2005 IAP

Fort Riley

Installation Action Plan

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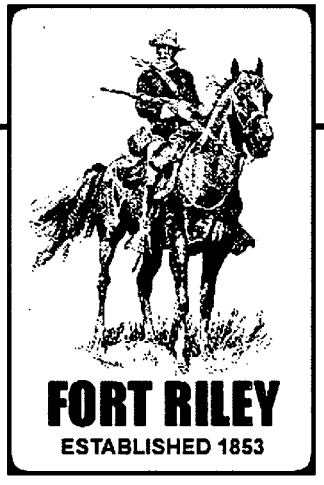
2005 IAP

Fort Riley

Kansas



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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan defines all Installation Restoration Program (IRP) requirements and proposes a comprehensive approach and associated costs to conduct future investigations and remedial actions at each IRP site at the installation and other areas of concern.

In an effort to coordinate planning information between the IRP managers, the Army Environmental Center (USAEC), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for Fort Riley. The IAP is used to track requirements, schedules, and budgets for all major Army installation restoration programs.

This Fort Riley IAP was principally developed in May 2004 at a meeting in Overland Park, Kansas. Participants included representatives of the Kansas Department of Health and Environment; the Environmental Protection Agency, Region VII; Fort Riley's Restoration Advisory Board (RAB); the U.S. Army Environmental Center; United States Geological Survey and the Kansas City District Army Corps of Engineers. This IAP is updated and submitted to the USAEC and the Department of the Army annually.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change. Under current project funding and regulatory schedules, Fort Riley will have all remedies for high and medium priority sites in place by FY2007 (ahead of DPG goals).

The following persons contributed to the formulation and completion of this Installation Action Plan:

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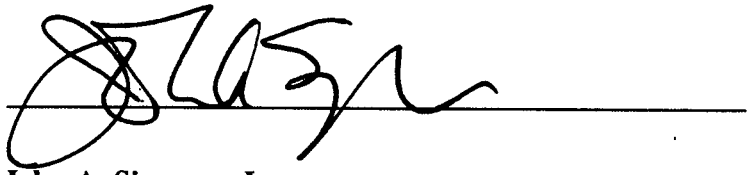
Fort Riley 2005 Installation Action Plan Approval Signatures



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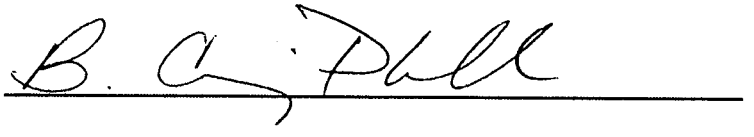

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Approval

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Acronyms & Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
AEDB-R	Army Environmental Database - Restoration
AGL	Abandoned Gasoline Line
ARAR(s)	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
bgs	Below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CCl4	Carbon tetrachloride
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CREO	Central Regional Environmental Office
cy	Cubic yards
DASA(ESOH)	Deputy Assistant Secretary of Army (Environmental Safety and Occupational Health)
DCE	Dichloroethylene/Dichloroethene
DCFA	Dry Cleaning Facilities Area
DCP	Data Collection Platform
DRMO	Defense Reutilization & Marketing Office
DS/GS	Direct Support/General Support
EAB	Enhanced Anaerobic Bioremediation
E/CA	Engineering Evaluation/Cost Analysis
PA	United States Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
FFA	Federal Facility Agreement
FFTA/MAAF	Former Fire Training Area/Marshall Army Airfield
FS	Feasibility Study
FTRI	Fort Riley
FY	Fiscal Year
GW	Groundwater
HRS	Hazard Ranking System
IACH	Irwin Army Community Hospital
IAG	Interagency Agreement
IAP	Installation Action Plan
IM	Interim Measure
IRA	Interim Remedial Action
IRP	Installation Restoration Program
IWSA	Installation Wide Site Assessment
KDHE	Kansas Department of Health and Environment
KDHE-NCDO	KDHE - North Central District Office
KDWP	Kansas Department of Wildlife and Parks
KSU	Kansas State University
LF	Landfill
LTM	Long-Term Monitoring
LTO	Long-Term Operation
MACOM	Major Army Command
MCL	Maximum Contaminant Level
mg/kg	micrograms per kilogram
MNA	Monitored Natural Attenuation
MW	Monitoring Well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NE	Not Evaluated
NFA	No Further Action
NPL	National Priorities List
OB/OD	Open Burn/Open Detonation
OMA	Operations and Maintenance Account
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
PAOC	Potential Areas of Concern
PCE	Perchloroethylene/Perchloroethane/ Tetrachloroethylene
POL	Petroleum, Oil & Lubricants
POM	Program Objective Memorandum
PP	Proposed Plan
ppb	Parts per billion
ppm	Parts per million
PRB	Permeable Reactive Barrier
PSF	Pesticide Storage Facility
PW	Public Works
PX	Post Exchange
PY	Prior Year
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
RIA	Remedial Investigation Addendum
RIAMER	Remedial Investigation Addendum Monitoring Expansion Report
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
S&R	Supervision and Review
SARA	Superfund Amendments and Reauthorization Act
SE	Southeast
SEFL	Southeast Funston Landfill
SFL	Southwest Funston Landfill
SI	Site Investigation
SVE	Soil Vapor Extraction
SVOCs	Semi Volatile Organic Compounds

Acronyms continued on next page

Acronyms & Abbreviations

TA	Training Area
TCE	Trichloroethylene/Trichloroethene
TMP	Transportation Motor Pool
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine (formerly called USAEHA)
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (currently called USACHPPM)
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds
WW	Wastewater
WWTP	Wastewater Treatment Plant
XRF	X-Ray Fluorescence

Summary

Status:	Fort Riley was placed on the National Priorities List in 1990. HRS Score is 33.8 which exceeds the 28.5 minimum score for listing on the NPL.
Total # of AEDB-R Sites:	72
Active ER,A Sites:	31 (FTRI-002, 004, 005, 014, 019, 027, 029, 031, 036, 037, 042, 043, 052, 053, 054, 056, 057, 059, 060, 062, 063, 064, 065, 066, 067, 068, 069, 070, 071, 072, and 073.)
Remedy in Place with LTM:	5 (FTRI-003, 009, 011, 030, 038)
Response Complete (RC) Sites:	35
MMRP Sites:	2
Different Site Types:	3 Fire/Crash Training Areas 2 Contaminated Groundwater 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, Perchlorate
Media of Concern:	Groundwater, Soil, Surface Water, Sediment
Completed REM/IRA/RA:	• REM - Replacement of leaking sewers at FTRI-027 (FY94 & FY96, $100K) (For a full list of past REM/IRA/RAs, see the REM/IRA/RAs Section)
Current Funding IRP Phases:	**RI/FS** at 7 sites **RD** at 1 site **LTM** at 4 sites
Projected Funding IRP Phases:	**RI/FS** at 4 sites **RD** at 2 sites **RA(C)** at 1 site **RA(O)** at 2 sites **LTM** at 6 sites
Identified Possible IRA/RA:	FTRI-027
Funding:	Prior years (1989-2004): ..... $ 61,875,271 FY2005: ..... $ 1,366,000 Future Requirements (FY06-15+): ... $ 15,276,000 **Total: $78,517,271**
Duration:	Year of IRP Inception: 1989 Year of RA Completion: 2008 Year of IRP Completion including LTM: 2034

Installation Information

Site Description:

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. Fort Riley is west of Manhattan (population 38,000). Milford Lake (16,020 acres) bounds part of the western side of the installation.

Command Organization:

ACSIM (Assistant Chief of Staff for Installation Management)
INSTALLATION: Fort Riley

IRP Executing Agencies:

- U.S. Army Corps of Engineers, Kansas City District
- U.S. Geological Survey

Regulatory Participation:

FEDERAL: U.S. Environmental Protection Agency (EPA), Region VII
STATE: Kansas Department of Health and Environment (KDHE), Bureau of Environmental Remediation and Bureau of Environmental Field Services - North Central District Office

Regulatory Status:

- NPL Installation (entire installation), 1990, CERCLIS Site KS6214020756
- CERCLA/RCRA Federal Facility Agreement (FFA), 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.

Major Changes to IAP From Previous Year (2004):

- As a result of a Pilot Study using potassium permanganate for FTRI-031, the most likely technology to be utilized will be Monitored Natural Attenuation.
- As a result of new data at FTRI-027, the most likely technologies will be Soil Vapor Extraction, Enhanced Anaerobic Bioremediation, and Monitored Natural Attenuation.
- Based on negotiations between Fort Riley, EPA and KDHE several sites previously determined administratively RIP/RC by the Army will be evaluated for Regulatory Completeness. Therefore, there are changes in the status of several sites and designation of new Operable Units (OU 006 and OU 007).

Installation Information

Location:

Fort Riley is located in the Flint Hills region of Kansas along I-70 about 125 miles west of Kansas City, between Junction City and Manhattan. As the fourth largest employer in the state of Kansas, Fort Riley's economic impact exceeded $688,518,714 in FY2003. Fort Riley has a daytime population of over 22,000 and is home to over 3,000 families. This population makes Fort Riley the 16th largest city in Kansas. The reservation covers 100,656 acres, of which 70,926 acres are used for maneuver training.

History:

In an 1843 expedition, Captain John C. Fremont, "The Pathfinder," camped at the junction of the Smoky Hill and Republican Rivers. He reported great numbers of elk and Indians. Within a few years, the "Great Migration" along the Oregon Trail and trade along the Santa Fe Trail brought thousands of pioneers through Indian Territory, as Kansas was formerly known.

In 1852, Major E.A. Ogden established a temporary camp north of the Kansas River in the area where Fort Riley's Main Post is now located. The encampment was originally known as "Camp Center" because it was thought to be the geographic center of the United States. A permanent post was authorized the following year and the new installation was named Fort Riley in honor of Major General Bennett Riley, who had been a distinguished veteran of the Mexican War and commander of the first military escort along the Santa Fe Trail. Fort Riley was designated a Cavalry Headquarters in 1885 resulting in the post becoming known as the "Cradle of the Cavalry." Fort Riley stood as the major horse cavalry training school in our country and boasted a position as one of the best cavalry training schools in the world.

Fort Riley has trained and deployed military forces in virtually every major war of our nation's history.

For over 30 years, Fort Riley was home to the 1st Infantry Division, but worldwide commitments resulted in the 1st Infantry Division Headquarters deploying to Wuerzburg, Germany, in 1996. In 1999, Fort Riley became the headquarters of the 24th Infantry Division (Mech). Currently, Fort Riley is home to two combat brigades (1st Brigade, 1st Infantry Division, Mechanized and 3rd Brigade, 1st Armored Division) and an engineer group (937th).

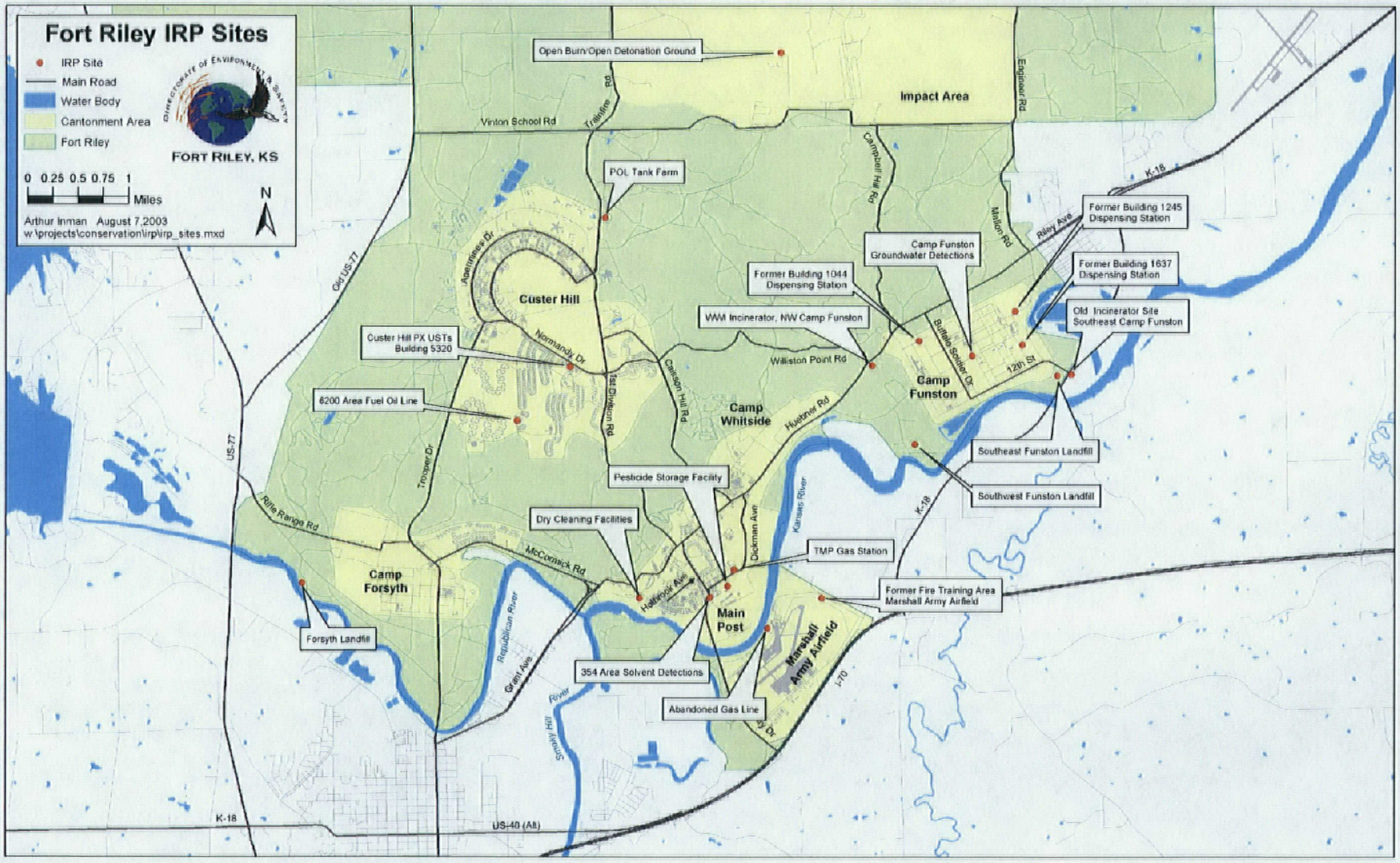
The post has always been an integral part of the state of Kansas and American military history and is known as "America's Warfighting Center."

Mission:

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

The Directorate of Environment and Safety's (DES) mission is to protect life, property, and natural/cultural resources for use today and in the future, by integrating environment and safety programs with Fort Riley's missions.

Installation Information



Contamination Assessment

OVERVIEW

The Army initially began environmental restoration-related investigations as a result of the 1981 closure of the Southwest Funston Landfill where monitoring indicated groundwater contamination. Also, practices at a pesticide facility prior to the mid-1970s resulted in contamination in the soils and in sediments in the drainageway behind the building.

Fort Riley's placement on the National Priorities List (NPL) was announced on 30 August 1990 with a Hazard Ranking System (HRS) score of 33.8. The minimum HRS score for NPL listing is 28.5. A Federal Facility Agreement (FFA) was signed by the Deputy Assistant Secretary of Army (Environmental Safety and Occupational Health) (DASA (ESOH)) and the 1st Infantry Division Commander in August, 1990. The Kansas Department of Health and Environment (KDHE) and the U.S. Environmental Protection Agency (USEPA or EPA) signed this agreement in February, 1991. The FFA, which incorporates both Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and Resource Conservation and Recovery Act (RCRA) actions, became effective in June 1991. Project schedules are re-negotiated annually based on available resources or as needed due to project requirements.

Five IRP sites have been designated as Operable Units (OUs). Three OUs are currently the subject of Remedial Investigations/Feasibility Studies. Three Removal Actions were performed in 1994 with additional phases performed in FY95 at one site. Removal Actions were performed in FY99 and FY00 at 3 additional sites. Removal Actions have been completed at seven sites (FTRI-003, FTRI-029, FTRI-030, FTRI-057, FTRI-035, FTRI-036 and FTRI-038). Soil contamination has been removed through pilot treatment studies at two sites (FTRI-019 and FTRI-027) and free product has been recovered at two sites (FTRI-062 and FTRI-063). An Installation-Wide Site Assessment was performed in 1993 to identify additional potential areas of concern and several sites were investigated in phases under the Multiple Sites Investigations project. Two of these sites were designated as Operable Units in FY95 including one (FTRI-019) which is adjacent to the installation boundary and contamination is known to exist off post. Many of the sites have been determined to require no further action, while several warranted further investigation and/or action.

The Five Operable Units (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 significant 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 RI/FS sampling detected contaminants such as chlorinated solvents, petroleum hydrocarbons, and metals in the groundwater at low levels. A Removal Action was completed to stabilize the Kansas River bank and to reduce infiltration through an evapo-transpirative cover. The ROD was signed August 6, 1997. Institutional controls and long-term monitoring have been implemented. Because contamination is still present, five-year reviews will be conducted per the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Pesticides stored and mixed at the former PSF are believed to have been released to the environment through past operational and disposal practices. Pesticide and arsenic contamination in soils was the primary concern. A Removal Action to excavate and dispose of contaminated soils was taken in FY94. The RI/FS and a ROD for No Further Action for this site were completed in FY 97. Because residual contamination is still present, five-year reviews will be conducted per the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Per the FFA, Fort Riley is subject to stipulated penalties assessed by the EPA. If a deadline for a primary document is not met, stipulated penalties may be assessed. In June 1993, the Draft Final RI Report for the Pesticide Storage Facility was not submitted on its scheduled date. In December 1993, EPA assessed a penalty of $65,000. Fort Riley

Contamination Assessment continued next page

Contamination Assessment

OVERVIEW, continued

disputed the method used to determine the amount assessed. A Dispute Agreement reduced the monetary penalty to $34,000 and the completion of three removal actions (SFL Bank Stabilization, PSF, and Colyer Manor). The penalty was paid in FY97.

The DCFA has two sites with soil and groundwater contamination from dry cleaning operations using tetrachloroethylene/perchloroethylene (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 groundwater 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 groundwater plume centered on well DCF02-42. Both plumes move off the terrace into the alluvium and are negatively impacting Kansas River water quality.

While the Preliminary Assessment/Site Inspection (PA/SI), confirming soil and groundwater contamination, was completed in a timely manner in late 1992, it was followed by three protracted remedial investigations. Each subsequent report revealed the complexity of the site as Fort Riley tried to define the extent of the PCE contamination.

The Remedial Investigation (RI) Report, dated March 1995, focused on the contamination on the terrace at Building 180/181. The sewer lines were surveyed in an effort to determine the origin of the PCE contamination. In 1994, two actions were taken to reduce the contamination. First, east of Building 180/181, a leaking sewer line was repaired and contaminated sediment (470 ppm) PCE from a sewer manhole was removed. Second, a soil vapor extraction pilot study next to the manhole recovered 20 pounds of PCE. With these efforts, groundwater contamination decreased, but was not eliminated. This leaves open the possibility that contamination was moving south into the Kansas River alluvium.

The next effort, the Remedial Investigation Addendum Monitoring Expansion Report (RIAMER), dated March 1998, documented efforts to determine the extent of the contamination in the alluvial aquifer under "The Island". As a result of drilling additional wells, the contaminant plume issuing from the terrace at Building 180/181 was defined. However, newly drilled DCF96-25 on the western side of the Island had high levels of PCE in the groundwater. Later in March 2001, DCF96-36 in Training Area 2 (TA2) south of the Kansas River had a groundwater sample test 15 ppb PCE. These data gaps set up the next round of investigation.

The third document, the Remedial Investigation Addendum (RIA), dated May 2004, addresses efforts to determine the origin on the PCE contamination on the terrace and in the alluvium; and if contamination had migrated under the Kansas River.

By collecting soil samples and drilling additional wells, Fort Riley found contamination under the southwest corner of Building 180/181 and that the groundwater plume in DCF96-25 originated to the northwest at DCF02-42 on the terrace. Based on a utility line survey, the western PCE contamination appears to be transported through a utility trench from the Building 180/181 area. Sampling at Building 183 showed no contamination. With the drilling of DCF03-50 and no further PCE hits in DCF96-36 in TA2, PCE contamination does not appear to be crossing under the Kansas River.

Extensive site characterization was performed at the FFTA-MAAF site under the Site Investigation. A pilot study was conducted to address soil contamination in the vicinity of the FFTA-MAAF in FY94-95. Additional groundwater investigations were conducted in FY97-99 to further characterize the off-post groundwater plume. Private wells in the area are being monitored. A Removal Action Engineering Evaluation/Cost Analysis (EE/CA) was prepared which recommended providing an alternate water source to two impacted properties and an Action Memorandum was prepared. A tracer study and a natural attenuation evaluation were performed in FY99-00. The RI Report was completed in FY01 to delineate and refine the fate and transport estimation and approved by the regulators with three contingencies (river sampling, model evaluation, and installation of new wells). The FS was completed in 2003.

Contamination Assessment continued next page

OVERVIEW, continued

The Proposed Plan identified Monitored Natural Attenuation with institutional controls as the preferred remedial alternative. The ROD will be finalized in 2005. A federal lawsuit brought by the owners of an off-post property was decided in April 2001, in favor of the plaintiff. The Department of Justice appealed the Federal Tort Claims Act portion of the judgement and it was decided in favor of the Army. An IRA alternate water supply project, for adjacent private properties, was completed in October 2002.

The 354 Area Solvent Detections site was discovered during investigations of a POL/UST site. Initial field investigations were conducted in 1997. The original RI/FS Work Plan was developed and received regulator approval in FY98. RI field investigations were initiated in FY99 and continued in FY00 that identified a significantly larger area of contamination than anticipated. Monitoring wells, piezometers, and data collection platforms (DCPs) were installed in FY00 to support the RI. Additional data needs were identified and additional RI investigations were performed in 2001 to include investigations along the sanitary sewer line in conjunction with a site investigation of the Abandoned Gas Line (FTRI-056). The RI Report was completed in FY04. A Pilot Study for Soil Remediation was completed in March 2004 to address a hotspot of contamination.

The Installation-Wide Site Assessment was performed in 1992 and the results presented in the Draft Final Installation-Wide Site Assessment (IWSA) for Fort Riley, Kansas, dated 7 December 1992 and revised on 16 February 1993. It identified 25 groups of potential areas of concern (PAOC), with 23 sites being identified for further Site Investigations. Contaminants associated with these sites vary greatly from potential lead-contaminated soils at old firing ranges to potential releases of solvents due to practices at furniture repair shops. The IWSA was conducted consistent with the EPA requirements for Preliminary Assessments under CERCLA. Based on EPA's Preliminary Assessment (PA) methodology, potential risk posed by the PAOCs was estimated using the Hazard Ranking System (HRS). The IWSA identified PAOCs subject to RCRA corrective actions and/or CERCLA where a release of hazardous substances to the environment has occurred or is considered likely, where migration pathways from the site exist, and where potential receptors are known to exist. Specifically, 23 PAOCs were identified and evaluated using the HRS PA SCORE methodology. As outlined in the NCP, the results of the PA were used to identify sites requiring further investigation of SIs.

These PAOCs were addressed under the Multiple Site Investigations project which is further broken down into groupings including the Sensitive Receptor Lead Sites, the "High Priority" Sites, and the "Other Sites". The Sensitive Receptor Lead Sites were expedited due to the accessibility of the areas to the general public (especially children). Only one area near the Colyer Manor Family Housing Area was identified as having elevated levels of lead in the soils, and a removal action involving excavation and disposal of soils was performed. The High Priority Sites field investigations were completed in November 1993. Results are indicated in the following site contamination summaries. The Former Fire Training Area-Marshall Army Airfield (FFTA-MAAF) was broken out as a separate site because of the magnitude of off-post contamination. The "Other Sites" grouping consisted of 14 sites which had very low PA HRS scores and have a low potential for release of contaminants to the environment. Field work for these "Other" sites occurred in the spring and summer of 1994. A joint review of the Multiple Sites with the EPA and the KDHE in the summer of 1995 resulted in concurrence on the designation of two sites as formal Operable Units (FFTA-MAAF and 354), on the recommendations of No Further Action on numerous sites, and identified several sites which warranted additional characterization or action. The Forsyth Landfill Area 2, the Southeast Funston Landfill and Incinerator sites, and the OB/OD range required additional work. No Further Action Decision Memoranda for many of the Multiple Sites were completed and approved by the EPA in 1998.

Phase I and II Site Investigations were completed at seven POL UST sites from 1992 to 1995. Remedial Action Plans were prepared for these sites and submitted to KDHE in FY97. The KDHE approved the remedy of intrinsic remediation with LTM for five sites and placed them into "on-hold" status for closure and two sites were approved for NFA and closed status. The Work Plan for investigation of the Abandoned Gas Line was completed in FY98.

Contamination Assessment continued next page

Contamination Assessment

OVERVIEW, continued

After completion of the fieldwork and analysis it was determined that further sampling was necessary to fill a data gap. This work was performed in FY04.

The Work Plan for POL Tank Farm was completed in FY99. Investigation field work for the POL Tank Farm was completed in 2002 and documented in the SI report. It was determined additional fieldwork was needed to fill data gaps. This work was performed in FY04.

Fort Riley's first Five-Year Review Report was due in August 2002. A schedule was developed and the review initiated in 2001. The draft version was provided to the EPA, the KDHE, and all interested RAB members. A regulatory review of the draft document was conducted. A public comment period ran from June 1 through July 1, 2002. The document was signed by the EPA on July 15, 2002.

PREVIOUS STUDIES

Title	Author	Date
Installation Assessment of the Headquarters, 1st Infantry Division (Mechanized) and Fort Riley, KS	Environmental Science and Engineering (for USATHAMA)	June-1983
Evaluation of Solid Waste Management Units, Fort Riley, KS	Army Environmental Hygiene Agency	June-1989
Installation-Wide Site Assessment	Louis Berger & Associates	Dec 1992 w/ Feb 1993 revisions
Impact Area Site Assessment Report	Louis Berger & Associates	March-1993
Site Investigation Report for High Priority Sites	Louis Berger & Associates	February-1994
Site Investigation Report for "Other Sites"	Louis Berger & Associates	April-1995
Draft Final Installation-Wide Site Safety and Health Plan for Environmental Investigations at Fort Riley, Kansas	Malcolm Pirnie/Burns & McDonnell	February-2004
Draft Final Installation-Wide Site Sampling and Analysis Plan for Environmental Investigations at Fort Riley, Kansas. Volumes I and II.	Malcolm Pirnie/Burns & McDonnell	February-2004

Southwest Funston Landfill (OU 001)

Engineering Evaluation / Cost Analysis w/ August 1993 Supplement	Law Environmental, Ft. Riley DEH, Environmental and Natural Resources	Jul 1993 w/ Aug1993
Remedial Investigation Report	Law Environmental	April-1994
Feasibility Study Report	Law Environmental	April-1994
Proposed Plan	Law Environmental	November-1994
Record of Decision	Law Environmental / Ft Riley DES	August-1997
Operation and Maintenance Plan	Kansas City District, Corps of Engineers	September-1996
Long-term Groundwater Monitoring Plan	Kansas City District, Corps of Engineers	January-1997
Removal Action Report	Kansas City District, Corps of Engineers	June-1997
Institutional Controls Plan	Ft. Riley DES	November-1997
Annual Monitoring Report, Dec 1995 - Nov 1996	U.S Geological Survey, Lawrence, Kansas	August-1997
Annual Monitoring Report, 1997	U.S Geological Survey, Lawrence, Kansas	September-1998
Annual Monitoring Report, 1998	U.S Geological Survey, Lawrence, Kansas	September-1999
Annual Monitoring Report for 1999 and 2000	Burns & McDonnell	February-2002
Annual Monitoring Report for 2001	Environmental Chemical Corp	March-2002
Five-Year Review Report	Fort Riley, DES	July-2002
Annual Monitoring Report for 2002	Environmental Chemical Corp	April-2003
Annual Monitoring Report for 2003	Environmental Chemical Corp	February-2004
See Camp Funston Area Groundwater for USGS Modeling Report		

Previous Studies Table continued next page

Contamination Assessment

PREVIOUS STUDIES, continued

Title	Author	Date
Pesticide Storage Facility (OU 002)		
Engineering Evaluation / Cost Analysis	Ft. Riley DEH, Environmental and Natural Resources Division	August-1993
Remedial Investigation	Law Environmental	Jul 93 w/ Dec 93 revisions
Remedial Investigation Addenda	Law Environmental	Jun 1997 w/ Aug 1997 revisions
Proposed Plan	Ft Riley, DES	August-1997
Record of Decision	Law Environmental / Ft Riley DES	September-1997
Land Use Management Plan	Ft Riley, DES	July-1999
Five-Year Review Report	Fort Riley, DES	July-2002
Dry Cleaning Facilities, OU 003		
Draft Final Remedial Investigation Report	Louis Berger & Associates	March-1995
Draft Final Remedial Investigation Addendum / Monitoring Expansion Report	Louis Berger & Associates	March-1998
Draft Final Feasibility Study Report	Louis Berger & Associates	March-1998
Draft Final Remedial Investigation Addendum	Burns & McDonnell	May-2004
Former Fire Training Area-Marshall Army Airfield, OU 004		
Expanded Site Investigation Sampling and Analysis Plan (includes reporting of data to-date)	Louis Berger & Associates	May-1994
Site Investigation Report	Louis Berger & Associates	Aug 1995 w/
Pilot Study Report	Louis Berger & Associates	March-1999
Remedial Investigation / Feasibility Study Work Plan	Burns & McDonnell	April-1997
Engineering Evaluation / Cost Analysis, Exposure Control Action	Louis Berger & Associates	December-1997
Action Memorandum, Exposure Control	Louis Berger & Associates	April-1998
Institutional Control Evaluation	DPRA	June-2000
Remedial Investigation Report	Burns & McDonnell	April-2001
Feasibility Study	Burns & McDonnell	September-2003
Proposed Plan	Burns & McDonnell	June-2004
354 Area Solvent Detection Site, OU 005		
Preliminary Evaluation of Data	Kansas City District, Corps of Engineers	June-1995
Initial Field Investigations Sampling and Analysis Plan	Burns & McDonnell	July-1997
Initial Field Investigations Report	Burns & McDonnell	March-1998
RI/FS Work Plan	Burns & McDonnell	January-1999
Monitoring Well Installation Report	Kansas City District, Corps of Engineers	May-2000
Draft Final Data Evaluation Technical Memorandum and Work Plan Addendum for the RI/FS	Burns & McDonnell	April-2001
Tech Memo canceling EE/CA	Burns & McDonnell	December-2002
Draft Final Remedial Investigation Report 354 Area Solvent Detections (Operable Unit 005) at Main Post, Fort Riley, Kansas. Volumes I & II	Burns & McDonnell	November-2003

Previous Studies Table continued next page

PREVIOUS STUDIES, continued

Title	Author	Date
354 Area Solvent Detection Site, OU 005 - Continued		
Draft Final Work Plan Pilot Study for Soil Remediation 354 Area Solvent Detections (Operable Unit 005) at Main Post Fort Riley, Kansas	Burns & McDonnell	December-2003
Draft Final Site-Specific Safety and Health Plan Pilot Study for Soil Remediation 354 Area Solvent Detections (Operable Unit 005) at Main Post Fort Riley, Kansas	Malcolm Pirnie/Burns & McDonnell	December-2003
Custer Hill Sanitary Landfill (activities performed under DERA only)		
Data Summary and Evaluation Report	Kansas City District, Corps of Engineers	August-1992
Data Summary and Evaluation Supplement	Louis Berger & Associates	June-1993
Interim Sampling Data Report for the Custer Hill Sanitary Landfill	Louis Berger & Associates	December-1993
Interim Sampling Data Report for the Custer Hill Sanitary Landfill	Louis Berger & Associates	July-1994
Camp Funston Area Groundwater		
Monitoring Well Installation Report	Kansas City District, Corps of Engineers	August-1997
Camp Funston Annual Report: Hydrogeological Data for Digital Groundwater Flow Model	U. S. Geological Survey, Lawrence, Kansas	September-1997
Chemical and Isotope Evaluation Report	Dept. of Geology, Kansas State University	November-1997
Work Plan for Hydrologic Evaluation of the Camp Funston Area	U. S. Geological Survey, Lawrence, Kansas	September-1998
Annual Groundwater Monitoring Report, 1997	U. S. Geological Survey, Lawrence, Kansas	October-1998
Annual Groundwater Monitoring Report, 1998	U. S. Geological Survey, Lawrence, Kansas	October-1999
Monitoring Well Installation Report	Kansas City District, Corps of Engineers	November-2000
Characterization and Simulation of Groundwater Flow in the Kansas River Valley at Fort Riley, Kansas 1990-1998	U. S. Geological Survey, Lawrence, Kansas	March-2000
Annual Groundwater Monitoring Report 1999/2000	Burns & McDonnell	March-2002
Annual Groundwater Monitoring Report 2001/2002	Environmental Chemical Corp.	April-2003
Annual Groundwater Monitoring Report 2002/2003	Environmental Chemical Corp.	February-2004
Multiple Sites Follow-On Investigations		
Site Investigation Report Addendum, Former Wherry Substation and DRMO Area 1 Drainage Ditch	Louis Berger & Associates	February-1997
Site Investigation Report Addendum, Open Burn/Open Detonation Area	Louis Berger & Associates	August-1998

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Contamination Assessment

PREVIOUS STUDIES, continued

Title	Author	Date
Multiple Sites Follow-On Investigations - Continued		
Site Investigation Report Addendum, Southeast Funston Landfill Incinerator Area	Louis Berger & Associates	July-1997
Decision Memorandum - Multiple Sites	Louis Berger & Associates	September-1998
Decision Memorandum - DRMO Area 1	Louis Berger & Associates	April-1998
Decision Memorandum - Building 727 Former Service Pit	Louis Berger & Associates	May-1999
Forysth Landfill		
Engineering Evaluation / Cost Analysis	Corps of Engineers, Kansas City District	June-1998
Action Memorandum	Corps of Engineers, Kansas City District	March-1999
Removal Action Report	Wenck Associates Inc	August-2001
Southeast Funston Landfill		
Engineering Evaluation / Cost Analysis	Corps of Engineers, Kansas City District	January-1999
ction Memorandum	Corps of Engineers, Kansas City District	June-1999
Removal Action Report	Wenck Associates Inc	August-2000
Decision Memorandum	Fort Riley	February-2002
Memorandum of Agreement with the KDWP	Fort Riley	December-2002
Petroleum / Underground Storage Tanks		
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 5390, Fort Riley, KS.	Dames & Moore	August-1997
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 1890, Fort Riley, KS.	Dames & Moore	June-1997
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 1637, Fort Riley, KS.	Dames & Moore	July-1997
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 1539, Fort Riley, KS.	Dames & Moore	July-1997
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 1044, Fort Riley, KS.	Dames & Moore	July-1997
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 1245, Fort Riley, KS.	Dames & Moore	July-1997
Remedial Action Plan and Final Site Investigation Report for POL/UST Site 388, Fort Riley, KS.	Dames & Moore	June-1997
Annual Groundwater Sampling Report	Hydrogeologic, Inc	March-1999
Annual Groundwater Sampling Report	Hydrogeologic, Inc	May-1999
Annual Groundwater Sampling Report	Hydrogeologic, Inc	June-2000
Annual Groundwater Sampling Report	Hydrogeologic, Inc	October-2000
nnual Groundwater Sampling Report	Environmental Chemical Corporation	May-2002
Annual Groundwater Sampling Report	Environmental Chemical Corporation	October-02
Annual Groundwater Sampling Report	Environmental Chemical Corporation	September-03

Previous Studies Table continued next page

PREVIOUS STUDIES, continued

Title	Author	Date
Abandoned Gas Line		
AGL Site Investigation	Dames & Moore	March-96
Tech Memo Site Specific Work Plan	Burns & McDonnell	April-98
Tech Memo Work Plan	Burns & McDonnell	August-01
Work Plan Site Assessment AGL Terminus Area	McKinzie Construction, Inc.	March-04

2005 IAP

Fort Riley Active ER,A Site Descriptions

SOUTHWEST FUNSTON LANDFILL (OU 001)
TRI-003

STATUS

RRSE RATING: High

CONTAMINANTS:
VOCs (primarily Vinyl Chloride)

MEDIA OF CONCERN:
Groundwater

COMPLETED IRP PHASE: PA/SI, RI/FS, 4 IRAs, RD, RA

CURRENT IRP PHASE: RIP with LTM

FUTURE IRP PHASE: RIP with LTM

SITE DESCRIPTION

Southwest Funston Landfill is located in the southern portion of Fort Riley, adjacent to the southwest corner of the Camp Funston cantonment area. This approximately 120 acre landfill was closed in 1981. The RI indicated sporadic detections of volatile organic compounds. A Bank Stabilization action was accomplished in the winter/spring of 1994 and cover repairs were performed in 1995. Another action consisting of regrading and improving the native soil cover was completed in the spring of 1997. Minor bank stabilization repairs, re-seeding and monitoring well abandonment were accomplished in 1998.

Although vinyl chloride has been detected in groundwater (above MCLs), the site does not present significant risk to human health and the environment under current conditions. The ROD includes a contingency for future action, the completed native soil cover, institutional controls to prevent on-site groundwater use, long-term groundwater monitoring, and further hydrogeologic characterization of surface water/groundwater interaction in conjunction with LTM efforts.

Groundwater monitoring is performed semi-annually and site inspections are performed annually. A one-time surface water sampling of the Kansas River was conducted in FY01, and resulted in all non-detects.

A cover repair project was completed in 2002 after a spring inspection revealed that more settlement had occurred than expected. In 2003, the repaired areas were seeded with native grasses to support the evapotranspirative cover. The 2003 annual inspection was completed with no significant concerns identified. Minor areas of sparse vegetation, tree saplings, and small erosion areas were noted for repair.

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

PROPOSED PLAN

Groundwater monitoring is continuing on a semi-annual basis.

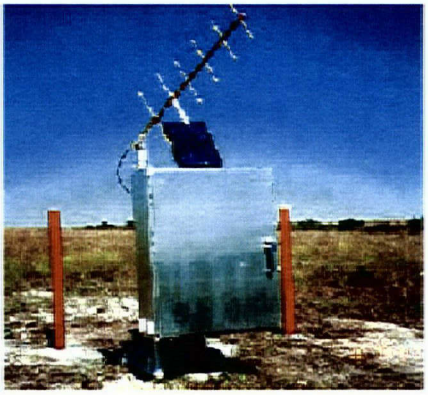
Since some contamination will remain on-site, statutory reviews will be required at least every 5 years and planned through 2027. The USGS will continue to collect hydrogeologic data for use in those reviews in 2007.

Prescribed burns will be performed periodically to enhance the native evapotranspirative cover. Annual inspections and periodic maintenance and repair of the bank stabilization and cover will be conducted. Monitoring well pump replacement may be necessary, and unnecessary monitoring wells may be removed in the future.

OB/OD GROUND (RANGE 16)
FTRI-009

SITE DESCRIPTION

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 groundwater. Due to its remote location, there are no nearby receptors. Eight surface soil samples, eight deep borings, two surface water, and three sediment samples were collected and analyzed for explosives, VOCs, SVOCs, and depleted uranium. Four monitoring wells were installed and sampled for the same analytes. The open burn pit has not been used for open burning since approximately 1993.



Due to complex site hydrogeology, additional characterization was needed and in 1997, four additional monitoring wells and five nested piezometers were installed. A hand dug well (part of a historic farmstead) was converted to a monitoring well. Sampling results indicated VOC contamination.

In 1998, five surface water samples from the ephemeral streams onsite were collected and analyzed. The results were non-detect for contaminants of concern.

Sampling of surface water is being done using an automated collection system designed and installed by the USGS in 1999. Data collection platforms are in place to remotely monitor groundwater levels, surface water flow, and groundwater to surface water interaction. The system may be removed in FY04, as the stream has been dry and remains so except for high rainfall episodes. In 1999, a Stratigraphic/Structural Evaluation of the area was completed by KSU, Department of Geology. An Ecological Risk Screening Evaluation was performed in 1998 and found low risk to ecological receptors.

The groundwater sampling event conducted in April 2004 demonstrated the presence of perchlorate.

STATUS

RRSE RATING: Medium

CONTAMINANTS: VOCs, Perchlorates

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE: RI/FS (Funded)

FUTURE IRP PHASE: LTM

PROPOSED PLAN

Complete a Technical Memorandum compiling all of the site data (funded in FY03).

Continue to monitor stream flow and surface water quality to determine if groundwater is surfacing (started in 1998). One additional round of groundwater samples will be taken to be included in the Tech Memo report.

Prepare data reports as needed and decide course of action in consultation with regulators.

Fort Riley will continue GW sampling on an annual basis for two years. A decision on the perchlorate contamination will be made after that time.

FORMER FIRE TRAINING AREA FFTA-MAAF (OU 004)
TRI-019

SITE DESCRIPTION

This site consists of a former fire training area and former drum storage area located at Marshall Army Airfield (MAAF) near the installation boundary. The former fire training pit consisted of an unlined pit filled with crushed stone. The fire training area operated from the mid 1960s to 1984. A drum of tetrachloroethene (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.

The Installation-Wide Site Assessment (dated 1992) indicated that the activities at FFTA-MAAF site potentially impacted the soils and groundwater in the vicinity of the site. Site Investigation activities conducted from 1993 through 1995 indicated off-post groundwater contamination above regulatory limits which was confirmed by analyses taken from private wells. A Soil Vapor Extraction (SVE) and Bioventing Pilot Study was completed in 1994/1995 to address the source area. Remedial Investigations have been performed and characterized the fate and transport of the contaminants. Off-site groundwater contamination has impacted private wells, which have been plugged and abandoned in conjunction with the 2002 IRA. Based on sampling results, the Army feels that the TCE/DCE plume is stable or decreasing.

STATUS

RRSE RATING: High

CONTAMINANTS: VOCs

MEDIA OF CONCERN: Groundwater

COMPLETED IRP PHASE: PA/SI, 4 IRAs

CURRENT IRP PHASE: RI/FS, RD

FUTURE IRP PHASE: RA(O)

An EE/CA was performed (Dec 97) to assess the need for a Removal Action for Exposure Control, and an Action Memorandum was completed.

A second EE/CA was performed (1998) to evaluate groundwater "hot spot" removal. The evaluation concluded that natural degradation was occurring faster than the available technologies could effectively accomplish a removal, and the EE/CA was discontinued.

A Natural Attenuation bench scale study and an Aquifer Tracer Study were completed in FY99.

The RI prepared in FY00 was finalized in April 2001, including a groundwater model. The KDHE's approval of the RI was contingent on further data ranges being added to the groundwater model, installation of one nested pair of groundwater monitoring wells on the north side of the Kansas River, and completion of a surface water sample transect. Except for the installation of the nested pair of monitoring wells at an agreed upon location on Fort Riley, these are complete.

The 1997 Exposure Control Removal Action decision proposed two replacement wells to supply domestic water to two off-post properties, which have been installed (Sept 2002).

The Draft Final FS Report was submitted in Sept 2003 and approved by KDHE and EPA. Thereafter, the Proposed Plan was finalized in June 2004.

As a result of the FFTA-MAAF operation, off-post contamination occurred that impacted the Plaza Speedway water supply wells. The owner filed a law suit against the installation as a result of the groundwater contamination. The Federal District Court found against the installation in April 2001. The Federal Court of Appeals reversed the district court's finding, that pertained to the Federal Tort Claims Act. Therefore the Army will not be responsible for the $150,000 monetary award. The CERCLA portion has been settled (in 2002) by the installation of an alternate water supply for the affected parties.

Site Description continues next page

PROPOSED PLAN

Finalize the ROD.

Periodic groundwater monitoring will continue, estimated at 2 times per year.

The anticipated remedy is monitored natural attenuation, coupled with Institutional Controls.

Long-term monitoring is assumed for 10 years following completion of the RA. Five-Year Reviews will be required.

DRY CLEANING FACILITIES AREA (OU 003)
TRI-027

STATUS

RRSE RATING: Medium

CONTAMINANT: VOCs

MEDIA OF CONCERN: Groundwater, Soil

COMPLETED IRP PHASE: PA/SI, IRA

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: RI/FS, RD, RA(C), RA(O), LTM

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. A PA/SI was completed for the former DCFA in September 1992 and a RI/FS initiated. Chlorinated solvent contamination was found in soils and groundwater. A Pilot Study for Dual-Phase Groundwater and Soil Vapor Extraction (SVE) was completed. The dual-phase vapor extraction tests were unsuccessful. SVE rates were low, but yielded enough contaminant removal to extend the study to further assess sustainable removal rates. The SVE was successful in removing much of the soil contamination known at that time. Leakage from a nearby sewer servicing the laundry was corrected in 1994 and 1996 (non-ER,A).

Following review of the RI and the Draft FS in 1995 it was determined, in concert with the EPA and the KDHE, that additional characterization of the adjacent alluvial aquifer ("The Island") was warranted. This work, accomplished in the spring of 1996, showed that contaminant levels exceeded MCLs, and the results were reported in a RI addendum (1998).

The baseline risk assessment indicates minimal risk associated with the site under current and anticipated land use. Exposure to impacted groundwater has not occurred and is not expected to occur. A 1998/1999 Proposed Plan included a Long-Term Monitoring Program with sentinel wells focusing on the Kansas River and associated alluvial groundwater, institutional controls, periodic reviews, and a contingency to develop and implement a future response action, if necessary. The sentinel wells installed in 1999 indicated a need for additional investigations.

The former DCFA buildings (180/181) were removed in 2000 (OMA). Additional soil and groundwater screening was performed at the building site and along the sewer line at the request of the regulators.

The RI/FS Addendum Work Plan was completed in March 2002, with additional field work conducted in May-July 2002. This report included information on Building 183 (removed in 2002) and investigation of the deep hydrology in transition & island areas.

The RI/FS field work at Building 180, 181 and 183 areas was completed in summer 2003. Additional wells (DCFA-03-50-A & -C) were installed in June 2003. The first Five-Year Review was completed in July 2002.

The Draft Final RI Addendum Report was approved in FY04.

Site Description continues next page

PROPOSED PLAN

Complete FS Addendum, Proposed Plan and ROD.

Implement Pilot Study for remediation of residual contamination potentially using SVE, enhanced biodegradation and/or potassium permanganate oxidizer. This will be followed by monitored natural attenuation and long-term groundwater monitoring.

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

STATUS

RRSE RATING: Low

CONTAMINANTS: Pesticides (Chlordane, DDT, Dieldrin, Heptachlor), PAHs, Metals (Arsenic)

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: PA/SI, IRA, RI

CURRENT IRP PHASE: None

FUTURE IRP PHASE: LTM (five-year reviews)

SITE DESCRIPTION

Sampling conducted in 1983-1984 detected pesticide contamination in the soils in the area behind the building and in sediments in the lined channel behind the building. 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. A removal action consisting of excavation and off-site disposal occurred in the spring of 1994, followed by the performance of a residual risk assessment and issuance of a RI Addendum.

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.

A Land Use Management Plan was prepared in 1999.

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

PROPOSED PLAN

Groundwater monitoring for the Five-Year Reviews. Additional Five-Year Reviews will be required.

354 AREA SOLVENT DETECTIONS (OU 005)
FTRI-031

STATUS

RRSE RATING: High

CONTAMINANT: VOCs, Fuels, Arsenic

MEDIA OF CONCERN: Groundwater, Soil

COMPLETED IRP PHASE: PA/SI, IRA

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: RI/FS, RD, RA(O), LTM

SITE DESCRIPTION

Fuel and solvent storage and dispensing occurred near building 354 in the Public Works (PW) yard. USTs used to store fuel were removed in 1990/91. No records exist to determine if solvents were stored in drums, USTs, or ASTs.

Investigations to determine the extent of fuel contamination were performed from 1992 through 1995. Perchloroethylene (PCE) and its breakdown products were detected above MCLs in samples collected from monitoring wells. An Initial Field Investigation was performed in FY97 but was not successful in delineating the extent of solvent contamination.

A RI Work Plan was developed in 1998 and RI fieldwork was conducted from June 1999 through April 2000. Monitoring wells, piezometers, and data collection platforms were installed to support the RI. Fieldwork was expanded to include the Point Bar along the Kansas River and a former motor pool area approximately 2 blocks north of PW. Potential source areas for the PCE and its breakdown products were identified near buildings 332 and 367. In addition to the PCE and its breakdown products, carbon tetrachloride (CCl_4) was identified in laboratory confirmation samples collected during fieldwork. This phase of the investigation was not successful at delineating the northern and western extents of CCl_4.

An addendum to the RI work plan was developed in FY00/01 and approved by the regulators. Fieldwork continued in 2001 to include investigations around Building 430 and along a sanitary sewer line in conjunction with the site investigation at the Abandoned Gasoline Line (FTRI-056). The northern and western extent of the CCl_4 and PCE were identified as a result of an extensive soil boring effort at Buildings 430 and 367. Four groundwater sampling events were conducted for the Baseline Risk Assessment and incorporated into the RI/FS. The Draft Final RI Report was approved by the KDHE and the EPA in December 2003. The EPA and the KDHE approved reducing to 16 monitoring wells sampled for VOCs and arsenic annually.

A Pilot Study for Soil Remediation was conducted at the hot spot of contamination next to Building 367 in March 2004. The Draft Technical Memorandum covering the Remedial Action Objective, Applicable or Relevant and Appropriate Requirements, Technologies Identification, and Detailed Analysis of Alternatives was submitted in April 2004.

Site Description continues next page

354 AREA SOLVENT DETECTIONS (OU 005), *continued*

TRI-031

PROPOSED PLAN

Complete the FS, Proposed Plan, ROD, RA(O), and LTM plan.

A soil-gas survey from five feet below ground surface to just above the water table will be conducted to determine if additional vapor intrusion study is required.

Groundwater sampling will be performed annually until the ROD is signed and annually for 10 years thereafter.

SOUTHEAST FUNSTON LANDFILL AND OTHERS (OU 006)
FTRI-036


FTRI-036

STATUS

RRSE RATING: Medium

CONTAMINANTS: Vinyl Chloride, Lead

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: PA/SI, IRA, RI

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: LTM

SITE DESCRIPTION

This is a combined Operable Unit (OU) that includes the following sites: FTRI-036, -002, -004, -005, -011, -014, -029, -037, and -052 (Inactive Landfill - Camp Whitside). It is listed under the FTRI-036 banner since all the sites address landfills or incinerators. This OU is a result of the lack of a regulatory-approved document officially closing out the listed sites. 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, limited, sampling set based on the appraisal of all parties as to the required additional sampling. After the analyses are complete, a determination, as to whether it is suitable to develop a succinct Feasibility Study, Proposed Plan, and Record of Decision via a comprehensive document, will be made. This effort is being made to achieve concurrence with the regulatory partners and the Federal Facility Agreement that the sites are at ROD and are either No Further Action (NFA) or required Long-Term Monitoring (LTM). Regarding the status of the sites, presumably, the evaluations, including strategic sampling, will render sufficient data on which to base closure decision making (ROD, NFA, and/or LTM).

FTRI-036 is the Southeast Funston Landfill. The SEFL is a former municipal solid waste landfill, 50 acres, is located in the southeast portion of the installation. Operations ceased in the mid 1950s. Soil-gas sampling locations indicated no VOC contamination. However, the duplicate samples analyzed in the off-site laboratory had positive detections of VOCs (DCE, toluene, chlorobenzene, and vinyl chloride (VC)). Only VC was above the MCL at two locations. Three groundwater screening samples were collected during the SI. 1,2-DCE was detected at each location below MCLs. No other VOCs and no SVOCs were detected. Initial analysis showed levels of lead in soil (below residential risk levels). Groundwater sampling and analysis conducted since 1995 have not shown groundwater contamination.

In FY98-99, an EE/CA, Action Memorandum/Responsiveness Summary and Design were completed for cover improvements to 10 acres of the western portion of the landfill to correct for subsidence and improve drainage. This project was combined with the soil removal at the nearby Southeast Funston Landfill Incinerator (FTRI-29) and performed in 1999. The soil, removed from the incinerator site and placed unstabilized at the landfill, contained lead concentrations greater than the industrial risk level of 1,000 mg/kg. A Removal Action Report for landfill cover repair and incinerator area contamination material removal was issued in Aug 2000.

FTRI-002 is the Camp Whitside C/D Landfill, and FTRI-052 is the Inactive Landfill-Camp Whitside. The sites are located in the Camp Whitside cantonment area within former limestone quarries. The precise contents of the landfills are unknown. The construction debris (CD) landfill received principally construction and demolition debris.

Site Description continues next page

SITE DESCRIPTION, continued

In 1988, the CD landfill was described as poorly managed with inappropriate non-construction type waste potentially placed in the landfill. The inactive Whitside landfill received small quantities of debris. There is no documentation that the landfills received hazardous waste. In 1982 the CD landfill caught fire. Six years later, in 1988, both the CD and Whitside landfills caught fire. The SI sample results in 1995 indicated the presence of volatiles, semi-volatiles, pesticides, and metals in soil, sediment and groundwater.

FTRI-004 is the Main Post Landfill. The area south of Main Post and north of the Kansas River has been used for the disposal of refuse during the post-WWII era. Pre-WWII disposal also occurred in adjacent areas. The area closest to the river was characterized as containing 19th century wastes. The area to the east contained post-World War II waste and the northern area contained the most recent wastes. The SI sample results in 1995 for soil gas and groundwater indicated the presence of VOCs and metals. The site is covered with well-established vegetation and contamination of surface soil covering the landfill was not expected.

FTRI-005 is the Custer Hill Road Rubble Dump. The site was operational for a six-month period during 1980-1981. The site was used for surface dumping of waste road material, concrete and asphalt. The materials were placed directly on the ground surface. The site covers approximately on-quarter acre ~ 1,000 feet west of Trooper Drive. No other materials were disposed of at the site. The site was closed in 1981.

FTRI-011 is the Camp Funston Area Groundwater. For additional information, see SE Funston Landfill, DRMO Area 2, Former DS/GS site and Funston Area (1000 Area) POL/UST sites.

Groundwater screening and monitoring well sampling data indicate that analyte concentration in groundwater throughout the Camp Funston Area have historically been less than the Safe Drinking Water Act MCLs, or action levels for drinking water. Semi-annual sampling and analyses have occurred in April and September of each year since 1998. The Camp Funston groundwater monitoring reports for these events indicate no VOCs, SVOCs or metals are present above Safe Drinking Water Act MCLs. Hydrogeology of the area is variable due to alluvial deposits and influence of oxbow lakes as well as the fluctuating and meandering Kansas River. The installation boundary is nearby and the city of Ogden is immediately adjacent. A well field in Ogden supplies not only the city, but a large rural water district. Sampling of private wells does not show groundwater contamination. Additional groundwater monitoring wells have been installed to fill data gaps and relocate monitoring wells.

The USGS has performed data evaluation and developed a groundwater model. A Groundwater Modeling report was issued in 2000 which indicated that Camp Funston Area contamination would not likely impact public or private water supplies.

FTRI-014 is the Hospital Incinerator-IACH. The Incinerator unit was operational from the late 1970s through the late 1990s. Solid and liquid hospital waste, including infectious waste were disposed. Airborne particulates and gases were the primary migration pathways identified.

FTRI-029 is the SEFL Incinerator. The incinerator was dismantled in 1967. Remnants of the incinerator are located in the southeast corner of Camp Funston. The incinerator was operated during the 1910s and 1920s and from 1941 to the mid-50s for combustible refuse. The primary contaminants of concern are metals, volatile, and semi-volatile organic compounds. The results of the SI indicated elevated concentrations of lead in the soil. Most of the highest lead contaminated soil was removed from the incinerator site in 1999 and placed in the western portion of the SEFL.

FTRI-037 is the Old Whitside Incinerator. The site is located one-quarter mile southwest of the old Kansas Territorial Capital and North of the Kansas River. The former incinerator was used as a medical incinerator for Camp Whitside, built during World War I. It is presumed that use of the incinerator ceased when the new hospital was built in 1955. Very little information is available regarding historical operations of the incinerator. The area is

Site Description continues next page

SITE DESCRIPTION, continued

wooded with many mature trees, and a public nature walk runs along the bluff and adjacent to the incinerator on the north side. The nature walk is the only human activity in the area. Soil sample results from the SI in March 1994 indicated that metals (arsenic, barium, cadmium, chromium, silver, and lead) were present at low concentrations. One shallow soil sample downslope from the incinerator had an elevated level of lead at 550 mg/kg.

PROPOSED PLAN

FTRI-036, -002, -004, -005, -014, -029, -037, and -052: Groundwater 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.

Five-Year Reviews will be required.

FTRI-011: Prepare the FY04 Groundwater Monitoring report (funded).

Modify the "Site-Specific Sampling and Analysis Plan, Long-Term Monitoring, Southwest Funston Landfill, Camp Funston Groundwater, POL UST Sites, Custer Hill Landfill" report to decrease the number of wells sampled at Camp Funston and to no longer analyze for SVOCs. Perform LTM of key wells upgradient of public and private supply wells, incorporate these wells into the LTM Plan for the Southwest Funston Landfill, and include in future Five-Year Reviews.

FORSYTH LANDFILL(S)
TRI-038

STATUS

RRSE RATING: Medium

CONTAMINANTS: Metals, Explosives

MEDIA OF CONCERN: Soil, Surface Water

COMPLETED IRP PHASE: PA/SI, RI/FS, IRA

CURRENT IRP PHASE: LTM

FUTURE IRP PHASE: LTM

SITE DESCRIPTION

Located south and west of Camp Forsyth, five separate areas have been identified as former landfill areas. One area can be observed in aerial photos as early as 1936. Investigations conducted in 1994 did not identify contaminants of concern in either soil or groundwater in four of the five sites. Landfill Areas 1, 3, 4, and 5 and the groundwater media of Area 2 are documented as requiring "no further action" in the Multiple Sites Decision Document. In Area 2, landfill materials were exposed on the surface in a drainage swale and along the Republican River bank. Landfill trenches were observed from the riverbed. UXO was found on a sandbar adjacent to Area 2 following the 1993 flood.

In 1997, the Army entered into a license agreement with Junction City, Kansas, to allow construction of a trail, Linear Trail, for pedestrian and recreational access along the Republican River adjacent to Area 2.

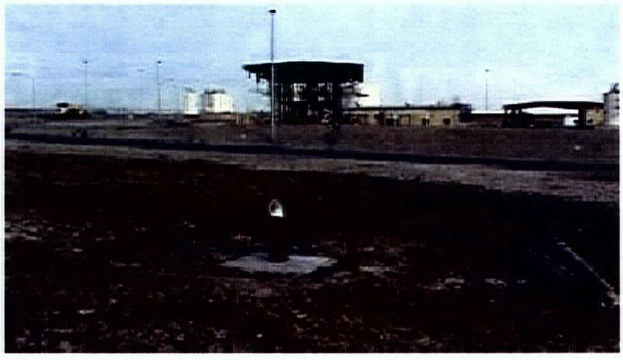
Review of aerial photos and land surveys shows that erosion from the Republican River has removed an area approximately 800 x 100 ft along Area 2 since 1982. In 1998 an EE/CA and design to stabilize Area 2 were prepared. The Action Memorandum was completed in 1999. Construction of a revetment and baffles, a stabilization structure, was completed in two phases. The first 500 ft were completed in the summer of 2000 and the remaining 1000 ft were constructed in the spring of 2001. A Removal Action Report was approved by KDHE in January 2002. Fort Riley posted (May 2002) a series of warning signs between the Riverbank Stabilization Area and the nature trail to notify the public of the site conditions.

PROPOSED PLAN

Prepare documentation of additional activities.

Conduct LTM including inspection and repairs to revetment with UXO escort, and Five-Year Reviews will be required.

POL TANK FARM
FTRI-053



STATUS

RRSE RATING: High

CONTAMINANTS: BTEX, VOCs

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: RC

SITE DESCRIPTION

The POL Tank Farm is an active consolidated storage facility located on 1st Division Road, Custer Hill. A former clay-lined sedimentation basin adjacent to the POL Tank Farm received flow from a large number of unit washracks. POL infiltrated through the bottom of the sedimentation basin into the subsurface. Limited site investigations have found free product and high levels of BTEX. Any groundwater contamination found in the shale formation may be impractical to remediate because of relatively small amounts of groundwater in a fractured bedrock formation.

A Site Investigation work plan was completed and approved by KDHE in FY99. Site Investigation field work commenced in spring 2001. Trenching activities found no petroleum hydrocarbon contamination in fill material within the POL Tank Farm facility or along utility trenches. Contaminants were found in sediment samples collected from the stream drainage southwest of the POL Tank Farm. Further investigation of sediment in the streambed was completed. Seven groundwater monitoring wells were installed in FY02 to obtain bedrock and groundwater flow information. The SI Report was completed in Aug 2002. Free product was detected, BTEX was detected in groundwater above MCLs and chlorinated hydrocarbons were detected in groundwater below MCLs.

A free-phase hydrocarbon pilot study has been ongoing since 1999. Additional field work, including MW installation was completed in 2003 to determine: the presence of free-phase hydrocarbon in the formation; the maximum extent of free-phase hydrocarbon at the Fort Riley Limestone-Holmesville Shale interface; and to establish a groundwater analytical baseline and seasonal groundwater flow patterns.

PROPOSED PLAN

A Phase II SI is expected to be completed in July 2005.

Based upon the recommendations and conclusions of the Phase II SI, it will be determined if future ER,A funding to complete the nature and extent of past contamination is required.

CUSTER HILL PX USTs BLDG 5320 AND OTHER SITES (OU 007)
FTRI-054

SITE DESCRIPTION

STATUS

RRSE RATING: Low

CONTAMINANTS: BTEX, 1,2-dichloroethane, Naphthalene

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: PA/SI, RI, IRA

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: LTM

This is a combined Operable Unit (OU) that includes the following sites: FTRI-054, -042, -043, -057, -059, -060, -062, -063, -064, -065, -066, -067, -068, -069, -070, -071, -072, and -073. It is listed under the FTRI-054 banner since all the sites address petroleum hydrocarbon-related wastes. During the installation-wide site assessment, the sites were evaluated for past releases of non-petroleum wastes (CERCLA and RCRA wastes) as well as petroleum hydrocarbons. This OU was created to address the lack of a regulatory-approved document officially closing out the listed sites. Sites where releases were from abandoned underground storage tanks, closure requires evaluation following the Kansas Risk-Based Corrective Action (KRBCA) process. The intent is to take the data that exists from the investigative and corrective action work, and/or long-term monitoring reports, and compare them to a new, limited, sampling set based on the appraisal of all parties as to the required additional sampling, if any. After the analyses are complete, a determination, as to whether it is suitable to develop a succinct evaluation for site closure and a No Further Action Record of Decision or to develop a Corrective Action Plan and Corrective Action Record of Decision, will be made. This effort is being made to achieve concurrence with the regulatory partners and the Federal Facility Agreement that the sites are at ROD and are either No Further Action (NFA) or corrective action and/or Long-Term Monitoring (LTM).

FTRI-054 is the Custer Hill PX USTs Bldg 5320 site. This site was closed and five USTs, along with most of the piping, were removed in 1991. Petroleum hydrocarbon-contaminated soil and uncontaminated backfill material were used to fill the UST pits. The pump islands were removed in 1996 and a new product distribution system with ASTs was installed. Soil contamination below KDHE action levels was documented during the tank removal. Site investigations have found moderate to high levels of BTEX in groundwater and low levels of BTEX in soils. Groundwater contamination in the shale formation may be impractical to remediate because of relatively small amounts of groundwater in a fractured bedrock formation.

KDHE approved the Remedial Action Plan (RAP) in 1997 for intrinsic remediation with long term monitoring (LTM) of groundwater. KDHE then placed the site in "on hold" status for closure pending additional groundwater data to support "closure". Quarterly sampling was conducted in FY98. Annual sampling events have been conducted thereafter. No groundwater samples were collected in April 2002 due to the presence of free product in the monitoring well (0.1 ft). It appears probable that from 1998 through 2002, there has been a migration of residual VOCs from the UST area's fractured bedrock resulting in a buildup of BTEX and naphthalene concentrations and eventual appearance (in April 2002) of free product in the well.

The results of the April 2003 sampling, indicated BTEX and naphthalene that exceeded KDHE risk-based standards. LTM was performed in the spring of 2004 to check the presence of free product or contaminants exceeding KDHE standards.

FTRI-042 is the TAC Vehicle Maintenance Shops. Numerous tactical equipment shops and vehicle maintenance shops are located around Fort Riley. Many of the shops have several buildings, wash racks, underground storage tanks, waste oil storage tanks, and lubrication facilities. They provide a variety of maintenance services for vehicles and other equipment. The first shops were built on Custer Hill in the mid-1960s. Other shops existed in Camp Funston, Camp Whitside, and Main Post. Typically, each serviced a battalion of troops and tanks.

FTRI-043 is the Former Gas Station Garages. Several abandoned and former gasoline dispensing stations were identified. In each of the cases, there may have been abandoned underground storage tanks and soils contaminated

Site Description continues next page

SITE DESCRIPTION, continued

with petroleum fuels or chlorinated solvents. When underground storage tanks were discovered, they were referred to the on-going underground storage tank program at Fort Riley for removal.

FTRI-057 is the 6200 Area Fuel Oil Line. This former heating oil dispensing system consisted of two underground storage tanks and a pump house. The heating oil was distributed through underground piping which serviced 100 housing units. Heating oil was released within the tankhold and along piping trenches which also held the water lines and other utilities serving the housing units. The tanks and the piping have been removed. Source removal of contaminated trench backfill material and surrounding soils was completed in 1997. Sections of the sewer were replaced. New potable water piping was installed to serve the housing units.

Groundwater contamination in the limestone formation is impractical to remediate because of relatively small amounts of groundwater in a fracture-controlled formation. The Removal Action Report was submitted in FY99. Fort Riley formally requested KDHE-NCDO re-review the USACHPPM Risk Assessment and the Removal Action Report in context with their new guidance, "Risk-Based Standards for Kansas" and "Clean-up Levels for Total Petroleum Hydrocarbons" published in 1999 and 2001 respectively, to consider closure of the site.

FTRI-059 is the Removal of USTs. Numerous facilities were present at Fort Riley where abandoned underground storage tanks from circa 1942 existed. When underground storage tanks were discovered, they were referred to the on-going underground storage tank program at Fort Riley for removal.

FTRI-060 is the Main Post PX Gas Station-Bldg 218. One 10,000-gallon underground storage tank was installed at the site in 1972. Two 8,000-gallon fiberglass USTs were installed in 1984. The tanks store or stored gasoline. A tracer tight leak test was performed on the three tanks in April of 1991. A substantial leak was discovered at one of the tanks. The tank was taken out of service in 1991. Subsequent investigations have indicated no free product, TCLP for lead in soil were all non-detects, and benzene in one groundwater sample was 11 mg/L.

FTRI-062 is the TMP Gas Station, Building 388. The site is a former underground storage tank farm located on the Main Post. The site is currently an active dispensing station serving Main Post. Two 12,000-gallon capacity fiberglass underground storage tanks were installed in 1964. The tanks were used to store diesel and unleaded gasoline. The USTs were removed and replaced with aboveground storage tanks in April 1998. The dispensing lines were also replaced. Subsequent investigations and long-term monitoring indicated measurable free product and dissolved phase petroleum contamination of ground water. Recently, petroleum hydrocarbon contamination has degraded to below KDHE risk-based standards for BTEX and naphthalene. No free product remains in the monitoring wells that have recently been sampled in 2004.

FTRI-063 is the Former Bldg 1044 Dispensing Station. The site is a former fuel dispensing station for military vehicles on the west side of Camp Funston. Five 12,000-gallon steel underground storage tanks were installed at the site in 1942. The tanks were used to store diesel fuel and gasoline. 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 indicated free product and dissolved phase petroleum-related contamination of the ground water. The site was placed in long-term monitoring status in 1998 to evaluate the progress of intrinsic remediation for five years. In 2004, measurable free product is present at the site and BTEX and naphthalene are elevated above the KDHE risk-based standards.

FTRI-064 is the Former Bldg 1090 Dispensing Station. The site is a former underground storage tank farm located in Camp Funston. Two 5,250-gallon steel underground storage tanks were installed at the site in 1942. The tanks were used to store gasoline and diesel fuels. The tanks were removed in August 1990. The underground piping to the dispenser units remain in place. Contaminated soil encountered during tank removals was excavated and disposed of at the construction debris landfill in Camp Funston. Subsequent investigation indicated the petroleum

Site Description continues next page

SITE DESCRIPTION, continued

hydrocarbon constituents in the soil and ground water did not exceed KDHE risk-based standards. No free product was measured.

FTRI-065 is the Former Bldg 1190 Dispensing Station. The site is a former underground storage tank farm located in Camp Funston. Two 5,250-gallon steel underground storage tanks were installed at the site in 1942. The tanks were used to store gasoline and diesel fuels. The tanks were removed in August 1990. The underground piping to the dispenser units remains in place. Contaminated soil encountered during tank removals was excavated and disposed of in the construction debris landfill in Camp Funston. Subsequent investigation indicated the petroleum hydrocarbon constituents in the soil and ground water did not exceed KDHE risk-based standards. No free product was measured.

FTRI-066 is the Former Bldg 1245 Dispensing Station. The site is a former underground storage tank farm that was constructed in 1942 as a fuel dispensing station for military vehicles and is located in the northeast corner of Camp Funston. Five 12,000-gallon steel underground storage tanks were installed at the site during that year. The tanks were partially above ground and were used to store diesel, leaded gasoline, and unleaded gasoline. The tanks were removed in July 1990 along with some of the associated underground piping. The site was used for military and vehicle repair, storage, and salvage. Subsequent investigations indicated free product and dissolved phase petroleum-related contamination of the ground water. The site was placed in long-term monitoring status in 1998 to evaluate the progress of intrinsic remediation for five years. In 2004, measurable free product is present at the site and BTEX and naphthalene are elevated above the KDHE risk-based standards.

FTRI-067 is the Former Bldg 1539 Dispensing Station. The site is a former underground storage tank farm in Camp Funston used as a fuel dispensing station to supply fuel to military vehicles. Four 12,000-gallon steel underground storage tanks were installed in 1942. The tanks were used to store diesel fuel. The tanks were removed in August 1990. Approximately 500 feet of underground piping to the valve boxes and from the pump house to the suction dispensers remains in place. Subsequent investigation and monitoring indicated no free product, a maximum concentration of benzene in the ground water of 110 mg/L, and petroleum hydrocarbon constituents below the KDHE standards.

FTRI-068 is the Former Bldg 1637 Dispensing Station. The site is a former underground storage tank farm located in the eastern portion of Camp Funston. The dispensing station dated from WWII and was used into the 1980s for military vehicles. Seven 12,000-gallon underground steel tanks were installed in 1942. The tanks originally contained diesel, however, prior to their removal in 1990, they were used to store used oil. Some of the associated underground piping was removed along with the tanks. Approximately 7,200 feet of underground piping to the dispenser units and 14 suction dispenser units remain in place. Contaminated soil was encountered to a depth of 8.5 feet. Petroleum contaminated soil was excavated and disposed of in the Camp Funston construction debris landfill. Subsequent investigations and long-term monitoring indicated free product and dissolved phase petroleum contamination above KDHE risk-based standards. The site was placed in long-term monitoring status in 1998 to evaluate the progress of intrinsic remediation for five years. In 2004, measurable free product is present at the site and the dissolved benzene in the ground water is three times greater than the MCL in a downgradient Camp Funston monitoring well (CF90-07) which is upgradient of Funston Lake.

FTRI-069 is the Former Bldg 1890 Dispensing Station. The site is a former underground storage tank farm and fuel dispensing station used to supply fuel to military vehicles. Four 12,000-gallon underground steel tanks were installed in 1942. The tanks were used to 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. Contaminated soil encountered during tank removals was excavated and treated prior to disposal in the construction debris landfill at Camp Whitside. Subsequent assessment

Site Description continues next page

SITE DESCRIPTION, continued

of the site indicated BTEX and TPH below KDHE risk-based standards in soil and ground water. 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. Two 5,300-gallon underground storage tanks were installed at the site in 1942. The tanks were 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 by 1 mg/L. No free product was measured.

FTRI-071 is the Former Bldg 2345 Dispensing Station. Two 12,000-gallon steel underground storage tanks were installed at the site in 1942. The tanks were used to store gasoline and diesel fuel. 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. The underground piping remained in place. The return line to the other tank failed the pressure test. Pavement, backfill, and supply and return lines from the tank were removed in March 1991. The site contained only a very minor area of TPH above the KDHE 100 mg/kg standard. Groundwater 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. Groundwater was not encountered to a depth of 28 feet.

PROPOSED PLAN

Limited groundwater 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.

The LTM final report of findings required by the RAP, including a comprehensive evaluation of data and proposed recommendations for continued actions for KDHE review, is expected to be complete in FY04.

Continue LTM and annual reports until free product is no longer measurable and contaminants are below MCLs.

ABANDONED GASOLINE LINE
FTRI-056

STATUS

RRSE RATING: Medium

CONTAMINANTS: BTEX, VOCs

MEDIA OF CONCERN: Soil, Groundwater

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE: RI/FS

FUTURE IRP PHASE: RC

SITE DESCRIPTION

The site consists of an abandoned 1.1-mile aviation gasoline pipeline (4-inch diameter) and three former underground storage tanks at the terminus. The galvanized steel pipeline buried ~4-5 ft bgs for most of its length was gravity fed. The USTs were 25,000 gallons and stored aviation gasoline. The pipeline was abandoned in place in 1951 and the USTs subsequently were used to store No. 2 diesel fuel. The USTs and dispensing islands were removed in 1987. Preliminary assessment conducted by the Corps did not identify any releases along the pipeline in the areas explored. Evidence of releases were identified in the terminus area that most likely resulted from the USTs. Preliminary investigation of the terminus area shows contamination in the soil and groundwater.

A SI was conducted in 1994. In FY98, a survey located and identified gaps in the gasoline line. A work plan for future investigation was completed in FY98. An additional investigation conducted in summer FY01 included Geoprobe investigation of soils, temporary and permanent monitoring well installation, subsurface soil sampling, and also included investigations along a sanitary sewer line to support the RI for the 354 Area Solvent Detection Site (FTRI-031). Further investigations have shown localized contamination of BTEX, VOCs and TPH near the pipeline, at the terminus area, and at a small area just north of Bldg 319. There is soil contamination at the two locations and limited groundwater contamination at the terminus area.

A Draft EE/CA Report for non-time critical Removal Action for the AGL was completed in Jan 2003. A Scope of Work for the Site Assessment deemed necessary to complete the EE/CA and a non-time critical RA was modified in March 2003. The Work Plan for the additional site investigation was completed and approved in March 2004. The field work was performed in Spring 2004.

PROPOSED PLAN

As a result of the analysis, it will be determined whether removal action is necessary. The SI (EE/CA) Report will then be completed in FY05 (funded in FY03).

MMRP SITES AT FORT RILEY

FTRI-001-R-01 ..... Sherman Heights Small Arms

FTRI-002-R-01 ..... Southeast Funston Landfill

PAST MILESTONES

1983-1984 Installation Assessment (By USATHAMA)

1988-1989
- Solid Waste Management Unit Survey (By AEHA)
- IRP Initiation

1990
- NPL Listing Published
- IAG - Dept. Army and Fort Riley Signature

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

1993

PA/SI	• Installation Wide Site Assessment
SI/SA	• FTRI-001, Custer Hill Sanitary Landfill • FTRI-032, Impact Zone
RI/FS	• FTRI-003, Southwest Funston Landfill • FTRI-030, Pesticide Storage Facility
RI/FS (PA/SI)	• FTRI-027, Dry Cleaning Facilities Area
RI/FS (SI)	• FTRI-019, Former Fire Training Area-Marshall Army Airfield

1994

RI/FS	• FTRI-003, Southwest Funston Landfill • FTRI-027, Dry Cleaning Facilities Area • FTRI-030, Pesticide Storage Facility
RI/FS (SI)	• FTRI-019, Former Fire Training Area-Marshall Army Airfield
REM	• FTRI-030, Pesticide Storage Facility, Excavation of pesticide contaminated soils • FTRI-035, Non-Impact Area Small Arms Ranges, Excavation of lead contaminated soils, Colyer Manor
IRA	• FTRI-003, Southwest Funston Landfill, Riverbank stabilization and cover repair/improvements (FY 94-96) • FTRI-027, Dry Cleaning Facilities Area, Sewer line replacement-OMA funded (FY 94-96)

1995

RI/FS	• FTRI-003, Southwest Funston Landfill • FTRI-027, Dry Cleaning Facilities Area • FTRI-030, Pesticide Storage Facility
RI/FS (SI)	• FTRI-019, Former Fire Training Area-Marshall Army Airfield, Site Investigation Report
REM	• FTRI-019, Former Fire Training Area-Marshall Army Airfield, Soil vapor extraction & 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

Past Milestones continued next page

Schedule

PAST MILESTONES, continued

1996

RI/FS	• FTRI-003, Southwest Funston Landfill, ROD • FTRI-027, Dry Cleaning Facilities Area • FTRI-030, Pesticide Storage Facility
RI/FS (SI)	• FTRI-019, Former Fire Training Area-Marshall Army Airfield
REM	• FTRI-057, 6200 Area, Soil Removal

1997

IRA	• FTRI-003, Southwest Funston Landfill, Removal Action Report • FTRI-019, Former Fire Training Area-Marshall Army Airfield, Exposure Control EE/CA initiated
RI/FS	• FTRI-006, DRMO & Wherry Substation, Site Investigations • FTRI-019, Former Fire Training Area-Marshall Army Airfield, RI/FS Work Plan • FTRI-027, Dry Cleaning Facilities Area, Draft Revised FS • FTRI-030, Pesticide Storage Facility, RI Addendum, Proposed Plan, ROD (Sep 97) • FTRI-031, 354 Area Solvent Detections Site, Initial Field Investigations
RI/FS	• FTRI-067 and FTRI-069, No Further Action required
RI/FS, LTM	• FTRI-054, -063, -066, -068, Remedial Action Plans
LTM	• FTRI-003, Southwest Funston LF, Long Term Monitoring & Operations & Maintenance Plans RAB Formation (Sept 97)

1998

Decision Memorandum	• FTRI-various, Multi-Sites and DRMO • FTRI-004 (Main Post Landfill), -051 (727), and multiple UST sites
RI/FS	• FTRI-009, Open Burning/Open Detonation, SI Addendum Report • FTRI-011, Camp Funston Groundwater Detections, Annual (Investigation) Monitoring Report • FTRI-019, Former Fire Training Area-Marshall Army Airfield, RI/FS Work Plan (Final Oct) • Basic Plans (Final Jul 98), Plume Characterization, Natural Attenuation Work Plan • FTRI-027, Dry Cleaning Facilities Area, RI Addendum/FS (Approved May 98) • FTRI-029, Southeast Funston Incinerator, SI Addendum Report • FTRI-031, 354 Area Solvent Detections Site, Initial Field Investigations Report
IRA	• FTRI-019, Former Fire Training Area-Marshall Army Airfield, Exposure Control EE/CA (Jan 98), Action Memo Signature (Apr 98) • FTRI-019, Marshall Army Airfield-Former Fire Training Area, Groundwater Action EE/CA, (Draft Apr 98, Discontinued) • FTRI-029 Southeast Funston Landfill Incinerator, EE/CA, Preliminary IRA Design • FTRI-036, Southeast Funston Landfill, EE/CA, Preliminary IRA Design • FTRI-038, Forsyth Bank Stabilization, EE/CA (Aug 98)
PP	• FTRI-027, Dry Cleaning Facilities Area, Draft Proposed Plan (Aug 98)
LTM	• FTRI-003, Southwest Funston Landfill, Final Institutional Controls Plan, 1997 Annual Monitoring Report, 1997 Inspection Report • FTRI-054, -063, -066, -068, POL/UST Sites

Past Milestones continued next page

PAST MILESTONES, continued

1999

RI/FS

- FTRI-009, Open Burning/Open Detonation, Risk Screening Report (Final Apr 99)
- FTRI-011, Camp Funston Groundwater Detections, 1997 Annual (Investigation) Monitoring Report (Final Dec 98), Groundwater Isotope Report (Final Mar 99), 1998 Annual (Investigation) Monitoring Report (Sep 99)
- FTRI-019 Former Fire Training Area-Marshall Army Airfield, Tracer Study, Microcosm Study
- FTRI-027, Dry Cleaning Facilities Area, Draft Proposed Plan (Aug 98, May 99), Dispute Resolution (Jan – Apr 99)
- FTRI-031, 354 Area Solvent Detections, RI/FS Work Plans (Final Mar 99), Phase I Field Investigations
- FTRI-038, Forsyth Landfill(s), Data Review
- FTRI-053, POL Tank Farm, RI/FS Work Plan

IRA

- FTRI-029, Southeast Funston Landfill Incinerator, EE/CA (Feb 99), Action Memo Signature (Jun 99), Construction Award for Soil Removal (Jun 99)
- FTRI-036, Southwest Funston Landfill, EE/CA (Feb 99), Action Memo Signature (Jun 99), Construction Award for Cover Improvements (Jun 99)
- FTRI-038, Forsyth Landfill, Area 2 Action Memo Signature (Apr 99), Bank Stabilization Design
- FTRI-057, 6200 Area Fuel Oil System, Removal Action Report

LTM

- FTRI-030, Pesticide Storage Facility, Land Use Management Plan
- FTRI-054, Custer Hill PX USTs
- FTRI-062, TMP Gas Station (Bldg 388)
- FTRI-063, Former Building 1044 Dispensing Station
- FTRI-066, Former Building 1245 Dispensing Station
- FTRI-068, Former Building 1637 Dispensing Station
- FTRI-003, SFL, 1998 Annual Monitoring Report (Sep 99), 1998 Inspection Report, Maintenance, Contract Award (Sep 99)

2000

RI/FS

- FTRI-009, Open Burning/Open Detonation, Surface Water monitoring
- FTRI-011, Camp Funston Groundwater Detections, Groundwater Modeling Report
- FTRI-019, Former Fire Training Area-Marshall Army Airfield, Draft Remedial Investigation Report
- 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

LTM

- FTRI-003, Southwest Funston Landfill, Maintenance Construction (Oct 99), 1999 Annual Inspection Report (Nov 99)
- FTRI-054, Custer Hill PX USTs
- FTRI-062, TMP Gas Station (Bldg 388)
- FTRI-063, Former Building 1044 Dispensing Station
- FTRI-066, Former Building 1245 Dispensing Station
- FTRI-068, Former Building 1637 Dispensing Station

Past Milestones continued next page

Schedule

PAST MILESTONES, continued

2001

RI
- FTRI-009, Open Burning/Open Detonation, Surface water monitoring
- FTRI-011, Camp Funston Groundwater, Groundwater monitoring
- FTRI-029, Southeast Funston Landfill Incinerator, Land use control development
- FTRI-036, Southeast Funston Landfall, Draft Decision Memorandum
- FTRI-053, POL Tank Farm, Site Investigations
- FTRI-056, Abandoned Gasoline Line, Site Investigations

RI/FS
- FTRI-019, Former Fire Training Area-Marshall Army Airfield, Initiated FS
- FTRI-027, Dry Cleaning Facilities Area, Investigations
- FTRI-031, 354 Area Solvent Detections Area, Additional Investigations

IRA
- FTRI-038, Forsyth Landfill

LTM
- FTRI-003, Southwest Funston Landfill
- FTRI-054, Custer Hill PX USTS (5320)
- FTRI-062, TMP Gas Station (Bldg 388)
- FTRI-063, Former Building 1044 Dispensing Station
- FTRI-066, Former Building 1245 Dispensing Station
- FTRI-068, Former Building 1637 Dispensing Station

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

2002

RI/FS
- FTRI-009, Open Burning/Open Detonation, Surface water sampling/reporting
- FTRI-011, Camp Funston Groundwater Detections, Complete Groundwater Study
- 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
- FTRI-031, 354 Area Solvent Detections, draft RI Report
- FTRI-053, POL Tank Farm, Review data
- FTRI-056, Abandoned Gasoline Line, review data

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

LTM
- FTRI-003, Southwest Funston Landfill, cover repair, inspection
- FTRI-036, Southeast Funston Landfill, Maintenance every 2 years for about 15 years
- FTRI-038, Forsyth Landfill(s), Bank stabilization inspection
- FTRI-054, Custer Hill PX USTs (5320)
- FTRI-057, 6200 Area UST, Initiate 5 years of LTM if needed
- FTRI-062, TMP Gas Station (Bldg 388)
- FTRI-063, Former Building 1044 Dispensing Area
- FTRI-066, Former Building 1245 Dispensing Station
- FTRI-068, Former Building 1637 Dispensing Area

Five-Year Review
- FTRI-003, 030 and all other CERCLA sites

Past Milestones continued next page

PAST MILESTONES, continued

2003

RI/FS

- FTRI-009, Open Burning/Open Detonation, Surface water sampling/reporting
- FTRI-019, Former Fire-Training Area - Marshall Army Airfield, Produced Draft Final FS Report, Groundwater sampling
- FTRI-027, Dry Cleaning Facilities Area, Performed additional investigations, groundwater sampling
- FTRI-029, Southeast Funston Landfill Incinerator, Memorandum of Agreement signed by the KDWP
- FTRI-031, 354 Area Solvent Detections, Produced Draft RI Report, groundwater sampling
- FTRI-053, POL Tank Farm, Performed additional study, groundwater sampling
- FTRI-056, Abandoned Gasoline Line, Reviewed data and determined need for additional study

IRA

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

LTM

- FTRI-003, 011, 062, 063, 066, 068, Groundwater sampling
- FTRI-038, Forsyth Landfill(s), Bank Stabilization inspection and ordnance disposal

2004

RI/FS

- FTRI-009, Open Burning/Open Detonation, Surface and groundwater sampling/reporting and Tech memo
- FTRI-019, Former Fire-Training Area - Marshall Army Airfield, Proposed Plan finalized, Record of Decision development underway
- FTRI-027, Dry Cleaning Facilities Area, Draft Final RI Addendum Report approved
- FTRI-031, 354 Area Solvent Detections, Draft Final Remedial Investigation Report approved; conducted soil remediation; Pilot Study/collected samples; groundwater sampling events; submitted Remedial Action Objectives/Applicable or Relevant and Appropriate Requirements/ Technologies identification/Detailed analysis of alternatives Tech memo
- FTRI-053, POL Tank Farm, free product recovery and groundwater sampling
- FTRI-056, Abandoned Gasoline Line, site investigation fieldwork, site assessment report, and EE/CA.

LTM

- FTRI-001, Custer Hill Sanitary Landfill, groundwater sampling, prescribed burn of cover and cover inspection
- FTRI-003, 011, 062, 063, 066, 068, Groundwater sampling
- FTRI-038, Forsyth Landfill(s), Bank Stabilization inspection

Schedule

PROJECTED MILESTONES

Remedy-in-Place - Completion of Construction of final remedial action: 2008

IRP Completion Date Includes LTM: 2034

NO FURTHER ACTION SITES

ID Number	Title	RRSE	RC Date
FTRI-001	Custer Hill Sanitary Landfill	NE	199308
FTRI-006	DRMO Storage Area	Low	199809
FTRI-007	PCB Storage Building 343	NE	198909
FTRI-008	PCB Storage Conex (Building 348)	NE	199012
FTRI-010	Pesticide (2-4D) UST at Camp Funston	NE	199204
FTRI-012	Waste Storage DRMO Secondary Area	Low	199509
FTRI-013	Abandoned VOC Tanks North of IACH	NE	199202
FTRI-015	Former DRMO Location (DRMO Area 2)	Med	199509
FTRI-016	Waste Oil AST 3rd Battery	NE	198909
FTRI-017	Waste Oil AST 4th Battery	NE	198909
FTRI-018	Fire Training Area Facility (892)	NE	198909
FTRI-020	Industrial Wastewater System (Custer HL)	Med	199803
FTRI-022	Former WWTP and Sludges Beds- Camp Funston	NE	199305
FTRI-023	Custer Hill WWTP and Sludge Beds	NE	199305
FTRI-024	Forsyth WWTP and Sludge Beds	NE	199305
FTRI-025	Main Post WWTP and Sludge Beds	NE	199305
FTRI-026	Range Complex WW Lagoons	NE	199305
FTRI-028	Fmr Fire Training Area Camp Funston	NE	199402
FTRI-032	Impact Zone	Med	199309
FTRI-033	Douthit Range	NE	199305
FTRI-034	Impact Area Perimeter Small Arm Ranges	NE	199612

No Further Action Sites continued next page

NO FURTHER ACTION SITES, continued

ID Number	Title	RRSE	RC Date
FTRI-035	Non-Impact Area Small Arms Ranges	Med	200007
FTRI-039	Consolidated Maintenance Facility	NE	199305
FTRI-040	Former Oil Testing Lab (Bldg 1022)	NE	199305
FTRI-041	Furniture Repair Shops (3)	NE	199507
FTRI-045	Photo and Print Plants	Low	199507
FTRI-046	Frmr DS/GS Bldg 1693 Adj Areas	Med	199507
FTRI-047	Former Livestock Dipping Facility	Low	199507
FTRI-048	Former Pesticides Facility	NE	199507
FTRI-049	Mercury Contamination Areas	NE	199305
FTRI-050	PCB Spill Areas/Transformer Sites	Low	199803
FTRI-051	Bldg. 727 Waste Pit	Low	199903
FTRI-074	WWI Incinerator, NW Camp Funston	Low	200109

Schedule

Fort Riley Installation Action Plan Schedule

(Based on Cost-to-Complete current funding constraints)

CURRENT PHASE | FUTURE PHASE

AEDB-R #	SITE NAME	RRSE	PHASE	FY05	FY06	FY07	FY08	FY09	FY10	FY11+
FTRI-003	Southwest Funston Landfill	High	LTM							
FTRI-009	OB/OD Grounds (Range 16)	Med	LTM							
FTRI-011	Camp Funston GW Detections	High	LTM							
FTRI-019	Former Fire Training Area (FFTA-MAAF)	High	RI/FS							
			RD							
			RA(O)							
FTRI-027	Dry Cleaning Facilities Area	Med	RI/FS							
			RD							
			RA(C)							
			RA(O)							
			LTM							
FTRI-030	Pesticide Storage Facility (Mixing)	Low	LTM							
FTRI-031	Building 354 Area Solvent Detections	High	RI/FS							
			RD							
			RA(O)							
			LTM							
FTRI-036	Southeast Funston Landfill-Inactive	Med	RI/FS							
FTRI-038	Forsyth Landfill(s)	Med	LTM							
FTRI-053	POL Tank Farm	High	RI/FS							
FTRI-054	Custer Hill PX USTs Bldg 5320	Low	RI/FS							
FTRI-056	Abandoned Gasoline Line	Med	RI/FS							

Remediation Activities

COMPLETED REM/IRA/RA

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 soils to the groundwater 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 groundwater extraction and treatment pilot studies were initiated in August 1994. Pumping tests performed on the groundwater 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 soils. The system operated until March 1995, when vapor analysis indicated no detections of VOCs. The action directed at remediating soils was implemented to address this media as a continuing source for groundwater contamination, not because of any determined risk due to exposure to the soils. 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/IAG 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 groundwater contamination likely existed on-post and extended off-post. Since the soil contamination was a potential source for additional groundwater 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.

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 is 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.

Remediation Activities continued next page

Remediation Activities

COMPLETED REM/IRA/RA, continued

Pesticide Storage Facility (FTRI-030) - FY94 Total Construction Cost = $788,000
Removal of contaminated soils was completed in May 1994. Sampling during the removal action revealed significantly greater volumes of contaminated soil than identified in the RI. The amount of soil removed was approximately 2700 tons. This IRA 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 soils 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 which serviced 100 housing units. Heating oil was released within the tankhold and along piping trenches which 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 soils 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 RAB involvement were completed for excavation of ash/metals contaminated soil. The incinerator Removal Action was combined with the cover improvements for the SE Funston Landfill (SEFL) where the soils were re-buried 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 ft. 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.

Remediation Activities continued next page

Remediation Activities

CURRENT REM/IRA/RA

Forsyth Landfill Area 2 (FTRI-038) - started in FY00

Construction completed. Removal Action Report developed.

FUTURE REM/IRA/RA

FY2004
- FTRI-031 - RI/FS - Soil Remediation Pilot Study

FY2006
- FTRI-019 - MNA
- FTRI-031 - MNA

FY2007
- FTRI-027 - RA - Will evaluate using SVE, enhances biodegradation and/or potassium permanganate oxidizer.

PRIOR YEAR FUNDS (1989-1993)

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

Year	Site Information	Expenditures	FY Total
FY 89-FY 96		$38,660,000	**$38,660,000**
FY 97	FTRI-003 IRA	$14,069	
	FTRI-003 LTM	$261,097	
	FTRI-003 LTO	$3,905	
	FTRI-003 PY M/SR	$18,327	
	FTRI-003 PY RA/SA	$40,590	
	FTRI-006 PY RI/SR	$11,171	
	FTRI-009 PY RI/SR	$81,400	
	FTRI-009 RI/FS	$61,677	
	FTRI-011 RI/FS	$339,464	
	FTRI-019 IRA	$317,763	
	FTRI-019 PY RA/SA	$26,000	
	FTRI-019 PY RI/SR	$172,333	
	FTRI-019 RI/FS	$814,529	
	FTRI-027 PY FS/SR	$121,531	
	FTRI-027 RI/FS	$28,398	
	FTRI-029 PY RI/SR	$34,889	
	FTRI-029 RI/FS	$24,915	
	FTRI-030 PY RI/SR	$29,400	
	FTRI-030 RI/FS	$34,000	
	FTRI-030 RI/FS	$36,701	
	FTRI-031 PY RI/SR	$40,398	
	FTRI-031 RI/FS	$12,126	
	FTRI-038 IRA	$3,131	
	FTRI-053 RI/FS	$447	
	FTRI-054 PY RI/SR	$4,964	
	FTRI-057 PY RA/SA	$103,042	
	FTRI-057 RA	$126,899	
	FTRI-060 PY RI/SR	$4,870	
	FTRI-062 PY RI/SR	$5,584	
	FTRI-062 RI/FS	$781	
	FTRI-063 PY RI/SR	$7,789	
	FTRI-063 RI/FS	$464	
	FTRI-066 PY RI/SR	$7,494	
	FTRI-066 RI/FS	$595	
	FTRI-067 PY RI/SR	$4,447	
	FTRI-068 PY RI/SR	$3,482	
	FTRI-069 PY RI/SR	$3,000	**$2,801,672**

Prior Year Funding continued next page

Costs

PRIOR YEAR FUNDS (1998-1999)

Year	Site Information	Expenditures	FY Total
FY 98	FTRI-003 IRA	$7,708.32	
	FTRI-003 LTM	$226,970.52	
	FTRI-003 LTO	$35,286.44	
	FTRI-006 RI/FS	$25,524.46	
	FTRI-009 RI/FS	$250,451.07	
	FTRI-011 RI/FS	$251,366.46	
	FTRI-019 IRA	$148,134.83	
	FTRI-019 RI/FS	$1,511,680.11	
	FTRI-027 RI/FS	$274,711.33	
	FTRI-029 RI/FS	$35,543.58	
	FTRI-031 RI/FS	$199,753.53	
	FTRI-036 IRA	$50,194.15	
	FTRI-038 IRA	$64,099.43	
	FTRI-051 RI/FS	$6,407.79	
	FTRI-053 RI/SR	$63,995.27	
	FTRI-056 RI/FS	$48,351.47	
	FTRI-057 RA	$17,054.28	
	FTRI-062 LTM	$9,026.81	
	FTRI-063 LTM	$9,364.35	
	FTRI-066 LTM	$7,817.53	
	FTRI-068 LTM	$6,558.47	**$3,250,000**
FY 99	FTRI-003 LTM	$43,240.95	
	FTRI-003 LTO	$68,334.83	
	FTRI-009 RI/FS	$112,474.37	
	FTRI-011 RI/FS	$153,571.72	
	FTRI-019 RI/FS	$1,132,184.29	
	FTRI-027 RI/FS	$436,669.93	
	FTRI-029 IRA	$280,927.67	
	FTRI-031 RI/FS	$771,873.43	
	FTRI-036 IRA	$256,638.61	
	FTRI-038 RI/FS	$1,038.50	
	FTRI-038 IRA	$34,478.04	
	FTRI-053 RI/SR	$11,042.13	
	FTRI-054 LTM	$1,848.40	
	FTRI-057 IRA	$6,219.95	
	FTRI-062 LTM	$20,606.43	
	FTRI-063 LTM	$35,717.09	
	FTRI-066 LTM	$16,939.15	
	FTRI-068 LTM	$16,194.51	**$ 3,400,000**

Prior Year Funding continued next page

PRIOR YEAR FUNDS (2000-2004)

Year	Site Information	Expenditures	FY Total
FY 00	FTRI-003 LTM	$186,682.85	
	FTRI-003 LTO	$32,720.91	
	FTRI-009 RI/FS	$67,419.16	
	FTRI-011 RI/FS	$118,593.74	
	FTRI-019 RI/FS	$790,685.65	
	FTRI-019 IRA	$2,499.99	
	FTRI-027 RI/FS	$581,526.93	
	FTRI-029 IRA	$20,369.16	
	FTRI-031 RI/FS	$661,344.89	
	FTRI-036 IRA	$161,868.77	
	FTRI-038 IRA	$864,724.82	
	FTRI-053 RI/FS	$2,479.11	
	FTRI-054 LTM	$3,837.38	
	FTRI-056 RI/FS	$1,869.84	
	FTRI-062 LTM	$4,209.51	
	FTRI-063 LTM	$21,591.54	
	FTRI-066 LTM	$17,463.99	
	FTRI-068 LTM	$17,711.76	**$3,557,600**
FY 01	FTRI-003 LTM	$490,512.29	
	FTRI-009 RI/FS	$52,845.70	
	FTRI-011 RI/FS	$82,768.75	
	FTRI-011 LTM	$5,055.62	
	FTRI-019 RI/FS	$647,413.11	
	FTRI-027 RI/FS	$814,298.54	
	FTRI-031 RI/FS	$1,258,142.20	
	FTRI-036 RI/FS	$11,770.82	
	FTRI-038 IRA	$15,538.02	
	FTRI-053 RI/FS	$187,337.56	
	FTRI-054 LTM	$4,528.89	
	FTRI-056 RI/FS	$214,023.19	
	FTRI-057 RI/FS	$589.54	
	FTRI-062 LTM	$10,879.41	
	FTRI-063 LTM	$20,159.05	
	FTRI-066 LTM	$12,284.83	
	FTRI-068 LTM	$10,852.48	**$3,839,000**
FY 02		$3,000,000.00	**$3,000,000**
FY 03	(as of July 2003)	$2,857,899.44	**$2,857,899**
FY 04	(as of July 2004)	$509,100	**$509,100**

TOTAL FUNDING 1989-2004: $61,875,271

Fort Riley - Unconstrained Cost-to-Complete Restoration Work Chart
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY05	FY06	5YR FY07	FY08	FY09	FY10	FY11+	Site Total	Description of Work
FTRI-003	Southwest Funston Landfill	High	LTM	511	161	161	711	161	161	3,446	**5,312**	$350K in FY05 for cover repair. Monitoring ~9 wells semi-annual $76K/yr until FY11 then $38K/yr, Annual report $37K/yr, USGS ~$23K/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 $500K, FY12 $200K & FY15+ $1M (H). $40K for well abandonment in FY08.
FTRI-009	OB/OD Grounds (Range 16)	Med	LTM	40	40	38					**118**	$18K for GW sampling, 6 points (w/UXO support) in FY05 & 06, COE support $4K in FY05 & 06, USGS $18K/yr, DD $20K.
FTRI-011	Camp Funston GW Detections	High	LTM	23	18	18			215		**274**	USGS database $18K/yr until FY07, COE $5K in FY05, well abandon $200K in FY10, $15K for five year review.
FTRI-019	Former Fire Training Area (FFTA-MAAF)	High	RI/FS	104								Real estate leases $12K, USGS DCP maint $34K, COE $40K, COE Q/A $8K, $10K for GW sampling.
			RD	50								design MNA plan $40K, COE $10K.
			RA(O)		264	264	164	164	188	980	**2,178**	USGS DCP maint $32K/yr, COE $20K/yr, real estate $12K/yr. GWM ~36 wells, semi-annual (start at $200K then $100K) performance assessment in FY10 $24K, closure report in FY15+ $60K, well abandonment $100K in FY15+.

Unconstrained Cost-to-Complete Chart continued next page

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

AEDB-R #	Site Title	RRSE	Phase	FY05	FY06	5YR FY07	FY08	FY09	FY10	FY11+	Site Total	Description of Work
FTRI-027	Dry Cleaning Facilities Area	Med	RI/FS	486	236	236						2 GW events ($137K/yr), COE $65K/yr, COE Q/A $7K/yr, USGS DCP $27K/yr. Pilot Study $250K.
			RD			150						design $100K, abandon wells $50K.
			RA(C)				1,000					Construction of RA (SVE, enhanced biodegradation and/or potassium permanganate oxidizer).
			RA(O)				260	260	260	1,820		injection of bioremediation enhancing compounds (assumes 10 yrs) (RACER) $205K/yr (includes $72K for GW monitoring), USGS $27K/yr, COE $20K/yr, COE Q/A $8K/yr.
			LTM							650	**5,358**	GWM 20 wells annually $40K/yr, abandon wells $50K.
FTRI-030	Pesticide Storage Facility (Mixing)	Low	LTM		20					100	**120**	sampling for five-year reviews (5 wells for pest & metals).
FTRI-031	Building 354 Area Solvent Detections	High	RI/FS	153	153							FY05& 06-COE $55K, GWM $70K, USGS $24K, Q/A $4K.
			RD		50	90						Design. FY07-USGS $31K, COE $55K, COE Q/A $4K.
			RA(O)			114	114	114	114	154		USGS DCP maint $24K/yr, COE $20K/yr. GWM ~18 wells, annually $70K. Closure report in FY11-$40K.
			LTM							990	**2,046**	GWM ~18 wells, annually $70K/yr, COE $20K, Q/A $4K. 5YR (in house), well abandonment $50K in FY12.
FTRI-036	Southeast Funston Landfill -Inactive	Med	RI/FS	166	20						**186**	GW and soil samples, Work Plan, Closure report $120K; Q/A $6K; COE $40K. FY06: COE $20K. Five-year review in house.

Unconstrained Cost-to-Complete Chart continued next page

Fort Riley - Unconstrained Cost-to-Complete Restoration Work Char, *continued*
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY05	FY06	5YR FY07	FY08	FY09	FY10	FY11+	Site Total	Description of Work
FTRI-038	Forsyth Landfill(s)	Med	LTM	45					300	300	**645**	Bank stabilization $300K in FY10 and FY15+. $45K for contract UXO escort (multi-year).
FTRI-053	POL Tank Farm	High	RI/FS	15							**15**	PY S&R.
FTRI-054	Custer Hill PX USTs Bldg 5320	Low	RI/FS	348	20						**368**	GW and soil samples, Work Plan, Closure report $300K; Q/A $8K; COE $40K. FY06: COE $20K. Five-year review in house.
FTRI-056	Abandoned Gasoline Line	Med	RI/FS	22							**22**	PY S&R.
	Totals in Thousands of $			**1,963**	**982**	**1,071**	**2,249**	**699**	**1,238**	**8,440**	**16,642**	
			POM	1,366	1,674	1,286	1,437	835			6,598	
			Difference	**-597**	**692**	**215**	**-812**	**136**			**-366**	

Fort Riley - Constrained Cost-to-Complete Restoration Work Chart
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY05	FY06	5YR FY07	FY08	FY09	FY10	FY11+	Site Total	Description of Work
FTRI-003	Southwest Funston Landfill	High	LTM	161	606	161	114	161	661	3,448	**5,312**	FY 05 thru 10 - Annual report $37K/yr, USGS ~$23K/yr, quality assurance $5K/yr, FY05, 07, 09,10 2 GW sampling events (9 wells) at 76K/yr, FY06 3 sampling events (9 wells) at 131K, FY08 1 sampling event (9wells) at $29K, FY11 and on, one sampling event (9 wells) $38K/yr, Annual report $37K/yr, QA $3K/yr, $50K in FY11 to mod ROD to reduce LTM, COE $20K/yr; cover repairs & maintenance, bank stabilization= FY06 $350K, FY10 $500K, FY12 $200K & FY15+ $1M (H).
FTRI-009	OB/OD Grounds (Range 16)	Med	LTM	40	40	38					**118**	$18K for GW sampling, 6 points (w/UXO support) in FY05 & 06, COE support $4K in FY05 & 06, USGS $18K/yr, DD $20K.
FTRI-011	Camp Funston GW Detections	High	LTM	23	18	18		136	79		**274**	USGS database $18K/yr until FY07, COE $5K in FY05, well abandon $200K in FY10, $15K for five year review.
FTRI-019	Former Fire Training Area (FFTA-MAAF)	High	RI/FS	104								Real estate leases $12K, USGS DCP maint $34K, COE $40K, COE Q/A $8K, $10K for GW sampling.
			RD	50								design MNA plan $40K, COE $10K.
			RA(O)		264	264	164	164	188	980	**2,178**	USGS DCP maint $32K/yr, COE $20K/yr, real estate $12K/yr. GWM ~36 wells, semi-annual (start at $200K then $100K) performance assessment in FY10 $24K, closure report in FY15+ $60K, well abandonment $100K in FY15+.

Constrained Cost-to-Complete Chart continued next page

Fort Riley - Constrained Cost-to-Complete Restoration Work Chart
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY05	FY06	5YR FY07	FY08	FY09	FY10	FY11+	Site Total	Description of Work
FTRI-027	Dry Cleaning Facilities Area	Med	RI/FS	486	236	236						2 GW events ($137K/yr), COE $65K/yr, COE Q/A $7K/yr, USGS DCP $27K/yr. Pilot Study $250K.
			RD			150						design $100K, abandon wells $50K.
			RA(C)			215	785					Construction of RA (SVE, enhanced biodegradation and/or potassium permanganate oxidizer).
			RA(O)				260	260	260	1,820		injection of bioremediation enhancing compounds (assumes 10 yrs) (RACER) $205K/yr (includes $72K for GW monitoring), USGS $27K/yr, COE $20K/yr, COE Q/A $8K/yr.
			LTM							650	**5,358**	GWM 20 wells annually $40K/yr, abandon wells $50K.
FTRI-030	Pesticide Storage Facility (Mixing)	Low	LTM		20					100	**120**	sampling for five-year reviews (5 wells for pest & metals).
FTRI-031	Building 354 Area Solvent Detections	High	RI/FS	153	153							FY05& 06-COE $55K, GWM $70K, USGS $24K, Q/A $4K.
			RD		50	90						Design. FY07-USGS $31K, COE $55K, COE Q/A $4K.
			RA(O)			114	114	114	114	154		USGS DCP maint $24K/yr, COE $20K/yr. GWM ~18 wells, annually $70K. Closure report in FY11-$40K.
			LTM							990	**2,046**	GWM ~18 wells, annually $70K/yr, COE $20K, Q/A $4K. 5YR (in house), well abandonment $50K in FY12.
FTRI-036	Southeast Funston Landfill -Inactive	Med	RI/FS	166	20						**186**	GW and soil samples, Work Plan, Closure report $120K; Q/A $6K; COE $40K. FY06: COE $20K. Five-year review in house.

Constrained Cost-to-Complete Chart continued next page

Fort Riley - Constrained Cost-to-Complete Restoration Work Chart
($ in Thousands)

AEDB-R #	Site Title	RRSE	Phase	FY05	FY06	5YR FY07	FY08	FY09	FY10	FY11+	Site Total	Description of Work
FTRI-038	Forsyth Landfill(s)	Med	LTM	45					300	300	**645**	Bank stabilization $300K in FY10 and FY15+. $45K for contract UXO escort (multi-year).
FTRI-053	POL Tank Farm	High	RI/FS	15							**15**	PY S&R.
FTRI-054	Custer Hill PX USTs Bldg 5320	Low	RI/FS	101	267						**368**	GW and soil samples, Work Plan, Closure report $300K; Q/A $8K; COE $40K. FY06: COE $20K. Five-year review in house.
FTRI-056	Abandoned Gasoline Line	Med	RI/FS	22							**22**	PY S&R.
	Totals in Thousands of $			**1,366**	**1,674**	**1,286**	**1,437**	**835**	**1,602**	**8,442**	**16,642**	
	POM			1,366	1,674	1,286	1,437	835			6,598	
	Difference			**0**	**0**	**0**	**0**	**0**			**0**	

Community Involvement

RESTORATION ADVISORY BOARD (RAB) STATUS

Technical Review Committee

A Technical Review Committee was organized and met for the first time on January 16, 1992. The TRC charter was approved at the next meeting held on June 18, 1992. Meetings were held approximately twice a year. The TRC has not been active since the fall of 1994.

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 Restoration Advisory Board (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 (DES) 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 DES 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, Geary County (Commissioner), Clay County (Commissioner), Kansas State University, city of Ogden (former Mayor and Mayor), the EPA, and the KDHE.

RAB Activities

In July 2002, RAB members voted to alter the frequency of the meetings and newsletters from bimonthly to quarterly. Meetings are now held in January, April, July, and October. Newsletters are written and sent to the RAB members in March, June, September, and December.

In July 2003, RAB members voted to decrease the number and frequency of RAB newspapers advertisements. There will be one ad in the Sunday newspaper prior to the meeting. The two newspapers are in Junction City Daily Union and the Manhattan Mercury.

In July 2003, the members voted to not have meetings held in local communities as they have been annually in the past. All meetings will be held at the Directorate of Environmental and Safety Building 407 Pershing Court, Fort Riley, Kansas.

In July 2004, the members provided public comment on the FTRI-019 Draft Final Proposed Plan. The repository was eliminated in Clay Center, KS at Clay Center's request.

Projections for the RAB

Over the next year, the members will continue to gain knowledge of site characteristics and issues, review documents, provide technical advice, and participate in formal public comment period activities.