

FY2015

FORT CAMPBELL

Army Defense Environmental Restoration Program

Installation Action Plan

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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 (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the Installation Management Command (IMCOM) - southeast Regional Office, the US Army Environmental Command (USAEC), Fort Campbell, the executing agencies, the regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and tentative 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
AOC	Area of Concern
CAAF	Campbell Army Airfield
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CMI(C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operations)
CMS	Corrective Measures Study
COC	Contaminants of Concern
CR	Compliance Restoration
CS	Confirmation Sampling
DD	Decision Document
DEH	Directorate of Engineering and Housing
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munition
DRMO	Defense Reutilization and Marketing Office
ECC	Environmental Chemical Corporation
EOD	Explosives Ordnance Disposal
ER,A	Environmental Restoration, Army
ESI	Expanded Site Inspection
FCPB	AEDB-R Designation of Fort Campbell
FRA	Final Remedial Action
FS	Feasibility Study
FTC	Fort Campbell
FY	Fiscal Year
IAP	Installation Action Plan
ID	Identification
IM	Interim Measure
IMCOM	Installation Management Command
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
JP-4	Jet Propellant No. 4
K	thousand
KDEP	Kentucky Department of Environmental Protection
KNREPC	Kentucky Natural Resources and Environmental Protection Cabinet
KY	Kentucky
LF	Landfill
LLC	Limited Liability Company
LNAPL	Light Non-Aqueous Phase Liquid
LTM	Long-Term Management
LUC	Land Use Control
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern

Acronyms

MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MR	Munitions Response
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MVEP	Mobile Vacuum Enhanced Plumbing
MWR	Morale, Welfare and Recreation
N/A	Not Applicable
NFA	No Further Action
NG	National Guard
NPL	National Priorities List
OB	Open Burning
OD	Open Detonation
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense for Installations and Environment
ORC	Oxygen Releasing Compound
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbon
PBA	Performance-Based Acquisition
PBC	Performance-Based Contract
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
POL	Petroleum, Oil and Lubricant
PP	Proposed Plan
ppb	parts per billion
ppm	parts per million
PRG	Preliminary Remediation Goal
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
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
RSL	Regional Screening Level
SCITEK	Science and Technology, Inc.
SI	Site Inspection
SoB	Statement of Basis
SOP	Standard Operating Procedure
STEP, Inc.	Solutions to Environmental Problems, Inc.
SVE	Soil Vapor Extraction

Acronyms

SvE	SVERDRUP Environmental
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	Trichloroethylene
TDEC	Tennessee Department of Environment and Conservation
TGD	Technical Guidance Document
TN	Tennessee
TPH	Total Petroleum Hydrocarbon
TRC	Technical Review Committee
UFSS	United Field Support Services
ug/L	micrograms per liter
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency
USAR	US Army Reserves
USATHAMA	US Army Toxic and Hazardous Materials Agency
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VI	Vapor Intrusion
VOC	Volatile Organic Compound
WP	White Phosphorous
WWII	World War II

Site Alias List

AEDB-R Site ID to Alias List

AEDB-R #	Alias
CCA FTC Ng	2996-01
CCA FTC-Na	AOC Na
FCPB-008-R-01	FCPB-008
FCPB-09	SWMU 21
FCPB-26	SWMU 2,4
FCPB-38	AOC A
FCPB-43	SWMU 140
FCPB-48	SWMU 145
FCPB-52	SWMU 149
FCPB-65	SWMU 171

Installation Information

Installation Locale

Installation Size (Acreage): 105347

City: Fort Campbell

County: Montgomery and Stewart, TN; Christian and Trigg, KY

State: Tennessee and Kentucky

Other Locale Information

Fort Campbell is located in southwestern Kentucky and north-central Tennessee in portions of four counties: Montgomery and Stewart counties in Tennessee and Christian and Trigg counties in Kentucky. The installation is approximately eight miles north of Clarksville, Tennessee and 17 miles south of Hopkinsville, Kentucky and is comprised of approximately 105,347 total acres of land. Approximately two-thirds of the acreage is located in Tennessee with the remainder in Kentucky. The built-up area in Montgomery and Christian counties consists of 14,000 acres along the eastern boundary of the reservation adjacent to US Highway 41-A.

Installation Mission

The mission of Fort Campbell is to support and train the 101st Airborne Division (Air Assault), the 5th Special Forces Group and other units located on the installation in preparation for a variety of assigned combat and combat-related missions. This mission includes the support and training of US Army Reserve (USAR) and National Guard (NG) units. A secondary mission includes providing medical and dental care for active duty military, their family members, and retired military personnel. An additional mission is to train noncommissioned officers in the fundamentals of leadership. Critical to the military operation are provisions for the safety and security of all personnel.

The fort is an active IMCOM installation with approximately 30,000 military and civilian personnel and 4,000 USAR personnel.

Lead Organization

IMCOM

Lead Executing Agencies for Installation

Installation Restoration Program (IRP) under performance-based acquisition (PBA) through Army Contracting Agency

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Region IV
State	Kentucky Department of Environmental Protection (KDEP) Tennessee Department of Environment and Conservation (TDEC)

National Priorities List (NPL) Status

FORT CAMPBELL is not on the NPL

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

RAB established 199608

Installation Program Summaries

IRP

Primary Contaminants of Concern: Metals, Petroleum, Oil and Lubricants (POL), Polychlorinated Biphenyls (PCB), Polycyclic Aromatic Hydrocarbons (PAH), Semi-volatiles (SVOC), Volatiles (VOC)

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

MMRP

Primary Contaminants of Concern: Munitions and explosives of concern (MEC)

Affected Media of Concern: Soil

CR

Primary Contaminants of Concern: Polycyclic Aromatic Hydrocarbons (PAH), Volatiles (VOC)

Affected Media of Concern: Groundwater, 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
CAAF - MPE	FCPB-38
CAAF - REMOVAL	FCPB-38
CAAF ABANDONED FUEL LINES	FCPB-38
CAAF SWMUG	FCPB-38
CAAF-Groundwater Treatment	FCPB-38
CLARKSVILLE BASE CHROMIUM PLATING SHOP	FCPB-43
Focused CMS for CAAF SWMUG	FCPB-38
OIL PITS	FCPB-52
OLD SKEET RANGE I	FCPB-48
SANITARY LANDFILLS (FCPB-26)	FCPB-09, FCPB-26

Results

Actions

Plans Next periodic review will be completed FY 2017.

Recommendations and Implementation Plans:

There are a number of sites at Fort Campbell that are impacted by VOCs, which creates the potential for vapor intrusion (VI) exposure if buildings are or will be located close to VOC contamination. More than likely, VI will not be an issue at Fort Campbell due to the remote location of much of the VOC contamination; however, it is Army policy that the VI pathway be looked at on cleanup projects where VOCs impact soil or groundwater. In the next review period Fort Campbell will examine whether VI is an issue at sites containing VOCs on Fort Campbell.

Performance of a Mann-Whitney or similar trend analysis is recommended for all sites where long-term groundwater monitoring data is available. This will provide further evidence that groundwater concentrations are declining at these sites. Similarly, the analysis may show increasing or stable groundwater concentration trends, which in turn may support modification of monitoring requirements. Wisconsin has developed a spreadsheet tool to easily perform Mann-Whitney analyses.

In July 2012, Fort Campbell performed an evaluation of trends in contaminant concentrations in groundwater at Campbell Army Airfield (CAAF) Solid Waste Management Group (SWMUG) for the period of 2007-2011. The evaluation demonstrated that optimization of the long term monitoring program by reducing sample frequency for specific locations where concentrations are at or below the target remedial goal will not compromise the effectiveness of the program. Based on this evaluation, the following actions were recommended to optimize the long-term management (LTM) program at CAAF:

- Discontinue PAH analyses.
- Continue annual sampling of wells where concentrations of VOCs exceeded regional screening levels (RSL) in 2011, (or 2010 if not sampled in 2011).

Fort Campbell also requested a reduction in sampling frequency at Quarles Spring (CAAF SWMUG sampling) from monthly to quarterly. KDEP approved the above requests in letters dated July 2012.

Land Use Control (LUC) Summary

LUC Title: CCA FTC Na

Site(s): CCA FTC-Na

ROD/DD Title: CCA FTC-Na Hammond Heights

Location of LUC

Hammond Heights

Land Use Restriction: Media specific restriction - Prohibit, or otherwise manage excavation

Types of Engineering Controls: Signs

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Restrictions on land use

Date in Place: 200903

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: State

Record of LUC: Master Plan or Equivalent

Documentation Date: 200903

LUC Enforcement: Annual Inspections

Contaminants: PAH

Additional Information

N/A

LUC Title: FCPB-26 LUC

Site(s): FCPB-26

ROD/DD Title: SANITARY LANDFILLS (FCPB-26)

Location of LUC

Landfill 2 and Landfill 4

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 access to 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

Types of Engineering Controls: Fences, Guards, Signs

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: State

Record of LUC: Master Plan or Equivalent

Documentation Date: 200609

LUC Enforcement: Annual Inspections

Contaminants: VOC

Additional Information

N/A

Land Use Control (LUC) Summary

LUC Title: FCPB-38 LUC

Site(s): FCPB-38

ROD/DD Title: CAAF SWMUG

Location of LUC

CAAF SWMUG

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

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Public Advisories, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 199701

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: State

Record of LUC: Master Plan or Equivalent

Documentation Date: 200909

LUC Enforcement: Annual Inspections

Contaminants: METALS, PETROLEUM HYDROCARBON

Additional Information

N/A

LUC Title: FCPB-43 LUC

Site(s): FCPB-43

ROD/DD Title: CLARKSVILLE BASE CHROMIUM PLATING SHOP

Location of LUC

SWMU 140

Land Use Restriction: Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict withdrawal or use of groundwater w/out treatment

Types of Engineering Controls: Signs

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Restrictions on land use

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: State

Record of LUC: Master Plan or Equivalent

Documentation Date: 200609

LUC Enforcement: Annual Inspections

Contaminants: VOC

Additional Information

N/A

Land Use Control (LUC) Summary

LUC Title: FCPB-48 LUC

Site(s): FCPB-48

ROD/DD Title: OLD SKEET RANGE I

Location of LUC

SWMU 145 (Old Skeet Range)

Land Use Restriction: Media specific restriction - Prohibit, or otherwise manage excavation below a specified depth

Types of Engineering Controls: Signs

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Public Advisories, Restrictions on land use

Date in Place: 200609

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: State

Record of LUC: Master Plan or Equivalent

Documentation Date: 200609

LUC Enforcement: Annual Inspections

Contaminants: METALS, PAH

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

Camp Campbell was officially commissioned on March 6, 1942 as a major armor training and mobilization center for the World War II (WWII) effort. It became the training ground for the 12th, 14th and 20th Armored Divisions; Headquarters IV Armored Corps; and the 26th Infantry Division. The post also served as a prisoner-of-war camp during the war when over 4,000 German Soldiers were incarcerated there.

The 11th Airborne Division, the 'Angels' of WW II, was reactivated and headquartered at Camp Campbell from May 1949 to January 1956, at which time it was replaced by the 101st Airborne Division (the famed 'Screaming Eagles'). On Jan. 1, 1959, Campbell Army Airfield was transferred from the US Air Force to the Army, making it the Army's largest airfield.

On April 14, 1959, Camp Campbell was redesignated Fort Campbell and became a permanent post. From 1966 to 1971, a basic combat training center was established at Fort Campbell.

In December 1967, the last members of the 101st Airborne Division were airlifted to Vietnam, to be replaced by the 6th Infantry Division, which remained at Fort Campbell until July 1968.

In December 1971, the 101st Airborne Division returned to Fort Campbell as a reorganized, all-volunteer unit to establish a permanent headquarters.

The division developed an air assault character in October 1974 and 'Air Assault' became a part of its official title.

Fort Campbell is organized as a combined headquarters of division (tactical, staff) elements and post (management support) elements. Approximately 30,000 military and civilian personnel and 4,000 USAR personnel further the mission of Fort Campbell, "to support and train the 101st Airborne Division (Air Assault), the 5th Special Forces Group and other associated units located on the installation in preparation for a variety of assigned combat and combat-related missions".

This mission includes the support and training of the USAR and the NG. A secondary mission includes providing medical and dental care for active duty military, their family members, and retired military personnel. An additional mission is to train noncommissioned officers in the fundamentals of leadership. Critical to the military operation are provisions for the safety and security of all personnel.

Installation Program Cleanup Progress

IRP

Prior Year Progress: The light non-aqueous phase liquid (LNAPL) removal and monitored natural attenuation (MNA) continues at FCPB-38. A new PBC contract for completing LTM work on Installation Restoration (IR) sites was awarded. A contract to plug and abandon dry and/or damaged groundwater monitoring wells at FCPB-38 was also awarded.

Future Plan of Action: LNAPL removal and monitoring at FCPB-38 will continue. Groundwater monitoring wells at FCPB-38 that are damaged or unnecessary to the program will be plugged and abandoned. Natural attenuation and monitoring will continue at FCPB-43. Monitoring will continue at FCPB-9, FCPB-26, FCPB-43 and FCPB-48.

MMRP

Prior Year Progress: A contract for a remedial investigation (RI)/ feasibility study (FS) at FCPB-008-R-01 was awarded.

Future Plan of Action: It is anticipated that FCPB-008-R-01 will achieve no further action status.

CR

Prior Year Progress: LUCs are still in place for CCA FTC-Na and CCA FTC- Ng. No changes have occurred during this reporting period.

Future Plan of Action: It is anticipated that CCA FTC-Ng will have an additional soil investigation completed and achieve no further action.

FORT CAMPBELL
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 63/56

Installation Site Types with Future and/or Underway Phases

2	Contaminated Ground Water (FCPB-38, FCPB-43)
1	Disposal Pit/Dry Well (FCPB-52)
1	Fire/Crash Training Area (FCPB-09)
1	Firing Range (FCPB-65)
1	Landfill (FCPB-26)
1	Surface Disposal Area (FCPB-48)

Most Widespread Contaminants of Concern

Metals, Petroleum, Oil and Lubricants (POL), 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
FCPB-30	SANITARY LANDFILL#5(STATE LINE/RANGE RD)	IRA	CAPPING	1996
FCPB-35	OLD FIRE TRAINING AREA (CAAF)	IRA	WASTE REMOVAL - SOILS	1996
FCPB-36	FIRE TRAINING AREA (CAAF)	FRA	WASTE REMOVAL - SOILS	1996
FCPB-10	OLD OB/OD AREA - TN	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1997
FCPB-48	OLD SKEET RANGE - TN	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1998
FCPB-07	PESTICIDE MIXING & STORAGE FAC.- TN	IRA	REMOVAL	2001
FCPB-48	OLD SKEET RANGE - TN	IRA	REMOVAL	2001
FCPB-49	BLIVET REPAIR AREA (BLDG 7820)- TN	IRA	REMOVAL	2001
FCPB-09	NBC FIRE TRAINING AREA- TN	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2002
FCPB-52	OIL PITS - TN/KY	IRA	WASTE REMOVAL - SOILS	2002
FCPB-64	LUBE RACKS - TN/KY	IRA	REMOVAL	2002
FCPB-26	SANITARY LANDFILLS 2 & 4 - TN	IRA	BIOREMEDIATION	2003
FCPB-49	BLIVET REPAIR AREA (BLDG 7820)- TN	FRA	AIR SPARGING	2003
FCPB-07	PESTICIDE MIXING & STORAGE FAC.- TN	IRA	REMOVAL	2004
FCPB-65	FORMER SKEET RANGES - TN	FRA	REMOVAL	2007
FCPB-10	OLD OB/OD AREA - TN	FRA	NATURAL ATTENUATION	2008
FCPB-64	LUBE RACKS - TN/KY	IRA	REMOVAL	2008
FCPB-64	LUBE RACKS - TN/KY	FRA	FREE PRODUCT RECOVERY	2008

IRP Summary

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

Site ID	Site Name	Action	Remedy	FY
FCPB-38	CAMPBELL ARMY AIRFIELD - FRA KY		GROUND WATER TREATMENT	2009
FCPB-38	CAMPBELL ARMY AIRFIELD - IRA KY		FREE PRODUCT RECOVERY	2009
FCPB-43	CHROMIUM PLATING SHOP - FRA TN		NATURAL ATTENUATION	2009
FCPB-52	OIL PITS - TN/KY	IRA	REMOVAL	2009
FCPB-52	OIL PITS - TN/KY	FRA	INSTITUTIONAL CONTROLS	2009
PBC @ FCPB	PBC	IRA	GROUND WATER TREATMENT	2009
PBC @ FCPB	PBC	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2009

Duration of IRP

Date of IRP Inception: 198201

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 200909/204509

Date of IRP completion including Long Term Management (LTM): 204509

IRP Contamination Assessment

Contamination Assessment Overview

In January 1982, the USAEC [formerly the US Army Toxic and Hazardous Materials Agency (USATHAMA)], conducted an on-site installation assessment at Fort Campbell to determine the presence of any toxic or hazardous materials and to assess the potential for off-post migration. Based on the findings of this assessment, a field survey was not recommended.

On Oct. 13, 1985, while drilling an anode bed boring for the cathodic protection system at CAAF, the contractor reported a strong petroleum odor. Because of the suspected PAH contamination, the US Army Corps of Engineers (USACE), Nashville District initiated a study into the possibility of subsurface jet propellant No. 4 (JP-4) contamination. On April 16, 1987, the USACE contractors, MCI Consulting Engineers, Inc., issued a final report that recommended further investigation at the CAAF.

Concurrent with the environmental investigations at the CAAF, an installation-wide assessment was also conducted. To facilitate the preparation of Fort Campbell's Resource Conservation and Recovery Act (RCRA) Part B permit, the US Army Environmental Hygiene Agency (USAEHA) prepared an evaluation of the installation's solid waste management units (SWMU) in February 1988. The USAEHA identified 37 SWMUs, 17 of which were thought to require additional environmental investigations. This report was forwarded to the USEPA, Region IV as an attachment to the RCRA Part B permit application.

On March 23, 1990, Fort Campbell received a notice of violation from the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) for JP-4 fuel contamination found at the CAAF. The Army proposed a remediation schedule, which was accepted by the underground storage tank (UST) section of the KNREPC. This schedule included an IRA.

On June 14, 1990, the USEPA, Region IV conducted a RCRA facility assessment (RFA) at Fort Campbell. The RFA identified 133 SWMUs and three AOCs. Ninety-six SWMUs and two AOCs required further investigation in the form of confirmation sampling and analysis. There were nine SWMUs and one AOC at the CAAF where there was a known or suspected waste release, so a RCRA facility investigation (RFI) was required. The USEPA's RFA expanded the number of SWMUs requiring further investigation from 17 to 108 including confirmation sampling sites and RFI sites. Fort Campbell's RCRA permit, which is jointly held by the TDEC and the USEPA, Region IV, was approved in November 1990. In conjunction with the permit, there are deadlines, objectives, responsibilities, and procedures for implementing environmental investigations and corrective actions. The USEPA, Region IV approved the confirmation sampling and RFI work plans in June 1992. The actual RFI fieldwork took place in two rounds between August 1992 and March 1993, and July 1993 and August 1993. Based on preliminary results, several data gaps were identified. A follow-on field investigation, to fill the gaps, was completed in August 1993. The draft final confirmation sampling report and draft final RFI report were submitted to the regulators in November 1993.

An RI was conducted at the CAAF in three phases between 1988 and 1991. The purpose of the RI was to investigate the nature and extent of subsurface contamination attributable to past leakage from an underground bulk fuel storage system and/or associated transfer piping. Phase I investigations focused on one group of six underground, JP-4, storage tanks to acquire preliminary information to evaluate the site. The Phase II investigation was used to acquire more detailed site data and to expand the site, to include both sets of six underground fuel tanks and connecting piping.

Phase III also expanded the site to include an investigation of the JP-4 pipelines leading from the aboveground bulk storage tanks to the fueling area. In addition, Phase III included a field program to evaluate the potential for contamination caused by discharged fuel in the bedrock aquifer at the CAAF western perimeter and off-site surface water or springs.

The investigations revealed the origin of the JP-4, detected at the soil/bedrock contact zone, to be related to percolation of surface water into the bedrock through a sinkhole, rather than percolation through the underlying clay soils the site. Surface water runoff from the study area and adjacent areas flows into a sinkhole located 2,000 feet northeast of the site; the water then travels through vertical conduits in the soil and enters the bedrock aquifer. The aquifer then flows westward under the site, with discharge occurring approximately 2.5 miles away at Quarles Spring. Fuel present in the surface water runoff, probably due to surface spills during aircraft fueling or defueling, became trapped in the irregular soil/bedrock contact zone after disassociating from the infiltrating surface water and trying to rise to the potentiometric surface of the bedrock aquifer. This interpretation is supported by the virtual absence of JP-4 related contamination in the soil at the site between the near surface and soil/bedrock contact zone.

Exposure points and receptors for the JP-4 or related components, in the subsurface soils and groundwater, were identified by the relative risk site evaluation. There is a potential for future exposure, at levels that produce risks and hazards in excess of the USEPA remediation goals, if water beneath the site is consumed; however, the JP-4 detected at the soil/bedrock contact zone does not appear to be migrating from the study area.

IRP Contamination Assessment

Contamination Assessment Overview

Based on the review of the previous studies conducted at the CAAF, a determination was made that additional studies were required to determine the extent of the JP-4 contamination and groundwater movement. Specifically, the tank farm (AOC D), the underground concrete collection vault (SWMU 157), along with the abandoned aircraft washrack (outfall H), should be investigated as part of the site characterization.

To support these additional studies, the USEPA Region IV and the Commonwealth of Kentucky, along with Fort Campbell, instituted a concept for CAAF, which was designated a "master RI/FS." This concept permits the designation of the entire CAAF as a SWMUG which is similar to the corrective action management unit concept. This allows all SWMUs on and near the airfield to be reviewed as a group instead of individually. This concept was expected to speed up the RI/FS process and result in a substantial savings to the Army.

In conjunction with the RI, dye tracing and time of travel studies to determine the hydrogeologic connection between a sinkhole located at the CAAF and several off-post springs were conducted. The investigation revealed that water entering the CAAF sinkhole reached Quarles Spring within four days during high flow periods.

The draft final FS report, for the pump-and-treat system at AOC-A within the CAAF, was completed in January 1992. The objective of RAs considered in the FS was to prevent potential future risks due to exposure to site contaminants in the groundwater. The recommended alternatives consist of on-site recovery and treatment of contaminated groundwater and free-product recovery from the soil/bedrock interface zone. The FS was approved in July 1995 by the USEPA, Region IV.

A free-product recovery system was initiated December 1992 as an interim measure (IM). In fiscal year (FY)01, a soil vapor extraction (SVE) system was designed and implemented at hangars 3 and 4 and, in FY02, a government-owned SVE system was installed. Further characterization studies are ongoing to determine a FRA.

A focused corrective measure study (CMS) evaluating remedial alternatives for the CAAF (FCPB-38) was completed in FY09. A pilot study was started and then accepted as final remedy at AOC A and AOC D. It involved removal of LNAPL by employing active pumping and passive skimming activities, with MNA. In situ enhanced biodegradation is the corrective measure remedial alternative proposed for SWMU 12/15 FCPB-36. In situ chemical oxidation is the corrective measure remedial alternative proposed for SWMU 41 (AOC D).

Cleanup Exit Strategy

Of the seven remaining restoration sites at Fort Campbell, groundwater contamination at CAAF (FCPB-38) is believed to have the greatest potential for affecting human health and the environment.

The PBC requires that all IRP sites achieve RIP/RC, and also includes remedial action (operation) [RA(O)]/LTM optimization and exit strategies on a site-specific basis.

IRP Previous Studies

1987	Title	Author	Date
	Subsurface Investigation for JP-4 Contamination, PPOL Facility 7226, CAAF Investigation	MCI Consulting Engineers, Inc. for US Army Corps of Engineers, Nashville District	APR-1987
	Task Order No. 9 Remedial Investigation/Feasibility Study and Limited Remedial Actions, UFSS at Campbell Army Airfield	Dames & Moore for US Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground	DEC-1987
1989	Task Order No. 9 Addendum to Remedial Investigation Report for Ft. Campbell, Kentucky, UFSS at Campbell Army Airfield	Dames & Moore for US Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground	DEC-1989
1990	Campbell Army Airfield, UFSS Site/Outfall C, Outfall C (AOC H)	ERC Environmental and Energy Services Company for US Army Corps of Engineers, Nashville District	FEB-1990
	Task Order No. 19 Ft. Campbell RI Completion, UFSS at Campbell Army Airfield	Dames & Moore for US Army Toxic and Hazardous Materials Agency	JUL-1990
	Interim RCRA Facility Assessment Report for Ft. Campbell Military Reservation, RFA Report	by A.T. Kearney, Inc. for US Environmental Protection Agency, Region IV	AUG-1990
	Notice Of RCRA Final Permit Decision for Hazardous and Solid Waste, Notice Of RCRA Final Permit Decision for Hazardous and Solid Waste	Environmental Protection Agency: Region IV	SEP-1990
1991	Remedial Investigation Report for UFSS Site Ft. Campbell Kentucky, Volume I of II, UFSS at Campbell Army Airfield	Dames & Moore, Ltd. For US Army Corps of Engineers Toxic and Hazardous Materials Agency	JUL-1991
	Remedial Investigation Report for UFSS Site Ft. Campbell Kentucky, Volume II of II, UFSS at Campbell Army Airfield	Dames & Moore, Ltd. For US Army Corps of Engineers Toxic and Hazardous Materials Agency	JUL-1991
1992	Feasibility Study Report, UFSS Site, Campbell Army Airfield, Task Order No. 7, UFSS at Campbell Army Airfield	Dames & Moore for US Army Toxic and Hazardous Materials Agency	JAN-1992
	Confirmatory Sampling Plan for Sites at Ft. Campbell, Final - SWMUs 1-11, 13, 14, 19, 20, 22, 24, 25, 31, 33, 36, 37, 41, 42, 47a, 48	Metcalf & Eddy, Inc. for Department of the Army, US Toxic and Hazardous Waste Materials Agency	JUN-1992
	Hazard Ranking System (HRS2) Score Summary Report for Ft. Campbell Military Reservation, Summary Report	Advanced Sciences, Inc. for US Army Corp of Engineers Toxic and Hazardous Materials Agency	JUL-1992
1993	JP-4 Fueling/Defueling Feasibility Study for Ft. Campbell, CAAF Study	EA Engineering, Science, and Technology, Inc. for US Army Corps of Engineers,	FEB-1993

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1993	Title	Author	Date
		Nashville	
	Final Submittal, Construction Site Clearance Survey at Old Hospital Complex for Directorate of Engineering and Housing (DEH), Construction Site Clearance Survey at Old Hospital Complex	LAW Environmental, Inc. for US Army Corps of Engineers, Nashville District	JUL-1993
1994			
	Analysis of Groundwater Recharge and Transfer Mechanisms, Boiling Springs	Ewers Water Consultants Inc	JAN-1994
	Quarles Spring Ground Water Basin Analysis, Quarles Spring	Ewers Water Consultants Inc	JAN-1994
	Solid Waste Management Unit Integrity Check of Oil/Water Separators, Integrity check of Oil/Water Separators	Ferguson Harbour Incorporated for Dames & Moore	MAR-1994
	Ft. Campbell, Kentucky Oil/Water Separator Investigation Including Interior Integrity Inspections and Contamination Evaluation, Volume I, Oil/Water Separators	Dames & Moore for US Army Corps of Engineers	MAY-1994
	Ft. Campbell, Kentucky Oil/Water Separator Investigation Including Interior Integrity Inspections and Contamination Evaluation, Volume II, Oil/Water Separators	Dames & Moore for US Army Corps of Engineers	MAY-1994
	Final Report Waste Disposal Engineering Study No.37-26-J31N-94 Demolition Site Assessment Ft. Campbell Kentucky 4-12	US Army Environmental Hygiene Agency, US Army Environmental Hygiene Agency	JUN-1994
	Berm Pit Projects, Ft. Campbell, Tennessee/Kentucky, Berm Pits	Four Seasons Environmental, Inc. for US Army Corps of Engineers, Louisville District	DEC-1994
1995			
	UST Closure Report for Ft. Campbell, Kentucky, Werner Park Building # 1479, SWMU 151D, SWMU 151D, Werner Park Building # 1479	SUB TECH	JAN-1995
	UST Closure Report for Ft. Campbell Kentucky, Werner Park, Building #1489, SWMU 151 F, SWMU 151 F, Werner Park, Building #1489	SUB TECH	APR-1995
	UST Closure Report for Ft. Campbell Kentucky, Werner Park, Building # 1484, SWMU 151 E, SWMU 151 E, Werner Park, Building #1484	SUB TECH Inc	APR-1995
	Closure Assessment Report Kentucky Pipeline 6486, Wickham Avenue, Pipeline 6486, Wickham Avenue	EMPE for the US Army Corps of Engineers, Louisville District	MAY-1995
	Confirmatory Sampling Sites at Ft. Campbell (FTC), Volume I of II, SWMUs 1-11, 13, 14, 19, 20, 22, 24, 25, 31, 33, 36, 37, 41, 47 and 48	Metcalf & Eddy, Inc., For US Army Environmental Center, Aberdeen Proving Ground	JUL-1995
	Confirmatory Sampling Sites at Ft. Campbell (FTC), Volume II of II, SWMUs 1-11, 13, 14, 19, 20, 22, 24, 25, 31, 33, 36, 37, 41, 47 and 48	Metcalf & Eddy, Inc., For US Army Environmental Center, Aberdeen Proving Ground	JUL-1995
	RCRA Facility Investigation at Ft. Campbell, Volume I of II, SWMUs 12/15, 21, 27, 28, 32, 35, 50 and 134 through 137 (801st Motor Pool)	Metcalf & Eddy, Inc., For US Army Environmental Center, Aberdeen Proving Ground	JUL-1995
	RCRA Facility Investigation at Ft. Campbell, Volume II of II, SWMUs 12/15, 21, 27, 28, 32, 35, 50 and 134 through 137 (801st Motor Pool),	Metcalf & Eddy, Inc., For US Army Environmental Center, Aberdeen Proving Ground	JUL-1995

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1995	Title	Author	Date
	System Evaluation/Concept Design, JP-4 Interim Remediation System Upgrade, Campbell Army Airfield, Ft. Campbell, Kentucky	OGDEN Environmental and Energy Services	AUG-1995
1996	Work Performed Building #6486, Building # 6486, (Underground Storage Tank Site near #6486)	SVERDRUP Environmental (SvE) for US Army Corps of Engineers, Louisville District	JAN-1996
	Final RFI Work Plan Ft. Campbell, Kentucky, Oil/Water Separator Investigation, Oil/Water Separators	Dames & Moore for US Army Corps of Engineers, Nashville District	MAR-1996
	Delivery Order No. 16 Closure Report, SWMU 12/15	Science & Technology Inc. (SCITEK)	MAY-1996
	Final Assessment and Recommendations for Oil/Water Separators at Ft. Campbell, Kentucky, Assessment and Recommendations for Oil/Water Separators	EA Engineering, Science and Technology, Inc for US Army Corps of Engineers, Nashville District	MAY-1996
	Recovery and Rehabilitation of Seven Monitoring Wells, Campbell Army Airfield Monitoring Wells	BAT Associates, Inc. for US Army Corps of Engineers, Nashville District	JUN-1996
	08/1996, Gore-Sorber Screening Survey, CAAF Ft. Campbell, Kentucky, Campbell Army Airfield	W.L. Gore & Associates, Inc.,	AUG-1996
	Work Performed, Fire Fighting Training Area, Solid Waste Management Unit 15, SWMU 12/15	Sverdrup Environmental Inc.	OCT-1996
	State of Kentucky Solid Waste Management Closure Report for Underground Storage Tanks and Oil/Water Separators at #6551, #6555, #6559, #6563, 155AB, 155AC, 155AD, 155E	EMPE, Inc. for the US Army Corps of Engineers, Louisville District	OCT-1996
	Potentiometric Surface of the Bedrock Aquifer in the Campbell Army Airfield Area, Kentucky and Tennessee, Campbell Army Airfield	United States Geological Survey	NOV-1996
1997	Historical Photogeological Analysis of Surface Terrain Features, Campbell Army Airfield, Report and CD	US Army Topographic Engineering Center for US Army Corps of Engineers	FEB-1997
	Standard Sampling and Analysis Work Plan, Ft. Campbell, Kentucky, SOP's for Groundwater Sampling Program	HAZWRAP	APR-1997
	SWMU 160 Old Wastewater Treatment Facility, Old Clarksville Base, Ft. Campbell, Kentucky, SWMU 160	Arthur D. Little	MAY-1997
	Hydrogeologic Report for RCRA SWMU Assessment and RCRA Facility Investigation of Sites at Ft. Campbell, Kentucky, Volume I of II, SWMU's 2, 5, 9, 12/15 and 28, Beaver, Blue, Boiling, Dennis, Gate 1, and Quarles Springs	Arthur D. Little	MAY-1997
	Hydrogeologic Report for RCRA SWMU Assessment and RCRA Facility Investigation of Sites at Ft. Campbell, Kentucky, Volume II of II, SWMU's 2, 5, 9, 12/15 and 28, Beaver, Blue, Boiling, Dennis, Gate 1, and Quarles Springs	Arthur D. Little	MAY-1997
	RCRA SWMU Assessment and RCRA Facility Investigation, Ft. Campbell, Kentucky, Volume I of III, SWMUs 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149	Arthur D. Little	JUN-1997
	RCRA SWMU Assessment and RCRA Facility	Arthur D. Little	JUN-1997

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1997	Title	Author	Date
	Investigation, Ft. Campbell, Kentucky, Volume II of III, SWMUs 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149		
	RCRA SWMU Assessment and RCRA Facility Investigation, Ft. Campbell, Kentucky, Volume III of III, SWMUs 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149,	Arthur D. Little	JUN-1997
	RCRA SWMU Assessment and RCRA Facility Investigation, Ft. Campbell, Kentucky, Supplemental Volume Chemical Data, SWMUs 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149	Arthur D. Little	JUN-1997
	Confirmatory Sampling, SWMU 36- Abandoned Waste Oil Tank, SWMU 36	US Army Corps of Engineers, Nashville District	JUN-1997
	Solid Waste Management Unit 141, Range 17 Construction Debris Landfill, Ft. Campbell, Kentucky, SWMU 141	HAZWRAP	JUN-1997
	Solid Waste Management Unit 146, Old Clarksville Base Blivet Repair Area, Ft. Campbell, Kentucky, SWMU 146	HAZWRAP	JUN-1997
	Final Technical Memorandum US Army Ft. Campbell, Kentucky Geophysical Surveys, SWMUs 149, 12/15 and 152	Weston Geophysical Corporation	SEP-1997
	Historical Photogeological Analysis of Surface Terrain Features, Cantonment Area, Report and CD	US Army Topographic Engineering Center for the US Army Corps of Engineers	SEP-1997
	1997 Hydrogeology Update Report, Hydrogeology Report	Arthur D. Little	SEP-1997
	Solid Waste Management Units 98 and 99 Waste Oil Tanks at Building 5739, SWMUs 98 and 99	CKY Inc. for US Department of Energy	OCT-1997
	Solid Waste Management Units 95, 96, and 97 Waste Oil Tanks at Building 7010, SWMUs 95 through 97	CKY Inc. for US Department of Energy	OCT-1997
1998	RCRA Year-End Summary Report of the 1997 Quarterly Groundwater Sampling Results, Monitoring Wells	HAZWRAP	MAR-1998
	Monitoring and Sampling of Groundwater Wells at Ft. Campbell Army Airfield, Ft. Campbell, Kentucky, Campbell Army Airfield Monitoring Wells	BAT Associates, Inc. for US Army Corps of Engineers, Nashville District	APR-1998
	Phase III RCRA Facility Investigation Oil/Water Separators, Oil/Water Separators	ERM Program Management Company for US Army Corps of Engineers, Nashville District	JUN-1998
	Solid Waste Management Units 95, 96, 97, 98, and 99 Waste Oil Tanks at Building 7010 and Building 5739, SWMUs 95 through 99	CKY, Inc. for US Department of Energy	JUL-1998
	RCRA Final Confirmatory Sampling Report Solid Waste Management Unit 156 Directorate of Public Works Pole Yard, SWMU 156	HAZWRAP for US Department of Energy	JUL-1998
	Report for the RCRA Facility Investigation (RFI) Conducted at SWMU 158 Campbell Army Airfield, SWMU 158	BAT Associates, Inc. for US Army Corps of Engineers, Nashville District	SEP-1998
	Ft. Campbell Landfill 7 Remediation Activities; Woodchipper, bulldozers, rock rakes, SMWU 7, (Video)	STEP, Inc.	SEP-1998

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1998	Title	Author	Date
	Engineering Report for the RFI of SWMU 147 and Facility Assessment of AOC I at Ft. Campbell, Kentucky, SWMU 147 and AOC I	Science Applications International Corporation for US Army Corps of Engineers, Nashville District	OCT-1998
	Oil/ Water Separator Directory, Oil/Water Separators	Program Management Company for US Army Corps of Engineers, Nashville District	NOV-1998
1999	Phase I Ground Truthing Investigation as Part of the Master RFI at Campbell Army Airfield, Ft. Campbell, Kentucky, Campbell Army Airfield	HAZWRAP	JAN-1999
	Oil Water Separator Clean-outs and Inspections, Oil/Water Separators,	Program Management Company for the US Army Corps of Engineers, Nashville District	MAR-1999
	Area of Concern (AOC) E Wastewater Underground Storage Tank at Building 7741, Former Weapons Storage Area, AOC E	STEP, Inc. for US Army Department of Energy	MAR-1999
	Interim Corrective Action, Building 3902 (SWMU 36), SWMU 36	Environmental Chemical Corporation (ECC) for US Army Corps of Engineers, Nashville District	MAR-1999
	Year End Summary Report of the 1998 Quarterly Groundwater Sampling Results (October 1997 thru September 1998), Monitoring Program	HAZWRAP	APR-1999
	Radiological Surveys of Former Atomic Energy Commission/Department of Defense Facilities on Old Clarksville Base, Buildings 7825, 7874 and 7811	T N & Associates, Inc. for US Department of Energy	JUN-1999
	Tracer Tight Leak Test, UFSS and UST's at Campbell Army Airfield	Tracer Research Corporation for US Army Corps of Engineers, Nashville District	JUL-1999
	Master Environmental GIS Database Data Management and Technical Specification Document for Ft. Campbell, Kentucky, Tech Spec Document	Harding Lawson Associates, Inc. for Corps of Engineers, Nashville District	SEP-1999
	1998 Hydrogeology Report Update, Hydrogeology Report	Arthur D. Little, Inc. for U. S. Department of Energy	OCT-1999
	Surface Water Runoff Study from CAAF '99 Hydrogeological Characterization Program, Campbell Army Airfield	US Army Corps of Engineers, Nashville District	DEC-1999
	Final Investigation Report for An Interim Corrective Measure and Confirmatory Sampling at AOC J Carcass Burial Ground, AOC J	STEP, Inc for US Department of Energy	DEC-1999
2000	Final RCRA Facility Investigation Confirmatory Sampling Report at Solid Waste Management Units 138, 159, and 164, Volume I of V, Text, Tables and Figures, SWMUs 138, 159 and 164	TN & Associates, Inc. for US Department of Energy	JAN-2000
	Final RCRA Facility Investigation Confirmatory Sampling Report at Solid Waste Management Units 138, 159, and 164, Volume II of V, Analytical Data, SWMUs 138, 159 and 164	T N & Associates, Inc. for US Department of Energy	JAN-2000
	Final RCRA Facility Investigation Confirmatory	T N & Associates, Inc. for	JAN-2000

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Title	Author	Date
Sampling Report at Solid Waste Management Units 138, 159, and 164, Volume III of V, Analytical Data, SWMUs 138, 159 and 164	US Department of Energy	
Final RCRA Facility Investigation Confirmatory Sampling Report at Solid Waste Management Units 138, 159, and 164, Volume IV of V, Analytical Data, SWMUs 138, 159 and 164	TN & Associates, Inc. for US Department of Energy	JAN-2000
Final RCRA Facility Investigation Confirmatory Sampling Report at Solid Waste Management Units 138, 159, and 164, Volume V of V, Analytical Data, SWMUs 138, 159 and 164	TN & Associates, Inc. for US Department of Energy	JAN-2000
Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Confirmatory Sampling (CS) Report at SWMUs 140, 148, 152, 153, and 149, Volume I of VI, Text, Tables and Figures, SWMUs 140, 148, 152, 153 and 149	T N & Associates, Inc. for US Department of Energy	JAN-2000
Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Confirmatory Sampling (CS) Report at SWMUs 140, 148, 152, 153, and 149, Volume VI of VI, Appendices B, C and D, SWMUs 140, 148, 152, 153 and 149	TN & Associates, Inc. for US Department of Energy	JAN-2000
Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Confirmatory Sampling (CS) Report at SWMUs 140, 148, 152, 153, and 149, Volume II of VI, Appendix A Analytical Data, SWMUs 140, 148, 152, 153 and 149	T N & Associates, Inc. for US Department of Energy	JAN-2000
Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Confirmatory Sampling (CS) Report at SWMUs 140, 148, 152, 153, and 149, Volume III of VI, Appendix A Analytical Data (Cont'd), SWMUs 140, 148, 152, 153 and 149	T N & Associates, Inc. for US Department of Energy	JAN-2000
Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Confirmatory Sampling (CS) Report at SWMUs 140, 148, 152, 153, and 149, Volume IV of VI, Appendix A Analytical Data (Cont'd), SWMUs 140, 148, 152, 153 and 149	TN & Associates, Inc. for US Department of Energy	JAN-2000
Final Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Confirmatory Sampling (CS) Report at SWMUs 140, 148, 152, 153, and 149, Volume V of VI, Appendix A Analytical Data (cont'd), SWMUs 140, 148, 152, 153 and 149	T N & Associates, Inc. for US Department of Energy	JAN-2000
Final Data Summary for Removal Action and RCRA Facility Investigation at Solid Waste Management Unit 160, Wastewater Treatment Plant, SWMU 160	STEP, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2000
Phase III RCRA Facility Investigation Work Plan for Wastewater Treatment Plant Sludge Dumping Area, Solid Waste Management Unit 48, SWMU 48	Arthur D. Little, Inc. for U. S. Army Corps of Engineers, Nashville District	JAN-2000
Confirmatory Sampling at the Sinkhole at 30th and Colorado (AOC K), AOC K	PMC for US Army Corps of Engineers, Nashville District	FEB-2000
Oil Water Separator Clean Out Report Ft. Campbell, Oil Water Separator Clean Out Report	AIMTECH for US Department Of Energy	FEB-2000
Final Data Summary for Phase II RCRA Facility Investigation of Solid Waste Management Unit 138, SWMU 138	STEP, Inc. for the US Army Corps of Engineers, Nashville District	MAR-2000

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Title	Author	Date
Final Data Summary for Confirmatory Sampling at Solid Waste Management Unit 166, Underground Storage Tank Pit 5628, SWMU 166	STEP, Inc. for the US Army Corps of Engineers, Nashville District	MAR-2000
Investigation Report for an Interim Corrective Measure and Confirmatory Sampling at SWMU 167 (DRMO), SWMU 167	STEP, Inc. for the US Army Corps of Engineers, Nashville District	MAR-2000
Investigation Report for Removal Action and RCRA Facility Investigation (RFI) at SWMU 160, Wastewater Treatment Plant, SWMU 160	STEP, Inc. for US Army Corps of Engineers, Nashville District	MAR-2000
Final Investigation Report for Removal and Subsurface Investigation of Inactive Fuel Lines at AOC D and Pumphouse 1, AOC A and AOC D	STEP for US Army Corps of Engineers, Nashville District	MAR-2000
RCRA Confirmatory Sampling Report for Addendum 13 (SWMU 163) 584th Maintenance Battery Service Room, SWMU 163	STEP, Inc. for US Army Corps of Engineers, Nashville District	APR-2000
Campbell Army Airfield, Drain Line, Installation of Bentonite Barriers Completion Report, Campbell Army Airfield	STEP, Inc. for US Army Corps of Engineers, Nashville District	APR-2000
Final Report: Phase I RCRA Facilities Investigation and Interim Removal Action at AOC O (Central Energy Facility), AOC O	PMC (Program Management Company) for US Army Corps of Engineers, Nashville District	APR-2000
Ft. Campbell Risk Assessment Strategy Volume I. (Update No. 1), Risk Assessment	AIMTECH for US Department of Energy	MAY-2000
Ft. Campbell Risk Assessment Strategy Volume II. (Update No.1), Risk Assessment	AIMTECH for US Department of Energy	MAY-2000
Phase II RCRA Facility Investigation (RFI) at Solid Waste Management Units (SWMU) 134-137, 801st Motorpool, SWMU 134 through 137 (801st Motorpool)	STEP, Inc. for the US Army Corps of Engineers, Nashville District	AUG-2000
RCRA Confirmatory Sampling Report for Solid Waste Management Unit (SWMU) 14, Construction Debris Landfills 14 and 15, SWMU 14	AIMTech for the US Department of Energy	AUG-2000
Phase I RCRA Facilities Investigation (RFI) and Interim Removal Action (IRA) at AOC O, KY (Central Energy Facility), AOC O	Program Management Company for the US Army Corps of Engineers, Nashville District	AUG-2000
Final Year-end Summary Report of the 1999 Quarterly Groundwater Sampling Results, Ft. Campbell, Monitoring Program	STEP, Inc for the US Army Corps of Engineers, Nashville District	OCT-2000
Phase III Resource Conservation and Recovery Act Facility Investigation for SWMU 145, Old Skeet Range	STEP Inc. for US Army Corps of Engineers, Nashville District	DEC-2000
RFI/CS Report for Campbell Army Airfield, Volume III of IX, Analytical Data, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
RFI/CS Report for Campbell Army Airfield, Volume VII of IX, Field Forms, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
RFI/CS Report for Campbell Army Airfield, Volume V of IX, Analytical Data, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
RFI/CS Report for Campbell Army Airfield, Volume II of IX, Analytical Data, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000

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Title	Author	Date
RFI/CS Report for Campbell Army Airfield, Volume VI of IX, Geotechnical Analysis, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
RFI/CS Report for Campbell Army Airfield, Volume VIII of IX, Groundtruthing Reports, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
12/2000, RFI/CS Report for Campbell Army Airfield, Volume IX of IX, Laboratory Detections, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
RFI/CS Report for Campbell Army Airfield, Volume I of IX, Text, Tables and Figures, SWMUs 14, 154 and 12/15, AOCs B, C, D, F, G and H	HAZWRAP for US Department of Energy	DEC-2000
Final Data Summary and Corrective Action Report for Pumphouse 1 Fuel Leak Reconnaissance and Repair, AOC A	STEP, Inc. for the US Army Corps of Engineers, Nashville District	DEC-2000

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Final Data Summary for Phase III RCRA Confirmatory Sampling at 17 Oil Pits, SWMU 149, SWMU 149	STEP, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2001
Final Data Summary RCRA Interim Removal Action and Confirmatory Sampling at SWMU 164, Fuel Filter House, SWMU 164	STEP, Inc. for the US Army Corp of Engineers, Nashville District	FEB-2001
Final Report, Confirmatory Sampling Investigation at Acid Tanks and Oil/Grease Interceptors (AOC M), AOC M, Acid Tanks and Oil/Grease Interceptors	PMC for US Army Corps of Engineers, Nashville District	FEB-2001
Final Report for Oil/Water Separator Integrity Inspections and Isolations, Oil/Water Separators	Program Management Company for the US Army Corps of Engineers, Nashville District	MAR-2001
Final Year-End Summary Report of the 2000 Quarterly Groundwater Sampling Results, Monitoring Program	STEP, Inc. for the US Army Corps of Engineers, Nashville District	APR-2001
Hydrogeologic Characterization Program at Sabre Heliport Area (Final Report), Sabre Heliport	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	MAY-2001
Abandoned Dump Site Repair & Maintenance Program, Abandoned Dumps	STEP, Inc. for the US Army Corp of Engineers, Nashville District	MAY-2001
Final Resource Conservation and Recovery Act Confirmatory Sampling Report for Solid Waste Management Unit 84, SWMU 84	SAIC for the US Army Corps of Engineers, Nashville District	JUN-2001
Final Report on Interim Remedial Action at 30th and A Shau Valley (AOC K-TN), AOC K	Program Management Company for the US Army Corps of Engineers, Nashville District	JUN-2001
Final Data Summary , Phase I Resource Conservation and Recovery Act Facility Investigation (RFI), UST Pit 5628 at SWMU 166, SWMU 166	STEP, Inc. for the US Army Corps of Engineers, Nashville District	JUL-2001
Final Data Summary for Phase II RCRA Facility Investigation (RFI) at Campbell Army Airfield (CAAF) for Solid Waste Management Unit 154, Geophysical Anomaly, Bldg. 7156, Bldg. 7173 and SWMU 41, SWMU 41 and AOC A	STEP, Inc. for the US Army Corps of Engineers, Nashville District	JUL-2001
Final Data Summary for Additional Sampling in Support of a Confirmatory Sampling Efft. at Solid Waste	STEP, Inc. for the US Army Corp of Engineers,	JUL-2001

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Title	Author	Date
Management Unit 148, Old Clarksville Base Fire Training Area, SWMU 148	Nashville District	
Final Investigation Report for RCRA Interim Removal Action and Confirmatory Sampling at Solid Waste Management Unit 164, Fuel Filter House, SWMU 164	STEP, Inc. for the US Army Corp of Engineers, Nashville District	JUL-2001
Final Data Summary for Phase III RCRA Facility Investigation/Confirmatory Sampling at Campbell Army Airfield for AOC A (Engine Test Facility) and AOC D (Bulk Fuel Farm), AOC A and AOC D	STEP, Inc. for the US Army Corp of Engineers, Nashville District	JUL-2001
Final Data Summary for Phase I RCRA Facility Investigation (RFI), Underground Storage Tank (UST) Soil Cleanup at Solid Waste Management Unit 150, SWMU 150	STEP, Inc. for the US Army Corp of Engineers, Nashville District	JUL-2001
Final Data Summary for RCRA Confirmatory Sampling at Area of Concern L, Lubrication Racks, AOC L	STEP, Inc. for the US Army Corp of Engineers, Nashville District	JUL-2001
Final Data Summary, Free-product Recovery at Pumphouse 1, AOC A	STEP, Inc. for the US Army Corp of Engineers, Nashville District	AUG-2001
Data Summary for Phase III RCRA Facility Investigation of Solid Waste Management Unit 138, SWMU 138	STEP, Inc. for the US Army Corps of Engineers, Nashville District	AUG-2001
1999 Hydrogeology Update Report, Volume I of II, Text, Tables, Figures and Appendices A through B, Hydrogeology Report	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	AUG-2001
1999 Hydrogeology Update Report, Volume II of II, Hydrogeology Report	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	AUG-2001
SWMU and AOC Investigations at Multiple Sites, Werner Park, SWMU 168, AOC I, SWMU 146 and Oil/Water Separators	Program Management Company for the US Army Corps of Engineers, Nashville District	AUG-2001
Final Data Summary for Interim Remedial Actions at AOC B, AOC G and AOC H, AOCs B, G and H	STEP, Inc. for the US Army Corp of Engineers, Nashville District	SEP-2001
Final, Sludge Sampling and Removal Report for Oil/Water Separators at Ft. Campbell, Sludge sampling and removal for OWS	SAIC for the US Army Corps of Engineers, Nashville District	SEP-2001
09/2001, Final Report: Determination Of Jet Fuel Retention In Soil, AOC D, SSMU 41, Engine Test Facility, Hangar 3	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	SEP-2001
Final Data Summary for Phase III RCRA Facility Investigation at Solid Waste Management Units 149A and 149F, Oil Pits, SWMUs 149A and 149F	STEP, Inc. for the US Army Corp of Engineers, Nashville District	OCT-2001
Final Resource Conservation and Recovery Act Facilities Investigation Generic Work Plan Update No. 2, Generic Work Plan	STEP, Inc. for the US Army Corps of Engineers, Nashville District	OCT-2001
Final Standard Sampling and Analysis Plan (Revision 001), Standard Sampling and Analysis Plan	STEP, Inc. for the US Army Corps of Engineers, Nashville District	OCT-2001
Final Corrective Measures Study for Solid Waste Management Unit 138 (PX Service Station), SWMU 138	STEP, Inc. for the US Army Corp of Engineers, Nashville District	NOV-2001
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Final Report for Confirmatory Sampling at Range Control Skeet Ranges and Sabre Hot Fuel Pads, SWMU 171 and Sabre Heliport	Program Management Company for the US Army Corps of Engineers, Nashville District	NOV-2001
Comprehensive Data Summary for Phase I and II RCRA Facility Investigations at Solid Waste Management Unit 146 (Blivet Repair Facility), SWMU 146	Program Management Company for the US Army Corps of Engineers, Nashville District	DEC-2001

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Resource Conservation and Recovery Act (RCRA) Facility Investigation Report, Sanitary and Construction Debris Landfills, SWMUs 001-006, Volume 2 of 16, SWMUs 1, 2, 3, 4, 5 and 6	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2002
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Resource Conservation and Recovery Act (RCRA) Facility Investigation Report, Battery Maintenance Facility, SWMU 024, Volume 9 of 16, SWMU 24	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2002
Final Data Summary, Phase II RCRA/RFI for SWMU 50, Range 31 Disposal Area, Addendum 22 to the Generic Work Plan, (First sent out in October 2001 and revised in 1/2002 and 5/2003), SWMU 50, (First sent out in October 2001 and revised in 1/2002 and 5/2003)	STEP, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2002
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Final Data Summary Phase II RCRA Facility Investigation at the Chromium Plating Shop (SWMU 140), SWMU 140	SAIC for US Army Corps of Engineers, Nashville District	JAN-2002
2000 Dye Trace Report, Dye Trace Report	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2002
2000 Hydrogeologic Characterization Program, Final Report for Water and Sediment Quality of the Springs at Ft. Campbell, Kentucky, Hydro Report	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2002
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Resource Conservation and Recovery Act (RCRA) Facility Investigation Report, Satellite Waste Oil Buffaloes, SWMU 042, Volume 14 of 16, SWMU 42	Arthur D. Little, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2002
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Final Data Summary for RCRA Facility Investigation at AOC A Pumphouse Wells at the Campbell Army Airfield, AOC A	STEP, Inc. for the US Army Corps of Engineers, Nashville District	FEB-2002
Final Data Summary RCRA Addendum 26 to the Generic Work Plan, Phase II Campbell Army Airfield Master RCRA Facility Investigation at Building 7154 (Hangar 3), Paint Spray Booth (at Building 7156), and Monitoring well CAAF-11, Building 7154 (Hangar), Paint Spray Booth (Building 7156), CAAF-11	STEP, Inc. for the US Army Corps of Engineers, Nashville District	FEB-2002
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Final: Year End Summary Report of the 2001 Quarterly Groundwater Sampling Results, Monitoring Program	STEP Inc for the US Army Corps of Engineers, Nashville District	SEP-2002
Final: Data Summary Interim Remedial Measures at SWMU 146,Blivet Repair Facility, SWMU 146	STEP Inc. for the US Army Corps of Engineers, Nashville District	OCT-2002
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Final Data Summary for RCRA Site Investigation at SWMU 11, Landfill 11, SWMU 11	STEP, Inc. for the US Army Corps of Engineers, Nashville District	JAN-2003
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Final Data Summary for Resource Conservation and Recovery Act Investigation and Confirmatory Sampling Solid Waste Management Unit 154 (Acid Pits), FY02, SWMU 154 (Acid Pits)	STEP, Inc. for the US Army Corps of Engineers, Nashville District	MAY-2003
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Final Data Summary for Resource Conservation and Recovery Act Excavation and Removal at SWMU 149 Oil Pits (FY03), SWMU 149	STEP Inc. for US Army Corps of Engineers, Nashville District	FEB-2004
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Final Data Summary For Chromium Plating Shop Investigation, SWMU 140	BHATE, Inc. for the US Army Corps of Engineers, Nashville District	JUL-2004
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Final Data Summary for Excavation and Disposal of Soil at SWMU 33, Pesticide Mixing Area	STEP Inc. for US Army Corps of Engineers, Nashville District	MAR-2005
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Lubrication Rack Investigation , Confirmatory Sampling Data Summary, Table, Figures and Appendices A, B and C	Bhate, Inc. for the US Army Corps of Engineers, Nashville District	MAY-2005
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Chromium Plating Shop Investigation, SWMU 140	Bhate, Inc. for the US Army Corps of Engineers, Nashville District	JUL-2006
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Final Data Summary for RCRA Excavation and Removal at SWMU 149, Oil Pits (FY05)	STEP Inc. for the US Army Corps of Engineers,	AUG-2006

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Final Data Summary for RCRA Investigation of Twelve Lubrication Racks and Demo of One Lubrication Rack (Kentucky Sites)	STEP Inc. for the US Army Corps of Engineers, Nashville District	OCT-2006
Confirmatory Sampling Data Summary Addendum, Revised Conclusions and Recommendations for Lubrication Rack (SWMU 170) Sites 170Z9 and 170Z11	Bhate, Inc. for the US Army Corps of Engineers, Nashville District	OCT-2006
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RCRA Facility Investigation Field Data Summary Package (CAAF)	Shaw Environmental, Inc.	JUN-2007
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RCRA Interim Removal Action Report for Soil Remediation at SWMU 171, Range Control Skeet Ranges	Shaw Environmental, Inc.	SEP-2007
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	Final Data Summary for Free Product Removal at Campbell Army Airfield, FY05	STEP Inc. for the US Army Corps of Engineers, Nashville District	NOV-2007
	Letter Report for SWMU 153, Demo Area 18, August 2007 Groundwater Sampling Results	Shaw Environmental, Inc.	NOV-2007
2008	CAAF Interim Remedial Action Letter Report for MVEP Quarterly Event, August 2007	Shaw Environmental, Inc.	JAN-2008
	RCRA Interim Removal Action Report and Request for No Further Action at FCPB-64 Lube Rack Sites 170A, 170B and 170D	Shaw Environmental, Inc.	FEB-2008
	Final CAAF Interim Remedial Action (IRA) Report mobile Vacuum Enhanced Pumping (MVEP) Quarterly Event for February 2008 (CAAF SWMUG)	Shaw Environmental, Inc.	MAR-2008
	Final RCRA Interim Removal Action Report and Request for NFA SWMU 149UU	Shaw Environmental, Inc.	MAY-2008
	Interim Remedial Action (IRA) Report Mobile Vacuum Enhanced Pumping (MVEP) Quarterly Event August 2008 Campbell Army Airfield (CAAF SWMUG) Fort Campbell, Kentucky. Kentucky Site AEDB-R Site FCPB-38	Shaw Environmental, Inc.	SEP-2008
	Statement of Basis SWMU #149C, 149D, 149E, 149K, 149N, 149P, 149R and 149UU	Shaw Environmental, Inc.	SEP-2008
	Statement of Basis Support Document Solid Waste Management Unit 149I - Oil Pit AEDB-R Site FCPB-52	Shaw Environmental, Inc.	OCT-2008
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	CAAF SWMUG Interim Remedial Action (IRA) Letter Report Free Product Recovery Pilot Test and Removal Event for November 2008	Shaw Environmental, Inc.	NOV-2008
	RCRA Facility Investigation/Corrective Measures Study Solid Waste Management Unit 140 Chrome Plating, Building 7811, Clarksville Base AEDB-R- Site FCPB-43	Shaw Environmental, Inc.	NOV-2008
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2009	FINAL - Interim Removal Action Work Plan - Range Control Skeet Ranges (SWMU 171) Soil Remediation - Fort Campbell, KY TN Sites	Shaw Environmental, Inc.	APR-2009
	Groundwater Monitoring Report and Request for No Further Action Solid Waste Management Unit 33 Pesticide Mixing and Storage Facility	Shaw Environmental, Inc.	JUN-2009

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	Statement of Basis Support Document Solid Waste Management Unit 2 (SWMU 2) Sanitary Landfill #2 AEDB-R Site FCPB-26	Shaw Environmental, Inc.	SEP-2009
	Statement of Basis Support Document Solid Waste Management Unit 4 (SWMU 4) Sanitary Landfill #4 AEDB-R Site FCPB-26	Shaw Environmental, Inc.	SEP-2009
	Statement of Basis Support Document Solid Waste Management Unit 140 Chrome Plating, Building 7811, Clarksville Base AEDB-R Site CCS FCPB-43 Fort Campbell, Kentucky Tennessee Site	Shaw Environmental, Inc.	DEC-2009
2010	Corrective Action Report Anaerobic In Situ Enhanced Bioremediation Pilot Study Solid Waste Management Unit 28 (SWMU 28) Old Burning Area (OB/OD) AEDB-R Site FCPB-10 Fort Campbell, Kentucky Tennessee Site February 2010	Shaw Environmental, Inc.	FEB-2010
	Corrective Action Report Anaerobic In Situ Enhanced Bioremediation Pilot Study Solid Waste Management Unit 153 (SWMU 153) Demolition Area 18 AEDB-R Site FCPB-58 Fort Campbell, Kentucky Tennessee Site	Shaw Environmental, Inc.	FEB-2010
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	Statement of Basis Support Document, Solid Waste Management Unit 22, Battery Maintenance Facility, AEDB-R Site FCPB-05, Fort Campbell, Kentucky	SHAW	JUN-2010
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	Statement of Basis Support Document, Solid Waste Management Unit 50, Range 31 Disposal Area, AEDB-R Site FCPB-20, Fort Campbell, Kentucky	SHAW	JUN-2010
	Statement of Basis Support Document, Solid Waste Management Unit 36, Abandoned Waste Oil Tank, AEDB-R Site FCPB-08, Fort Campbell, Kentucky	SHAW	JUN-2010
	Final RCRA Corrective Measures Implementation Work Plan, Campbell Army Airfield, Solid Waste Management Group, AEDB-R Site FCPB-38, Fort Campbell, Kentucky	SHAW	JUN-2010
	Statement of Basis Support Document, Solid Waste Management Unit 170, Lubrication Racks, AEDB-R Site FCPB-64, Fort Campbell, Kentucky	SHAW	JUN-2010
	Statement of Basis Support Document, Solid Waste Management Unit 42, Waste Oil Buffaloes, AEDB-R Site FCPB-21, Fort Campbell, Kentucky	SHAW	JUN-2010
	Statement of Basis Support Document, Solid Waste Management Unit 37, Satellite Accumulation Areas, AEDB-R Site FCPB-18, Fort Campbell, Kentucky	SHAW	JUN-2010
	Statement of Basis Support Document, Solid Waste Management Unit 149, Oil Pits, AEDB-R Site FCPB-52, Fort Campbell, Kentucky	SHAW	JUN-2010

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	Additional Assessment Activities Solid Waste Management Unit 172K, CCC FTC-172K UST Site, Fort Campbell, Kentucky, June 2010	SHAW	JUN-2010
	Statement of Basis, Support Document, Solid Waste Management Unit (SWMU 28) 28 Old Burning Area (OB/OD) AEDB-R Site FCPB-10, Fort Campbell, Kentucky, Tennessee Site	SHAW	NOV-2010
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	Final Closure Report for a Heating Oil UST at Building 7540 Fort Campbell, Kentucky (SWMU 172S)	SpecPro Environmental Services	FEB-2011
	Statement of Basis, Support Document, Solid Waste Management Unit 149A, Oil Pit, AEDB-R Site FCPB-52, Fort Campbell Kentucky	SHAW	MAR-2011
	RCRA Summary of Corrective Measure Activities November-December 2010 Campbell Army Airfield Solid Waste Management Unit Group AEDB-R Site FCPB-38 Fort Campbell, Kentucky, Kentucky Site	SHAW	APR-2011
	2010 Year End Groundwater Monitoring Report, Fort Campbell, Kentucky, Kentucky and Tennessee Sites	SHAW	JUN-2011
	Monitoring Well Plugging and Abandonment Solid Waste Management Units 28, 33, 153, and 170Z11, Fort Campbell, Kentucky, Tennessee Sites	SHAW	JUL-2011
	Monitoring Well Plugging and Abandonment Solid Waste Management Units 28, 33, 153, and 170Z11, Fort Campbell, Kentucky, Tennessee Sites	SHAW	SEP-2011
	Non-intrusive Geophysical Surveys - Ft. Campbell Kentucky (FCPB-008, MMRP, Obstacle	US Army Engineering and Support Center - Huntsville	NOV-2011
2012			
	Recommendations for Groundwater Sampling at the Campbell Army Airfield Solid Waste Management Group Fort Campbell, Kentucky	SHAW	JUL-2012
	2011 Year End Groundwater Monitoring Report, Fort Campbell Kentucky, Kentucky and Tennessee Sites	SHAW	AUG-2012
	Final Military Munitions and Response Program Remedial Investigation Report for Munitions Response Sites: Mortar Range 6/11 and Training Area 1/1A at Fort Campbell, Kentucky	HydroGeoLogic, Inc.	DEC-2012
2013			
	2012 Year End Groundwater Monitoring Report Fort Campbell, Kentucky, Kentucky and Tennessee Sites	SHAW	JAN-2013
	Final Additional Soil Investigation Report Solid Waste Management Unit 172S Underground Storage Tank Site Fort Campbell Kentucky Tennessee Site	SHAW	MAY-2013
	Final Statement of Basis for Solid Waste Management Unit 172S Underground Storage Tank Site Fort Campbell, Kentucky	SHAW	JUN-2013
	Completion Report Remove/Demolish UST Fort Campbell, KY	CAPE Environmental	SEP-2013

IRP Previous Studies

	Title	Author	Date
2013			
	2013 Year End Groundwater Monitoring Report Fort Campbell, Kentucky	SHAW	OCT-2013
2014			
	2014 Year End Groundwater Monitoring Report Fort Campbell, Kentucky	SHAW	OCT-2014

FORT CAMPBELL
Installation Restoration Program
Site Descriptions

Site ID: FCPB-09
Site Name: NBC FIRE TRAINING AREA- TN
Alias: SWMU 21

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	199006.....	199008
CS.....	199504.....	199507
RFI/CMS.....	199504.....	199709
CMI(C).....	200201.....	200209
CMI(O).....	200210.....	201710

RIP Date: 200210

RC Date: 201710

SITE DESCRIPTION

This unit is located in a low area of approximately 50 by 100 feet in a field just west of the nuclear, biological and chemical training staging area, east of Range Road. From 1980 to 1990, JP-4 jet fuel, gasoline and other hydrocarbons were poured into a metal trough (about 50 feet, still in place) and ignited for training Soldiers in the use of fire as a weapon.

An RFI conducted by Metcalf & Eddy between August 1992 and August 1993 noted that the constituents found in soil samples at the site did not correspond to the constituents found in groundwater at the site. The constituents found in the groundwater did correspond to those found in the groundwater from monitoring wells at the perimeter of SWMU 2.

In FY02, an IM (enhanced bioremediation) was conducted at seven wells at FCPB-09 and FCPB-26. In FY03, two rounds of field gas chromatograph samples were collected and data was evaluated to determine the effectiveness of enhanced bioremediation. Data indicated that trichloroethylene (TCE) concentrations had dropped below the maximum contaminant level (MCL). Groundwater samples collected in FY04 indicated TCE concentrations remained below MCLs.

In FY05 groundwater monitoring continued. TCE was detected above the MCL in one well at FCPB-09 during a drought period. In FY06 a detection of vinyl chloride exceeded preliminary remediation goals (PRG), but not MCLs; one well had a detection of TCE exceeding MCLs.

During the October 2007 sampling event, both vinyl chloride and TCE were detected at the site at concentrations slightly above their respective MCLs. The findings are consistent with post IRA analytical results dating back to 2005. Because well yields at the site historically have been low, the samples were collected using diffusion bags.

In July 2008, in situ enhanced bioremediation injections were performed at two groundwater monitoring wells. Post-injection sampling was performed at the two wells in January 2009. All analytical results were below cleanup levels. Three additional sampling events with results below cleanup levels are required before no further action (NFA) is requested. In October 2009 TCE concentrations rebounded above the MCL in one well. During the March 2010 sampling event, the concentration of TCE detected in the sample collected exceeded the MCL. Monitoring will continue until four sampling events occur with results below the cleanup level.

CLEANUP/EXIT STRATEGY

MNA will continue until analytical results confirm that cleanup goals have been met.

Site ID: FCPB-26
Site Name: SANITARY LANDFILLS 2 & 4 - TN
Alias: SWMU 2,4

STATUS

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

Phases	Start	End
RFA.....	199006.....	199008
CS.....	199504.....	199507
RFI/CMS.....	199504.....	200201
IRA.....	200112.....	200305
LTM.....	200310.....	204509

RIP Date: N/A
RC Date: 200305

SITE DESCRIPTION

Prior to FY05, FCPB-26 through FCPB-30 were combined and addressed as one unit under the SWMUG concept as FCPB-26. The landfills (SWMU 2 and 4) are located east of Market Garden Road between 18th and 42nd Streets in one geographic area. They accepted all installation refuse from 1955 to 1980, including residential waste, paint, unauthorized construction debris, and TCE/JP-4 fuel-contaminated sludge. Daily and final cover conditions during operation are not known. The sites are currently covered with grass. The cover is maintained under the installation's maintenance and compliance program. As of FY05, FCPB-26 addresses only SWMU 2 and 4 due to detections of vinyl chloride above the MCL in some groundwater samples. In FY02 enhanced bioremediation was conducted at Landfill 2 to address the chlorinated solvent contamination. Vinyl chloride was above the MCL in one well (004MW001) at SWMU 4 during FY04. In FY05, vinyl chloride dropped below the MCL at SWMU 4. In FY06 and FY07 annual groundwater monitoring was conducted at six wells. At SWMU 2 contaminant concentrations were below PRGs and MCLs. Vinyl chloride concentrations exceeding MCLs were detected at SWMU 4. In October 2007 (FY08) groundwater samples were collected from six wells at SWMU 2 and three wells at SWMU 4 and analyzed for VOCs. Analytical results detected no contaminants above evaluation criteria at SWMU 2 and one detection of vinyl chloride, marginally exceeding the MCL, at SWMU 4. These findings are consistent with analytical results from previous sampling events.

During March 2008 and April 2008, groundwater monitoring was performed at three wells at SWMU 2 and two wells at SWMU 4. All analytical results were below detection levels.

In FY09, additional funding was tied to this site for the completion of a statement of basis (SoB) for sites that were closed in the early stages of the IRP and did not have closure documentation. The SB for both SWMU 2 and 4 were completed in 2009.

In spring 2010, groundwater monitoring was performed. All analytical results were below detection levels. Groundwater monitoring has been conducted in fall 2012 and fall 2014, and analytical results have remained below MCLs (2014 Groundwater Monitoring Report).

CLEANUP/EXIT STRATEGY

Continued groundwater monitoring is required at SWMUs 2 and 4 to complete a 30-year post closure requirement for solid waste landfills. LUCs will remain in place for 30 years. The next monitoring event is scheduled for fall 2016.

Site ID: FCPB-38
Site Name: CAMPBELL ARMY AIRFIELD - KY
Alias: AOC A

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

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

Media of Concern: Groundwater

Phases	Start	End
RFA.....	198201.....	198207
CS.....	199504.....	199612
RFI/CMS.....	199710.....	200909
IRA.....	199206.....	200903
CMI(C).....	200707.....	200909
CMI(O).....	200909.....	204509
RIP Date:	200909	
RC Date:	204509	

SITE DESCRIPTION

The Army's largest airfield, CAAF, is located in the northeastern corner of Fort Campbell. The karst geology creates a high potential for contaminants/free-product to migrate off-post during extreme water level variation. Due to complex groundwater flow patterns, critical off-site releases could occur. Based on the review of an RI/FS conducted by Dames and Moore in 1992, IRAs and FSs were conducted at selected areas within the CAAF. Additional focused studies were required to determine the extent of the JP-4, JP-8 and chlorinated solvent contamination and groundwater movement at the airfield. The tank farm, (Outfall H), and the underground concrete collection vault (Outfall C) were investigated as part of the site characterization. Previous dye traces have shown at least three apparent groundwater basins/flow patterns. Inventories, past practices and previous findings indicate release of a large volume of contaminants from multiple sources.

In August 2012, KDEP approved an optimization plan for long-term monitoring. The plan recommended that the sampling frequency be reduced for specific locations where concentrations were at or below the target remedial goals and that analyses for fuel related compounds be performed by the VOC method only.

Annual groundwater monitoring was conducted in June 2014 at the CAAF and related AOCs. Groundwater samples collected from wells in the vicinity of Pumphouse 1; Pumphouse 2; and hangars 2, 3, and 4 were analyzed for VOCs. Selected wells were also analyzed for and natural attenuation parameters.

In 2014, exceedances of RSLs and/or 7097C criteria included concentrations of tetrachloroethene (PCE), TCE, 1,2,4-trimethylbenzene, benzene, chloroform, ethylbenzene, naphthalene, 2-hexanone, carbon tetrachloride, and vinyl chloride.

The next groundwater monitoring event is scheduled for summer 2015.

CLEANUP/EXIT STRATEGY

Monitoring activities and product removal are ongoing.

Site ID: FCPB-43
Site Name: CHROMIUM PLATING SHOP - TN
Alias: SWMU 140

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	199504.....	199607
CS.....	199504.....	199703
RFI/CMS.....	199704.....	200809
CMI(C).....	200709.....	200909
CMI(O).....	200909.....	204509

RIP Date: 200909

RC Date: 204509

SITE DESCRIPTION

SWMU 140 consisted of a weapons refurbishing shop and a nuclear implosion structure located in Building 7811 within the Old Clarksville Base. Although the site is referred to as a chromium plating shop, chrome plating operations never occurred at this facility. It is located immediately upgradient of a wetland and Little West Fork Creek. Past practices at this site include the formulation of nuclear components for storage. Operations were changed in 1965 to a weapons refurbishing and metal cleaning facility, which was closed in 1993. The facility was designed and constructed to accommodate this type of operation.

Groundwater tracing in 1997 has shown a hydrologic connection between this site and Little West Fork Creek. The source of TCE is likely to be from the floor drains located in the area of the degreaser. FY98 actions included installing three monitoring wells, sampling the three new wells and one existing well and sampling soil at 12 locations. TCE was detected in groundwater above the MCL; however, TCE was not detected in the soil. Three groundwater monitoring wells were installed in FY01.

In January 2002, the Phase II RFI report was finalized. TCE was present in the groundwater and was detected above the MCL in one well. Lead was also present above MCLs in two wells. Subsequent filtered samples showed the lead was attached to the clay particles, was not migrating, and was no longer a concern.

In FY03, two additional wells were installed and sampled for VOCs in an area downgradient from the former weapons refurbishing shop. Four soil borings were completed beneath the floor of the building in the plating shop area. One additional soil boring was completed adjacent to the newly discovered UST, near the east end of the building. It was determined that the UST was a water holding tank connected to the floor drains in the nuclear implosion structure area. Soil samples were analyzed for VOCs. TCE was detected in the newly installed wells at concentrations above the MCL. The highest detection of TCE was 91 parts per billion (ppb) (MCL is five ppb) in well No. 9. Soil samples showed no detections of TCE in exceedance of action levels. An RFI addendum was completed. In FY04 groundwater monitoring continued.

Two new wells were installed in FY05 and groundwater monitoring was conducted at eight wells on a semiannual basis. In samples collected in November 2005 TCE was detected in monitoring well 140MW009 at 120 ppb. In FY06, semiannual groundwater monitoring was conducted at eight wells. TCE was detected at concentrations exceeding MCLs in five wells. In FY07, groundwater monitoring was performed at eight wells.

Sampling performed in October 2007 showed detections of TCE in three wells above the MCL. Well 140MW009 had the highest detection at 95.1 micrograms per liter (ug/L). A draft RFI/CMS was submitted to the TDEC in May 2008. Based on the TDEC comments, a revised report recommending that an area of control and monitoring only be implemented was submitted to the TDEC in November 2008. In FY10, TDEC agreed with the recommendations and will require annual groundwater sampling and LUCs. During the 2010 sampling event, TCE was detected at concentrations above the MCL in the regular and field duplicate samples collected. TCE concentrations also exceeded the MCL in samples collected from monitoring wells. 1,1-Dichloroethene was detected above the MCL in one monitoring well.

Site ID: FCPB-43
Site Name: CHROMIUM PLATING SHOP - TN
Alias: SWMU 140

In 2014, TCE was detected at four monitoring wells at concentrations above the MCL (5ug/L):140MW003 (10.9 ug/L), 140MW008 (16.6 ug/L), 140MW009 (101 ug/L), and 140MW011 (6.56 ug/L). Annual sampling continues at SWMU 140, with the next sampling event scheduled for fall 2015.

CLEANUP/EXIT STRATEGY

Monitoring activities and product removal are ongoing. LUCs are required and will be implemented for 30 years along with LTM. Wells will be plugged and abandoned in FY45.

Site ID: FCPB-48
Site Name: OLD SKEET RANGE - TN
Alias: SWMU 145

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Semi-volatiles (SVOC)

Media of Concern: Sediment, Soil, Surface Water

Phases	Start	End
RFA.....	199504.....	199607
CS.....	199504.....	199709
RFI/CMS.....	199910.....	200106
IRA.....	199710.....	200109
LTM.....	200706.....	204509

RIP Date: N/A

RC Date: 200109

SITE DESCRIPTION

This one-acre site was a skeet range; it is no longer in operation. It is adjacent to a community recreational area and is bounded on the north side by Fletcher's Fork Creek and on the south by a Morale, Welfare, and Recreation community area. Results of the preliminary assessment (PA)/site inspection (SI) revealed levels of PAHs that pose a potential risk to human health and the environment. In FY98 a field investigation to delineate the extent of contamination was conducted and the area was fenced. An ecological risk assessment began in FY00. The IRA in FY01 consisted of removal of surface clay pigeon particles and regrading and revegetating the area.

In FY06, while preparing the SoB for the site, the TDEC determined that the final remedy was inadequate. Due to contamination of SVOCs in the sediment at Fletcher's Fork Creek above the USEPA, Region VIII PRGs, signs and surface water sampling are required as part of the final remedy at the site. In FY08 and FY09, three surface water samples were collected at Fletcher's Fork Creek. Samples were analyzed for PAHs and lead. No detections were present in any of the samples collected. PAHs and lead were not detected in any of the surface water samples collected in 2010. Following PBC activities at this site, annual surface water sampling events will be performed at Fletcher's Fork Creek and LUCs will be maintained at the site, during which time contaminant levels are expected to remain below MCLs.

Three surface water samples were collected from Fletcher's Fort Creek at locations upstream, mid- stream, and downstream of SWMU 145 in October 2011. PAH detections were limited to the detection of naphthalene at 145-SW002 (0.0275 J µg/L) and 145-SW003 (0.0343 J µg/L). There is not an established MCL or PRG for naphthalene. Lead was not detected in any of the 2011 samples (2011 Groundwater Monitoring Report). Annual surface water monitoring continues at SWMU 145, with the most recent event having occurred during fall 2014. PAHs and lead were not detected in any of the 2014 surface water samples (2014 Year End Groundwater Monitoring Report). Annual surface water monitoring will be continued at SWMU 145, with the next event scheduled to occur in fall 2015.

CLEANUP/EXIT STRATEGY

LUCs and continued surface water LTM are required at the site through FY45.

Site ID: FCPB-52
Site Name: OIL PITS - TN/KY
Alias: SWMU 149

STATUS

Regulatory Driver: RCRA

RRSE: MEDIUM

Contaminants of Concern: Metals, Petroleum, Oil and Lubricants (POL), Polychlorinated Biphenyls (PCB), Semi-volatiles (SVOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	199504.....	199607
CS.....	199504.....	199703
RFI/CMS.....	199704.....	200909
IRA.....	199912.....	200909
CMI(C).....	200709.....	200909
CMI(O).....	200709.....	201609
RIP Date:	200909	
RC Date:	201609	

SITE DESCRIPTION

There are 40 abandoned oil pits and three flammable material storage sheds (no drainage) within the post cantonment area, where vehicle maintenance was performed. These oil sites are located between First Street in the southern portion of the main cantonment area and 59th Street (18 are in Tennessee and 22 are in Kentucky). The oil pits were located within disposal sheds of about 10 by 10 feet and supported POL storage. The foundation of each shed consisted of a concrete slab with up to five sumps covered by metal grates which directed oil to a French drain. Groups of two to five sheds drained into a common gravel pit. All sheds were removed, but there are still some slabs and grates, and the gravel pits are covered with soil. These sites were in operation between 1942 and the mid-1980s.

In FY98, soil samples were collected at 35 sites. VOCs and SVOCs were detected at four of these sites.

In FY99, a trench investigation was conducted at Oil Pits 149 A and 149 F. 149 F was determined to be nonexistent. Oil Pit 149 A and most of the contaminated soil [VOCs, SVOCs and total petroleum hydrocarbons (TPH)] were removed. The groundwater at 149 A is contaminated with lead and TPH above action levels. PCBs have also been detected in the sludge in the drain basins. Monitoring well one at 149A contains floating product.

In FY00, an intrusive trench investigation was conducted at 15 sites (149 C, H, J, M, N, P, Z, AA, BB, CC, EE, FF, HH, KK, and MM), a subsurface investigation was performed at two sites (149 A and 149 F) and two pits were removed (149 LL and NN). In FY01, six oil pits were removed (149 C, N, P, Z, CC and KK). In FY02, six more oil pits were removed (149 D, E, K, Q, R and G). In FY03, eight oil pits were removed. By FY03, 18 pits (149 F, G, H, J, L, M, Q, T, U, Z, AA, BB, EE, FF, HH, LL, MM and NN) had been approved for NFA.

In FY04, two oil pits were approved for NFA (149B and 149O). In December 2005 two sites (149 I and 149 II) were recommended for institutional controls and NFA was approved for six additional pits (149 S, T, U, V, W and Y). In March 2006 the four remaining oil pit structures were removed (149 DD, GG, JJ, X) and results are pending. NFA was granted for 149 DD, GG, JJ, and X in July 2006 and VV and WW in October and August 2006 respectively.

In June 2007, confirmation sampling was performed at 149 C, D, E, K, N, P and R. An RFI report requesting NFA at the sites was submitted to the TDEC in November 2007. NFA was granted by the TDEC in a letter dated Jan. 25, 2008. Three wells were installed at 149A during summer 2007. Free-product is present at the site in 149-M01-S. In March 2008 excavation of contaminated soil was performed at 149UU. A report recommending NFA for the site was submitted to the TDEC in May 2008. NFA was approved at 149UU in a letter dated June 6, 2008. A SOB for sites 149 I and II, which are located beneath the footprints of existing buildings, was submitted to the TDEC and the KDEP in October 2008. A replacement recovery well was installed at 149A in October 2008. The new well is monitored on a monthly basis with an interface probe. Monitoring in March 2009 detected no free-product in the well. During the November 2010 sampling event, exceedances were limited to the concentration of naphthalene detected in one extraction well at a concentration above the TGD-017 criterion.

Site ID: FCPB-52
Site Name: OIL PITS - TN/KY
Alias: SWMU 149

Monitoring will continue until four consecutive quarters of sampling are without free-product. At that point, Fort Campbell will apply for NFA status.

CLEANUP/EXIT STRATEGY

Site closure has been achieved or is pending for all sites except 149 A, 149I and 149II. Institutional controls will be implemented at sites 149I and 149II. Monthly monitoring will continue at site 149A. If product is not detected at the well for six consecutive months, risk-based site closure will be requested from the TDEC. Site closure is expected in FY16 and all wells will be abandoned.

Site ID: FCPB-65
Site Name: FORMER SKEET RANGES - TN
Alias: SWMU 171

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Metals, Polycyclic Aromatic Hydrocarbons (PAH)

Media of Concern: Soil

Phases	Start	End
RFA.....	200006.....	200009
CS.....	200010.....	200109
RFI/CMS.....	200207.....	200709
CMI(C).....	200702.....	200709
LTM.....	200709.....	202109

RIP Date: N/A

RC Date: 200709

SITE DESCRIPTION

These two former skeet ranges are located on Screaming Eagle Boulevard, just north of the range control building (6087). The two ranges occupied approximately eight acres and were used from the early-1940s to the 1960s for recreational skeet shooting. Contaminants of concern (COC) include PAHs from the clay skeet targets and lead from shot. Results from the confirmation sampling of September 2001 indicate that surface soil is impacted by PAHs and lead. Concentrations of PAHs ranged from 1.4 to 25,000 ppb. Lead concentrations ranged from 15.6 to 1,160 parts per million (ppm).

In order to expedite addressing potential risks associated with lead and PAH contaminated soil, the Army elected to perform an IRA concurrent with the RFI to remove contaminated soil. Delineation of surface and near surface soils was performed during February 2007 and March 2007. At the completion of the delineation phase, the aerial extent of soil contamination in the open field was observed as not exceeding residential standards significantly higher than the area of contamination exceeding industrial PRGs. In order to make this area suitable for future unrestricted land use, the contractor, with concurrence from the Army, elected to apply more conservative residential soil PRGs to the area outside the fence. Access to contaminated soil inside the fenced active range control facility was limited by buildings and subsurface utilities.

The IRA, consisting of excavation and disposal of lead and PAH contaminated soil, was performed in May 2007 and June 2007. Following removal, confirmation sampling was performed. Inside the fenced area, the active range control facility and its ongoing operations prevent any active remediation at this time. In addition, small areas just outside the fence could not be excavated due to the presence of utility lines.

Following the IRA, the site achieved NFA status for all areas located outside the fenced range control facility. LUCs have been implemented to prevent exposure to these soils. LUCs will be tracked under site FCPB-Na.

CLEANUP/EXIT STRATEGY

LUCs have been implemented to prevent exposure to these soils. LUCs will be tracked under site FCPB-Na.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FCPB-01	WASTE OIL DUMPING AREA	199507	State letter (TDEC) August, 29 1995
FCPB-02	WOODLAWN LANDFILL	199008	Active site.
FCPB-03	CONSTRUCTION DEBRIS LANDFILL	200009	Not eligible for ER,A because waste was placed after 1986. Funded under Compliance-Related Cleanup (CC) program.
FCPB-04	JP4 SPILL (200 GALLON)	199808	Combined with FCPB-38
FCPB-05	BATTERY MAINTENANCE FACILITY(BLDG 6530)	199607	State letter (KDEP) March 7, 2003
FCPB-06	SABRE HELIPORT DUMP SITE	199006	State letter (TDEC) June 27, 1988
FCPB-07	PESTICIDE MIXING & STORAGE FAC.- TN	200910	State Letter (TDEC) October 05, 2009
FCPB-08	ABANDONED WASTE OIL TANK	199008	State letter (KDEP) August 18, 2000
FCPB-10	OLD OB/OD AREA - TN	201003	State Letter (TDEC) March 30, 2010
FCPB-14	DPW PESTICIDE MIXING AREA	199507	EPA letter December 28, 1997
FCPB-15	GOLF COURSE PESTICIDE MIXING AREA	199709	Active site, not eligible for ER,A
FCPB-16	PCB STORAGE AREA(BLDG 893	199509	State letter (TDEC) August 29, 1995
FCPB-17	FORMER DS-2 STORAGE AREA	199703	State letter (TDEC) August 29, 1995
FCPB-18	SATELLITE ACCUMULATION AREAS	199808	Site mistakenly included in IRP - Unable to locate
FCPB-19	TEMPORARY OASIS RAPID REFUELING AREA	199909	Combined with FCPB-38
FCPB-20	SHOOTING RANGE 31	200309	State letter (KDEP) June 05, 2003
FCPB-21	SATELLITE WASTE OIL BUFFALOS	199709	State letter TDEC August 29, 1995 and KDEP December 28, 1994.
FCPB-22	WASTEWATER DRYING BEDS	199601	State letter (TDEC) March 05, 2002
FCPB-23	BATTERY MAINT FAC (NEAR FORMER BLDG 919)	199709	State letter (TDEC) May 29, 2001
FCPB-24	WASTEWATER SLUDGE DUMP - TN	200801	State letter (TDEC) January 25, 2008
FCPB-25	OBOD AREA	199512	Not eligible for ER,A because it was active after 1986. Funded under CC program.
FCPB-27	SANITARY LANDFILL #2	199709	Funded under FCPB-26
FCPB-28	SANITARY LANDFILL #3 (RANGE RD/25TH ST)	199709	Not ER,A eligible because no release occurred. Not funded.
FCPB-29	SANITARY LANDFILL #4 (25TH ST/RANGE RD)	199709	Funded under FCPB-26
FCPB-30	SANITARY LANDFILL#5(STATE LINE/RANGE RD)	199709	Permitted landfill, not ER,A eligible.
FCPB-31	CONSTRUCTION DEBRIS LANDFILL #6	199709	Not ER,A eligible because no release occurred. Not funded.
FCPB-32	CONSTRUCTION DEBRIS LANDFILL #7	199809	Not ER,A eligible, waste was placed after 1986. Funded under CC program.
FCPB-33	SANITARY LANDFILL #8 (C'VILLE BASE)	199709	Not ER,A eligible because no release occurred. Not funded.
FCPB-34	CONST DEBRIS LANDFILL #9	199809	Not ER,A eligible, waste was placed after 1986. Funded under CC program.
FCPB-35	OLD FIRE TRAINING AREA (CAAF)	200212	Combined with FCPB-38
FCPB-36	FIRE TRAINING AREA (CAAF)	199809	Combined with FCPB-38
FCPB-37	SANITARY LANDFILL # 11 (C'VILLE BASE)	199709	Site was closed in AEDB-R- incorporated in FCPB-26 for funding purposes. Not

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			ER,A eligible, funded under CC program.
FCPB-39	DIESEL SPILL	199809	Combined with FCPB-38
FCPB-40	801ST MOTOR POOL GRAVEL PITS(4 SITES)	200009	State letter (TDEC) July 14, 2000
FCPB-41	PX SERVICE STATION	199601	Not eligible for ER,A, funded under CC program.
FCPB-42	CVILLE BASE-WASTE BURIAL AREA	199709	State letter (TDEC) November 6, 1997
FCPB-44	CONSTRUCTION DEBRIS LANDFILL	199709	Combined with FCPB-26, moved out of ER,A
FCPB-45	SOIL INCINERATION AREA	199509	State letter (TDEC) November 6, 1997
FCPB-46	DEH PAINT SHED	199601	State letter (TDEC) November 6, 1997
FCPB-47	POST LAUNDRY (BLDG 860)	200309	State letter (TDEC) August 24, 2004
FCPB-49	BLIVET REPAIR AREA (BLDG 7820)- TN	200807	State letter (TDEC) July 21, 2008
FCPB-50	SABRE DRUM STORAGE AREA (BLDG 6636)	199601	State letter (TDEC) February 4, 2003
FCPB-51	CVILL BASE-FIRE TRAINING AREA	200309	Closed in IRP- LUCs are identified in the Installation Master Plan
FCPB-53	UST SOIL CLEANUP	200109	State letter (TDEC) March 20, 2001
FCPB-54	UST CONTAMINATION SOIL CLEANUP	199505	State letter (TDEC) June 13, 1997, April 10, 1997 and March 6, 1997, State letter (KDEP) June 27, 1997
FCPB-55	NUC STORAGE FAC (ABANDONED)	199709	State letter (TDEC) August 20, 1999
FCPB-56	REMOVE & INVESTIGATE HW OIL TANKS	199608	NFA in HSWA Permit
FCPB-57	DEMOLITION LANDFILL (JOE SWING POOL)	200209	Closed in IRP- LUCs are identified in the Installation Master Plan
FCPB-58	DEMOLITION AREA 18 - TN	201003	State Letter March 30, 2010
FCPB-59	OUTFALL C (FUEL PIT)	199808	Combined with FCPB-38
FCPB-60	OUTFALL H (TANK FARM)CAAF	199808	Combined with FCPB-38
FCPB-61	DRMO SCRAP & SALVAGE AREA	199607	NFA in Hazardous Solid Waste Amendment Permit
FCPB-62	CAAF ACID PITS	200309	State letter (KDEP) October 23, 2003
FCPB-63	ABANDONED WWTP (OLD C'VILLE BASE)	199909	State letter (TDEC) March 14, 2000
FCPB-64	LUBE RACKS - TN/KY	200805	Multiple letters from TDEC and KDEP. Final close out May 31, 2008.
PBC @ FCPB	PBC	201303	Site is an administrative site for tracking funding of multiple sites.

IRP Schedule

Date of IRP Inception: 198201

Past Phase Completion Milestones

1982

RFA (FCPB-38 - CAMPBELL ARMY AIRFIELD - KY)

1989

CS (FCPB-06 - SABRE HELIPORT DUMP SITE)

RFA (FCPB-06 - SABRE HELIPORT DUMP SITE)

1990

CS (FCPB-02 - WOODLAWN LANDFILL)

ISC (FCPB-56 - REMOVE & INVESTIGATE HW OIL TANKS)

RFA (FCPB-01 - WASTE OIL DUMPING AREA, FCPB-02 - WOODLAWN LANDFILL, FCPB-03 - CONSTRUCTION DEBRIS LANDFILL, FCPB-04 - JP4 SPILL (200 GALLON), FCPB-05 - BATTERY MAINTENANCE FACILITY(BLDG 6530), FCPB-07 - PESTICIDE MIXING & STORAGE FAC.- TN, FCPB-08 - ABANDONED WASTE OIL TANK, FCPB-09 - NBC FIRE TRAINING AREA- TN, FCPB-10 - OLD OB/OD AREA - TN, FCPB-14 - DPW PESTICIDE MIXING AREA, FCPB-15 - GOLF COURSE PESTICIDE MIXING AREA, FCPB-16 - PCB STORAGE AREA(BLDG 893, FCPB-17 - FORMER DS-2 STORAGE AREA, FCPB-18 - SATELLITE ACCUMULATION AREAS, FCPB-19 - TEMPORARY OASIS RAPID REFUELING AREA, FCPB-20 - SHOOTING RANGE 31 , FCPB-21 - SATELLITE WASTE OIL BUFFALOS, FCPB-22 - WASTEWATER DRYING BEDS, FCPB-23 - BATTERY MAINT FAC (NEAR FORMER BLDG 919), FCPB-24 - WASTEWATER SLUDGE DUMP - TN, FCPB-25 - OBOD AREA, FCPB-26 - SANITARY LANDFILLS 2 & 4 - TN, FCPB-27 - SANITARY LANDFILL #2, FCPB-28 - SANITARY LANDFILL #3 (RANGE RD/25TH ST), FCPB-29 - SANITARY LANDFILL #4 (25TH ST/RANGE RD), FCPB-30 - SANITARY LANDFILL#5(STATE LINE/RANGE RD), FCPB-31 - CONSTRUCTION DEBRIS LANDFILL #6, FCPB-32 - CONSTRUCTION DEBRIS LANDFILL #7, FCPB-33 - SANITARY LANDFILL #8 (C'VILLE BASE), FCPB-34 - CONST DEBRIS LANDFILL #9 , FCPB-35 - OLD FIRE TRAINING AREA (CAAF), FCPB-36 - FIRE TRAINING AREA (CAAF), FCPB-37 - SANITARY LANDFILL # 11 (C'VILLE BASE), FCPB-39 - DIESEL SPILL)

1991

RFA (FCPB-40 - 801ST MOTOR POOL GRAVEL PITS(4 SITES))

CS (FCPB-15 - GOLF COURSE PESTICIDE MIXING AREA, FCPB-40 - 801ST MOTOR POOL GRAVEL PITS(4 SITES))

1995

CS (FCPB-01 - WASTE OIL DUMPING AREA, FCPB-09 - NBC FIRE TRAINING AREA- TN, FCPB-10 - OLD OB/OD AREA - TN, FCPB-14 - DPW PESTICIDE MIXING AREA, FCPB-16 - PCB STORAGE AREA(BLDG 893, FCPB-17 - FORMER DS-2 STORAGE AREA, FCPB-20 - SHOOTING RANGE 31 , FCPB-21 - SATELLITE WASTE OIL BUFFALOS, FCPB-23 - BATTERY MAINT FAC (NEAR FORMER BLDG 919), FCPB-24 - WASTEWATER SLUDGE DUMP - TN, FCPB-26 - SANITARY LANDFILLS 2 & 4 - TN, FCPB-27 - SANITARY LANDFILL #2, FCPB-28 - SANITARY LANDFILL #3 (RANGE RD/25TH ST), FCPB-29 - SANITARY LANDFILL #4 (25TH ST/RANGE RD), FCPB-30 - SANITARY LANDFILL#5(STATE LINE/RANGE RD), FCPB-31 - CONSTRUCTION DEBRIS LANDFILL #6, FCPB-32 - CONSTRUCTION DEBRIS LANDFILL #7, FCPB-33 - SANITARY LANDFILL #8 (C'VILLE BASE), FCPB-34 - CONST DEBRIS LANDFILL #9 , FCPB-35 - OLD FIRE TRAINING AREA (CAAF), FCPB-36 - FIRE TRAINING AREA (CAAF), FCPB-37 - SANITARY LANDFILL # 11 (C'VILLE BASE), FCPB-54 - UST CONTAMINATION SOIL CLEANUP)

RFA (FCPB-42 - CVILLE BASE-WASTE BURIAL AREA, FCPB-45 - SOIL INCINERATION AREA, FCPB-46 - DEH PAINT SHED, FCPB-54 - UST CONTAMINATION SOIL CLEANUP)

1996

ISC (FCPB-53 - UST SOIL CLEANUP)

IRA (FCPB-30 - SANITARY LANDFILL#5(STATE LINE/RANGE RD), FCPB-35 - OLD FIRE TRAINING AREA (CAAF))

RFI/CMS (FCPB-36 - FIRE TRAINING AREA (CAAF))

RFA (FCPB-41 - PX SERVICE STATION, FCPB-43 - CHROMIUM PLATING SHOP - TN, FCPB-44 - CONSTRUCTION DEBRIS LANDFILL, FCPB-47 - POST LAUNDRY (BLDG 860), FCPB-48 - OLD SKEET RANGE - TN, FCPB-49 - BLIVET REPAIR AREA (BLDG 7820)- TN, FCPB-50 - SABRE DRUM STORAGE AREA (BLDG 6636), FCPB-51 - CVILL BASE-FIRE TRAINING AREA, FCPB-52 - OIL PITS - TN/KY, FCPB-

IRP Schedule

CS	55 - NUC STORAGE FAC (ABANDONED), FCPB-57 - DEMOLITION LANDFILL (JOE SWING POOL), FCPB-58 - DEMOLITION AREA 18 - TN, FCPB-59 - OUTFALL C (FUEL PIT), FCPB-60 - OUTFALL H (TANK FARM)CAAF, FCPB-61 - DRMO SCRAP & SALVAGE AREA, FCPB-62 - CAAF ACID PITS) (FCPB-03 - CONSTRUCTION DEBRIS LANDFILL, FCPB-05 - BATTERY MAINTENANCE FACILITY(BLDG 6530), FCPB-07 - PESTICIDE MIXING & STORAGE FAC.- TN, FCPB-19 - TEMPORARY OASIS RAPID REFUELING AREA, FCPB-22 - WASTEWATER DRYING BEDS, FCPB-25 - OBOD AREA, FCPB-39 - DIESEL SPILL , FCPB-50 - SABRE DRUM STORAGE AREA (BLDG 6636))
CMI(C)	(FCPB-36 - FIRE TRAINING AREA (CAAF))
1997	
IRA	(FCPB-10 - OLD OB/OD AREA - TN)
RFA	(FCPB-63 - ABANDONED WWTP (OLD C'VILLE BASE))
CS	(FCPB-04 - JP4 SPILL (200 GALLON), FCPB-18 - SATELLITE ACCUMULATION AREAS, FCPB-38 - CAMPBELL ARMY AIRFIELD - KY, FCPB-42 - CVILLE BASE-WASTE BURIAL AREA, FCPB-43 - CHROMIUM PLATING SHOP - TN, FCPB-44 - CONSTRUCTION DEBRIS LANDFILL, FCPB-47 - POST LAUNDRY (BLDG 860), FCPB-48 - OLD SKEET RANGE - TN, FCPB-49 - BLIVET REPAIR AREA (BLDG 7820)- TN, FCPB-51 - CVILL BASE-FIRE TRAINING AREA, FCPB-52 - OIL PITS - TN/KY, FCPB-55 - NUC STORAGE FAC (ABANDONED), FCPB-57 - DEMOLITION LANDFILL (JOE SWING POOL), FCPB-58 - DEMOLITION AREA 18 - TN, FCPB-59 - OUTFALL C (FUEL PIT), FCPB-60 - OUTFALL H (TANK FARM)CAAF, FCPB-62 - CAAF ACID PITS, FCPB-63 - ABANDONED WWTP (OLD C'VILLE BASE))
INV	(FCPB-53 - UST SOIL CLEANUP)
LTM	(FCPB-27 - SANITARY LANDFILL #2, FCPB-28 - SANITARY LANDFILL #3 (RANGE RD/25TH ST), FCPB-29 - SANITARY LANDFILL #4 (25TH ST/RANGE RD), FCPB-30 - SANITARY LANDFILL#5(STATE LINE/RANGE RD), FCPB-31 - CONSTRUCTION DEBRIS LANDFILL #6, FCPB-33 - SANITARY LANDFILL #8 (C'VILLE BASE), FCPB-37 - SANITARY LANDFILL # 11 (C'VILLE BASE), FCPB-44 - CONSTRUCTION DEBRIS LANDFILL)
RFI/CMS	(FCPB-09 - NBC FIRE TRAINING AREA- TN, FCPB-15 - GOLF COURSE PESTICIDE MIXING AREA, FCPB-17 - FORMER DS-2 STORAGE AREA, FCPB-21 - SATELLITE WASTE OIL BUFFALOS, FCPB-23 - BATTERY MAINT FAC (NEAR FORMER BLDG 919), FCPB-27 - SANITARY LANDFILL #2, FCPB-28 - SANITARY LANDFILL #3 (RANGE RD/25TH ST), FCPB-29 - SANITARY LANDFILL #4 (25TH ST/RANGE RD), FCPB-30 - SANITARY LANDFILL#5(STATE LINE/RANGE RD), FCPB-31 - CONSTRUCTION DEBRIS LANDFILL #6, FCPB-33 - SANITARY LANDFILL #8 (C'VILLE BASE), FCPB-37 - SANITARY LANDFILL # 11 (C'VILLE BASE))
1998	
RFI/CMS	(FCPB-03 - CONSTRUCTION DEBRIS LANDFILL, FCPB-04 - JP4 SPILL (200 GALLON), FCPB-18 - SATELLITE ACCUMULATION AREAS, FCPB-32 - CONSTRUCTION DEBRIS LANDFILL #7, FCPB-34 - CONST DEBRIS LANDFILL #9 , FCPB-59 - OUTFALL C (FUEL PIT), FCPB-60 - OUTFALL H (TANK FARM)CAAF)
LTM	(FCPB-32 - CONSTRUCTION DEBRIS LANDFILL #7, FCPB-34 - CONST DEBRIS LANDFILL #9 , FCPB-36 - FIRE TRAINING AREA (CAAF))
1999	
RFI/CMS	(FCPB-63 - ABANDONED WWTP (OLD C'VILLE BASE))
2000	
LTM	(FCPB-03 - CONSTRUCTION DEBRIS LANDFILL)
RFA	(FCPB-64 - LUBE RACKS - TN/KY, FCPB-65 - FORMER SKEET RANGES - TN, PBC @ FCPB - PBC)
RFI/CMS	(FCPB-07 - PESTICIDE MIXING & STORAGE FAC.- TN, FCPB-40 - 801ST MOTOR POOL GRAVEL PITS(4 SITES))
2001	
CAP	(FCPB-53 - UST SOIL CLEANUP)
CS	(FCPB-64 - LUBE RACKS - TN/KY, FCPB-65 - FORMER SKEET RANGES - TN)
IRA	(FCPB-48 - OLD SKEET RANGE - TN, FCPB-49 - BLIVET REPAIR AREA (BLDG 7820)- TN)

IRP Schedule

RFI/CMS	(FCPB-48 - OLD SKEET RANGE - TN, FCPB-58 - DEMOLITION AREA 18 - TN)
2002	
RFI/CMS	(FCPB-20 - SHOOTING RANGE 31 , FCPB-26 - SANITARY LANDFILLS 2 & 4 - TN, FCPB-57 - DEMOLITION LANDFILL (JOE SWING POOL))
CMI(C)	(FCPB-09 - NBC FIRE TRAINING AREA- TN)
2003	
LTM	(FCPB-47 - POST LAUNDRY (BLDG 860))
RFI/CMS	(FCPB-35 - OLD FIRE TRAINING AREA (CAAF), FCPB-49 - BLIVET REPAIR AREA (BLDG 7820)- TN, FCPB-51 - CVILL BASE-FIRE TRAINING AREA, FCPB-62 - CAAF ACID PITS)
IRA	(FCPB-26 - SANITARY LANDFILLS 2 & 4 - TN)
CMI(C)	(FCPB-49 - BLIVET REPAIR AREA (BLDG 7820)- TN)
2004	
IRA	(FCPB-07 - PESTICIDE MIXING & STORAGE FAC.- TN)
2006	
RFI/CMS	(FCPB-24 - WASTEWATER SLUDGE DUMP - TN)
2007	
CMI(C)	(FCPB-65 - FORMER SKEET RANGES - TN)
RFI/CMS	(FCPB-10 - OLD OB/OD AREA - TN, FCPB-65 - FORMER SKEET RANGES - TN)
2008	
LTM	(FCPB-24 - WASTEWATER SLUDGE DUMP - TN)
CMI(O)	(FCPB-49 - BLIVET REPAIR AREA (BLDG 7820)- TN, FCPB-64 - LUBE RACKS - TN/KY)
CMI(C)	(FCPB-10 - OLD OB/OD AREA - TN, FCPB-64 - LUBE RACKS - TN/KY)
IRA	(FCPB-64 - LUBE RACKS - TN/KY)
RFI/CMS	(FCPB-43 - CHROMIUM PLATING SHOP - TN, FCPB-64 - LUBE RACKS - TN/KY)
2009	
IRA	(FCPB-38 - CAMPBELL ARMY AIRFIELD - KY, FCPB-52 - OIL PITS - TN/KY, PBC @ FCPB - PBC)
CMI(C)	(FCPB-38 - CAMPBELL ARMY AIRFIELD - KY, FCPB-43 - CHROMIUM PLATING SHOP - TN, FCPB-52 - OIL PITS - TN/KY, PBC @ FCPB - PBC)
RFI/CMS	(FCPB-38 - CAMPBELL ARMY AIRFIELD - KY, FCPB-52 - OIL PITS - TN/KY, PBC @ FCPB - PBC)
2010	
CMI(O)	(FCPB-10 - OLD OB/OD AREA - TN)
LTM	(FCPB-07 - PESTICIDE MIXING & STORAGE FAC.- TN, FCPB-58 - DEMOLITION AREA 18 - TN)
2013	
CMI(O)	(PBC @ FCPB - 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
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IRP Schedule

Final RA(C) Completion Date: 200909

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of IRP at Installation (including LTM phase): 204509

FORT CAMPBELL IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-09	NBC FIRE TRAINING AREA- TN	CMI(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-26	SANITARY LANDFILLS 2 & 4 - TN	LTM						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-38	CAMPBELL ARMY AIRFIELD - KY	CMI(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-43	CHROMIUM PLATING SHOP - TN	CMI(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-48	OLD SKEET RANGE - TN	LTM						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-52	OIL PITS - TN/KY	CMI(O)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-65	FORMER SKEET RANGES - TN	LTM						

FORT CAMPBELL
Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 10/9

Installation Site Types with Future and/or Underway Phases

1 Unexploded Munitions/Ordnance
(FCPB-008-R-01)

Most Widespread Contaminants of Concern

Munitions and explosives of concern (MEC)

Media of Concern

Soil

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

Site ID	Site Name	Action	Remedy	FY
FCPB-008-R-02	Warrior Adventure Course	IRA	UXO CLEARANCE	2014

Duration of MMRP

Date of MMRP Inception 200304

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201711/201711

Date of MMRP completion including Long Term Management (LTM): 201711

MMRP Contamination Assessment

Contamination Assessment Overview

In November 2003, the Phase 3 Army range inventory was completed at Fort Campbell. The inventory identified seven sites as eligible for the Military Munitions Response Program (MMRP). The Phase 3 inventory serves as the PA under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

The historical records review was completed in January 2008. The SI was completed in September 2008. According to the SI, FCPB-001-R-01, FCPB-004-R-01, and FCPB-005-R-01 require NFA because no MEC or munitions constituents were identified. Sites FCPB-002-R-01 and FCPB-007-R-01 are ineligible for the MMRP because they have already been remediated. Sites FCPB-003-R-01 and FCPB-006-R-01 were recommended for additional characterization for MEC during the RI/FS phase.

In December 2009, a PBC contract for the MMRP was awarded for conducting an RI at FCPB-003-R-01 and FCPB-006-R-01. Both sites FCPB-003-R-01 and FCPB-006-R-01 were granted NFA status based on the results of the RI.

For site FCPB-008-R-01, a white phosphorus (WP) rifle grenade was found in 2011 at the Morale Welfare and Recreation (MWR) Obstacle Course on Fort Campbell. Local Explosive Ordnance Disposal (EOD) was contacted. EOD detonated the WP grenade and performed a surface sweep of the area. The surface sweep produced one additional item close to the initial find: a fin assembly, presumably from this same rocket propelled grenade. From Sept. 13 to 17, 2011, a crew with the US Army Engineering and Support Center performed a non-intrusive geophysical survey on the site to identify subsurface anomalies that may be related to WP rifle grenades and/or other potential ordnance. The results of this survey recommended 252 individual anomalies and three polygons to be investigated by digging. Currently, Fort Campbell has listed the site as off limits and is preventing access by means of a perimeter fence. PIKA Pirnie Joint Venture LLC was contracted to further remedial activities under the MMRP, specifically to complete an expanded site inspection (ESI) in FY13. The report recommended further investigation of areas outside the footprint of the Rope Course and an NFA for the footprint of the Rope Course.

Cleanup Exit Strategy

The ESI report recommended further investigation of areas outside the footprint of the Rope Course and an NFA for the footprint of the Rope Course.

MMRP Previous Studies

Year	Title	Author	Date
1990	Interim RCRA Facility Assessment	A. T. Kearney Inc.	AUG-1990
1992	Confirmatory Sampling Plan for Sites at Fort Campbell	Metcalf and Eddy Inc.	JUN-1992
	US Army Environmental Center, RCRA Facility Investigation	Metcalf and Eddy Inc.	JUN-1992
1997	Hydrologic Report RCRA SWMU Assessment and RCRA Facility Investigation of Sites at Fort Campbell	A. D. Little	MAY-1997
	Final SWMU Assessment Report Vol. 1-3	A. D. Little	JUN-1997
2000	Final RCRA RFI/CS at SWMUs 138, 159, and 164	A. D. Little	JAN-2000
	Data Summary for Phase II RFI of SWMU 138	STEP	FEB-2000
2001	Year End Summary Report of the 2000 Quarterly Groundwater Sampling Results, Fort Campbell, KY	STEP	APR-2001
	Final Data Summary for Phase III RCRA RFI of SWMU 138, Fort Campbell, KY	STEP	AUG-2001
	Final Corrective Measures Study for SWMU 138	STEP	NOV-2001
2002	RCRA Facility Investigation Report, Vol. 1-16	A. D. Little	JAN-2002
	Year End Summary Report of the 2001 Quarterly Groundwater Sampling Results, Fort Campbell, KY	STEP	SEP-2002
2003	Final Corrective Measures Study for SWMU 138, PX Service Station	STEP	MAY-2003
	Year End Quarterly Summary Report of the 2002 Quarterly Groundwater Sampling Results, Fort Campbell, KY	STEP	MAY-2003
	Closed, Transferring and Transferred Range Inventory Report	E2M	OCT-2003
2004	Final Completion Report for the Removal of Fuel Oil Tanks, Hammond Heights and Campbell Army Airfield Residential Areas, Fort Campbell, KY (Vol. 1-8)	STEP	FEB-2004
	Year End Summary Report of the 2003 Quarterly Groundwater Sampling Results, Fort Campbell, KY	STEP	OCT-2004
2005	Year End Summary Report of the 2004 Quarterly Groundwater Sampling Results, Fort Campbell, KY	Nashville COE	MAR-2005
	Final Addendum 2D to the Generic Work Plan for Service Bay Confirmatory Sampling and Plug and Abandonment of Three Wells at SWMU 138 Post Exchange Service Station Fort Campbell, KY	STEP	AUG-2005
	Final Completion Report for Removal of Cantonment Area Heating Oil Tanks FY 05, Fort Campbell, KY	STEP	AUG-2005
2006			

MMRP Previous Studies

Year	Title	Author	Date
2006	2002 Spring Chemistry Report	ICF Consultants	MAR-2006
	Year End Summary Report for Groundwater Sampling Results FY 2005	BHATE	AUG-2006
	Groundwater and Spring Monitoring Program Optimization Study Report	BHATE	AUG-2006
	Final Data Summary Service Bay Confirmation Sampling and Plug and Abandon Three Wells at SWMU 138, Post Exchange Service Station	STEP	OCT-2006
	Final Data Summary RCRA Investigation of Twelve Lube Rack Sites and Remediation of One Lube Rack Site, KY Sites	STEP	OCT-2006
	Final Data Summary RCRA Investigation of Twelve Lube Rack Sites, TN Sites	STEP	NOV-2006
2007	Year End Summary Report for Groundwater Sampling Results FY 2005	BHATE	AUG-2007
	Draft Data Summary for RFI of Two Lubrication Racks (SWMUs 170J and 170K)	STEP	NOV-2007
2008	Final Historical Records Review	E2M	JAN-2008
	Final Site Inspection	E2M	SEP-2008
2014	Final Expanded Site Inspection Report Military Munitions and Response Program Expanded Site Inspection for the Morale, Welfare and Recreation Obstacle Course Fort Campbell Hopkinsville, Kentucky-Clarksville, Tennessee	Pika-Pirnie JV, LLC	APR-2014

FORT CAMPBELL
Military Munitions Response Program
Site Descriptions

Site ID: FCPB-008-R-01
Site Name: Warrior Venture Quest
Alias: FCPB-008

STATUS

Regulatory Driver: CERCLA
MRSPP Score: Evaluation pending
Contaminants of Concern: White Phosphorous
Media of Concern: Soil

Phases	Start	End
PA.....	201103.....	201103
SI.....	201103.....	201401
RI/FS.....	201401.....	201711
RIP Date:	N/A	
RC Date:	201711	

SITE DESCRIPTION

FCPB-008-R-01 is an MMRP site. A WP rifle grenade was found in 2011 at the Morale Welfare and Recreation (MWR) Obstacle Course on Fort Campbell. Local EOD was contacted. The EOD detonated the WP grenade and performed a surface sweep of the area. The surface sweep produced one additional item close to the initial find: a fin assembly, presumably from this same rocket propelled grenade. From Sept. 13 to 17, 2011 a crew with the US Army Engineering and Support Center performed a non-intrusive geophysical survey on the site to identify subsurface anomalies that may be related to WP rifle grenades and/or other potential ordnance. The results of this survey recommended 252 individual anomalies and three polygons to be investigated by digging. Currently, Fort Campbell has listed the site as off limits and is preventing access by means of a perimeter fence. Funds were requested to perform a site inspection in 2012. PIKA Pirnie Joint Venture LLC was contracted to further remedial activities under the MMRP, specifically to complete an expanded site inspection in FY13. The report recommended further investigation of areas outside the footprint of the Rope Course an NFA for the footprint of the course.

In FY14 a new contract was awarded to complete RI/FS with options for PP and ROD through November 2017.

CLEANUP/EXIT STRATEGY

An additional SI is required before an exit strategy can be determined.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FCPB-001-R-01	18TH STREET CONFIDENCE COURSE	200809	NFA based on the September 2008 Final Site Inspection, e2M
FCPB-002-R-01	LUCAS ELEMENTARY SCHOOL DMM SITE	200809	NFA based on the September 2008 Final Site Inspection, e2M
FCPB-003-R-01	MORTAR RANGE 6/11	201304	State Letter April 30, 2013
FCPB-004-R-01	RANGE 28	200809	NFA based on the September 2008 Final Site Inspection, e2M
FCPB-005-R-01	RANGE 42	200809	NFA based on the September 2008 Final Site Inspection, e2M
FCPB-006-R-01	TRAINING AREA 1 & 1A	201304	State Letter April 30, 2013
FCPB-007-R-01	WERNER PARK HOUSING AREA DMM SITE	200809	NFA based on the September 2008 Final Site Inspection, e2M
FCPB-008-R-02	Warrior Adventure Course	201403	
PBC@MR FCPB	PBA	201303	This is an administrative site for tracking funds.

MMRP Schedule

Date of MMRP Inception 200304

Past Phase Completion Milestones

2004

PA (FCPB-001-R-01 - 18TH STREET CONFIDENCE COURSE, FCPB-002-R-01 - LUCAS ELEMENTARY SCHOOL DMM SITE, FCPB-003-R-01 - MORTAR RANGE 6/11, FCPB-004-R-01 - RANGE 28, FCPB-005-R-01 - RANGE 42, FCPB-006-R-01 - TRAINING AREA 1 & 1A, FCPB-007-R-01 - WERNER PARK HOUSING AREA DMM SITE)

2008

PA (PBC@MR FCPB - PBA)

SI (FCPB-001-R-01 - 18TH STREET CONFIDENCE COURSE, FCPB-002-R-01 - LUCAS ELEMENTARY SCHOOL DMM SITE, FCPB-003-R-01 - MORTAR RANGE 6/11, FCPB-004-R-01 - RANGE 28, FCPB-005-R-01 - RANGE 42, FCPB-006-R-01 - TRAINING AREA 1 & 1A, FCPB-007-R-01 - WERNER PARK HOUSING AREA DMM SITE, PBC@MR FCPB - PBA)

2011

PA (FCPB-008-R-01 - Warrior Venture Quest, FCPB-008-R-02 - Warrior Adventure Course)

2013

RI/FS (FCPB-003-R-01 - MORTAR RANGE 6/11, FCPB-006-R-01 - TRAINING AREA 1 & 1A, PBC@MR FCPB - PBA)

2014

SI (FCPB-008-R-01 - Warrior Venture Quest, FCPB-008-R-02 - Warrior Adventure Course)

IRA (FCPB-008-R-02 - Warrior Adventure Course)

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
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Final RA(C) Completion Date:

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of MMRP at Installation (including LTM phase): 201711

FORT CAMPBELL MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
FCPB-008-R-01	Warrior Venture Quest	RI/FS						

FORT CAMPBELL
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 6/4

Installation Site Types with Future and/or Underway Phases

2 Soil Contamination After Tank Removal
(CCA FTC Ng, CCA FTC-Na)

Most Widespread Contaminants of Concern

Polycyclic Aromatic Hydrocarbons (PAH), Volatiles (VOC)

Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY
CCS FTC170	Lube Racks Active post 1986 KY	IRA	WASTE REMOVAL - SOILS	2006
CCSFTC172	SWMU 172 K 2515 K	IRA	BIOREMEDIATION - IN SITU	2007
CCS FTC170	Lube Racks Active post 1986 KY	FRA	REMOVAL	2010

Duration of CR

Date of CR Inception: 199001

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201709/201709

Date of CR completion including Long Term Management (LTM): 204509

CR Contamination Assessment

Contamination Assessment Overview

Environmental restoration activities include the IRP and 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 Munitions Response (MR) program have been migrated from Army Environmental Database-compliance-related cleanup (AEDB-CC) and given the naming convention of other 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

The residual contamination at the remaining 59 sites will remain in place. LUCs will be required indefinitely. The 59 sites are as follows:

7103A 3002A 3002G 3003A 3003C 3003G 3004A 3004C 3005A 3005C 3005G 3006A 3006C 3006E 3007A 3010A 3010E 3011E 3012A 3013G 3016B 3016D 3016E 3017A 3017E 3018C 3019A 3020A 3020C 3022A 3022E 3022G 3024A 3024E 3025C 3026A 3027A 3027G 3028C 3029G 3030A 3030C 3030E 3031G 3033B 3034A 3034E 3035B 3035D 3035F 3035H 3037D 3037H 3038D 3039D 3039F 3042F 3043H 3045D.

The contaminants remaining which exceed KDEP tank closure requirements are listed below with their respective KDEP cleanup level in ppb.

acenaphthene (3,000)
acenaphthylene (3,000)
anthracene (3,000)
benzo(a)anthracene (150)
benzo(b)fluoranthene (300)
benzo(k)fluoranthene (300)
benzo(g,h,i)perylene (3,000)
benzo(a)pyrene (300)
dibenzo(a,h)anthracene (300)
fluoranthene (3,000)
fluorene (3,000)
indeno(1,2,3)pyrene (300)
naphthalene (1,000)
phenanthrene (3,000)
pyrene (3,000)

The soil was impacted. No off-site migration is occurring. The legal driver is the RCRA corrective action permit.

CR Previous Studies

Title

Author

Date

There are no Previous Studies

FORT CAMPBELL
Compliance Restoration
Site Descriptions

Site ID: CCA FTC Ng

Site Name: Contaminated Tank Removal Site 2996-01

Alias: 2996-01

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Polycyclic Aromatic Hydrocarbons (PAH)

Media of Concern: Soil

Phases	Start	End
RFA.....	200402.....	200501
CS.....	200502.....	200508
RFI/CMS.....	200610.....	200702
CMI(C).....	201509.....	201609

RIP Date: N/A

RC Date: 201709

SITE DESCRIPTION

Building 2996 is in an area designated for troop housing. The building had an 8,000-gallon UST fuel oil tank to supply heating oil for the building.

An 8,000-gallon fuel oil tank was removed from the site on Feb. 25, 2005. Approximately 100 cubic yards of soil were removed during the UST removal project. The tanks served boilers located in building 2996. The COCs were:

- benzo(a) anthracene (5,800 ppb)
- benzo(b)fluoranthene (5,500 ppb)
- benzo(k)fluoranthene (4,600 ppb)
- benzo(a)pyrene (6,000 ppb)
- chrysene (6,400 ppb)
- dibenzo(ah)anthracene (1,100 ppb)
- ideno(1,2,3-cd)pyrene (5,000 ppb)

The cancer risk was calculated using the USEPA Region IX PRG guidance in excess of 10(-4). The West Wall soil sample was the worst. The East Wall and trench for the line removal were also contaminated above USEPA Region IX PRGs. Chillers serving the building were in the way of over-excavation of the contaminated soil. The soil should be over-excavated when the buildings are demolished and the chillers are gone.

CLEANUP/EXIT STRATEGY

Corrective measures (soil removal) is planned for FY16 or whenever the building is removed.

Site ID: CCA FTC-Na
Site Name: Fuel Oil Tank Contamination KY
Alias: AOC Na

STATUS

Regulatory Driver: RCRA
 Contaminants of Concern: Polycyclic Aromatic Hydrocarbons (PAH)
 Media of Concern: Soil

Phases	Start	End
RFA.....	200309.....	200409
CS.....	200310.....	200409
RFI/CMS.....	200610.....	200909
LTM.....	200910.....	204509

RIP Date: N/A
RC Date: 200909

SITE DESCRIPTION

The fuel oil tanks at Hammond Heights residential areas were located very close to each building near the residence entrance. The UST held fuel oil used for heating and have been out of service since the 1970s. In 2003, Solutions to Environmental Problems, Inc. (STEP, Inc.) conducted a UST removal project at Hammond Heights as part of a facility modernization project. During this time contamination was discovered due to overfilling and leaking tanks. The project consisted of the removal of 156 USTs from the Hammond Heights buildings. The tanks were removed and over-excavated to the extent possible. The constraints were the utilities and the foundations of the housing. The state of Kentucky accepted the remedy of institutional/LUCs for the soil beneath the residence until the buildings are removed, or natural attenuation occurs.

A periodic review of all Fort Campbell sites was completed in FY12. Administrative LUCs for multiple sites in AEDB-R are tracked under this site.

CLEANUP/EXIT STRATEGY

LUCs will remain in place at CCA FTC Ng until the buildings are removed, or natural attenuation occurs (30 years; FY16-FY45). The next two review periods will be conducted in FY17 and FY22.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CCS FTC138	KY Car Care Center SWMU 138	200912	State letter: December 9, 2009.
CCS FTC170	Lube Racks Active post 1986 KY	200910	Multiple sites tracked by this site. Last state letter May 29, 2008.
CCS-FTC-172S	Fuel Oil Contamination	201306	State Letter: June 13, 2013.
CCSFTC172K	SWMU 172 K 2515	201007	State Letter, July 12, 2010.

CR Schedule

Date of CR Inception: 199001

Past Phase Completion Milestones

1990

RFA (CCS FTC138 - KY Car Care Center SWMU 138)

1997

CS (CCS FTC138 - KY Car Care Center SWMU 138)

2001

RFA (CCS FTC170 - Lube Racks Active post 1986 KY)

2004

RFA (CCA FTC-Na - Fuel Oil Tank Contamination KY)

CS (CCA FTC-Na - Fuel Oil Tank Contamination KY)

2005

RFA (CCA FTC Ng - Contaminated Tank Removal Site 2996-01 , CCSFTC172K - SWMU 172 K 2515)

CS (CCA FTC Ng - Contaminated Tank Removal Site 2996-01 , CCS FTC170 - Lube Racks Active post 1986 KY)

2006

IRA (CCS FTC170 - Lube Racks Active post 1986 KY)

CS (CCSFTC172K - SWMU 172 K 2515)

2007

RFI/CMS (CCA FTC Ng - Contaminated Tank Removal Site 2996-01)

IRA (CCSFTC172K - SWMU 172 K 2515)

2009

RFI/CMS (CCA FTC-Na - Fuel Oil Tank Contamination KY, CCS FTC170 - Lube Racks Active post 1986 KY)

2010

RFI/CMS (CCS FTC138 - KY Car Care Center SWMU 138, CCSFTC172K - SWMU 172 K 2515)

RFA (CCS-FTC-172S - Fuel Oil Contamination)

CMI(C) (CCS FTC170 - Lube Racks Active post 1986 KY)

2013

RFI/CMS (CCS-FTC-172S - Fuel Oil Contamination)

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
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Final RA(C) Completion Date: 201609

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of CR at Installation (including LTM phase): 204509

FORT CAMPBELL CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
CCA FTC Ng	Contaminated Tank Removal Site 2996-01	CMI(C)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
CCA FTC-Na	Fuel Oil Tank Contamination KY	LTM						

Community Involvement

Technical Review Committee (TRC): 198605

Community Involvement Plan (Date Published): 201206

Restoration Advisory Board (RAB): RAB established 199608

RAB Adjournment Date: N/A

RAB Adjournment Reason: None

Additional Community Involvement Information

In November 1995, Fort Campbell solicited members of the surrounding community who might be interested in participating in a RAB. Tennessee and Kentucky residents were encouraged to attend a RAB orientation meeting held in February 1996 in Clarksville, Tennessee. Adjacent landowners, local environmental groups, local college professors, mayors and other officials, members of the local chambers of commerce, and select individuals recommended to the environmental division were invited to the orientation meeting by direct mail. Newspaper advertisements, television announcements and flyers in community libraries were also used to announce the formation of Fort Campbell's RAB.

After the orientation meeting was held, interested community members were asked to complete an application, a biographical information form and a demographic information form. After these forms were reviewed the environmental division decided to seek more members of the community to diversify the group of applicants. Solicitation efforts were made through the equal employment opportunity office on Fort Campbell, an Earth Day program in Clarksville, school principals in the four counties of Fort Campbell, and through town officials from areas where there was no representation in the current group of RAB applications. In May 1996 a second orientation meeting was held in Hopkinsville, KY.

All RAB members annually receive an updated handbook which includes general RAB and membership information, as well as a description of all the restoration sites. The RAB received training through presentations on risk assessment, karst geology, a general overview of the Army environmental restoration program, and regulatory agencies, funding information, RCRA and CERCLA terminology, an IAP overview, and groundwater characterization. They have also been briefed on Fort Campbell's high priority sites, the 23 sites listed in the RFI and the 12 sites listed in the 1996 RFA.

The RAB continues to review and provide questions and comments on the continued investigation and remediation phases of IRP sites. Representatives of the RAB are invited to participate in the annual IAP meeting. Several times during the year, the RAB visits those installation SWMUs under investigation/remediation.

Over the next year, the members will be closely involved in the progress of work at CAAF. As documents are produced, they will be asked to review them and provide feedback. They will also continue to weigh risk factors of groundwater contamination against cost benefits of site restoration and remediation. The last RAB meeting was held on July 8, 2014.

Administrative Record is located at

5134 Wickham Avenue,
Fort Campbell, KY 42223
(270) 798-9768

Information Repository is located at

Hopkinsville-Christian County Library
1101 Bethel Street
Hopkinsville, KY 42240
(270) 887-4263

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

TAPP Title: N/A

Potential TAPP: N/A

