

FY2016

FORT KNOX

Army Defense Environmental Restoration Program

Installation Action Plan

Printed 07 September 2016

Table of Contents

Statement Of Purpose.....	1
Acronyms.....	2
Acronym Translation Table.....	5
Installation Information.....	6
5-Year / Periodic Review Summary.....	8
Land Use Control (LUC) Summary.....	9
Cleanup Program Summary.....	13
Installation Restoration Program.....	15
IRP Summary.....	16
IRP Contamination Assessment.....	18
IRP Previous Studies.....	20
Installation Restoration Program Site Descriptions.....	33
CCFTK-7342 UST 7342.1, .2, .3.....	34
FTK-011 17 WWTP SLUDGE DRYING BEDS.....	35
FTK-020 DRMO FORMER WASTE OIL TANK SITE.....	36
FTKX-01 CLOSED LANDFILL (9TH AND WILSON ROAD).....	37
FTKX-02 RESIDENTIAL LANDFILL.....	39
FTKX-10 WWTP SLUDGE LAGOONS (2).....	41
FTKX-15D UST SITE 2823 INVESTIGATION/REMEDATION.....	42
FTKX-21 BOATWRIGHT MAINT AREA NR BLD 2775.....	43
FTKX-22 BLD T-112 UST PESTICIDE.....	44
FTKX-40 UST 1473-A SITE CLOSURE.....	45
Installation Restoration Program Site Closeout (No Further Action) Sites Summary.....	46
Installation Restoration Program Schedule.....	49
Installation Restoration Program Milestones.....	49
IRP Schedule Chart.....	52
Compliance Restoration.....	53
CR Summary.....	54
CR Contamination Assessment.....	55
CR Previous Studies.....	56

Table of Contents

Compliance Restoration Site Descriptions.....	64
CCFTK-103 Multiple Heating Fuel UST Remedial.....	65
Compliance Restoration Site Closeout (No Further Action) Sites Summary.....	66
CR Schedule.....	67
Compliance Restoration Milestones.....	67
CR Schedule Chart.....	69

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial action (RA).

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), Fort Knox (FTKX), the Installation Management Command (IMCOM) - Southeast Region, the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

Acronyms

AEDB-CC	Army Environmental Database - Compliance-related Cleanup
AEDB-R	Army Environmental Database - Restoration
BRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
C/DD	Construction/Demolition Debris
CAP	Corrective Action Plan
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CMI(C)	Corrective Measure Implementation (Construction)
CMI(O)	Corrective Measure Implementation (Operations)
CMS	Corrective Measures Study
COC	Contaminants of Concern
CR	Compliance Restoration
CS	Confirmatory Sampling
CST	Cadet Summer Training
DD	Decision Document
DERP	Defense Environmental Restoration Program
DES	Design
DRMO	Defense Reutilization and Marketing Office
EMD	Environmental Management Division
EOD	Explosive Ordnance Disposal
FRA	Final Remedial Action
FTKX	Fort Knox, designation in AEDB-R
FY	Fiscal Year
IAP	Installation Action Plan
ID	Identification
IDW	Investigation-Derived Waste
IMCOM	Installation Management Command
IMP(C)	Implementation (Construction)
IMP(O)	Implementation (Operation)
INV	Investigation
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
ISC	Initial Site Characterization
KDEP	Kentucky Department of Environmental Protection
LF	Landfill
LTM	Long-Term Management
LTO	Long-Term Operation
LUC	Land Use Controls
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MR	Munitions Response
N/A	Not Applicable

Acronyms

NFA	No Further Action
NOTI	Notice of Technical Inadequacy
NPL	National Priorities List
O&M	Operations and Maintenance
OB	Open Burning
OD	Open Detonation
ODUSD (I&E)	Office of the Deputy Under Secretary of Defense for Installations and Environment
OWS	Oil/water Separator
PAH	Polycyclic Aromatic Hydrocarbon
PBA	Performance-Based Acquisition
PBC	Performance-Based Contract
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PCP	Pentachlorophenol
POL	Petroleum, Oil and Lubricants
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
SWMUG	Solid Waste Management Unit Group
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
TRC	Technical Review Committee
USACC	US Army Cadet Command
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency (currently USACHPPM)
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

µg/kg microgram per kilogram

Acronym Translation Table

CERCLA

Preliminary Assessment(PA)
Site Inspection(SI)
Remedial Investigation/Feasibility Study(RI/FS)
Remedial Design(RD)
Remedial Action (Construction)(RA(C))
Remedial Action (Operation)(RA(O))
Long Term Management(LTM)
Interim Remedial Action(IRA)

RCRA

= RCRA Facility Assessment(RFA)
= Confirmation Sampling(CS)
= RCRA Facility Investigation/Corrective Measures Study(RFI/CMS)
= Design(DES)
= Corrective Measures Implementation (Construction)(CMI(C))
= Corrective Measures Implementation (Operation)(CMI(O))
= Long Term Management(LTM)
= Interim Measure(IM)

CERCLA

Preliminary Assessment(PA)
Remedial Investigation(RI)
Feasibility Study(FS)
Remedial Design(RD)
Remedial Action (Construction)(RA(C))
Remedial Action (Operation)(RA(O))
Long Term Management(LTM)
Interim Remedial Action(IRA)

RCRA Underground Storage Tank (UST) Site Phase Terms

= Initial Site Characterization(ISC)
= Investigation(INV)
= Corrective Action Plan(CAP)
= Design(DES)
= Implementation (Construction)(IMP(C))
= Implementation (Operations)(IMP(O))
= Long Term Management(LTM)
= Interim Remedial Action(IRA)

Installation Information

Installation Locale

Installation Size (Acreage): 109054

City: Fort Knox

County: Bullitt, Hardin, Meade

State: Kentucky

Other Locale Information

Fort Knox is a certified Kentucky city, covering 108,955 acres that is located throughout portions of Bullitt, Hardin and Meade counties. The Army post is the 17th largest urban community in the Commonwealth of Kentucky with a workweek population of about 23,200. Fort Knox is adjacent to the city of Radcliff, 15 miles north of Elizabethtown and about 35 miles south of Louisville. Its training area totals 101,353 acres and includes 63 firing ranges, 18 major training areas, five base camps, 29 bivouac sites and numerous firing points across the military installation. The Army post directly supports a population of about 160,000 active and reserve component service members, retirees, military dependents, Department of Defense civilians and contractors in the region.

The military installation was established as Camp Knox in 1918 when the US government leased about 20,000 acres for artillery training. The surrounding area had previously served as a training area for cavalry units. The Army post's namesake is Henry Knox, who was the Chief of Artillery of the Continental Army during the Revolutionary War and also the first Secretary of War for the United States. In 1932, Camp Knox was made a permanent installation and renamed Fort Knox. Fort Knox became the home of armor and cavalry in 1940 and held that distinction for 71 years. This decades-old mission moved to Fort Benning, Georgia in 2011 as a result of the 2005 Base Realignment and Closure (BRAC) decisions. However, the 2005 BRAC and Army force restructure also resulted in such organizations as US Army Cadet Command (USACC), US Army Human Resources Command, the 84th Training Command, 3rd Sustainment Command (Expeditionary), 11th Aviation Command, 100th Division, and 83rd Army Reserve Readiness Training Center moving to Fort Knox.

Installation Mission

Fort Knox is home to five two-star commands - the USACC, US Army Human Resources Command, US Army Recruiting Command, 84th Training Command and 1st Army East Command - and is among the most diverse, multifaceted and multifunctional Army posts. There are significant active and reserve component footprints on Fort Knox, and thousands travel to the Army post each year for coursework and training. In fact, Fort Knox is home to the Army's single largest training event, USACC's cadet summer training (CST) program. About 4,500 instructors and 12,000 cadets converge on Fort Knox between the months of May and August for CST. The installation's motto is "Strength Starts Here," as Army accessions missions and the management of Soldiers' careers are all headquartered on the military installation. In all, more than 100 commands, units, organizations and agencies operate on Fort Knox.

Lead Organization

IMCOM

Lead Executing Agencies for Installation

Fort Knox Environmental Management Division (EMD)

US Army Corps of Engineers (USACE), Louisville District /Nashville District

Regulator Participation

Federal	US Environmental Protection Agency (USEPA) Region IV
State	Kentucky Department of Environmental Protection (KDEP)

National Priorities List (NPL) Status

FORT KNOX is not on the NPL

Installation Information

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

The community has expressed no sufficient, sustained interest in a RAB.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Metals, Pesticides, Polychlorinated Biphenyls (PCB), Polycyclic Aromatic Hydrocarbons (PAH), Semi-volatiles (SVOC), Volatiles (VOC)

Affected Media of Concern: Groundwater, Sediment, Soil, Surface Water

CR

Primary Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Affected Media of Concern: Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	201110	201209	2012
Planned	201610	201709	2017

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
Decision Document for SWMU FTK-044 DRMO	FTK-020
FTK-01 Closed Landfill 9th and Wilson	FTKX-01
Pesticide Rinse Tank	FTKX-22
Spent Solvent Storage Area Boatwright	FTKX-21
UST Site 1473-A	FTKX-40
WWTP Sludge Lagoon	FTKX-10

Results 7 RIP sites with LUCs evaluated to ensure continued remedy protectiveness. No major issues or deficiencies were noted during the review.

Actions Some follow-up action needed: continued LTM, finalization of RCRA permit modification, and continued inspections of LUCs and other engineered controls.

Plans Another periodic review will be conducted in FY 2017.

Recommendations and Implementation Plans:

General: Finalize the Resource Conservation and Recovery Act (RCRA) permit modification that will, in effect, finalize the remedies currently operating as interim measures. The installation will be required to request a Class 3 modification.

FTKX-01: Inspect the vegetative cover and re-seed areas with sparse vegetation. Erosion runnels and tire ruts need to be filled with topsoil prior to re-seeding. This is an ongoing effort.

FTKX-015D: Assure monitoring reports presenting operation and maintenance (O&M) activities and performance monitoring data and results as specified in the draft CAP are being generated, and submitted annually, at a minimum. This has been confirmed.

FTKX-040: Consider evaluating if site conditions are favorable for natural attenuation of contaminants to occur within a reasonable time frame. If site conditions are not favorable, consideration of an active remedy may be warranted.

Land Use Control (LUC) Summary

LUC Title: DRMO

Site(s): FTK-020

ROD/DD Title: Decision Document for SWMU FTK-044 DRMO

Location of LUC

The Defense Reutilization and Marketing Office (DRMO) land use controls (LUCs) apply to approximately 15 acres located in the north-central portion of the cantonment area east of the intersection of Brandenburg Station Road and Frazier Road.

Land Use Restriction: Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit groundwater extraction that interferes with Remedial Action system, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - Mitigation area(s) protection, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on land use

Date in Place: 200803

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: 200803

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: METALS, PETROLEUM HYDROCARBON, VOC

Additional Information

N/A

LUC Title: FTKX-01 Closed Landfill

Site(s): FTKX-01

ROD/DD Title: FTK-01 Closed Landfill 9th and Wilson

Location of LUC

The FTKX-01 closed landfill is a 15-acre site at the corner of Wilson Road and 9th Avenue.

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic, Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit groundwater extraction that interferes with Remedial Action system, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - Prohibit, or otherwise manage excavation below a specified depth, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Guards, Markers, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on land use

Land Use Control (LUC) Summary

Date in Place: 200702

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: 200802

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: METALS, ORGANICS, PAH, PESTICIDES, VOC

Additional Information

N/A

LUC Title: Pesticide Rinse Tank

Site(s): FTKX-22

ROD/DD Title: Pesticide Rinse Tank

Location of LUC

The pesticide rinse tank site is located adjacent to Building 112 and south of Eleventh Avenue.

Land Use Restriction: Media specific restriction - Prohibit groundwater extraction that interferes with Remedial Action system, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Markers, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on land use

Date in Place: 200803

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: 200803

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: METALS, PESTICIDES, VOC

Additional Information

N/A

LUC Title: Spent Solvent Area

Site(s): FTKX-21

ROD/DD Title: Spent Solvent Storage Area Boatwright

Location of LUC

The spent solvent area is located south of Frazier Road and north of the Boatwright Maintenance Area in the north central portion of the cantonment area.

Land Use Restriction: Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - prohibit use of

Land Use Control (LUC) Summary

groundwater for consumption or domestic purposes, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on land use

Date in Place: 200803

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: 200803

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: METALS, VOC

Additional Information

N/A

LUC Title: UST Site 1473-A

Site(s): FTKX-40

ROD/DD Title: UST Site 1473-A

Location of LUC

The UST site 1473-A is located near the center of the cantonment area between Pershing Drive and Knox Street.

Land Use Restriction: Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Markers, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on land use

Date in Place: 200803

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: 200803

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: VOC

Additional Information

N/A

LUC Title: UST Site 2823

Site(s): FTKX-15D

Land Use Control (LUC) Summary

ROD/DD Title: FTKX-15D UST Site 2823

Location of LUC

The underground storage tank (UST) site 2823 is located adjacent to building 2807 in Mansfield Motor Park.

Land Use Restriction: Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Restrict land use - Mitigation area(s) protection, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Markers, Signs

Types of Institutional Controls: Deed Notices, Notations in Master Plan, Restrictions on land use

Date in Place: 200807

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: 200807

LUC Enforcement: Annual Inspections, 5 Year Reviews, Markers, Other

Contaminants: PETROLEUM HYDROCARBON

Additional Information

N/A

LUC Title: WWTP Sludge Lagoons

Site(s): FTKX-10

ROD/DD Title: WWTP Sludge Lagoon

Location of LUC

The wastewater treatment plant sludge lagoons are located in the south-central portion and along the eastern perimeter of the cantonment area, adjacent to the current wastewater treatment plant.

Land Use Restriction: Media specific - Prohibit activities that results in contact with contaminated sediments, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: Fences, Markers, Signs

Types of Institutional Controls: Deed Notices

Date in Place: 200711

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: USACE District

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

LUC Enforcement: Annual Inspections, 5 Year Reviews, Other

Contaminants: INORGANICS, METALS, PAH, PCBs, PESTICIDES, VOC

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

Fort Knox was named in honor of the Revolutionary War Chief of Artillery, Major General Henry Knox, and was established as Camp Knox in January 1918 on 20,000 acres of leased land. The camp was used to create a training center for field artillery during World War I. Construction of camp facilities began in July 1918. From 1922 to 1931, Camp Knox was closed as a permanent installation and used primarily as a training center for the Fifth Corps Area US Army Reserve Officers, citizens, military training camps, and National Guard units. On Jan. 1, 1932, Congress designated the installation as a permanent garrison and renamed it Fort Knox.

The installation had expanded in various military activities before and after World War II, and by 1943 the total area of the installation had increased to approximately 110,000 acres. In 1955 the armored combat division was transferred to Fort Knox, and the principal mission of the installation until 2010 was basic combat training and advanced individual training in armored vehicles.

Currently Fort Knox is a multifunctional, multicommand installation. Fort Knox has a population of over 30,000 Soldiers, family members and civilian employees. Units today include Human Resources Command, Army Recruiting Command and USACC. Fort Knox units are considered "Partners in Excellence" and include the 3rd Brigade of the 1st Infantry Division, the 84th Training Command and the Ireland Army Hospital.

Most of the water supply for Fort Knox comes from groundwater, obtained from a shallow well field located five miles north of the cantonment area, in alluvial sediments near the Ohio River. Twelve water supply wells, screened in the river sediments and ranging in depth from 32.3 to 45.1 meters (106 to 148 feet), provide up to approximately 9,462,500 liters (2.5 million gallons) per day. The average public water use is 9,027,225 liters (2,385,000 gallons) per day, while the average industrial use is 1,003,025 liters (265,000 gallons) per day. Approximately 25 percent of the water used at Fort Knox is supplied by Otter Creek. Groundwater quality varies with location. The water from the limestone aquifers is generally hard; this is attributed to the presence of calcium carbonate. The water from Otter Creek is generally hard and fairly clear, but it discolors during flooding, and bicarbonate, hardness, and pH levels are usually higher than those in the other streams on Fort Knox. McCracken Spring, which emanates from the St. Louis limestone located just west of Otter Creek, provides the remainder of the Fort Knox supply. The McCracken Spring reservoir and Otter Creek reservoir (located about 61 meters or 200 feet downstream of the McCracken Spring reservoir) supply up to 5.7 million liters per day (1.5 million gallons) per day.

Groundwater beneath Fort Knox will likely occur in two hydrological regimes: in the bedrock zone and in the unconsolidated zone where the groundwater table is expected to be located at or below the soil-bedrock interface. The bedrock hydrogeology in the Fort Knox area is primarily karstic with sinking streams, springs, and sinkholes. The karst topography is the product of the physical and chemical weathering of limestone bedrock. Flow through the subsurface in karst terrains often occurs in discrete dendritic or trellised conduits that can be similar to the flow of surface streams. Conduits in the Fort Knox vicinity originate along pre-existing planar structures such as bedding planes, joints, and faults. Acidic waters gradually erode the existing secondary permeability, forming larger solution features. Flow along bedding planes is typically the preferred route, until solution features are found. Where the soil cover is thick, a perched water table may exist at or above the soil-bedrock interface, where its flow is controlled by differences in the lithology of the unconsolidated material, or by irregularities in the weathered bedrock surface. Thin perched water is considered transient in nature, and eventually recharges the bedrock aquifer. Surface water generally falls into one of three categories: rivers, streams and drainage, and impoundments.

The installation is a large quantity hazardous waste generator and currently has a permitted transportation, storage, and disposal facility to store hazardous waste generated at the installation. A variety of hazardous waste is generated as a result of maintenance activities, printing and painting operations, and shops (i.e., automotive, battery, electric communications, and medical supply). Typical hazardous wastes include solvents and heavy metals, effluent fixer and developer, spent batteries, and chemical defense equipment. Additionally, many of the wastes received at the hazardous waste storage building (Building 2949) are commercial chemical products that are either surplus or have exceeded their shelf lives. The installation's hazardous waste is stored in a single hazardous waste storage building segregated into five bays.

The installation applied for and received a RCRA Part B permit for hazardous waste storage, in accordance with the 1984 hazardous and solid waste amendments to RCRA. The Kentucky Natural Resources and Environmental Protection Cabinet, the KDEP, Division of Waste Management was the regulatory agency that granted and administered the compliance reporting and inspections of this permit.

On Sept. 28, 1986 permit number KY6-210-020-479 became effective. The installation received a notice of violation from the USEPA dated Feb. 19, 1987, for not providing corrective action information by December 1986, as required by the RCRA Part B permit.

Cleanup Program Summary

Installation Historic Activity

In January 1987, the US Army Environmental Hygiene Agency (USAEHA) made a site visit to develop a preliminary corrective action information package. The RCRA facility assessment (RFA) plan dated April 20, 1988, was prepared by the USAEHA based on the site visit and other information subsequently provided by Fort Knox. This plan was submitted to the USEPA, thereby fulfilling the requirements of the RCRA Part B permit.

The installation received a notice of technical inadequacy (NOTI) on the RFA plan dated Dec. 20, 1988. On Feb. 16, 1989 Fort Knox submitted the response comments to the NOTI. The response comments included a narrative discussion of each of the technical inadequacies along with a revised Appendix C of the RFA plan.

In FY96 the RCRA hazardous waste management permit was submitted to the KDEP for renewal. The effective date of this permit was Feb. 21, 1997 with an expiration date of Feb. 21, 2007.

On May 27, 2009 a notice of RA protective measures at Fort Knox Military Reservation was filed in the Hardin County courthouse. This notice was filed to fulfill the environmental covenant requirement in Kentucky for all solid waste management units (SWMUs) with LUCs.

A hazardous waste management storage permit was issued July 13, 2009 with an effective date of Aug. 12, 2009.

On Sept. 1, 2009, Fort Knox prepared and submitted a notification letter to the KDEP of their intentions to close Building 2949, the hazardous waste storage building. On Sept. 27, 2012, Fort Knox verified the closure of Building 2949.

Installation Program Cleanup Progress

IRP

Prior Year Progress: Corrective measures implementation (operation) [CMI(O)] continued at four sites. Implementation (operation) [IMP(O)] ongoing at one site. Long-term management (LTM) continued at three sites. LUCs are ongoing at nine sites. Site-wide groundwater characterization continues.

Future Plan of Action: FY17: Four sites will continue with CMI(O), one site will continue with IMP(O), and three sites will continue with LTM. Nine sites will have LUCs. Ramp-down strategy of LTM sites will be evaluated based on site-wide groundwater contaminant trends.

FY18: Nine sites will continue with LTM and under LUCs. Ramp-down strategy of LTM sites will be evaluated based on site-wide groundwater contaminant trends.

CR

Prior Year Progress: Perform investigation on 7342.1, 7342.2, and 7342.3

Future Plan of Action: FY16: Remediate 7342.1, 7342.2, and 7342.3.

FY17: Receive no further action (NFA) for 7342.1, 7342.2, and 7342.3.

FORT KNOX
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 51/41

Installation Site Types with Future and/or Underway Phases

2	Landfill (FTKX-01, FTKX-02)
1	Sewage Effluent Settling Ponds (FTK-011)
1	Storage Area (FTKX-21)
1	Surface Impoundment/Lagoon (FTKX-10)
5	Underground Storage Tank (CCFTK-7342, FTK-020, FTKX-15D, FTKX-22, FTKX-40)

Most Widespread Contaminants of Concern

Metals, Pesticides, Polychlorinated Biphenyls (PCB), Polycyclic Aromatic Hydrocarbons (PAH), Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern

Groundwater, Sediment, Soil, Surface Water

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTKX-43	OIL & GREASE PIT	FRA	REMOVAL	1994
FTKX-37	PARKERIZATION PROCESS AREA, BLG 2783	FRA	REMOVAL	1996
FTK-41A	ANDERSON GOLF COURSE	FRA	WASTE REMOVAL - SOILS	2000
FTK-41L	LINDSEY GOLF COURSE	FRA	WASTE REMOVAL - SOILS	2000
FTK-038	PCB TRANSFORMER STORAGE SITE BLDG 7331	FRA	WASTE REMOVAL - SOILS	2001
FTKX-33	FORMER TRANSFORMER STG PAINT SHOP YD	FRA	WASTE REMOVAL - SOILS	2001
FTKX-35	FORMER TRANSFORMER STG BLD 4019	FRA	WASTE REMOVAL - SOILS	2001
FTKX-15A	UST & PIPELINE REMOVALS BLDG 102	FRA	WASTE REMOVAL - SOILS	2003
FTKX-39	ABANDONED GASOLINE LINE DISTRIB SYSTEM	FRA	REMOVAL	2003
FTKX-01	CLOSED LANDFILL (9TH AND WILSON ROAD)	FRA	CAPPING	2005
FTK-020	DRMO FORMER WASTE OIL TANK SITE	FRA	NATURAL ATTENUATION	2007
FTKX-10	WWTP SLUDGE LAGOONS (2)	FRA	WASTE REMOVAL - SOILS	2007
FTKX-15D	UST SITE 2823 INVESTIGATION/REMEDIATION	FRA	AIR SPARGING	2007
FTKX-22	BLD T-112 UST PESTICIDE	FRA	NATURAL ATTENUATION	2007
FTKX-24	FIRE FIGHTER TRNING AREA	FRA	WASTE REMOVAL - SOILS	2007
FTKX-30	TIOGA SPRINGS EOD SITE	FRA	WASTE REMOVAL - SOILS	2007
FTKX-40	UST 1473-A SITE CLOSURE	FRA	NATURAL ATTENUATION	2007
PBC at Knox	PBC	FRA	OTHER	2007

IRP Summary

Duration of IRP

Date of IRP Inception: 198602

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 202009/204609

Date of IRP completion including Long Term Management (LTM): 204609

IRP Contamination Assessment

Contamination Assessment Overview

On Feb. 16, 1989 Fort Knox submitted a final RFA to the USEPA. The RFA addressed 36 SWMUs. Since that submission, an additional nine SWMU sites have been identified that require an RFA, for a total of 45 sites. POLs and metals are the most common contaminants at these sites.

The RFA originally included 96 underground waste oil tanks requiring a RCRA facility investigation (RFI) prompted by evidence of releases in the area of these tanks. The tank integrity was to be tested at each site and, where necessary, analysis of soil and groundwater was to be performed.

The RFA also included 47 oil water separators (OWS) requiring an RFI. Since no regular maintenance of these units had been established, soil sampling and analysis were to be done so that a determination could be made, based upon the evidence of releases, as to whether or not further investigation would be required.

Sites requiring an RFI addressed by this RFA are the closed and operating landfills, the hospital, the wastewater treatment plant (WWTP), washracks, aboveground storage tanks, DRMO, the Boatwright Maintenance Area, Godman Airfield, the transformer storage areas, and the explosive ordnance disposal (EOD) sites. There were 14 other SWMUs addressed by the RFA that did not require an RFI.

In 2005 ToITest, Inc. was selected by the USACE to perform environmental restoration service. A guaranteed fixed-price performance-based acquisition (PBA) was awarded for remediation for the following sites:

- FTKX-10 Former Sludge Lagoons,
- CCFTK-11 Sludge Drying Beds,
- FTKX-15 Site 2823 USTs,
- FTKX-020 DRMO,
- FTKX-21 Boatwright Maintenance Area,
- FTKX-22 Pesticide UST,
- FTKX-24 Fire Training Area,
- FTKX-30 Tioga Springs EOD,
- FTKX-40 UST 1473, and
- FTKX-01 and FTKX-02 landfills.

The RAs at these sites were conducted pursuant to RCRA, the corrective action portion of the Fort Knox hazardous waste permit (KY6-210-020-479), and regulatory coordination with the KDEP.

CMI(O) is ongoing at four sites. IMP(O) is ongoing at one site. LTM remains ongoing at four sites.

In May 2009 an LUC document, "Notice of Remedial Action Preventive Measures at the Fort Knox Military Reservation" was filed at the Hardin County Court House. Sites that were included in this document were FTKX-01, FTK-020, FTKX-10, FTK-011, FTKX-21, FTKX-15D, FTKX-22, and FTKX-40.

A multi-year firm-fixed price regional contract was awarded in September 2013 for environmental services for the PBA sites at Fort Knox. The regional PBA period of performance is September 2013 to September 2018.

Currently, the installation is continuing with LUCs and long-term monitoring at the nine remaining sites.

Cleanup Exit Strategy

FTKX-01: The LTM consists of quarterly methane monitoring; along with annual groundwater, spring water, sediment, and surface water monitoring. LTM will continue until 2046.

FTKX-02: The residential portion of the landfill is considered inactive/closed. LTM consists of spring and groundwater monitoring on a quarterly basis per the solid waste permit. Monitoring will continue at this site for at least 30 years.

FTKX-10 and FTK-011: Hot spot removal was performed at six surface locations that exceeded the arsenic geochemical background screening level; the site was filled, regraded, and is under LUCs. The site is designated as an industrial area and will be allowed to return to its natural vegetative state. No construction, excavation, or other activities that would disturb the surface soils or would allow unacceptable contact with surface or subsurface soil will be allowed. The LUCs will

IRP Contamination Assessment

remain in place at this site until 2046.

FTKX-15D: In 2008 the corrective action consisting of a sparge system with an ozone generator began for an expected duration of 24 to 30 months. IMP(O) consists of groundwater monitoring on a semiannual basis. Based on the site's current physical setting and future land use, there are no exposure pathways present. Monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

FTK-020: In 2008 the selected corrective action began for this site. CMI(O) consists of semiannual groundwater and spring monitoring. Monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

FTKX-21: CMI(O) consists of annual groundwater monitoring. Monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

FTKX-22: CMI(O) consists of annual groundwater and spring monitoring. Monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

FTKX-40: CMI(O) consists of semiannual groundwater monitoring. Monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

IRP Previous Studies

1989	Title	Author	Date
	RFA, All Sites, Final	USAEHA	FEB-1989
1990	Final Pre-Investigation Submittal for RFI Closed Landfill and Tioga Springs EOD Site, Volume V. Chemical Data Acquisition Plan, Appendices	Law Environmental	NOV-1990
	Final Pre-Investigation Submittal for RFI Closed Landfill and Tioga Springs EOD Site, Volume 1, Data Management & Work Progression Plan, Volume 2 Monitoring Well Installation, Volume 3 Site Safety and Health Plan, Vol 4 Chemical Data Acquisition Plan	Law Environmental	NOV-1990
1992	Preliminary Contamination Assessment for RCRA Facility Investigation, Multiple Solid Waste Management Units	Law Environmental	JAN-1992
	Final Quality Control Summary Report for RCRA Facility Investigation Multiple Solid Waste Management Units	Law Environmental	APR-1992
1993	Final Report of SI Pesticide Rinsate Tank Closure, FTKX-22	Law Environmental	MAR-1993
	Environmental Site Assessment Former Underground Storage Tank Sites 2730, 2823, 2952 and 7560	Ogden	MAR-1993
	Final Phase I RCRA Facility Investigation Multiple Solid Waste Management Units	Law Environmental	SEP-1993
	Draft Supporting Documents Modification of Existing Residential Landfill to Construction/Debris Landfill	Engineering-Science	OCT-1993
	Final Phase I RCRA Facility Investigation for Multiple Solid Waste Units	Law Environmental	NOV-1993
1994	Groundwater Assessment Plan for Residential Landfill Closure	Dames & Moore	APR-1994
	SWMU Assessment Report Site 2827 Grease Pit	Ogden	JUL-1994
	Phase II Environmental Assessment Former Underground Storage Tank Site 2952	Odgen	AUG-1994
	Summary of Pit Remediation	Four Seasons Environmental Inc	SEP-1994
1995	RCRA Facility Investigation Work Plans Site 1473-A	Ogden	FEB-1995
	Workplan for the Spring Survey and Background Monitoring Residential Landfill	Dames & Moore	MAY-1995
	Sampling and Analysis Plan for Site Investigation at Sites 102, 2730 and 2952	Sverdrup	JUN-1995
	Final Sampling and Analysis Plan Site Check at the Abandoned Petroleum Pipeline System	Sverdrup	JUN-1995
	Phase I RFI Former UST Site 1473-A SWMU FTK-040, FTKX-40	Ogden	SEP-1995
	RCRA Facility Investigation for the WWTP Sludge Drying Beds SWMU FTK-011 and the WWTP Sludge Lagoons SWMU FTK-010	Sverdrup	OCT-1995
1996	Work Plan Conduit Groundwater Study Residential and C/DD Landfill	Dames & Moore	FEB-1996

IRP Previous Studies

1996	Title	Author	Date
	Report Spring Survey and Initial Background Spring Monitoring	Dames & Moore	APR-1996
	Draft Report Site Investigation at Site 2952	Sverdrup	JUN-1996
	Final Phase II RCRA Facility Investigation Work Plan for Solid Waste Management Unit Group #2 SWMU's FTK-031, -032.-033.-035, -038	SAIC	SEP-1996
	Final Phase II RCRA Facility Investigation Site Safety and Health Plan for Solid Waste Management Unit Group #1, SWMU FTK-001 Closed Landfill and SWMU FTK-030 Tioga Range EOD Site	SAIC	OCT-1996
	Final Phase II RCRA Facility Investigation Workplan for Solid Waste Management Unit Group 1, SWMU FTK-001 Closed Landfill and FTK-030 Tioga EOD Site	SAIC	OCT-1996
	Final Phase II RCRA Facility Investigation Work Plan for Solid Waste Management Unit Group #1, SWMU FTK-001 Closed Landfill and SWMU FTK-030 Tioga Range EOD Site	SAIC	NOV-1996
1997	Phase I RCRA Facility Investigation Former Underground Storage Tank Site 1473-A	Ogden	JAN-1997
	Final Report Diffuse Groundwater Study Residential and C/DD Landfill	Dames & Moore	MAR-1997
	Work Plan Sitewide Karst Ground Assessment	Dames & Moore	MAR-1997
	Unexploded Ordnance (UXO) Support Services and Geophysical Surveys, FTKX-30	SAIC	APR-1997
	Site Specific Safety and Health Plan Addendum #5 Phase II Sitewide Karst Groundwater Investigation for Residential and C/DD Landfill	Dames & Moore	JUL-1997
	Work Plan Landfill Monitoring System Installation	Dames & Moore	JUL-1997
	Sampling and Analysis Plan for Preliminary Spring Sampling	SAIC	JUL-1997
	Site Check Report for the Abandoned Petroleum Pipeline System Site No. 2	Sverdrup	DEC-1997
	Site Check Report for the Abandoned Petroleum Pipeline System Site No. 3	Sverdrup	DEC-1997
	Site Check Report for the Abandoned Petroleum Pipeline System Site No. 4	Sverdrup	DEC-1997
	Site Check Report for the Abandoned Petroleum Pipeline System Site No. 5	Sverdrup	DEC-1997
	Site Check Report for the Abandoned Petroleum Pipeline System Site No. 6	Sverdrup	DEC-1997
1998	Report Conduit Groundwater Study, Karst	Dames & Moore	JAN-1998
	Confirmatory Sampling Anderson and Lindsey Golf Course Pesticide Mixing Pads, FTKX-41A and FTKX-41L	Sverdrup	JAN-1998
	Draft Work Plan for the Ordnance and Explosives Characterization Tioga Springs EOD Site	SAIC	JAN-1998
	Final Report, Sitewide Soil Background Level Investigation	Sverdrup	APR-1998
	Final Report Site-Wide Soil Background Level Investigation	Sverdrup	APR-1998

IRP Previous Studies

1998	Title	Author	Date
	Sitewide Karst Groundwater Assessment Report Phase I Activities, Karst	SAIC	JUN-1998
	Sitewide Karst Groundwater Assessment Report Phase I Activities	Dames & Moore	JUN-1998
	Draft RCRA Facility Investigation Report for the Firefighter Training Area SWMU FTK-024	Sverdrup	AUG-1998
	Interim Removal of Soil From Former Pesticide Mixing Pads SMUG # 7, FTKX-41A and FTKX-41L	IT	SEP-1998
	Interim Removal of Soils Former Pesticide Mixing Pads SWMUG #7 Sampling and Analysis Plan, FTKX-41A and FTKX-41L	IT	SEP-1998
	Quality Assurance Report Construction of Construction Demolition Debris (C/DD) Landfill Phase II and III Permit # 047-00008, FTKX-02	IT	SEP-1998
1999	Report Diffuse Groundwater Study, Karst	Dames & Moore	MAR-1999
	Work Plan Confirmatory Sampling at the Defense Reutilization and Marketing Office (DRMO)	Sverdrup	SEP-1999
	Draft Work Plan Phase II Sitewide Karst Groundwater Assessment	Dames & Moore	SEP-1999
	Technical Memorandum for Fort Knox Pesticide Rinse Tank Site FTK-022 and Maintenance Area Results of Historical Documents Evaluation and Passive Soil Gas Survey Sampling Plan and Rational	SAIC	OCT-1999
	Closure of Abandoned Gas Line Distribution System Closure Report, Site No. 2	IT	OCT-1999
	Closure of Abandoned Gas Line Distribution Systems Closure Report, Site No. 3	IT	OCT-1999
	Closure of Abandoned Gas Line Distribution Systems Closure Report No. 4	IT	OCT-1999
	Closure of Abandoned Gas Line Distribution Systems, Closure Report Site No. 5	IT	OCT-1999
	Closure of Abandoned Gas Line Distribution Systems Closure Report No. 6	IT	OCT-1999
	Work Plan Sitewide Karst Groundwater Assessment	Dames & Moore	OCT-1999
	Site Wide Karst groundwater Assessment Report Phase II Activities., Karst	SAIC	NOV-1999
	Interim Removal of Soils Former Pesticide Mixing Pads	IT	DEC-1999
	Decontamination of the Burn Pans at the OB/OD Unit and the Proposed Geophysical Investigation, FTKX-29	AimTech	DEC-1999
	Final Work Plan for the Confirmatory Sampling at the Defense Reutilization and Marketing Office (DRMO) SWMU FTK-044	Sverdrup	DEC-1999
	Phase III RCRA Facility Investigation Work Plan Development Meeting for Closed Landfill FTK-001 and Pesticide Rinse Tank, FTK-022	Nasville COE	DEC-1999
2000	Final Report Conduit Groundwater Study Residential and C/DD Landfill	Dames & Moore	JAN-2000
	Phase II RCRA Facility Investigation Report for SWMU FTK-040 Underground Storage Tank Site 1473-A	SAIC	JAN-2000
	Groundwater Assessment Report, FTKX-02	URS	FEB-2000

IRP Previous Studies

2000

Title	Author	Date
Draft Report Landfill Monitoring System Installation	Dames & Moore	MAR-2000
Final Phase III RFI SWMU FTK-022 Former Pesticide Rinse Tank, FTKX-22	SAIC	APR-2000
Final Phase II RFI for SMUG 2 Former Pesticide Rinse Tank FTKX-22	SAIC	APR-2000
Amendment to the Phase II RCRA Facility Investigation Work Plan SWMU FTK-001 Closed Landfill	SAIC	APR-2000
Work Plan Amendment Phase III RCRA Facility Investigation Underground Storage Tank Site 1473-A SWMU FTK-040	SAIC	APR-2000
Interim Removal of Soils Former Pesticide Mixing Pads SWMUG #7	IT	APR-2000
Final Phase II RFI for SWMU FTKX-30 Tioga Springs EOD Site	SAIC	MAY-2000
Draft Groundwater Monitoring Plan	Dames & Moore	MAY-2000
Final Phase II RFI for SMUG#2 Former Transformer Sites FTK-31, 32, 33, 35, 38	SAIC	JUN-2000
Phase I RFI Report WWTP, Two Central Washracks, FTKX-018	Jacobs	AUG-2000
Final Phase I RFI WWTP Sludge Lagoons FTK-010 and Sludge Drying Beds FTK-011, FTKX-10 and FTKX-11	Jacobs	AUG-2000
Final Report Phase I RFI WWTP Filter Press Building FTKX-012	Jacobs	AUG-2000
Chemical Data Quality Report for Groundwater Investigation Phase II Residential and C/DD Landfill	Jacobs	AUG-2000
Soil Excavation Removal and Site Closure Bldg 5222 FTKX-16	IT	SEP-2000
Final Phase II RCRA Facility Investigation Report for SWMU FTK-001 Closed Landfill	SAIC	OCT-2000
Draft Confirmatory Sampling Report for the Defense Reutilization and Marketing Office (DRMO)	Jacobs	OCT-2000
Draft Confirmatory Sampling Report for the Defense Reutilization and Marketing Office (DRMO) SWMU FTK-044	Jacobs	OCT-2000
Phase III RCRA Facility Investigation Work Plan SWMU FTK-030 Tioga Range EOD Site	SAIC	NOV-2000
Sitewide Karst Groundwater Assessment Report Phase I Activities	SAIC	NOV-2000
Groundwater Monitoring Plan for Residential and C/DD Landfill	URS	NOV-2000
Phase II RCRA Facility Investigation for the Waste Water Treatment Plant Sludge Lagoons FTK-10 and Sludge Drying Beds, FTKX-011	Jacobs	DEC-2000
Report Landfill Monitoring System Installation Groundwater Investigation Phase II Residential and C/DD Landfill	URS	DEC-2000
Phase II RCRA Facility Investigation for the Waste Water Treatment Plant Sludge Lagoons FTK-10 and Sludge Drying Beds, FTKX-011	SAIC	DEC-2000

2001

Sampling and Analysis Report to Support Closure of the Fort Knox OB/OD Unit at Crumb Range FTKX-29	Tetra Tech	FEB-2001
--	------------	----------

IRP Previous Studies

2001

Title	Author	Date
Final Phase I RFI for the OWS FTK-017, FTKX-17, Final 2 Volumes	Jacobs	MAR-2001
Soil Excavation and Removal Interim Measures (IM) Transformer Storage Area Concrete Pad, Bldg 7331, FTKX-38, Final, IT, Apr-01	IT	APR-2001
Soil Excavation and Removal IM Transformer Storage Paint Yard FTK-033, FTKX-33	IT	APR-2001
Analytical Summary First Quarter 2001 Groundwater Sampling Baseline Groundwater Sampling Event #4 Residential and C/DD Landfill	URS	APR-2001
Evaluation of IDW Report WWTP Former Sludge Lagoons FTKX-10 and Sludge Drying Beds FTKX-11	Jacobs	JUL-2001
Investigative Derived Waste Disposal Summary for the Corrective Action Plan Development at UST Site 2730 FTKX-15B	Jacobs	JUL-2001
Investigative Derived Waste Disposal Summary for the Corrective Action Plan Development at DRMO, FTKX-044	Jacobs	JUL-2001
Investigative Derived Waste Disposal Summary Report for the Pre-CAP RI at UST Site 2823, FTKX-15D	Jacobs	JUL-2001
Analytical Summary Second Quarter 2001 Groundwater Sampling Baseline Groundwater Sampling Event #5 Residential and C/DD Landfill	URS	JUL-2001
Phase I RFI Report for Firefighter Training Area, FTKX-24,	Jacobs	AUG-2001
Analytical Summary Third Quarter 2001 Groundwater Sampling Baseline Groundwater Sampling Event #6 Residential and C/DD Landfills	URS	OCT-2001
Phase II RFI Addendum for the WWTP Filter Press Building FTKX-12	Jacobs	OCT-2001
Phase II Report Sitewide Groundwater Assessment,	URS	OCT-2001
Analytical Report for Residential and C/DD Landfill, FTKX-02	URS	DEC-2001

2002

Analytical Summary Fourth Quarter 2001 Groundwater Sampling Event #7 Residential Landfills, FTKX-02	URS	JAN-2002
Analytical Summary Fourth Quarter 2001 Groundwater Sampling Baseline Groundwater Sampling Event #7 Residential and C/DD Landfills	URS	JAN-2002
Data Validation Report for Sept 2001 Preclosure Sampling for the OBOD Site Crumb Range, FTKX-29	Tetra Tech	FEB-2002
Soil Excavation and Removal IMs, Transformer Storage Paint Yard (FTK-33)	IT	APR-2002
Soil Excavation and Removal IMs, Transformer Storage Building 4019 (FTK-35)	IT	APR-2002
Soil Excavation and Removal IMs Report, Transformer Storage Area Concrete Pad, Building 7331 (FTK-038)	IT	APR-2002
Interim Removal of Soils and Site Closure Building 5222 (FTKX-16Q)	IT	APR-2002
Analytical Summary Second Quarter 2002 Groundwater Sampling Baseline Groundwater Sampling Event #9 Residential and C/DD Landfills	URS	JUL-2002
Analytical Report for Residential and C/DD Landfill	URS	AUG-2002

IRP Previous Studies

2002

Title	Author	Date
Analytical Report for Residential and C/DD Landfill	URS	AUG-2002
Phase II RFI of the Firefighter Training Area SWMU FTKX-24	SAIC	SEP-2002
Sites 4 and 6 Site Investigation, Closed Abandoned Gas Line Distribution System	IT	OCT-2002
Phase II RFI for the WWTP Filter Press Building SWMU FTKX-12	Jacobs	OCT-2002
Final Phase II RFI for the WWTP Filter Press Building SWMU FTK-012	Jacobs	OCT-2002
Analytical Summary Third Quarter 2002 Groundwater Sampling Event #10 Residential and C/DD Landfills	URS	OCT-2002
Analytical Summary Third Quarter 2001 Groundwater Sampling Baseline Groundwater Sampling Event #6 Residential and C/DD Landfill	URS	OCT-2002
Analytical Summary Third Quarter 2002 Groundwater Sampling Baseline Groundwater Sampling Event #10 Residential and C/DD Landfills	URS	OCT-2002
Quality Control Plan Continuation of Detection-Mode Groundwater Monitoring and Associated Reporting Residential and C/DD Landfill	URS	NOV-2002
Site-Specific Report for Digital Geophysical Mapping Operations Tioga Springs EOD Site	SAIC	DEC-2002

2003

Analytical Summary Fourth Quarter 2003 Groundwater Sampling Detection Groundwater Sampling Event #3 Residential and C/DD Landfill	URS	JAN-2003
Analytical Summary Fourth Quarter 2002 Groundwater Sampling Baseline Groundwater Sampling Event #11 Residential and C/DD Landfills	URS	JAN-2003
Fort Knox Residential and C/DD Landfill Groundwater Monitoring Fourth Quarter of 2002 (High and Low Flow Events) Analytical Reports	URS	JAN-2003
Phase II RFI Report for the OWS SWMU FTKX-017	Jacobs	FEB-2003
September 2002 and October 2002 Groundwater Sampling, Baseline Sitewide Karst Groundwater Sampling Event #1 and Event #2, Karst	URS	MAR-2003
October 2002 Groundwater Sampling Baseline Sitewide Karst Groundwater Sampling, Karst	URS	MAR-2003
Analytical Summary Jan 2003 Groundwater Sampling Baseline Sitewide Karst Groundwater Sampling Event #3, Karst	URS	APR-2003
Analytical Summary First Quarter 2003 Groundwater Sampling Baseline Groundwater Sampling Event # 12 Residential and C/DD Landfills	URS	APR-2003
Analytical Summary Second Quarter 2003 Groundwater Sampling Detection Groundwater Sampling Event #1 Residential and C/DD Landfill	URS	JUL-2003
Analytical Summary Second Quarter 2003 Groundwater Sampling Detection Groundwater Sampling Event #1 Residential and C/DD Landfills	URS	JUL-2003
Fort Knox Residential and C/DD Landfill Groundwater Monitoring Second Quarter 2003 (High and Low Flow Events) Analytical Reports	URS	JUL-2003

IRP Previous Studies

2003

Title	Author	Date
Phase III RFI Report for SWMU FTK-040, UST Site 1473-A	SAIC	AUG-2003
Interim Removal of soils and Site Closure Bldg 5222, FTKX-16Q	IT	AUG-2003
Site Wide Karst August 2003 Groundwater Sampling Event #5, Karst	URS	AUG-2003
Final Supplemental Site Characterization Report for the DRMO SWMU FTK-044	Jacobs	SEP-2003
Amendment #2 to the Phase II RCRA Facility Investigation Work Plan SWMU FTK-001 Closed Landfill	SAIC	OCT-2003
Soil Excavation and Removal IMs Report Transformer Storage Paint Yard, FTKX-33	IT	OCT-2003
Soil Excavation and Removal IMs Report Transformer Storage Bldg 4019	IT	OCT-2003
Soil Excavation and Removal IMs Report Transformer Storage Area Concrete Pad Bldg 7331	IT	OCT-2003
Final Phase III RFI Report for the Former Pesticide Rinse Tank Site	SAIC	OCT-2003
Analytical Summary Third Quarter 2003 Groundwater Sampling Detection Groundwater Sampling Event #2 Residential and C/DD Landfills	URS	OCT-2003
Analytical Summary August 2003 Groundwater Sampling Baseline Karst Groundwater Sampling Event #5, Karst	URS	OCT-2003
Analytical Summary Third Quarter 2003 Groundwater Sampling Detection Groundwater Sampling Event #2 Residential and C/DD Landfill	URS	OCT-2003
Amendment #2 To The Phase II RCRA Facility Investigation Workplan, SWMU FTK-001, Closed Landfill Soil Gas Survey	SAIC	OCT-2003
Final Phase III RFI Report for SWMU FTK-001 Closed Landfill	SAIC	NOV-2003
Corrective Measures Study for SWMU FTK-001 Closed Landfill	SAIC	DEC-2003
Year One Baseline Monitoring Report Sitewide Karst Groundwater Assessment, Karst	URS	DEC-2003

2004

Analytical Summary October 2003 Groundwater Sampling Baseline Sitewide Karst Groundwater Sampling Event #6	URS	JAN-2004
Analytical Summary Fourth Quarter 2003 Groundwater Sampling Detection Groundwater Sampling Event #3 Residential and C/DD Landfill	URS	JAN-2004
Closure of Abandoned Gas Line Distribution Systems Closure Report Addendum, Site No. 6	SAIC	FEB-2004
Closure of Abandoned Gas Line Distribution Systems Closure Report Addendum, Site No. 6	SAIC	FEB-2004
Decision Document for the CMS at Closed Landfill (SWMU fTK-001)	Knox, EMD	MAR-2004
Phase II RFI of the Firefighter Training Area SWMU FTKX-24	SAIC	MAR-2004
Report of Remedial Design Closed Landfill	FMSM	APR-2004

IRP Previous Studies

2004

Title	Author	Date
Phase III RFI Report for SWMU FTK-040: UST Site 1473-A	SAIC	APR-2004
C/DD Landfill Groundwater Monitoring First Quarter of 2004 (High and Low Flow Events Analytical Reports Analytical Summary January 2004 Groundwater Sampling Baseline Sitewide Karst Groundwater Sampling Event #7, Karst	URS	APR-2004
Analytical Summary Second Quarter 2004 Groundwater Sampling Detection Groundwater Sampling Event #5 Residential and C/DD Landfill	URS	APR-2004
Analytical Summary Second Quarter 2004 Groundwater Sampling Detection Groundwater Sampling Event #5 Residential and C/DD Landfill	URS	JUL-2004
Decision Document for Corrective Measures Study SWMU FTK-011 Closed Landfill	Fort Knox	JUL-2004
Baseline Groundwater Monitoring Report	URS	SEP-2004
Analytical Summary Third Quarter 2004 Groudwater Sampling Detection Groundwater Sampling Event #6 Residential and C/DD Landfill	URS	OCT-2004

2005

Analytical Summary Fourth Quarter 2004 Groundwater Sampling Detection Monitoring Event D-13 and D-14 Residential and C/DD Landfill	URS	JAN-2005
Residential and C/DD Landfill groundwater Monitoring Second Quarter of 2005 Detection Events D17 and D18	URS	JAN-2005
Analytical Summary September 2004 Spring Sediment Sampling Sitewide Karst Groundwater Study	URS	FEB-2005
Modified Tier I Risk Assessment for SWMU FTKX-24 Firefighter Training Area	SAIC	MAR-2005
Technical Specification Remedial Action Close Landfill	FMSM	APR-2005
Analytical Summary First Quarter 2005 Groundwater Sampling Detection Groundwater Sampling Event D-15 and D-16 Residential and C/DD Landfill	URS	APR-2005
Analytical Summary Third Quarter 2005 Groundwater Sampling Detection Groundwater Sampling Event D-19 and D-20 Residential and C/DD Landfill	URS	OCT-2005
Phase III RFI Report Addendum For SWMU-FTK-040: UST 1473-A Site	SAIC	OCT-2005
Draft Letter Work Plan for Collection of Arsenic Background Chromium Speciation and Microcosm Samples at SWMUs FTK-010, -011, -020, -021, -024, and -030.	TolTest, Inc.	OCT-2005
Addendum to the Phase III RFI Report Addendum For The Former Pesticide Rinse Tank Site SWMU-FTK-022	TolTest, Inc.	OCT-2005
Residential and C/DD Landfill GW Monitoring Third Quarter of 2005 Detection Monitoring Events D-19 and D-20	URS	NOV-2005
Final Phase III RFI Report for the Spent Solvent Storage Area (SWMU FTK-021)	TolTest, Inc.	NOV-2005
Draft Work Plan for Sitewide LTM/LTO and Landfills O&M Groundwater Sampling	TolTest, Inc.	NOV-2005
RCRA Facility Investigation Report for the DRMO SWMU FTK-044	TolTest, Inc.	NOV-2005

2006

IRP Previous Studies

2006

Title	Author	Date
Final Phase III RFI and Addendum Reports for SWMUs FTK-010 and FTK-011 Former Sludge Lagoons and Sludge Drying Beds	TolTest, Inc.	JAN-2006
Analytical Summary of Detection Event 4 for the Fort Knox Sitewide Karst Groundwater Monitoring Program, Event 4, (2nd Quarter 2005)	TolTest, Inc.	JAN-2006
Analytical Summary Fourth Quarter 2005 Groundwater Sampling Detection Groundwater Sampling Events D-21 and D-22.	TolTest, Inc.	JAN-2006
Analytical Summary Fourth Quarter 2005 Groundwater Sampling Detection Groundwater Sampling Events D-21 and D-22 Residential and C/DD Landfill	TolTest, Inc.	JAN-2006
Draft Supplemental Risk Analysis for SWMU FTKX-24 Firefighter Training Area	TolTest, Inc.	FEB-2006
Draft Supplemental Risk Analysis for SWMU FTKX-030 Tioga Spring EOD Site	TolTest, Inc.	FEB-2006
Draft Supplemental Risk Analysis for SWMU FTK-010 and FTK-011 Former Sludge Lagoons and Sludge Drying Beds	TolTest, Inc.	FEB-2006
Final RCRA Facility Investigation Report for the DRMO SWMU FTK-044	TolTest, Inc.	MAR-2006
Draft Supplemental Risk Analysis for SWMU FTK-020: DRMO	TolTest, Inc.	MAR-2006
Draft Supplemental Site Characterization Report for the Collection of SWMU Specific Arsenic Background and Chromium Speciation Samples at SWMU's FTK-010, -024, -021, and -030	TolTest, Inc.	MAR-2006
Analytical Summary Annual Spring and Sediment Sampling Closed Landfill SWMU FTK-001	TolTest, Inc.	APR-2006
Analytical Summary First Quarter 2006 Groundwater Sampling Detection Groundwater Sampling Events D-23 and D-24 Residential and C/DD Landfill	TolTest, Inc.	MAY-2006
Final Supplemental Risk Analysis for SWMU FTK-024 Firefighter Training Area	TolTest, Inc.	MAY-2006
Final Supplemental Risk Analysis for WMU FTK-030 Tioga Springs EOD Site	TolTest, Inc.	MAY-2006
Final Supplemental Risk Analysis for SWMU FTK-010 and FTK-011 Former Sludge Lagoons and Sludge Drying Beds	TolTest, Inc.	JUN-2006
Analytical Summary Second Quarter 2006 Groundwater Sampling Detection Groundwater Sampling Event D-25 Residential and C/DD Landfill	TolTest, Inc.	JUN-2006
Draft Corrective Measures Study for Tioga Springs EOD Site	TolTest, Inc.	JUN-2006
Draft Corrective Measures Study for the Former Sludge Lagoons and Drying Beds SWUM FTK-010 and FTK-011	TolTest, Inc.	JUN-2006
Addendum To The Phase III RCRA Facility Investigation Report for the Pesticide Rinse Tank SWMU FTK-022	TolTest, Inc.	JUL-2006
Draft Corrective Measures Study for the Firefighter Training Area SWMU FTK-024	TolTest, Inc.	JUL-2006
Draft Risk Assessment for SWM<U FTK-21: Spent Solvent Storage Area	TolTest, Inc.	AUG-2006

IRP Previous Studies

2006

Title	Author	Date
Final Supplemental Risk Analysis for SWMU FTK-020 Defense Reutilization Marketing Office	TolTest Inc.	AUG-2006
Draft Corrective Measures Study for DRMO SWMU FTK-044	TolTest, Inc.	SEP-2006
Corrective Measures Study for the Former Pesticide Rinse Tank SWMU FTK-022	TolTest, Inc.	SEP-2006
Draft Work Plan for the MEC Support of Tioga Springs EOD Site FTK-030	TolTest, Inc.	SEP-2006
Analytical Summary Third Quarter 2006 Groundwater Sampling Detection Groundwater Sampling Event D-26 Residential Landfill and C/DD Landfill	TolTest, Inc.	OCT-2006
Fort Knox Sitewide Karst Groundwater Spring Monitoring Results Second Quarter 2006 Detection Monitoring Event D-8 Report & Analytical Reports	URS	NOV-2006
Final Risk Assessment for SWMU FTK-021 Spent Solvent Storage Area	TolTest, Inc.	NOV-2006
Year Two Baseline Monitoring Report Sitewide Karst Groundwater Assessment	URS	DEC-2006
Karst Spring Sampling Addendum to the Work Plan for Sitewide LTM/LTO and Landfills O&M Groundwater Sampling	TolTest, Inc.	DEC-2006

2007

Draft Remedial Action Report for Closed Landfill (CLF) SWMU FTK-001	Shaw	FEB-2007
Addendum to the Site Investigation Report for Underground Storage Tank Site 2823	TolTest, Inc.	FEB-2007
Final Work Plan for Site-Wide LTM/LTO and Landfills O&M Groundwater Sampling	TolTest, Inc.	FEB-2007
Draft Corrective Measures Study for Spent Solvent Storage Area SWMU FTK-021	TolTest, Inc.	MAR-2007
Final Supplemental Site Characterization Report for the Collection of SWMU-Specific Arsenic Background and Chromium Speciation Samples at SWMU FTK-010, 011,020,021,024,030	TolTest, Inc.	MAR-2007
Final Corrective Measures Study for Tioga Springs Explosive Ordnance Disposal (EOD) Site SWMU FTK-030	TolTest, Inc.	APR-2007
Analytical Summary First Quarter 2007 Groundwater Sampling Detection Groundwater Sampling Event D-28 Residential and C/DD Landfills	TolTest, Inc.	MAY-2007
Final Corrective Measures Study for the Former Sludge Lagoons and Sludge Drying Beds SWMU FTK-010	TolTest, Inc.	OCT-2007
Final Corrective Measures Study for the Spent Solvent Storage Area SWMU FTK-021	TolTest, Inc.	OCT-2007
Draft Land Use Controls Assurance Plan for Underground Storage Tank 1473-A Site SWMU FTK-040	TolTest, Inc.	OCT-2007
Final Corrective Measures Study For The Former Sludge Lagoons and Drying Beds SWMU FTK-010 and FTK-011	TolTest, Inc.	OCT-2007
Final Corrective Measures Study for the Firefighter Training Area SWMU FTK-024	TolTest, Inc.	NOV-2007
Site Investigation at Underground Storage Tank Site 2823 SWMU FTK-15D	TolTest, Inc.	NOV-2007

IRP Previous Studies

2007	Title	Author	Date
	Final Corrective Measures Study for DRMO SWMU FTK-044	TolTest, Inc.	DEC-2007
	Final Corrective Measures Study for the Former Pesticide Rinse Tank Site SWMU FTK-22	TolTest, Inc.	DEC-2007
2008	Analytical Summary, Fourth Quarter 2007 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	JAN-2008
	Decision Document SWMU FTK-040 Underground Storage Tank 1473-A Interim Measures	TolTest, Inc.	JAN-2008
	Draft Site Wide Long-Term Monitoring Report for Groundwater and Karst Springs	TolTest Inc./SAIC	JAN-2008
	Analytical Summary, First Quarter 2008 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	MAY-2008
	Analytical Summary, Second Quarter 2008 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	AUG-2008
	Analytical Summary, Third Quarter 2008 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	DEC-2008
	Analytical Summary, Third Quarter 2008 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	DEC-2008
2009	Analytical Summary, Fourth Quarter 2008 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	JAN-2009
	Analytical Summary, First Quarter 2009 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	MAY-2009
	Analytical Summary, Second Quarter 2009 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	AUG-2009
	2008 Sitewide LTM Report for Groundwater and Karst Springs	TolTest, Inc.	SEP-2009
	Sampling and Analysis Plan for RCRA Facility Investigation at Gammon Field House, Fort Knox, KY	US Army Corps of Engineers, Nashville District	NOV-2009
	Analytical Summary, Third Quarter 2009 Groundwater Sampling, Detection Groundwater Events D34, Residential and C/DD Landfills	TolTest, Inc.	NOV-2009
	Interim Measures Remedial Action Report, Spent Solvent Storage Area (SWMU FTK-021), Former Pesticide Rinse Tank (SWMU FTK-022)	TolTest, Inc.	DEC-2009
	Interim Measures Remedial Action Report for Spent Solvent Storage Area (SWMU FTK-021) and the Pesticide Rinse Tank Site (SWMU FTK-022)	TolTest, Inc.	DEC-2009
2010	Analytical Summary, Fourth Quarter 2009 Groundwater Sampling, Detection Groundwater Sampling Event D-34 Residential and C/DD Landfills, Fort Knox, Kentucky	TolTest, Inc.	FEB-2010
	Analytical Summary, First Quarter 2010 Groundwater Sampling, Detection Groundwater Sampling Event D-34, Residential and C/DD Landfills, Fort Knox, Kentucky	TolTest, Inc.	APR-2010

IRP Previous Studies

2010	Title	Author	Date
	Closure Hazardous Waste Management Unit, Building 2949	TriEco	JUN-2010
	Project Work Plan Closure Hazardous Waste Managment Unit, Building 2949, Fort Knox, Kentucky	US Army Corps of Engineers, Nashville District	JUN-2010
	Analytical Summary Second Quarter 2010 Groundwater Sampling Detection Groundwater Sampling Event D-34, Residential and C/DD Landfills, Fort Knox, Kentucky	TolTest, Inc.	JUL-2010
	Analytical Summary, Third Quarter 2010 Groundwater Sampling, Detection Groundwater Sampling Event D-34, Residential And C/DD Landfills, Fort Knox, Kentucky	TolTest, Inc.	OCT-2010
2011	Analytical Summary, 4th Quarter 2011 Groundwater Sampling, Detection Groundwater Sampling Event D-34 Residential and C/DD Landfills	TolTest	FEB-2011
	Final 2010 Sitewide Long-Term Monitoring Report for Groundwater, Land Use Controls and Karst Springs	TolTest	MAR-2011
	Analytical Summary, First Qtr. 2011 Groundwater Sampling, Detection Groundwater Sampling Event D-34 Residential and C/DD Landfills	TolTest	APR-2011
	Analytical Summary, 2nd Quarter 2011 Groundwater Sampling, Detection Groundwater Sampling Event D-34 Residential and C/DD Landfills	TolTest	SEP-2011
	Analytical Summary 3rd Quarter 2011 Groundwater Sampling, Detection Groundwater Sampling Event D-34 Residential and C/DD Landfills	TolTest	NOV-2011
2012	Work Plan for OWS/Systems Removal, Soil Excavation, Analytical Sampling, and Site Closure of SWMU #FTK-017M at St. John Moto Park	ICI	JAN-2012
	Work Plan for OWS/Systems Removal, Soil Excavation, Analytical Sampling, and Site Closure of SWMU FTK-017P at St. John Motor Park	ICI	JAN-2012
	Groundwater Assessment Plan for Residential and C/DD Landfills	URS	JAN-2012
	Analytical Summary, Fourth Quarter 2011 Groundwater Sampling, Detection Groundwater Sampling Event D-34, Residential and C/DD Landfills	TolTest, Inc	FEB-2012
	Analytical Summary, First Quarter 2012 Groundwater Analytical Data and Statistical Report D-34, Residential and C/DD Landfills, Fort Knox, Kentucky	TolTest, Inc	JUL-2012
	Analytical Summary, Second Quarter 2012 Groundwater Analytical Data and Statistical Report D-34, Residential and C/DD Landfills, Fort Knox, Kentucky	TolTest, Inc	JUL-2012
	Periodic Review Report for Fort Knox, Kentucky	US Army Corps of Engineers, Omaha District	SEP-2012
	Analytical Summary, Third Quarter 2012 Groundwater Analytical Data and Statistical Report D-34, Residential and C/DD Landfills, Fort Knox, Kentucky	TolTest, Int	SEP-2012
	Oil/Water Separator SWMU FTK-017M System Removal, Soil Excavation, Sampling, Analytical, and Site Closure at St. John Tank Motor Park	ICI	NOV-2012
	Oil/Water Separator SWMU FTK-017P System Removal, Soil Excavation, Sampling, Analytical, and Site Closure at St. John Tank Motor Park	ICI	NOV-2012

IRP Previous Studies

2013	Title	Author	Date
	Analytical Summary, Fourth Quarter 2012 Groundwater Analytical Data and Statistical Report D-34, Residential and C/DD Landfills, Fort Knox, Kentucky	ToItest, Inc	FEB-2013
	Analytical Summary, First Quarter 2013 Groundwater Analytical Data and Statistical Report D-34, Residential and C/DD Landfills, Fort Knox, KY	Toltest	MAY-2013
	2012 Sitewide Long-Term Monitoring Report for Groundwater, Land Use Controls, and Karst Springs at Fort Knox, KY	Toltest	MAY-2013
	Groundwater Assessment Report, Residential and C/DD Landfill Fort Knox, KY	URS	JUL-2013
	Analytical Summary, Second Quarter 2013 Groundwater Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	Toltest	JUL-2013
	Analytical Summary, Third Quarter 2013 Groundwater Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	Toltest	SEP-2013
2014	Analytical Summary, Fourth Quarter 2013 Groundwater Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	FPM Remediations	FEB-2014
	Analytical Summary, First Quarter 2014 Groundwater Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	FPM Remediations	MAY-2014
	2013 Annual Report on LTM and CMI(O) at Sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, FTKX-40, and Karst Springs Fort Knox Military Reservation, Hardin, Meade, and Bullitt Counties, Kentucky	FPM Remediations	MAY-2014
	Analytical Summary, Second Quarter 2014 Groundwater Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	FPM Remediations	JUL-2014
	Analytical Summary, Third Quarter 2014 Groundwater Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	FPM Remediations	OCT-2014
2015	Analytical Summary, Fourth Quarter Analytical Data and Statistical Report, Residential and C/DD Landfills, Fort Knox, KY	FPM Remediations	JAN-2015

FORT KNOX
Installation Restoration Program
Site Descriptions

Site ID: CCFTK-7342
Site Name: UST 7342.1, .2, .3

STATUS

Regulatory Driver: RCRA

RRSE: NOT EVALUATED

Contaminants of Concern: Petroleum, Oil and Lubricants (POL), Polycyclic Aromatic Hydrocarbons (PAH)

Phases	Start	End
ISC.....	199710.....	199810
INV.....	201107.....	201706

RIP Date: N/A

RC Date: 202009

SITE DESCRIPTION

Regulated UST site 7342.1, .2, and .3 is located at the southwest corner of Ninth Avenue and Wilson Road. There were two diesel USTs and one gasoline UST. The tanks and associated piping that serviced three pump islands along with contaminated soil were removed in 1997-1998. Documentation from these activities demonstrates that the contaminants of concern (COC) benzene, toluene, ethyl benzene, and total xylenes (BTEX) and PAH remained at the site in amounts that exceeded the KDEP 1996 regulations for cleanup standards in place at the time. Therefore, Fort Knox could not obtain an NFA letter from the Kentucky Division of Waste Management, UST Branch.

In FY10, 18 state regulated USTs were identified by the KDEP; Fort Knox received a closure assessment report request letter from the KDEP in June 2010. Based on the KDEP's records, these USTs were listed as removed; however, no closure assessment reports or sampling results were available to support the closures.

In FY12, NFA was received for the following state regulated UST sites: 580.1, 608.1, 609.1, 889.1, 2763.1, 2766.2, 2786.1, 2974.1, 4238.1, 6577.1, 7238.1, 7423.1, 7425.1, and 7474.1

In FY13, NFA was received for state regulated UST site 2963.1

Per the results from the Soil Boring Investigation (Data Gaps) Summary Report, Tanks #7342.1, .2, and .3, dated December 2014, the full extent of contamination needs to be determined. Regulated UST sites 7342.1, .2, and .3 require an RFI, corrective measures study (CMS), and decision document (DD) to determine the extent of contamination.

CLEANUP/EXIT STRATEGY

Once the extent of contamination is determined, measures will be taken to obtain an NFA from the KDEP.

Site Name: 17 WWTP SLUDGE DRYING BEDS

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Metals, Pesticides, Polychlorinated Biphenyls (PCB), Semi-volatiles (SVOC)

Media of Concern: Soil

Phases	Start	End
RFA.....	198608.....	198902
CS.....	198608.....	198902
RFI/CMS.....	198905.....	200705
CMI(C).....	200608.....	200709
CMI(O).....	200803.....	200906
LTM.....	200906.....	204609

RIP Date: 200803

RC Date: 200906

SITE DESCRIPTION

The 17 WWTP Sludge Drying Beds are located at the existing domestic WWTP, off of Ninth Avenue in the east-central portion of the cantonment area of Fort Knox Military Reservation. The WWTP is isolated and enclosed by chain link fencing. The 17 sludge drying beds have a total area of approximately 34,000 square feet. The drying beds occupy an area which was once a lagoon. They have been used since 1960 to dewater domestic sludge generated at the WWTP. The site is currently designated as an inactive industrial area.

In 1987, a number of improvements were made to the drying beds. The most significant was the addition of a graded sand filter and leachate effluent recovery system. Sludge was transported from the WWTP by an underground pipeline and dispersed to each of the beds on a rotating basis. Leachate effluent was collected in underground pipes and routed to a sump where the effluent was pumped to the WWTP for treatment. Dry sludge was tested for toxicity characteristic leaching procedure (TCLP) metals prior to off-post disposal.

The final Phase I RFI report and draft Phase II RFI work plan were submitted to the state in fiscal year (FY)00. Phase II RFI fieldwork began in FY01. The draft Phase II RFI report was submitted in FY02. The draft report noted additional contamination and recommended additional sampling of soil within a triangular area, at a potential release area, and at isolated locations along the access roadway. In November 2003 the Phase III RFI was submitted, and in FY06 the final Phase III RFI report and final supplemental risk assessment were approved.

In FY08, the CMS was prepared and submitted to KDEP recommending annual LUC inspections. In FY09, this site received a tentative NFA, which is pending based on permit modification.

In FY12, a periodic review was performed. All additional period reviews are being captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTKX-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Currently performing LUC inspections.

Site Name: DRMO FORMER WASTE OIL TANK SITE

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals, Petroleum, Oil and Lubricants (POL), Polycyclic Aromatic Hydrocarbons (PAH)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198802.....	198902
CS.....	198802.....	198902
RFI/CMS.....	199206.....	200705
CMI(C).....	200703.....	200709
CMI(O).....	200709.....	204609

RIP Date: 200709

RC Date: 204609

SITE DESCRIPTION

The DRMO former waste oil tank is located in the vicinity of Building 2952 and was used as a salvage yard until 2012. Aerial photographs indicate that the site was used as early as 1964 as a storage yard for US Army vehicles, scrap metals, shell casings, and drums. The site formerly contained a 12,000-gallon UST that stored waste oil. The RFA recommended that the tank be removed and the site cleaned up. The tank and associated OWS (FTKX-017BD) were reportedly removed in July 1990.

Investigations suggest that surface drainage flows into a karst window southwest of the site. Elevated levels of grease and oil persist in the soil at depths greater than 30 feet. Soil and groundwater samples collected from the site have indicated the presence of petroleum hydrocarbons, metals, and PAHs. No single definitive source for contamination has been identified; there may be multiple sources contributing to contamination on-site. State regulations required further investigation to define horizontal and vertical extent of contamination before remediation measures were implemented.

Due to the types of contamination, the site was removed from UST regulatory requirements, picked up as a RCRA regulated SWMU in FY99, and assigned SWMU number FTKX-44. Site FTKX-44 was assigned as an alias in the Army Environmental Database-Restoration (AEDB-R) database. The site is now regulated under a RCRA corrective action permit. The confirmatory sampling (CS) fieldwork was performed in FY00. In FY01 the CS report was submitted. The KDEP approved the CS report in FY04.

The draft site inspection (SI) report recommended an RFI due to multiple contaminant concerns. In FY07 the RFI report and supplemental risk analysis were approved. The CMS was tentatively approved by KDEP in FY08.

A letter plan was prepared in February 2008 recommending semiannual monitoring of five wells and two springs for volatile organic compounds (VOC) and metals. The analytical suite changed from VOCs and metals to semi-volatile organic compounds (SVOC) per the 2013 Final Report of LTM and CMI(O) at sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, FTKX-40, and Karst Springs. The analytical suite changed from SVOCs to VOCs and SVOCs only for the 2 associated springs per the 2014 Final Annual Report on LTM and CMI(O) at sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, and FTKX-40. Monitoring and LUC inspections will continue until compliant levels have been reached and an NFA can be requested from KDEP. In FY12 a periodic review was performed. All future periodic reviews will be captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Groundwater and spring monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Currently performing LUC inspections.

Site Name: CLOSED LANDFILL (9TH AND WILSON ROAD)

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals, Pesticides, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	198608.....	198902
CS.....	198608.....	198902
RFI/CMS.....	198905.....	200312
DES.....	200405.....	200503
CMI(C).....	200505.....	200509
LTM.....	200608.....	204609

RIP Date: N/A

RC Date: 200509

SITE DESCRIPTION

This closed landfill, located at the southwest side of the intersection of Ninth Avenue and Wilson Road, covers an area of 13.5 acres with a depth between 2 and 25 feet and a calculated volume of 300,500 cubic yards. The landfill was operated during the 1940s and was used for solid waste disposal. The solid waste managed at this site includes undifferentiated wood, paper and metals, incinerator ash, and hospital trash. Cinders collected from coal fired heating units were mixed with the cover soil to provide more volume and soil stabilization. The landfill is located over a broad sinkhole. Some leachate has been noted in a spring near the southeast corner of the landfill (Satan's Cave); however, groundwater has been traced to Rushing Spring.

In 1950 this landfill was closed and has been partially graded and covered with gravel. The landfill does not have a leachate collection system or bottom liner. It has a non-engineered 1- to 2-foot clay cap. The site is identified as a SWMU in the installation RCRA corrective action permit.

The Phase I RFI report submitted in 1991 identified the need for further investigation. In FY97 Phase II RFI fieldwork identified COCs. In FY98 the draft Phase II RFI report was submitted to the state. Phase II identified the necessity to characterize the landfill contents to assess groundwater impact and to determine the volume of waste material.

In FY99 Phase III RFI/baseline risk assessment (BRA) began in order to determine leachate impact on the groundwater, the volume and characteristics of waste material, and the groundwater flow path. In FY00 the final Phase II report was submitted and the Phase III RFI/BRA fieldwork was performed. In FY03 the Phase III RFI report was finalized.

In December 2003 the CMS was finalized and approved. The DD was finalized in the summer of 2004. In January 2005 a 90 percent remedial design (RD) was submitted to the state for review, and in March 2005 a 100 percent RD was approved. Capping was completed in 2005. The LTM began in FY06.

A letter plan was prepared in May 2007 that recommended quarterly monitoring of the five wells and two springs. Quarterly surface water and sediment sampling occurs, along with annual methane monitoring. The analytical suite decreased from VOCs, metals, SVOCs, pesticides, and herbicides to VOCs, metals, and SVOCs per the 2014 Final Annual Report on LTM and CMI(O) at sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, FTKX-40 and Karst Springs. Monitoring and LUC inspections will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Costs for periodic reviews for all Installation Restoration (IR) sites are consolidated under this site's cost-to-complete.

In FY12 a periodic review was performed. All future periodic reviews will be captured under this site.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

Site ID: FTKX-01

Site Name: CLOSED LANDFILL (9TH AND WILSON ROAD)

CLEANUP/EXIT STRATEGY

Groundwater and spring monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Currently performing LUC inspections. Periodic reviews are being tracked under this site for all cleanup sites.

Site ID: FTKX-02

Site Name: RESIDENTIAL LANDFILL

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals, Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	198608.....	198902
CS.....	198608.....	198902
RFI/CMS.....	199410.....	200105
LTM.....	200109.....	204609

RIP Date: N/A

RC Date: 200108

SITE DESCRIPTION

FTKX-02 is located north of the cantonment area bounded by Baker Road on the north and by Brandenburg Station Road on the west. It has two components. The lower landfill comprises the entire landfill footprint and was used from 1953 until November 1984; it is of trench and fill construction. The overlying area-type lined landfill was used from 1984 until 1992; it covered approximately two-thirds of the lower trench and fill landfill. Both landfills were used for disposal of residential and installation solid waste consisting of asbestos, construction debris, large inert objects, POL-contaminated soil, grit and grease, rinsed empty pesticide containers, and infectious/pathological wastes [bandages, dressings, glass, metal, dead animals, sewage treatment plant sludge, and pentachlorophenol (PCP) treated wood]. The residential landfill is overlain by a newly constructed construction and demolition debris (C/DD) landfill in the northeastern portion of the residential landfill. The combined landfills occupy approximately 285 acres of permitted area with 42 acres of residential waste and 27.4 acres of C/DD waste. The site was investigated to assess the potential for groundwater contamination from the underlying pre-1984 trench-type landfill.

This site is identified as an SWMU; it was initially identified in SWMUG 3 in the installation RCRA Part B permit signed Jan. 2, 1997. The initial groundwater monitoring system consisted of five monitoring wells installed around the landfill. A first quarter sample analysis in 1993 indicated contamination in one of the five wells; the contaminants were lead and benzene. A groundwater assessment plan, including a dye trace study and the construction of new wells, was implemented. Dye trace work plans were approved; the Commonwealth of Kentucky issued a permit to allow placement of the C/DD landfill over a portion of the old landfill. In FY98 the state approved the final conduit flow study report and reviewed the draft diffuse flow study report. In FY99 a conduit mapping report was submitted, and the installation of a new groundwater monitoring system consisting of six wells (all five old wells were decommissioned) was completed. In FY00 the final groundwater monitoring plan was submitted, and baseline groundwater characterization was initiated. In FY01 the final well installation and decommissioning report was submitted, as well as the first through fifth quarterly monitoring letters. In FY02 the KDEP approved the groundwater monitoring plan with the stipulation that monitoring be increased to semiquarterly to accommodate high and low flow conditions each quarter. The evaluation of eight baseline monitoring events indicated no significant issues with organic COCs but did identify significant background issues with metals and indicator parameters. Consequently, Fort Knox requested an extension of the baseline period by eight events to characterize those influences. Six monitoring events were conducted in FY02, and eight events were conducted in FY03.

Activities accomplished in FY04 included two baseline monitoring events (and associated quarterly reporting to the KDEP), a baseline summary report, and six detection-mode monitoring events.

In FY11, the facility went into a groundwater assessment. In FY12, a groundwater assessment plan was submitted to KDEP. In FY13, the groundwater assessment report was submitted to KDEP. KDEP sent a technical notice of deficiency in February 2014. Fort Knox responded to the technical notice of deficiency. The response is currently under review. Fort Knox's current solid waste permit, effective Nov. 13, 2010, requires quarterly monitoring of six wells and one spring. LUC inspections are currently performed.

In FY12, a periodic review was performed. All future periodic reviews are captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40)

Site ID: FTKX-02
Site Name: RESIDENTIAL LANDFILL

and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

This site is currently under assessment. Groundwater and spring monitoring will continue. Currently performing LUC inspections.

Site ID: FTKX-10

Site Name: WWTP SLUDGE LAGOONS (2)

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals, Pesticides, Polychlorinated Biphenyls (PCB), Semi-volatiles (SVOC)

Media of Concern: Soil

Phases	Start	End
RFA.....	198608.....	198902
CS.....	198608.....	198902
RFI/CMS.....	198905.....	200705
CMI(C).....	200608.....	200709
CMI(O).....	200803.....	200906
LTM.....	200906.....	204609

RIP Date: 200803

RC Date: 200906

SITE DESCRIPTION

The WWTP former sludge lagoons are located approximately 500 feet to the southeast of the Fort Knox sewage treatment plant. The two former lagoons are approximately 150 feet by 200 feet and 3 to 10 feet deep. The volume of the lagoons is approximately 18,500 cubic yards. From 1942 to 1960 the lagoons received sewer sludge from throughout the installation. The lagoons are inactive. Improper disposal of petroleum, chemicals, solvents, pesticides, and other compounds directly into the lagoons via sewer outfalls or direct discharge into the lagoons is suspected to have resulted in the release of contaminants into the lagoon surface waters and sediments. The lagoons are not lined. The nearest surface water body is a stream, approximately three-quarters of a mile southeast of the site, which drains into Mill Creek. During 1980 the western-most lagoon was filled in with C/DD. This site is identified as an SWMU in the installation RCRA corrective action permit.

In FY99, the draft Phase I RFI report was submitted to the state for review. The RFI Phase I draft report recommended a Phase II RFI. In FY00 a final Phase I RFI report and draft Phase II RFI work plan were submitted. Fieldwork for Phase II was completed in FY01. The draft Phase II RFI report was submitted to the state for review in first quarter of FY02. The draft report noted that contamination was found and recommended additional sampling of the soil in the release areas located at the southern end of the lagoons and at isolated locations along the access roadway to further characterize the site. In November 2003 the Phase III RFI report was submitted, and in FY06 the final Phase III RFI report and final supplemental risk assessment were approved.

In FY08, the corrective measures implementation report was submitted to KDEP recommending annual LUC inspections. In FY09, this site received a tentative NFA, which is pending based on permit modification.

In FY12, a periodic review was performed. All future periodic reviews are captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Currently performing LUC inspections.

Site Name: UST SITE 2823 INVESTIGATION/REMEDIATION

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
ISC.....	198608.....	198902
INV.....	198608.....	198902
CAP.....	199409.....	200708
IMP(C).....	200703.....	200709
IMP(O).....	200709.....	204609

RIP Date: 200709

RC Date: 204609

SITE DESCRIPTION

UST Site 2823 is a former 1-acre vehicle fueling area which operated from the 1930s until 1986. It contained a 5,000-gallon gasoline UST and a 5,000-gallon diesel UST. In June 1990 both USTs were removed, and a closure report was filed with the state. In 1998 the site was completely paved over with a 12-inch thick concrete hard stand for use as a tank maintenance facility. Given that the site is at a central location within an approximately 20-acre hardstand and that at a topographic high, there is no groundwater recharge. Groundwater may be present as a perched condition, but there is no evidence of contaminant migration.

In 1993, the initial SI was completed, indicating BTEX contamination in subsurface soils and groundwater. Approximately 5,200 cubic yards of soil was removed in 1994. The soil was excavated at depths ranging from 15 feet to 25 feet and backfilled with clean soil. An additional investigation in FY00 included the collection of chemical and soil biological data as part of the pre-corrective action plan (CAP). The KDEP requested additional site data. In FY04 an additional round of sampling of all site wells was submitted. Because the FY04 sampling results indicated increases in concentrations, two additional wells were installed, and two more sampling events were conducted per a request from the KDEP. In February 2007 an addendum to the SI report was submitted.

A draft CAP was prepared in March 2008 that selected a remedy of air sparging with ozone generation and/or enhanced bioremediation, interim institutional controls, and semiannual sampling at eight wells. The analytical suite decreased from VOCs to BTEX per the 2013 Draft/Final Annual Report on LTM and CMI(O) at sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, FTKX-40, and Karst Springs. Note: Site FTKX-15D is carried as IMP(O) in AEDB-R due to the regulatory statute.

Monitoring and LUC inspections will continue until compliant levels have been reached and an NFA can be requested from KDEP. In FY12, a periodic review was performed. All future periodic reviews are captured under FTKX-01. In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). Site FTKX-15D is carried as IMP(O) in AEDB-R due to the regulatory statute. The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Groundwater monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Currently performing LUC inspections.

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	198609.....	198701
CS.....	198609.....	198701
RFI/CMS.....	198905.....	200703
DES.....	200703.....	200704
CMI(C).....	200608.....	200709
CMI(O).....	200709.....	204609
RIP Date:	200709	
RC Date:	204609	

SITE DESCRIPTION

The spent solvent storage area is a fenced and bermed concrete pad of approximately 2,500 square feet with a self-contained drainage system. This system consists of a catch basin and an OWS. Waste chemicals, such as trichloroethene (TCE), sodium hydroxide, lubrication fluid, and acids, were stored in drums at this location. The site is located at the Boatwright Maintenance Area south of Frazier Road next to existing Buildings 2776 and 2782. Effluent from the OWS is discharged through a storm drain which passes under Frazier Road into the forested area. Spent solvent storage was discontinued at this site in 1987.

The site is part of the RCRA corrective action permit. Phase I and II RFIs were completed. Phase II RFI fieldwork included soil and sediment sampling. In FY98 a draft report submitted to the state recommended NFA. In February 2000 the state furnished comments on the Phase II draft report and requested additional sampling. In FY01 the final Phase II RFI report was submitted, and the additional sampling was performed as Phase III RFI.

VOC and metal contamination has been found in deep subsurface soil. Both TCE and tetrachloroethene (PCE) have been detected in groundwater. The final Phase III RFI report was approved in November 2003.

A CMS was prepared in October 2007 that recommended annual sampling of seven wells for VOCs, total organic carbon (TOC), chloride, methane, ethylene, ethane, and alkalinity. Monitoring and LUC inspections will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

In FY12, a periodic review was performed. All future periodic reviews are captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI (O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Groundwater monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Currently performing LUC inspections.

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals, Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198609.....	198902
CS.....	198609.....	198902
RFI/CMS.....	198905.....	200703
DES.....	200703.....	200704
CMI(C).....	200608.....	200709
CMI(O).....	200709.....	204609
RIP Date:	200709	
RC Date:	204609	

SITE DESCRIPTION

This site consists of a removed 4,000-gallon underground pesticide rinse tank and Building 112. The site served as a rinse area for pesticide distribution vehicles and equipment from the early-1970s to 1988. Prior to its use as a pesticide or rodenticide mixing facility, Building 112 was an automotive maintenance facility. Mixing and formulation of insecticide and rodenticide solutions were performed in Building 112. The UST also received rinse water from empty containers. The rinse water was then used as a diluent with chlordane for use in termite treatment under slab foundations. In October 1988 the UST was removed as part of closure activities.

Excavated soil from the UST pit was analyzed and found to contain chlordane from 6.5 to 536.6 micrograms per kilogram, prompting over-excavation and removal of 180 cubic yards of soil. During the closure process of the UST, groundwater samples were analyzed. The analysis revealed that chlorinated VOCs were present in the groundwater and could be associated with prior maintenance activities at Building 112. Further investigation was required to determine the source and extent of contamination.

The Phase I RFI report identified the presence of impacted soil and groundwater. In April 2000, the final Phase II report was submitted, and in October 2003 the final phase III RFI report was submitted. The KDEP indicated the need for further investigation, and an additional Phase III characterization began in FY04. As a result, the KDEP mandated source identification. In August 2006 the final Phase III RFI report addendum was submitted and was approved in October FY07. The CMS, tentatively approved by the KDEP in FY07, recommended biostimulation, bioaugmentation, monitored natural attenuation (MNA), and interim institutional controls.

The CMS recommended annual monitoring of six wells and one spring for VOCs, TOC, chloride, methane, ethane, ethylene, alkalinity, and MNA parameters until compliant levels are met and an NFA can be requested from the KDEP. The total number of wells requiring monitoring increased from 6 to 7 wells per the 2014 Final Annual Report on LTM and CMI(O) at sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, and FTKX-40. LUC inspections will also be conducted.

In FY12, a periodic review was performed. All future periodic reviews are captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Groundwater and spring monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Currently performing LUC inspections.

Site ID: FTKX-40
Site Name: UST 1473-A SITE CLOSURE

STATUS

Regulatory Driver: RCRA
RRSE: HIGH
 Contaminants of Concern: Volatiles (VOC)
 Media of Concern: Groundwater

Phases	Start	End
RFA.....	199304.....	199306
CS.....	199304.....	199306
RFI/CMS.....	199401.....	200603
CMI(C).....	200703.....	200709
CMI(O).....	200709.....	204609
RIP Date:	200709	
RC Date:	204609	

SITE DESCRIPTION

The SWMU site 1473A comprises about 1 acre located within the Fort Knox cantonment area, southeast of the intersection of Bullion Boulevard and Chaffee Avenue. Formerly, the site was part of a gasoline fueling station that contained a 10,000-gallon UST. The tank was installed in 1947 and used until 1986. There was a nearby 2,000-gallon tank (designated as 1473B) that contained diesel fuel. In July 1992 the USTs were removed. Site 1473A is now vacant and predominantly covered with grass.

The Phase I RFI, consisting of one groundwater monitoring well and four soil borings, indicated that VOCs and metals were present in the soil and groundwater. The Phase II RFI fieldwork completed in FY98 consisted of four groundwater monitoring wells. The draft report submitted to the state in FY99 recommended a Phase III RFI to determine the nature and extent of contamination and the potential for natural attenuation at the site. In FY00 the final Phase II report was submitted, and the Phase III RFI fieldwork was performed.

Findings from the Phase III RFI indicated that BTEX is present in groundwater at levels greater than the KDEP standards. Additional sampling was conducted to complete the Phase III RFI fieldwork. In August 2003 the draft Phase III report was submitted. Monitoring was performed for four quarters (ending in December 2004), and the data was reviewed by the KDEP. The Phase III RFI addendum was approved by the KDEP in FY06.

The CMI(O) for MNA began in FY07.

A letter plan was prepared in February 2008 that recommended semiannual monitoring of three wells for VOCs. The total of wells requiring monitoring increased from three to four per the 2014 Final Annual Report on LTM and CMI(O) at sites FTKX-01, FTKX-10, FTK-011, FTKX-15D, FTK-020, FTKX-21, FTKX-22, and FTKX-40. The following parameters were also added to the site for analysis: nitrate, nitrite, sulfate, manganese, and field parameters of ferrous iron per the 2014 Annual Report on LTM and CMI(O) sites. Monitoring and LUC inspections will continue until compliant levels have been reached and an NFA can be requested from the KDEP.

In FY12, a periodic review was performed. All future periodic reviews are captured under FTKX-01.

In late FY13, a new PBA was awarded to continue CMI(O) at five sites (FTKX-15D, FTK-20, FTKX-21, FTKX-22 and FTKX-40) and LTM at four sites (FTKX-01, FTKX-02, FTKX-10 and FTK-11). The period of performance will end September 2018.

CLEANUP/EXIT STRATEGY

Groundwater monitoring will continue until compliant levels have been reached and an NFA can be requested from the KDEP. Currently performing LUC inspections.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CCFTKX-017	Removal of 2 Oil Water Separators	201303	FTK-017M received an NFA from KDEP with the condition that an Environmental Covenant will be added to the site. FTK-017P received an NFA, with no conditions.
FTK-008	PATHOLOGICAL INCINERATOR BLDG. 847	199510	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTK-014	4 WATER TREAT. PLANT LIME SLUDGE LAGOONS	199510	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTK-018	2 CENTRAL WASH RACKS	198902	This Site was moved to the Cleanup Compliance IAP for funding purposes.
FTK-038	PCB TRANSFORMER STORAGE SITE BLDG 7331	200109	Tentative NFA status was received form KDEP 31 AUG 04. NFA pending, Class 3 Permit Modification and public notice required.
FTK-41A	ANDERSON GOLF COURSE	200006	In FY00 an NFA status from the state was received 15 JUN 00.
FTK-41L	LINDSEY GOLF COURSE	200006	An NFA was received from the state 15 JUN 00.
FTKX-03	STEAM GENERATOR INCINERATOR	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-04	BOILER USED TO BURN CLASSIFIED WASTE	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-05	CLASSIFIED DOCUMENT INCINERATOR	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-06	PATHOLOGICAL INCINERATOR IRELAND USACH	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-07	PATH INCINERATOR BLDG T-1068	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-09	WASTEWATER TREATMENT PLANT	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-12	WWTP FILTER PRESS BLDG	198902	This Site was moved to the Cleanup Compliance IAP for funding purposes.
FTKX-13	WWTP 3 LIME SLUDGE LAGOONS MULDRAUGH	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-15A	UST & PIPELINE REMOVALS BLDG 102	200307	Receive a Tentative NFA 30 JUN 05 from KDEP. NFA pending, Class 3 Permit Modification and public notice required.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTKX-15B	UST'S BURK MOTOR PARK BLDG 2730	198902	The report submitted to the state presented results of four quarters of monitoring and recommendation in FY04 for no further action.
FTKX-15C	UST SITE BUILDING 2952	199602	Site FTKX-15C was originally entered in error because it is the same UST site as FTK-020. The site was closed to correct the error after it was found.
FTKX-16	MULTIPLE ABOVE GROUND STORAGE TANKS	199802	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-17	MULTIPLE OIL WATER SEPARATORS	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-19	FORMER DRMO HW STG AREA	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-23	PCP TRANSFORMER STORAGE AREA T-6	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-24	FIRE FIGHTER TRNING AREA	200709	KDEP Tentative NFA letter signed 04 JUN 09. NFA pending, Class 3 Permit Modification and public notice required.
FTKX-25	RAD HOS WST STG AREA BNKER 1070	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-26	HOSPITAL SILVER RECOVERY OPERATION	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-27	DENTAL CLINIC SILVER RECOVERY OPERATION	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-28	PHOTOGRAPHIC LAB SILVER RECOVERY	198902	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-29	CRUMB RANGE EOD SITE	198902	Received RCRA Closure from KDEP 30 SEP 02. Site was move to Cleanup Compliance. Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-30	TIOGA SPRINGS EOD SITE	200709	Tentative NFA received from KDEP 08 OCT 07. NFA pending, Class 3 Permit Modification and public notice required.
FTKX-31	FORMER TRANSFORMER STG BLD 58,59,60	200309	Tentative NFA received from KDEP 24 AUG 04. NFA pending, Class 3 Permit Modification and public notice required.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTKX-32	FORMER TRANSFORMER STG BLD 2953	199903	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-33	FORMER TRANSFORMER STG PAINT SHOP YD	200109	The DD was signed 21 FEB 01. Tentative NFA status received from KDEP 08 DEC 04. NFA pending, Class 3 Permit Modification and public notice required.
FTKX-34	FORMER TRANSFORMER STG BLD 4240	199510	Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-35	FORMER TRANSFORMER STG BLD 4019	200109	Tentative NFA received from KDEP 18 NOV 04. NFA pending, Class 3 Permit Modification and public notice required.
FTKX-36	PRINTING PLANT SILVER RECOVERY OPERATION	198902	This site is included in the RCRA Part B Permit Modification. The site is Operations and Management Account funded. Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-37	PARKERIZATION PROCESS AREA, BLG 2783	199605	RA was completed in May 1996. Site is listed in Appendix A-2 of the RCRA Part B Permit, List of SWMUs that required no further Investigation at this time.
FTKX-39	ABANDONED GASOLINE LINE DISTRIB SYSTEM	200309	The Final report was submitted to state 2nd quarter FY04. NOTI received OCT 2004. These Sites are clean, they are listed in the RCRA Part B Permit as UST Regulated.
FTKX-41	SANDERS SPRING	199406	The lake has been reopened for recreational purposes, and FTKX does not plan further action.
FTKX-42	TWO GOLF COURSES	198902	This AEDB-R site has been discontinued. New AEDB-R numbers are FTKX-41A for Anderson Golf Course and FTKX-41L for Lindsey Golf Course. These sites have undergone confirmatory sampling, and received a Tentative NFA. NFA pending, Class 3 Permit Modification and public notice required.
FTKX-43	OIL & GREASE PIT	199407	A SWMU Assessment Report was prepared and approved by the state and the site is closed. The RA of this site is completed and NFA is required under the IRP.
PBC at Knox	PBC	201210	Performance Based Contract at Fort Knox. Site has been closed due to it being the last year of the contract.

IRP Schedule

Date of IRP Inception: 198602

Past Phase Completion Milestones

1987

RFA (FTKX-21 - BOATWRIGHT MAINT AREA NR BLD 2775, PBC at Knox - PBC)

CS (FTKX-21 - BOATWRIGHT MAINT AREA NR BLD 2775)

1989

RFA (FTK-008 - PATHOLOGICAL INCINERATOR BLDG. 847, FTK-011 - 17 WWTP SLUDGE DRYING BEDS, FTK-014 - 4 WATER TREAT. PLANT LIME SLUDGE LAGOONS, FTK-018 - 2 CENTRAL WASH RACKS, FTK-020 - DRMO FORMER WASTE OIL TANK SITE, FTK-038 - PCB TRANSFORMER STORAGE SITE BLDG 7331, FTKX-01 - CLOSED LANDFILL (9TH AND WILSON ROAD), FTKX-02 - RESIDENTIAL LANDFILL, FTKX-03 - STEAM GENERATOR INCINERATOR, FTKX-04 - BOILER USED TO BURN CLASSIFIED WASTE, FTKX-05 - CLASSIFIED DOCUMENT INCINERATOR, FTKX-06 - PATHOLOGICAL INCINERATOR IRELAND USACH, FTKX-07 - PATH INCINERATOR BLDG T-1068, FTKX-09 - WASTEWATER TREATMENT PLANT, FTKX-10 - WWTP SLUDGE LAGOONS (2), FTKX-12 - WWTP FILTER PRESS BLDG, FTKX-16 - MULTIPLE ABOVE GROUND STORAGE TANKS, FTKX-17 - MULTIPLE OIL WATER SEPARATORS, FTKX-19 - FORMER DRMO HW STG AREA, FTKX-22 - BLD T-112 UST PESTICIDE, FTKX-23 - PCP TRANSFORMER STORAGE AREA T-6, FTKX-24 - FIRE FIGHTER TRNING AREA, FTKX-25 - RAD HOS WST STG AREA BNKER 1070, FTKX-26 - HOSPITAL SILVER RECOVERY OPERATION, FTKX-27 - DENTAL CLINIC SILVER RECOVERY OPERATION, FTKX-28 - PHOTOGRAPHIC LAB SILVER RECOVERY, FTKX-29 - CRUMB RANGE EOD SITE, FTKX-30 - TIOGA SPRINGS EOD SITE, FTKX-31 - FORMER TRANSFORMER STG BLD 58,59,60, FTKX-32 - FORMER TRANSFORMER STG BLD 2953, FTKX-33 - FORMER TRANSFORMER STG PAINT SHOP YD, FTKX-34 - FORMER TRANSFORMER STG BLD 4240, FTKX-35 - FORMER TRANSFORMER STG BLD 4019, FTKX-36 - PRINTING PLANT SILVER RECOVERY OPERATION, FTKX-42 - TWO GOLF COURSES)

PA (FTKX-13 - WWTP 3 LIME SLUDGE LAGOONS MULDRAUGH)

ISC (FTKX-15A - UST & PIPELINE REMOVALS BLDG 102, FTKX-15B - UST'S BURK MOTOR PARK BLDG 2730, FTKX-15C - UST SITE BUILDING 2952, FTKX-15D - UST SITE 2823 INVESTIGATION/REMEDIATION)

CS (FTK-008 - PATHOLOGICAL INCINERATOR BLDG. 847, FTK-011 - 17 WWTP SLUDGE DRYING BEDS, FTK-014 - 4 WATER TREAT. PLANT LIME SLUDGE LAGOONS, FTK-018 - 2 CENTRAL WASH RACKS, FTK-020 - DRMO FORMER WASTE OIL TANK SITE, FTK-038 - PCB TRANSFORMER STORAGE SITE BLDG 7331, FTKX-01 - CLOSED LANDFILL (9TH AND WILSON ROAD), FTKX-02 - RESIDENTIAL LANDFILL, FTKX-03 - STEAM GENERATOR INCINERATOR, FTKX-04 - BOILER USED TO BURN CLASSIFIED WASTE, FTKX-05 - CLASSIFIED DOCUMENT INCINERATOR, FTKX-06 - PATHOLOGICAL INCINERATOR IRELAND USACH, FTKX-07 - PATH INCINERATOR BLDG T-1068, FTKX-10 - WWTP SLUDGE LAGOONS (2), FTKX-12 - WWTP FILTER PRESS BLDG, FTKX-17 - MULTIPLE OIL WATER SEPARATORS, FTKX-19 - FORMER DRMO HW STG AREA, FTKX-22 - BLD T-112 UST PESTICIDE, FTKX-24 - FIRE FIGHTER TRNING AREA, FTKX-25 - RAD HOS WST STG AREA BNKER 1070, FTKX-29 - CRUMB RANGE EOD SITE, FTKX-30 - TIOGA SPRINGS EOD SITE, FTKX-31 - FORMER TRANSFORMER STG BLD 58,59,60, FTKX-32 - FORMER TRANSFORMER STG BLD 2953, FTKX-33 - FORMER TRANSFORMER STG PAINT SHOP YD, FTKX-34 - FORMER TRANSFORMER STG BLD 4240, FTKX-35 - FORMER TRANSFORMER STG BLD 4019, FTKX-36 - PRINTING PLANT SILVER RECOVERY OPERATION)

INV (FTKX-15A - UST & PIPELINE REMOVALS BLDG 102, FTKX-15B - UST'S BURK MOTOR PARK BLDG 2730, FTKX-15D - UST SITE 2823 INVESTIGATION/REMEDIATION)

1992

CS (FTKX-37 - PARKERIZATION PROCESS AREA, BLG 2783)

RFA (FTKX-37 - PARKERIZATION PROCESS AREA, BLG 2783)

1993

CS (FTK-41A - ANDERSON GOLF COURSE, FTK-41L - LINDSEY GOLF COURSE, FTKX-39 - ABANDONED GASOLINE LINE DISTRIB SYSTEM, FTKX-40 - UST 1473-A SITE CLOSURE)

RFA (FTK-41A - ANDERSON GOLF COURSE, FTK-41L - LINDSEY GOLF COURSE, FTKX-39 - ABANDONED GASOLINE LINE DISTRIB SYSTEM, FTKX-40 - UST 1473-A SITE CLOSURE)

1994

CMI(C) (FTKX-43 - OIL & GREASE PIT)

CS (FTKX-41 - SANDERS SPRING, FTKX-43 - OIL & GREASE PIT)

RFA	(FTKX-41 - SANDERS SPRING, FTKX-43 - OIL & GREASE PIT)
1995	
RFI/CMS	(FTKX-37 - PARKERIZATION PROCESS AREA, BLG 2783)
1996	
DES	(FTKX-37 - PARKERIZATION PROCESS AREA, BLG 2783)
CMI(C)	(FTKX-37 - PARKERIZATION PROCESS AREA, BLG 2783)
1998	
RFI/CMS	(FTK-41A - ANDERSON GOLF COURSE, FTK-41L - LINDSEY GOLF COURSE)
DES	(FTK-41A - ANDERSON GOLF COURSE, FTK-41L - LINDSEY GOLF COURSE)
1999	
RFI/CMS	(FTKX-32 - FORMER TRANSFORMER STG BLD 2953)
ISC	(CCFTK-7342 - UST 7342.1, .2, .3)
2000	
CMI(C)	(FTK-41A - ANDERSON GOLF COURSE, FTK-41L - LINDSEY GOLF COURSE)
RFI/CMS	(FTK-038 - PCB TRANSFORMER STORAGE SITE BLDG 7331, FTKX-33 - FORMER TRANSFORMER STG PAINT SHOP YD, FTKX-35 - FORMER TRANSFORMER STG BLD 4019, FTKX-39 - ABANDONED GASOLINE LINE DISTRIB SYSTEM)
DES	(FTKX-39 - ABANDONED GASOLINE LINE DISTRIB SYSTEM)
2001	
CMI(C)	(FTK-038 - PCB TRANSFORMER STORAGE SITE BLDG 7331, FTKX-33 - FORMER TRANSFORMER STG PAINT SHOP YD, FTKX-35 - FORMER TRANSFORMER STG BLD 4019)
RFI/CMS	(FTKX-02 - RESIDENTIAL LANDFILL)
CAP	(FTKX-15A - UST & PIPELINE REMOVALS BLDG 102)
2003	
RFI/CMS	(FTKX-31 - FORMER TRANSFORMER STG BLD 58,59,60)
IMP(C)	(FTKX-15A - UST & PIPELINE REMOVALS BLDG 102)
CMI(C)	(FTKX-39 - ABANDONED GASOLINE LINE DISTRIB SYSTEM)
2004	
RFI/CMS	(FTKX-01 - CLOSED LANDFILL (9TH AND WILSON ROAD))
2005	
CMI(C)	(FTKX-01 - CLOSED LANDFILL (9TH AND WILSON ROAD))
DES	(FTKX-01 - CLOSED LANDFILL (9TH AND WILSON ROAD))
2006	
RFI/CMS	(FTKX-40 - UST 1473-A SITE CLOSURE)
2007	
RFI/CMS	(FTK-011 - 17 WWTP SLUDGE DRYING BEDS, FTK-020 - DRMO FORMER WASTE OIL TANK SITE, FTKX-10 - WWTP SLUDGE LAGOONS (2), FTKX-21 - BOATWRIGHT MAINT AREA NR BLD 2775, FTKX-22 - BLD T-112 UST PESTICIDE, FTKX-24 - FIRE FIGHTER TRNING AREA, FTKX-30 - TIOGA SPRINGS EOD SITE)
CAP	(FTKX-15D - UST SITE 2823 INVESTIGATION/REMEDIATION)
IMP(C)	(FTKX-15D - UST SITE 2823 INVESTIGATION/REMEDIATION)
DES	(FTKX-21 - BOATWRIGHT MAINT AREA NR BLD 2775, FTKX-22 - BLD T-112 UST PESTICIDE)
CMI(C)	(FTK-011 - 17 WWTP SLUDGE DRYING BEDS, FTK-020 - DRMO FORMER WASTE OIL TANK SITE, FTKX-10 - WWTP SLUDGE LAGOONS (2), FTKX-21 - BOATWRIGHT MAINT AREA NR BLD 2775, FTKX-22 - BLD T-112 UST PESTICIDE, FTKX-24 - FIRE FIGHTER TRNING AREA, FTKX-30 - TIOGA SPRINGS EOD SITE, FTKX-40 - UST 1473-A SITE CLOSURE, PBC at Knox - PBC)

IRP Schedule

2009

CMI(O) (FTK-011 - 17 WWTP SLUDGE DRYING BEDS, FTKX-10 - WWTP SLUDGE LAGOONS (2))

2012

RFA (CCFTKX-017 - Removal of 2 Oil Water Separators)

2013

CS (CCFTKX-017 - Removal of 2 Oil Water Separators)

CMI(O) (PBC at Knox - PBC)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
---------	-----------	--------------	-------------

Final RA(C) Completion Date: 200709

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of IRP at Installation (including LTM phase): 204609

FORT KNOX IRP Schedule

 = phase underway

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
CCFTK-7342	UST 7342.1, .2, .3	INV						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTK-011	17 WWTP SLUDGE DRYING BEDS	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTK-020	DRMO FORMER WASTE OIL TANK SITE	CMI(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-01	CLOSED LANDFILL (9TH AND WILSON ROAD)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-02	RESIDENTIAL LANDFILL	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-10	WWTP SLUDGE LAGOONS (2)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-15D	UST SITE 2823 INVESTIGATION/REMEDATION	IMP(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-21	BOATWRIGHT MAINT AREA NR BLD 2775	CMI(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-22	BLD T-112 UST PESTICIDE	CMI(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTKX-40	UST 1473-A SITE CLOSURE	CMI(O)						

FORT KNOX
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 26/25

Installation Site Types with Future and/or Underway Phases

1 Underground Storage Tank
 (CCFTK-103)

Most Widespread Contaminants of Concern

Petroleum, Oil and Lubricants (POL)

Media of Concern

Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
CCFTK-101	St John Motor Park	FRA	WASTE REMOVAL - SOILS	2009

Duration of CR

Date of CR Inception: 198608

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201704/201704

Date of CR completion including Long Term Management (LTM): 201704

CR Contamination Assessment

Contamination Assessment Overview

Environmental restoration activities include the Installation Restoration Program (IRP) and Military Munitions Response Program (MMRP). On Dec. 29, 2008, the Office of the Deputy Under Secretary of Defense for Installations and Environment, [ODUSD (I&E)], issued an interim policy for Defense Environmental Restoration Program (DERP) eligibility that rescinded the 1986 eligibility date for the IRP and the 2002 eligibility date for the MMRP. This made many sites previously addressed in the Army's Compliance-related Cleanup (CC) program eligible for the DERP. Sites that are now eligible for the MMRP have been migrated from Army Environmental Database - Compliance-related Cleanup (AEDB-CC) and given the naming convention of other Munitions Response (MR) sites. The newly eligible non-MR type sites are considered to be IR sites; however, the newly eligible sites are being coded as Compliance Restoration (CR) in AEDB-R to distinguish them from the original IR sites and IR metrics.

Cleanup Exit Strategy

CCFTK-103 is pending regulatory and legal concurrence for site closure.

CR Previous Studies

2007

Title	Author	Date
Initial Response Letter to KDEP for Regulated UST 175.1 and 175.2	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 708.1, 708.2, and 708.3	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 890.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 2756.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 2757.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 2762.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 4208.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 5540.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 6115.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 6117.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 6145.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 6576.11	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 7873.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 8928.1	ICI	MAR-2007
Initial Response Letter to KDEP for Regulated UST 6143.1	ICI	APR-2007
Initial Response Letter to KDEP for Regulated UST 5220.1	ICI	SEP-2007
Secondary Response to Comments to KDEP for UST Site 6144.1	ICI	DEC-2007

2008

Initial Response Letter to KDEP for Regulated UST 1206.2	ICI	JAN-2008
Initial Response Letter to KDEP for Regulated UST 7233.1	ICI	JAN-2008
Initial Response Letter to KDEP for Regulated UST 9310.1	ICI	JAN-2008
Secondary Response to Comments to KDEP for UST Site 4015.1	ICI	FEB-2008
Secondary Response to Comments to KDEP for UST Sites 6251.1, 5251.2, 5251.3, and 5251.4	ICI	FEB-2008
Initial Response Letter to KDEP for Regulated UST 861.1	ICI	MAR-2008
Initial Response Letter to KDEP for Regulated UST 610.1	ICI	APR-2008
Initial Response Letter to KDEP for Regulated UST 611.1	ICI	APR-2008
Closure Report for Heating Fuel UST Site 1310	ICI	APR-2008
Closure Report for Heating Fuel UST Site 1467	ICI	APR-2008

CR Previous Studies

2008

Title	Author	Date
Secondary Response to KDEP for UST Site 893.1, 893.2, 893.3, and 893.4	ICI	APR-2008
Initial Response Letter to KDEP for Regulated UST 1003.1	ICI	APR-2008
Initial Response Letter to KDEP for Regulated UST 1006.1	ICI	APR-2008
Initial Response Letter to KDEP for Regulated UST 1055.1 and 1055.2	ICI	APR-2008
Secondary Response to Comments to KDEP for UST 1227.1	ICI	APR-2008
Closure Report for Heating Fuel UST Site 2944	ICI	APR-2008
Closure Report for Heating Fuel UST Site 5949	ICI	APR-2008
Closure Report for Heating Fuel UST Site 6541	ICI	APR-2008
Closure Report for Heating Fuel UST Site 6568	ICI	APR-2008
Closure Report for Heating Fuel UST Site 6570	ICI	APR-2008
Closure Report for Heating Fuel UST Site 6577	ICI	APR-2008
Secondary Response to Comments to KDEP for UST Sites 2987.1, 2987.2 and 2987.3	ICI	APR-2008
Initial Response Letter to KDEP for Regulated UST 5901.1 and 5901.2	ICI	APR-2008
Secondary Response to Comments to KDEP for UST Sites 6121.1, 6121.2 and 6121.3	ICI	APR-2008
Secondary Response to Comments to KDEP for UST Site 5231.1	ICI	JUN-2008
Secondary Response to Comments to KDEP for UST Sites 6141.1, 6141,2 and 6141.3	ICI	JUN-2008
Secondary Response to Comments to KDEP for UST Sites 6565.1, 6565.2 and 6565.3	ICI	JUN-2008
Initial Response Letter to KDEP for Regulated UST 94.1	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 94.2	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 479.1 and 479.2	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 486.1	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 578.1	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 613.3	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 1612.1, 1612.2, and 1612.3	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 1727.1, 1727.2, and 1727.3	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 2764.1	ICI	AUG-2008
Secondary Response to Comments to KDEP for UST Site 2765.1	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 2765.1	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 2788.1	ICI	AUG-2008

CR Previous Studies

2008

Title	Author	Date
Initial Response Letter to KDEP for Regulated UST 2788.2	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 2977.1,2977.2, and 2977.3	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 2964.1	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 2964.2	ICI	AUG-2008
Secondary Response to Comments to KDEP for UST Site 6146.1	ICI	AUG-2008
Secondary Response to Comments to KDEP for UST Site 6147.1	ICI	AUG-2008
Secondary Response to Comments to KDEP for UST Site 9245.2	ICI	AUG-2008
Initial Response Letter to KDEP for Regulated UST 851.1	ICI	SEP-2008
Initial Response Letter to KDEP for Regulated UST 5901.3	ICI	SEP-2008
Closure Report for Site 9312.1	ICI	SEP-2008
Initial Response Letter to KDEP for Regulated UST 483.1	ICI	NOV-2008
Initial Response Letter to KDEP for Regulated UST 613.1 and 613.2	ICI	DEC-2008

2009

Secondary Response to Comments to KDEP for UST Sites 1395.1, 1395.2 and 1395.3	ICI	JAN-2009
Secondary Response to Comments to KDEP for UST Sites 2758.1, 2758.2, and 2758..3	ICI	JAN-2009
Secondary Response to Comments to KDEP for UST sites 2985.1, 2985.2 and 2985.3	ICI	JAN-2009
Initial Response Letter to KDEP for Regulated UST 7233.2	ICI	JAN-2009
Initial Response Letter to KDEP for Regulated UST 9367.1	ICI	JAN-2009
Initial Response Letter to KDEP for Regulated UST 9357.2	ICI	JAN-2009
Closure Report for Heating Fuel UST Site 2958	ICI	MAR-2009
Closure Report for Heating Fuel UST Site 6143	ICI	MAR-2009
Closure Report for Heating Fuel UST Site 6561	ICI	MAR-2009
Closure Report for UST Site 2944.1	ICI	MAR-2009
Closure Report for Heating Fuel UST Site 6607	ICI	MAR-2009
Closure Report for Heating Fuel UST at Knox and Cornwell	ICI	MAR-2009
Closure Report for UST Site 167	ICI	APR-2009
Closure Report Heating Fuel UST Site 93	ICI	APR-2009
Closure Report for Heating Fuel UST Site 121	ICI	APR-2009
Closure Report for Heating Fuel UST Site 486.2	ICI	APR-2009

CR Previous Studies

2009

Title	Author	Date
Closure Report for Heating Fuel UST Site 1002	ICI	APR-2009
Closure Report for Heating Fuel UST Site 1110	ICI	APR-2009
Data Collection Letter to KDEP for Heating Fuel UST Site 1731	ICI	APR-2009
Closure Report for Heating Fuel UST Site 2380	ICI	APR-2009
Closure Report for Heating Fuel UST Site 2724	ICI	APR-2009
Closure Report for Heating Fuel UST Site 2757	ICI	APR-2009
Closure Report for Heating Fuel UST Site 2788	ICI	APR-2009
Closure Report for Heating Fuel UST Site 2943	ICI	APR-2009
Closure Report for Heating Fuel UST Site 2970	ICI	APR-2009
Closure Report for Heating Fuel UST Site 4249	ICI	APR-2009
Closure Report for Heating Fuel UST Site 4250	ICI	APR-2009
Closure Report for Heating Fuel UST Site 5213	ICI	APR-2009
Closure Report for Heating Fuel UST Site 6550	ICI	APR-2009
Closure Report for Heating Fuel UST Site 6569	ICI	APR-2009
Secondary Response to Comments to KDEP for UST site 5901.4	ICI	APR-2009
Closure Report for Heating Fuel UST Site 6578	ICI	APR-2009
Initial Response Letter to KDEP for Regulated UST 2730.5, 2730.6	ICI	JUL-2009
Initial Response Letter to KDEP for Regulated UST 6118.1	ICI	SEP-2009
Closure Report for Heating Fuel UST Site 5375	ICI	NOV-2009
Closure Report for Heating Fuel UST Site 482	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 483	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 485	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 486.1	ICI	DEC-2009
Secondary Response to Comments to KDEP for UST Site 2754.1	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 2770	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 6114	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 2942	ICI	DEC-2009
Secondary Response to Comments to KDEP for UST 6142.1	ICI	DEC-2009
Closure Report for Heating Fuel UST Site 6580	ICI	DEC-2009

2010

Secondary Response to Comments to KDEP for UST Site 1395.5	ICI	JAN-2010
Initial Response Letter to KDEP for Regulated UST	ICI	JAN-2010

CR Previous Studies

2010

Title	Author	Date
2942.1		
Secondary Response to Comments to KDEP for UST Site 2943.1	ICI	JAN-2010
Initial Response Letter to KDEP for Regulated UST 7473.1	ICI	JAN-2010
Closure Report Heating Fuel UST 400	ICI	MAR-2010
Summary Report, Hazardous Waste Management Unit, Building 2949	TriEco	MAR-2010
Closure Report for Heating Fuel UST Site 2377	ICI	MAR-2010
Closure Report for UST Site 297	ICI	APR-2010
Closure Report for Heating Fuel UST Site 1720	ICI	APR-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1725	ICI	APR-2010
Closure Report for Heating Fuel UST Site 2756	ICI	APR-2010
Closure Report for Heating Fuel UST Site 2969	ICI	APR-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 5943	ICI	APR-2010
Closure Report for Heating Fuel UST Site 6146	ICI	APR-2010
Closure Report for Heating Fuel UST Site 6564	ICI	APR-2010
Closure Report for Heating Fuel UST Site 7504	ICI	APR-2010
Closure Report for Site 87	ICI	MAY-2010
Data Collection Response Letter to KDEP for UST Site 158	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST 484	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 601	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1055	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1109	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST 1306	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1307	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1545	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 2680	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 2963	ICI	MAY-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 4553	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 5047	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9298.3	ICI	JUN-2010

CR Previous Studies

2010

Title	Author	Date
Data Collection Letter to KDEP for Heating Fuel UST Site 9298.3	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 6761	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 6908	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 7330	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9297.1	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9298.2	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site	ICI	JUN-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9344	ICI	JUN-2010
Secondary Response to Comments to KDEP for 1395.4	ICI	AUG-2010
Data Collection Letter to KDEP for Heating Fuel UST 1468	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 1475	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 1479	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1483	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1486	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 1488	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1536	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 2010	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 2373	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 2723	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 2730	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 2959	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 3075	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 5542	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 6117	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 6548	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 6557	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 1537	ICI	SEP-2010
Closure Report for Heating Fuel UST Site 2780	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST's 9189 and 9246	ICI	SEP-2010

CR Previous Studies

2010

Title	Author	Date
Data Collection Letter to KDEP for Heating Fuel UST site 9297.2	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9297.3	ICI	SEP-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9298.1	ICI	SEP-2010
Data Collection Letter to KDEP for UST Site 1118	ICI	OCT-2010
Closure Report for Heating Fuel UST Site 127	ICI	DEC-2010
Initial Response Letter to KDEP for Regulated UST Bullion Depository	ICI	DEC-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9244	ICI	DEC-2010
Data Collection Letter to KDEP for Heating Fuel UST Site 9804	ICI	DEC-2010

2011

Final Work plan for Removal, Soil Excavation, and Site Closure of Hospital Oil Water Separator (SWMU FTK-17X)	ICI	FEB-2011
Work Plan for Removal, Soil Excavation and Site Closure of Oil Water Separator (SWMU FTK-017AL)	Bhate Environmental	MAR-2011
Data Collection Letter to KDEP for Heating Fuel UST Site 1391	ICI	MAY-2011
Initial Response Letter to KDEP for Regulated UST 889.1	ICI	MAY-2011
Secondary Response to Comment to KDEP for 1730.1 and 1730.2	ICI	MAY-2011
Initial Response Letter to KDEP for Regulated UST 2730.1, 2730.2, 2730.3, and 2730.4	ICI	MAY-2011
Closure Report for Heating Fuel UST Site 1174	ICI	JUN-2011
Final Work plan for Removal, Soil Excavation, and Site Closure of Oil Water Separator (SWMU FTK-017AL)	Bhate Environmental	JUN-2011
Closure Report for Heating Fuel UST Site 6587	ICI	JUN-2011
Final RCRA Facility Investigation Gammon field House	SAIC	AUG-2011
Oil Water Separators Operation and Maintenance Plan	Shaw Environmental	SEP-2011
Initial Response Letter to KDEP for Regulated UST 580.1	ICI	NOV-2011
Initial Response Letter to KDEP for Regulated UST 608.1	ICI	NOV-2011
Initial Response Letter to KDEP for Regulated UST 609.1	ICI	NOV-2011
Final Closure Assessment Report for site 580.1	ICI	NOV-2011
Final Closure Assessment Report for 608.1	ICI	NOV-2011
Final Closure Assessment Report for 609.1	ICI	NOV-2011
Initial Response Letter to KDEP for Regulated UST 2763.1	ICI	NOV-2011
Final Closure Assessment Report for 2763.1	ICI	NOV-2011
Final Closure Assessment Report for 2974.1	ICI	NOV-2011

CR Previous Studies

2011	Title	Author	Date
	Final Closure Assessment Report for 7238.1	ICI	NOV-2011
	Initial Response Letter to KDEP for Regulated UST 2974.1	ICI	NOV-2011
	Initial Response Letter to KDEP for Regulated UST 7238.1	ICI	NOV-2011
	Draft Operation Manual for Vault Water Collection System at Gammon Field House	SAIC	NOV-2011
2012			
	Final Closure Report for Heating Fuel UST site 6544	ICI	FEB-2012
	Closure Report for Regulated UST site 889.1	ICI	MAR-2012
	Closure Report for Regulated UST site 4238.1	ICI	MAR-2012
	Closure Report for Regulated UST site 6577.1	ICI	MAR-2012
	Closure Report for Regulated UST site 7423.1	ICI	MAR-2012
	Closure Report for Regulated UST site 7425.1	ICI	MAR-2012
	Final Closure Report for Regulated UST site 2786.1	ICI	JUN-2012
	Closure Report for Regulated UST site 7474.1	ICI	JUN-2012
	Final Closure Report for Heating Fuel UST site 17.1, .2, and .3	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 1797	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 2001	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 4769	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 6590	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 9261	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 9298.4	ICI	JUL-2012
	Final Closure Report for Heating Fuel UST site 1173	ICI	DEC-2012
	Final Closure Report for Heating Fuel UST site 5222	ICI	DEC-2012
	Final Closure Report for Heating Fuel UST site 6553	ICI	DEC-2012
	Final Closure Report for Regulated UST site 2766.2	ICI	DEC-2012
2013			
	Closure Assessment Report Regulated UST 2963.1	ICI	FEB-2013
	Work Plan for Oil Water Separator and Systems Removal, Analytical Sampling, and Site Closure of SWMU #FTK-0147AK	ICI	AUG-2013
2014			
	Oil Water Separator Site Closure of SWMU #FTK-017AK	ICI	JAN-2014

FORT KNOX
Compliance Restoration
Site Descriptions

Site ID: CCFTK-103

Site Name: Multiple Heating Fuel UST Remedial

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Petroleum, Oil and Lubricants (POL)
Media of Concern: Soil

Phases	Start	End
ISC.....	200709.....	200712
INV.....	200812.....	200907
CAP.....	200912.....	201704

RIP Date: N/A
RC Date: 201704

SITE DESCRIPTION

Part of the Fort Knox UST program in the past was to close numerous state exempt petroleum tank systems, some of which were heating oil tanks. Many of these sites met the applicable soil limits during closure and received an NFA letter from the state; however, some of the sites required further remediation in order to meet applicable soil levels. Analytical tests of soil samples taken during the removal action indicated that the sampling results did not meet the preliminary remediation goals for PAH at many of these sites. In FY08, the heating fuel UST cleanup program was created to investigate 55 UST sites. In 2009 additional sampling was conducted and analyzed. Based on analytical tests of soil samples during this sampling event, it was determined that over-excavation, CS, and submittal of a closure report were required to close out 26 of these 55 sites.

This heating fuel UST program addresses deficiencies associated with 26 UST closures. The program includes over-excavation, CS, and submittal of a closure report to the KDEP for the following 26 heating fuel UST sites; 17, 1118, 1173, 1468, 1483, 1486, 1537, 1797, 2001, 2373, 2723, 2959, 4769, 5222, 6544, 6548, 6553, 6590, 6901, 9189, 9244, 9261, 9297.2, 9297.3, 9298.1, and 9298.4. Upon completion, an NFA is expected for each site. The project was funded in December 2009. All work was expected to be completed and closure reports submitted to the KDEP by FY10. Due to the close proximity of buildings and utilities, sites 1118, 1483, 1486, and 6901 have not achieved clean closure.

In FY11, eighteen additional state regulated USTs (not heating fuel USTs) were added to this program because Fort Knox received a closure assessment report request letter from the KDEP in June 2010. Based on the state's records, these USTs were listed as removed; however, no closure assessment reports or sampling results were available to support the closures.

In November 2010 NFA was received for the following heating fuel UST sites: 1468, 1475, 1479, 1537, 2010, 2373, 2723, 2730, 2780, 2959, 3075, 5542, 6117, 6548, 9189, 9246, 9297.2, 9297.3, and 9298.1.

In January 2011 NFA was received for heating fuel UST site 9244.

In FY12 NFA was received for the following sites: 17, 580.1, 608.1, 609.1, 889.1, 1535, 1797, 2001, 2763.1, 2766.2, 2786.1, 2974.1, 4238.1, 4769, 6544, 6577.1, 6590, 7238.1, 7423.1, 7425.1, 7474.1, and 9298.4.

In FY13 NFA was received for the following heating fuel and state regulated UST sites: 1173, 2963.1, 5222, and 6553.

Four heating fuel USTs have not received clean closure due to the close proximity of buildings and utilities: sites 1118, 1483, 1486, and 6901. These heating fuel USTs are pending regulatory and legal concurrence. Regulated UST sites 7342.1, .2, and .3 require additional investigation to determine the extent of contamination; therefore, a new site was created. The new site is CCFTK-7342.

CLEANUP/EXIT STRATEGY

Additional investigation is required for sites 7342.1, .2, and .3. Once investigation is complete, site closure requirements will be determined.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CCFTK-101	St John Motor Park	200912	Tentative NFA received from KDEP DEC 2009. NFA pending, Class 3 Permit Modification and public notice required.
CCFTK-104	Warrior In Transition Complex RA	201107	To be added to Environmental Covenant.
CCFTK-127	Heating Fuel UST Building 127	201009	To be added to Environmental Covenant.
CCFTK-1395	UST ID# 5628-047 (1395.5)	201003	Received NFA letter from KDEP MAR 2010.
CCFTK-1475	Heating Fuel UST Building 1475	201011	Received NFA letter from KDEP NOV 2010.
CCFTK-1479	Heating Fuel UST Building 1479	201011	Received NFA letter from KDEP NOV 2010.
CCFTK-1725	Heating Fuel UST Building 1725	201005	Received NFA letter from KDEP MAY 2010.
CCFTK-1730	UST ID# 5631-047 (1730.1 and 1730.2)	201106	JUNE 2011, received approval letter from KDEP to add site to Environmental Covenant for LUCs.
CCFTK-2010	Heating Fuel UST Building 2010	201011	Received NFA letter from KDEP NOV 2010.
CCFTK-2754	UST ID#5634-047 (2754.1)	201002	Received NFA letter from KDEP FEB 2010.
CCFTK-2764	UST ID# 5641-047 (2764.1)	200809	Received NFA letter from KDEP SEPT 2008.
CCFTK-2942	Waste Oil UST Building 2942	201002	Received NFA letter from KDEP FEB 2010.
CCFTK-2943	Waste Oil UST Building 2943	201002	Received NFA letter from KDEP FEB 2010.
CCFTK-297	Heating Fuel UST Building 297	201005	Received NFA letter from KDEP MAY 2010.
CCFTK-479	UST ID# 5605-047 (479.1, 479.2)	200808	Received NFA letter from KDEP AUG 2008.
CCFTK-5901	UST ID# 5978-047 (5901.1, .2, .3, .4)	200906	Received NFA from KDEP for site 5901.1 and 5901.2 SEPT 2008. Received NFA from KDEP for site 5901.3 NOV 2010. Received NFA from KDEP for site 5901.4 JUNE 2009.
CCFTK-5943	Heating Fuel UST Building 5943	201005	Received NFA letter from KDEP MAY 2010.
CCFTK-6142	UST ID# 5686-047 (6142.1)	201002	Received NFA letter from KDEP FEB 2010.
CCFTK-6143	UST ID# 5687-047 (6143.1)	200708	Received NFA letter from KDEP AUG 2007.
CCFTK-6146	UST ID# 5690-047 (6146.1)	200809	Received NFA letter from KDEP SEPT 2008.
CCFTK-6147	UST ID# 5991-047 (6147.1)	200809	Received NFA letter from KDEP SEPT 2008.
CCFTK-6564	Heating Fuel UST Building 6564	201005	Received NFA letter from KDEP MAY 2010.
CCFTK-9245	UST ID# 5720-047 (9245.2)	200808	Received NFA letter from KDEP AUG 2008.
CCFTKX-017AK	Removal of Oil Water Separator	201402	Received NFA letter from KDEP FEB 2014.
CCFTKX-15B	UST'S BURK MOTOR PARK BUILDING 2730	201003	Received NFA letter from KDEP MAR 2010.

Date of CR Inception: 198608

Past Phase Completion Milestones

1989

ISC (CCFTKX-15B - UST'S BURK MOTOR PARK BUILDING 2730)

1999

ISC (CCFTK-2754 - UST ID#5634-047 (2754.1), CCFTK-2764 - UST ID# 5641-047 (2764.1), CCFTK-479 - UST ID# 5605-047 (479.1, 479.2), CCFTK-5901 - UST ID# 5978-047 (5901.1, .2, .3, .4) , CCFTK-6142 - UST ID# 5686-047 (6142.1), CCFTK-6143 - UST ID# 5687-047 (6143.1), CCFTK-6146 - UST ID# 5690-047 (6146.1), CCFTK-6147 - UST ID# 5991-047 (6147.1), CCFTK-9245 - UST ID# 5720-047 (9245.2))

2000

ISC (CCFTK-1395 - UST ID# 5628-047 (1395.5))

2007

CAP (CCFTK-101 - St John Motor Park)

ISC (CCFTK-101 - St John Motor Park, CCFTK-1730 - UST ID# 5631-047 (1730.1 and 1730.2))

INV (CCFTK-6143 - UST ID# 5687-047 (6143.1))

2008

INV (CCFTK-2764 - UST ID# 5641-047 (2764.1), CCFTK-479 - UST ID# 5605-047 (479.1, 479.2), CCFTK-6146 - UST ID# 5690-047 (6146.1), CCFTK-6147 - UST ID# 5991-047 (6147.1), CCFTK-9245 - UST ID# 5720-047 (9245.2))

ISC (CCFTK-103 - Multiple Heating Fuel UST Remedial, CCFTK-127 - Heating Fuel UST Building 127, CCFTK-1479 - Heating Fuel UST Building 1479, CCFTK-1725 - Heating Fuel UST Building 1725, CCFTK-2010 - Heating Fuel UST Building 2010, CCFTK-297 - Heating Fuel UST Building 297, CCFTK-5943 - Heating Fuel UST Building 5943, CCFTK-6564 - Heating Fuel UST Building 6564)

2009

IMP(C) (CCFTK-101 - St John Motor Park)

INV (CCFTK-103 - Multiple Heating Fuel UST Remedial, CCFTK-1479 - Heating Fuel UST Building 1479, CCFTK-5901 - UST ID# 5978-047 (5901.1, .2, .3, .4))

ISC (CCFTK-1475 - Heating Fuel UST Building 1475, CCFTK-2942 - Waste Oil UST Building 2942, CCFTK-2943 - Waste Oil UST Building 2943)

2010

INV (CCFTK-127 - Heating Fuel UST Building 127, CCFTK-1475 - Heating Fuel UST Building 1475, CCFTK-1725 - Heating Fuel UST Building 1725, CCFTK-1730 - UST ID# 5631-047 (1730.1 and 1730.2), CCFTK-2010 - Heating Fuel UST Building 2010, CCFTK-2754 - UST ID#5634-047 (2754.1), CCFTK-2942 - Waste Oil UST Building 2942, CCFTK-2943 - Waste Oil UST Building 2943, CCFTK-297 - Heating Fuel UST Building 297, CCFTK-5943 - Heating Fuel UST Building 5943, CCFTK-6142 - UST ID# 5686-047 (6142.1), CCFTK-6564 - Heating Fuel UST Building 6564)

CAP (CCFTK-1395 - UST ID# 5628-047 (1395.5), CCFTKX-15B - UST'S BURK MOTOR PARK BUILDING 2730)

2011

RFI/CMS (CCFTK-104 - Warrior In Transition Complex RA)

RFA (CCFTK-104 - Warrior In Transition Complex RA)

2013

RFA (CCFTKX-017AK - Removal of Oil Water Separator)

2014

CS (CCFTKX-017AK - Removal of Oil Water Separator)

Projected Phase Completion Milestones

See attached schedule

CR Schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID

Site Name

ROD/DD Title

ROD/DD Date

Final RA(C) Completion Date: 200909

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of CR at Installation (including LTM phase): 201704

FORT KNOX CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
CCFTK-103	Multiple Heating Fuel UST Remedial	CAP						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 201309

Restoration Advisory Board (RAB): No

Reason Not Established: The community has expressed no sufficient, sustained interest in a RAB.

Community Interest Solicited on: 201309

Efforts Taken to Determine Interest

Insufficient community interest in the past has indicated a lack of interest in establishing a RAB. In 1996 when the RCRA Part B permit was renewed and in 2001 when a public notice was posted announcing an open burning (OB)/open detonation (OD) site closure plan, Fort Knox received no comments. In May 2009 the RCRA permit renewal application was submitted for public review along with comments by the Kentucky Natural Resources and Environmental Protection Cabinet, the KDEP, Division of Waste Management, Hazardous Waste Branch. A determination was made at the end of this 45-day comment period that there was no sufficient community interest to establish a RAB. In September 2013 a RAB solicitation was run in the local newspaper; Fort Knox received no comments.

Results

The surrounding communities of Fort Knox include the towns of Muldraugh, Radcliff, Shepardsville, Vine Grove, Colesburg, Lebanon Junction and Elizabethtown. None of these towns has expressed any interest in establishing a RAB.

Follow-up Procedures

The installation intends to solicit interest again in FY15.

Additional Community Involvement Information

N/A

Administrative Record is located at

Environmental Management Division, Bldg 1110-B, Room 219, Fort Knox, KY 40121 (502) 624-3629

Information Repository is located at

Department of Environmental Protection, Hazardous Waste Branch, 200 Fair Oaks Lane, Frankfort, KY 40601 (502) 564-6716

Current Technical Assistance for Public Participation (TAPP):N/A

TAPP Title: N/A

Potential TAPP: N/A

