except as authorized in paragraph 9 above, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance as provided for in KSA 65-170d, KSA 65-167, and 33 USC Section 1319.
18. Oil and Hazardous Substance Liability: Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under 33 USC Section 1321 or KSA 65-164 et seq. The municipal permittee shall promptly notify the Division by telephone upon discovering crude oil or any petroleum derivative in its sewer system or wastewater treatment facilities.
19. Industrial Users: The municipal permittee shall require any industrial user of the treatment works to comply with 33 USC Section 1317, 1318 and any industrial user of storm sewers to comply with 33 USC Section 1308.
20. Property Rights: The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights nor any infringements of or violation of federal, state or local laws or regulations.
21. Operator Certification: The permittee shall ensure the wastewater facilities are under the supervision of an operator certified by the Department. If the permittee does not have a certified operator or loses its certified operator, appropriate steps shall be taken to obtain a certified operator as required by KAR 28-16-30 et seq.
22. Severability: The provisions of this permit are severable. If any provision of this permit or any circumstance is held invalid, the application of such provision to other circumstances and the remainder of the permit shall not be affected thereby.
23. Removal from Service: The permittee shall inform the Division at least three months before a pumping station, treatment unit, or any other part of the treatment facility permitted by this permit is to be removed from service and shall make arrangements acceptable to the Division to decommission the facility or part of the facility being removed from service such that the public health and waters of the state are protected.
24. Duty to Reapply: A permit holder wishing to continue any activity regulated by this permit after the expiration date, must apply for a new permit at least 180 days prior to expiration of the permit.

**Kansas Department of Health and Environment  
Owner ID Permits**



# Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

*Copy 8/BRAC*

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

- 5000 gallon aboveground Diesel Tank # A006
- 5000 gallon aboveground Diesel Tank # A007
- 990 gallon aboveground Diesel Tank # A011
- 1000 gallon aboveground Kerosene Tank # A012
- 12000 gallon aboveground Gas (Incl Alcohol) Tank # A013

Date Issued: 06/15/2005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

*Roderick L. Bremby*

Roderick L. Bremby  
Secretary



# Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

- 12000 gallon aboveground Gas (Incl Alcohol) Tank # A014
- 12000 gallon aboveground Diesel Tank # A015
- 10000 gallon aboveground Diesel Tank # A016
- 10000 gallon aboveground Diesel Tank # A017
- 15000 gallon aboveground Other Tank # A018

Date Issued: 06/15/2005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

*Roderick L. Bremby*

Roderick L. Bremby  
Secretary



# Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

- 5000 gallon aboveground Diesel Tank # A019
- 15000 gallon aboveground Other Tank # A020
- 17000 gallon aboveground Other Tank # A022
- 17000 gallon aboveground Other Tank # A023
- 5000 gallon aboveground Diesel Tank # A024

Date Issued: 06/15/2005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

*Roderick L. Bremby*

Roderick L. Bremby  
Secretary



# Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

- 15000 gallon aboveground Other Tank # A026
- 5000 gallon aboveground Diesel Tank # A027
- 15000 gallon aboveground Other Tank # A028
- 15000 gallon aboveground Other Tank # A029
- 10000 gallon aboveground Diesel Tank # A030

Date Issued: 06/15/2005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

Roderick L. Bremby  
Secretary



# Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

- 5000 gallon aboveground Diesel Tank # A032
- 15000 gallon aboveground Other Tank # A033
- 15000 gallon aboveground Other Tank # A034
- 15000 gallon aboveground Other Tank # A035
- 5000 gallon aboveground Diesel Tank # A036

Date Issued: 06/15/2005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

Roderick L. Bremby  
Secretary



# Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

- 2000 gallon aboveground Diesel Tank # A037
- 96750 gallon aboveground Other Tank # A038
- 96750 gallon aboveground Other Tank # A039
- 96750 gallon aboveground Other Tank # A040
- 10000 gallon aboveground Diesel Tank # A042

Date Issued: 06/15/2005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

Roderick L. Bremby  
Secretary



## Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

**Date Issued: 06/15/2005**

8000 gallon aboveground Diesel Tank # A001  
10000 gallon aboveground Diesel Tank # A002  
10000 gallon aboveground Diesel Tank # A003  
5000 gallon aboveground Diesel Tank # A004  
54200 gallon aboveground Other Tank # A005

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

*Roderick L. Bremby*  
Roderick L. Bremby  
Secretary



## Kansas Department Of Health & Environment

Permit must be posted in a conspicuous place.

Effective: August 1, 2005 to July 31, 2006

Owner ID: 24006

Facility ID: 24006

Be it known, that having properly filed application with the Kansas Department of Health and Environment and provided documentation, was found to be in substantial compliance with laws, rules and regulations and upon the issuance of this permit by the Secretary of Health and Environment the following is hereby authorized to operate the following described storage tanks at the addressed facility as follows:

**ARMY AMMUNITION PLANT, KANSAS  
EAST HIGHWAY 160  
PARSONS, KS 67357-9106**

**Date Issued: 06/15/2005**

13000 gallon aboveground Diesel Tank # A043  
4000 gallon aboveground Diesel Tank # A044  
8000 gallon aboveground Diesel Tank # A045  
1000 gallon aboveground Other Tank # A046  
2000 gallon aboveground Other Tank # A047

**KANSAS ARMY AMMUNITION PLANT  
RR  
PARSONS, KS 67357**

*Roderick L. Bremby*  
Roderick L. Bremby  
Secretary

**KSAAP Industrial Landfill Permit Renewal**



# Day & Zimmermann

We do what we say.®

May 30, 2006

EE.SS060067.Permits Renewal for the KSAAP Industrial Landfill.doc

Kansas Department of Health and Environment  
Bureau of Waste Management  
Solid Waste Permits Section  
1000 SW Jackson, STE 320  
Topeka, Kansas 66612-1366

Attention: Mr. Ken Powell

Dear Mr. Powell:

Subject: Permit Renewal for Permit No. 0401, for the KSAAP Industrial Landfill

Reference: KDHE (Mr. Powell) letter dated May 1, 2006; Subject: Permit Renewal for Permit No. 0401, for the following types of Permits: Incinerator; Industrial; Labette County

Day & Zimmermann, Inc. (DZI), contractor-operator of the Kansas Army Ammunition Plant (KSAAP), hereby submits notification to the Kansas Department of Health and Environment (KDHE) that the Contaminated Waste Processor (CWP) currently permitted for commercial operations at KSAAP, has been removed from service. The fuel controls have been locked out/tagged out to eliminate the possibility of operation of the unit. The unit will not be utilized in the future, unless it is upgraded to meet the MACT and CISWI standards. Closure of the CWP will be the responsibility of the federal government.

It is DZI's intention to keep the permitted industrial landfill open for the coming year. Attached is our estimated cost for closure and post closure of the landfill. If you have any questions concerning this information, our point of contact is Dean Cramer, telephone 620-421-7532.

Respectfully,

JIM MAHER  
Director of Human Resources, Safety,  
Plant Protection & Environment

JRM/CJS/svs

Attachment a/s

cf: Bret Raines (ACO)  
Dean Cramer  
Environmental File  
Reading File

OWNER: U. S. Government

PERMIT NO. 0401

CURRENT PERMIT RENEWAL YEAR: 2006 - 2007

CONVERSION FACTOR: 4840.02 SQ. YDS./ACRE

TOTAL PERMITTED AREA: 50 ACRES

CONVERSION FACTOR : 0.3333 YDS./FT.

AREA CURRENTLY OPEN: 50 ACRES

LARGEST AREA TO EVER BE OPEN AT ANY TIME: \_\_\_\_\_ ACRES  
(use this area for estimating closure costs)

Note: Industrial landfills which have waste containment systems and appurtenances with planned maintenance schedules, environmental monitoring systems with planned maintenance schedules and periodic sampling and analysis requirements, or requirements to maintain insurance coverage during the long-term care period must complete the "Post-Closure Cost Estimate for Industrial Landfill" worksheet, page 4.

ITEM	QUANTITY	UNITS	UNIT COST	COST	SUBTOTALS
<b>Low Permeability Soil Layer</b>					
Preparation of landfill to receive cover (final grading)	50	ACRE	\$53.75	\$ 2,688	
Soil--compacted, off-site	60,334	CU. YD.	\$5.63	\$ 339,680	
Soil--compacted, on-site	60,666	CU. YD.	\$2.20	\$ 133,465	
<b>Low Permeability Soil Layer Subtotal</b>					<b>\$ 475,833</b>
<b>Vegetative Soil Layer</b>					
Vegetative soil--off-site	50,334	CU. YD.	\$5.20	\$ 261,737	
Vegetative soil--on-site	30,333	CU. YD.	\$1.77	\$ 53,691	
Seeding and mulching	50	ACRE	\$1,500.00	\$ 75,000	
<b>Vegetative Soil Layer Subtotal</b>					<b>\$ 390,428</b>
<b>Erosion Control</b>					
Terraces	2,000	Lin. FT.	\$0.55	\$ 1,100	
Grass ditching/channels	800	Lin. FT.	\$9.00	\$ 7,200	
Riprap ditching/channels	300	Lin. FT.	\$13.00	\$ 3,900	
<b>Erosion Control Subtotal</b>					<b>\$ 12,200</b>
<b>Professional Services</b>					
Engineering (bid documents)		Lump Sum		\$ 4,000	
Topographic and boundary survey		Lump Sum		\$ 6,000	
Engineering (construction oversight)		Lump Sum		\$ 4,500	
<b>Professional Services Subtotal</b>					<b>\$ 14,500</b>
<b>Estimated Closure Cost</b>	(sum of all subtotals above)				<b>\$ 892,961</b>
<b>Administration and Contingency</b>					<b>+ 89,296</b>
Administration and contingency (Estimated Closure Cost x 10%)				\$ 30,105	
<b>Administration and Contingency Subtotal</b>					<b>\$ 119,401</b>
<b>Total Current Closure Costs</b>					<b>\$1,012,362</b>

(Instructions and explanations of bid items and sources of unit costs are provided on the back of this page.)

Contact Person/Cost Estimate Prepared By: Dean Cramer  
Phone Number: 620-421-7532

The minimum final cover requirements for an industrial landfill include a landfill cap consisting of a minimum of 18 inches of compacted soil overlaid by a minimum of 12 inches of soil capable of supporting vegetation. Closure is complete when the cap has been seeded and vegetation is fully established. All estimates submitted must be consistent with the KDHE-approved closure plan.

OWNER: U. S. Government

CURRENT PERMIT RENEWAL YEAR: 2006 - 2007

TOTAL PERMITTED DISPOSAL AREA: 50 ACRES  
(use this area for estimating post-closure cost)

PERMIT NO. 0401

CONVERSION FACTOR: 4840.02 SQ. YDS./ACRE

CONVERSION FACTOR: 0.3333 YDS./FT.

Note: Industrial landfills which have waste containment systems and appurtenances with planned maintenance schedules, environmental monitoring systems with planned maintenance schedules and periodic sampling and analysis requirements, or requirements to maintain insurance coverage during the long-term care period must complete the "Post-Closure Cost Estimate for Industrial Landfill" worksheet, page 4.

ITEM	QUANTITY	UNITS	UNIT COST	COST	SUBTOTALS
<b>Cover Repair for 5% of the Landfill Area</b>					
5% of the landfill area, acres					
Soil--off-site					
Soil--on-site					
Cover Repair Subtotal	2,017	CU. YD.	\$5.20	\$	3,570
		CU. YD.	\$1.77	\$	
					\$ 3,570
<b>Seeding (Reseed 5% of the Landfill Area)</b>					
5% of the landfill area, acres					
Seeding and mulching					
Seeding Subtotal	2.5	ACRE	\$1,500.00	\$	3,750
					\$ 3,750
<b>Groundwater Monitoring</b>					
# wells in the approved system					
Groundwater sampling personnel labor	20	hr.	\$35.00	\$	700
Groundwater sample event mobilization	40	mile	\$0.40	\$	16
Groundwater analytical cost	28	sample		\$	14,000
Groundwater monitoring well maintenance	7	well	\$13.00	\$	91
Groundwater monitoring well replacement (total lin. ft. of all groundwater wells)	210	total well footage	\$0.20	\$	42
Groundwater Monitoring Subtotal					\$ 14,849
<b>Inspections and Recordkeeping</b>					
Inspections and recordkeeping		Lump Sum		\$	1,500
Inspections and Recordkeeping Subtotal				\$	1,500
Estimated Annual Post-Closure Cost		(sum of all subtotals above)		\$	23,669
<b>Administration and Contingency</b>					
Administration and contingency (Estimated Annual Post-Closure Cost x 10%)				\$	2,367
Administration and Contingency Subtotal				\$	2,367
Total Estimated Annual Post-Closure Cost		Admin. (6%)		+ 1,562	\$ 3,929
<b>ESTIMATED 30-YEAR POST-CLOSURE COST</b>					\$ 27,598
		(Total Annual Post-Closure Cost x 30)			\$ 827,940

Contact Person/Cost Estimate Prepared By: Dean Cramer  
Phone Number: 620-421-7532

Closure is complete when the cap has been seeded and vegetation is fully established. The 30-year post-closure period begins when the landfill is no longer receiving waste and final closure has been completed for the entire site. All estimates submitted must be consistent with the KDHE-approved post-closure plan.

Last edit date: May 29, 1998

**Air Emission Source Class I Operating Permit**



K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

January 28, 2004

Source ID No. 0990010

Mr. Dean Cramer  
Project Engineer  
Kansas Army Ammunition Plant/Day & Zimmermann Inc.  
23018 Rooks Road  
Parsons, Kansas 67357-8403

SUBJECT: Class I Air Emission Source-Operating Permit

Dear Mr. Cramer:

Enclosed is the Class I operating permit and annual certification of compliance form for Kansas Army Ammunition Plant/Day & Zimmermann Inc. located in Parsons, Kansas. The certification is required to be submitted to the Kansas Department of Health and Environment (KDHE) within 30 days of the anniversary of the effective date of the permit, for each year the permit is in effect. Please use copies of the enclosed form for the required certifications, retaining the original blank form for subsequent certifications. This form will not be mailed to you on a yearly basis. For the semi annual reports, please refer to the "Testing, Monitoring, Recordkeeping and Reporting" section of the permit. Submittal of the annual certification does not take place of the semi-annual report.

**Please review the enclosed operating permit carefully since it obligates Kansas Army Ammunition Plant/Day & Zimmermann Inc. to certain requirements.**

As provided for in K.S.A. 65-3008b(e), an owner or operator may request a hearing within 15 days after affirmation, modification or reversal of a permit decision pursuant to subsection (b) of K.S.A. 65-3008a. In the Request for Hearing, the owner or operator shall specify the provision of this act or rule and regulation allegedly violated, the facts constituting the alleged violation and secretary's intended action. Such request must be submitted to Mr. Mark S. Braun, Director, Office of Administrative Hearings, 1020 S. Kansas Avenue, Topeka, KS 66612-1327. Failure to submit a timely request shall result in a waiver of the right to hearing.

DIVISION OF ENVIRONMENT  
Bureau of Air & Radiation  
Air Construction/Operating Permits & Compliance Section  
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 310, TOPEKA, KS 66612-1366  
Voice 785-296-1570 Fax 785-291-3953 <http://www.kdhe.state.ks.us>  
Printed on Recycled Paper

Page 2  
Mr. Dean Cramer  
January 28, 2004

Include source ID number 0990010 in all communications with the KDHE regarding this facility.

If you have any questions regarding this permit, please contact me at (785) 296-1615.

Sincerely,



Xiao Wu  
Environmental Scientist  
Air Construction/Operating Permits & Compliance Section

XW:saw  
Enclosure  
c: SEDO  
O-205



K A N S A S

RODERICK L. BREMBY, SECRETARY

DEPARTMENT OF HEALTH AND ENVIRONMENT

KATHLEEN SEBELIUS, GOVERNOR

**AIR EMISSION SOURCE  
CLASS I OPERATING PERMIT**

Source ID No.: 0990010

Effective Date: January 28, 2004

Expiration Date: January 27, 2009

Source Name: Kansas Army Ammunition Plant/Day & Zimmermann Inc.

SIC Code: 3489, Ordnance and Accessories, NEC

NAICS Code: 332995, Other Ordnance and Accessories Manufacturing

Source Location: East Main, Section 22, Township 31S, Range 20E  
Parsons, Kansas 67357

Mailing Address: 23018 Rooks Road  
Parsons, Kansas 67357-8403

DIVISION OF ENVIRONMENT  
Bureau of Air & Radiation  
Air Construction/Operating Permits & Compliance Section  
CURTIS STATE OFFICE BUILDING, 1000 SW JACKSON ST., STE 310, TOPEKA, KS 66612-1366  
Voice 785-296-1570 Fax 785-291-3953 <http://www.kdhe.state.ks.us>  
Printed on Recycled Paper

### **Authority**

This permit, developed in accordance with the provisions of K.A.R. 28-19-500 et seq., "Operating Permit," meets the requirements of K.A.R. 28-19-510 et seq., Class I Operating Permits and Title V of the federal Clean Air Act.

### **Permit Intent**

The purpose of this Class I Air Operating Permit is to identify the emission sources, types of regulated air pollutants emitted from the facility, the emission limitations, standards and requirements applicable to each emission source, and the monitoring, record keeping and reporting requirements applicable to each source as of the effective date of this permit. At the time of permit issuance, a Class I Air Emission Source Operating Permit was required because the facility's potential-to-emit for SO<sub>x</sub> were above 100 tons per year, above 100 tons per year for NO<sub>x</sub>, and above 100 tons per year for particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>).

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### Facility Description

Day & Zimmermann Inc. is the plant contractor for Kansas Army Ammunition Plant (KSAAP). The KSAAP is a government-owned, contractor-operated facility under the command of U.S. Army Materiel Command that occupies 13,727 acres. Explosive material is delivered to the plant where it is loaded, assembled, and packed for delivery to the U.S. Department of Defense. Support activities at the plant include: electrical generation, steam production, natural gas combustion, potable water treatment, industrial water pre-treatment, wastewater treatment, open burning, and disposal of contaminated solid and explosive waste through incineration. Day & Zimmermann Inc. periodically fabricates products other than explosives for both military and civilian customers using existing facilities.

This facility is a major source for SO<sub>x</sub>, NO<sub>x</sub> and PM<sub>10</sub> because it's potential-to-emit for these pollutants were above the major source threshold (greater than 100 tpy of SO<sub>x</sub>, greater than 100 tpy of NO<sub>x</sub>, and greater than 100 tpy of PM<sub>10</sub>).

A modification of permit/approval conditions dated January 28, 2004 has modified previous established conditions.

### Emission Source Information

<b>Emission Source ID</b>	<b>Emission Source Description</b>	<b>Stack/Vent ID</b>	<b>Control Equipment ID No.</b>	<b>Specific Applicable Regulations</b>
IA-TANK52	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK80	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK101A <i>NORTH</i>	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK101B <i>SOUTH</i>	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK107	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)

<b>Emission Source ID</b>	<b>Emission Source Description</b>	<b>Stack/Vent ID</b>	<b>Control Equipment ID No.</b>	<b>Specific Applicable Regulations</b>
IA-TANK201	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK209	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK221	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK244	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK314A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK315	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK509A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK750A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK813A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK902	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK1002B	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK1020	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
IA-TANK1105A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK1207	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK2106	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK2712	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK3005A	#2 Fuel Oil Tank with Capacity less than 55,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK204	Lubricating Oil Storage Tank (scrap/inactive)	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK258	#1 Fuel Oil Storage Tank with Capacity of 10,662 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK259	#2 Fuel Oil Storage Tank with Capacity of 10,662 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK261	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK264	Kerosene Storage Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
IA-TANK1228	#5 Fuel Oil Storage Tank with Capacity of 96,751 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK1229	#5 Fuel Oil Storage Tank with Capacity of 96,751 gallons	NA	NA	K.A.R. 28-19-650(a)(2)

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
IA-TANK1230	#5 Fuel Oil Storage Tank with Capacity of 96,751 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3025	Sulfuric Acid Tank with Capacity of 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3026	Ammonia Tank with Capacity of 20,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3027	Ammonia Tank with Capacity of 20,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3028	Ammonia Tank with Capacity of 20,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3029	Ammonia Tank with Capacity of 35,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3030	Ammonia Tank with Capacity of 35,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3031	Alcohol Tank with Capacity of 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3037	#2 Fuel Oil Storage Tank with Capacity of 54,200 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3021	Nitrous Oxide Storage Tank with Capacity of 5,500 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3022	Nitrous Oxide Storage Tank with Capacity of 5,500 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK3024	Nitric Acid Tank with Capacity of 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
IA-TANK808	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-TANK1141	#2 Fuel Oil Tank with Capacity less than 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
IA-GEN52	Emergency Electrical Generator, 30kw, Diesel-fired	SV-GEN52	NA	K.A.R. 28-19-650(a)(3)
IA-GEN101	Emergency Electrical Generator, 250kw, Diesel-fired	SV-GEN101	NA	K.A.R. 28-19-650(a)(3)
IA-GEN107	Emergency Electrical Generator, 160kw, Diesel-fired	SV-GEN107	NA	K.A.R. 28-19-650(a)(3)
IA-GEN112	Emergency Electrical Generator, 25kw, Gas-fired	SV-GEN112	NA	K.A.R. 28-19-650(a)(3)
IA-GEN202	Emergency Electrical Generator, 15kw, Propane-fired	SV-GEN202	NA	K.A.R. 28-19-650(a)(3)
IA-GEN314	Emergency Electrical Generator, 75kw, Diesel-fired	SV-GEN314	NA	K.A.R. 28-19-650(a)(3)
IA-GEN315	Emergency Electrical Generator, 150kw, Diesel-fired	SV-GEN315	NA	K.A.R. 28-19-650(a)(3)
IA-GEN511	Emergency Electrical Generator, 15kw, Diesel-fired	SV-GEN511	NA	K.A.R. 28-19-650(a)(2)
IA-GEN750	Emergency Electrical Generator, 125kw, Diesel-fired	SV-GEN750	NA	K.A.R. 28-19-650(a)(3)
IA-GEN813	Emergency Electrical Generator, 75kw, Diesel-fired	SV-GEN813	NA	K.A.R. 28-19-650(a)(2)

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
IA-GEN1002	Emergency Electrical Generator, 75kw, Gas-fired	SV-GEN1002	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1006	Emergency Electrical Generator, 75kw, Gas-fired	SV-GEN1006	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1017	Emergency Electrical Generator, 75kw, Diesel-fired	SV-GEN1017	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1105A	Emergency Electrical Generator, 25kw, Diesel-fired	SV-GEN1105A	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1105B	Emergency Electrical Generator, 60kw, Diesel-fired	SV-GEN1105B	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1109	Emergency Electrical Generator, 100kw, Gas-fired	SV-GEN1109	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1123	Emergency Electrical Generator, 100kw, Diesel-fired	SV-GEN1123	NA	K.A.R. 28-19-650(a)(3)
IA-GEN1127	Emergency Electrical Generator, 100kw, Diesel-fired	SV-GEN1127	NA	K.A.R. 28-19-650(a)(3)
IA-GEN3016	Emergency Electrical Generator, 75kw, Diesel-fired	SV-GEN3016	NA	K.A.R. 28-19-650(a)(3)
IA-GEN902	Emergency Electrical Generator, 75kw, Gas-fired	SV-GEN902	NA	K.A.R. 28-19-650(a)(3)
IA-GEN2106A	Emergency Electrical Generator, 45kw, Diesel-fired	SV-GEN2106a	NA	K.A.R. 28-19-650(a)(3)
IA-GEN2106B	Emergency Electrical Generator, 75kw, Gas-fired	SV-GEN2106b	NA	K.A.R. 28-19-650(a)(3)

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
IA-HOTWATER107	Hot Water Heater, 0.504MMBtu/hr, #2 fuel oil	SV-HOTWATER107	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT60	Commercial Furnace Heater, 0.075MMBtu/hr, propane	SV-HEAT60	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT80	Commercial Furnace Heater, 0.112MMBtu/hr, #2 fuel oil	SV-HEAT80	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
IA-HEAT201	Commercial Furnace Heater, 0.105MMBtu/hr, #2 fuel oil	SV-HEAT201	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
IA-HEAT1020	Commercial Furnace Heater, 0.075MMBtu/hr, #2 fuel oil	SV-HEAT221	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
IA-HEAT511	Commercial Furnace Heater, 0.075MMBtu/hr, #2 fuel oil	SV-HEAT511	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
IA-HEAT2000	Commercial Furnace Heater, 0.1MMBtu/hr, propane	SV-HEAT2000	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT202	Commercial Furnace Heater, 0.25MMBtu/hr, propane	SV-HEAT202	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT203	Commercial Furnace Heater, 0.25MMBtu/hr, propane	SV-HEAT203	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT208	Commercial Furnace Heater, 0.03MMBtu/hr, propane	SV-HEAT208	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT57	Commercial Furnace Heater, 1.0143MMBtu/hr, #2 fuel oil	SV-HEAT57	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
IA-HEAT112	Commercial Furnace Heater, 5.021MMBtu/hr, #2 fuel oil	SV-HEAT112	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
IA-HEAT2203	Commercial Furnace Heater, 1MMBtu/hr, propane	SV-HEAT2203	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-HEAT2704	Commercial Furnace Heater, 0.08MMBtu/hr, propane	SV-HEAT2704	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
IA-PNT247	Paint Booth	SV-PB247	NA	K.A.R. 28-19-650(a)(3)
IA-LAUNDRY	Laundry cleaning facility	SV-LAUNDRY	NA	K.A.R. 28-19-650(a)(3)
IA-INDUSTRENG	seven portable pumps, one steam cleaner, two portable washers, three gasoline-fired portable electrical generators(2kw, 2.25kw, and 2kw), eight portable compressors, and three portable welding machines	NA	NA	K.A.R. 28-19-650(a)(3)
IA-PORTHEATER	Portable fuel-powered heating units, include two space heaters and three oil fired heaters, kerosene or #2 fuel oil, capacity of each unit is <1MMBtu/hr	NA	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2)
FS-LANDFILLS	One active landfill is located SW of the Bdg. 200 area. (Approx. 380,000 cubic meters) VOCs and organic HAPs are emitted as the waste decomposes.	NA	NA	NA
FS-OPENBURN	Explosives and flammable wastes are placed in open pans and ignited.	NA	NA	NA

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
FS-OPENDETON	Explosives waste is placed in an open detonation pit with an explosive charge and exploded.	NA	NA	NA
FS-STOCKPILE	Gravel, rock, stone, and other solid materials are stored in piles. Particulate matter is emitted to the atmosphere during loading and unloading operations and due to wind erosion.	NA	NA	NA
FS-SEWAGTRT	Domestic sewage waste water is treated in grit chamber, settling tanks, primary and secondary rock media tricking filters and a chlorine contact chamber. Organic HAPs and VOCs are emitted to the atmosphere at these locations.	NA	NA	NA
FS-INDWTRTRT	Wastewater containing trace amounts of ammunition components is generated at the 300, 700, 1000, and 1100 Building production lines. A dedicated water treatment system is located at each production line. The treatment systems include holding sumps and carbon canisters. Trace amounts of organic HAPs may be emitted	NA	NA	NA
FS-FRNGRNGE	Miscellaneous ammunition is fired at the plant.	NA	NA	NA

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
TK-53	#2 Fuel Oil, 10,030 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-58	#2 Fuel Oil, 10,030 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-60	#2 Fuel Oil, 10,030 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
<del>TK-230A</del>	#1 Fuel Oil, 10,660 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
<del>TK-230B</del>	#2 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-1002A	#2 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-2203	#2 Fuel Oil, 13,150 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-2702	#2 Fuel Oil, 10,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-314B	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-509B	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-750B	#5 Fuel Oil, 17,060 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-750C	#5 Fuel Oil, 17,060 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-813B	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-1105B	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-1105C	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-1205A	#5 Fuel Oil, 96,750 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
<del>TK-1205B</del>	#5 Fuel Oil, 96,750 gallons	NA	NA	K.A.R. 28-19-650(a)(2)

202?

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
TK-1205C	#5 Fuel Oil, 96,750 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
TK-3005B	#5 Fuel Oil, 72,750 gallons	NA	NA	K.A.R. 28-19-650(a)(2)
TK-2105A	Gasoline, 500 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-264	Kerosene, 1,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-243	Road Oil, 18,530 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-202A	Unleaded Gasoline, 12,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-202B	Unleaded Gasoline, 12,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-202C	#2 Fuel Oil, 12,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-902A <i>SOUTH</i>	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
TK-902B <i>CENTER</i>	#5 Fuel Oil, 15,000 gallons	NA	NA	K.A.R. 28-19-650(a)(3)
EU-BLR52	1.031MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR52	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR53	1.031MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR53	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR58	0.636MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR58	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR112	3.676MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR112	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
EU-BLR314A <i>EAST</i>	6.696MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR314A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR314B <i>WEST</i>	6.696MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR314B	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR509 A <i>EU-BLR 509 B</i>	8.9MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR509	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR750A <i>SOUTH</i>	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR750A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR750B <i>CENTER</i>	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR750B	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR750C <i>NORTH</i>	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR750C	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR808	1.071MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR808	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
EU-BLR902A <i>EAST</i>	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR902A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
EU-BLR902B <i>CENTER</i>	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR902B	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
EU-BLR902C <i>West</i>	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR902C	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
EU-BLR924	0.787MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR924	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
EU-BLR1002A <i>EAST</i>	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1002A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1002B <i>CENTER</i>	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1002B	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1002C <i>West</i>	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1002C	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1105A <i>West</i>	9.2MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1105A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1105B <i>West CENTER</i>	9.2MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1105B	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1105E <i>EAST CENTER</i>	14.7MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1105E	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1105F <i>EAST</i>	14.7MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary	SV-BLR1105F	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
EU-BLR1123	1.373MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR1123	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1207A <i>EAST</i>	0.82MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR1207A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1207B <i>WEST</i>	0.82MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR1207B	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR1414	0.926MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR1414A	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
EU-BLR2106	1.031MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR2106	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-BLR2203	0.14MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR2203	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(1) Construction Permit of 5/15/1990
EU-BLR1020	2.1MMBtu/hr Boiler, #2 Fuel Oil	SV-BLR1020	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-HOTWTR101	1.8MMBtu/hr Boiler, #2 Fuel Oil	SV-HOTWTR101	NA	K.A.R. 28-19-31(a) K.A.R. 28-19-31(b)(2) Construction Permit of 5/15/1990
EU-CWP2712	Contaminated Waste Processor	SV-CWP2712	CE-CWP2712FF, CE-CWP2712HX	K.A.R. 28-19-40 K.A.R. 28-19-41 K.A.R. 28-19-42 K.A.R. 28-19-501(d) Construction Permit of 5/15/1981

Emission Source ID	Emission Source Description	Stack/Vent ID	Control Equipment ID No.	Specific Applicable Regulations
EU-EW12702	Explosive Waste Incinerator	SV-EW2702	CE- EW12702AB, CE- EW12702HX, CE- EW12702CY, CE- EW12702BH	K.A.R. 28-19-40 K.A.R. 28-19-41 40 CFR 63 Subpart A 40 CFR 63 Subpart EEE K.A.R. 28-19-501(d)

**Summary of Applicable Requirements**

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**Applicable Requirements**

**A. The following emission sources are subject to the requirements listed below:**

- IA-HEAT60/SV-HEAT60 Commercial Furnace Heater,  
0.075MMBtu/hr, Propane
- IA-HEAT2000/SV-HEAT2000 Commercial Furnace Heater, 0.1MMBtu/hr,  
Propane
- IA-HEAT202/SV-HEAT202 Commercial Furnace Heater,  
0.25MMBtu/hr, Propane

IA-HEAT203/SV-HEAT203	Commercial Furnace Heater, 0.25MMBtu/hr, Propane
IA-HEAT208/SV-HEAT208	Commercial Furnace Heater, 0.03MMBtu/hr, Propane
IA-HEAT2203/SV-HEAT2203	Commercial Furnace Heater, 1MMBtu/hr, Propane
IA-HEAT2704/SV-HEAT2704	Commercial Furnace Heater, 0.08MMBtu/hr, Propane
IA-HEAT80/SV-HEAT80	Commercial Furnace Heater, 0.112MMBtu/hr, #2 Fuel Oil
IA-HEAT201/SV-HEAT201	Commercial Furnace Heater, 0.105MMBtu/hr, #2 Fuel Oil
IA-HEAT1020/SV-HEAT1020	Commercial Furnace Heater, 0.075MMBtu/hr, #2 Fuel Oil
IA-HEAT57/SV-HEAT57	Commercial Furnace Heater, 1.0143MMBtu/hr, #2 Fuel Oil
IA-HEAT112/SV-HEAT112	Commercial Furnace Heater, 5.021MMBtu/hr, #2 Fuel Oil
IA-HOTWATER107/SV-HOTWATER107	0.504MMBtu/hr Hot Water Heater, #2 Fuel Oil
IA-PORTHEATER	Portable fuel-powered heating units, include two space heaters and three oil fired heaters, kerosene or #2 fuel oil, capacity of each unit is <1MMBtu/hr
EU-BLR52/SV-BLR52	1.031MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR53/SV-BLR53	1.031MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR58/SV-BLR58	0.636MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR112/SV-BLR112	3.676MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1123/SV-BLR1123	1.373MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1207A/SV-BLR1207A	0.82MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1207B/SV-BLR1207B	0.82MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR2106/SV-BLR2106	1.031MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1020/SV-BLR1020	2.1MMBtu/hr Boiler, #2 Fuel Oil
EU-HOTWTR101/SV-HOTWTR101	1.8MMBtu/hr Boiler, #2 Fuel Oil

1. Limitation or Standard

Particulate matter emissions are limited to the amount determined by the following equation: [K.A.R. 28-19-31(a)]

$$A = 1.026 / I^{0.233}$$

Where: A = the allowable emission rate in lb / 10<sup>6</sup> Btu

I = the total heat input in  $10^6$  Btu

The allowable emission rate in lb /  $10^6$  Btu for indirect heating equipment with total heat input less than ten (10) million Btu/hr is 0.6 lb /  $10^6$  Btu.

### Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate (process changes, emission factor increases, fuel changes, etc.), the potential particulate matter emission rate must be recalculated and evaluated against the rule limitation.

### Recordkeeping and Reporting

No recordkeeping is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate, records shall be maintained of any recalculations and evaluations. These records shall include the design rate capacity of the unit, emission factors used in calculations and potential/ allowable emission rates.

## 2. Limitation or Standard

Opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-31(b)(2)]

### Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Compliance Demonstration" section.

### Recordkeeping and Reporting

Due to potentially very low or nonexistent emissions, no recordkeeping is required.

## B. **The following emission sources are subject to the requirements listed below:**

EU-BLR808/SV-BLR808	1.071MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR924/SV-BLR924	0.787MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1414/SV-BLR1414A	0.926MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR2203/SV-BLR2203	0.14MMBtu/hr Boiler, #2 Fuel Oil
IA-HEAT511/SV-HEAT511	Commercial Furnace Heater, 0.075MMBtu/hr, #2 Fuel Oil

1. Limitation or Standard

Particulate matter emissions are limited to the amount determined by the following equation: [K.A.R. 28-19-31(a)]

$$A = 1.026 / I^{0.233}$$

Where: A = the allowable emission rate in lb / 10<sup>6</sup> Btu

I = the total heat input in 10<sup>6</sup> Btu

The allowable emission rate in lb / 10<sup>6</sup> Btu for indirect heating equipment with total heat input less than ten (10) million Btu/hr is 0.6 lb / 10<sup>6</sup> Btu.

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate (process changes, emission factor increases, fuel changes, etc.), the potential particulate matter emission rate must be recalculated and evaluated against the rule limitation.

Recordkeeping and Reporting

No recordkeeping is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate, records shall be maintained of any recalculations and evaluations. These records shall include the design rate capacity of the unit, emission factors used in calculations and potential/ allowable emission rates.

2. Limitation or Standard

Opacity shall not exceed 40 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-31(b)(1)]

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Compliance Demonstration" section.

Recordkeeping and Reporting

Due to potentially very low or nonexistent emissions, no recordkeeping is required.

C. **The following emission sources are subject to the requirements listed below:**

EU-BLR902A/SV-BLR902A	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR902B/SV-BLR902B	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR902C/SV-BLR902C	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary

1. Limitation or Standard

Particulate matter emissions are limited to the amount determined by the following equation: [K.A.R. 28-19-31(a)]

$$A = 1.026 / I^{0.233}$$

Where: A = the allowable emission rate in lb / 10<sup>6</sup> Btu

I = the total heat input in 10<sup>6</sup> Btu

The allowable emission rate in lb / 10<sup>6</sup> Btu for indirect heating equipment with total heat input less than ten (10) million Btu/hr is 0.6 lb / 10<sup>6</sup> Btu.

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate (process changes, emission factor increases, fuel changes, etc.), the potential particulate matter emission rate must be recalculated and evaluated against the rule limitation.

Recordkeeping and Reporting

No recordkeeping is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate, records shall be maintained of any recalculations and evaluations. These records shall include the design rate capacity of the unit, emission factors used in calculations and potential/ allowable emission rates.

2. Limitation or Standard

Opacity shall not exceed 40 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-31(b)(1)]

### Monitoring

A qualitative opacity assessment shall be conducted at the frequency for which the facility qualifies pursuant to the "Opacity Monitoring" section unless the unit operates less than 48 hours per year. [KDHE's Memo to EPA of April 4, 2001] The initial frequency of observations is monthly but can change, pursuant to this section, if visible emissions are believed to exceed the limitation.

A method 9 evaluation shall be conducted if the emission source combusted fuel oil during any semi-annual reporting period or the subsequent semi-annual reporting period unless the unit operates less than 500 hours per year. [KDHE's Memo to EPA of April 4, 2001]

If the method 9 evaluation is performed in the subsequent semi-annual reporting period, the method 9 evaluation shall not constitute operation on fuel oil and shall not require further testing.

### Recordkeeping and Reporting

A log shall be maintained noting the information required in the "Opacity Monitoring" section unless the unit operates less than 48 hours per year. [KDHE's Memo to EPA of April 4, 2001] The log will be updated prior to the end of the shift during which the assessment occurred.

The owner or operator shall maintain records of operating hours. These records shall be maintained onsite and available for inspection for five years.

**D. The following emission sources are subject to the requirements listed below:**

EU-BLR509/SV-BLR509	8.9MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR750A/SV-BLR750A	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR750B/SV-BLR750B	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR750C/SV-BLR750C	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1002A/SV-BLR1002A	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary

EU-BLR1002B/SV-BLR1002B	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1002C/SV-BLR1002C	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1105A/SV-BLR1105A	9.2MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1105B/SV-BLR1105B	9.2MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1105E/SV-BLR1105E	14.7MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary

1. Limitation or Standard

Particulate matter emissions are limited to the amount determined by the following equation: [K.A.R. 28-19-31(a)]

$$A = 1.026 / I^{0.233}$$

Where: A = the allowable emission rate in lb / 10<sup>6</sup> Btu

I = the total heat input in 10<sup>6</sup> Btu

The allowable emission rate in lb / 10<sup>6</sup> Btu for indirect heating equipment with total heat input less than ten (10) million Btu/hr is 0.6 lb / 10<sup>6</sup> Btu.

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate (process changes, emission factor increases, fuel changes, etc.), the potential particulate matter emission rate must be recalculated and evaluated against the rule limitation.

Recordkeeping and Reporting

No recordkeeping is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate, records shall be maintained of any recalculations and evaluations. These records shall include the design rate capacity of the unit, emission factors used in calculations and potential/ allowable emission rates.

2. Limitation or Standard

Opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-31(b)(2)]

## Monitoring

A qualitative opacity assessment shall be conducted at the frequency for which the facility qualifies pursuant to the "Opacity Monitoring" section unless the unit operates less than 48 hours per year. [KDHE's Memo to EPA of April 4, 2001] The initial frequency of observations is monthly but can change, pursuant to this section, if visible emissions are believed to exceed the limitation.

A method 9 evaluation shall be conducted if the emission source combusted fuel oil during any semi-annual reporting period or the subsequent semi-annual reporting period unless the unit operates less than 500 hours per year. [KDHE's Memo to EPA of April 4, 2001]

If the method 9 evaluation is performed in the subsequent semi-annual reporting period, the method 9 evaluation shall not constitute operation on fuel oil and shall not require further testing.

## Recordkeeping and Reporting

A log shall be maintained noting the information required in the "Opacity Monitoring" section unless the unit operates less than 48 hours per year. [KDHE's Memo to EPA of April 4, 2001] The log will be updated prior to the end of the shift during which the assessment occurred.

The owner or operator shall maintain records of operating hours. These records shall be maintained onsite and available for inspection for five years.

### **E. The following emission sources are subject to the requirements listed below:**

EU-BLR314A/SV-BLR314A	6.696MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR314B/SV-BLR314B	6.696MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary

### **1. Limitation or Standard**

Particulate matter emissions are limited to the amount determined by the following equation: [K.A.R. 28-19-31(a)]

$$A = 1.026 / I^{0.233}$$

Where: A = the allowable emission rate in lb / 10<sup>6</sup> Btu

I = the total heat input in 10<sup>6</sup> Btu

The allowable emission rate in lb / 10<sup>6</sup> Btu for indirect heating equipment with total heat input less than ten (10) million Btu/hr is 0.6 lb / 10<sup>6</sup> Btu.

#### Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate (process changes, emission factor increases, fuel changes, etc.), the potential particulate matter emission rate must be recalculated and evaluated against the rule limitation.

#### Recordkeeping and Reporting

No recordkeeping is required at time of permit issuance. If, however, any factors change that would affect the potential particulate matter emission rate, records shall be maintained of any recalculations and evaluations. These records shall include the design rate capacity of the unit, emission factors used in calculations and potential/ allowable emission rates.

### 2. Limitation or Standard

When using #2 fuel oil, opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-31(b)(2)]

#### Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Monitoring" section.

#### Recordkeeping and Reporting

Due to potentially very low or nonexistent emissions, no recordkeeping is required.

### 3. Limitation or Standard

When using #5 fuel oil, opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-31(b)(2)]

#### Monitoring

A qualitative opacity assessment shall be conducted at the frequency for which the facility qualifies pursuant to the "Opacity Monitoring" section unless the unit operates

less than 48 hours per year. [KDHE's Memo to EPA of April 4, 2001] The initial frequency of observations is monthly but can change, pursuant to this section, if visible emissions are believed to exceed the limitation.

A method 9 evaluation shall be conducted if the emission source combusted fuel oil during any semi-annual reporting period or the subsequent semi-annual reporting period unless the unit operates less than 500 hours per year. [KDHE's Memo to EPA of April 4, 2001]

If the method 9 evaluation is performed in the subsequent semi-annual reporting period, the method 9 evaluation shall not constitute operation on fuel oil and shall not require further testing.

#### Recordkeeping and Reporting

A log shall be maintained noting the information required in the "Opacity Monitoring" section unless the unit operates less than 48 hours per year. [KDHE's Memo to EPA of April 4, 2001] The log will be updated prior to the end of the shift during which the assessment occurred.

The owner or operator shall maintain records of operating hours. These records shall be maintained onsite and available for inspection for five years.

**F. The following emission sources are subject to the requirement listed below:**

EU-BLR808/SV-BLR808	1.071MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR924/SV-BLR924	0.787MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1414/SV-BLR1414A	0.926MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR2203/SV-BLR2203	0.14MMBtu/hr Boiler, #2 Fuel Oil
IA-HEAT511/SV-HEAT511	Commercial Furnace Heater, 0.075MMBtu/hr, #2 Fuel Oil
IA-HEAT80/SV-HEAT80	Commercial Furnace Heater, 0.112MMBtu/hr, #2 Fuel Oil
IA-HEAT201/SV-HEAT201	Commercial Furnace Heater, 0.105MMBtu/hr, #2 Fuel Oil
IA-HEAT1020/SV-HEAT1020	Commercial Furnace Heater, 0.075MMBtu/hr, #2 Fuel Oil
IA-HEAT57/SV-HEAT57	Commercial Furnace Heater, 1.0143MMBtu/hr, #2 Fuel Oil
IA-HEAT112/SV-HEAT112	Commercial Furnace Heater, 5.021MMBtu/hr, #2 Fuel Oil

IA-HOTWATER107/SV-HOTWATER107	0.504MMBtu/hr Hot Water Heater, #2 Fuel Oil
IA-PORTHEATER	Portable fuel-powered heating units, include two space heaters and three oil fired heaters, kerosene or #2 fuel oil, capacity of each unit is <1MMBtu/hr
EU-BLR52/SV-BLR52	1.031MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR53/SV-BLR53	1.031MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR58/SV-BLR58	0.636MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR112/SV-BLR112	3.676MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1123/SV-BLR1123	1.373MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1207A/SV-BLR1207A	0.82MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1207B/SV-BLR1207B	0.82MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR2106/SV-BLR2106	1.031MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR1020/SV-BLR1020	2.1MMBtu/hr Boiler, #2 Fuel Oil
EU-HOTWTR101/SV-HOTWTR101	1.8MMBtu/hr Boiler, #2 Fuel Oil
EU-BLR902A/SV-BLR902A	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR902B/SV-BLR902B	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR902C/SV-BLR902C	10.714MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR509/SV-BLR509	8.9MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR750A/SV-BLR750A	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR750B/SV-BLR750B	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR750C/SV-BLR750C	10.043MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1002A/SV-BLR1002A	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1002B/SV-BLR1002B	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1002C/SV-BLR1002C	9.99MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1105A/SV-BLR1105A	9.2MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary
EU-BLR1105B/SV-BLR1105B	9.2MMBtu/hr Boiler, #5 Fuel Oil Primary, #2 Fuel Oil secondary

EU-BLR1105E/SV-BLR1105E

14.7MMBtu/hr Boiler, #5 Fuel Oil Primary,  
#2 Fuel Oil secondary

EU-BLR314A/SV-BLR314A

6.696MMBtu/hr Boiler, #5 Fuel Oil  
Primary, #2 Fuel Oil secondary

EU-BLR314B/SV-BLR314B

6.696MMBtu/hr Boiler, #5 Fuel Oil  
Primary, #2 Fuel Oil secondary

I. Limitation or Standard

The total sulfur dioxide emissions for the plant shall not exceed 250 tons per year.  
[Construction permit dated May 15, 1990]

The sulfur dioxide emissions are limited such that the following inequality is satisfied

$$(7.85 \times 10^{-5})(F_1)(S_1) + (4.97 \times 10^{-5})(F_2)(S_2) < 250 \text{ tons/year sulfur dioxide (SO}_2\text{)}$$

where:

$S_1$  = average sulfur content of No. 2 fuel oil, weight %

$S_2$  = average sulfur content of No. 5 fuel oil, weight %

$F_1$  = gallons of No. 2 fuel oil burned per year

$F_2$  = gallons of No. 5 fuel oil burned per year

Recordkeeping and Reporting

The owner or operator shall submit a report to KDHE on a semi-annual basis to report the total sulfur dioxide emissions. A report shall be submitted following any semi-annual reporting period. The report shall be postmarked by the 30<sup>th</sup> day following the end of the semi-annual reporting period to which the report pertains. The initial semi-annual report shall be postmarked by the 1<sup>st</sup> day of the second or eighth calendar month as appropriate (August 1<sup>st</sup> for data gathered January through June or February 1<sup>st</sup> for data gathered July through December ).

G. **The following emission sources are subject to the requirement listed below:**

IA-TANK80	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK201	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK221	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK244	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK3005A	#2 Fuel Oil Tank with Capacity less than 55,000 gallons
IA-TANK258	#1 Fuel Oil Storage Tank with Capacity of 10,662 gallons
IA-TANK259	#2 Fuel Oil Storage Tank with Capacity of 10,662 gallons

IA-TANK261	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK1228	#5 Fuel Oil Storage Tank with Capacity of 96,751 gallons
IA-TANK1229	#5 Fuel Oil Storage Tank with Capacity of 96,751 gallons
IA-TANK1230	#5 Fuel Oil Storage Tank with Capacity of 96,751 gallons
IA-TANK3025	Sulfuric Acid Tank with Capacity of 15,000 gallons
IA-TANK3026	Ammonia Tank with Capacity of 20,000 gallons
IA-TANK3027	Ammonia Tank with Capacity of 20,000 gallons
IA-TANK3028	Ammonia Tank with Capacity of 20,000 gallons
IA-TANK3029	Ammonia Tank with Capacity of 35,000 gallons
IA-TANK3030	Ammonia Tank with Capacity of 35,000 gallons
IA-TANK3031	Alcohol Tank with Capacity of 15,000 gallons
IA-TANK3037	#2 Fuel Oil Storage Tank with Capacity of 54,200 gallons
IA-TANK3021	Nitrous Oxide Storage Tank with Capacity of 5,500 gallons
IA-TANK3022	Nitrous Oxide Storage Tank with Capacity of 5,500 gallons
IA-TANK3024	Nitric Acid Tank with Capacity of 15,000 gallons
IA-TANK808	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK1141	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
TK-1205A	#5 Fuel Oil, 96,750 gallons
TK-1205B	#5 Fuel Oil, 96,750 gallons
TK-1205C	#5 Fuel Oil, 96,750 gallons
TK-3005B	#5 Fuel Oil, 72,750 gallons

1. Limitation or Standard

Opacity shall not exceed 40 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-650(a)(2)]

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Monitoring" section.

Recordkeeping and Reporting

Due to potentially very low or nonexistent emissions, no recordkeeping is required.

**H. The following emission sources are subject to the requirement listed below:**

IA-PNT247/SV-PB247	Paint Booth
IA-LAUNDRY/SV-LAUNDRY	Laundry cleaning facility
IA-INDUSTRENG	seven portable pumps, one steam cleaner, two portable washers, three gasoline-fired portable electrical generators(2kw, 2.25kw, and 2kw), eight portable compressors, and three portable welding machines
IA-TANK52	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK101A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK101B	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK107	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK209	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK314A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK315	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK509A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK750A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK813A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK902	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK1002B	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK1020	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK1105A	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK1207	#2 Fuel Oil Tank with Capacity less than 10,000 gallons
IA-TANK2106	#2 Fuel Oil Tank with Capacity less than 10,000 gallons

IA-TANK2712

IA-TANK204

IA-TANK264

TK-53

TK-58

TK-60

~~TK-230A~~

~~TK-230B~~

TK-1002A

TK-2203

TK-2702

TK-314B

TK-509B

TK-750B

TK-750C

TK-813B

TK-1105B

TK-1105C

~~TK-2105A~~

TK-264

TK-243

TK-202A

TK-202B

TK-202C

TK-902A

TK-902B

#2 Fuel Oil Tank with Capacity less than 10,000 gallons

Lubricating Oil Storage Tank (scrap/inactive)

Kerosene Storage Tank with Capacity less than 10,000 gallons

#2 Fuel Oil, 10,030 gallons

#2 Fuel Oil, 10,030 gallons

#2 Fuel Oil, 10,030 gallons

#1 Fuel Oil, 10,660 gallons

#2 Fuel Oil, 15,000 gallons

#2 Fuel Oil, 15,000 gallons

#2 Fuel Oil, 13,150 gallons

#2 Fuel Oil, 10,000 gallons

#5 Fuel Oil, 15,000 gallons

#5 Fuel Oil, 15,000 gallons

#5 Fuel Oil, 17,060 gallons

#5 Fuel Oil, 17,060 gallons

#5 Fuel Oil, 15,000 gallons

#5 Fuel Oil, 15,000 gallons

#5 Fuel Oil, 15,000 gallons

Gasoline, 500 gallons

Kerosene, 1,000 gallons

Road Oil, 18,530 gallons

Unleaded Gasoline, 12,000 gallons

Unleaded Gasoline, 12,000 gallons

#2 Fuel Oil, 12,000 gallons

#5 Fuel Oil, 15,000 gallons

#5 Fuel Oil, 15,000 gallons

1. Limitation or Standard

Opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-650(a)(3)]

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Monitoring" section.

Recordkeeping and Reporting

Due to potentially very low or nonexistent emissions, no recordkeeping is required.

**I. The following emission sources are subject to the requirement listed below:**

IA-GEN511/SV-GEN511	Emergency Electrical Generator, 15kw, Diesel-fired
IA-GEN813/SV-GEN813	Emergency Electrical Generator, 75kw, Diesel-fired

**1. Limitation or Standard**

Opacity shall not exceed 40 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-650(a)(2)]

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Monitoring" section.

Recordkeeping and Reporting

The owner or operator shall maintain records to show compliance with U.S. EPA emergency generator policy dated September 6, 1995 (Attachment E). These records shall be maintained onsite and available for inspection for the life of the permit.

**J. The following emission sources are subject to the requirement listed below:**

IA-GEN52/SV-GEN52	Emergency Electrical Generator, 30kw, Diesel-fired
IA-GEN101/SV-GEN101	Emergency Electrical Generator, 250kw, Diesel-fired
IA-GEN107/SV-GEN107	Emergency Electrical Generator, 160kw, Diesel-fired
IA-GEN112/SV-GEN112	Emergency Electrical Generator, 25kw, Gas-fired
IA-GEN202/SV-GEN202	Emergency Electrical Generator, 15kw, Propane-fired
IA-GEN314/SV-GEN314	Emergency Electrical Generator, 75kw, Diesel-fired

IA-GEN315/SV-GEN315	Emergency Electrical Generator, 150kw, Diesel-fired
IA-GEN750/SV-GEN750	Emergency Electrical Generator, 125kw, Diesel-fired
IA-GEN1002/SV-GEN1002	Emergency Electrical Generator, 75kw, Gas-fired
IA-GEN1006/SV-GEN1006	Emergency Electrical Generator, 75kw, Gas-fired
IA-GEN1017/SV-GEN1017	Emergency Electrical Generator, 75kw, Diesel-fired
IA-GEN1105A/SV-GEN1105A	Emergency Electrical Generator, 25kw, Diesel-fired
IA-GEN1105B/SV-GEN1105B	Emergency Electrical Generator, 60kw, Diesel-fired
IA-GEN1109/SV-GEN1109	Emergency Electrical Generator, 100kw, Gas-fired
IA-GEN1123/SV-GEN1123	Emergency Electrical Generator, 100kw, Diesel-fired
IA-GEN1127/SV-GEN1127	Emergency Electrical Generator, 100kw, Diesel-fired
IA-GEN3016/SV-GEN3016	Emergency Electrical Generator, 75kw, Diesel-fired
IA-GEN902/SV-GEN902	Emergency Electrical Generator, 75kw, Gas-fired
IA-GEN2106A/SV-GEN2106a	Emergency Electrical Generator, 45kw, Diesel-fired
IA-GEN2106B/SV-GEN2106b	Emergency Electrical Generator, 75kw, Gas-fired

1.

Limitation or Standard

Opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-650(a)(3)]

Monitoring

Due to potentially very low or nonexistent emissions, no monitoring is required at time of permit issuance. If the operation changes such that the visible emissions are no longer very low or non-existent, the owner or operator shall comply with the requirements stated in the "Opacity Monitoring" section.

Recordkeeping and Reporting

The owner or operator shall maintain records to show compliance with U.S. EPA emergency generator policy dated September 6, 1995 (Attachment C). These records shall be maintained onsite and available for inspection for the life of the permit.

**K. The following emission source is subject to the requirements listed below:**

EU-CWP2712/SV-CWP2712 /CE-CWP2712FF Contaminated Waste Processor  
&CE-CWP2712HX

1. Limitation or Standard

Opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-41(B)][Construction permit of May 15, 1981]

Monitoring

A qualitative opacity assessment shall be conducted at the frequency for which the facility qualifies pursuant to the "Opacity Monitoring" section. The initial frequency of observations is monthly but can change, pursuant to this section, if visible emissions are believed to exceed the limitation.

Recordkeeping and Reporting

A log shall be maintained noting the information required in the "Opacity Monitoring" section. The log will be updated prior to the end of the shift during which the assessment occurred.

2. Limitation or Standard

The control equipment shall be continuously operated while operating the emission units. [K.A.R. 28-19-501(d)(1)]

Monitoring

A written air pollution control equipment maintenance plan shall be developed, implemented, and maintained on-site within 180 days of permit issuance to assure proper operation of the air pollution control equipment. [K.A.R. 28-19-501(d)(2)]

Recordkeeping and Reporting

The owner or operator shall maintain a log showing the date of all routine or other maintenance or repairs of the control equipment, the action taken on such date, and any corrective action or preventative measures taken. [K.A.R. 28-19-501(d)(3)]



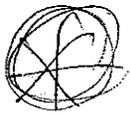
3. Limitations or Standards

- a. No material classified as hazardous waste, as defined by the federal Resource Conservation and Recovery Act, or hospital/medical/infectious waste, as defined by K.A.R. 28-19-729 et seq, shall be burned in the incinerator.
- b. The waste feed rate to the incinerator shall not exceed 8,000 pounds per hour contaminated metal parts or 600 pounds per hour mixed combustible waste unless compliance with the air emission limitations is successfully demonstrated at operated waste feed rate and/or change in composition.
- c. The incinerator is limited to 0.2 grains of particulate matter per standard dry cubic foot of exhaust gas, corrected to twelve percent (12%) carbon dioxide. [K.A.R. 28-19-41(A)(2)][Construction permit of May 15, 1981]
- d. Instructions for proper operation of the incinerator, including charging procedures, necessary air intake and damper adjustments, use of auxiliary burners, etc., shall be conspicuously posted and maintained at the incinerator location. [K.A.R. 28-19-40(D)]

Monitoring

- a. A performance test shall be performed within 180 days of the effective date of this permit with the final test report due 45 days after the performance test. The performance test shall be performed in accordance with K.A.R. 28-19-42.
- b. Compliance with the emission limitation is based on operation of the incinerator during a successful performance test, not the rated capacity. Waste feed rate and the composition were monitored during the performance test. If the incinerator is operated in a manner which differs significantly from its operation during the performance test, such as an increase in the waste feed rate or change in the composition, another performance test may be required to show that the unit can meet the emission limitations under those operating conditions. Another performance test might be required 180 days after the exceedence has occurred.
- c. The facility must notify KDHE 30 days before any performance test is conducted.

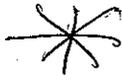
Recordkeeping and Reporting

- a. Records of the waste feed rate and type of waste fed shall be maintained for the periods of time whenever the incinerator is operating. These records shall be kept on-site for at least five years from the date of record. 
- b. The facility must notify KDHE in writing of any permit exceedence. The notification shall be mailed or delivered the first workday following discovery of the exceedence. 

**L. The following emission source is subject to the requirements listed below:**

EU-EW12702/SV-EW2702 /CE-EW12702AB Explosive Waste Incinerator  
&CE-EW12702HX&CE-EW12702CY&CE-EW12702BH

**1. Limitation or Standard**

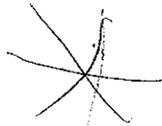
- a. Opacity shall not exceed 20 percent except as provided at K.A.R. 28-19-11. [K.A.R. 28-19-41(B)][Construction permit of Feb. 7, 1986]
- b. The waste feed rate to the incinerator shall not exceed 40 pounds of waste per hour unless compliance with the air emission limitations is successfully demonstrated at operated waste feed rate and/or change in composition.
- c. Instructions for proper operation of the incinerator, including charging procedures, necessary air intake and damper adjustments, use of auxiliary burners, etc., shall be conspicuously posted and maintained at the incinerator location. [K.A.R. 28-19-40(D)] 

Compliance with 40 CFR 63 Subpart EEE shall constitute compliance with K.A.R. 28-19-41(A)(2).

Monitoring

A qualitative opacity assessment shall be conducted at the frequency for which the facility qualifies pursuant to the "Opacity Monitoring" section. The initial frequency of observations is monthly but can change, pursuant to this section, if visible emissions are believed to exceed the limitation. 

Recordkeeping and Reporting

A log shall be maintained noting the information required in the "Opacity Monitoring" section. The log will be updated prior to the end of the shift during which the assessment occurred. 

2. Limitation or Standard

The control equipment shall be continuously operated while operating the emission units. [K.A.R. 28-19-501(d)(1)]

Monitoring

A written air pollution control equipment maintenance plan shall be developed, implemented, and maintained on-site within 180 days of permit issuance to assure proper operation of the air pollution control equipment. [K.A.R. 28-19-501(d)(2)]

Recordkeeping and Reporting

The owner or operator shall maintain a log showing the date of all routine or other maintenance or repairs of the control equipment, the action taken on such date, and any corrective action or preventative measures taken. [K.A.R. 28-19-501(d)(3)]

3. Limitation or Standard

Subpart EEE - National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors.

The owner or operator shall comply with the applicable section of 40 CFR Part 63, Subpart A (Attachment C) as identified in Table 1 to Subpart EEE of 40 CFR Part 63. (Attachment D)

Description

Kansas Army Ammunition Plant operates an explosive waste incinerator (EWI) that is subject to 40 CFR Part 63, Subpart EEE. At the present time, the incinerator has been physically disabled and is not in operation. The projected EWI startup is in year 2007. The EWI will be in idling mode until that time. The idling plan for the EWI was submitted by the facility on October 29, 2001. The "Trial Burn/MACT Requirements" timeline is attached for future reference.

Performance Testing

Prior to the startup of the incinerator, the facility will be required to prepare and submit a comprehensive performance test (CPT) plan to KDHE at least one year prior to the test date per 40 CFR 63.1207(e)(i). In accordance with 40 CFR 63.7(a), the facility shall start the initial performance test within 180 days after the startup if the facility is not in operation on the compliance date of the MACT.

The facility shall include all the contents for the performance test plan in accordance with 40 CFR 63.1207(f). The facility shall initially comply with the MACT standards by not burning hazardous waste in the incinerator. Hazardous waste shall not be placed in the EWI prior to a successful performance test except for the purposes of pretesting or performance testing per 40 CFR 63.1206(b)(5)(i)(C) for more than a total of 720 hours (renewable at the discretion of KDHE).

Record Keeping Requirements

- a. The facility shall develop and include in the operating record a Documentation of Compliance (DOC) prior to startup per 40 CFR 63.1211(c).
- b. Within 90 days of completion of a comprehensive performance test, the facility shall submit a Notification of Compliance (NOC) documenting compliance or noncompliance with the emission standards and continuous monitoring system requirements, and identifying operating parameter limits under 40 CFR 63.1209 in accordance with 40 CFR 63.1207(j). The operating parameter limits established during the CPT and included in the NOC shall be incorporated into the Title V permit under a modification of the permit.

Since there are qualitative assessments and/or Method 9 evaluations or any other reporting requirements required in the Applicable Requirements Section of this permit, the facility is required to submit a semi-annual report every six months. Refer to the Testing, Monitoring, Record Keeping and Reporting Section of this permit for the submittal dates of these reports.

Opacity Summary

Stack / Vent ID No.	Emission Source ID No.	Emission Source Opacity Requirement
NA	IA-TANK52	20% <sup>1</sup>
NA	IA-TANK80	40% <sup>1</sup>
NA	IA-TANK101A	20% <sup>1</sup>
NA	IA-TANK101B	20% <sup>1</sup>
NA	IA-TANK107	20% <sup>1</sup>

<sup>1</sup> Presumed to be in compliance.

<b>Stack / Vent ID No.</b>	<b>Emission Source ID No.</b>	<b>Emission Source Opacity Requirement</b>
NA	IA-TANK201	40% <sup>1</sup>
NA	IA-TANK209	20% <sup>1</sup>
NA	IA-TANK221	40% <sup>1</sup>
NA	IA-TANK244	40% <sup>1</sup>
NA	IA-TANK314A	20% <sup>1</sup>
NA	IA-TANK315	20% <sup>1</sup>
NA	IA-TANK509A	20% <sup>1</sup>
NA	IA-TANK750A	20% <sup>1</sup>
NA	IA-TANK813A	20% <sup>1</sup>
NA	IA-TANK902	20% <sup>1</sup>
NA	IA-TANK1002B	20% <sup>1</sup>
NA	IA-TANK1020	20% <sup>1</sup>
NA	IA-TANK1105A	20% <sup>1</sup>
NA	IA-TANK1207	20% <sup>1</sup>
NA	IA-TANK2106	20% <sup>1</sup>
NA	IA-TANK2712	20% <sup>1</sup>
NA	IA-TANK3005A	40% <sup>1</sup>
NA	IA-TANK204	20% <sup>1</sup>
NA	IA-TANK258	40% <sup>1</sup>
NA	IA-TANK259	40% <sup>1</sup>
NA	IA-TANK261	40% <sup>1</sup>
NA	IA-TANK264	20% <sup>1</sup>
NA	IA-TANK1228	40% <sup>1</sup>
NA	IA-TANK1229	40% <sup>1</sup>
NA	IA-TANK1230	40% <sup>1</sup>
NA	IA-TANK3025	40% <sup>1</sup>

Stack / Vent ID No.	Emission Source ID No.	Emission Source Opacity Requirement
NA	IA-TANK3026	40% <sup>1</sup>
NA	IA-TANK3027	40% <sup>1</sup>
NA	IA-TANK3028	40% <sup>1</sup>
NA	IA-TANK3029	40% <sup>1</sup>
NA	IA-TANK3030	40% <sup>1</sup>
NA	IA-TANK3031	40% <sup>1</sup>
NA	IA-TANK3037	40% <sup>1</sup>
NA	IA-TANK3021	40% <sup>1</sup>
NA	IA-TANK3022	40% <sup>1</sup>
NA	IA-TANK3024	40% <sup>1</sup>
NA	IA-TANK808	40% <sup>1</sup>
NA	IA-TANK1141	40% <sup>1</sup>
SV-GEN52	IA-GEN52	20% <sup>1</sup>
SV-GEN101	IA-GEN101	20% <sup>1</sup>
SV-GEN107	IA-GEN107	20% <sup>1</sup>
SV-GEN112	IA-GEN112	20% <sup>1</sup>
SV-GEN202	IA-GEN202	20% <sup>1</sup>
SV-GEN314	IA-GEN314	20% <sup>1</sup>
SV-GEN315	IA-GEN315	20% <sup>1</sup>
SV-GEN511	IA-GEN511	40% <sup>1</sup>
SV-GEN750	IA-GEN750	20% <sup>1</sup>
SV-GEN813	IA-GEN813	20% <sup>1</sup>
SV-GEN1002	IA-GEN1002	20% <sup>1</sup>
SV-GEN1006	IA-GEN1006	20% <sup>1</sup>
SV-GEN1017	IA-GEN1017	20% <sup>1</sup>
SV-GEN1105A	IA-GEN1105A	20% <sup>1</sup>

Stack / Vent ID No.	Emission Source ID No.	Emission Source Opacity Requirement
SV-GEN1105B	IA-GEN1105B	20% <sup>1</sup>
SV-GEN1109	IA-GEN1109	20% <sup>1</sup>
SV-GEN1123	IA-GEN1123	20% <sup>1</sup>
SV-GEN1127	IA-GEN1127	20% <sup>1</sup>
SV-GEN3016	IA-GEN3016	20% <sup>1</sup>
SV-GEN902	IA-GEN902	20% <sup>1</sup>
SV-GEN2106a	IA-GEN2106A	20% <sup>1</sup>
SV-GEN2106b	IA-GEN2106B	20% <sup>1</sup>
SV-HOTWATER107	IA-HOTWATER107	20% <sup>1</sup>
SV-HEAT60	IA-HEAT60	20% <sup>1</sup>
SV-HEAT80	IA-HEAT80	20% <sup>1</sup>
SV-HEAT201	IA-HEAT201	20% <sup>1</sup>
SV-HEAT1020	IA-HEAT1020	20% <sup>1</sup>
SV-HEAT511	IA-HEAT511	40% <sup>1</sup>
SV-HEAT2000	IA-HEAT2000	20% <sup>1</sup>
SV-HEAT202	IA-HEAT202	20% <sup>1</sup>
SV-HEAT203	IA-HEAT203	20% <sup>1</sup>
SV-HEAT208	IA-HEAT208	20% <sup>1</sup>
SV-HEAT57	IA-HEAT57	20% <sup>1</sup>
SV-HEAT112	IA-HEAT112	20% <sup>1</sup>
SV-HEAT2203	IA-HEAT2203	20% <sup>1</sup>
SV-HEAT2704	IA-HEAT2704	20% <sup>1</sup>
SV-PB247	IA-PNT247	20% <sup>1</sup>
SV-LAUNDRY	IA-LAUNDRY	20% <sup>1</sup>
NA	IA-INDUSTRENG	20% <sup>1</sup>
NA	IA-PORTHEATER	20% <sup>1</sup>

Stack / Vent ID No.	Emission Source ID No.	Emission Source Opacity Requirement
NA	TK-53	20% <sup>1</sup>
NA	TK-58	20% <sup>1</sup>
NA	TK-60	20% <sup>1</sup>
NA	TK-230A	20% <sup>1</sup>
NA	TK-230B	20% <sup>1</sup>
NA	TK-1002A	20% <sup>1</sup>
NA	TK-2203	20% <sup>1</sup>
NA	TK-2702	20% <sup>1</sup>
NA	TK-314B	20% <sup>1</sup>
NA	TK-509B	20% <sup>1</sup>
NA	TK-750B	20% <sup>1</sup>
NA	TK-750C	20% <sup>1</sup>
NA	TK-813B	20% <sup>1</sup>
NA	TK-1105B	20% <sup>1</sup>
NA	TK-1105C	20% <sup>1</sup>
NA	TK-1205A	40% <sup>1</sup>
NA	TK-1205B	40% <sup>1</sup>
NA	TK-1205C	40% <sup>1</sup>
NA	TK-3005B	40% <sup>1</sup>
NA	TK-2105A	20% <sup>1</sup>
NA	TK-264	20% <sup>1</sup>
NA	TK-243	20% <sup>1</sup>
NA	TK-202A	20% <sup>1</sup>
NA	TK-202B	20% <sup>1</sup>
NA	TK-202C	20% <sup>1</sup>
NA	TK-902A	20% <sup>1</sup>

Stack / Vent ID No.	Emission Source ID No.	Emission Source Opacity Requirement
NA	TK-902B	20% <sup>1</sup>
SV-BLR52	EU-BLR52	20% <sup>1</sup>
SV-BLR53	EU-BLR53	20% <sup>1</sup>
SV-BLR58	EU-BLR58	20% <sup>1</sup>
SV-BLR112	EU-BLR112	20% <sup>1</sup>
SV-BLR314A	EU-BLR314A	20% <sup>2</sup>
SV-BLR314B	EU-BLR314B	20% <sup>2</sup>
SV-BLR509	EU-BLR509	20%
SV-BLR750A	EU-BLR750A	20%
SV-BLR750B	EU-BLR750B	20%
SV-BLR750C	EU-BLR750C	20%
SV-BLR808	EU-BLR808	40% <sup>1</sup>
SV-BLR902A	EU-BLR902A	40%
SV-BLR902B	EU-BLR902B	40%
SV-BLR902C	EU-BLR902C	40%
SV-BLR924	EU-BLR924	40% <sup>1</sup>
SV-BLR1002A	EU-BLR1002A	20%
SV-BLR1002B	EU-BLR1002B	20%
SV-BLR1002C	EU-BLR1002C	20%
SV-BLR1105A	EU-BLR1105A	20%
SV-BLR1105B	EU-BLR1105B	20%
SV-BLR1105E	EU-BLR1105E	20%
SV-BLR1105F	EU-BLR1105F	20%
SV-BLR1123	EU-BLR1123	20% <sup>1</sup>

<sup>2</sup>Presumed in compliance when burns #2 fuel oil.

Stack / Vent ID No.	Emission Source ID No.	Emission Source Opacity Requirement
SV-BLR1207A	EU-BLR1207A	20% <sup>1</sup>
SV-BLR1207B	EU-BLR1207B	20% <sup>1</sup>
SV-BLR1414A	EU-BLR1414	40% <sup>1</sup>
SV-BLR2106	EU-BLR2106	20% <sup>1</sup>
SV-BLR2203	EU-BLR2203	40% <sup>1</sup>
SV-BLR1020	EU-BLR1020	20% <sup>1</sup>
SV-HOTWTR101	EU-HOTWTR101	20% <sup>1</sup>
SV-CWP2712	EU-CWP2712	20%
SV-EW2702	EU-EW12702	20%

**Facility Wide Applicable Requirements**

The permittee shall comply with the following when required by the relevant regulations:

**K.A.R. 28-19-30 through K.A.R. 28-19-32. Emission Limitations (Indirect Heating Equipment):**

The permittee shall comply with the requirements of K.A.R. 28-19-30 through 28-19-32. These regulations apply to installations in which fuel is burned for the primary purpose of producing steam, hot water, or hot air, or other indirect heating of liquids, gases, or solids and, in the course of doing so, the products of combustion do not come into contact with process materials.

**K.A.R. 28-19-55 through K.A.R. 28-19-58. Emergency Episode Plans**

The permittee shall comply with the requirements of K.A.R. 28-19-55 through 28-19-58, Emergency Episode Plans, and shall maintain on site an emergency episode plan if KDHE requires an emergency episode plan be developed pursuant to K.A.R. 28-19-58.

**K.A.R. 28-19-202. Annual Fee Payment**

The owner or operator of a permitted emissions unit or stationary source is required to pay fees to the permitting authority consistent with the fee schedule set out in the regulations pursuant to K.A.R. 28-19-202.

K.A.R. 28-19-210. Calculation of Actual Emissions

The following applies to emission control equipment not otherwise addressed in this permit:

If the owner or operator uses air emission control equipment, not otherwise addressed in this permit, to calculate actual emissions, the air emission control equipment shall be maintained in accordance with the manufacturer's recommendation. The owner or operator shall keep a written log recording the date and type of action taken when performing preventive or other maintenance on the air emission control equipment.

K.A.R. 28-19-517. Annual Emission Inventory

The owner or operator shall submit all operating or relevant information to estimate emissions for the preceding year to KDHE. This information shall be submitted before June 1 of each year and shall be submitted on forms provided or approved by KDHE.

K.A.R. 28-19-645. Open Burning

The permittee is prohibited from conducting open burning, except as allowed by K.A.R. 28-19-647 and K.A.R. 28-19-648.

K.A.R. 28-19-735 which adopted by reference 40 CFR Part 61, Subpart A and 40 CFR 61. Subpart M

The permittee shall comply with the National Emission Standard for Hazardous Air Pollutants (NESHAP) 40 CFR Part 61, Subpart A, General Provisions and Subpart M, National Emission Standard for Asbestos, adopted by K.A.R. 28-19-735, and K.A.R. 28-50-1 et seq. when conducting any renovation or demolition activities at the facility.

40 CFR Part 68. Chemical Accident Prevention Provisions

Chemical Accident Prevention Provisions, 40 CFR Part 68, is applicable to an owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined in 40 CFR 68.115.

If the stationary source is subject to 40 CFR Part 68, but is not required to comply with those requirements as of the effective date of this operating permit, the stationary source shall be in compliance with the requirements of 40 CFR Part 68 no later than the latest of the following dates:

- a. Three years after the date on which a regulated substance is first listed in 40 CFR 68.130; or
- b. The date on which a regulated substance is first present above a threshold quantity in a process.

## 40 CFR Part 82, Protection of Stratospheric Ozone

The permittee shall comply with 40 CFR Part 82, Protection of Stratospheric Ozone. Affected controlled substances include, but are not limited to, chlorofluorocarbons, hydrochlorofluorocarbon refrigerants, halons, carbon tetrachloride, and methyl chloroform (specific affected controlled substances are listed in 40 CFR Part 82, Subpart A, appendices A {Class I} and B {Class II}).

The following subparts and sections of 40 CFR Part 82 are conditions of this permit:

- Subpart A - Production and Consumption Controls
- Subpart B - Servicing of Motor Vehicle Air Conditioners
- Subpart E - Labeling of Products Using Ozone-Depleting Substances: Section; 82.106  
Warning statement requirements, 82.108 Placement of warning statement, 82.110  
Form of label bearing warning statement, and 82.112 Removal of label bearing  
warning statement
- Subpart F - Recycling and Emissions Reduction: Sections; 82.156 Required practices, 82.158  
Standards for recycling and recovery equipment, 82.161 Technician certification,  
and 82.166 Reporting and recordkeeping requirements
- Subpart G - Significant New Alternatives Policy Program

### Opacity Monitoring

Facilities are required to perform qualitative opacity assessments as identified in the Applicable Requirements section of this permit. Qualitative opacity assessments will be conducted for processes or other operations which are subject to an opacity standard and which are operating.

The person responsible for making qualitative opacity assessments must be knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water.

The records kept of qualitative opacity assessments shall include the time and date assessment occurred, whether emissions appeared normal, a description of the emission point from which any unusual emissions emanated, steps taken to correct any abnormal emissions and the name of the person conducting the assessment plus information required under the Testing, Monitoring, Recordkeeping, and Reporting section of this permit.

1. For each emission point, qualitative opacity assessments shall occur at least once per calendar month except as described below, with at least one week between qualifying readings. For each emission point from which visible emissions are observed during normal operations which appear to exceed the relevant standard, observations shall occur at the frequency specified in paragraph 2 below.

2. For each emission point from which visible emissions appear to have exceeded the relevant standard during normal operations, qualitative opacity assessments must occur at least once each day for a period of ten consecutive operating days. The ten day period shall commence the first operating day after the perceived exceedance occurs. If an exceedance appears to occur during the ten consecutive day assessment period, a new ten consecutive assessment day period shall commence. After a ten operating day assessment period has been completed without an exceedance appearing to have been observed, assessments shall occur at the frequency specified in paragraph 1.

Perceived exceedances of opacity standards in paragraphs one and two are not considered to be deviations subject to reporting in accordance with the Reporting of Deviations from Permit Terms portion of this permit.

Some emission points subject to opacity requirements may be identified as not requiring monitoring due to "potentially very low or nonexistent visible emissions". Heaters burning refinery gas at refineries, degreasing operations, painting operations which filter particulate emissions, non-heat set printing operations, other non-heat set evaporative VOC sources, petroleum product storage tanks, glycol dehydrators and sources which are vented inside a building which is usually occupied may be presumed to be in compliance with any opacity limit of 20% or greater. Burners in indirect heating applications, space heaters, turbines, internal combustion engines or boilers may be presumed to be in compliance with any opacity limit of 20% or greater when burning natural gas or propane/LPG. Opacity increases as particulate content of emissions increase. The particulate content of emissions from burning natural gas or propane/LPG is small and the particulate content of emissions from the evaporation of volatile organic compounds is zero. Particulate emissions inside an occupied building must be small to protect the health of the occupants. The possibility of emissions from these types of sources exceeding an opacity of 20% is therefore "potentially very low or nonexistent".

If an operation in one of the above categories changes such that visible emissions are no longer "very low or nonexistent," the owner or operator shall apply for the appropriate permit or approval in accordance with K.A.R. 28-19-300 and commence appropriate qualitative opacity assessments pursuant to the above schedule. If a permit or approval is not required by K.A.R. 28-19-300 the owner or operator shall notify KDHE within thirty days of the change in operations and commence appropriate qualitative opacity assessments pursuant to the above schedule.

#### **Requirements Which Will Become Applicable During the Permit Term**

The owner or operator, in accordance with the provisions of K.A.R. 28-19-511(b)(16)(C)(ii) and K.A.R. 28-19-512(a)(23) shall comply in a timely manner with those applicable requirements that become effective during the permit term, unless a detailed schedule is expressly required by the applicable requirements.

### **Permit Shield**

Compliance with the conditions of this permit shall be deemed in compliance with the applicable requirements of the Kansas air quality program as of the date of permit issuance. This shield applies only to:

- a. applicable requirements included, and specifically identified in the permit;
- b. applicable requirements that KDHE has specifically identified in writing as not being applicable to the emissions unit or stationary sources and the determination or a concise summary thereof is included in the permit.

Nothing in this permit shall alter or affect:

- a. the liability of a permittee for any violation of an applicable requirement occurring prior to or at the time of issuance of this permit;
- b. U.S. EPA's ability to obtain information under Section 114 of the Clean Air Act; or
- c. the provisions of Section 303, Emergency orders, of the Clean Air Act, including the authority of the administrator of the U.S. EPA under that section of the air pollution emergency provisions of the Kansas air quality program regulations, K.A.R. 28-19-55 through 28-19-58.
- d. the applicable requirements of the acid rain program, consistent with section 408(a) of the Act.

### **Testing, Monitoring, Recordkeeping, & Reporting**

Testing, monitoring, recordkeeping, and reporting requirements sufficient to assure compliance with the terms and conditions of the permit are required.

In addition to any testing, monitoring, recordkeeping, or reporting requirement contained in the "Applicable Requirements" sections of this permit, monitoring and reporting may be required under the provisions of K.A.R. 28-19-12, "Measurement of Emissions," or as required by any other provision of the federal Clean Air Act.

Records to support all monitoring and copies of all reports required by the permit must be maintained for a period of at least five years from the date of the activity. Summary reports of any routine, continuous or periodic monitoring must be submitted at six-month intervals, commencing 30 days after the six month anniversary of permit issuance and 30 days after each subsequent six month period for the duration of the permit. All instances of deviations from permit requirements, including perceived opacity exceedances, shall be clearly identified in the report.

Submission of quarterly or semi-annual reports required by any applicable requirement which duplicate the reporting required in the previous paragraph will satisfy the reporting requirements of the previous paragraph if noted on the submitted report.

Records of required monitoring shall include:

- a. the date, place, and time of sampling or measurement;
- b. the date or dates analyses were performed;
- c. the company or entity which performed the analyses;
- d. the analytical techniques or methods used;
- e. the result of the analyses; and
- f. the operating conditions that existed at the time of sampling or measurement.

### **Reporting of Deviations from Permit Terms**

Unless a different time period is specified in this permit, deviations from the requirements of this permit shall be reported to the KDHE as follows:

- a. Deviations which result in emissions exceeding those allowed in this permit shall be reported the next business day following the discovery of the release, with follow-up written notice within five business days following discovery of the release. The report shall include the probable cause of such deviations, and any corrective actions or preventative measures taken.
- b. Deviations which do not result in emissions exceeding those allowed in this permit shall be reported in writing within 10 business days following discovery of the deviation.

Oral notifications may be made to the air program field staff of the KDHE Southeast District Office in Chanute or to the KDHE central office in Topeka. Written notifications shall be made to the KDHE central office with a copy to the KDHE Southeast District Office.

### **General Provisions**

#### **1. K.A.R. 28-19-11: Exceptions Due to Breakdowns or Scheduled Maintenance**

- a. Abnormal operating conditions resulting from malfunction breakdown, or necessary repairs to control or processing equipment and appurtenances which cause emissions in excess of the limitations specified in K.A.R. 28-19-30 through K.A.R. 28-19-32, K.A.R. 28-19-501(d), and K.A.R. 28-19-650 shall not be deemed violations provided that:
  - i. The person responsible for the operation of the emission source notifies the department of the occurrence and nature of such malfunctions, breakdown, or repairs, in writing, within ten days of noted occurrence.
  - ii. The number of occurrences of such breakdowns is not deemed excessive by the department and appropriate reasonable action is taken to initiate and complete any necessary repairs and place the equipment back in operation as quickly as possible.

b. Emissions in excess of the limitations specified in K.A.R. 28-19-30 through K.A.R. 28-19-32, K.A.R. 28-19-501(d), and K.A.R. 28-19-650 resulting from scheduled maintenance of control equipment and appurtenances will be permitted only on the basis of prior approval by the department and upon demonstration that such maintenance cannot be accomplished by maximum reasonable effort, including off-shift labor where required, during periods of shutdown of any related equipment. 

2. K.A.R. 28-19-752a: Hazardous Air Pollutants; Limitations Applicable to Construction of New Major Sources or Reconstruction of Existing Major Sources

This regulation shall continue in effect for an emissions unit or stationary source until a standard has been promulgated which is applicable to such source pursuant to Section 112(d) of the federal Clean Air Act.

This regulation shall apply whenever construction of a new major source or reconstruction of an existing major source of hazardous air pollutants is proposed.

3. K.A.R. 28-19-753: Hazardous Air Pollutants; Limitations Applicable to Sources for Which the U.S. EPA Fails to Meet Certain Deadlines

This regulation shall be applicable to a source only if the U.S. EPA fails to promulgate an emission standard for the subcategory applicable to the source within the time frame scheduled by the U.S. EPA at the most recent revision of 58 Federal Register 63941.

The Federal 112(j) rule (promulgated on May 20, 1999) has been amended. A direct final rule, published in Federal Register on April 16, 1999, delays the permit application deadline for 7-year source categories listed in the regulatory schedule until December 15, 1999. The previous deadline was May 15, 1999 which was 18 months after the original November 15, 1997 promulgation date for 7-year MACTs.

The deadline for the 10-year MACTs was May 15, 2002, which was 18 months after the original November 15, 2000 promulgation date for 10-year MACTs.

An amendment to the Federal 112(j) rule was published in the Federal Register on April 5, 2002. The amendment created a two-part permit application/revision process for all existing major Hazardous Air Pollutant (HAP) sources in source categories for which the EPA failed to promulgate MACT standards by the established deadline of May 15, 2002.

Another amendment to the Federal 112(j) rule was published in the Federal Register on May 30, 2003. This rule amendment established a new schedule with a specific deadline for submittal of all Part 2 applications for all effected sources in a given category or subcategory. These deadlines are now 60 days after each respective scheduled promulgation date. Table 1 to Subpart B of Part 63, in the new amendments, lists all of the 112(j) Part 2 application due dates.

4. Permit Term and Renewal

This permit has a term of five years unless otherwise stated in this permit. A complete application, as defined in K.A.R. 28-19-518, and any applicable fee, must be submitted to KDHE not less than six months and not more than 18 months prior to the expiration date. July 26, 2008 This operating permit shall not expire on the expiration date if a complete and timely application has been filed with the KDHE.

5. Severability

The provisions of this permit are severable, and if any portion of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstance, and the remainder of this permit, shall not be affected thereby.

6. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

7. Compliance

The owner or operator shall comply with all conditions of the permit and shall continue to comply with applicable requirements with which the owner or operator is in compliance. Any permit noncompliance shall constitute a violation of the Kansas Air Quality Act and shall be grounds for enforcement action, for permit revocation or amendment, or for denial of a permit renewal application. All permit terms and conditions are federally enforceable.

It shall not be a defense for a permittee in an enforcement action to contend that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

This permit may contain provisions which require that specific test methods, monitoring, or record keeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51.212; 40 CFR Part 52, Sec.52.12; 40 CFR Part 52, Sec 52.30; 40 CFR Part 60, Sec 60.11 and 40 CFR Part 61, Sec 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, the State of Kansas has incorporated these provisions in its air quality regulations K.A.R. 28-19-212 (d), K.A.R. 28-19-350, K.A.R. 28-19-720 and K.A.R. 28-19-735.

8. Compliance Certification

The permittee shall annually submit to the Air Operating Permit and Compliance Section of the KDHE, and a copy to the Air Permitting and Compliance Branch of the U.S. EPA, Region 7, a certification of compliance (Form CR-02, "Annual Certification.") The due date of the certification is February 27 of each year, beginning February 27, 2005 for the period January 28, 2004 through January 27, 2005.



The certification shall include the permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the method or methods used for determining the compliance, currently and over the reporting period; and such other facts as KDHE may require to determine the compliance status of the source. Any document required to be submitted in accordance with this permit shall be certified by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete.

9. Emergency

- a. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.
- b. An emergency shall constitute an affirmative defense to an action brought for noncompliance with such technology-based emission limitation if the conditions of paragraph (c) below are met.
- c. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or relevant evidence that:
  - i. an emergency occurred and that the permittee can identify the cause or causes of the emergency;
  - ii. the permitted facility was at the time being properly operated;
  - iii. during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in the permit; and
  - iv. the permittee submitted notice of the emergency, containing a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken, to KDHE within two working days of the time when emission limitations were exceeded due to the emergency.
- d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof.
- e. These emergency provisions are in addition to any emergency or upset provisions contained in any applicable requirement. Whenever these emergency provisions conflict with the provisions of K.A.R. 28-19-11, these emergency provisions shall control.

10. Inspection and Entry

Upon presentation of credentials and other documents as may be required by law, representatives of KDHE, including authorized contractors of KDHE, shall be allowed by the permittee to:

- a. enter upon the premises where a regulated facility or activity is located or conducted and where records are kept under conditions of this document;
- b. have access to and copies of, at reasonable times, any records that must be kept under conditions of this document;
- c. inspect at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this document; and
- d. as authorized by the Kansas Air Quality Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

11. Permit Amendment, Modification, Reopening, and Changes Not Requiring a Permit Action

- a. The permit may be modified, revoked, reopened, reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation, reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- b. The permitting authority will reopen and revise or revoke this permit as necessary to remedy deficiencies in the following circumstances:
  - i. Additional requirements under the Clean Air Act become applicable to the source three or more years prior to the expiration date of this permit. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
  - ii. KDHE determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.
  - iii. KDHE determines that it is necessary to revise or revoke this permit in order to assure compliance with applicable requirements.
- c. This document is subject to periodic review and amending as deemed necessary to fulfill the intent and purpose of the Kansas Air Quality Statutes and the Kansas Air Quality Regulations.
- d. No permit revision shall be required under any approved economic incentives, pollution prevention incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit.

12. Duty to Provide Information

Unless a different time frame is specified in this permit, the permittee shall furnish to the KDHE any information that the KDHE may request in writing within 60 days of the request, unless the KDHE specifies another time period. Submittal of confidential business information must be in accordance with KDHE procedures.

13. Duty to Supplement

The permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in any submittal, shall promptly submit such supplementary facts or corrected information.

14. Other Permits and Approvals: Applicability

- a. A construction permit or approval must be obtained from KDHE prior to commencing any construction or modification of equipment or processes which results in potential emission increases equal to or greater than the thresholds specified at K.A.R. 28-19-300.
- b. This document does not relieve the permittee of the obligation to obtain other approvals, permits, licenses, or documents of sanction which may be required by other federal, state, or local government agencies.

15. Submissions

All reports, notifications, information, and other correspondence concerning compliance issues (including the submission of the Annual Certification Form CR-02) shall be submitted to:

Air Construction/Operating Permits & Compliance Section  
Bureau of Air and Radiation  
Kansas Department of Health and Environment  
1000 SW Jackson, Suite 310  
Topeka, KS 66612-1366  
(785) 296-1570

A copy of each Annual Certification Form CR-02 shall be submitted to:

Kansas Compliance Officer  
Air Permitting and Compliance Branch  
U.S. EPA, Region 7  
901 North 5<sup>th</sup> Street  
Kansas City, KS 66101

Any documents required to be submitted in accordance with this permit shall be certified by a responsible official. This certification shall state that, based on the information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. This certification shall be submitted with original signatures.

When specified in the permit, contact the district office at:

KDHE Southeast District Office  
1500 West 7<sup>th</sup> Street  
Chanute, KS 66720-9701  
(620) 431-2390

All other correspondence concerning the permit itself shall be submitted to:

Air Construction/Operating Permits & Compliance Section  
Bureau of Air and Radiation  
Kansas Department of Health and Environment  
1000 SW Jackson, Suite 310  
Topeka, KS 66612-1366  
(785) 296-1570

**Permit Engineer**

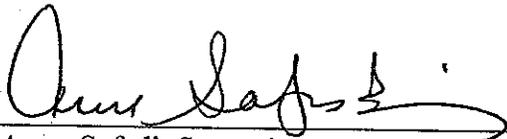


\_\_\_\_\_  
Xiao Wu  
Environmental Scientist  
Air Construction/Operating Permits & Compliance Section

1/28/04

\_\_\_\_\_  
Date Signed

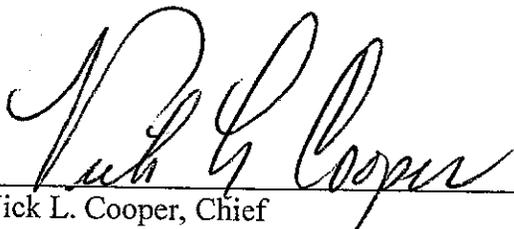
**Issued By**



\_\_\_\_\_  
Amer Safadi, Supervisor  
Air Construction/Operating Permits & Compliance Section  
Bureau of Air and Radiation

1/28/04

\_\_\_\_\_  
Date Signed



\_\_\_\_\_  
Vick L. Cooper, Chief  
Air Construction/Operating Permits & Compliance Section  
Bureau of Air and Radiation

1/28/04

\_\_\_\_\_  
Date Signed

XW:saw  
c: SEDO  
O-205

## **Attachment A**

### **List of Acronyms and Symbols**

## LIST OF ACRONYMS and SYMBOLS

<u>ACRONYM or SYMBOL</u>	<u>DESCRIPTION</u>
<	less than
>	greater than
acfm	actual cubic feet per minute
AP-42	U.S. EPA publication of emission factors
BACT	Best Available Control Technology
BAR	Bureau of Air and Radiation
Btu	British thermal unit
CAA	Federal Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAS	Chemical Abstract Service
CDE	Control Device Efficiency
CEM	Continuous Emission Monitor
CFC	Chlorofluorocarbon
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CMS	Continuous Monitoring System
CO	Carbon Monoxide
COM	Continuous Opacity Monitor
CTG	Control Techniques Guideline
dscf	dry standard cubic feet
dscm	dry standard cubic meters
EG	Emission Guideline
EPA	Environmental Protection Agency
EU	Emission Unit

<u>ACRONYM or SYMBOL</u>	<u>DESCRIPTION</u>
FGR	Flue Gas Recirculation
g	gram
GOP	General Operating Permit
gph	gallons per hour
gpm	gallons per minute
gr	grains
HAP	Hazardous Air Pollutant
HC	Hydrocarbon
HON	Hazardous Organic NESHAP
hp	horsepower
IA	Insignificant Activity
JCED	Johnson County Environmental Department
K.A.R.	Kansas Administrative Regulation
KDHE	Kansas Department of Health and Environment
K.S.A.	Kansas Statutes Annotated
KW	Kilo-watt
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MBtu	Thousand Btu
Mg	Megagrams
MMBtu	Million Btu
MON	Miscellaneous Organic NESHAP
MSDS	Material Safety Data Sheet
MWC	Municipal Waste Combustor
MWI	Medical Waste Incinerator
NAAQS	National Ambient Air Quality Standards
NCDO	North Central District Office

<u>ACRONYM or SYMBOL</u>	<u>DESCRIPTION</u>
NEDO	Northeast District Office
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	Non-Methane Organic Compound
NO <sub>x</sub>	Nitrogen Oxides
NSPS	New Source Performance Standard
NSR	New Source Review
NWDO	Northwest District Office
OAQPS	Office of Air Quality Planning and Standards
P2	Pollution Prevention
PAL	Plant wide Applicability Limitation
PM	Particulate Matter
PM <sub>10</sub>	PM with an aerodynamic diameter of less than or equal to 10 microns
PM <sub>2.5</sub>	PM with an aerodynamic diameter of less than or equal to 2.5 microns
PCD	Pollution Control Device
ppmv	parts per million, volumetric basis
ppmw	parts per million, weight basis
PSD	Prevention of Significant Deterioration
psia	pounds per square inch, absolute
psig	pounds per square inch, gage
PTE	Potential-to-Emit
QA/QC plan	Quality Assurance/Quality Control plan
RACT	Reasonable Available Control Technology
RMP	Risk Management Plan
SCDO	South Central District Office
SCHA	Shawnee County Health Agency
SEDO	Southeast District Office

<u>ACRONYM or SYMBOL</u>	<u>DESCRIPTION</u>
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SOx	Oxides of Sulfur
SOCMI	Synthetic Organic Chemical Manufacturing Industry
SWDO	Southwest District Office
TOC	Total Organic Carbon
tph	tons per hour
tpy	tons per year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate
VOC	Volatile Organic Compound
VOL	Volatile Organic Liquid
WYCO-KCK	Unified Government of Wyandotte County-Kansas City, Kansas Health Department
WDEH	Wichita Department of Environmental Health



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Steve Belt  
Interviewer: J. Hopkins  
Interview Start time: 1015

Job Title: OE/OD Superintendent  
Interview Date: 6-12-06  
Interview Finish Time: 1035

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
OE/OD Range
- 

### Site Information

2. Describe the history of the site?  
Various methods of detonation have been used at facility. Tree line between compound fence and perimeter fence has grown in past 20-25 years, prior to that, the area was kept clear and mowed.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

N/A

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

OE is tested at range at two separate test areas.

---



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6. How were hazardous materials used at the site disposed of?

N/A

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

N/A

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

N/A

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

N/A

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

N/A

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Area has two active detonation/testing ranges.

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

N/A

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

N/A

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:  
No building/facility demos

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:  
The detonation pits are used to destroy several types of munitions. The area is currently active.

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:  
N/A

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:  
N/A

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:  
It is likely that frag and other mec items including UXO have been dispersed over the compound fence but within the property boundary fence.

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Ray Collier/Drew Robertson  
Interviewer: Kevin Wunder/Craig Johnson  
Interview Start time: 1015

Job Titles: Line Super./Demo. Tech.  
Interview Date: 6/7/06  
Interview Finish Time: 1300

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Drew Robertson is a Demolition Technician for DZI.

Ray Collier is Line Supervisor for DZI.

### Site Information

2. Describe the history of the site?

Load Line (1000 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

X-ray machine.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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---

6. How were hazardous materials used at the site disposed of?  
Drummed and moved to hazardous waste storage.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes     No     Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

Minor spills.

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Sump failure – soil removed.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Munitions testing being completed.

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

Sumps, pink water treatment.

---

16. If wastewater was generated at the site, where/how was it treated?

Pink water treatment plant.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes      No      Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer, Jim Mayer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

Area 1000 Load Line – No buildings have been deconned at this line. Used for munitions assembly. Explosive material arrives in palletized boxes. Mr. Collier indicated that an explosion occurred in 1996 at Area 1100 – not aware of any explosions events at 1000. A subsurface concrete trough surrounds buildings and used to carry surface water away from building. Concrete is cracked and in poor condition in some areas. Mr. Collier reported that when line was reactivated, steam line coverings were replaced (~2 years ago). Asbestos free tags observed. Process water treated through Pink Water treatment system.

- Building 1003 – Administration, inert storage – munitions storage prior to conditioning, battery shop, and pipe shop. Observed off-loading of empty munitions casings from rail cars.
- Building 1004 – Historically used for storage, plant is going to convert it to an electrical shop.
- Building 1005 – used to bring empty munitions casings up to temperature and cleaning using hot water. Clean casings using steam. Cosmoline and water goes to sump and drummed.

- Hallway between 1005 and 1006 leading to Change House.
- Building 1006 – Melt-pour and explosives handling. Uses oven to heat munitions casings rather than water. Contains kettle pour units elevated in ceiling.
- Building 1007/1009 – explosives storage.
- Building 1008 – Pink water treatment plant. Spent carbon is removed and taken to Building 1815. Wet sumpage collects in drains after a pour. Sumpage is collected and taken to Hazardous Waste storage.
- Building 1009 – Unloading dock with an orange placard with No. 1 on it.
- Building 1011 – Munitions assembly.
- Building 1017 – Ramp leading into 1017 used to unload wooden crates of explosives. Boxes moved up to kettles via a newly installed conveyor. The wooden boxes are discarded into a large dumpster and disposed of in landfill. Explosives contained in plastic bag within wooden box. Mr. Collier and Mr. Robertson reported no spill accidents that they are aware of. Procedure if a spill occurred would be to sweep it up. Observed water entering sump on east side of 1017. Sludge in removed and taken to treatment plant.
- Building 1019 – Used to face munitions shells and x-ray shells after pour. Visited with Claire Shaw who is x-ray technician. Every shell is x-rayed – can do about 400 per day.
- Building 1064 – Conditioning room.
- Building 1078 – Sump from 1006.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1505

Job Titles: Env. Eng.  
Interview Date: 06/05/2006  
Interview Finish Time: 1540

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Dean Cramer is an Environmental Engineer with DZI.

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### Site Information

2. Describe the history of the site?  
Grenade Test Area (2000 Area). See Historical Records Review for details.

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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---

6. How were hazardous materials used at the site disposed of?  
Material placed in hole with a shaped charge and covered with dirt. Explosive charge set off remotely. Additional charge used if necessary.

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

No chemical testing done on soils at site. Monitoring wells installed around southern perimeter.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Grenade testing range.

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

Grenades detonated during testing.

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

---

16. If wastewater was generated at the site, where/how was it treated?

N/A

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

---

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Grenade Testing Area. Grenades set on metal test blocks in groups of 6 and ignited. Grenades had to burn through block to be accepted. Grenades used in cluster bomb assembly. Also, grenades shot out of gun at target in field. Not likely to have UXO. Based on current interview, statement about possible mis-firing grenades being blown out of range area do not appear to be accurate. Grass is regularly mowed (would hit UXO if present). Area not used since 1998. However, observed two metals test blocks dated 06/13/05. Numbered 1-6 and 7-12. Upon further document review, it was determined that grenade range is still active.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1550

Job Titles: Env. Eng.  
Interview Date: 06/05/2006  
Interview Finish Time: 1610

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Dean Cramer is an Environmental Engineer with DZI.

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### Site Information

2. Describe the history of the site?  
Old Ammunition Storage Area (1900 Area). See Historical Records Review for details. Unable to find or verify site based on walking tour.

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
1945 to ?

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

Unable to visually verify location of site. Drove around field. Saw no evidence of gravel roads or area where excess ammunition stored after WWII.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1620

Job Titles: Env. Eng.  
Interview Date: 6/5/06  
Interview Finish Time: 1630

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Dean Cramer is an Environmental Engineer with DZI.
- 

### Site Information

2. Describe the history of the site?  
Pistol Range. See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

Pistol range – ammunition shot into earthen berm.

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes      No      Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes      No      Don't Know

Please provide names:

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Additional Information/Notes:

Still used by Security force. Empty box of 9mm shells observed on ground.  
Two empty 55-gallon drums observed. Trash can observed with empty boxes of 9mm ammunition. Metal casings observed on ground.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Vince DeCianne  
Interview Start time: 0730

Job Title: DZI  
Interview Date: 6/6/06  
Interview Finish Time: 1700

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Site-wide Environmental Program
- 
- 

### Site Information

2. Describe the history of the site?  
NA = Not Discussed
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
NA

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

NA

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

NA

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---

6. How were hazardous materials used at the site disposed of?

NA

---



---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

NA

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes      No      Don't Know

Please describe:

Dean provided SPCC Plan which included spill records

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Dean provided all NOVs and notifications since 1989 from EQR database

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes      No      Don't Know

Please describe:

Multiple instances of contamination were discussed

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes      No      Don't Know

Please describe:

Not Discussed

12. Was any of the property used for fire training?

Yes      No      Don't Know

Please describe:

Not Discussed

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes      No      Don't Know

Please describe:

Not Discussed

14. Have there been any demolition activities in this area or in relation to this facility?

Yes      No      Don't Know

Please describe:  
Not Discussed

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:  
2 sludge drying areas from water treatment plant

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16. If wastewater was generated at the site, where/how was it treated?  
B2100 is the water treatment plant for the site

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:  
Not Discussed

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:  
See question #9

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:  
Not Discussed

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
 Interviewee: Dean Cramer  
 Interviewer: Brian Williamson  
 Interview Start time: 8:00

Job Title: DZI  
 Interview Date: 6-7-06  
 Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Site-wide Environmental

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### Site Information

2. Describe the history of the site?

Produce ammunition

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Asbestos – transect roof; paints – used on buildings  
Automobile Batt. – vehicles; petroleum – oil for machinery  
Drums – chemical storage; radioactive – depleted uranium  
Hazmat – chemicals used in production

5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

\_\_\_\_\_

\_\_\_\_\_

6. How were hazardous materials used at the site disposed of?  
Shipped off

\_\_\_\_\_

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

Mercury fulminate prep on 700 line

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various areas

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

Fire Station

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Storage

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

1200 – remnants of buildings

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Ponds

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---

16. If wastewater was generated at the site, where/how was it treated?

Onsite treatment plant

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---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes      No      Don't Know

Please provide names:

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---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes      No      Don't Know

Please provide names:

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Additional Information:

300 area – production of grenades and storage

500 area

700 area – detonator production line – operated good

800

900 – radioactive sign on x-ray door – drum of red water

3000 area – previous lead azide production was cleared out, 2 buildings renovated for Nat'l Guard

A lady blew her hands off when pushing explosive buggy of lead azide and hit a bump

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## Sample Personnel Interview Questionnaire

Installation:   KSAAP    
 Interviewee:   Dean Cramer   Job Title:   DZI    
 Interviewer:   Vincent DeCianne   Interview Date:   6-8-06    
 Interview Start time:   0800   Interview Finish Time:   1400  

Interviewee Background                      See Additional Information

1.     Job responsibilities, areas of oversight (area/building/site-wide).

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### Site Information

2.     Describe the history of the site?

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3.     Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4.     Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

Site visits:

- Wastewater Treatment Plant
- Chemistry Lab
- Sludge Drying Beds
- Mercury Fulminate
- Water Treatment Plant
- Old Pest Storage Bldg.
- 200 Area
- Outfall 002
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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer/Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1300

Job Titles: Env. Eng./Demo. Tech.  
Interview Date: 6/5/06  
Interview Finish Time: 1345

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Dean Cramer is an Environmental Engineer with DZI.

Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?

Open Demolition Range (2700 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Sensor Fuze Testing area located north of site.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

1942 to present. 20 earthen bermed locations present.

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6. How were hazardous materials used at the site disposed of?

Material placed in hole with a shaped charge and covered with dirt. Explosive charge set-off remotely. Additional charge used if necessary.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

No chemical testing done on soils at site. Monitoring wells installed around southern perimeter.

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

Sensor Fuzed Weapons testing site and monitoring wells in area.

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

John Ball may have walk-through inspection reports. As a follow up, no inspection reports have been provided to URS.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Site is permitted and surrounded by a fence. 20 earthen bermed (north side of blast area) points set up for demolition activities. Material to be destroyed and a shaped charge placed in hole about 4 to 5 feet deep, and covered with dirt within the bermed area. Charge set off remotely from igloo north of site resulting in a residual crater. No more than 50 pounds of material detonated at a time. Charge is shaped to explode downward. Area is policed after each demo event and no sampling is done. Metal fragments were observed on the ground. Mr. Robertson reported that some fragments have been observed up to about 30 yards outside of fenced area. If demo'd material is found at the surface, an additional charge is used to "blow-in-place" the residual material. The soil in the area is graded and re-used (up to 3 detonations can be set off by of the 20 bermed points before area is re-graded). There is reportedly no visual evidence of explosive material after a detonation. DZI completes 2 safety walks through the area per year. DZI reports near 100% success with first explosive charge destroying material. Fragments have been observed outside of fence on North side of site. No accidents have been associated with site activities. Several

metal structures (looked like tables) were observed on top of southern berms. Metal structures may be associated with historic land mine disposal.

Site is generally used on a daily basis to detonate grenades, bomb fragments, and off-spec materials. Site contains 20 detonation sites arranged in 3 rows. Fire department completes an annual controlled burn, usually before one of the safety walk-throughs so that materials can be seen on the surface. No report of anything detonating during such burns. Scraps are collected and flashed at Pads 5 and 6 prior to being sold as scrap. Some residue has been observed after flashing.

Monitoring wells located around perimeter – 2 wells on east side and several along south side. Table 4-1 in HRR shows number of detonations on an annual basis.

Some metal plating and a metal structure were observed during site visit in northwest corner on detonation area. The metal structure was reportedly used to destroy grenades in the past. Grenade was set on a stand and shot by a marksman. The metal plating is part of the adjacent Sensor Fuze Testing Facility.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Dean Cramer/Drew Robertson

Interviewer: Kevin Wunder, Craig Johnson

Interview Start time: 1350

Job Titles: Env. Eng./Demo. Tech.

Interview Date: 06/05/2006

Interview Finish Time: 1420

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Dean Cramer is an Environmental Engineer with DZI.

Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?

Open Burn Range (2700 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

1942 to present. 16 burning pans (2 at each of 8 locations).

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6. How were hazardous materials used at the site disposed of?

Used to burn wet sumpage from Area 1000 (consisting mainly of TNT).

Residue is drummed and taken to Building 1813 – hazardous waste storage.

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

Burn cages east of the site removed and soil remediated.

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

---

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Is a permitted site surrounded by a fence. Visited Pad Nos. 5 and 6. Consists of 8 pan locations (2 pans at each pad location = 16 pans). Pads Nos. 1- 4 have been remediated and no longer in use (CWP located on top of one of the pads). Used to burn wet sumpage from Area 1000 (consisting mainly of TNT). Explosives run through screen and no chunks allowed in pans. Dry sumpage goes to Open Demo Range. Accelerator used to start burn (shredded wood packaged in a bundle). 150 pounds of material burned at a time. Wood pallet put into pan – sumpage added to top of pallet. Accelerator added followed by another wooden pallet. Ignited remotely using an electronic match. Pans allowed to burn minimum of 12 hours. Able to burn 2 to 3 times within a pan using the same type of material before pan cleaned out. Residue is drummed and taken to Building 1813 – hazardous waste storage. Site used 1 to 2 times per month. Burns limited by wind conditions <15 mph). Groundwater monitoring in place – wells in SW corner, along west side, and SE corner. Burn cages were used east of Pad No. 5. Cages have been removed and remediated. Heavy metals reported in residue. Pad No. 6 is very similar. Has been used recently as CWP (contaminated waste processing) is shut down. Used to flash larger equipment prior to selling for scrap. Generally used once a year. Planned for removal – needs testing done.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer/Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1445

Job Titles: Env. Eng./Demo. Tech.  
Interview Date: 06/05/2006  
Interview Finish Time: 1502

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Dean Cramer is an Environmental Engineer with DZI.

Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?

Explosive Waste Incinerator (EWI) and Contaminated Waste Processing (CWP).

See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

EWI and CWP buildings located in same area.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

Self-explanatory based on facility uses.

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6. How were hazardous materials used at the site disposed of?  
Incinerated.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Various spills of residue on concrete at CWP.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Explosives Waste Incinerator (EWI) process had up to 5 different waste streams. Potential waste residue still inside incinerator. No formal cleanup of facility has been completed – walls wiped down, but nothing done lately. Incinerator appears to be unusable at this time.

Observed a #2 Fuel Oil AST on west side of EWI site. No future plans for EWI or CWP, but nothing final. No decontamination done. Waste put into drums and handled as hazardous waste – some characteristic hazardous (metals).

Contaminated Waste Processing (CWP) Building – Used to burn explosive contaminated waste – similar to Burn Pad No. 6. Non-operational since December 2005. Waste previously burned at site sent to nearby landfill.

Disposal at landfill was approved by State and landfill. Observed a crate of sensor fuse caps stored inside building. Residual material spilled on field north of site several years ago. Residual material cleaned up based on snow on ground – removed residue until white snow showing. Residual material emptied into burn bucket. 3 waste streams on north side (outside) of building – including a bagging house. Propane tank on west side of facility. Evidence of residue runoff (stained concrete) on north side of building.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Randy Irwin, Drew Robertson

Interviewer: Kevin Wunder, Craig Johnson

Interview Start time: 0800

Job Titles: Line Super./Demo. Tech.

Interview Date: 6/7/06

Interview Finish Time: 1000

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Drew Robertson is a Demolition Technician for DZI.

Randy Irwin is Line Supervisor for DZI.

### Site Information

2. Describe the history of the site?

Load Line (1100 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Drummed and moved to haz waste storage.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes     No     Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

Minor spills

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

Sumps, pink water treatment.

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16. If wastewater was generated at the site, where/how was it treated?

Pink water treatment plant.

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes      No      Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer, Jim Mayer.

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Additional Information/Notes:

At Area 1100 Load Line. Additional escort provided by Randy Irwin, Line Supervisor who has been at KSAAP since 1968. Line 1100 consists of a traditional melt-pour and an automated melt-pour. Building 1100 – 3 story melt-pour. Second floor has been deconned (equipment showed 3X). Pink water treatment is located adjacent to Building 1100. Both Building 1100 and sump settling basin connected to Pink Water treatment had orange placards with No. 1. In general, buildings made of brick and tiled walls. Transite siding in ramp areas between buildings.

- Traditional melt pour operation – Explosive material melted with hot water. Excess explosive material caught in pans. The pans are washed out daily after a pour and drained to pink water treatment plant. CEM (combined effects munitions) Area – had knock out tables to collect excess explosives from pour. Mr. Irwin indicated that they are gradually replacing the pipe covering material with non-asbestos material as maintenance is completed. Have continuous vacuum system to help recover explosives dust, plus floor sweeping.

- Remote melt-pour – explosives melted with steam in vats, when certain temperature reached, material is transferred to another container where humidity is removed by vacuum system. Not used anymore and some equipment removed. Was built for CEM production. Wash water goes to water treatment plant.
- Change house water goes to separate area from melt-pour.
- Observed some material with “asbestos free” signage.
- Assembly Building 1114 – (Bldg 1113 is a mirror of 1114). Uses 250 ton presses installed within thick steel barricade structure.
- Building 1139 – SFM assembly. Is a climate controlled area. Insulated, static controlled, humidity/temperature controlled. Explosive load pressed into cap mold.
- Building 1140 – Munitions assembly. Is old CEM dispenser assembly. Now used for SFM assembly. Is a metal frame building. Pressing operation very clean, and vacuum system used. Mr. Irwin reported milligrams of waste per munition compared to traditional melt-pour.
- Building 1136 – Final Assembly. Transite walls in ramp leading into building. Was historically the main CEM assembly, where tails and fuses installed, and munition packaged. Now used to tear down and repair munitions, has paint booth. Sand filled blast barricades. Is basically a catch all building with numerous operations.
- North ramp – generally consists of transite siding.

Building 1109 – 2<sup>nd</sup> Floor. Equipment has reportedly been deconned, and area washed down. Powder hopper on 3<sup>rd</sup> floor had 3X painted on it. Peeling paint observed on walls – possibly lead-based paint.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Danny Langerot  
Interviewer: Craig Johnson  
Interview Start time: 09:00

Job Title: DZI Tenant Storage Mgr.  
Interview Date: 6-8-06  
Finish Time: 09:30

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Responsible for aspects tenant and DZI storage.
- 

### Site Information

2. Describe the history of the site?  
Interview addressed storage issues and general environmental issues  
Not all environmental programs were discussed.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored at KSAAP:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
No additional information

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6. How were hazardous materials used at the site disposed of?  
Currently through a RCRA permitted disposal company

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives at the storage areas?

Yes  No  Don't Know

Please describe:

No spills for the past 10 years. Not documentation provided. He was not aware of any spills.

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Not applicable

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Not applicable

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various areas

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

Ponds

---

16. If wastewater was generated at the site, where/how was it treated?

Onsite treatment plant

Not discussed.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:  
See below

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

All other individuals previously interviewed.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

No spills of liquids for past 10 years, no documentation provided.

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Eagle Picher and Dyna Nobel are primary tenants

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Various explosives and explosive components stored, minimal documentation provided.

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Mostly government material is stored in the igloos

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No spills or explosions were noted in the storage areas

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Patrick McReynolds  
Interviewer: Jeff Hopkins  
Interview Start time: 9:00

Job Title: Maintenance Manager  
Interview Date: 6-8-06  
Interview Finish Time: 9:35

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Maintenance Manager for automotive/vehicles, locomotive, electrical, water, waste water, general maintenance

### Site Information

2. Describe the history of the site?  
No new information on KSAAP as a whole. Provided information specific to 200 Area.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

200 Area is used for a wide variety of maintenance activities. Site has a vehicle wash rack, painting operations, welding/machine shop, electrical shop, haz waste satellite area, oil water separator.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Battery charging and replacement is done at 200 Area. Fueling dispensers for on-site vehicles is on 200 Area.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

---



---

6. How were hazardous materials used at the site disposed of?  
Haz waste is generated and stored in locker then transferred to 90-day storage.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

N/A

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

N/A

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

N/A

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

N/A

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Old pest storage area. New pest storage area.

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
Waste H2O associated with the wash rack enters an oil/water separator on the south end of the 200 Area.

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Daniel

Robert

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Additional Information:

Several x-ray systems were disclosed by Electrical Shop personnel. The only x-ray unit with a radiation source is the Varian Unit formerly in Bldg. 1019 which has 46k of depleted uranium as shielding.

Tungsten welding rods are used for TIG welding operations. No indication of radioactive hazards.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Glenn Parish  
Interviewer: Brian Williamson  
Interview Start time: \_\_\_\_\_

Job Title: Dept. of Operations  
Interview Date: 6-8-06  
Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Environmental program plant-wide
- 
- 

### Site Information

2. Describe the history of the site?  
Production of ammunitions for Army
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Steve Belt  
Interviewer: J. Hopkins  
Interview Start time: 1015

Job Title: OE/OD Superintendent  
Interview Date: 6-12-06  
Interview Finish Time: 1035

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
OE/OD Range

---

### Site Information

2. Describe the history of the site?  
Various methods of detonation have been used at facility. Tree line between compound fence and perimeter fence has grown in past 20-25 years, prior to that, the area was kept clear and mowed.

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

N/A

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

OE is tested at range at two separate test areas.

---



---

6. How were hazardous materials used at the site disposed of?

N/A

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

N/A

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

N/A

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

N/A

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

N/A

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Area has two active detonation/testing ranges.

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

N/A

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

N/A

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:  
No building/facility demos

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:  
The detonation pits are used to destroy several types of munitions. The area is currently active.

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:  
N/A

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:  
N/A

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:  
It is likely that frag and other mec items including UXO have been dispersed over the compound fence but within the property boundary fence.

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Ray Collier/Drew Robertson  
Interviewer: Kevin Wunder/Craig Johnson  
Interview Start time: 1015

Job Titles: Line Super./Demo. Tech.  
Interview Date: 6/7/06  
Interview Finish Time: 1300

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Drew Robertson is a Demolition Technician for DZI.

Ray Collier is Line Supervisor for DZI.

### Site Information

2. Describe the history of the site?

Load Line (1000 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

X-ray machine.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Drummed and moved to hazardous waste storage.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

Minor spills.

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Sump failure – soil removed.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Munitions testing being completed.

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

Sumps, pink water treatment.

---

16. If wastewater was generated at the site, where/how was it treated?

Pink water treatment plant.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes      No      Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer, Jim Mayer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

Area 1000 Load Line – No buildings have been deconned at this line. Used for munitions assembly. Explosive material arrives in palletized boxes. Mr. Collier indicated that an explosion occurred in 1996 at Area 1100 – not aware of any explosions events at 1000. A subsurface concrete trough surrounds buildings and used to carry surface water away from building. Concrete is cracked and in poor condition in some areas. Mr. Collier reported that when line was reactivated, steam line coverings were replaced (~2 years ago). Asbestos free tags observed. Process water treated through Pink Water treatment system.

- Building 1003 – Administration, inert storage – munitions storage prior to conditioning, battery shop, and pipe shop. Observed off-loading of empty munitions casings from rail cars.
- Building 1004 – Historically used for storage, plant is going to convert it to an electrical shop.
- Building 1005 – used to bring empty munitions casings up to temperature and cleaning using hot water. Clean casings using steam. Cosmoline and water goes to sump and drummed.

- Hallway between 1005 and 1006 leading to Change House.
- Building 1006 – Melt-pour and explosives handling. Uses oven to heat munitions casings rather than water. Contains kettle pour units elevated in ceiling.
- Building 1007/1009 – explosives storage.
- Building 1008 – Pink water treatment plant. Spent carbon is removed and taken to Building 1815. Wet sumpage collects in drains after a pour. Sumpage is collected and taken to Hazardous Waste storage.
- Building 1009 – Unloading dock with an orange placard with No. 1 on it.
- Building 1011 – Munitions assembly.
- Building 1017 – Ramp leading into 1017 used to unload wooden crates of explosives. Boxes moved up to kettles via a newly installed conveyor. The wooden boxes are discarded into a large dumpster and disposed of in landfill. Explosives contained in plastic bag within wooden box. Mr. Collier and Mr. Robertson reported no spill accidents that they are aware of. Procedure if a spill occurred would be to sweep it up. Observed water entering sump on east side of 1017. Sludge in removed and taken to treatment plant.
- Building 1019 – Used to face munitions shells and x-ray shells after pour. Visited with Claire Shaw who is x-ray technician. Every shell is x-rayed – can do about 400 per day.
- Building 1064 – Conditioning room.
- Building 1078 – Sump from 1006.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1505

Job Titles: Env. Eng.  
Interview Date: 06/05/2006  
Interview Finish Time: 1540

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Dean Cramer is an Environmental Engineer with DZI.
- 

### Site Information

2. Describe the history of the site?  
Grenade Test Area (2000 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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---

6. How were hazardous materials used at the site disposed of?  
Material placed in hole with a shaped charge and covered with dirt. Explosive charge set off remotely. Additional charge used if necessary.

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

No chemical testing done on soils at site. Monitoring wells installed around southern perimeter.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Grenade testing range.

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

Grenades detonated during testing.

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

---

16. If wastewater was generated at the site, where/how was it treated?

N/A

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

---

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Grenade Testing Area. Grenades set on metal test blocks in groups of 6 and ignited. Grenades had to burn through block to be accepted. Grenades used in cluster bomb assembly. Also, grenades shot out of gun at target in field. Not likely to have UXO. Based on current interview, statement about possible mis-firing grenades being blown out of range area do not appear to be accurate. Grass is regularly mowed (would hit UXO if present). Area not used since 1998. However, observed two metals test blocks dated 06/13/05. Numbered 1-6 and 7-12. Upon further document review, it was determined that grenade range is still active.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1550

Job Titles: Env. Eng.  
Interview Date: 06/05/2006  
Interview Finish Time: 1610

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Dean Cramer is an Environmental Engineer with DZI.
- 

### Site Information

2. Describe the history of the site?  
Old Ammunition Storage Area (1900 Area). See Historical Records Review for details. Unable to find or verify site based on walking tour.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
1945 to ?

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1620

Job Titles: Env. Eng.  
Interview Date: 6/5/06  
Interview Finish Time: 1630

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Dean Cramer is an Environmental Engineer with DZI.
- 

### Site Information

2. Describe the history of the site?  
Pistol Range. See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

Pistol range – ammunition shot into earthen berm.

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes      No      Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes      No      Don't Know

Please provide names:

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Additional Information/Notes:

Still used by Security force. Empty box of 9mm shells observed on ground.  
Two empty 55-gallon drums observed. Trash can observed with empty boxes of 9mm ammunition. Metal casings observed on ground.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Vince DeCianne  
Interview Start time: 0730

Job Title: DZI  
Interview Date: 6/6/06  
Interview Finish Time: 1700

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Site-wide Environmental Program
- 

### Site Information

2. Describe the history of the site?  
NA = Not Discussed
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
NA

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

NA

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

NA

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---

6. How were hazardous materials used at the site disposed of?

NA

---



---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

NA

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes      No      Don't Know

Please describe:

Dean provided SPCC Plan which included spill records

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Dean provided all NOVs and notifications since 1989 from EQR database

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes      No      Don't Know

Please describe:

Multiple instances of contamination were discussed

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes      No      Don't Know

Please describe:

Not Discussed

12. Was any of the property used for fire training?

Yes      No      Don't Know

Please describe:

Not Discussed

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes      No      Don't Know

Please describe:

Not Discussed

14. Have there been any demolition activities in this area or in relation to this facility?

Yes      No      Don't Know

Please describe:  
Not Discussed

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:  
2 sludge drying areas from water treatment plant

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16. If wastewater was generated at the site, where/how was it treated?  
B2100 is the water treatment plant for the site

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:  
Not Discussed

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:  
See question #9

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:  
Not Discussed

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know



## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer  
Interviewer: Brian Williamson  
Interview Start time: 8:00

Job Title: DZI  
Interview Date: 6-7-06  
Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Site-wide Environmental
- 
- 

### Site Information

2. Describe the history of the site?  
Produce ammunition
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Asbestos – transect roof; paints – used on buildings  
Automobile Batt. – vehicles; petroleum – oil for machinery  
Drums – chemical storage; radioactive – depleted uranium  
Hazmat – chemicals used in production

5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

\_\_\_\_\_

\_\_\_\_\_

6. How were hazardous materials used at the site disposed of?  
Shipped off

\_\_\_\_\_

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

Mercury fulminate prep on 700 line

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various areas

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

Fire Station

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Storage

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

1200 – remnants of buildings

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

Ponds

---

---

16. If wastewater was generated at the site, where/how was it treated?

Onsite treatment plant

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---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes      No      Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

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Additional Information:

300 area – production of grenades and storage

500 area

700 area – detonator production line – operated good

800

900 – radioactive sign on x-ray door – drum of red water

3000 area – previous lead azide production was cleared out, 2 buildings renovated for Nat'l Guard

A lady blew her hands off when pushing explosive buggy of lead azide and hit a bump

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## Sample Personnel Interview Questionnaire

Installation:   KSAAP    
 Interviewee:   Dean Cramer   Job Title:   DZI    
 Interviewer:   Vincent DeCianne   Interview Date:   6-8-06    
 Interview Start time:   0800   Interview Finish Time:   1400  

Interviewee Background                      See Additional Information

1.     Job responsibilities, areas of oversight (area/building/site-wide).

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### Site Information

2.     Describe the history of the site?

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3.     Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4.     Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

Site visits:

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Wastewater Treatment Plant

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Chemistry Lab

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Sludge Drying Beds

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Mercury Fulminate

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Water Treatment Plant

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Old Pest Storage Bldg.

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200 Area

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Outfall 002

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## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Dean Cramer/Drew Robertson

Interviewer: Kevin Wunder, Craig Johnson

Interview Start time: 1300

Job Titles: Env. Eng./Demo. Tech.

Interview Date: 6/5/06

Interview Finish Time: 1345

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Dean Cramer is an Environmental Engineer with DZI.

Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?

Open Demolition Range (2700 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Sensor Fuze Testing area located north of site.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

1942 to present. 20 earthen bermed locations present.

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6. How were hazardous materials used at the site disposed of?

Material placed in hole with a shaped charge and covered with dirt. Explosive charge set-off remotely. Additional charge used if necessary.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

No chemical testing done on soils at site. Monitoring wells installed around southern perimeter.

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

Sensor Fuzed Weapons testing site and monitoring wells in area.

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

John Ball may have walk-through inspection reports. As a follow up, no inspection reports have been provided to URS.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Site is permitted and surrounded by a fence. 20 earthen bermed (north side of blast area) points set up for demolition activities. Material to be destroyed and a shaped charge placed in hole about 4 to 5 feet deep, and covered with dirt within the bermed area. Charge set off remotely from igloo north of site resulting in a residual crater. No more than 50 pounds of material detonated at a time. Charge is shaped to explode downward. Area is policed after each demo event and no sampling is done. Metal fragments were observed on the ground. Mr. Robertson reported that some fragments have been observed up to about 30 yards outside of fenced area. If demo'd material is found at the surface, an additional charge is used to "blow-in-place" the residual material. The soil in the area is graded and re-used (up to 3 detonations can be set off by of the 20 bermed points before area is re-graded). There is reportedly no visual evidence of explosive material after a detonation. DZI completes 2 safety walks through the area per year. DZI reports near 100% success with first explosive charge destroying material. Fragments have been observed outside of fence on North side of site. No accidents have been associated with site activities. Several

metal structures (looked like tables) were observed on top of southern berms. Metal structures may be associated with historic land mine disposal.

Site is generally used on a daily basis to detonate grenades, bomb fragments, and off-spec materials. Site contains 20 detonation sites arranged in 3 rows. Fire department completes an annual controlled burn, usually before one of the safety walk-throughs so that materials can be seen on the surface. No report of anything detonating during such burns. Scraps are collected and flashed at Pads 5 and 6 prior to being sold as scrap. Some residue has been observed after flashing.

Monitoring wells located around perimeter – 2 wells on east side and several along south side. Table 4-1 in HRR shows number of detonations on an annual basis.

Some metal plating and a metal structure were observed during site visit in northwest corner on detonation area. The metal structure was reportedly used to destroy grenades in the past. Grenade was set on a stand and shot by a marksman. The metal plating is part of the adjacent Sensor Fuze Testing Facility.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Dean Cramer/Drew Robertson

Interviewer: Kevin Wunder, Craig Johnson

Interview Start time: 1350

Job Titles: Env. Eng./Demo. Tech.

Interview Date: 06/05/2006

Interview Finish Time: 1420

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Dean Cramer is an Environmental Engineer with DZI.

Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?

Open Burn Range (2700 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

1942 to present. 16 burning pans (2 at each of 8 locations).

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6. How were hazardous materials used at the site disposed of?

Used to burn wet sumpage from Area 1000 (consisting mainly of TNT).

Residue is drummed and taken to Building 1813 – hazardous waste storage.

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

Burn cages east of the site removed and soil remediated.

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Is a permitted site surrounded by a fence. Visited Pad Nos. 5 and 6. Consists of 8 pan locations (2 pans at each pad location = 16 pans). Pads Nos. 1- 4 have been remediated and no longer in use (CWP located on top of one of the pads). Used to burn wet sumpage from Area 1000 (consisting mainly of TNT). Explosives run through screen and no chunks allowed in pans. Dry sumpage goes to Open Demo Range. Accelerator used to start burn (shredded wood packaged in a bundle). 150 pounds of material burned at a time. Wood pallet put into pan – sumpage added to top of pallet. Accelerator added followed by another wooden pallet. Ignited remotely using an electronic match. Pans allowed to burn minimum of 12 hours. Able to burn 2 to 3 times within a pan using the same type of material before pan cleaned out. Residue is drummed and taken to Building 1813 – hazardous waste storage. Site used 1 to 2 times per month. Burns limited by wind conditions <15 mph). Groundwater monitoring in place – wells in SW corner, along west side, and SE corner. Burn cages were used east of Pad No. 5. Cages have been removed and remediated. Heavy metals reported in residue. Pad No. 6 is very similar. Has been used recently as CWP (contaminated waste processing) is shut down. Used to flash larger equipment prior to selling for scrap. Generally used once a year. Planned for removal – needs testing done.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Dean Cramer/Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1445

Job Titles: Env. Eng./Demo. Tech.  
Interview Date: 06/05/2006  
Interview Finish Time: 1502

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Dean Cramer is an Environmental Engineer with DZI.

Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?

Explosive Waste Incinerator (EWI) and Contaminated Waste Processing (CWP).

See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

EWI and CWP buildings located in same area.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

N/A

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

Self-explanatory based on facility uses.

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6. How were hazardous materials used at the site disposed of?  
Incinerated.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Is a permitted site.

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Various spills of residue on concrete at CWP.

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

Mr. Cramer provided various reports and documents.

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Additional Information/Notes:

Explosives Waste Incinerator (EWI) process had up to 5 different waste streams. Potential waste residue still inside incinerator. No formal cleanup of facility has been completed – walls wiped down, but nothing done lately. Incinerator appears to be unusable at this time.

Observed a #2 Fuel Oil AST on west side of EWI site. No future plans for EWI or CWP, but nothing final. No decontamination done. Waste put into drums and handled as hazardous waste – some characteristic hazardous (metals).

Contaminated Waste Processing (CWP) Building – Used to burn explosive contaminated waste – similar to Burn Pad No. 6. Non-operational since December 2005. Waste previously burned at site sent to nearby landfill.

Disposal at landfill was approved by State and landfill. Observed a crate of sensor fuse caps stored inside building. Residual material spilled on field north of site several years ago. Residual material cleaned up based on snow on ground – removed residue until white snow showing. Residual material emptied into burn bucket. 3 waste streams on north side (outside) of building – including a bagging house. Propane tank on west side of facility. Evidence of residue runoff (stained concrete) on north side of building.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Randy Irwin, Drew Robertson

Interviewer: Kevin Wunder, Craig Johnson

Interview Start time: 0800

Job Titles: Line Super./Demo. Tech.

Interview Date: 6/7/06

Interview Finish Time: 1000

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Drew Robertson is a Demolition Technician for DZI.

Randy Irwin is Line Supervisor for DZI.

### Site Information

2. Describe the history of the site?

Load Line (1100 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Drummed and moved to haz waste storage.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

Minor spills

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Sumps, pink water treatment.

---

16. If wastewater was generated at the site, where/how was it treated?

Pink water treatment plant.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer, Jim Mayer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

At Area 1100 Load Line. Additional escort provided by Randy Irwin, Line Supervisor who has been at KSAAP since 1968. Line 1100 consists of a traditional melt-pour and an automated melt-pour. Building 1100 – 3 story melt-pour. Second floor has been deconned (equipment showed 3X). Pink water treatment is located adjacent to Building 1100. Both Building 1100 and sump settling basin connected to Pink Water treatment had orange placards with No. 1. In general, buildings made of brick and tiled walls. Transite siding in ramp areas between buildings.

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- Traditional melt pour operation – Explosive material melted with hot water. Excess explosive material caught in pans. The pans are washed out daily after a pour and drained to pink water treatment plant. CEM (combined effects munitions) Area – had knock out tables to collect excess explosives from pour. Mr. Irwin indicated that they are gradually replacing the pipe covering material with non-asbestos material as maintenance is completed. Have continuous vacuum system to help recover explosives dust, plus floor sweeping.
-

- Remote melt-pour – explosives melted with steam in vats, when certain temperature reached, material is transferred to another container where humidity is removed by vacuum system. Not used anymore and some equipment removed. Was built for CEM production. Wash water goes to water treatment plant.
- Change house water goes to separate area from melt-pour.
- Observed some material with “asbestos free” signage.
- Assembly Building 1114 – (Bldg 1113 is a mirror of 1114). Uses 250 ton presses installed within thick steel barricade structure.
- Building 1139 – SFM assembly. Is a climate controlled area. Insulated, static controlled, humidity/temperature controlled. Explosive load pressed into cap mold.
- Building 1140 – Munitions assembly. Is old CEM dispenser assembly. Now used for SFM assembly. Is a metal frame building. Pressing operation very clean, and vacuum system used. Mr. Irwin reported milligrams of waste per munition compared to traditional melt-pour.
- Building 1136 – Final Assembly. Transite walls in ramp leading into building. Was historically the main CEM assembly, where tails and fuses installed, and munition packaged. Now used to tear down and repair munitions, has paint booth. Sand filled blast barricades. Is basically a catch all building with numerous operations.
- North ramp – generally consists of transite siding.

Building 1109 – 2<sup>nd</sup> Floor. Equipment has reportedly been deconned, and area washed down. Powder hopper on 3<sup>rd</sup> floor had 3X painted on it. Peeling paint observed on walls – possibly lead-based paint.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Danny Langerot  
Interviewer: Craig Johnson  
Interview Start time: 09:00

Job Title: DZI Tenant Storage Mgr.  
Interview Date: 6-8-06  
Finish Time: 09:30

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Responsible for aspects tenant and DZI storage.
- 

### Site Information

2. Describe the history of the site?  
Interview addressed storage issues and general environmental issues  
Not all environmental programs were discussed.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored at KSAAP:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
No additional information

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6. How were hazardous materials used at the site disposed of?  
Currently through a RCRA permitted disposal company

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives at the storage areas?

Yes  No  Don't Know

Please describe:

No spills for the past 10 years. Not documentation provided. He was not aware of any spills.

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

Not applicable

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Not applicable

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various areas

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

Ponds

---

16. If wastewater was generated at the site, where/how was it treated?

Onsite treatment plant

Not discussed.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:  
See below

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

All other individuals previously interviewed.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

No spills of liquids for past 10 years, no documentation provided.

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Eagle Picher and Dyna Nobel are primary tenants

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Various explosives and explosive components stored, minimal documentation provided.

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Mostly government material is stored in the igloos

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No spills or explosions were noted in the storage areas

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Patrick McReynolds  
Interviewer: Jeff Hopkins  
Interview Start time: 9:00

Job Title: Maintenance Manager  
Interview Date: 6-8-06  
Interview Finish Time: 9:35

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Maintenance Manager for automotive/vehicles, locomotive, electrical, water, waste water, general maintenance

### Site Information

2. Describe the history of the site?  
No new information on KSAAP as a whole. Provided information specific to 200 Area.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

200 Area is used for a wide variety of maintenance activities. Site has a vehicle wash rack, painting operations, welding/machine shop, electrical shop, haz waste satellite area, oil water separator.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Battery charging and replacement is done at 200 Area. Fueling dispensers for on-site vehicles is on 200 Area.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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---

6. How were hazardous materials used at the site disposed of?  
Haz waste is generated and stored in locker then transferred to 90-day storage.

---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

N/A

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

N/A

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

N/A

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

N/A

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Old pest storage area. New pest storage area.

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
Waste H2O associated with the wash rack enters an oil/water separator on the south end of the 200 Area.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Daniel

Robert

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

Several x-ray systems were disclosed by Electrical Shop personnel. The only x-ray unit with a radiation source is the Varian Unit formerly in Bldg. 1019 which has 46k of depleted uranium as shielding.

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Tungsten welding rods are used for TIG welding operations. No indication of radioactive hazards.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Glenn Parish  
Interviewer: Brian Williamson  
Interview Start time: \_\_\_\_\_

Job Title: Dept. of Operations  
Interview Date: 6-8-06  
Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Environmental program plant-wide
- 
- 

### Site Information

2. Describe the history of the site?  
Production of ammunitions for Army
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Shipped off

---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:  
Mercury Fulminate?

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various locations

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

Fire Station on-site

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Pesticide Storage Building

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

1200 Area have remnants of buildings

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Ponds

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16. If wastewater was generated at the site, where/how was it treated?

Waste water treatment plant on-site

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Larry Grillet

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Interim Final Report GW Contaminatino Survey  
38-26-0305-89

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Additional Information:

- Gave document that showed actual location of Old Ammunition Storage
  - 18 Hazardous Waste Igloos
  - Dam at Neosho River on E. side of plant
  - Placards on buildings are explosive designations
- 
- 
- 
- 
- 
- 
- 
- 
- 
-

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Bret Raines Job Title: Remedial Project Manager  
Interviewer: Craig Johnson Interview Date: 6-8-06  
Interview Start time: 10:00  
Interview Finish Time: 11:15

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Responsible for aspects of the environmental programs at KSAAP.

---

### Site Information

2. Describe the history of the site?

Produce ammunition, load, assembly and pack

---

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Laundry facilities in each change house, but no dry cleaning is done.  
Photo developing for x-rays only.

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Only radioactive material is associated with x-ray equipment. Equipment in 1019 originally used. The equipment is stored in 1400 area until it can be shipped out.

---

5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

No additional information

---

6. How were hazardous materials used at the site disposed of?

Currently through a RCRA permitted disposal company

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

EPA and KDHE

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

Long term monitoring is being at many SWMUs

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various areas

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

Fire Station

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Pesticide storage currently in building 67, previously in pest storage area, near Lyons pond.

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes       No       Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Ponds

---

16. If wastewater was generated at the site, where/how was it treated?

Onsite treatment plant

---

Not discussed.

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes      No      Don't Know

Please describe:

See below

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes      No      Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes      No      Don't Know

Please provide names:

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Additional Information:

All storage igloos should be assessed

An additional firing range was identified near the burn cages

Mercury fulminate are not an issue. This site was pulled from IRP, NFA in 1989

Light Maneuver Range – No live rounds used, army national guard used wooden guns, HRR is correct

Old Ammo Storage – Use HRR revised area based on aerial photo

75 Test Area – This location was misidentified previously, correct location provided.

1400 Area has PCB storage

8 Igloos are identified in RCRA permit for storage.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Richard Thomas  
Interviewer: Vince DeCianne  
Interview Start time: 0915

Job Title: KDHE  
Interview Date: 6-13-06 (via phone)  
Interview Finish Time: 1000

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Environmental permits with KDHE
- 
- 

### Site Information

2. Describe the history of the site?  
Not discussed = ND
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
ND

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---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Hazardous materials have been used and stored at KSAAP since 1941 (start of operations).

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Treated by Part B Permit or shipped to permitted TSDF.

---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

ND

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

ND

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

ND

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
Wastewater is generated and discharged in accordance with NPDES Permit F-NE55-PO04.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

There are 7 outfall permitted under the NPDES Permit.

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

Confirmed state violations from EQR database.

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

ND

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Vicki O'Brien, KDHE

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

- Confirmed KSAAP is operating under interim status for the Hazardous Waste Permit

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- Discussed permitted treatment units at KSAAP

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Open Burning Area

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Open Detonation Range

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Explosive Waste Incinerator

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1055

Job Titles: Demo. Tech.  
Interview Date: 06/05/2006  
Interview Finish Time: 1120

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Hazardous Waste Storage (1700 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Sensor Fuse Testing area located north of site.

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

See notes.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

---



---

6. How were hazardous materials used at the site disposed of?  
Stored in igloos.

---



---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

|

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

Sensor Fused Weapons testing site and monitoring wells in area.

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

- Building 1703: Contained small metal drum labeled as Lead Azide wetted and Lead Styphnate, basic. Walls, ceilings, floor in good repair.
  - Building 1702: 3 cardboard containers of magnesium Teflon for fuze picher. 1 metal drum of PETN.
  - Building 1715: Conditioning igloo. Built about 6 months ago. Formerly used Bldg 1064 to do same thing. Conditioning helps control shrinkage of explosives.
  - Building 1718: 10 ft x 10 ft igloo (small). One of the small igloos was used for haz waste storage, but is now sealed.
- 
-

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 0800

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 0955

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Hazardous Waste Storage (1900 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Various materials stored in igloos.

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

See notes.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

6. How were hazardous materials used at the site disposed of?

Stored in igloos.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

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Additional Information/Notes:

- Building 1914: BLU 97 demil area. Boxes had orange diamond with 1.4 symbol. Mr. Robertson stated that there is no segregation of hazardous wastes, and that he thought there was a haz waste log kept that would list what materials had been stored in each igloo. Only solids stored in this igloo. Igloos swept out when needed. Have had rodent problems with rodents entering through drains. Some patching on floor. Mr. Robertson indicated he was not aware of any accidents or spills in hazardous waste igloos. He inspects hazardous waste igloos on a weekly basis. There are several high security igloos that we would not have access to (1902 through 1905) – are painted white. Igloo walls are several feet thick. Small trees have grown on top of some igloos.
- Building 1917: Used to store munitions before being taken to demo-grounds. Currently storing grenades – labeled “bomb bdy w/zirconium sponge, fuse pod booster.
- Building 1916: Used for wet/dry sumpage material storage. Wet sumpage kept in plastic bag within cardboard box. Material comes from load lines.

Material burned at Pad No. 5. Dry sumpage comes from floors and knock out tables. Dry sumpage also stored in plastic bags.

- Building 1915: Used for liquid storage. Wet storage pallets used for spill prevention (secondary containment). Waste are from cleaning munition bodies, which are cleaned using steam, cosmoline, and water. Mr. Robertson reports never having to clean out pallets from a spill or leak from 55 gallon drums. Floor drying material used on floor to keep floor dry and to control dust.
- Building 1958: Observed maintenance person moving spill pallets – no liquid observed inside pallet. Igloo used for dry/wet storage. Wet storage consists of cosmoline and water (from label). Had wet sumpage material in cardboard boxes. Igloo contained 3 drums labeled as “trimsole” – possibly a lubricant for saws and maintenance equipment.
- Building 1961: Currently used for non-hazardous storage. Mr. Robertson reported that it could be used for haz waste storage though. Contained TNT vacuum dust from Area 1000, where residue is sucked out of bomb bodies and sold as scrap explosive. 40 pound maximum per box. Consistency is that of baby powder. Floor observed to be clean. Mr. Robertson reported that they are using igloo for general storage only at this time.
- Building 1974: On haz waste igloo list, but not being used for that anymore. Used to build charges for demo grounds.
- Building 1976: On haz waste list, but not being used for that anymore. Used for general storage. Also used to store material to be returned to vendor due to damage.

#### Non-Hazardous Igluos

- Building 1963: Used for storing supplemental charge assemblies.
- Building 1910: Used to store explosive material. Typically stored 4 to 6 months.
- Building 1934: Used to store munitions.
- Building 1907: Used to store tape, loctite, and materials from loading lines. Area 1900 is generally used for Explosive Storage only.
- Building 1986: Did not visit. Mr. Robertson indicated this is the only igloo with structural problems.
- No reported accidents at igloos.

On west side on 1900 area, outside of fence and along RR tracks is an old railroad loading dock. Was damaged by strong winds, and is being torn down and area used to store wooden pallets.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1000

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1045

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Hazardous Waste Storage (1800 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

See notes.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Stored in buildings.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

---

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

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Additional Information/Notes:

Generally, no evidence of explosive residue outside or inside of storage buildings. Brick buildings with wooden roof.

- Building 1813: Haz Waste storage – drum of spent carbon and bag residue observed. Numerous empty drums. Used for solid material only. Also contained about 50 drums of solid material that was tested and determined to be non-haz. No evidence of spills. Some rainwater observed on floor (had strong thunderstorms this morning). Mr. Robertson reported out shipping materials every 4 to 6 months. Had just completed an out shipment, thus only 1 drum present.
- Building 1824: General Storage – cardboard dividers, wooden boxes formerly used to store supplemental charges. Wooden boxes labeled as “Empty” and certified as explosive content removed. Empty munitions boxes.
- Building 1804: used to store fuzes, stand-off collars, detonator stab. No raw explosives stored in Building. Dust is on floor, but does not appear to be explosives. Mr. Robertson not aware of plant storing materials from other facilities.

Drove through entire area of igloos. Some buildings had orange triangle placard with numbers 1 or 4 on it. List provided below:

---

- Building 1802 – 4
- Building 1803 – 4
- Building 1804 – 4
- Building 1805 – No designation (ND)
- Building 1806 – 1
- Building 1807 – ND
- Building 1808 – ND
- Building 1809 – 1
- Building 1810 – ND
- Building 1811 – ND
- Building 1812 – 1
- Building 1813 – ND (Haz Waste)
- Building 1814 – 1
- Building 1815 – ND
- Building 1816 – ND
- Building 1817 – 1
- Building 1818 – ND
- Building 1819 – ND
- Building 1820 – 1
- Building 1821 – 4
- Building 1822 – 1
- Building 1823, 1824, 1825 – ND
- Building 1826 – 1

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1415

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1455

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Inert Storage (1400 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
Inert storage.

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Building 67 used to store pesticides.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

---



---

6. How were hazardous materials used at the site disposed of?

---



---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

---

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

---

Additional Information/Notes:

Inert Storage buildings with RR loading docks between buildings. All general storage, no transite siding. No explosives – only inert storage.

- Building 1420 North: Contained wooden shipping box containers, threaded liners in cardboard boxes. Historically used for shipping and receiving. Brick bldgs with wooden roofs. Buildings swept in winter months during down times. Water puddles observed on floor – probably from leaking roof.
- Building 67: Pesticide Storage – Contains fenced in building and loading platform. Platform is curbed with a valved drain. Lean-to shaped building. Empty 55 gallon drum and fire extinguisher on ground. Sign on door states pesticides in building includes: rodenticides, bromical, diazinon, ureabor, dursban T.C, aerosol cans, round up. Several rusted drums near east side of building.
- Building 1412 North: Numerous wooden crates stored here. All labeled as explosive content removed. Metal stripping. No evidence of spills, building concrete not stained. Water on floor – probably from rainwater.
- Building 1410 South: Empty wooden crates. Rain water on floor. No evidence of spills/staining. Rail docks run between buildings looked OK. No evidence of staining/spilling.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1500

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1545

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Bulk Storage Igloos (1500 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
Storage only.

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

1500 Area – 40 foot igloos used for bulk explosives storage.

- Rail-dock – several semi-trailers filled with wooden pallets. One trailer labeled “Explosives” on side. No evidence of staining on ground near tracks or trailers. Track area leased and used for railroad car storage – obsolete rail cars stored here. Currently storing flatbed cars – been here about 3 months. Prior – stored tank cars. Rail cars not associated with 1500 Area. \* Most rail cars on property are not active and are stored here as part of a lease agreement.
- Building 1542: Explosives storage.
- Building 1541: Explosives storage.
- Building 1533: Wooden crates containing munitions.
- Building 1502: same as 1533.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1545

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1630

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Bulk Storage Igloos (1600 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
Storage.

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---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
Storage only.

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6. How were hazardous materials used at the site disposed of?  
Haz waste storage buildings.

---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

At 1600 Area – Very active area – close to 1000 Area. Primarily used for storage of munitions before conditioning.

- Building 1601: loading dock – doing maintenance of railcars – replacing floors. Forklift and pallets in area. No evidence of spills near tracks.
- Building 1620: Expired production line materials storage. Spray paint, McLube 2002, tape, methyl amyl ketone, liquid xylene, ink stencil marking. Xylenes not stored with secondary containment. 4 – 55 gallon drums of acetone w/o secondary containment. Also observed tape, grease, enamel paint dated 4-5-06. Is a catch all for expired materials, which are sold.
- Building 1612: Munitions storage.
- Building 1616: Same as 1612.
- Building 1607: Same as 1612.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Clair Shaw

Job Title: Radiation Safety

Officer, Day & Zimm

Interviewer: Jeff Hopkins

Interview Date: 6-6-06

Interview Start time: 0945

Interview Finish Time: 1010

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Radiation Safety Officer, X-ray Inspection and Non-destructive Testing

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### Site Information

2. Describe the history of the site?

Has been working at KSAAP doing inspections since 1967.

Has been Radiation Safety Officer since 2005. Works primarily in Building 1019.

---

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Building 1019 is used for inspection of various finished munitions.

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

The VARJAN 4 MEV Linear Accelerator used for x-ray analysis has 46 pounds depleted uranium which is sealed. Storage is in accordance with NRC PERMST Sub-1283, Docket #040-08483.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

N/A

---

6. How were hazardous materials used at the site disposed of?

N/A

---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

N/A

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

N/A

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

N/A

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

N/A

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

N/A

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

N/A

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

N/A

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---

16. If wastewater was generated at the site, where/how was it treated?

N/A

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---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

N/A

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

N/A

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

N/A

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

N/A

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

N/A

---

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

Plan to submit Varian Linear Accelerator back to manufacturer in July 2006.  
Mr. Shaw showed us the paperwork that was completed, and indicated that they  
are trying to finalize shipping arrangements. I traded business cards with  
Mr. Shaw and we will be in contact prior to the submission of the final report.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Carolyn Smalley  
Interviewer: Vincent DeCianne  
Interview Start time: 0800

Job Title: DZI  
Interview Date: 6-6-06  
Interview Finish Time: 1000

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Site-wide environmental
- 

### Site Information

2. Describe the history of the site?  
Not Discussed - ND
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
ND

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

ND

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

ND

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6. How were hazardous materials used at the site disposed of?  
Through DRMO

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

ND

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

ND

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

ND

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

ND

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

ND

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

ND

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

ND

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:  
ND

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:  
ND

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16. If wastewater was generated at the site, where/how was it treated?  
ND

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:  
ND

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:  
ND

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:  
ND

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:  
ND

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:  
ND

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:  
ND

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Additional Information:

The RCRA Part B and Part A permits were primarily discussed. Part B permit expired in 1994. An application for renewal has been submitted in 1994 and permit modifications were submitted in 1997, 1999, 2001 and 2003. All of which have not been addressed by ESDPH.

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Treatment units include the following

- CWI – incinerator
  - OD range
  - OB range (Pad 5)
  - Solvent recovery – never used
- 
- 
- 
-

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Richard Thomas

Job Title: KDHE (KSAAP former employee)

Interviewer: Brian Williamson

Interview Date: 6-13-06

Interview Start time: \_\_\_\_\_

Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Permitting, leasing and maintaining agriculture properties

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### Site Information

2. Describe the history of the site?

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Hazardous substances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Firing and bombing (grenade range)

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes      No      Don't Know

Please describe:

Inactive load lines – 1200 area – remnants of buildings

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?

At an onsite facility

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

---

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

See attached.

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Richard Thomas (620) 431-2390  
- Laid off '96

1987 Facility Engineer on Railroad Drainage System

1991 Under Carolyn Smalley (Environmental Group)

- Explosive Waste Incinerator
- RCRA Inventory Permit
- Original Storm Water Permit
- Natural Resources
  - Leasing and maintaining of agriculture properties
- No recollection of a reportable qty. spill
- Nothing really found (contamination) at SWMU 14 & 15
  - Used for grazing

700 Area

- Helped with support of contract
- Explosions at south end of line
  - Blast walls and partitions draw blast towards them
- Contaminated outside of building probably prior to 1970
  - Not related to explosives

3000 Area (Lead Azide)

- Used portion of facility as a check (test area)
- Never produced finish product
- Buildings were cleaned

800 Area – lead floors to produce static electricity

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Glenn Tisdale

Job Title: USACE IRP, Project

Manager

Interviewer: Jeff Hopkins

Interview Date: 6-5-06

Interview Start time: 1230

Interview Finish Time: 1530

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
USACE IRP Project Manager for last 5 years. In depth knowledge of IRP  
Program and current status and removal actions of SWMUs. This interview/site  
visit was centered on the IRP Program.

### Site Information

2. Describe the history of the site?  
1. SWMU 8 (900 Area), 2. SWMU 1 (100 Area), 3. SWMU 2 (200 Area),  
4. SWMU 3 (200 Area), 5. SWMU 4 & 5 (300 Area), 6. SWMU 6 (500 Area)  
7. SWMU 11 & 24 (E. 2700 Area), 8. SWMU 9 (1000 Area), 9. SWMU 10  
(1100 Area), 10. SWMU 13 (closed LF), 11. SWMU 15 (LF), 12. SWMU 16  
(Closed LF), 13. SWMU 17 (W. 2700), 14. SWMU 18, 15. SWMU 19, 16. SWMU  
23, 17. SWMU 25, 18. SWMU 7, 19. SWMU 12, 20. SWMU 14

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

See attached documentation.

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Answers are provided to SWMU Proper, and not to buildings or other structures within the SWMU footprint.

See attached documentation.

5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

N/A

6. How were hazardous materials used at the site disposed of?

N/A

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes  No  Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

KDHE, Region 7 EPA

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

16. If wastewater was generated at the site, where/how was it treated?

N/A

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

Scoping has been done for additional soil removal and investigation of pond sediments of 1200 Area drainage pond (Pond 2).

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

All facility personnel. According to Bret Raines, Mr. Tisdale has the most thorough knowledge.

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Groundwater Corrective

Additional Information:

- Water Towers – lead contaminants in soil – removed in 2002
- Burn pads approx. 50x50, Burned on dirt – metal deconned and sent to landfill
- Burn Pad 6 is still active part-time
- Hot spot removal in 1100 Area
- 1200 Area – chromium in ponds below goals – further investigation to see if Chrome-3 is present, Scope of Work for removal of contamination ready.
- Contents of SWMU 13 moved to SWMU 15
- Contamination found between SWMU 14 & SWMU 15 – both 14 & 15 need re-covering.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Ralph Walden

Interviewer: Brian Williamson

Interview Start time: \_\_\_\_\_

Job Title: Retired

Interview Date: 6-19-06

Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Environmental Compliance, Department of Energy and Environment, Spill  
Coordinator

### Site Information

2. Describe the history of the site?  
Produced Ammunitions

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

NA

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

---



---

6. How were hazardous materials used at the site disposed of?

---



---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

NA

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes       No       Don't Know

Please describe:

Various instances where a tank of sort was overfilled onto the ground.

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes       No       Don't Know

Please describe:

Soil beneath these areas was affected and was removed and disposed of.

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes       No       Don't Know

Please describe:

12. Was any of the property used for fire training?

Yes       No       Don't Know

Please describe:

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes       No       Don't Know

Please describe:

There was a building designated for mixing and storing pesticides.

14. Have there been any demolition activities in this area or in relation to this facility?

Yes       No       Don't Know

Please describe:

The removal of burn pads.

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Oxidation ponds were used prior to pink water treatment buildings. Ponds would overflow often into the nearby stream. Laundry facility's water drained into pond most likely and had possible contamination due to washing of powder uniforms employees wore.

---

16. If wastewater was generated at the site, where/how was it treated?  
Eventually at an on-site treatment plant.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

Not Discussed

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes     No     Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes     No     Don't Know

Please provide names:

---

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes     No     Don't Know

Please provide names:

Don't know name but Army conducted an investigation in the 1980s.

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Additional Information:

● 700 Area

- State came down to investigate the 700 area due to excessive amount of contamination to land. Thought was that the area was exceeding their NPDES permit. Treatment plant came into plan (had to jury-rig it)

● Army Study in the 1980s

- Looked at aerial photos with past and present employees.  
- Looked at areas where waste was literally thrown out the door and into the parking lots.

● Stories about guys cleaning the stencils would throw their waste in the streets or parking lots (out the door).

- Paint Booth operator would (most-likely) throw solvents used to clean out paint brushes out the door.

- Open Detonation Area

- 20 holes were dug at a time (twice a day)
- each hole had 50 lbs of explosives, sump contents were also added to these holes and they were detonated.

→ sometimes sump material wouldn't detonate but just spread it out

- When it would rain the run-off would cause the drainage ditches to turn pink because of contamination.

- USTs were removed and ASTs were installed in place with containment.

- Coil fire boilers in 200 and 1200 Areas.

- Boiler house in 200 Area possibly contaminated with asbestos.

- Concrete sumps could possibly have cracks in them and explosives could have seeped into these cracks creating pockets of substances like TNT.

- 1000 Area – there was TNT powder everywhere (walked on it).

- Oil contaminated dirt from leaks from tanks being filled was stored on the south end of the 200 line. Tilled regularly to initiate biodegradation.

- Landfill on east side of plant (atop of the hill) contained a significant amount of cement asbestos shingles when a reproofing job took place (approx. 1000s of sq. ft. of asbestos shingles).

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Shipped off

---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:  
Mercury Fulminate?

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Various locations

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

Fire Station on-site

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

Pesticide Storage Building

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

1200 Area have remnants of buildings

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Ponds

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16. If wastewater was generated at the site, where/how was it treated?

Waste water treatment plant on-site

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Larry Grillet

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Interim Final Report GW Contaminatino Survey  
38-26-0305-89

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Additional Information:

- Gave document that showed actual location of Old Ammunition Storage
  - 18 Hazardous Waste Igloos
  - Dam at Neosho River on E. side of plant
  - Placards on buildings are explosive designations
- 
- 
- 
- 
- 
- 
- 
- 
- 
-

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Bret Raines Job Title: Remedial Project Manager  
Interviewer: Craig Johnson Interview Date: 6-8-06  
Interview Start time: 10:00  
Interview Finish Time: 11:15

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Responsible for aspects of the environmental programs at KSAPP.

### Site Information

2. Describe the history of the site?

Produce ammunition, load, assembly and pack

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Laundry facilities in each change house, but no dry cleaning is done.  
Photo developing for x-rays only.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Only radioactive material is associated with x-ray equipment. Equipment in 1019 originally used. The equipment is stored in 1400 area until it can be shipped out.

5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

No additional information

6. How were hazardous materials used at the site disposed of?

Currently through a RCRA permitted disposal company

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes       No       Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

EPA and KDHE

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes       No       Don't Know

Please describe:

Long term monitoring is being at many SWMUs

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes       No       Don't Know

Please describe:

Various areas

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12. Was any of the property used for fire training?

Yes       No       Don't Know

Please describe:

Fire Station

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes       No       Don't Know

Please describe:

Pesticide storage currently in building 67, previously in pest storage area, near Lyons pond.

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes      No      Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

Ponds

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16. If wastewater was generated at the site, where/how was it treated?

Onsite treatment plant

---

Not discussed.

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

See below

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

All storage igloos should be assessed

An additional firing range was identified near the burn cages

Mercury fulminate are not an issue. This site was pulled from IRP, NFA in 1989

Light Maneuver Range – No live rounds used, army national guard used wooden guns, HRR is correct

Old Ammo Storage – Use HRR revised area based on aerial photo

75 Test Area – This location was misidentified previously, correct location provided.

1400 Area has PCB storage

8 Igloos are identified in RCRA permit for storage.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Richard Thomas  
Interviewer: Vince DeCianne  
Interview Start time: 0915

Job Title: KDHE  
Interview Date: 6-13-06 (via phone)  
Interview Finish Time: 1000

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Environmental permits with KDHE
- 
- 

### Site Information

2. Describe the history of the site?  
Not discussed = ND
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
ND

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Hazardous materials have been used and stored at KSAAP since 1941 (start of operations).

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Treated by Part B Permit or shipped to permitted TSDF.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

ND

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

ND

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

ND

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
Wastewater is generated and discharged in accordance with NPDES Permit F-NE55-PO04.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

There are 7 outfall permitted under the NPDES Permit.

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

Confirmed state violations from EQR database.

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

ND

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Vicki O'Brien, KDHE

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

- Confirmed KSAAP is operating under interim status for the Hazardous Waste Permit

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- Discussed permitted treatment units at KSAAP

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Open Burning Area

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Open Detonation Range

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Explosive Waste Incinerator

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1055

Job Titles: Demo. Tech.  
Interview Date: 06/05/2006  
Interview Finish Time: 1120

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.

### Site Information

2. Describe the history of the site?  
Hazardous Waste Storage (1700 Area). See Historical Records Review for details.

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Sensor Fuse Testing area located north of site.

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

See notes.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Stored in igloos.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

|

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

Sensor Fused Weapons testing site and monitoring wells in area.

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

- Building 1703: Contained small metal drum labeled as Lead Azide wetted and Lead Styphnate, basic. Walls, ceilings, floor in good repair.
  - Building 1702: 3 cardboard containers of magnesium Teflon for fuze picher. 1 metal drum of PETN.
  - Building 1715: Conditioning igloo. Built about 6 months ago. Formerly used Bldg 1064 to do same thing. Conditioning helps control shrinkage of explosives.
  - Building 1718: 10 ft x 10 ft igloo (small). One of the small igloos was used for haz waste storage, but is now sealed.
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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 0800

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 0955

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Hazardous Waste Storage (1900 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Various materials stored in igloos.

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

See notes.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

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6. How were hazardous materials used at the site disposed of?

Stored in igloos.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

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Additional Information/Notes:

- Building 1914: BLU 97 demil area. Boxes had orange diamond with 1.4 symbol. Mr. Robertson stated that there is no segregation of hazardous wastes, and that he thought there was a haz waste log kept that would list what materials had been stored in each igloo. Only solids stored in this igloo. Igloos swept out when needed. Have had rodent problems with rodents entering through drains. Some patching on floor. Mr. Robertson indicated he was not aware of any accidents or spills in hazardous waste igloos. He inspects hazardous waste igloos on a weekly basis. There are several high security igloos that we would not have access to (1902 through 1905) – are painted white. Igloo walls are several feet thick. Small trees have grown on top of some igloos.
- Building 1917: Used to store munitions before being taken to demo-grounds. Currently storing grenades – labeled “bomb bdy w/zirconium sponge, fuse pod booster.
- Building 1916: Used for wet/dry sumpage material storage. Wet sumpage kept in plastic bag within cardboard box. Material comes from load lines.

Material burned at Pad No. 5. Dry sumpage comes from floors and knock out tables. Dry sumpage also stored in plastic bags.

- Building 1915: Used for liquid storage. Wet storage pallets used for spill prevention (secondary containment). Waste are from cleaning munition bodies, which are cleaned using steam, cosmoline, and water. Mr. Robertson reports never having to clean out pallets from a spill or leak from 55 gallon drums. Floor drying material used on floor to keep floor dry and to control dust.
- Building 1958: Observed maintenance person moving spill pallets – no liquid observed inside pallet. Igloo used for dry/wet storage. Wet storage consists of cosmoline and water (from label). Had wet sumpage material in cardboard boxes. Igloo contained 3 drums labeled as “trimsole” – possibly a lubricant for saws and maintenance equipment.
- Building 1961: Currently used for non-hazardous storage. Mr. Robertson reported that it could be used for haz waste storage though. Contained TNT vacuum dust from Area 1000, where residue is sucked out of bomb bodies and sold as scrap explosive. 40 pound maximum per box. Consistency is that of baby powder. Floor observed to be clean. Mr. Robertson reported that they are using igloo for general storage only at this time.
- Building 1974: On haz waste igloo list, but not being used for that anymore. Used to build charges for demo grounds.
- Building 1976: On haz waste list, but not being used for that anymore. Used for general storage. Also used to store material to be returned to vendor due to damage.

#### Non-Hazardous Igluos

- Building 1963: Used for storing supplemental charge assemblies.
- Building 1910: Used to store explosive material. Typically stored 4 to 6 months.
- Building 1934: Used to store munitions.
- Building 1907: Used to store tape, loctite, and materials from loading lines. Area 1900 is generally used for Explosive Storage only.
- Building 1986: Did not visit. Mr. Robertson indicated this is the only igloo with structural problems.
- No reported accidents at igloos.

On west side on 1900 area, outside of fence and along RR tracks is an old railroad loading dock. Was damaged by strong winds, and is being torn down and area used to store wooden pallets.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
 Interviewee: Drew Robertson Job Titles: Demo. Tech.  
 Interviewer: Kevin Wunder, Craig Johnson Interview Date: 6/6/06  
 Interview Start time: 1000 Interview Finish Time: 1045

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.

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### Site Information

2. Describe the history of the site?  
Hazardous Waste Storage (1800 Area). See Historical Records Review for details.

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

See notes.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?  
Stored in buildings.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes  No  Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes  No  Don't Know

Please provide names:

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Additional Information/Notes:

Generally, no evidence of explosive residue outside or inside of storage buildings. Brick buildings with wooden roof.

- Building 1813: Haz Waste storage – drum of spent carbon and bag residue observed. Numerous empty drums. Used for solid material only. Also contained about 50 drums of solid material that was tested and determined to be non-haz. No evidence of spills. Some rainwater observed on floor (had strong thunderstorms this morning). Mr. Robertson reported out shipping materials every 4 to 6 months. Had just completed an out shipment, thus only 1 drum present.
- Building 1824: General Storage – cardboard dividers, wooden boxes formerly used to store supplemental charges. Wooden boxes labeled as “Empty” and certified as explosive content removed. Empty munitions boxes.
- Building 1804: used to store fuzes, stand-off collars, detonator stab. No raw explosives stored in Building. Dust is on floor, but does not appear to be explosives. Mr. Robertson not aware of plant storing materials from other facilities.

Drove through entire area of igloos. Some buildings had orange triangle placard with numbers 1 or 4 on it. List provided below:

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- Building 1802 – 4
- Building 1803 – 4
- Building 1804 – 4
- Building 1805 – No designation (ND)
- Building 1806 – 1
- Building 1807 – ND
- Building 1808 – ND
- Building 1809 – 1
- Building 1810 – ND
- Building 1811 – ND
- Building 1812 – 1
- Building 1813 – ND (Haz Waste)
- Building 1814 – 1
- Building 1815 – ND
- Building 1816 – ND
- Building 1817 – 1
- Building 1818 – ND
- Building 1819 – ND
- Building 1820 – 1
- Building 1821 – 4
- Building 1822 – 1
- Building 1823, 1824, 1825 – ND
- Building 1826 – 1

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1415

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1455

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Inert Storage (1400 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
Inert storage.

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Building 67 used to store pesticides.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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---

6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

---

---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

---

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

Inert Storage buildings with RR loading docks between buildings. All general storage, no transite siding. No explosives – only inert storage.

- Building 1420 North: Contained wooden shipping box containers, threaded liners in cardboard boxes. Historically used for shipping and receiving. Brick bldgs with wooden roofs. Buildings swept in winter months during down times. Water puddles observed on floor – probably from leaking roof.
- Building 67: Pesticide Storage – Contains fenced in building and loading platform. Platform is curbed with a valved drain. Lean-to shaped building. Empty 55 gallon drum and fire extinguisher on ground. Sign on door states pesticides in building includes: rodenticides, bromical, diazinon, ureabor, dursban T.C, aerosol cans, round up. Several rusted drums near east side of building.
- Building 1412 North: Numerous wooden crates stored here. All labeled as explosive content removed. Metal stripping. No evidence of spills, building concrete not stained. Water on floor – probably from rainwater.
- Building 1410 South: Empty wooden crates. Rain water on floor. No evidence of spills/staining. Rail docks run between buildings looked OK. No evidence of staining/spilling.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1500

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1545

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 
- 

### Site Information

2. Describe the history of the site?  
Bulk Storage Igloos (1500 Area). See Historical Records Review for details.
- 
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
Storage only.

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?  
N/A

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---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

1500 Area – 40 foot igloos used for bulk explosives storage.

- Rail-dock – several semi-trailers filled with wooden pallets. One trailer labeled “Explosives” on side. No evidence of staining on ground near tracks or trailers. Track area leased and used for railroad car storage – obsolete rail cars stored here. Currently storing flatbed cars – been here about 3 months. Prior – stored tank cars. Rail cars not associated with 1500 Area. \* Most rail cars on property are not active and are stored here as part of a lease agreement.
- Building 1542: Explosives storage.
- Building 1541: Explosives storage.
- Building 1533: Wooden crates containing munitions.
- Building 1502: same as 1533.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Drew Robertson  
Interviewer: Kevin Wunder, Craig Johnson  
Interview Start time: 1545

Job Titles: Demo. Tech.  
Interview Date: 6/6/06  
Interview Finish Time: 1630

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Drew Robertson is a Demolition Technician for DZI.
- 

### Site Information

2. Describe the history of the site?  
Bulk Storage Igloos (1600 Area). See Historical Records Review for details.
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
Storage.

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):  
Storage only.

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6. How were hazardous materials used at the site disposed of?  
Haz waste storage buildings.

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

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---

16. If wastewater was generated at the site, where/how was it treated?  
N/A

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---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

Dean Cramer.

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information/Notes:

At 1600 Area – Very active area – close to 1000 Area. Primarily used for storage of munitions before conditioning.

- Building 1601: loading dock – doing maintenance of railcars – replacing floors. Forklift and pallets in area. No evidence of spills near tracks.
- Building 1620: Expired production line materials storage. Spray paint, McLube 2002, tape, methyl amyl ketone, liquid xylene, ink stencil marking. Xylenes not stored with secondary containment. 4 – 55 gallon drums of acetone w/o secondary containment. Also observed tape, grease, enamel paint dated 4-5-06. Is a catch all for expired materials, which are sold.
- Building 1612: Munitions storage.
- Building 1616: Same as 1612.
- Building 1607: Same as 1612.

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Clair Shaw

Job Title: Radiation Safety

Officer, Day & Zimm

Interviewer: Jeff Hopkins

Interview Date: 6-6-06

Interview Start time: 0945

Interview Finish Time: 1010

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Radiation Safety Officer, X-ray Inspection and Non-destructive Testing

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### Site Information

2. Describe the history of the site?

Has been working at KSAAP doing inspections since 1967.

Has been Radiation Safety Officer since 2005. Works primarily in Building 1019.

---

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

Building 1019 is used for inspection of various finished munitions.

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

The VARJAN 4 MEV Linear Accelerator used for x-ray analysis has 46 pounds depleted uranium which is sealed. Storage is in accordance with NRC PERMST Sub-1283, Docket #040-08483.

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

N/A

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6. How were hazardous materials used at the site disposed of?

N/A

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

N/A

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

N/A

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

N/A

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

N/A

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

N/A

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

N/A

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

N/A

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16. If wastewater was generated at the site, where/how was it treated?

N/A

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

N/A

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

N/A

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

N/A

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes  No  Don't Know

Please describe:

N/A

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

N/A

---

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

Plan to submit Varian Linear Accelerator back to manufacturer in July 2006.  
Mr. Shaw showed us the paperwork that was completed, and indicated that they  
are trying to finalize shipping arrangements. I traded business cards with  
Mr. Shaw and we will be in contact prior to the submission of the final report.

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## Sample Personnel Interview Questionnaire

Installation: KSAAP  
Interviewee: Carolyn Smalley  
Interviewer: Vincent DeCianne  
Interview Start time: 0800

Job Title: DZI  
Interview Date: 6-6-06  
Interview Finish Time: 1000

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Site-wide environmental
- 

### Site Information

2. Describe the history of the site?  
Not Discussed - ND
- 

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:  
ND

---

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

ND

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

ND

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---

6. How were hazardous materials used at the site disposed of?  
Through DRMO

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---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

ND

---

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

ND

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

ND

---

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

ND

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

ND

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

ND

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

ND

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:  
ND

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:  
ND

---

16. If wastewater was generated at the site, where/how was it treated?  
ND

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:  
ND

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:  
ND

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:  
ND

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20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:  
ND

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:  
ND

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:  
ND

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Additional Information:

The RCRA Part B and Part A permits were primarily discussed. Part B permit expired in 1994. An application for renewal has been submitted in 1994 and permit modifications were submitted in 1997, 1999, 2001 and 2003. All of which have not been addressed by ESDPH.

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Treatment units include the following

- CWI – incinerator
  - OD range
  - OB range (Pad 5)
  - Solvent recovery – never used
- 
- 
- 
-

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Richard Thomas

Job Title: KDHE (KSAAP former employee)

Interviewer: Brian Williamson

Interview Date: 6-13-06

Interview Start time: \_\_\_\_\_

Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).

Permitting, leasing and maintaining agriculture properties

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### Site Information

2. Describe the history of the site?

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3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Hazardous substances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

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6. How were hazardous materials used at the site disposed of?

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7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

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9. What regulatory agencies were notified of the discharge/spill?

Please describe:

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

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11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

Firing and bombing (grenade range)

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12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

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13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

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14. Have there been any demolition activities in this area or in relation to this facility?

Yes      No      Don't Know

Please describe:

Inactive load lines – 1200 area – remnants of buildings

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes      No      Don't Know

Please describe:

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16. If wastewater was generated at the site, where/how was it treated?

At an onsite facility

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17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes      No      Don't Know

Please describe:

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18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes      No      Don't Know

Please describe:

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19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes      No      Don't Know

Please describe:

---

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

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21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

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22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

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Additional Information:

See attached.

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Richard Thomas (620) 431-2390  
- Laid off '96

1987 Facility Engineer on Railroad Drainage System

1991 Under Carolyn Smalley (Environmental Group)

- Explosive Waste Incinerator
- RCRA Inventory Permit
- Original Storm Water Permit
- Natural Resources
  - Leasing and maintaining of agriculture properties
- No recollection of a reportable qty. spill
- Nothing really found (contamination) at SWMU 14 & 15
  - Used for grazing

700 Area

- Helped with support of contract
- Explosions at south end of line
  - Blast walls and partitions draw blast towards them
- Contaminated outside of building probably prior to 1970
  - Not related to explosives

3000 Area (Lead Azide)

- Used portion of facility as a check (test area)
- Never produced finish product
- Buildings were cleaned

800 Area – lead floors to produce static electricity

## Sample Personnel Interview Questionnaire

Installation: KSAAP

Interviewee: Glenn Tisdale

Job Title: USACE IRP, Project

Manager

Interviewer: Jeff Hopkins

Interview Date: 6-5-06

Interview Start time: 1230

Interview Finish Time: 1530

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
USACE IRP Project Manager for last 5 years. In depth knowledge of IRP  
Program and current status and removal actions of SWMUs. This interview/site  
visit was centered on the IRP Program.

### Site Information

2. Describe the history of the site?  
1. SWMU 8 (900 Area), 2. SWMU 1 (100 Area), 3. SWMU 2 (200 Area),  
4. SWMU 3 (200 Area), 5. SWMU 4 & 5 (300 Area), 6. SWMU 6 (500 Area)  
7. SWMU 11 & 24 (E. 2700 Area), 8. SWMU 9 (1000 Area), 9. SWMU 10  
(1100 Area), 10. SWMU 13 (closed LF), 11. SWMU 15 (LF), 12. SWMU 16  
(Closed LF), 13. SWMU 17 (W. 2700), 14. SWMU 18, 15. SWMU 19, 16. SWMU  
23, 17. SWMU 25, 18. SWMU 7, 19. SWMU 12, 20. SWMU 14

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

See attached documentation.

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4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Radioactive materials	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

Answers are provided to SWMU Proper, and not to buildings or other structures within the SWMU footprint.

See attached documentation.

5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Any other waste materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

N/A

6. How were hazardous materials used at the site disposed of?

N/A

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes  No  Don't Know

Please describe:

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8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

KDHE, Region 7 EPA

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10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes  No  Don't Know

Please describe:

---

12. Was any of the property used for fire training?

Yes  No  Don't Know

Please describe:

---

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes  No  Don't Know

Please describe:

---

14. Have there been any demolition activities in this area or in relation to this facility?

Yes  No  Don't Know

Please describe:

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15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

16. If wastewater was generated at the site, where/how was it treated?

N/A

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes  No  Don't Know

Please describe:

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes  No  Don't Know

Please describe:

See attached documentation.

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes  No  Don't Know

Please describe:

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes       No       Don't Know

Please describe:

Scoping has been done for additional soil removal and investigation of pond sediments of 1200 Area drainage pond (Pond 2).

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes       No       Don't Know

Please provide names:

All facility personnel. According to Bret Raines, Mr. Tisdale has the most thorough knowledge.

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes       No       Don't Know

Please provide names:

Groundwater Corrective

Additional Information:

- Water Towers – lead contaminants in soil – removed in 2002
- Burn pads approx. 50x50, Burned on dirt – metal deconned and sent to landfill
- Burn Pad 6 is still active part-time
- Hot spot removal in 1100 Area
- 1200 Area – chromium in ponds below goals – further investigation to see if Chrome-3 is present, Scope of Work for removal of contamination ready.
- Contents of SWMU 13 moved to SWMU 15
- Contamination found between SWMU 14 & SWMU 15 – both 14 & 15 need re-covering.

## Sample Personnel Interview Questionnaire

Installation: KSAAP  
 Interviewee: Ralph Walden Job Title: Retired  
 Interviewer: Brian Williamson Interview Date: 6-19-06  
 Interview Start time: \_\_\_\_\_ Interview Finish Time: \_\_\_\_\_

### Interviewee Background

1. Job responsibilities, areas of oversight (area/building/site-wide).  
Environmental Compliance, Department of Energy and Environment, Spill  
Coordinator

### Site Information

2. Describe the history of the site?  
Produced Ammunitions

3. Is the property or any adjoining property used for any of the following?

Gasoline/fueling station	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Motor repair facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Dry cleaners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Photo developing laboratory	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Plating shop	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Medical or dental facility	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Don't Know
Junkyard or landfill	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Training area	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Waste treatment, storage, disposal, processing or recycling facility	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe:

NA

4. Are there currently, or have there been previously any of the following stored on or used at the property or any adjoining property:

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Drums, sacks, cartons, or bulk chemical containers	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Hazardous materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides (insecticides, herbicides, fungicides, avicides, rodenticides)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Radioactive materials	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (include site and length of time of storage/use and condition of item):

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5. To the best of your knowledge, have any of the following been dumped, buried and/or burned on the property?

Asbestos	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Automotive batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Hazardous substances	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Industrial batteries	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Ordnance/explosives	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Paints	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Pesticides	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Petroleum products	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know
Tires	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Don't Know
Any other waste materials	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't Know

Please describe (locations and time periods of disposal):

---



---

6. How were hazardous materials used at the site disposed of?

---



---

7. Was mercury used or contained in any machinery parts, or electrical, pressure, vacuum instruments, sprinkler check valves, or other items?

Yes       No       Don't Know

Please describe:

NA

8. Have there been any discharges/spills of hazardous materials or petroleum products and their derivatives on the property?

Yes       No       Don't Know

Please describe:

Various instances where a tank of sort was overfilled onto the ground.

9. What regulatory agencies were notified of the discharge/spill?

Please describe:

10. Was soil and/or groundwater affected as a result of the discharges/spills?

Yes       No       Don't Know

Please describe:

Soil beneath these areas was affected and was removed and disposed of.

11. Was any of the property used as a firing and/or bombing range (including skeet/trap and indoor ranges)?

Yes       No       Don't Know

Please describe:

12. Was any of the property used for fire training?

Yes       No       Don't Know

Please describe:

13. Was there a pesticide shop, storage or mixing area located on-site?

Yes       No       Don't Know

Please describe:

There was a building designated for mixing and storing pesticides.

14. Have there been any demolition activities in this area or in relation to this facility?

Yes       No       Don't Know

Please describe:

The removal of burn pads.

---

15. Are there currently, or have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal?

Yes       No       Don't Know

Please describe:

Oxidation ponds were used prior to pink water treatment buildings. Ponds would overflow often into the nearby stream. Laundry facility's water drained into pond most likely and had possible contamination due to washing of powder uniforms employees wore.

---

16. If wastewater was generated at the site, where/how was it treated?  
Eventually at an on-site treatment plant.

---

17. Does the property discharge wastewater on or adjacent to the property other than storm water or into a sanitary sewer system?

Yes       No       Don't Know

Please describe:

Not Discussed

---

18. Do you have knowledge of any documented environmental violations or environmental liens associated with the site?

Yes       No       Don't Know

Please describe:

---

19. Do you have knowledge of any environmental issues or information regarding properties adjacent to the site?

Yes       No       Don't Know

Please describe:

---

20. Are you aware of any other past activities or events or have you made any observations that you feel might be useful to this study?

Yes     No     Don't Know

Please describe:

---

21. Do you have knowledge of any other people who may have additional knowledge of activities at the site?

Yes     No     Don't Know

Please provide names:

---

---

---

22. Do you have knowledge of any documents that may provide additional useful information on potential impacts to the environment at the site? Examples: Environmental assessment reports, audits, permits, AST/UST registrations, MSDSs, community right-to-know plans, hydrogeologic reports, notices or other correspondence relating to past or current violations of environmental laws, SPCCs, hazardous waste generator notices, etc.

Yes     No     Don't Know

Please provide names:

Don't know name but Army conducted an investigation in the 1980s.

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Additional Information:

● 700 Area

- State came down to investigate the 700 area due to excessive amount of contamination to land. Thought was that the area was exceeding their NPDES permit. Treatment plant came into plan (had to jury-rig it)

● Army Study in the 1980s

- Looked at aerial photos with past and present employees.  
- Looked at areas where waste was literally thrown out the door and into the parking lots.

● Stories about guys cleaning the stencils would throw their waste in the streets or parking lots (out the door).

- Paint Booth operator would (most-likely) throw solvents used to clean out paint brushes out the door.

- Open Detonation Area

- 20 holes were dug at a time (twice a day)
- each hole had 50 lbs of explosives, sump contents were also added to these holes and they were detonated.

→ sometimes sump material wouldn't detonate but just spread it out

- When it would rain the run-off would cause the drainage ditches to turn pink because of contamination.

- USTs were removed and ASTs were installed in place with containment.

- Coil fire boilers in 200 and 1200 Areas.

- Boiler house in 200 Area possibly contaminated with asbestos.

- Concrete sumps could possibly have cracks in them and explosives could have seeped into these cracks creating pockets of substances like TNT.

- 1000 Area – there was TNT powder everywhere (walked on it).

- Oil contaminated dirt from leaks from tanks being filled was stored on the south end of the 200 line. Tilled regularly to initiate biodegradation.

- Landfill on east side of plant (atop of the hill) contained a significant amount of cement asbestos shingles when a reproofing job took place (approx. 1000s of sq. ft. of asbestos shingles).



Appendices redacted.



Appendices redacted.



Appendices redacted.



Appendices redacted.



The ECP Process requires oversight by an environmental professional. The USEPA’s All Appropriate Inquiry (AAI) final ruling (40 CFR Part 312) defines an environmental professional as an individual who has the following qualifications:

- Current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory and has the equivalent of three (3) years of full-time relevant experience; or
- Licensed or certified by the federal government, a state, tribe, or U.S. territory to perform environmental inquiries as defined in 40 CFR 312.21 and has the equivalent of three (3) years of full-time relevant experience; or
- A Baccalaureate or higher degree from an accredited institution of higher education in science or engineering and the equivalent of five (5) years of full-time relevant experience; or
- Has the equivalent of ten (10) years of full-time relevant experience.

The final AAI rule defines “relevant experience” as participation in the performance of ESAs that may include environmental analyses, investigations, and remediation which involve the understanding of surface and subsurface environmental conditions and the processes used to evaluate these conditions and for which professional judgment was used to develop opinions regarding conditions indicative of releases or threatened releases to the subject property. Environmental professional qualifications for the primary URS ECP team members who contributed to the KSAAP ECP Report are presented in **Table I-1**.

<b>TABLE I-1 ENVIRONMENTAL PROFESSIONAL QUALIFICATIONS</b>				
<b>Name</b>	<b>Role</b>	<b>Certifications</b>	<b>Education</b>	<b>Years Experience</b>
Steve Cox	Program Manager	Certified Hazardous Materials Manager (CHMM)	BA Chemistry BA Biology	25
Craig Johnson	Project Manager	CHMM OSHA 40 Hr	BS Chemistry	14
Jeff Hopkins	Visual Site Inspection Team Member	OSHA 40 Hr ACM/LBP Radon	BS Biology	17
Kevin Wunder	Visual Site Inspection Team Member	OSHA 40 Hr PG – Nebraska/ Indiana	BS Earth Science	19
Vince DeCianne	Visual Site Inspection Team Member	OSHA 40 Hr RCRA Waste Inspection Waste Generator	BS Chemical and Petroleum Refining Engineering	8