FY2006

FORT RILEY
KANSAS
INSTALLATION ACTION PLAN

Installation Restoration Program

November 28, 2005

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Restoration Program (IRP) for the Fort Riley Military Reservation (Fort Riley). The plan defines IRP Program requirements and presents a comprehensive approach and associated costs to conduct future investigations and remedial actions at each IRP site.

The Fort Riley IAP was completed to coordinate planning between the IRP managers, the U.S. Army Environmental Center (AEC), the executing agencies, the regulatory agencies, and the public. The IAP is used to track requirements, schedules, and budgets.

All site-specific funding and schedule information in the plan was prepared according to projected overall Army funding levels and is therefore subject to change. Project schedules are re-negotiated annually based on available resources or as needed due to project requirements. Under current project funding and regulatory schedules, Fort Riley will have all remedies for high priority sites in place by FY07 (ahead of Defense Program Guidance goals).

The following persons contributed to the formulation and completion of this Installation Action Plan at the IAP Workshop held April 27 & 28, 2005:

Walt Aucott	U.S. Geological Survey
Andrea Austin	Fort Riley
Bryant Burnett	U. S. Environmental Protection Agency, Region VII
Larry Denver	Restoration Advisory Board Community Co-Chairman
Robin Paul	U.S. Environmental Protection Agency, Region VII
Craig Phillips	Fort Riley
Pete Rissell	U.S. Army Environmental Center
Dick Shields	Fort Riley
John Shimp	Fort Riley
Rick Van Saun	U.S. Army Corps of Engineers, Kansas City District
Rob Weber	Kansas Department of Health and Environment
Rochelle Olivieri	EEI, contractor for AEC
Jim Ayers	EEI, contractor for AEC

Approval/Concurrence

Fort Riley
FY06 Installation Action Plan
Installation Restoration Program

APPROVAL

Thomas T. Smith 23 NOV 05

Thomas T. Smith **DATE**
Colonel
Garrison Commander

for [illegible] 11/28/05

B. Craig Phillips **DATE**
Remedial Program Manager
Fort Riley

CONCURRENCE

12/30/05

James D. Daniel **DATE**
Chief, Cleanup Division
U.S. Army Environmental Center

for Kenneth S Wiggins 5 Jan 06

Robert A. Snyder **DATE**
Chief, Oversight North Branch
U.S. Army Environmental Center

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Acronyms & Abbreviations

AEC	U. S. Army Environmental Center
AEDB-R	Army Environmental Database - Restoration
AGL	Abandoned Gasoline Line
AST	Aboveground Storage Tank
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DRMO	Defense Reutilization and Marketing Office
DS/GS	Former Direct Support/General Support
EPA	United States Environmental Protection Agency
ER, A	Environmental Restoration, Army
ESI	Expanded Site Investigation
FFA	Federal Facility Agreement
FS	Feasibility Study
FY	Fiscal Year
HRS	Hazard Ranking Score
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
KRBCA	Kansas Risk-Based Corrective Action
KDHE	Kansas Department of Health and Environment
KDWP	Kansas Department of Wildlife and Parks
LTM	Long-Term Maintenance
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
NFRAP	No Further Remedial Action Planned
OB/OD	Open Burning/Open Detonation
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbons
PCE	Perchloroethylene or Tetrachloroethylene
POL	Petroleum, Oil, and Lubricants
PP	Proposed Plan
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RI	Remedial Investigation

Acronyms & Abbreviations

RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Investigation
SVOC	Semi-Volatile Organic Compounds
TCE	Trichloroethylene
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

Installation Information

INSTALLATION LOCALE: Fort Riley is located on 100,656 acres of land in portions of Clay, Geary, and Riley Counties in northeast Kansas. Interstate 70, Junction City (population 20,000), and Ogden (population 1,600) bound the installation to the south. Manhattan (population 38,000) is east of Fort Riley. Milford Lake (16,020 acres) bounds part of the western side of the installation.

INSTALLATION MISSION: The 24th Infantry Division (Mech) and Fort Riley provide training, readiness, and deployment support for two Brigade Combat Teams, one Engineer Group, and other Corps forces; serve as higher headquarters providing training/readiness oversight, pre- and post-mobilization training, and mobilization validation for three enhanced Separate Brigades; provide planning, mobilization, validation, and demobilization for Active Component and Reserve Component units; and provide a safe, secure environment and exemplary well-being for soldiers, their families, and civilians.

COMMAND ORGANIZATION:
COMMAND: Installation Management Agency – Northwest Region, Assistant Chief of Staff for Installation Management
INSTALLATION: Fort Riley Military Reservation

EXECUTING AGENCIES:
U.S. Army Corps of Engineers, Kansas City District
U.S. Geological Survey

REGULATOR PARTICIPATION:
FEDERAL: U.S. Environmental Protection Agency, Region VII (Federal Facilities/Special Emphasis Branch)
STATE: Kansas Department of Health and Environment (Bureaus of Environmental Remediation and Environmental Field Services)

NPL STATUS:
NPL Installation (entire installation), 1990, CERCLIS Site KS6214020756
CERCLA/RCRA Federal Facility Agreement, Effective June 1991
RCRA Part B Permit, 1998

No Notices of Violations have been issued for any of Fort Riley's IRP sites. However, a stipulated penalty was assessed for missing a deadline on a primary document. It was negotiated down and paid in FY97.

RAB STATUS:
The Fort Riley RAB meets quarterly. A newsletter is published prior to each RAB meeting.

PROGRAM SUMMARIES:

IRP
Contaminants of Concern: Chlorinated solvents, pesticides, petroleum hydrocarbons, metals, explosives, and perchlorate
Media of Concern: Ground water, soil, and surface water
Estimated date for RIP/RC: 2008
Funding to Date (FY00-FY05): $16,639,079
CTC (FY06-FY15+): $12,474,000

MMRP
Contaminants of Concern: MC and MEC
Media of Concern: Soil
Estimated date for RIP/RC: 2016
Funding to Date (FY05): $285,675
CTC (FY06-FY15+): $2,209,000

BRAC
There are no BRAC sites at Fort Riley

Cleanup Program Summary

HISTORIC ACTIVITY: See the Schedule section starting on page 34

CURRENT ACTIVITY:

ROD for FTRI-019

RAP for FTRI-019

ROD for FTRI-031

Pilot Study for FTRI-027

PROGRAM PROGRESS:

IRP: Fort Riley plans to have all RODs for the Operable Units (OUs) in place by 1st Quarter FY08.

As a result of a 2004 Pilot Study using potassium permanganate at FTRI-031, 354 Area Solvent Detections Area, the most likely technology to be utilized at that site will be monitored natural attenuation (MNA).

As a result of new data at FTRI-027, Dry Cleaning Facilities Area, a Pilot Study will be conducted in 2005 and the most likely technologies used will be soil excavation, chemical oxidation, and MNA.

Based on negotiations between Fort Riley, the EPA and the KDHE, a group of about 50 sites will be evaluated to determine if they can receive regulatory close out with limited sampling and analysis.

MMRP: Fort Riley has generated a work plan, sampled two existing sites, and will generate a report.

BRAC: There are no BRAC sites at Fort Riley.

Regulatory Status:
The installation was listed on the National Priorities List (NPL) in 1990 and placed on the NPL with a Hazard Ranking Score of 33.8. A Federal Facility Agreement (FFA) was signed by the United States Environmental Protection Agency (EPA) Region VII, the Kansas Department of Health and Environment (KDHE), and the Army and became effective 28 February 1991. The FFA requires the installation address all significant environmental releases under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

In the Status boxes in the IRP Sites Description section, the yellow highlighting indicates that the phase is active.

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FORT RILEY

INSTALLATION RESTORATION PROGRAM

IRP Summary

STATUS: Fort Riley was placed on the National Priorities List in 1990.

AEDB-R SITES/SITES RC: 72/61

AEDB-R SITE TYPES:

3 Fire/Crash Training Areas
2 Contaminated Ground water
1 Disposal Pit/Dry Well
1 Firing Range
4 Incinerators
1 POL Lines
4 Storage Areas
2 Small Arms Range
4 Sewage Treatment Plants
17 Underground Tank Farms
1 Unexploded Munitions/Ordnance Area
1 Soil Contamination after Tank Removal
1 Contaminated Building
1 Surface Disposal Area
1 Dip Tank
1 Industrial Discharge
7 Landfills
2 Pesticide Shops
2 Surface Impoundments/Lagoons
11 Spill Site Areas
4 Above Ground Storage Tanks
1 Explosive Ordnance Disposal Area

CONTAMINANTS OF CONCERN: Chlorinated Solvents, Pesticides, Petroleum Hydrocarbons, Metals, Explosives, and Perchlorate

MEDIA OF CONCERN: Ground Water, Soil, and Surface Water

TOTAL ER, A FUNDING:

Prior Year (FY00-FY05)	$16,639,079
Current (FY06):	$2,241,202
Future (FY07-FY11):	$5,626,000

DURATION OF IRP:

Year of IRP Inception:	1980
Year of RA Completion:	2008
Year of IRP Completion:	2027

IRP Contamination Assessment

The Army initially began environmental restoration-related investigations as a result of the 1981 closure of the Southwest Funston Landfill where monitoring indicated ground-water contamination.

Five IRP sites have been designated as Operable Units (OUs). The five OUs are: FTRI-003 Southwest Funston Landfill (SFL), FTRI-030 Pesticide Storage Facility (PSF), FTRI-027 Dry Cleaning Facilities Area (DCFA), FTRI-019 Former Fire Training Area-Marshall Army Airfield (FFTA-MAAF), and FTRI-031 354 Area Solvent Detections site (354). These sites have been identified as sites with contamination due to past operational activities resulting in spills and releases to the environment. The primary contaminants of concern are chlorinated solvents and pesticides.

The Southwest Funston Landfill was operated from the mid-1950s through 1981. Post-closure monitoring and Remedial Investigation (RI)/Feasibility Study (FS) sampling efforts detected contaminants such as chlorinated solvents, petroleum hydrocarbons, and metals in the ground water at low levels. The Record of Decision (ROD) was signed August 6, 1997. Institutional controls and long-term monitoring have been implemented. As a result of contamination still being present above Maximum Contaminant Levels (MCLs), five-year reviews will be conducted per the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Prior to 1994, the Pesticide Storage Facility had pesticides stored and mixed. Pesticides were released to the environment through past operational and disposal practices. Contamination by pesticide and arsenic was the primary concern. A ROD for No Further Action for this site was completed in FY97. As residual contamination is still most likely present, five-year reviews will be conducted per the NCP.

The Dry Cleaning Facilities Area (DCFA) has two sites with soil and ground-water contamination from dry cleaning operations using perchloroethylene/tetrachloroethylene (PCE). Dry cleaning occurred at Building 180/181 (demolished in 2000) and Building 183 (demolished in 2002). There is minimal contamination at Building 183. The eastern ground-water plume originates at Building 180/181 with two hotspots - one east of the building centered on a sewer manhole and one at the southwest corner of the building. A utility trench appears to be the conduit for transporting PCE to the west, with the western ground-water plume centered on well DCF02-42. Both plumes move off the terrace into the alluvium and are negatively impacting Kansas River water quality.

The Former Fire Training Area Marshall Army Airfield (FFTA-MAAF) site has contamination that resulted from past operational practices. There were petroleum hydrocarbons and PCE present on and off post in the soil and ground water. Private wells in the area are affected by the ground-water contamination plume and are being monitored. Two alternative wells were drilled to replace the impacted private wells. They were drilled outside the boundaries of the ground-water contamination plume. The ROD is at the EPA, Region VII for signature.

CLEANUP EXIT STRATEGY:

Exit Strategy from the National Priorities List (NPL) for Fort Riley

The principal objectives of the Fort Riley IRP are to protect human health and the environment while working toward the ultimate goal of delisting the installation from the NPL. Some of the sites will not reach unlimited use/unrestricted access but they will be continuously monitored and under the installation's control. The installation's Real Property Master Plan will preclude their utilization for unacceptable land uses. In order to accomplish these objectives, it has been determined that the efforts delineated in the following list are essential and must be achieved.

1. Complete OU 004 (FTRI-019), and OU 005 (FTRI-031) through ROD by 4th quarter FY07.

2. Implement the alternatives selected in the Proposed Plans (PP) for each OU and begin long-term monitoring.

3. Perform the 5-Year Review requirements as required under the CERCLA for all sites that are at RC/RIP and have hazardous substances left in place. This includes, but is not limited to: FTRI-001, 003, 009, 019, 027, 030, 031, and 038.

4. Generate the Multi-Sites Extended Site Investigation (ESI) to address 49 sites that were improperly placed in RC/RIP categories. These sites will then reach site closure with regulatory concurrence per the FFA that addressed both CERCLA and RCRA. This includes the following sites: FTRI-002, 004, 005, 006, 007, 008, 010, 011, 012, 013, 014, 015, 016, 017, 018, 020, 022, 023, 024, 025, 026, 028, 029, 036, 037, 039, 040, 041, 043, 045, 047, 048, 049, 050, 051, 052, 055, 057, 059, 060, 064, 065, 067, 069, 070, 071, 072, and 073. FTRI-044 Former Asphalt Plant (near Bldg 354) and FTRI-061 Former Gas Service Station Bldg 354 were addressed under OU 005 and should not need further work.

5. Complete delineation and free-product recovery efforts on the Petroleum, Oil, and Lubricants (POL)/Underground Storage Tank (UST) sites (FTRI-063, 066, and 068) that contain free product that could pose a danger to down-gradient water supplies. Sites FTRI-054, FTRI-057, and FTRI-062 require close out. FTRI-057 and FTRI-062 currently are not believed to contain free product and FTRI-054 had small amounts of POL released into a fractured bedrock zone that will preclude any possible recovery if it is still extant. They will require additional sampling to confirm.

6. Complete an investigation of site FTRI-074. This is WWI Incinerator, NW Camp Funston that underwent a limited x-ray fluorescence analysis that found high levels of metals in the soil around the incinerator. The report was only in draft form and then the site was placed in Remedy in Place/Response Complete (RIP/RC) without regulatory concurrence or further sampling and analysis.

7. The Open Burning/Open Detonation (OB/OD) (FTRI-009) has perchlorate and Trichloroethylene (TCE) contamination and will require further monitoring and sampling to determine if there is any potential for human health or environmental impacts. This site will remain active for training and emergency disposal of Unexploded Ordnance (UXO) per a letter from the KDHE.

8. The POL Tank Farm (FTRI-053) will require further recovery effort for the existing free product. There may be a requirement to install another monitoring well to determine if there is any down-gradient contamination. No 'clean line' has been established in the ground water. This site is now under the Compliance-Relate Cleanup program.

9. The Abandoned Gas Line (AGL) (FTRI-056) will require a removal action and an EE/CA is being developed. Once the EE/CA has undergone public comment, an action memorandum will be generated. A work plan will be developed to perform the removal action and then the removal action will be completed.

10. There are four sites that will likely remain active throughout the installation's active existence. FTRI-032 is the Impact Zone, FTRI-033 is the Douthit Range, FTRI-034 is the Impact Area Small Arms Ranges, and FTRI-035 is the Non-Impact Area Small Arms Ranges.

11. There are three sites that will require additional consideration. FTRI-042 addresses TAC Vehicles Maintenance Shops and deals with about 71 buildings that have USTs, gas stations, grease racks, sumps, and other potential contamination sources and little was done to analyze possible contamination. This site underwent historical records searches but no sampling records of any kind could be found. FTRI-046 is the Former Direct Support/General Support (DS/GS) – Bldg 1693 and Adjacent Areas. Two pits were capped with concrete but contain very high levels of metals and POL contamination. These contaminations exist in alluvial materials of the Kansas River just above the ground-water level and pose a potential contamination source for down-gradient well fields. FTRI-059 is composed of many USTs that were removed but further research is needed to determine if they received clean closure from the appropriate regulatory agencies.

12. FTRI-038 is the Forsyth Landfill(s). There is an on-going requirement for maintenance and upkeep of the river-bank stabilization structure and inspection of the Republican River for UXO that was washed from the former landfills prior to the bank stabilization project.

Previous Studies

Title	Author	Date
Southwest Funston Landfill (OU 001)		
Long-Term Monitoring Report 2004	Environmental Chemical Corp	3/25/2005
Dry Cleaning Facilities (OU 003)		
Draft Final Feasibility Study Addendum	Burns & McDonnell	3/4/2005
Former Fire Training Area-Marshall Army Airfield (OU 002)		
Draft Final Record of Decision	Burns & McDonnell	2/10/2005
354 Area Solvent Detection Site (OU 005)		
Draft Final Work Plan Addendum Pilot Study for Soil Remediation	Burns & McDonnell	9/23/2004
Draft Final Soil-Gas Work Plan Addendum	Burns & McDonnell	9/24/2004
Draft Final Feasibility Study Report 354	Burns & McDonnell	12/20/2004
Soil-Gas Investigation Report 354 Area Solvent Detections	Burns & McDonnell	2/17/2005
Custer Hill Sanitary Landfill		
Final Additional Bedrock Monitoring Well Installation Report	Corps of Engineers - KC District	12/22/2004
Petroleum/Underground Storage Tanks		
Annual Report for Long-Term Monitoring of Groundwater March 2004 Sampling Event	Environmental Chemical Corp	12/29/2004
OB/OD Ground (Range 16)		
Draft Final Site Investigation Report Addendum for the Open Burn/Open Detonation Area Fort Riley, Kansas	Louis Berger & Associates	8/6/1998
Draft Final Site-Specific Field Sampling Plan for Groundwater, Spring, and Seep Sampling for the Open Burning/Open Detonation Area at Fort Riley, Kansas	Burns & McDonnell	3/3/2004
Technical Memorandum for Open Burning/Open Detonation Ground (Range 16) at Fort Riley, Kansas	Burns & McDonnell	10/11/2004
Abandoned Gas Line		
Site Investigation Report AGL Terminus Area	McKinzie	9/29/2004

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FORT RILEY

IRP SITE DESCRIPTIONS

FTRI-003
SOUTHWEST FUNSTON LANDFILL (OU 001)

SITE DESCRIPTION

The Southwest Funston Landfill site is located in the southern portion of Fort Riley, adjacent to the southwest corner of the Camp Funston cantonment area. This is an approximately 120 acre landfill that was closed in 1983.

There are detections of vinyl chloride in the ground water (above MCLs), but the site does not present a risk to human health and the environment under current conditions. The ROD has a contingency for future action. Long-Term Maintenance (LTM) efforts include repair of the native soil cover with an annual inspection, use of institutional controls to prevent on-site ground-water use, and performance of long-term, semi-annual, ground-water monitoring.

The first 5-Year Review Report was completed in July 2002; no changes in the remedy were needed.

STATUS

Regulatory: CERCLA

RRSE: High

CONTAMINANTS:
VOCs, (vinyl chloride)

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	198312	198412
SI	198706	198909
RI/FS	199101	199603
IRA	199312	199708
RD	199510	199603
RA(C)	199601	199709
LTM	199709	202609

RC: 199709

CLEANUP STRATEGY

Ground-water monitoring will continue on a semi-annual basis.

Prescribed burns will be performed every three years to enhance the native grass evapotranspirative cover.

Annual inspections and periodic repair of the bank stabilization and/or cover will be conducted.

Unnecessary monitoring wells will be removed.

Five-Year Review Reports will be required.

FTRI-009
OB/OD GROUND (RANGE 16)

SITE DESCRIPTION

The Open Burning/Open Detonation Ground (Range 16) is used for emergency ordnance disposal and training. Historical practices included use of chlorinated solvents in an open burn area. This practice was discontinued in the early 1980s. In 1993, TCE was detected in the ground water.

The complex hydrogeology made further characterization necessary. The ephemeral streams were sampled and the results were non-detect for contaminants of concern.

An Ecological Risk Screening Evaluation was performed and found low risk to ecological receptors.

STATUS

Regulatory: CERCLA

RRSE: Medium

CONTAMINANTS:
VOCs, Perchlorate, Metals

MEDIA OF CONCERN:
Soil, Ground water, Surface water

PHASES	Start	End
PA	198312	198412
SI	199111	199809
RI/FS	199303	200409
LTM	200410	201009

RC: 200410

The ground-water sampling event conducted in April 2004 demonstrated the presence of perchlorate.

CLEANUP STRATEGY

Ground-water and surface-water monitoring will continue on a semi-annual basis.

The installation of no more than two new monitoring wells and the decommissioning of all nested piezometers will occur.

A decision will be made on site requirements to address the perchlorate, metals, and chlorinated solvent contamination after evaluation of the data from two to three years.

FTRI-019
FORMER FIRE TRAINING AREA – MARSHALL ARMY AIRFIELD (OU 004)

SITE DESCRIPTION

The Former Fire Training Area – Marshall Army Airfield (FFTA-MAAF) site consists of a former fire training area and drum storage area located at Marshall Army Airfield near the installation boundary. The former fire training area consisted of an unlined pit filled with crushed stone. The fire training area operated from the mid 1960s to 1984. A drum of PCE was accidentally released into the fire training pit in 1982. Efforts were made to recover the spilled material; however, only a portion was recovered.

In the 1990s, it was determined that there was off-post ground-water contamination above the MCLs based on the analysis of samples taken from private wells. The impacted private wells have been replaced by new wells drilled outside the ground-water contamination plume.

In 1995, a Pilot Study, using soil vapor extraction and bioventing, successfully treated the contaminated soil source.

STATUS

Regulatory: CERCLA

RRSE: High

CONTAMINANTS:
VOCs

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	198707	198909
SI	199111	199305
RI/FS	199303	200409
IRA	199411	200210
RD	200506	200602
RA(C)	200603	200608
RA(O)	200604	200909
LTM	200909	201909

RC: 200909

Currently, all ground-water contaminant concentrations are below their respective MCLs.

The ROD is currently under review for signature at the EPA, Region 7. The anticipated remedy is MNA, coupled with Institutional Controls.

The first Five-Year Review was completed in July 2002.

CLEANUP STRATEGY

Annual ground-water sampling will continue for at least 3 years after the ROD is signed.

Five-Year Review Reports will be required.

A decision will be made during the 2007 five-year review on whether it is appropriate to discontinue sampling and amend the ROD.

FTRI-022
FORMER WWTP & SLUDGE BEDS CAMP FUNSTON (ANCHOR)

SITE DESCRIPTION

FRTI-022 is the anchor site for the following Wastewater Treatment Plant (WWTP) sites: FTRI-020, -023, -024, -025, and -026. The anchor site is a result of the lack of a regulator-approved document officially closing out these listed sites. The listed sites are a subset of the 49 potentially contaminated sites being investigated under the Multi-Sites ESI. The intention is to take the data that exists in the Installation-Wide Site Assessment (IWSA), other Site Investigations (SIs), and/or long-term monitoring reports and compare it to a new round of confirmatory sampling. After the analyses are complete, a determination of eligibility to close under a No Further Remedial Action Planned (NFRAP) designation will be made.

STATUS

Regulatory: CERCLA

RRSE: Not Evaluated
CONTAMINANTS: Metals, Petroleum Hydrocarbons, VOCs
MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
PA	198706	198909
SI	198706	198909

RC: 199305

If any site exceeds regulatory standards, it will be addressed under a separate action.

FTRI-022 is the Former WWTP & Sludge Beds – Camp Funston consisting of the site of the demolished plant (demolished in 1988-89).

CLEANUP STRATEGY

Ground-water and soil sampling will be conducted to confirm the status found in the Installation-Wide Site Assessment and specific SIs in order to achieve regulatory site closure.

FTRI-027
DRY CLEANING FACILITIES AREA (OU 003)

SITE DESCRIPTION

The former Dry Cleaning Facilities Area (DCFA) is located in the southwest corner of the Main Post cantonment area, about 800 feet north of the Kansas River. The DCFA operated until 2002. The primary dry cleaning solvent was PCE. Chlorinated solvent contamination above regulatory standards was found in soil and ground water.

The baseline risk assessment indicates minimal risk associated with the site under current and anticipated land use. A decision with regulator concurrence was made to conduct a pilot study to determine the best available technology (ies) to remediate the site.

The first Five-Year Review was completed in July 2002.

STATUS

Regulatory: CERCLA

RRSE: Medium

CONTAMINANTS:
VOCs

MEDIA OF CONCERN:
Ground water, Soil

PHASES	Start	End
PA	198312	198412
SI	198706	198909
RI/FS	199106	200706
IRA	199406	199502
RD	200707	200708
RA(C)	200709	200804
RA(O)	200805	201706
LTM	201708	203209

RC: 201706

CLEANUP STRATEGY

Ground-water monitoring will continue on an annual basis.

Implement the Pilot Study.

Implement the Remedial Action.

Five-Year Review Reports will be required.

FTRI-030
PESTICIDE STORAGE FACILITY (MIXING) (OU 002)

SITE DESCRIPTION

It has been determined that prior to the mid 1970s, pesticide wastewaters and inadvertent spills that occurred when mixing pesticides were allowed to run onto the ground in the equipment-washing area behind the facility. Sampling conducted in 1983-1984 detected pesticide contamination in the soil and in sediments in the lined channel behind the building.

In 1994, a Removal Action to excavate pesticide-contaminated soil was conducted.

A No Further Action ROD was signed in September 1997. This decision was based on continued industrial land use and was annotated in the installation master plan for consideration if land-use changes.

The first 5-Year Review Report was completed in July 2002; no changes in the remedy were needed.

STATUS

Regulatory: CERCLA

RRSE: Low

CONTAMINANTS:
Pesticides, PAHs, Arsenic

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
PA	198312	198412
SI	198706	198909
RI/FS	199106	199709
IRA	199312	199406
LTM	200201	202209

RC: 199709

CLEANUP STRATEGY

Ground-water monitoring will be conducted in order to produce the Five-Year Review Report.

Five-Year Review Reports will be required.

FTRI-031
354 AREA SOLVENT DETECTIONS (OU 005)

SITE DESCRIPTION

Fuel and solvent storage/dispensing occurred near building 354 in the Public Works (PW) yard. USTs were used to store fuel and removed in 1990/91. There are no existing records to determine if solvents were stored in drums, USTs, or above-ground storage tanks (ASTs). PCE, its degradation products, carbon tetrachloride, and fuels-related petroleum hydrocarbons are present. The site extends from just north of building 430 (Main Post Fire Station) to the "point bar" on the north bank of the Kansas River. At building 430, the only contaminant is carbon tetrachloride.

In 2004, a Pilot Study, using potassium permanganate and soil excavation, successfully treated the PCE contaminated soil source.

Currently, PCE and its degradation products are detected above MCLs in ground-water samples collected from monitoring wells.

The first Five-Year Review was completed in July 2002.

STATUS

Regulatory: CERCLA

RRSE: High

CONTAMINANTS:
VOCs, Fuels, Arsenic

MEDIA OF CONCERN:
Ground water, Soil

PHASES	Start	End
PA	199111	199305
SI	199312	199507
RI/FS	199609	200606
RA(C)	200701	200702
RA(O)	200701	201109
LTM	201110	202703

RC: 201110

CLEANUP STRATEGY

Ground-water sampling will be performed annually until the ROD is signed and, thereafter, as required.

Five-Year Review Reports will be required.

FTRI-036
SOUTHEAST FUNSTON LANDFILL (ANCHOR)

SITE DESCRIPTION

FTRI-036 is the anchor site for these sites: FTRI-036, -004, -011, -029, -037, and -052. The anchor site is a result of the lack of a regulator-approved document officially closing out these listed sites. The listed sites are a subset of the 49 potentially contaminated sites being investigated under the Multi-Sites ESI. The intention is to take the data that exists in the IWSA, other SIs, and/or long-term monitoring reports and compare it to a new round of confirmatory sampling. After the analyses are complete, a determination of eligibility to close under a NFRAP designation will be made.

If any site exceeds regulatory standards, it will be addressed under a separate action.

STATUS

Regulatory: CERCLA

RRSE: Medium

CONTAMINANTS:
VOCs, SVOCs, Metals

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
PA	198312	198909
SI	199111	199305
RI/FS	199307	200609
IRA	199901	200212
LTM	200610	202302

RC: 200610

FTRI-036 is the Southeast Funston Landfill (SEFL). The SEFL is a former municipal solid waste landfill that occupied approximately 50 acres in the southeast portion of the installation. The SEFL was divided into east and west areas by the construction of highway K-18 in the 1970s. The west area is approximately 15 acres. The east portion was excessed to the State of Kansas.

FTRI-029 is the SEFL incinerator area in the east portion of the SEFL. The landfill and incinerator were operated into the mid-1950s. Ground-water sampling and analysis conducted since 1995 have not shown ground-water contamination. In 1999, the soil containing lead concentrations greater than the industrial risk level of 1,000 mg/kg was removed from the incinerator site and was placed in the SEFL.

FTRI-004 is the Main Post Landfill north of the Kansas River and south of Marshall Avenue. This site was used for the disposal of refuse during the post-WWII era. The site is covered with well-established vegetation and contamination of surface soil covering the landfill is not expected. Results from ground-water sampling indicated volatile organic compounds (VOCs) and arsenic contamination above MCLs.

FTRI-011 is the Camp Funston Area Groundwater. This site will be dropped and viable wells associated with it will be dispersed to other sites.

FTRI-037 is the Old Whitside Incinerator, located one-quarter mile southwest of the First Capitol of Kansas just north of the Kansas River. This medical incinerator was used for Camp Whitside from WWI to perhaps 1955. Very little information is available regarding historical operations of the incinerator. The area is wooded with many mature trees. A public nature walk exists along the river and is adjacent to the incinerator on the north side. Soil sample results indicated arsenic, barium, cadmium, chromium, silver, and lead were present below regulatory standards. One shallow soil sample down slope from the incinerator had an elevated level of lead at 550 mg/kg.

FTRI-052 is the Inactive Landfills-Camp Whitside. Very little is known about this site from existing documents, but is composed of two small debris landfills placed in a ravine.

CLEANUP STRATEGY

Ground-water and soil sampling will be conducted to confirm the status found in the Installation-Wide Site Assessment and specific SIs in order to achieve regulatory site closure.

FTRI-038
FORSYTH LANDFILL(S)

SITE DESCRIPTION

The Forsyth Landfill(s) consists of five separate areas. One area can be observed in aerial photos as early as 1936. There were no identified contaminants in either soil or ground water in four of the five sites. In Area 2, as a result of the 1993 flood, landfill debris was exposed in the bank of the Republican River as observed from the riverbed.

In 1998, UXO eroded out of the landfill, was found on a sandbar adjacent to Area 2.

In 2000 and 2001, a rock revetment was built to prevent further erosion.

In May 2002, Fort Riley posted a series of warning signs between the Riverbank Stabilization Area and the nature trail to notify the public of the site conditions.

STATUS

Regulatory: CERCLA

RRSE: Medium

CONTAMINANTS:
Metals, Explosives

MEDIA OF CONCERN:
Soil, Surface Water

PHASES	Start	End
PA	198312	198909
SI	199111	199305
RI/FS	199403	200104
IRA	199805	200109
LTM	200201	201506

RC: 200109

CLEANUP STRATEGY

Conduct LTM of river-bank stabilization as required.

FTRI-040
FORMER OIL TESTING LAB (BLDG 1022) (ANCHOR)

SITE DESCRIPTION

FTRI-040 is the anchor site for the combined fuel, metals, solvent, and pesticides related sites: FTRI-040, -013, -016, -017, -028, -041, and -051. The anchor site is a result of the lack of a regulator-approved document officially closing out these listed sites. The listed sites are a subset of the 49 potentially contaminated sites being investigated under the Multi-Sites ESI. The intention is to take the data that exists in the IWSA, other SIs, and/or long-term monitoring reports and compare it to a new round of confirmatory sampling. After the analyses are complete, a determination of eligibility to close under a NFRAP designation will be made.

STATUS

Regulatory: CERCLA

RRSE: Not Evaluated

CONTAMINANTS:
VOCs, TPH- DRO, Metals, Pesticides

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
RFA	199111	199305

RC: 199305

If any site exceeds regulatory standards, it will be addressed under a separate action.

FTRI-040 is the Former Oil Testing Lab (Bldg 1022) and consists of a building that was utilized for oil testing and storage of small quantities of various pesticides. There were no reported releases or any evidence of releases.

FTRI-013 was the Abandoned VOC Tanks North of Irwin Army Community Hospital and consists of two ASTs that held various VOCs. They are no longer present.

FTRI-016 was the Waste Oil AST for 3rd Battery and consists of a pod on the hardstand. The aboveground storage tank (AST) was a pod that was emptied and no evidence of contamination exists.

FTRI-017 was the Waste Oil AST for 4th Battery and consists of a pod on the hardstand. The pod was emptied and no evidence of contamination exists.

FTRI-028 was the Former Fire Training Area – Camp Funston and consists of an area where practice fires were set and extinguished.

FTRI-041 was the Furniture Repair Shops (3) and consists of three separate buildings where paint strippers containing VOCs were used. No evidence was found to indicate contamination.

FTRI-051 was the Bldg 727 Waste Pit and consists of grease rack pit that contained petroleum hydrocarbons. The material was removed and the area covered by a concrete floor.

FTRI-040
FORMER OIL TESTING LAB (BLDG 1022) (ANCHOR), *continued*

CLEANUP STRATEGY

Ground-water and soil sampling will be conducted to confirm the status found in the Installation-Wide Site Assessment and specific SIs in order to achieve regulatory site closure.

FTRI-047
FORMER LIVESTOCK DIPPING FACILITY (ANCHOR)

SITE DESCRIPTION

FTRI-040 is the anchor site for the following pesticide/PCB sites: FTRI-047, -010, and -048. The anchor site is a result of the lack of a regulator-approved document officially closing out these listed sites. The listed sites are a subset of the 49 potentially contaminated sites being investigated under the Multi-Sites ESI. The intention is to take the data that exists in the IWSA, other SIs, and/or long-term monitoring reports and compare it to a new round of confirmatory sampling. After the analyses are complete, a determination of eligibility to close under a NFRAP designation will be made.

If any site exceeds regulatory standards, it will be addressed under a separate action.

STATUS

Regulatory: CERCLA

RRSE: Low

CONTAMINANTS:
Pesticides, Mercury, Lead

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
RFA	199111	199305
CS	199111	199305
RI/CMS	199403	199504

RC: 199507

FTRI-047 is the Former Livestock Dipping Facility and consists of dipping tanks and other functional areas to treat livestock with possibly DDT, methylarsonic acid, and lead arsenate.

FTRI-010 is the Pesticide (2,4D) UST – Camp Funston and consists of an underground storage tank at a former service station that was utilized to store pesticide for a short period of time prior to the tank's removal.

FTRI-048 is the Former Pesticides Facility and consists of a temporary wooden structure at the golf course used to store mostly dry, granular, ready-to-use formulations of various pesticides and fertilizers.

CLEANUP STRATEGY

Ground-water and soil sampling will be conducted to confirm the status found in the Installation-Wide Site Assessment and specific SIs in order to achieve regulatory site closure.

FTRI-056
ABANDONED GASOLINE LINE

SITE DESCRIPTION

The AGL site consists of an abandoned 1.1-mile steel pipeline and the Terminus Area where three underground storage tanks (25,000 gallons each) were formerly located. The USTs where various fuels were stored were removed in 1987.

There is soil and ground-water contamination of fuel-related hydrocarbons at the terminus area above regulatory standards.

CLEANUP STRATEGY

Execute the Removal Action outlined in the EE/CA.

Conduct ground-water monitoring as required.

STATUS

Regulatory: CERCLA/RCRA

RRSE: Medium

CONTAMINANTS:
BTEX, VOCs (historical)

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
ISC	199111	199409
INV	199408	199603
CAP	199803	200612

RC: 200612

FTRI-057
6200 AREA FUEL OIL LINE (ANCHOR)

SITE DESCRIPTION

FTRI-057 is the anchor site for the following combined fuel-related sites: FTRI-054, -043, -057, -062, -063, -064, -065, -066, -067, -068, -069, -070, -071, -072, and -073. The anchor site is a result of the lack of a regulator-approved document officially closing out these listed sites. The listed sites are a subset of the 49 potentially contaminated sites being investigated under the Multi-Sites ESI. The intention is to take the data that exists in the IWSA, other SIs, and/or long-term monitoring reports and compare it to a new round of confirmatory sampling for the majority of the sites. After the analyses are complete, a determination of eligibility to close under a NFRAP designation will be made.

If any site exceeds regulatory standards, it will be addressed under a separate action.

STATUS

Regulatory: CERCLA

RRSE: Low

CONTAMINANTS:
VOCs, Fuel

MEDIA OF CONCERN:
Soil, Surface Water

PHASES	Start	End
ISC	199010	199110
INV	199110	199709
CAP	199606	200706
IRA	199601	201009

RC: 199709

Five sites (FTRI-054, -062, -063, -066, -068) will be addressed using Kansas Risk-Based Corrective Action (KRBCA) protocols in cooperation with the KDHE Bureau of Environmental Field Services, Salina Office.

FTRI-057 is the 6200 Area Fuel Oil Line site that consists of a former heating oil dispensing system. There were two USTs and a pump house that serviced 100 housing units. Heating oil was released within the tank hold and along piping trenches, which also held the water lines and other utilities serving the housing units. In 1996, the USTs, associated piping, and contaminated soil was removed.

FTRI-054 is the Custer Hill PX USTs Bldg 5320 site. This site was closed and soil contamination below KDHE action levels was documented during the tank removal. In 1997, the KDHE placed the site in "on hold" status for closure pending additional ground-water data to support "closure". Ground-water sampling results indicate BTEX above regulatory standards

FTRI-043 is the Former Gas Station Garages that consists of several abandoned and former gasoline dispensing stations. They may have had abandoned underground storage tanks. There is soil contaminated with fuels or chlorinated solvents.

FTRI-062 is the TMP Gas Station, Building 388 and consists of a former UST area located on Main Post. The site is currently an active dispensing station serving Main Post. Two 12,000-gallon

capacity fiberglass underground storage tanks were used to store diesel and unleaded gasoline. They were replaced with ASTs in April 1998. Ground-water sampling results indicate BTEX is no longer present above regulatory standards and no free product remains.

FTRI-063 is the Former Bldg 1044 Dispensing Station and consists of a former fuel dispensing station on the west side of Camp Funston with five 12,000-gallon steel USTs installed in 1942. The tanks were removed in July 1990 along with some of the associated underground piping. Contaminated soil encountered during the removal was excavated and treated. Subsequent investigations indicate free-product contamination of the ground water.

FTRI-064 is the Former Bldg 1090 Dispensing Station and consists of a former UST area located in Camp Funston with two 5,250-gallon steel USTs installed in 1942. They were used to store fuels. The tanks were removed in August 1990, but the underground piping remains in place. Subsequent sampling indicates there is no fuel-related contamination above regulatory standards or free product at the site.

FTRI-065 is the Former Bldg 1190 Dispensing Station and consists of a former UST area located in Camp Funston with two 5,250-gallon steel USTs installed in 1942. They were used to store fuels. The tanks were removed in August 1990. The underground piping remains in place. Subsequent sampling indicates there is no fuel-related contamination above regulatory standards or free product at the site.

FTRI-066 is the Former Bldg 1245 Dispensing Station and consists of a former UST area located in Camp Funston with five 12,000-gallon steel USTs installed in 1942. The tanks were partially above ground and were used to store fuels. The tanks were removed in July 1990 along with some of the associated underground piping. There is measurable free-product contamination of the ground water.

FTRI-067 is the Former Bldg 1539 Dispensing Station and consists of a former UST area in Camp Funston with four 12,000-gallon steel USTs installed in 1942 and used to store fuels. The tanks were removed in August 1990. Approximately 500 feet of underground piping remain in place. Subsequent sampling indicates there is no fuel-related contamination above regulatory standards or free product at the site.

FTRI-068 is the Former Bldg 1637 Dispensing Station and consists of a former UST area located in Camp Funston with seven 12,000 gallon steel USTs. The tanks were installed in 1942 and were used into the 1980s. They originally contained diesel, but prior to removal in 1990, they stored used oil. Approximately 7,200 feet of underground piping may remain in place. There is measurable free-product contamination of the ground water.

FTRI-069 is the Former Bldg 1890 Dispensing Station. The site is a former UST tank farm with four 12,000-gallon underground steel tanks installed in 1942 and used store diesel, leaded gasoline, and unleaded gasoline. The tanks were removed in August 1990. Approximately 1,000 feet of

underground product piping from valve boxes to the pump house and to 10 suction dispensers was not removed. A sheen was observed on the ground water in 1994. No free product was measured.

FTRI-070 is the Former Bldg 2341 Dispensing Station. The site is located in Camp Forsyth with two 5,300-gallon underground storage tanks installed in 1942 and used to store gasoline and diesel. The tanks were removed in May 1990. Subsequent assessment of the site indicated petroleum hydrocarbon constituents in the soil below KDHE standards. The benzene concentration in the ground water exceeded the MCL and no free product was measured.

FTRI-071 is the Former Bldg 2345 Dispensing Station with two 12,000-gallon steel underground storage tanks installed in 1942 and used to store gasoline and diesel. Leaks were discovered during the tank excavations and product line removals in December 1990. Subsequent investigation indicated petroleum hydrocarbon constituents below KDHE standards adjacent to the former tank pits and in and around the piping trenches.

FTRI-072 is the Bldg 8340 Fuel Oil UST. Two fuel oil tanks were installed at the site in 1978. One tank is a 1,000-gallon fiberglass tank currently used to store used oil. The other tank was a 20,000-gallon fiberglass tank used to supply fuel oil to heat Bldg 8340. This tank was discovered to be leaking and was excavated in February 1991 and pavement, backfill, and supply and return lines from the tank were removed in March 1991. The site contained only a very minor area of total petroleum hydrocarbons (TPH) above the KDHE standard. Ground-water analyses of samples were below KDHE standards during field investigations in 1993 and 1994.

FTRI-073 is the Bldg 8360 Fuel Oil UST. Two 10,000-gallon fiberglass tanks were installed at the site in 1981 and removed from service in 1991. The tanks were used to store fuel oil. One supply line leading from the tanks to Bldg 8360 failed the pressure test. An investigation performed at the time of tank removal indicated contamination to a depth of 6 feet. However, the concentrations of petroleum hydrocarbon constituents were within KDHE standards. Borings confirmed that the contamination was minimal and appeared to be contained in the backfill material around the tanks. Ground water was not encountered to a depth of 28 feet.

CLEANUP STRATEGY

For the majority of the sites, limited ground-water and soil sampling will be conducted to confirm the status found in the Installation-Wide Site Assessment and specific SIs in order to achieve regulatory site closure.

For the five sites (FTRI-054, -062, -063, -066, -068):

complete SI Work Plans in 2005 for further site characterization and free-product removal,
implement SI field work and complete KRBCA reports in 2006, and
continue LTM and annual reports until free product is no longer measurable and contaminants are below MCLs.

Schedule

PAST MILESTONES

1983-1984 Installation Assessment

1988-1989 Solid Waste Management Unit Survey
IRP Initiation

1990 NPL Listing Published
FFA – Department of the Army and Fort Riley Signature

1991 FFA - EPA Region VII and KDHE Signature
FFA - Effective Date

1993

PA/SI Installation Wide Site Assessment
FTRI-001, Custer Hill Sanitary Landfill
FTRI-019, Former Fire Training Area-Marshall Army Airfield
FTRI-027, Dry Cleaning Facilities Area
FTRI-032, Impact Zone

RI/FS FTRI-003, Southwest Funston Landfill
FTRI-030, Pesticide Storage Facility

1994

PA/SI FTRI-019, Former Fire Training Area-Marshall Army Airfield

RI/FS FTRI-003, Southwest Funston Landfill
FTRI-027, Dry Cleaning Facilities Area
FTRI-030, Pesticide Storage Facility

REM FTRI-030, Pesticide Storage Facility, Excavation of pesticide contaminated soil
FTRI-035, Non-Impact Area Small Arms Ranges, Excavation of lead contaminated soil at Colyer Manor

IRA FTRI-003, Southwest Funston Landfill, Riverbank stabilization and cover repair/improvements (FY94-96)
FTRI-027, Dry Cleaning Facilities Area, Sewer line replacement-OMA funded (FY94-96)

PAST MILESTONES, continued

1995

PA/SI FTRI-019, Former Fire Training Area-Marshall Army Airfield, Site Investigation Report

RI/FS FTRI-003, Southwest Funston Landfill
FTRI-027, Dry Cleaning Facilities Area
FTRI-030, Pesticide Storage Facility

IRA FTRI-019, Former Fire Training Area-Marshall Army Airfield, Soil vapor extraction and bioventing Pilot Study
FTRI-027, Dry Cleaning Facilities Area, Soil vapor extraction Pilot Study
FTRI-062, TMP Gas Station (Bldg 388), Free-product recovery
FTRI-063, Former Bldg 1044 Dispensing Station, Free-product recovery

1996

RI/FS FTRI-019, Former Fire Training Area-Marshall Army Airfield
FTRI-027, Dry Cleaning Facilities Area
FTRI-030, Pesticide Storage Facility

REM FTRI-057, 6200 Area, Soil removal

ROD FTRI-003, Southwest Funston Landfill

1997

RAB Formation

DECISION FTRI-067 and FTRI-069, No Further Action required

PA/SI FTRI-006, DRMO & Wherry Substation, Site Investigations

RI/FS FTRI-019, Former Fire Training Area-Marshall Army Airfield, Draft Final Work Plan
FTRI-027, Dry Cleaning Facilities Area, Draft Revised FS
FTRI-030, Pesticide Storage Facility, RI Addendum
FTRI-031, 354 Area Solvent Detections Site, Field investigations

IRA FTRI-003, Southwest Funston Landfill, Removal Action Report
FTRI-019, Former Fire Training Area-Marshall Army Airfield, Exposure Control EE/CA

PAST MILESTONES, continued

PP FTRI-030, Pesticide Storage Facility

ROD FTRI-030, Pesticide Storage Facility

LTM FTRI-003, Southwest Funston Landfill, Long-Term Monitoring, Long-Term Operations, Maintenance Plans
FTRI-054, -063, -066, -068, Remedial Action Plans

1998

DECISION FTRI-various, Multi-Sites and DRMO Memorandum
FTRI-004 (Main Post Landfill), -051 (727), and multiple UST sites

RI/FS FTRI-009, Open Burning/Open Detonation, SI Addendum Report
FTRI-019, Former Fire Training Area-Marshall Army Airfield, RI/FS Draft Final Work Plan Basic Plans, Plume Characterization, Natural Attenuation Work Plan
FTRI-027, Dry Cleaning Facilities Area, RI Addendum/FS
FTRI-029, Southeast Funston Incinerator, SI Addendum Report
FTRI-031, 354 Area Solvent Detections Site, Initial Field Investigations Report

REM FTRI-029, Southeast Funston Landfill Incinerator, EE/CA, Preliminary Design

IRA FTRI-036, Southeast Funston Landfill, EE/CA, Preliminary IRA Design
FTRI-038, Forsyth Bank, Area 2, Stabilization, EE/CA

PP FTRI-027, Dry Cleaning Facilities Area, Draft Proposed Plan

LTM FTRI-003, Southwest Funston Landfill, Final Institutional Controls Plan, Annual Monitoring Report, Annual Inspection Report
FTRI-011, Camp Funston Groundwater Detections, Annual Monitoring Report
FTRI-054, Custer Hill PX USTs, Ground-water sampling
FTRI-062, TMP Gas Station (Bldg 388), Ground-water sampling
FTRI-063, Former Building 1044 Dispensing Station, Ground-water sampling
FTRI-066, Former Building 1245 Dispensing Station, Ground-water sampling
FTRI-068, Former Building 1637 Dispensing Station, Ground-water sampling

PAST MILESTONES, continued

1999

RI/FS FTRI-009, Open Burning/Open Detonation, Risk Screening Report
FTRI-019, Former Fire Training Area-Marshall Army Airfield, Tracer Study, Microcosm Study
FTRI-031, 354 Area Solvent Detections, RI/FS Work Plans, Phase I Field Investigations
FTRI-053, POL Tank Farm, RI/FS Work Plan

REM FTRI-029, Southeast Funston Landfill Incinerator, EE/CA, Action Memorandum

IRA FTRI-036, Southwest Funston Landfill, EE/CA, Action Memorandum
FTRI-038, Forsyth Landfill, Area 2, Action Memorandum, Bank Stabilization Design
FTRI-057, 6200 Area Fuel Oil System, Removal Action Report

PP FTRI-027, Dry Cleaning Facilities Area, Dispute Resolution (Jan – Apr 99)

LTM FTRI-003, Southwest Funston Landfill, Annual Inspection Report
FTRI-011, Camp Funston Groundwater Detections, Annual Monitoring Report, Groundwater Isotope Report
FTRI-030, Pesticide Storage Facility, Land Use Management Plan
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling

2000

RI/FS FTRI-009, Open Burning/Open Detonation, Surface-water monitoring
FTRI-027, Dry Cleaning Facilities Area, Additional site evaluation
FTRI-031, 354 Area Solvent Detections, Remedial Investigations, preliminary evaluation

IRA FTRI-019, Former Fire Training Area-Marshall Army Airfield, Construction of Exposure Controls pending real estate issues
FTRI-036, Southwest Funston Landfill, River Bank Stabilization initiated

LTM FTRI-003, Southwest Funston Landfill, Maintenance Construction, Annual Inspection Report
FTRI-011, Camp Funston Groundwater Detections, Annual Monitoring Report
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling

PAST MILESTONES, continued

2001

PA/SI FTRI-053, POL Tank Farm, Site Investigations
FTRI-056, Abandoned Gasoline Line, Site Investigations

RI/FS FTRI-009, Open Burning/Open Detonation, Surface-water monitoring
FTRI-027, Dry Cleaning Facilities Area, Investigations
FTRI-029, Southeast Funston Landfill Incinerator, Land use control development
FTRI-031, 354 Area Solvent Detections Area, Additional Investigations
FTRI-036, Southeast Funston Landfall, Draft Decision Memorandum

FTRI-036, Southwest Funston Landfill, River Bank Stabilization completed

LTM FTRI-003, Southwest Funston Landfill Annual Monitoring Report, Annual Inspection Report
FTRI-011, Camp Funston Groundwater, Annual Monitoring Report
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling

2002

RI/FS FTRI-009, Open Burning/Open Detonation, Surface-water sampling
FTRI-019, Former Fire Training Area-Marshall Army Airfield, Treatability Study
FTRI-027, Dry Cleaning Facilities Area, Perform additional investigations
FTRI-029, Southeast Funston Landfill Incinerator, Develop land use controls

IRA FTRI-019, Former Fire Training Area-Marshall Army Airfield, Implement exposure control

LTM FTRI-003, Southwest Funston Landfill, cover repair, Annual Monitoring Report, Annual Inspection Report
FTRI-011, Camp Funston Groundwater Detections, Annual Monitoring Report
FTRI-036, Southeast Funston Landfill, Long-Term Maintenance every 2 years for 15 years
FTRI-038, Forsyth Landfill(s), Bank stabilization inspection
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling

Five-Year Review FTRI-003, Southwest Funston Landfill FTRI-030, Pesticide Storage Facility

PAST MILESTONES, continued

2003

RI/FS FTRI-009, Open Burning/Open Detonation, Surface-water sampling
FTRI-019, Former Fire-Training Area - Marshall Army Airfield, Draft Final FS Report, ground-water sampling
FTRI-027, Dry Cleaning Facilities Area, Performed additional investigations, ground-water sampling
FTRI-029, Southeast Funston Landfill Incinerator, Memorandum of Agreement signed by the KDWP
FTRI-031, 354 Area Solvent Detections, Ground-water sampling
FTRI-053, POL Tank Farm, Performed additional study, ground-water sampling

IRA FTRI-019, Former Fire-Training Area, Final Report on Alternate Water Supply

LTM FTRI-003, Southwest Funston Landfill, Annual Monitoring Report, Annual Inspection Report
FTRI-011, Camp Funston Groundwater Detections, Annual Monitoring Report
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling
FTRI-038, Forsyth Landfill(s), Bank Stabilization inspection and ordnance disposal

2004

RI/FS FTRI-009, Open Burning/Open Detonation, Surface and ground-water sampling, Technical Memorandum
FTRI-027, Dry Cleaning Facilities Area, Draft Final RI Addendum Report, ground-water sampling
FTRI-031, 354 Area Solvent Detections, Draft Final RI Report, Remedial Action Objectives/Applicable or Relevant and Appropriate Requirements/Technologies Identification/Detailed Analysis of Alternatives Tech Memo, ground-water sampling
FTRI-053, POL Tank Farm, Free-product recovery and ground-water sampling
FTRI-056, Abandoned Gasoline Line, Site Assessment Report, and EE/CA.

REM FTRI-031, 354 Area Solvent Detections, Conducted Pilot Study for soil remediation and removal

PP FTRI-019, Former Fire-Training Area - Marshall Army Airfield

LTM FTRI-001, Custer Hill Sanitary Landfill, Ground-water sampling, prescribed burn of cover and annual inspection

PAST MILESTONES, continued

FTRI-003, Southwest Funston Landfill, Annual Monitoring Report, Annual Inspection Report
FTRI-038, Forsyth Landfill(s), Bank Stabilization inspection
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling

2005

RI/FS FTRI-031, 354 Area Solvent Detections, Draft Final FS Report, ground-water sampling
FTRI-027, Dry Cleaning Facilities Area, Draft Final FS Addendum, Pilot Study Work Plan

REM FTRI-031, 354 Area Solvent Detections, Pilot Study Report

PP FTRI-031, 354 Area Solvent Detections, Draft Final Proposed Plan

ROD FTRI-019, FFTA-MAAF, Draft Final ROD, Remedial Action Plan, ground-water sampling

LTM FTRI-001, Custer Hill Sanitary Landfill, Annual inspection, ground-water sampling
FTRI-003, Southwest Funston Landfill, Annual Monitoring Report, Annual Inspection Report
FTRI-038, Forsyth Landfill(s), Bank Stabilization inspection
FTRI-054, 062, 063, 066, 068, POL/UST Sites ground-water sampling

PROJECTED MILESTONES

RESPONSE COMPLETE:

PHASE COMPLETION MILESTONES: See IRP Site Descriptions

ROD/DD APPROVAL DATES:

FTRI-031, 354 Area Solvent Detections, 3rd Quarter FY06

FTRI-027, Dry Cleaning Facilities Area, 1st Quarter FY08

CONSTRUCTION COMPLETION: Final Remedial Actions (Remedy in Place): 2008

COMPLETION DATE OF ALL RA(C) ACTIVITIES: 2008

COMPLETION DATE OF IRP (INCLUDING LTM PHASE): 2034

IRP Schedule

(Based on current funding constraints)

AEDB-R #	Site Title	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
FTRI-003	Southwest Funston Landfill	LTM										
FTRI-009	OB/OD Grounds (Range 16)	LTM										
FTRI-019	Former Fire Training Area (FFTA-MAAF)	LTM										
FTRI-022	Former WWTP & Sludge Beds Camp Funston (Anchor Site)	RI/FS										
FTRI-027	Dry Cleaning Facilities Area	RI/FS										
		RD										
		RA(C)										
		RA(O)										
		LTM										
FTRI-030	Pesticide Storage Facility (Mixing)											
FTRI-031	Building 354 Area Solvent Detections	RI/FS										
		RD										
		RAC)										
		RA(O)										
		LTM										
FTRI-036	Southeast Funston Landfill -Inactive	RI/FS										
FTRI-038	Forsyth Landfill(s)	LTM										
FTRI-040	Former Oil Testing Lab (Bldg 1022) (Anchor Site)	LTM										
FTRI-047	Former Livestock Dipping Facility (anchor)	LTM										
FTRI-056	Abandoned Gasoline Line	RI/FS										
		RA(C)										
		RA(O)										
FTRI-057	6200 Area Fuel Oil Line (Anchor Site)	IRA										

COMPLETED REM/IRA/RA

REM - Replacement of leaking sewers at Dry Cleaning Facilities Area (FTRI-027) (FY94 & FY96, $100K)

Dry Cleaning Facilities Area (FTRI-027) - FY94 - The possibility of "slip-lining" the sanitary and storm sewers to reduce or eliminate a driving force moving contamination from soil to the ground water was evaluated. Camera inspection of the lines indicated, however, that the sanitary sewer line contained too much mineral scaling (from nearby boiler plant) to allow slip-lining. The storm sewer is very steep, circuitous and in pretty good shape, making slip-lining difficult and unnecessary. Therefore, replacement of the one damaged sanitary sewer line was performed. Remaining lines, suspected to leak also, were assessed and a project was completed in 1996 to abandon in-place and construct new lines.

Soil vapor extraction and ground-water extraction and treatment pilot studies were initiated in August 1994. Pumping tests performed on the ground-water extraction wells indicated extremely low flow rates and determined the impracticality of this technology as a remedial action. The test was extended to determine if the mass removal rates would be sustainable (they were not) and because volatiles, (albeit low levels), were being extracted from the soil. The system operated until March 1995, when vapor analysis indicated no detections of VOCs. The action directed at remediating soil was implemented to address this media as a continuing source for ground-water contamination, not because of any determined risk due to exposure to the soil. Had the extraction been sustainable, an EE/CA would have been prepared and a Removal Action undertaken. However, the pilot test removed much of the soil contamination.

Custer Hill Sanitary Landfill (FTRI-001) - FY93/94
Low level contamination was revealed by the site investigation. Rather than carry the site through the CERCLA/FFA process, the site was addressed under the state-administered RCRA subtitle D program for closure and post-closure monitoring.

Former Fire Training Area-Marshall Army Airfield (FTRI-019) - FY94/95 Total Construction Cost = $900,000
Initial Site Investigations and off-post private well data indicated there was soil contamination in two areas on post and ground-water contamination likely existed on post and extended off post. Since the soil contamination was a potential source for additional ground-water contamination, soil treatment options were considered for implementation of an early action. Pilot Studies were developed for bioventing and/or SVE in each of the two areas respectively and implemented in the winter 1994/95. These proved successful and were extended to gain additional design information while an EE/CA was being prepared to evaluate performance of these technologies as Removal Actions. The EE/CA was terminated because evaluation of field data (including drop off of removal rates) indicated that much of the contamination had been removed and continued operation was not cost effective.

COMPLETED REM/IRA/RA, continued

Numerous UST Removals Total Construction Cost = $1,500,000
Numerous additional tank removals have been conducted under OMA tank management program

Southwest Funston Landfill (FTRI-003) - FY94/96/97 - Total Construction Cost = $ 4,000,000
Settlement and minimal maintenance of the closure cover has resulted in ponding and otherwise poor drainage. Landfilling occurred along and near the Kansas River bank. Erosion of materials into the river has occurred. A "Non-time Critical" Removal Action has been completed. The Engineering Evaluation/Cost Analysis (EE/CA) for cover improvements and bank stabilization was issued for public comment on 16 August 1993. Design was initiated concurrent with preparation of the EE/CA with the intent that the design be complete by the time the Decision Document was completed. However, in light of the stipulated penalties, the Bank Stabilization removal action was expedited and substantially completed by 9 April 1994. It was fully completed by June 1994. The cover portion of the removal action was contracted for 4th quarter FY94. Construction of the cover repairs was completed 1995, however it was discovered that insufficient cover existed in some places and a 2nd contract was developed to correct this situation. Additional cover improvements were completed in 1997. LTM was initiated at the site in FY96.

Pesticide Storage Facility (FTRI-030) - FY94 Total Construction Cost = $788,000
Removal of contaminated soil was completed in May 1994. Sampling during the removal action revealed significantly greater volumes of contaminated Interim Remedial Action (IRA) soil than identified in the RI. The amount of soil removed was approximately 2700 tons. This allowed the Final Remedial Action to be No Further Action based on anticipated industrial land use.

Sensitive Receptor Lead Sites (FTRI-035) - FY94 Total Construction Cost = $533,000
An "expedited" removal assessment performed in June 1993 revealed that a small area near a housing and recreation area was a "hot spot" of lead contamination. Removal of lead contaminated soil was completed May 1994. The amount of soil removed was 1338 tons.

6200 Area Fuel Oil Line (FTRI-057) - FY96 Total Construction Cost = $2,300,000
This former heating oil dispensing system consisted of two underground storage tanks and a pump house. The heating oil was distributed through underground piping that serviced 100 housing units. Heating oil was released within the tank hold and along piping trenches that hold water lines and other utilities serving the housing unit. The tanks and the piping have been removed. Source removal of contaminated trench backfill materials and surrounding soil was completed in 1997.

Southeast Funston Landfill – Incinerator (FTRI-029) - FY99 Total Construction Cost = $269,585
In FY98 an EE/CA, Design, and Action Memorandum with public comment and Restoration Advisory Board (RAB) involvement were completed for excavation of ash/metals contaminated soil. The incinerator Removal Action was combined with the cover improvements for the SE

COMPLETED REM/IRA/RA, continued

Funston Landfill (SEFL) where the soil was reburied in the western portion of the SEFL site. Construction activities were conducted from early Oct 99 through early Nov 99.

Southeast Funston Landfill – Inactive (FTRI-036) - FY99/00 Total Construction Cost = $349,000
In FY98 an EE/CA, Design and Action Memorandum, with public comment and RAB involvement, were completed for landfill cover improvements to the western portion of the SEFL. The cover improvements were designed to control surface runoff and to address landfill trench subsidence problems. The construction contract award amount was $218K with FY00 modification of $131K. Construction was performed Oct-Nov 1999.

Forsyth Landfill Area 2 (FTRI-038) - FY00 Total Construction Cost = $826,743
Evaluations show that approximately a 100-foot width of riverbank along an 800-foot section of the Landfill Area 2 had been eroded by the Republican River. Therefore, an IRA was conducted that includes riverbank stabilization and erosion control (eroded material has in the past included UXO). In 1998 and 1999 an EE/CA and an Action Memorandum (respectively) were completed. The stabilization was completed in FY01.

Former Fire Training Area-Marshall Army Airfield (FTRI-019)
Private wells in the area have been monitored since this site was discovered. Because private wells have been impacted, an Engineering Evaluation/Cost Analysis (EE/CA) was performed (completed December 1997) to assess the need for a Removal Action aimed at Exposure Control. New wells outside the plume have been installed for two off-post properties.

Forsyth Landfill Area 2 (FTRI-038)
During the 1993 flood, the Republican River eroded into the bank, exposing landfill trenches. As a result landfill materials and UXO were washed into the river bed. After completing an EE/CA and an Action Memorandum in 1999, a stabilization structure was built in two phases in 2000 and 2001. The Removal Action Report was approved in 2002.

354 Area Solvent Detections (FTRI-031)
A Soil Remediation Pilot Study was completed in 2004 to remediate a PCE hotspot near building 367. The actions taken include injecting potassium permanganate, an oxidizer, followed by excavation and land farming the contaminated soil.

Remediation Activities

CURRENT REM/IRA/RA

FY05 FTRI-027, Dry Cleaning Facilities Area, - RI/FS – Pilot Study

FTRI-056, Abandoned Gas Line – RI/FS, EE/CA Removal Action

FUTURE REM/IRA/RA

FY06 FTRI-019 - MNA

FTRI-031 - MNA

FY08 FTRI-027 - MNA

PRIOR YEAR FUNDING

Prior year IRP funds received by Fort Riley have been broken down by fiscal year.

Fiscal Year	FY Total
1989-1996	$38,660,000
1997	$2,801,672
1998	$3,250,000
1999	$3,400,000
2000	$3,577,600
2001	$3,839,000
2002	$3,000,000
2003	$2,857,899
2004	$1,581,909

CURRENT YEAR FUNDING

2005	$2,078,564

FUTURE YEAR FUNDING

TOTAL FUTURE REQUIREMENTS: $11,085,000 for FY07-FY15+

TOTAL IRP PROGRAM COSTS: $77,683,282 for FY89 through FY15+

Unconstrained Cost-[redacted]plete Chart, *continued*
Fort Riley Installa[redacted]estoration Program
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase Total	Site Total	Description of Work	Cost Estimate Source	Supporting Documentation	Estimator & Date Prepared
FTRI-003	Southwest Funston Landfill (OU-001)	High	LTM	165	165	905	165	165	172	322	122	122	2,586	4,889	4,889	Monitoring ~12 wells semi-annual $79K/yr until FY11 then $38K/yr, Annual report $37K/yr, USGS ~$24K/yr, quality assurance $5K/yr until FY11 then $3K/yr, $50K in FY11 to mod ROD to reduce LTM, COE $20K/yr; cover repairs & maintenance, bank stabilization= FY08 $700K, FY12 $200K, & FY15+ $1M (H). $40K for well abandonment in FY08.	**Contract	Contract # DACW41-01-D-0005	USACE (NWK) 30 Sep 04
FTRI-009	OB/OD Grounds (Range 16)	Med	LTM	189	189	106	106	106	106	106				908	908	$70K for GW/SW sampling-2 Per yr. in FY06 & FY07, 10 points (w/UXO support), COE support $25K in FY06 & 07, USGS $18K/yr, Chem. QA 6K in FY06 & FY07, FY08-FY12=$70K per yr, GW/SW samples, COE support $15K, Chem QA 3K, and USGS $18K.	Contract	Contract # DACW41-02-D-0003	USACE (NWK) 22 Apr 05
FTRI-019	Former Fire Training Area (FFTA-MAAF) (OU-004)	High	LTM	145	145	145	200							635	635	Real estate leases $12K, USGS DCP maint $34K, COE $20K, Chem Q/A $4K, $75K for GW sampling. Well abandonment FY 09 $200K.	Contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-022	Former WWTP & Sludge Beds Camp Funston (Anchor)	Low	LTM	5										5	5	PY S&R. (No action beyond FY05 ESI anticipated)	*Historical contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-027	Dry Cleaning Facilities Area (OU-003)	Med	RI/FS	167										167		Annual GW event (27 wells) $75K, COE $50K, COE Chem Q/A $20K, USGS DCP $21.5K			
			RD	208										208		Design $100K, abandon 27 wells $108K			
			RA(C)	215										215		Construction of supplemental RA (SVE, enhanced biodegradation and/or potassium permanganate oxidizer)			
			RA(O)		258	125	258	125	177	218	85	85	302	1,629		Injection of bioremediation enhancing compounds (FY07, FY09, FY12, and FY16) $133K/event USGS $21.5K/yr, COE $20K/yr, COE Q/Q Chem $8K/yr, abandonment 13 wells in FY11, $52K FY07-FY11 monitoring cost $75K/yr, FY12-FY16 monitoring cost $35K/yr	FS	FS Report	04 Mar 05
			LTM										656	656	2,875	Annual GW (14 wells/15yrs) $40K/yr, abandonment 14 wells in FY26 $56K	Contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-030	Pesticide Storage Facility (Mixing) (OU-002)	Low	LTM	20					20				60	100	100	Sampling for five-year reviews (5 wells for pest & metals) until FY 2027.	Contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
				FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+						

* *Historical Contract* means that the cost is an estimate based on similar work in another site's contract
** *Contract* means that the site has a firm fixed-price contract in place

Unconstrained Cost-to-Complete Chart, *continued*
Fort Riley Installation Restoration Program
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase Total	Site Total	Description of Work	Cost Estimate Source	Supporting Documentation	Estimator & Date Prepared
FTRI-031	Building 354 Area Solvent Detections (OU-005)	High	RI/FS	123										123		FY05& 06-COE $55K, GWM $70K, USGS $24K, Q/A $4K.			
			RD	60										60		Design			
			RA(C)		114									114		USGS DCP maint $24K/yr, COE $20K/yr. GWM ~18 wells, annually $70K.			
			RA(O)			114	114	114	164					506		USGS DCP maint $24K/yr, COE $20K/yr. GWM ~18 wells, annually $70K. Closure report in FY11-$50K.	FS	FS Report	20 Dec 04
			LTM							118	94	94	188	494	1,297	USGS DCP maint $24K FY12, COE $20K/yr. GWM ~18 wells, annually $70K. Chem QA $4K annually. End of 10 yr monitoring-FY16	**Contract	Contract # DACW41-96-D-8010	USACE (NWK) 30 Apr 01
FTRI-036	Southeast Funston Landfill - Inactive (Anchor)	Med	RI/FS	12	120	215								347	347	PY COE S&R $10K. $2K Chem Q/A, FY07 $100K FTRI-004 EE/CA contract, $20K COE cost, FY08 execute IRA @ $190K	*Historical contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-038	Forsyth Landfill(s)	Med	LTM					300					300	600	600	Bank stabilization $300K in FY10 and FY15+.	Historical contract	DACW41-97-D-9001	USACE (NWK) 31 Mar 00
FTRI-040	Former Oil Testing Lab (BLDG 1022) (Anchor)	NE	LTM	50										50	50	$45K contract, $5K COE (at building 1022)	Historical contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-047	Former Livestock Dipping Facility (Anchor)	NE	LTM	100										100	100	$90K contract, $10K COE(at dipping tank)	Historical contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-056	Abandoned Gasoline Line	Med	RI/FS	45										45		PY COE S&R.			
			RA(C)		25									25		$20K GW monitoring; $4K COE; $1K Chem Q/A			
			RA(O)			25	25							50	120	$20K GW monitoring; $4K COE; $1K Chem Q/A	EE/CA	EE/CA Report	5/5/2005
FTRI-057	6200 Area Fuel Oil Line (Anchor)	Low (High)	RI/FS	271	268	95	98	101						833	833	FY06 $220K for free product removal & management, $25K COE, $10K Chem Q/A, USGS $16K, FY07 $222K for recovery system O&M, $40K COE support, $6K Chem Q/A. FY08-FY10, $81K free product recovery system O&M; $10K COE, $4K Chem Q/A ; ($3K increase in FY09 & FY10 is due to increase in O&M cost) Three sites associated with this site are HIGH RRSE anchor is LOW RRSE	Historical contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
			Totals in Thousands of $	1,775	1,284	1,730	966	911	639	764	301	301	4,092		12,759				
			POM	1,407	1,286	1,437	835	1,602	769	889	639	639							
			Difference	-368	3	-293	-131	692	131	126	339	339	-4,092		-3,256				
				FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+						

* *Historical Contract* means that the cost is an estimate based on similar work in another site's contract

** *Contract* means that the site has a firm fixed-price contract in place

Constrained C[redacted] Complete Chart
Fort Riley Installa[redacted]storation Program
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase Total	Site Total	Description of Work	Cost Estimate Source	Supporting Documentation	Estimator & Date Prepared
FTRI-003	Southwest Funston Landfill (OU-001)	High	LTM	165	165	480	165	665	172	322	122	122	2,586	4,964	4,964	Monitoring ~12 wells semi-annual $79K/yr until FY11 then $38K/yr, Annual report $37K/yr, USGS $24K/yr, quality assurance $5K/yr until FY11 then $3K/yr, $50K in FY11 to mod ROD to reduce LTM, COE $20K/yr; cover repairs & maintenance, bank stabilization= FY08 $275K, FY10 $500K, FY12 $200K & FY15+ $1M (H). $40K for well abandonment in FY08.	**Contract	Contract #DACW41-01-D-0005	USACE (NWK) 30 Sep 04
FTRI-009	OB/OD Grounds (Range 16)	Med	LTM	189	189	106	106	106	106	106				908	908	$70K per GW/SW sampling-2 Per yr. in FY06 & FY07, 10 points (w/UXO support), COE support $25K in FY06 & 07, USGS $18K/yr, Chem. QA 6K in FY06 & FY07, FY08-FY12=$70K per yr, GW/SW samples, COE support $15K, Chem QA 3K, and USGS $18K	Contract	Contract #DACW41-02-D-0003	USACE (NWK) 22 Apr 05
FTRI-019	Former Fire Training Area (FFTA-MAAF) (OU-004)	High	LTM	224	124	124		100						572	572	Real estate leases $8K, USGS DCP maint $17K, COE $20K, Chem Q/A $4K, $75K for GW sampling. Well abandonment FY06 & FY 10 $100K.	Contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-022	Former WWTP & Sludge Beds Camp Funston (Anchor)	Low	LTM	5										5	5	PY S&R. (No action beyond FY05 ESI anticipated)	*Historical contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-027	Dry Cleaning Facilities Area (OU-003)	Med	RI/FS	275										275		Annual GW event (27 wells) $75K, COE $50K, COE Chem Q/A $20K, USGS DCP $22K, abandon 27 wells $108K FY06			
			RD		100									100		Design $100K,			
			RA(C)		181									181		Construction of supplemental RA (SVE, enhanced biodegradation and/or potassium permanganate oxidizer)			
			RA(O)			125	258	125	177	218	85	85	303	1,376		Injection of bioremediation enhancing compounds (FY09, FY12, and FY16) $133K/event, FY07-FY11 monitoring cost $75K/yr, FY12-FY16 monitoring cost $35K/yr; abandon 13 wells $52K in FY11, USGS $22K/yr, COE $20K/yr, COE Chem Q/A $8K/yr annually	FS	FS report	04 Mar 05
			LTM										656	656	2,588	Annual GW (14 wells/15yrs) $40K/yr, abandon 14 wells in FY26 $56K	Contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-030	Pesticide Storage Facility (Mixing) (OU-002)	Low	LTM	20					20				60	100	100	Sampling for five-year reviews (5 wells for pest & metals) until FY 2027.	Contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
				FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+						

* *Historical Contract* means that the cost is an estimate based on similar work in another site's contract

** *Contract* means that the site has a firm fixed-price contract in place

Constrained C[redacted] Complete Chart
Fort Riley Installa[redacted] estoration Program
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase Total	Site Total	Description of Work	Cost Estimate Source	Supporting Documentation	Estimator & Date Prepared
FTRI-031	Building 354 Area Solvent Detections (OU-005)	High	RI/FS	123										123		FY06-COE $25K, GWM $70K, USGS $24K, Q/A $4K.			
			RD	60										60		Design			
			RA(C)		114									114		USGS DCP maint $24K/yr, COE $20K/yr. GWM ~18 wells, annually $70K.			
			RA(O)			114	114	114	164					506		USGS DCP maint $24K/yr, COE $20K/yr. GWM ~18 wells, annually $70K. Closure report in FY11-$50K.	FS	FS Report	20 Dec 04
			LTM							118	94	94	188	494	1,297	USGS DCP maint $24K FY12, COE $20K/yr. GWM ~18 wells, annually $70K. Chem QA $4K annually. End of 10 yr monitoring-FY16	**Contract	Contract # DACW41-96-D-8010	USACE (NWK) 30 Apr 01
FTRI-036	Southeast Funston Landfill - Inactive (Anchor)	Med	RI/FS	12	120	215								347	347	FY06 PY COE S&R $10K, $2K Chem Q/A. FY07 $100K FTRI-004 EE/CA contract, $20K COE cost. FY08 execute IRA FTRI-004 $190K, COE $25K	*Historical contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-038	Forsyth Landfill(s)	Med	LTM					290					300	590	590	Bank stabilization $290K in FY10 and $300K FY15+.	Historical contract	DACW41-97-D-9001	USACE (NWK) 31 Mar 00
FTRI-040	Former Oil Testing Lab (BLDG 1022) (Anchor)	NE	LTM			50								50	50	$45K contract, $5K COE (at building 1022)	Historical contract	Contract # DACA41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-047	Former Livestock Dipping Facility (Anchor)	NE	LTM			100								100	100	$90K contract, $10K COE(at dipping tank)	Historical contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
FTRI-056	Abandoned Gasoline Line	Med	RI/FS	45										45		PY COE S&R.			
			RA(C)		25									25		$20K GW monitoring; $4K COE; $1K Chem Q/A			
			RA (O)			25	25							50	120	$20K GW monitoring; $4K COE; $1K Chem Q/A	EE/CA	EE/CA Report	05-May-05
FTRI-057	6200 Area Fuel Oil Line (Anchor)	Low (High)	RI/FS	271	268	95	98	101						833	833	FY06 $220K for free product removal & management, $25K COE, $10K Chem Q/A, USGS $16K, FY07 $222K for recovery system O&M, $40K COE support, $6K Chem Q/A. FY08-FY10, $81K free product recovery system O&M; $10K COE, $4K Chem Q/A ; ($3K increase in FY09 & FY10 is due to increase in O&M cost) Three sites associated with this site are HIGH RRSE anchor is LOW RRSE	Historical contract	Contract # DACW41-96-D-8010	USACE (NWK) 27 Apr 01
			Totals in Thousands of $	1,389	1,286	1,434	766	1,501	639	764	301	301	4,093		12,474				
			POM	1,407	1,286	1,437	835	1,602	769	889	639	639							
			Difference	18	0	3	69	101	130	125	338	338	-4,093		-2,971				
				FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+						

* *Historical Contract* means that the cost is an estimate based on similar work in another site's contract

** *Contract* means that the site has a firm fixed-price contract in place

Community Involvement

FORMATION OF FORT RILEY'S RESTORATION ADVISORY BOARD:
Fort Riley held its orientation meeting September 30, 1997 for members of the community who may be interested in participating on a RAB. Adjacent landowners, local environmental groups, local college professors, mayors and other public officials, members of the local Chambers of Commerce, and select individuals recommended to the Directorate of Environment and Safety were invited to the orientation meeting by direct mail. Newspaper advertisements and television and radio announcements were additional methods used to announce the formation of Fort Riley's RAB.

At the orientation meeting, interested community members were asked to complete an application, a biographic information form and a demographic information form, if they had not completed and returned an application to Fort Riley before the meeting. A Community Co-Chair was elected by community representatives in attendance. Due to the number of applications received at that time, everyone that applied to be a member of the RAB served. Approximately 20 people attended the orientation meeting.

RAB MEMBERSHIP:
The current members include representatives from the Fort Riley military community, local environmental businesses, private business, Unified School District 475, Geary County Extension Office, Riley County Planning Board, Geary County (Commissioner), Clay County (Commissioner), Kansas State University, city of Ogden (former Mayor and Mayor), EPA, and KDHE.

RAB ACTIVITIES:
In July 2004, the members provided public comment on the Former Fire Training Area FFTA-MAAF (FTRI-019) Proposed Plan. The repository was eliminated in Clay Center, KS at Clay Center's request.

In 2005, a new Community Involvement Plan was developed. The members also provided public comment on the 354 Area Solvent Detections (FTRI-031) Proposed Plan.

Over the next year, RAB members will continue to gain knowledge of Fort Riley's sites and regulatory issues; review documents; provide technical advice; and participate in formal public comment period activities.

FY2006

FORT RILEY

MILITARY MUNITIONS RESPONSE PROGRAM

MMRP Summary

STATUS: Riley was placed on the National Priorities List in 1990.

AEDB-R SITES/SITES RC: 2/0

AEDB-R SITE TYPES: Military Munitions

CONTAMINANTS OF CONCERN: Metals, explosives

MEDIA OF CONCERN: Soil, ground water

COMPLETED REM/IRA/RA: None

IDENTIFIED POSSIBLE REM/IRA/RA: None

TOTAL ER,A FUNDING:

Prior Year (FY00-05)	$285,675
Current (FY06)	None per the CTC
Future	$2,209,000

DURATION OF IRP:

Year of MMRP Inception	2003
Year of RA Completion	2016
Year of MMRP Completion	2016

MMRP Contamination Assessment

MMRP Sites at Fort Riley

FTRI-001-R-01 Sherman Heights Small Arms

FTRI-001-R-02 Southeast Funston Landfill

The Military Munitions Response Program (MMRP) manages the environmental and health issues associated with munitions constituents (MC); and munitions and explosives of concern (MEC). In 2000, Fort Riley completed the Advance Range Survey followed by an Active/Inactive (A/I) Range Inventory in 2002. The Closed, Transferring, and Transferred Range/Site Inventory Report was completed in 2003 that identified the Sherman Heights Small Arms Range and the Southeast Funston Landfill Incinerator Site as inactive ranges requiring further investigation. The Historical Records Review on these two sites was completed in April 2005. Site Inspection Work Plan was completed July 1, 2005. The Site Inspection is scheduled for summer 2005.

There is a low potential for MEC, MC, and UXO at the two sites. Sherman Heights is a small arms range that is wholly contained on the installation. Lead-contaminated soil was removed from Sherman Heights (Colyer Manor) in 1994 under CERCLA. The Southeast Funston Landfill Incinerator Site was transferred to the Kansas Department of Wildlife and Parks. Lead-contaminated soil and unexploded ordnance were removed from the Southeast Funston Landfill Incinerator Site in 1999. While the possibility exits for UXO, there is no supporting evidence for the need for further action at this time.

There is a third site at Forsyth Landfills along the Republican River that is to be evaluated and may be established as another site in the future. The site contains mainly inert munitions that eroded out of 1950s-1960s era landfills. During the 1993 flood, the edge of the landfill eroded and some munitions materials washed into the Republican River. There have been three occasions where UXO removal or blow in place has been required. The site is on the installation boundary and can be accessed by the general public in a relatively uncontrolled manner. This site has not been added as of this time, but may be in the next IAP.

FY2006

FORT RILEY

MMRP SITE DESCRIPTIONS

FTRI-001-R-01
SHERMAN HEIGHTS SMALL ARMS

SITE DESCRIPTION

This 45.82 acre, small-arms range was used from the 1880s until 1945 and is a complex of several small-arms ranges. The firing points were located north of the Republican River. Firing was directed into the bluff. The complex consisted of .22 caliber anti-aircraft, .45 caliber, and machine gun ranges. No UXO is known to have been located during construction of a residential multi-family complex and recreational facilities.

Potential munitions component debris was located during an April 2005 site walk over.

CLEANUP STRATEGY

Complete the SI and base future actions on the results.

STATUS

Regulatory: CERCLA

RRSE: Not Evaluated

CONTAMINANTS:
Metals, Explosives

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
PA	200303	200310
SI	200406	200512
RI/FS	201110	201209
RD	201410	201509
RA(C)	201510	201609
LTM	201610	204609

RC: 201609

FTRI-002-R-01
SOUTHEAST FUNSTON LANDFILL

SITE DESCRIPTION

This landfill/incinerator site was used to the mid-1950s and is located adjacent to the southeast portion of Fort Riley. It is situated between the Kansas River and Highway K-18. The site was transferred to the U.S. Department of the Interior in 1989 and conveyed to the Kansas Department of Wildlife and Parks (KDWP) in 1991. A stipulation of the transfer was that KDWP and Fort Riley will coordinate disposal of any UXO found. A 2004 Memorandum of Agreement with KDWP requires coordination with Fort Riley for long-term, land stewardship.

During an excavation of the site in October 1999, a UXO team found many expended and live small-arms cartridges along with pieces of mortars, fuzes, two 4-pound Butterfly Bombs (one with no fuze but with TNT showing), rifle grenades, a rocket body, and an intact rocket. Only a portion of the site was excavated and cleared of UXO. There is a chance that UXO, MC, and discarded military munitions are still present at the Southeast Funston Landfill Incinerator.

STATUS

Regulatory: CERCLA

RRSE: Not Evaluated

CONTAMINANTS:
Metals, Explosives

MEDIA OF CONCERN:
Soil, Ground water

PHASES	Start	End
PA	200302	200310
SI	200406	200512
RI/FS	201110	201209
RD	201410	201509
RA(C)	201510	201609
LTM	201610	204609

RC: 201609

CLEANUP STRATEGY

Complete the SI and base future actions on the results.

Schedule

PAST MILESTONES

2003 MMRP Start Date

PROJECTED MILESTONES

PHASE COMPLETION MILESTONES: See MMRP Site Descriptions

ROD/DD APPROVAL DATES: Unknown

CONSTRUCTION COMPLETION: 2016

COMPLETION DATE OF ALL RA(C) ACTIVITIES: 2016

COMPLETION DATE OF IRP (INCLUDING LTM PHASE): None planned

MMRP Schedule Chart

Costs

PRIOR YEAR FUNDING

Prior year MMRP funds received by Fort Riley have been broken down by fiscal year.

Fiscal Year	FY Total
2003	$35,400
2004	$250,275

CURRENT YEAR FUNDING

2005	$0

FUTURE YEAR FUNDING

TOTAL FUTURE REQUIREMENTS: $2,209,000

TOTAL MMRP PROGRAM COSTS: $2,494,675