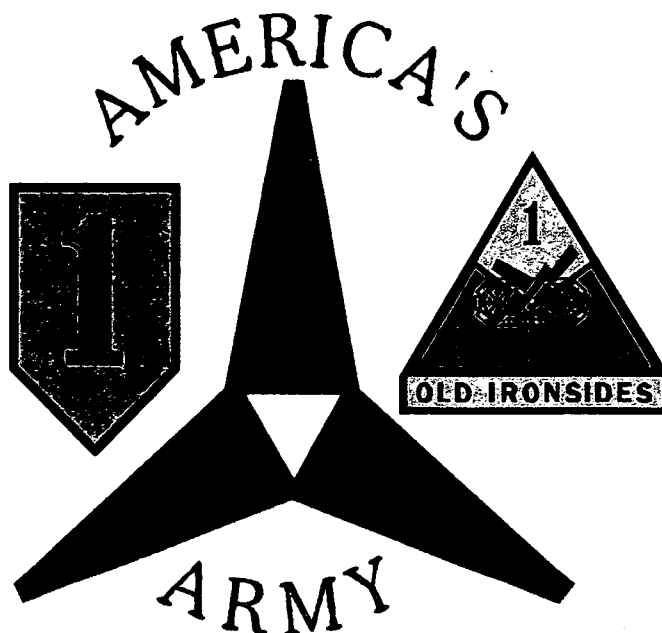


Installation Action Plan

Fort Riley

Kansas

March 1997



Installation Restoration Program
Planning & Restoration Division
Directorate of Environment and Safety



Pub_13_2_001

FORT RILEY
(A NATIONAL PRIORITIES LIST SITE)

INSTALLATION ACTION PLAN

MARCH 1997

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SUMMARY

INSTALLATION ACTION PLAN FOR FORT RILEY, KANSAS

1. STATUS: National Priorities List Site HRS SCORE: 33.8
2. TOTAL NUMBER OF DSERTS SITES: 71 / 41 RESPONSE COMPLETE
3. DIFFERENT SITE TYPES: 19; See Section 4. (DSERTS Site Data Report)
(11 Spill Sites, 7 Landfills, 4 Storage Areas, 3 Incinerators, 3 Fire Training Areas, etc.)
4. MOST WIDESPREAD CONTAMINANTS OF CONCERN:
Chlorinated solvents and petroleum hydrocarbons
5. MEDIA OF CONCERN: Soil and groundwater
6. COMPLETED REM/IRA/RA:
 - REM - Excavation of lead contaminated soils at FTRI-035 (FY94)
 - REM - Excavation of pesticide contaminated soils at FTRI-030 (FY94)
 - REM - River bank stabilization project at FTRI-003 (FY94)
 - REM - Replacement of leaking sewers at FTRI-027 (FY94 & FY96, OMA funded)
 - REM - Numerous UST removals (FY90 - 95, DERA and OMA funded)
 - REM - Landfill cover repair and cover improvement at FTRI-003 (FY94 and FY96)
 - Pilot Study - Soil vapor extraction at FTRI-027 (FY95)
 - Pilot Study - Soil vapor extraction and bio-venting at FTRI-019 (FY95)
7. CURRENT IRP PHASE:

RI/FS at 26 sites	RD at 8 sites
REM at 1 NPL site, 1 POL site	RA at 1 site
NFA at 41 sites	LTM at 2 sites
8. PROJECTED IRP PHASE:

NFA at 47 sites	RD at 2 sites
SI at 2 sites	RA at 10 sites
RI/FS at 2 sites	LTO at 9 sites
LTM at 5 sites	
9. IDENTIFIED POSSIBLE REM/IRA/RA:
Off-post ground water treatment, soil stabilization or excavation/disposal, and landfill cover improvement
10. FUNDING:

Prior Year Funds	\$ 38,138K	(excluding OMA)
FY97 Funds	2,604K	
Future Requirements	33,720K	
Total	\$ 74,458K	
11. DURATION:

Year of IRP Inception:	1989
Year of RA Completion:	2003
Year of IRP Completion:	2031 (including LTO & LTM)

INSTALLATION ACTION PLAN FOR FORT RILEY, KANSAS

1. INSTALLATION INFORMATION

LOCALE

- Fort Riley is located on 101,000 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 4 miles west of Manhattan (population 38,000). Milford Reservoir bounds the majority of the western side of the installation.

COMMAND ORGANIZATION

- Major Command: FORSCOM Deputy Chief of Staff for Personnel and Installation Management
- Installation: Fort Riley, Directorate of Environment and Safety

INSTALLATION RESTORATION PROGRAM (IRP) EXECUTING AGENCY

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

REGULATOR PARTICIPATION

- Federal: U.S. Environmental Protection Agency, Region VII, Removal Enforcement Section, Superfund Division
- State: Kansas Department of Health and Environment, Bureau of Environmental Remediation

REGULATORY STATUS

- NPL Installation (entire installation), CERCLIS Site KS6214020756
- CERCLA/RCRA Federal Facility Agreement (FFA or IAG), Effective June 1991
- Technical Review Committee (TRC), Established January 1992
- TRC conversation to Restoration Advisory Board to be evaluated spring of 1997
- RCRA Interim Status (Part B and Subpart X pending)

SIGNIFICANT CHANGES TO IRP FROM PREVIOUS YEAR

- One RI/FS Complete, One RI/FSs Near Completion; Three Underway
- Initiated POL clean-up at housing area
- Completed cover improvements at SFL landfill
- Initiated exposure control EE/CA for MAAF-FFTA
- Completed SFL ROD

2. INSTALLATION DESCRIPTION

Fort Riley is an active U.S. Army facility. It is home to America's Army consisting of the 1st Infantry Division (Mechanized) and the 1st Armored Division. Central goals are leader development, teamwork and combat readiness. It is not designated for base closure.

Fort Riley became a permanent cavalry post in 1853 and boasted the designation of Cavalry Headquarters in 1885. Troops from Fort Riley played important roles in the Indian Wars of the 1860's. Fort Riley was home to the 1st Infantry Division, the "Big Red One" since 1917. The 1st Infantry Division Headquarters were moved to Germany in 1996. One brigade of the 1st Armored Division has joined one brigade of the 1st Infantry Division at Fort Riley. These brigades remain combat ready by training at Fort Riley as well as sending troops to the National Training Center at Fort Irwin in Barstow, CA. Tenant activities include the Defense Printing Office, the Defense Reutilization and Marketing Office (DRMO), and the Central Regional Civilian Personnel Office.

The Army initially began environmental 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 1970's resulted in contamination in the soils and in sediments in the drainage way behind the building.

Fort Riley was formally placed on the National Priorities List on 30 August 1990. A Federal Facilities Agreement (FFA or IAG) was signed by the DASA (ESOH) and the 1st Infantry 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 IAG, which incorporates both Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the Resource Conservation and Recovery Act (RCRA) actions, became effective in June 1991. Project schedules were re-negotiated in January/February 1996 and revised schedules were proposed in December 1996 based on available resources.

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. Establishment of a Restoration Advisory Board will be pursued in the spring of 1997.

Fort Riley has been assessed stipulated penalties under the IAG for the late submittal of a Remedial Investigation Report, a primary document. The payment of the penalty is included in the FY97 appropriations bills. Five sites have or will be the subject of Remedial Investigation / Feasibility Studies. Three Removal Actions were performed in 1994 with additional phases performed in FY95 at one site. A Removal Action and an additional Removal phase are being performed and one other was initiated in FY96. An Installation-Wide Site Assessment was performed for identification of 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 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 warrant further investigation.

3. CONTAMINATION ASSESSMENT

A. ASSESSMENT OVERVIEW

Five Operable Units (OUs) have been designated: FTRI-003 Southwest Funston Landfill (SFL), FTRI-030 Pesticide Storage Facility (PSF), FTRI-027 Dry Cleaning Facilities (DCF), FTRI-035 Marshall Army Airfield - Former Fire Training Area (MAAF-FFTA), and FTRI-044 Building 354 Area Groundwater Solvent Detections site (354-Solvent). These sites have been identified as sites with significant contamination due to past and present operational activities resulting in spills and releases to the environment. The primary contaminant of concern is perchloroethylene, however, there are other site-specific contaminants.

The Southwest Funston Landfill was operated from the mid-1950's through 1981. Post-closure monitoring and RI/FS sampling detected contaminants such as vinyl chloride, petroleum hydrocarbons, and metals in the groundwater at low levels. A Removal Action was completed to stabilize the Kansas River bank and reduce infiltration. The ROD was finalized in FY96. Plans for implementing institutional controls and long-term monitoring have been initiated. Groundwater monitoring is continuing.

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 is being completed and the Proposed Plan is being drafted. The ROD will identify No Further Action for this site.

Per the IAG, 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 the amount of \$65,000. Fort Riley disputed the method used to determine the amount assessed. A dispute agreement allows for mitigation of a portion of this amount to \$34,000 through the execution of three removal actions (SFL Bank Stabilization, PSF & Colyer Manor). The FY97 appropriations bill includes the enabling language for payment of this penalty.

Perchloroethylene (PCE) has been and is being used at the adjacent former and current Dry Cleaning Facilities, respectively. Organic contamination of soils, sediments and groundwater was confirmed in a Preliminary Assessment / Site Investigation (PA/SI) completed in the fall of 1992. Regulatory approval was received on RI/FS planning documents and RI field activities occurred in the fall of 1993. A Pilot Study for soil vapor extraction was successful in removing most of the soil contamination (therefore a formal Removal Action was not performed). Following review of the RI and the Draft FS it was determined, in concert with EPA and KDHE, that additional characterization of the adjacent alluvial aquifer ("The Island") was warranted. This work was accomplished in the spring of 1996. The RI will be amended and the FS completed. Natural attenuation is expected to be a component of the remedy.

A significant amount of site characterization has been performed at the MAAF-FFTA site under the Site Investigation. In early FY97 12 additional monitoring wells were installed to better define the vertical and horizontal extent of contamination. The RI/FS work plan identifies collecting 4 rounds of groundwater samples from site wells. Since a source area (soils) removal action has been performed the workplan proposes evaluating natural attenuation as a component

of the final remedial action. A significant amount of additional field investigations may not be necessary, although schedules and budgets allow for such. Groundwater contamination exists off post. Private wells in the area have been monitored since this was discovered. An Engineering Evaluation/Cost Analysis (EE/CA) has been initiated to assess the need for a Removal Action aimed at Exposure Control. As additional definition of the site hydrogeology and groundwater contamination occurs, opportunities for early groundwater action will be evaluated.

The 354-Solvent site was discovered during investigations for a POL/UST site. The source has not been determined and understanding of the nature and extent of contamination is limited. However, there are no nearby receptors and the contamination is not expected to migrate significantly in the near future. Initial field investigations are planned to be conducted in 1997. Fort Riley DES does not expect a major remedial action will be needed at this site.

The Installation-Wide Site Assessment was performed in 1992 with the results presented in the Draft final Installation-Wide Site Assessment (IWSA) for Fort Riley, Kansas, dated 7 December 1992, as revised on 16 February 1993. It identified 25 groups of potential areas of concern (PAOC), with 23 sites being scheduled for further Site Investigations. Contaminants associated with these sites vary greatly from potentially lead-contaminated soils at old firing ranges to potential releases of solvents due to practices at furniture repair shops. Information was collected on the PAOCs to evaluate their eligibility under CERCLA and RCRA pathways and potentially exposed populations. The IWSA was conducted consistent with 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 targets are known to exist. Specifically, 23 PAOCs were identified and evaluated using the HRS PA SCORE methodology. As outlined in the National Contingency Plan, the results of the PA were used to identify sites requiring further investigation of SI's.

These sites are being 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 has been 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) has been broken out as a separate site because of the magnitude of detected contamination and off-post contamination. The "Other" Multiple Site grouping consists 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 1994. A joint review of the Multiple Sites with EPA & KDHE in the summer of 1995 resulted in concurrence on the designation of two sites as formal Operable Units (MAAF-FFTA and 354-Solvent), on the recommendations of No Further Action on numerous sites, and identified several sites which warranted additional characterization or action. Only two sites, Forsyth Landfill Area 2 and the Southeast Funston Landfill, are expected to result in significant work. A NFA Decision Document addressing many of the Multiple Sites is being prepared.

TABLE 1
PREVIOUS STUDIES AT FORT RILEY

Environment Science and Engineering Inc., (for USATHAMA), 1984 Installation Assessment of the Headquarters, 1st Infantry Division (Mechanized) and Fort Riley, Kansas.

Army Environmental Hygiene Agency, 9-13 May 1988 Interim Final Report, Hazardous Waste Management Consultation No. 37-26-0190-89, Evaluation of Solid Waste Management Units, Fort Riley, Kansas.

Louis Berger and Associates, 7 December 1992, revised 16 February 1993, Installation-Wide Site Assessment, Fort Riley, Kansas.

Law Environmental, July 1993, Engineering Evaluation / Cost Analysis Report for Southwest Funston Landfill with Fort Riley Supplement, 16 August 1993, Fort Riley, Kansas.

Law Environmental, July 1993, revised December 1993, Pesticide Storage Facility, Remedial Investigation Report, Fort Riley, Kansas.

Fort Riley DEH Environmental and Natural Resources Division, 16 August 1993, Engineering Evaluation / Cost Analysis for Pesticide Storage Facility, Fort Riley, Kansas.

Louis Berger and Associates, 11 March 1993, Impact Area Site Assessment Report, Fort Riley, Kansas.

Louis Berger and Associates, 10 August 1992, Data Summary and Evaluation Report for the Custer Hill Sanitary Landfill, Fort Riley, Kansas.

Law Environmental, April 1994, Southwest Funston Landfill, Remedial Investigation Report, Fort Riley,

Louis Berger and Associates, 23 June 1993, Data Summary and Evaluation Supplement for the Custer Hill Sanitary Landfill, Fort Riley, Kansas.

Louis Berger and Associates, 23 December 1993, Interim Sampling Data Report for the Custer Hill Sanitary Landfill, Fort Riley, Kansas.

Louis Berger and Associates, 28 February 1994, Site Investigation Report for High Priority Sites at Fort Riley, Kansas.

Law Environmental, April 1994, Southwest Funston Landfill, Feasibility Study Report, Fort Riley, Kansas

Louis Berger and Associates, 1994, Site Investigation Report for "Other Sites" at Fort Riley, Kansas.

Law Environmental, 19 May 1995, Pesticide Storage Facility, Remedial Investigation Addendum & Feasibility Study Report, Fort Riley, Kansas.

Louis Berger and Associates, March 30, 1995, Remedial Investigation, Dry Cleaning Facilities Area (DCFA-RI), Fort Riley, Kansas.

Louis Berger and Associates, April 1995, Draft Feasibility Study Report, Dry Cleaning Facilities Area (DCFA-FS), Fort Riley, Kansas.

* There are also numerous project planning documents and Quality Control Summary Reports which are not listed here.

B. SITE DESCRIPTIONS

SOUTHWEST FUNSTON LANDFILL
OPERABLE UNIT 001

FTRI-003
FRY089F042

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, and KDHE requirements for approved closure of the landfill required a groundwater monitoring program be implemented. Results of that program were used to score the installation for the NPL and the IAG required an RI/FS. The RI indicates sporadic hits of low level organic contamination. A Bank Stabilization action was accomplished in the winter/spring of 1994. Another action consisting of regrading and improving the native soil cover was completed in the fall of 1996.

Site does not present significant risk to human health and the environment under current conditions. The ROD includes a contingency for future action, a 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.

Contaminants of Concern: VOCs-primarily Vinyl chloride, Metals
Media of Concern: Groundwater
RRSE Rating: 1A (Soils 1A, Sediment 2A, Groundwater 3A)
Completed IRP Phase: RI/FS, IRA, Proposed Plan, ROD
Current IRP Phase: LTM and LTO
Future IRP Phase: LTM and LTO

Recommendation for future response:

- Groundwater monitoring is continuing on a minimum semi-annual basis under an indefinite delivery contract. As of January 1997 semi-annual groundwater events through spring of 1998 have been contracted for.
- The USGS will prepare annual monitoring reports including hydrogeologic evaluations.
- Since some contamination will remain on-site, statutory reviews will be required at 5 year intervals.
- O&M plan provides for annual inspections of bank stabilization and cover including maintenance as necessary. Monitoring wells need to be resurveyed for both vertical and horizontal control. Groundwater monitoring well pump replacement may also be necessary.
- In the future, some RI/FS monitoring wells and closure monitoring wells may be abandoned.

PESTICIDE STORAGE FACILITY (MIXING)
OPERABLE UNIT 002

FTRI-030
FRY089F031

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 1970's, 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.

Contaminants of Concern: Pesticides (Chlordane, DDT, Dieldrin, Heptachlor), PAHs & metals (arsenic)
Media of Concern: Soils (Groundwater - see below)
RRSE Rating: 3A, (1A before removal action was complete)
Completed IRP Phase: PA/SI, Removal, RI
Current IRP Phase: PP, ROD
Future IRP Phase: NFA

Recommendation for future response:

- A No Further Action PP/ROD is being prepared. This recommendation is based on continued industrial land use. This should be noted in the installation master plan for consideration if land use changes.
- Note: PSF building will undergo closure (not a DERA action).

The former Dry Cleaning Facility 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 DCF in September 1992 and an RI/FS initiated. Chlorinated solvent contamination was found in soils and groundwater. An initial Pilot Study for Groundwater and Soil Vapor Extraction was completed. The groundwater pumping tests, conducted in the overburden and bedrock aquifer, were found to be ineffective, as the pumping rate was approximately 0.75 gallons per minute. Soil Vapor Extraction rates were low, also, but yielded enough contaminant removal to extend the pilot study for two months to further assess sustainable removal rates. The SVE was successful in removing most of the soil contamination. Results will be incorporated into an appendix to the Feasibility Study.

Following review of the RI and the Draft FS it was determined, in concert with EPA and KDHE, that additional characterization of the adjacent alluvial aquifer ("The Island") was warranted. This work was accomplished in the spring of 1996. Contaminant levels in the alluvial aquifer exceed MCLs. Leakage from a nearby sewer servicing the laundry was corrected in 1996.

Contaminants of Concern: VOCs
Media of Concern: Groundwater, SW/Sediment, soil
RRSE Rating: 1A
Completed IRP Phase: PA/SI
Current IRP Phase: RI/FS
Future IRP Phase: PP/ROD, LTM

Recommendation for future response:

- The effect of the sewer line repair on site conditions is being evaluated.
- The RI will be amended and the FS completed.
- Baseline risk assessment indicates minimal risk associated with the site. Groundwater exposure pathway is not completed. Data shows contaminant levels are steadily declining. However, contaminant levels in groundwater above MCL's triggers long-term monitoring with contingency for future action as well as institutional controls to prohibit groundwater use (although such use is considered unlikely as a baseline condition). Natural attenuation is being evaluated in the FS.
- Periodic (approximately 3 times per year) groundwater monitoring is continuing pending supplemental RI work and the PP/ROD. This is contracted for events through FY97.
- Institutional controls, (natural attenuation), LTM, and future action contingency is the anticipated action. Since some contamination will remain on-site, statutory reviews will be required at 5 year intervals.

An RI/FS Work Plan is in the Draft Final Stages.
An Alternate Water Supply EE/CA ^{to address exposure control} has been completed
and the Public Comment period will be complete by 21 Feb 1998

A groundwater removal EE/CA to address "Hot Spot" remediation
has been initiated

The site consists of a former fire training pit and former drum storage area, located at Marshall Army Airfield immediately adjacent to the installation boundary. SI activities performed in the fall of 1993 indicated PCE & POL contamination on-post in soils and groundwater. Nearby off-post private wells are also contaminated. A Pilot Study to evaluate the effectiveness of bioventing and soil vapor extraction was completed in January 1995, and system operations were extended to gather additional information. An EE/CA to convert the Pilot System to a removal action was not completed as the field data indicated that the Pilot Study likely removed most of the soil contamination.

Expanded site investigations (Phase II) focused on plume definition (horizontal) utilizing groundwater screening techniques is complete. Draft Site Investigation Report addressing soils and horizontal groundwater delineation was issued on August 1, 1995. Expanded SI (Phase III), involving placement of monitoring wells within and along plume boundary, was FY95 SAF, funded FY96 and performed in spring 1996.

A significant amount of site characterization has been performed at the FFTA-MAAF site under the Site Investigation. Thorough RI/FS planning, to include consideration of natural attenuation, is underway. A significant amount of additional field investigations may not be necessary, although schedules and budgets allow for such. Groundwater contamination exists off post. Private wells in the area have been monitored since this was discovered. A domestic supply well has recently shown low level contamination. A well at a commercial facility was not permitted for drinking water purposes because of contamination above MCLs. [An Engineering Evaluation/Cost Analysis (EE/CA) has been initiated to assess the need for a removal action aimed at exposure control.] As site hydrogeology and groundwater contamination is further defined, opportunities for early groundwater action will be assessed.

Contaminants of Concern: TPH, VOC's, SVOC's, metals
Media of Concern: Groundwater, soil
RRSE Rating: 1A
Completed IRP Phase: PA, SI, Pilot Study
Current IRP Phase: RI/FS, EE/CA
Future IRP Phase: IRA, ROD, RD, RA, LTM, LTO

Recommendation for future response:

- Current strategy involves use of removal actions to control exposure and consideration of interim groundwater action concurrent with RI/FS activities. If technically and cost effective, interim groundwater action coupled with natural attenuation appears viable.
- Periodic Groundwater Monitoring to continue, estimated 3 times per year.
- Ground-water data from newly installed wells will be used to re-examine viability of a groundwater pilot study and/or an EE/CA and Removal/IRA design to address groundwater contamination. Action costs must consider lack of existing 3-phase power at site.
- CEMRK tasked with Real Estate actions for off-post work.
- RI/FS work performed by new IDT contractor. Full RI/FS planning, to include examination of natural attenuation, underway summer/fall 1996.

Solvent storage and dispensing previously occurred near Bldg 354 in the Public Works (formerly DEH) yard area. Site was identified in the IWSA but no specific SI was developed for the site. In lieu of a SI, on-going POL/UST site investigation at Building 354 was expanded to include analysis for CERCLA hazardous substances. Available data from several adjacent study areas were consolidated into a data review package. Perchloroethylene and/or its breakdown products have been detected in the UST investigation and in relatively close monitoring wells at PSF and Main Post Landfill sites. The source is unknown but may be from previous solvent storage and dispensing in the public works yard. In FY97 initial field investigations are being performed to locate source and generally define nature and extent of contamination.

Contaminants: VOCs
Media of Concern: Groundwater, soil
RRSE Rating: 1A
Completed IRP Phase: PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: LTM

Recommendation for future response:

- Initial Site Investigations - to provide basic characterization for full RI/FS planning.
- Plan and execute RI/FS, anticipated to include additional groundwater screening, installation of monitoring wells, and periodic monitoring.
- Probable monitoring following site characterization (no likely use of groundwater in area).

Custer Hill Sanitary Landfill is located northeast of the Custer Hill Maintenance complex approximately 0.7 miles south of Vinton School Road on the Fort Riley military reservation. Groundwater monitoring of the CHSL was incorporated as part of the site investigation under the IAG. The landfill was scheduled to close 1 Oct 1993, however, a nation-wide extension until April 1994 was granted. Closure has been accomplished under state Subtitle D program. No further CERCLA action unless post-closure monitoring reveals contamination.

Contaminants of Concern: VOCs, metals
Media of Concern: Groundwater, soil
RRSE Rating: (not rated)
Completed IRP Phase: SI, Interim Monitoring
Current IRP Phase: None
Future IRP Phase: ROD, NFA

Recommendation for future response:

- No further action ROD under CERCLA to be grouped with Multiple Sites.
- Post closure monitoring (not DERA) being performed under state administered RCRA subtitle D program.
- Should post closure monitoring reveal contamination requiring remediation additional DERA work will be required.
- KC District will be performing the post closure monitoring (not DERA).
- Contracting mechanism choice of District.

RC for Dera

IMPACT ZONE

FTRI-032
FRY091S060, FRY096D007

The Impact Zone (IZ) is located in the east central portion of the installation. The IZ is approximately 26 square miles in size. Prior to the purchase of the land now encompassing the IZ, the primary land use was for agricultural purposes. Since the purchase of the IZ land in 1942, the area has been used for tank and troop maneuvers and as an impact area. During this time it has received a variety of ordnance including high explosive, white phosphorus, illumination and smoke rounds. Records search indicate no usage or firing of chemical agents (mustard or nerve gas) or depleted-uranium. Ten ground-water monitoring wells were installed during the Site Investigation activities conducted during FY92/93.

Contaminants of Concern: Munitions residue
Media of Concern: Soil, sediment
RRSE Rating: 1A
Completed IRP Phase: PA/SI
Current IRP Phase: RI/FS
Future IRP Phase: ROD, LTM

Recommendation for future response:

- Prepare Decision Document / ROD recommending LTM
- Develop LTM plan (Bi-annual monitoring at 20 locations [surface soils/sediment])

MULTIPLE SITE INVESTIGATIONS

FTRI-various

The Installation Wide Site Assessment required by the IAG was completed in 1992 and identified several potential areas of contamination (PAOCs). PAOCs were split into several groups for investigation "Sensitive Receptor Lead Sites"; "High Priority Sites"; and "Other Sites" as grouped below. Additional sites have been identified including the Building 354 Area Solvent Detections and Camp Funston Area Groundwater Contamination.

"SENSITIVE RECEPTOR LEAD SITES"

FTRI-035

FRY091S060, FRY096D007

This is a sub-group of the "Non-Impact Area Small Arms Ranges" site. Former Camp Forsyth Ranges, Former Mullins Parks, Custer Hill Elementary and Ware Elementary School were all suspected of having lead contaminated soil because the areas were former firing ranges or had soils brought in for fill from firing ranges. Expedited site investigation indicated that lead contaminated soils exist only in one isolated area in the Colyer Manor Housing Area at the Former Camp Forsyth Ranges. This work is documented in the "High Priority" Sites SI Report. A Removal Action was performed in the Spring 1994, consisting of excavation of soils contaminated with lead. Clean soils were used as backfill. No further action. Decision document under preparation.

Contaminants of Concern: Lead
Media of Concern: Soil
RRSE Rating: 1A
Completed IRP Phase: SI, Removal Action
Current IRP Phase: PP, ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

MULTIPLE SITE INVESTIGATIONS (cont.)

"HIGH PRIORITY" SITES

Industrial Wastewater System Custer Hill

FTRI-020
FRY091S060, FRY096D008

This system consists of two wastewater ponds, an old wash rack reservoir, and four large shallow cells which receive industrial wastewater from automotive and industrial shops on Custer Hill. The free product found in one well at the East Pond is believed to be related to the POL Tank Farm, not the pond. SI reveals primarily POL contamination, although low levels of a few CERCLA hazardous substances have been detected.

Contaminants: POL, VOC's, SVOCs, metals
Media of Concern: Soils, Groundwater
RRSE Rating: 2A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: DD, ROD
Future IRP Phase: NFA

Recommendation for future response:

- Seeking No further action under CERCLA
- Operating portions are addressed under state-administered industrial wastewater program. Ponds are being replaced with concrete basins - State requires closure (OMA) under state RCRA.
- Closure of East and West Ponds under state programs, not under IAG/DERA.
- Included in Multi-Site Decision Document

Furniture Repair Shops

FTRI-041
FRY091S060

The SI for this site was conducted concurrently with the High Priority Sites as Building 1301 was scheduled for demolition in the fall of 1993. Building 1301 was located in Camp Funston and was used as a furniture repair shop. Building 1605, a previous furniture repair shop, was located within 600 feet of 1301. It burned in 1988 and was also evaluated. No CERCLA hazardous substances were found. A small area of where POL constituents were detected was excavated to avoid concerns being raised during planned future construction activities.

Contaminants: VOCs
Media of Concern: Soils
RRSE Rating: RC
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

MULTIPLE SITE INVESTIGATIONS (cont.)

"OTHER" SITES

Camp Whitside - Inactive Landfills

FTRI-052
FRY091S060

One portion of this site is believed to have been a C/D landfill, therefore materials placed in it are likely to be substantially non-hazardous. One area was apparently used as a dump/sanitary landfill and may have received industrial wastes. Monitoring wells indicate no contamination.

Contaminants: Metals, VOCs, SVOCs, herbicides, PCB's, pesticides
Media of Concern: Soils, Groundwater
RRSE Rating: RC
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

Whitside Construction Debris Landfill - Active

FTRI-002
FRY091S060, FRY096D008

This landfill is an C/D landfill. Site included in DERPMIS in 1984. Site inspection indicated nonconforming disposal practices occurred. This landfill caught fire in 1982 and again in 1988. Preliminary SI results show some VOC detections. SI confirmatory groundwater sampling conducted in the winter of 95/96 found no detections.

Contaminants: Metals, VOCs, SVOCs, PCB's pesticides
Media of Concern: Soils, Groundwater
RRSE Rating: 3A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action under CERCLA
- Included in Multi-Site Decision Document
- Future monitoring, if any, to be performed under RCRA subtitle D / OMA.
- Upon closure, groundwater monitoring expected to be implemented as part of landfill closure plan (OMA).

Southeast Funston Landfill - Inactive

FTRI-036
FRY091S060; FRY096D008

This former municipal solid waste landfill, 50 acres, is located in the southeast portion of the installation. Operations ceased in the mid 1950's. Four (4) perimeter monitoring wells were installed and sampled during SI. Laboratory analysis indicated low levels of 1,2 dichloroethylene, and low levels of lead exceeded MCL. (GW lab screening indicated low levels of several other VOC's none over MCL except vinyl chloride). Ten (10) of 78 surface soil sample locations analyzed by X-Ray Fluorescence (XRF) indicated high concentrations of lead (up to 5600 ppm). Confirmation sampling of groundwater in December 1995 indicates similar results to previous data. Eleven (11) soil gas sampling locations indicated no VOC contamination. Organic contaminants were detected in the western portion of the landfill. The lead was detected near the old incinerator (see FTRI-029) in the eastern portion of the landfill.

Contaminants: Metals - including lead, VOCs, SVOCs
Media of concern: Soils, Groundwater
RRSE Rating: 2A
Completed IRP Phase: PA, SI
Current IRP Phase: RI
Future IRP Phase: IRA, ROD

Recommendation for future response:

- Western (30+ acres) portion of the landfill needs cover repairs to correct for subsidence (expect to perform as IRA)
- Prepare Decision Document / ROD
- Groundwater concerns are being addressed under Camp Funston Groundwater site DSERTS FTRI-011.

Camp Whitside Incinerator Area

FTRI-037
FRY091S060, FRY096D008

Site is located adjacent to the Kansas River in the southern portion of the installation. (Near the historic territorial capitol). Medical Waste and combustible refuse was burned here and the ashes were apparently scattered over the adjacent area. Area of metals contamination and soils is very limited.

Contaminants: Metals
Media of Concern: Soils
RRSE Rating: 2A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

Former DSGS - Bldg 1693 and Adjacent Areas

FTRI-046
FRY091S060, FRY096D008

This former Direct Support / General Support Maintenance Facility, building 1693 had two paint booths which had the floor sawed and removed around 1965 to install five by five foot sand infiltration pits for new floor drains. The booths were last used in 1981 and were removed Sept 1987. Fifty (50) soil gas samples were collected, results yielded non-detects; 11 surface soil samples were collected. Diesel range organics exceeded KDHE standards in 5 of the samples. Soil samples from beneath the floor slabs contained chromium and lead. Three ground-water screening samples were collected from beneath the paint booths, 1,1,1-trichloroethane was detected at 98 ppb. Groundwater contamination does not appear to be related to operations at this site. See Camp Funston Groundwater Contamination, FTRI-011.

Contaminants: Metals
Media of Concern: Soils, Groundwater
RRSE Rating: 2A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- Groundwater monitoring under Camp Funston Area Groundwater Contamination, FTRI-011.

Former Livestock Dipping Facility

FTRI-047
FRY091S060

Located near the railroad tracks and across a drainage ditch east of the Public Works (formerly DEH) yard and the PSF site, the livestock dipping facility is depicted old maps showing 2 buildings which included several dipping vats and surrounding drying pens. It is believed this facility ended operation in about 1948 after the horse cavalry ceased to exist, although it appears on records from early 1950's. SI data indicates pesticide contamination. Recently discovered as-built drawings indicate there were drains in the bottom of the trenches.

Contaminants: Pesticides, Metals
Media of concern: Soils
RRSE Rating: 3A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- DES to remove and dispose of most highly contaminated soils from pit (1-2 cubic feet)

DRMO Storage Area (DRMO Area 1)

FTRI-006
FRY091S060, FRY096D008

The Defense Reutilization and Marketing Office, located in the northeastern portion of Camp Funston, handled transformers taken out of service during the 1950's and 1960's. The potential for PCB releases would have been greatest during this time frame because the hazards of PCBs were not widely known. A wide variety of other chemicals may also have been spilled. One surface soil/sediment sample had PCBs above risk-based (industrial setting) guideline concentrations. Additional sampling to evaluate the extent of PCB contamination in the drainage ditch near the site occurred in FY96.

Contaminants: PCBs,
Media of Concern: Soils
RRSE Rating: 2A
Completed IRP Phase: PA, SI
Current IRP Phase: RI
Future IRP Phase: ROD, NFA

Recommendation for future response:

- Groundwater contamination in DRMO Area 1 believed to be associated with UST site and will be addressed under the 1245 UST site (FTRI-066) and Camp Funston Area Groundwater (FTRI-011).

Waste Storage DRMO Secondary Area (DRMO Area 3)

FTRI-012
FRY091S060, FRY096D009

This site was used by the Defense Reutilization and Marketing Office from 1975 to 1978, and is approximately 3 acres in size. The site is located at 11th and L Street in Camp Funston. Soil gas sampling and groundwater screening has been performed and one groundwater screening sample showed very low levels of xylene and toluene.

Contaminants: VOCs
Media of Concern: Groundwater
RRSE Rating: 3A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- Groundwater monitoring (for CERCLA hazardous substances) under Camp Funston Area Groundwater Contamination, FTRI-011.

Former DRMO Location (DRMO Area 2)

FTRI-015
FRY091S060, FRY096D008

This site was used by the Defense Reutilization and Marketing Office from 1972 to 1975, and is approximately 2.5 acres in size. The site is located at 5th and K streets in Camp Funston. Soil gas sampling and groundwater screening has been performed. One groundwater screening sample showed PCE at 6.2 ug/l and very low levels of benzene, xylene and toluene. Groundwater is being addressed under site FTRI-011, Camp Funston Groundwater.

Contaminants: VOCs
Media of Concern: Groundwater
RRSE Rating: 2A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- Groundwater monitoring (for CERCLA hazardous substances) under Camp Funston Area Groundwater Contamination, FTRI-011.

PCB Spills Area/Transformer Sites

FTRI-050
FRY091S060, FRY096D009

Approximately 12 active and former substations have potential for PCB contamination. The locations of the substations have been located on historic maps, but some depicted have been demolished. Some were owned and operated by a private utility. The sites have been sampled and no detections above TSCA levels were found.

Contaminants: PCBs
Media of Concern: Soils
RSSE Rating: 3A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

Former Pesticide Facilities

FTRI-048
FRY091S060

Located on Custer Hill Golf Course property, these sites have been used for storage and mixing of pesticides, herbicides, and fungicides. The drainage path from a concrete vehicle wash pad which may have been used to mix pesticides is an area of concern as well as the areas surrounding the building sites. SI data revealed no contamination.

Contaminants: Pesticides, herbicides
Media of Concern: Soils
RRSE Rating: RC
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

Photo and Print Plants

FTRI-045
FRY091S060

As the central print shop for Fort Riley for decades, past disposal practices of solvents to clean the presses were suspected. One soil sampling revealed low levels of chlorinated solvents (PCE, TCE, and toluene), in subsurface soils. Soil borings were advanced to bedrock, no groundwater encountered.

Contaminants: VOCs, metals
Media of Concern: Soils
RRSE Rating: 3A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- Included in Multi-Site Decision Document

Milford Lake Campground/Marina Wells

FTRI-055
FRY091S060

1988 sampling indicated lindane slightly above the MCL. This well was later abandoned and closed per state regulations. Regulators require that the detection be confined or disproved. Laboratory data indicates no detections in the monitoring well. Monitoring wells closed in FY96.

Contaminants: Lindane
Media of Concern: Groundwater
RRSE Rating: 3A
Completed IRP Phase: PA, SI, RI
Current IRP Phase: ROD
Future IRP Phase: NFA

Recommendation for future response:

- No further action
- ROD under CERCLA to be grouped with Multi-Site Decision Document

SUPPLEMENTAL SITE INVESTIGATIONS

These sites were initially investigated under "High Priority" or "Other" Site Investigations projects, but require supplemental investigations prior to decision making.

OPEN BURN / OPEN DETONATION GROUND (RANGE 16)

FTRI-009

FRY091S060, FRY096D009

Range 16 is where defective rounds are destroyed and flammable substances burned. Historical practices included use of solvents in open burn area, this practice was discontinued many years ago. Site was entered in DERPMS in 1984. Low levels of solvents were detected in the groundwater, however, there are no nearby receptors. The Subpart X permit submitted in May 1993 is under review. Eight surface soil, eight deep borings, two surface water and three sediment samples were collected and analyzed for explosives, VOC's, SVOC's, and uranium. Four monitoring wells were installed and sampled for the same suite of analytes. Open burn pit has not been used since approximately 1993. Confirmatory groundwater sampling performed winter 1995/96. Site hydrogeology is complex and additional characterization is needed.

Contaminants: Munitions residue, VOCs-TCE, TPH
Media of Concern: Soils, groundwater
RRSE Rating: 3A
Completed IRP Phase: PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: ROD, LTM

Recommendation for future response:

- Investigations need to continue due to pending permitting actions (Even though RRSE rating is low)
- Supplemental investigations, including additional monitoring wells in appropriate strata contracted for in FY96. Total of 15 wells.
- Awaiting regulator comments on RCRA Subpart X permit.
- Future action in part dependent on result of Subpart X review / approval.
- Limited contamination in perched water (not aquifer) and no GW receptors does not warrant CA/RA. Regulator stance on corrective action unknown.
- Possible compliance monitoring under RCRA subpart X. (non-DEIRA)
- Future closure (non-DEIRA)

CAMP FUNSTON GROUNDWATER DETECTIONS

FTRI-011
FRY091S060, FRY096D007

See also SE Funston Landfill, DRMO Area 2, Former DSGS site and Funston area (1000 Area) POL/UST sites. Groundwater screening and monitoring well sampling data indicate apparent wide spread, but low level solvent (includes vinyl chloride) and some metals contamination. No specific source has been identified. 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. Private wells may also exist in the immediate area.

Contaminants: VOCs, metals
Media of Concern: Groundwater
RRSE Rating: 1A
Completed IRP Phase: PA, SI
Current IRP Phase: RI
Future IRP Phase: ROD

Recommendation for future response:

- Focus of study is to determine whether flow across Camp Funston is likely to impact the Ogden City wells.
- Develop GIS database and perform initial review of consolidated existing data & characterize hydrogeology of area as well as contamination
- Plan and execute well installation and monitoring program, may include additional groundwater screening as well as installation of monitoring wells, and periodic monitoring.
- Probable Long term monitoring (expect to perform in concert with Southwest Funston Landfill and Camp Funston Groundwater Contamination monitoring as a integrated program)
- This is a joint effort between the installation, CEMRK and the USGS. USGS is being utilized to plan and partially execute this effort. USGS will plan, coordinate execution in conjunction with CEMRK, evaluate data and issue reports. K-State inorganic tracing will assist in understanding of groundwater flow.
- Chemical sampling and analyses will be performed by contractors through CEMRK. CEMRK & CEMRD will review and provide QA/QC.
- Should data and evaluation indicate the presence/location of a specific source or sources, additional site-specific SI's would likely be planned and executed.

MAIN POST LANDFILL

FTRI-004
FRY091S060, FRY096D009

Located in the southern area of Main Post, these dumping areas were used intermittently from approximately 1880 to the late 1940's. Only the areas which received wastes after World War II are of concern. Typical municipal, non-hazardous waste is expected to be present. Site investigations indicated low levels (below MCLs) of VOCs in the groundwater. Groundwater contamination may not be associated with this site. Investigations indicate metals are not a concern in the soils.

Contaminants: VOCs
Media of concern: Groundwater
RRSE Rating: 3A
Completed IRP Phase: PA, SI
Current IRP Phase: RI
Future IRP Phase: ROD

Recommendation for future response:

- Groundwater monitoring will be conducted as part of Building 354 Area Solvent Detections site characterization.
- FY99 Decision Document

OLD INCINERATOR SITE SE-CAMP FUNSTON

FTRI-029
FRY091S060, FRY096D007

The site is located adjacent to the southeast portion of the installation. The land was transferred to the Kansas Department of Wildlife and Parks when Highway K-18 was constructed. The incinerator was abandoned in the mid 1950's or earlier. Ash and other waste diverted from the incinerator to the adjacent Southeast Funston landfill is of possible concern. Ten (10) of 78 surface soil sample locations analyzed by X-Ray Fluorescence (XRF) indicated high concentrations of lead (up to 5600 ppm).

Contaminants: Metals - including lead
Media of concern: Soils
RRSE Rating: 1A
Completed IRP Phase: PA, SI
Current IRP Phase: RI
Future IRP Phase: Possible IRA, ROD

Recommendation for future response:

- Additional surface soil characterization contracted for in FY96 for performance in FY97
- Possible Removal Action to address surface soils (incinerator ash)
- Possible Land Acquisition - evaluate re-acquiring land to control access and use.

FORSYTH LANDFILL(S)

FTRI-038
FRY091S060, FRY096D007

Located in areas south and west of Camp Forsyth, five separate areas have been identified as areas which have received dumping. Aerial photos as early as 1939 include one of the areas. A total of 15 soil gas samples were collected in the landfill areas. Results indicate dichloromethane slightly above the detection limit at 1.8 ug/L at Area 1. A total of eight groundwater screening samples were collected. Carbon disulfide was detected in one groundwater screening samples from Area 1 at a concentration of 22 ug/L. In Area 2, along Republican River on western side of Camp Forsyth, landfill material is exposed on the surface, in a drainage, and is eroding into the river and onto accessible sandbars along the river - landfill material may include UXO. UXO was found on a sandbar adjacent to Area 2 after 1993 flooding.

Contaminants: Metals, UXO
Media of Concern: Soil, groundwater
RRSE Rating: 1A
Completed IRP Phase: PA, SI
Current IRP Phase: RI, IRA
Future IRP Phase: ROD, LTO

Recommendation for future response:

- Bank stabilization project due to landfill material exposed in drainage & on surface and eroding out along the river bank - eroding material include UXO.
- Pre-design work to include surveying
- LTO to include annual inspections and repair as necessary

BUILDING 727 FORMER SERVICE PIT

FTRI-051
FRY091S060, FRY096D009

This maintenance hanger at Marshall Field was built over a portion of the former service pit. It is reported that after the pit was taken out of service, oils and hazardous substances were dumped into the exposed portion of the pit. It was subsequently excavated and backfilled with clean soil. Soil sampling indicated very low levels of Diesel Range TPH, but levels are well below the 100 ppm interim soil clean-up standard set by KDHE in August, 1993.

Contaminants: VOCs, SVOCs, PCBs, metals, TPH
Media of Concern: Groundwater
RRSE Rating: 3A
Completed IRP Phase: PA, SI
Current IRP Phase: RI
Future IRP Phase: ROD, NFA

Recommendation for future response:

- Groundwater sampling (temporary or permanent well) is being performed in FY97 in conjunction with the 354 Solvent Site, FTRI-031.

POL/ UST SITES

FTRI-various
FRY091S005

FORMER GAS SERVICE STATION BUILDING 354

FTRI-061
FRY096D012

Building 354 which was torn down in FY96 was a former gasoline service station located in the Public Works maintenance area on Main Post. Leaks in the product fill lines and some contaminated soil were discovered during closure activities. A site investigation has been performed. Moderate contamination was found in a limited area therefore the state has placed the site in interim monitoring status for the purposes of assessing whether natural attenuation appears to be occurring. See also 354 Solvent Site FTRI-031.

Contaminants: TPH, Benzene, Toluene, Xylene, Lead
Media of Concern: Soil, ground water
RRSE Rating: 2B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: NFA (closure)

Recommendation for future response:

- Monitoring Status being performed under 354 Solvent project
- Action may or may not be able to taken separately for POL/UST from CERCLA issues/actions. See also Building 354 Area Solvent Detections project.
- Prepare corrective action plan following a few years of monitoring (FY99)

FORMER BUILDING 1245 DISPENSING STATION

FTRI-066
FRY096D006

This site is located near the eastern boundary of Camp Funston. The city of Ogden is immediately adjacent to the installation. Tanks removed in early 1990's. Site investigations have found relatively large areas of high levels of petroleum products which do not appear to be migrating.

Contaminants: TPH, Benzene, Toluene, Xylene, Lead, PAHs
Media of Concern: Soil, ground water
RRSE Rating: 1B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: RD, RA, LTM , LTO

Recommendation for future response:

- Assume in-situ remediation or natural attenuation of the ground-water plume.
- Remedy may include long term monitoring.
- Site being evaluated with RBCA

FORMER BUILDING 1637 DISPENSING AREA

FTRI-068
FRY096D006

This site is located in the eastern portion of Camp Funston. The dispensing stations dated from WWII and were used through the 1970's and 80's. The tanks were removed in early 1990's. Site investigations have identified high PAH, high lead, and moderate BTEX groundwater contamination. Migration does not appear to be occurring. Soil contamination is low (BTEX).

Contaminants: TPH, Benzene, Toluene, Xylene, PAHs, lead
Media of Concern: Soil, ground water
RRSE Rating: 1B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: LTM

Recommendation for future response:

- Assume natural attenuation of the ground-water plume.
- Remedy will probably include limited long term monitoring.
- Site being evaluated under RBCA

FORMER BUILDING 1044 DISPENSING AREA

FTRI-063
FRY096D006, FRY096D011

This site is located in the northwest portion of Camp Funston. The dispensing stations dated from WWII and were used through the 1970's and 80's. The tanks were removed in early 1990's. Site investigations have found soil and groundwater contamination, including free product.

Contaminants: TPH, Benzene, Toluene, Xylene, PAHs, lead
Media of Concern: Soil, ground water
RRSE Rating: 1B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: IRA, RI/FS
Future IRP Phase: LTM

Recommendation for future response:

- Free product removal (IRA).
- Assume natural attenuation of the ground-water plume.
- Remedy will probably include long term monitoring.
- Site being evaluated with RBCA

TMP GAS STATION (BLDG 388)

FTRI-062
FRY096D006, FRY096D011

This TMP site is located in the southern portion of the Main Post area. Contamination is due to past leakage from dispensing lines which have been replaced. Site investigation have identified free product, high levels of BTEX and PAHs, and low levels of lead in groundwater. Soil contamination is limited.

Contaminants: TPH, Benzene, Toluene, Xylene, PAHs, lead
Media of Concern: Soil, ground water
RRSE Rating: 1B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS, IRA
Future IRP Phase: LTM

Recommendations for future response:

- Free Product Removal
- Assume natural attenuation of the ground-water plume.
- Remedy will require long term monitoring.
- Site being evaluated with RBCA

FORMER BUILDING 1539 DISPENSING STATION

FTRI-067
FRY096D012

This site is located on the west side of Camp Funston. Dispensing stations dated from WWII and were used through 70's and 80's. The tanks removed in early 1990's. Site investigations have found low levels of BTEX, PAHs, and lead in groundwater.

Contaminants: TPH, Benzene, Toluene, Xylene, PAHs, lead
Media of Concern: Soil, ground water
RRSE Rating: 2B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: LTM

Recommendations for future response:

- Assume in-situ remediation or natural attenuation of the ground-water plume.
- Remedy will probably include long term monitoring.
- Site being evaluated with RBCA.

FORMER BUILDING 1890 DISPENSING STATION

FTRI-069
FRY096D012

This site is located in southwest portion of Camp Funston. The dispensing stations dated from WWII through 70's and 80's. The tanks were removed in early 1990's. Site investigations have found low levels of BTEX, PAHs, and moderate levels of lead in groundwater. Soil contamination is minimal.

Contaminants: TPH, Benzene, Toluene, Xylene, PAHs, lead
Media of Concern: Soil, ground water
RRSE Rating: 2B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: LTM

Recommendations for future response:

- Assume natural attenuation of the ground-water plume.
- Remedy may include long term monitoring.
- Site being evaluated with RBCA.

MAIN POST PX GAS STATION / 218

FTRI-060
FRY096D013

This site is located on Main Post. Contamination is due to past leakage of removed tanks/piping. Site investigation identified limited BTEX and lead contaminants in ground water.

Contaminants: TPH, Benzene, Toluene, Xylene, lead
Media of Concern: Soil, ground water
RRSE Rating: 3B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: NFA

Recommendations for future response:

- Request reconsideration of site status by KDHE to close out site

POL TANK FARM

FTRI-053
FRY096D006, FRY096D011

The POL Tank Farm is a consolidated storage facility located on 1st Division Road, Custer Hill. Contamination appears to be due to past surface releases and piping leakage. Limited site investigations have found free product and high levels BTEX and PAHs.

Contaminants of Concern: BTEX, PAHs,
Media of Concern: Soil, ground water
RRSE Rating: 1B
Completed IRP Phase to PA, SI
date:
Current IRP Phase: RI/FS, IRA
Future IRP Phase: LTM

Recommendation for future response:

- Perform additional characterization of the soil & ground-water contamination and RBCA evaluation.
- Ground-water contamination in the shale formation may be impractical to remediate because of relatively small amounts of groundwater in a fracture controlled formation.
- Our position is that the dissolved phase contaminants are impractical to remediate.
- Shallow overburden contamination along utility trenches is expected - source removal possible.
- Free product recovery (IRA) and natural attenuation are possible actions.

CUSTER HILL PX USTS

FTRI-054
FRY096D013

A former gasoline service station with 5 USTs. Soil contamination was reported during the removal of the tanks in 1991. Site investigations have found moderate to high levels of BTEX in ground water and low levels of BTEX in soils.

Contaminants: TPH, BTEX, lead, 1, 2-dichloroethane, methyl-t-butyl ether
Media of Concern: Soil, ground water
RRSE Rating: 3B
Completed IRP Phase: Tank Removal, PA, SI
Current IRP Phase: RI/FS
Future IRP Phase: NFA

Recommendation for future response:

- Source removal of near surface contaminated soils and free product recovery.
- Anticipate KDHE will concur that the dissolved phase contaminants in the ground water are impractical to remediate.
- Congested Area; Coordination w/ adjacent construction activities needed.
- Options for disposal of soils TBD (stockpiling or constructing bioremediation facility).
- Design was performed for soil source removal/treatment - IFB Option - bid amount approx. 500K. (do not expect to exercise).
- Pursue natural attenuation.

ABANDONED GASOLINE LINE

FTRI-056
FRY096D013

The site consists of an abandoned 3 mile pipeline and three former underground storage tanks at the terminus. Preliminary assessment conducted by the Corps did not identify any releases along the pipeline in the areas explored. Evidence of releases were identified in terminus area. Preliminary investigation of the terminus area shows contamination in the soil and ground water.

Contaminants: BTEX, lead
Media of Concern: Soil, ground water
RRSE Rating: 2B
Completed IRP Phase: Tank Removal, PA/SI
Current IRP Phase: RI/FS
Future IRP Phase: NFA

Recommendation for future response:

- Site Data limited; complete RI/RAP.
- Contaminated trench backfill materials and surrounding soils believed limited to terminus of gasoline line, but extent not defined.
- If needed, bioventing would work here.
- Widespread ground-water contamination not expected.
- Expect No Further Action.

6200 AREA FUEL OIL LINE

FTRI-057
FRY091S020, FRY096D007

A former heating oil dispensing system consisting of two underground storage tanks and a pump house. The heating oil was distributed through underground piping which serviced 100 housing units. The tanks were removed in stations with multiple tanks and piping. Heating oil has been released within the tankhold and along piping trenches which hold water lines and other utilities serving the housing unit. Source removal of contaminated trench backfill materials and surrounding soils. Fuel oil may have contaminated the backfill in other underground utility trenches which intercept the fuel oil trench requiring additional utility removal and replacement. Soil to be stockpiled and treated through low temperature thermal desorption. Project underway, to be completed spring 1997.

Contaminants: TPH, BTEX, PAHs
Media of Concern: Soil, ground water
RRSE Rating: 1B
Completed IRP Phase: PA, SI
Current IRP Phase: IRA, RI/FS
Future IRP Phase: LTM, NFA

Recommendation for future response:

- Perform risk evaluation for contamination remaining under the housing units.
- Groundwater will be investigated after completion of the source removal.
- Remediation of ground water may not be practical because of the site hydrogeology.
- Projections assume NFA after source removal.

NO FURTHER ACTION POL/UST SITES

FRY091S005

Former Building 1090 Dispensing Station	FTRI-064
Former Building 1190 Dispensing Station	FTRI-065
Former Building 2341 Dispensing Station	FTRI-070
Former Building 2345 Dispensing Station	FTRI-071
Building 8340 Fuel Oil UST	FTRI-072
Building 8360 Fuel Oil UST	FTRI-073

Dispensing stations dating from WWII through 70's and 90's. Tanks were removed in the early 1990's. Site investigations have been completed.

Contaminants: TPH, Benzene, Toluene, Xylene
Media of Concern: Soil, groundwater
RRSE Rating: RC
Completed IRP Phase: Tank Removal, PA, SI, RI
Current IRP Phase: NFA
Future IRP Phase: NFA

4. FORT RILEY IRP SUMMARY CHARTS

DSERTS Phase Summary Report

DSERTS Site Summary Report

DSERTS Risk Installation Action Plan Report

DSERTS RAB Report

Defense Site Environmental Restoration Tracking System

Phase Summary Report

03-07-1997

Programs: IRP, OHW, BD/DR, BRAC I, BRAC II, BRAC III, and BRAC IV

Installation count for Programs: 1

NPL Options: NO, PROPOSED, YES, and DELISTED

Installations count for Programs and NPL: 1

Site count for Programs and NPL: 71

Phase / Status / Sites

PA				SI			
C	U	F	RC	C	U	F	RC
71	0	0	4	63	0	2	15
RI / FS				RD			
C	U	F	RC	C	U	F	
14	26	2	10	3	8	2	
RA(C)				RA(O)			
C	U	F	RC	C	U	F	RC
12	1	10	12	0	0	9	0
LTM							
C	U	F	N				
0	1	5	65				

Remedy / Status / Sites (Actions)

IRA					
C		U		F	
12 (	15)	4 (	4)	2 (	2)
FRA					
C		U		F	
13 (	14)	1 (	2)	0 (	0)

RIP Total: 0

RC Total: 41

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

SITE SUMMARY

03-07-1997

Installation: FORT RILEY
FFID: KS214020756

Major Command: FORC
Subcommand:

Site	Description	Type	Score	Agreement	Phase Status							IRA FRA	Actn Type	RIP	RC	
					PA	SI	RI	RD	RA(C)	RA(O)	LTM					
FTRI-001	CUSTER HILL SANITARY LANDFILL	LF	NE	A	C	C	C					N				199308
FTRI-002	WHITSIDE CONSTRT. DEBRIS LANDFILL-ACTIVE	LF	3A	A	C	C	U				N	N				199709
FTRI-003	SOUTHWEST FUNSTON LANDFILL	LF	1A	A	C	C	C	U	U	F	U	F	A1			202609
												F	I1			
												F	I1			
												F	L1			
FTRI-004	MAIN POST LANDFILL	LF	3A	A	C	C	U			N	N					199709
FTRI-005	CUSTER HILL ROAD RUBBLE DUMP	DA	NE	A	C						N					199305
FTRI-006	DRMO STORAGE AREA	SS	2A	A	C	C	U			N	N					199801
FTRI-007	PCB STORAGE BUILDING 343	SA	NE	A	C	C					N					198909
FTRI-008	PCB STORAGE CONEX (BUILDING 348)	SA	NE	A	C	C		C	C		N	F	M1			199012
FTRI-009	OB/OD GROUND (RANGE 16)	XE	3A	A	C	C	U			N	N					199907
FTRI-010	PESTICIDE (2-4D) UST AT CAMP FUNSTON	TT	NE	A	C	C		C	C		N	F	E1			199204
FTRI-011	CAMP FUNSTON GW DETECTIONS	CG	1A	A	C	C	U			N	F					200009
FTRI-012	WASTE STORAGE DRMO SECONDARY AREA	SA	3A	A	C	C	C			N	N					199507
FTRI-013	ABANDONED VOC TANKS NORTH OF IACH	TA	NE	A	C	C		C	C		N	F	J1			199202
FTRI-014	HOSPITAL INCINERATOR-IRWIN ACH	IN	NE	A	C	C					N					198909
FTRI-015	FORMER DRMO LOCATION (DRMO AREA 2)	SA	2A	A	C	C	C			N	N					199507
FTRI-016	WASTE OIL AST-3RD BATTERY	TA	NE		C	C					N					198909
FTRI-017	WASTE OIL AST-4TH BATTERY	TA	NE		C	C					N					198909
FTRI-018	ACTIVE FIRE TRAINING AREA	AT	NE	A	C	C					N					198909
FTRI-019	OLD FIRE TRAINING AREA-MAAF	AT	1A	A	C	C	U	F	F	F	N	I	C1			203109
												I	H1			
												I	K1			
FTRI-020	INDUSTRIAL WASTEWATER SYSTEM (CUSTER HL)	SI	2A	A	C	C	U			N	N					199809
FTRI-022	FORMER WWTP AND SLUDGE BEDS-CAMP FUNSTON	ST	NE	A	C	C					N					199303

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

SITE SUMMARY

03-07-1997

Installation: FORT RILEY
 FFID: KS214020756

Major Command: FORC
 Subcommand:

Site	Description	Type	Score	Agreement	Phase Status							IRA FRA	Actn Type	RIP	RC	
					PA	SI	RI	RD	RA(C)	RA(O)	LTM					
FTRI-023	CUSTER HILL WWTP AND SLUDGE BEDS	ST	NE	A	C	C						N				199305
FTRI-024	FORSYTH WWTP AND SLUDGE BEDS	ST	NE	A	C	C						N				199305
FTRI-025	MAIN POST WWTP AND SLUDGE BEDS	ST	NE	A	C	C						N				199305
FTRI-026	RANGE COMPLEX WW LAGOONS	SI	NE		C	C						N				199305
FTRI-027	DRY CLEANING FACILITIES AREA	SS	1A	A	C	C	U			N	F	I	K1			199812
FTRI-028	FMR FIRE TRAINING AREA CAMP FUNSTON	AT	NE	A	C	C	C		C		N	F	E1			199309
FTRI-029	OLD INCINERATOR SITE SE-CAMP FUNSTON	IN	1A	A	C	C	U			N	N	I	E1			200009
FTRI-030	PESTICIDE STORAGE FACILITY (MIXING)	PS	3A	A	C	C	U			N	N	I	E1			199709
FTRI-031	BLDG 354 AREA SOLVENT DETECTIONS	CG	1A	A	C	C	U			N	F					200612
FTRI-032	IMPACT ZONE	XU	2A	A	C	C	U			N	F					199809
FTRI-033	DOUTHIT RANGE	FR	NE	A	C	C					N					199305
FTRI-034	IMPACT AREA PERIMETER SMALL ARM RANGES	SR	NE	A	C	C				N	N					199612
FTRI-035	NON-IMPACT AREA SMALL ARMS RANGES	SR	2A	A	C	C	U			N	N	I	E1			199709
FTRI-036	SOUTHEAST FUNSTON LANDFILL	LF	2A	A	C	C	U			N	F					199812
FTRI-037	OLD WHITSIDE INCINERATOR AREA	IN	2A	A	C	C	C			N	N					199507
FTRI-038	FORSYTH LANDFILL(S)	LF	1A	A	C	C	U	F	F	F	N					202009
FTRI-039	CONSOLIDATED MAINTENANCE FACILITY	ID	NE	A	C	C					N					199305
FTRI-040	FORMER OIL TESTING LAB (BLDG. 1022)	SS	NE	A	C						N					199305
FTRI-041	FURNITURE REPAIR SHOPS (3)	SS	NE	A	C	C	C			N	N					199507
FTRI-042	TAC VEHICLE MAINTENANCE SHOPS	SS	NE	A	C						N					199305
FTRI-043	FORMER GAS STATIONS/GARAGES	SS	NE	A	C						N					199305
FTRI-044	FORMER ASPHALT PLANT (NEAR BLDG 354)	SS	NE	A	C	C				N	N					199509
FTRI-045	PHOTO AND PRINT PLANTS	SS	3A	A	C	C	C			N	N					199507
FTRI-046	FRMR DSGS - BLDG 1693 AND ADJACENT AREAS	SS	2A	A	C	C	U			N	N					199801
FTRI-047	FORMER LIVESTOCK DIPPING FACILITY	DT	3A	A	C	C	C			N	N	I	E1			199507
FTRI-048	FORMER PESTICIDES FACILITIES	PS	NE	A	C	C	C			N	N					199507

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

SITE SUMMARY

03-07-1997

Installation: FORT RILEY
FFID: KS214020756

Major Command: FORC
Subcommand:

Site	Description	Type	Score	Agreement	Phase Status							IRA FRA	Actn Type	RIP	RC
					PA	SI	RI	RD	RA(C)	RA(O)	LTM				
FTRI-049	MERCURY CONTAMINATION AREAS	SS	NE	A	C					C		N	F	L1	199305
FTRI-050	PCB SPILL AREAS /TRANSFORMER SITES	SS	3A	A	C	C	U				N	N			199801
FTRI-051	BLDG. 727 WASTE PIT	DP	3A	A	C	C	U				N	N			199901
FTRI-052	INACTIVE LANDFILLS - CAMP WHITSIDE	LF	NE	A	C	C	C				N	N			199507
FTRI-053	POL TANK FARM	TA	1B	Z	C	F	F				N	N			200012
FTRI-054	CUSTER HILL PX USTS	TT	3B	Z	C	C	U	U	F	F	N	N	I	J1	200912
FTRI-055	MILFORD LAKE CAMPGROUND/MARINA WELLS	CG	3A	A	C	C	C				N	N			199507
FTRI-056	ABANDONED GASOLINE LINE	TT	2B	Z	C	F					N	N			200012
FTRI-057	6200 AREA FUEL OIL LINE	TT	1B	Z	C	C	F				N	N	I	E1	200001
FTRI-059	REMOVE USTS	TT	NE		C				C		N	N	F	J1	199012
FTRI-060	MAINPOST PX GAS STATION / 218	TT	3B	Z	C	C	U		F	F	N	N	I	J1	200912
FTRI-061	FORMER GAS SERVICE STATION BLDG 354	TT	2B	Z	C	C					N	N	I	J1	199503
													I	J1	
FTRI-062	TMP GAS STATION	TT	1B	Z	C	C	U	U	F	N	N	N	I	F13	199903
FTRI-063	FMR BLDG 1044 DISPENSING STATION	TT	1B	Z	C	C	U	U	F	N	N	N	I	F13	199903
													I	J1	
FTRI-064	FMR BLDG 1090 DISPENSING STATION	TT	NE	Z	C	C	C		C		N	N	F	J1	199504
FTRI-065	FMR BLDG 1190 DISPENSING STATION	TT	NE	Z	C	C	C		C		N	N	F	J1	199504
FTRI-066	FMR BLDG 1245 DISPENSING STATION	TT	1B	Z	C	C	U	U	F	F	N	N	I	J1	200912
FTRI-067	FMR BLDG 1539 DISPENSING STATION	TT	2B	Z	C	C	U	U	F	F	N	N	I	J1	200912
FTRI-068	FMR BLDG 1637 DISPENSING STATION	TT	1B	Z	C	C	U	U	F	F	N	N	I	J1	200912
													I	L1	
FTRI-069	FMR BLDG 1890 DISPENSING STATION	TT	2B	Z	C	C	U	U	F	F	N	N	I	J1	200912
FTRI-070	FMR BLDG 2341 DISPENSING STATION	TT	NE	Z	C	C			C	N	N	N	F	J1	199502
FTRI-071	FMR BLDG 2345 DISPENSING STATION	TT	NE	Z	C	C			C	N	N	N	F	J1	199508
FTRI-072	BLDG 8340 FUEL OIL UST	TT	NE	Z	C	C			C	N	N	N	F	J1	199508

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

SITE SUMMARY

03-07-1997

Installation: FORT RILEY
FFID: KS214020756

Major Command: FORC
Subcommand:

Site	Description	Type	Score	Agreement	Phase Status							IRA FRA	Actn Type	RIP	RC
					FA	SI	RI	RD	RA(C)	RA(O)	LTM				
FTRI-073	BLDG 8360 FUEL OIL UST	TT	NE	Z	C	C			C	N	N	F	J1		199504

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FORT RILEY
KS214020756
FORC

Site	A106 Project #	RRSE	Media Evaluated	Phase(s) Completed	Phase(s) Underway	Phase(s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	Est. RC Date	Act. RC Date	RIP Date
FTRI-001	FRY091S060	NE		PA			0	0	0	N		199308	
	FRY091S061			RI									
				SI									
FTRI-002	FRY091S060	3A	GW (Human)	PA	RI		0	0	0	N	199709		
	FRY091S061		SO (Human)	SI									
	FRY096D009												
FTRI-003	FRY089F042	1A	GW (Human)	PA	LTM	RA(O)	0	0	0	U	202609		
	FRY091S061		SE (Human)	RI	RA(C)								
			SO (Human)	SI	RD								
FTRI-004	FRY091S060	3A	GW (Human)	PA	RI		0	0	0	N	199709		
	FRY091S061			SI									
	FRY096D009												
FTRI-005	FRY091S060	NE		PA			0	0	0	N		199305	
FTRI-006	FRY091S060	2A	SO (Human)	PA	RI		0	0	0	N	199801		
	FRY091S061			SI									
	FRY096D008												
FTRI-007		NE		PA			0	0	0	N		198909	
				SI									
FTRI-008		NE		PA			0	0	0	N		199012	
				RA(C)									
				RD									
				SI									
FTRI-009	FRY091S060	3A	GW (Human)	PA	RI		0	0	0	N	199907		
	FRY091S061		SE (Human)	SI									

RRSE - Relative Risk Site Evaluation; Risk Category - 1=High, 2=Medium, 3=Low;
Legal Agreement - A = with agreement, B = without agreement; C = Complete, U = Underway, F = Future, N = Not Applicable

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FTRI-009	FRY096D009		SO (Human)										
			SW (Human)										
FTRI-010		NE		PA			0	0	0	N		199204	
				RA(C)									
				RD									
				SI									
FTRI-011	FRY091S060	1A	GW (Human)	PA	RI	LTM	0	0	0	F		200009	
	FRY091S061			SI									
	FRY096D007												
FTRI-012	FRY091S060	3A	GW (Human)	PA			0	0	0	N		199507	
	FRY091S061			RI									
	FRY096D009			SI									
FTRI-013		NE		PA			0	0	0	N		199202	
				RA(C)									
				RD									
				SI									
FTRI-014		NE		PA			0	0	0	N		198909	
				SI									
FTRI-015	FRY091S060	2A	GW (Human)	PA			0	0	0	N		199507	
	FRY096D008			RI									
				SI									
FTRI-016		NE		PA			0	0	0	N		198909	
				SI									
FTRI-017		NE		PA			0	0	0	N		198909	
				SI									
FTRI-018		NE		PA			0	0	0	N		198909	
				SI									
FTRI-019	FRY091S061	1A	GW (Human)	PA	RI	RA(C)	2	1	0	N		203109	
	FRY093F013		SO (Human)	SI		RA(O)							
						RD							
FTRI-020	FRY091S060	2A	SW (Ecol) FSH	PA	RI		0	0	0	N		199809	

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DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FTRI-020	FRY091S061		GW (Human)	SI								
	FRY096D008											
FTRI-022		NE		PA			0	0	0	N		199303
				SI								
FTRI-023		NE		PA			0	0	0	N		199305
				SI								
FTRI-024		NE		PA			0	0	0	N		199305
				SI								
FTRI-025		NE		PA			0	0	0	N		199305
				SI								
FTRI-026		NE		PA			0	0	0	N		199305
				SI								
FTRI-027	FRY091S061	1A	GW (Human)	PA	RI	LTM	1	0	0	F		199812
	FRY091S063		SW (Human)	SI								
FTRI-028	FRY091S061	NE		PA			0	0	0	N		199309
				RA(C)								
				RI								
				SI								
FTRI-029	FRY091S060	1A	SO (Human)	PA	RI		0	0	1	N		200009
	FRY091S061			SI-								
	FRY096D007											
FTRI-030	FRY089F031	3A	GW (Human)	PA	RI		1	0	0	N		199709
	FRY091S061		SE (Human)	SI								
	FRY094S001		SO (Human)									
FTRI-031	FRY091S060	1A	GW (Human)	PA	RI	LTM	0	0	0	F		200612
	FRY091S061		SO (Human)	SI								
	FRY096D010											
FTRI-032	FRY091S060	2A	GW (Human)	PA	RI	LTM	0	0	0	F		199809
	FRY091S061		SW (Human)	SI								
	FRY096D007											
FTRI-033		NE		PA			0	0	0	N		199305

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DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FTRI-033				SI								
FTRI-034	FRY091S060	NE		PA			0	0	0	N		199612
	FRY091S061			SI								
	FRY096D009											
FTRI-035	FRY091S060	2A	SO (Human)	PA	RI		1	0	0	N	199709	
	FRY091S061			SI								
	FRY096D007											
FTRI-036	FRY091S060	2A	GW (Human)	PA	RI	LTM	0	0	0	F	199812	
	FRY091S061			SI								
	FRY096D008											
FTRI-037	FRY091S060	2A	SO (Human)	PA			0	0	0	N		199507
	FRY091S061			RI								
	FRY096D008			SI								
FTRI-038	FRY091S060	1A	GW (Human)	PA	RI	RA (C)	0	0	0	N	202009	
	FRY091S061		SO (Human)	SI		RA (O)						
	FRY096D007					RD						
FTRI-039		NE		PA			0	0	0	N		199305
				SI								
FTRI-040	FRY091S061	NE		PA			0	0	0	N		199305
FTRI-041	FRY091S060	NE		PA			0	0	0	N		199507
	FRY091S061			RI								
				SI								
FTRI-042		NE		PA			0	0	0	N		199305
FTRI-043		NE		PA			0	0	0	N		199305
FTRI-044	FRY091S060	NE		PA			0	0	0	N		199509
	FRY091S061			SI								
FTRI-045	FRY091S060	3A	SO (Human)	PA			0	0	0	N		199507
	FRY091S061			RI								
				SI								
FTRI-046	FRY091S060	2A	GW (Human)	PA	RI		0	0	0	N	199801	
	FRY091S061		SO (Human)	SI								

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DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FTRI-046	FRY096D008											
FTRI-047	FRY091S060	3A	SO (Human)	PA			0	0	1	N		199507
	FRY091S061			RI								
				SI								
FTRI-048	FRY091S060	NE		PA			0	0	0	N		199507
	FRY091S061			RI								
				SI								
FTRI-049		NE		PA			0	0	0	N		199305
				RA(C)								
FTRI-050	FRY091S060	3A	SO (Human)	PA	RI		0	0	0	N	199801	
	FRY091S061			SI								
	FRY096D009											
FTRI-051	FRY091S060	3A	SO (Human)	PA	RI		0	0	0	N	199901	
	FRY091S061			SI								
	FRY096D009											
FTRI-052	FRY091S060	NE		PA			0	0	0	N		199507
	FRY091S061			RI								
				SI								
FTRI-053	FRY091S005	1B	GW (Human)	PA		RI	0	0	0	N	200012	
	FRY091S061		SO (Human)			SI						
	FRY096D011											
	FRY096D006											
FTRI-054	FRY091S005	3B	GW (Human)	PA	RD	RA(C)	1	0	0	N	200912	
	FRY091S061		SO (Human)	SI	RI	RA(O)						
	FRY096D013											
FTRI-055	FRY091S060	3A	GW (Human)	PA			0	0	0	N		199507
	FRY091S061			RI								
				SI								
FTRI-056	FRY091S005	2B	GW (Human)	PA		SI	0	0	0	N	200012	
	FRY091S061		SO (Human)									
	FRY096D012											

RRSE - Relative Risk Site Evaluation; Risk Category - 1=High, 2=Medium, 3=Low;
 Legal Agreement - A = with agreement, B = without agreement; C = Complete, U = Underway, F = Future, N = Not Applicable

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FTRI-057	FRY091S020	1B	SO (Human)	PA		RI	0	1	0	N	200001		
	FRY091S061			SI									
	FRYO96D006												
FTRI-059		NE		PA			0	0	0	N		199012	
				RA(C)									
FTRI-060	FRY091S005	3B	GW (Human)	PA	RI	RA(C)	1	0	0	N	200912		
	FRY091S061		SO (Human)	SI		RA(O)							
	FRY096D013												
FTRI-061	FRY091S005	2B	GW (Human)	PA			2	0	0	N		199503	
	FRY091S061		SO (Human)	SI									
	FRY096D012												
FTRI-062	FRY091S005	1B	GW (Human)	PA	RD	RA(C)	0	1	0	N	199903		
	FRY091S061		SO (Human)	SI	RI								
	FRY096D011												
	FRYO96D006												
FTRI-063	FRY091S005	1B	GW (Human)	PA	RD	RA(C)	1	1	0	N	199903		
	FRY091S061		SO (Human)	SI	RI								
	FRY096D011												
	FRYO96D006												
FTRI-064	FRY091S005	NE		PA			0	0	0	N		199504	
	FRY091S061			RA(C)									
				RI									
				SI									
FTRI-065	FRY091S005	NE		PA			0	0	0	N		199504	
	FRY091S061			RA(C)									
				RI									
				SI									
FTRI-066	FRY091S005	1B	GW (Human)	PA	RD	RA(C)	1	0	0	N	200912		
	FRY091S061		SO (Human)	SI	RI	RA(O)							
	FRYO96D006												
FTRI-067	FRY091S005	2B	GW (Human)	PA	RD	RA(C)	1	0	0	N	200912		

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DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RISK INSTALLATION ACTION PLAN REPORT

03-07-1997

FTRI-067	FRY091S061		SO (Human)	SI	RI	RA (O)							
	FRY096D012												
FTRI-068	FRY091S005	1B	GW (Human)	PA	RD	RA (C)	2	0	0	N	200912		
	FRY091S061		SO (Human)	SI	RI	RA (O)							
	FRY096D006												
FTRI-069	FRY091S005	2B	GW (Human)	PA	RD	RA (C)	1	0	0	N	200912		
	FRY091S061		SO (Human)	SI	RI	RA (O)							
	FRY096D012												
FTRI-070	FRY091S005	NE		PA			0	0	0	N		199502	
	FRY091S061			RA (C)									
				SI									
FTRI-071	FRY091S005	NE		PA			0	0	0	N		199508	
	FRY091S061			RA (C)									
				SI									
FTRI-072		NE		PA			0	0	0	N		199508	
				RA (C)									
				SI									
FTRI-073		NE		PA			0	0	0	N		199504	
				RA (C)									
				SI									

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DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

RAB REPORT

03-07-1997

Command: FORC

SubCommand:

Installation: FORT RILEY

RAB Established date:

Reason RAB not Established: NO COMMUNITY INTEREST

RAB Disestablished date:

Reason RAB disestablished:

TRC date: 199201

RAB Members:

RAB Activities:

RAB Funding:

FY	Tech. Assist.	Expenditures

RAB Advice:

5. SCHEDULE

A. IRP INITIATION FY89 (At Installation)

Installation Assessment (By USATHAMA)	1983-84
Solid Waste Management Unit Survey (By AEHA)	1988-89
NPL Listing Published	Aug 90
IAG - Fort Riley Signature	23 Aug 90
- Dept. Army Signature	2 Aug 90
- EPA Region VII Signature	28 Feb 91
- KDHE Signature	21 Feb 91
IAG Effective Date	Jun 91

B. PAST PHASE COMPLETION MILESTONES:

IRP Phase	Completion Date
<u>REM/IRA/RA</u>	
FTRI-035 (Excavation of lead contaminated soils)	FY 94
FTRI-030 (Excavation of pesticide contaminated soils)	FY 94
FTRI-003 (River bank stabilization)	FY 94
FTRI-027 (Sewer line replacement- OMA funded)	FY94 /FY 96
FTRI-019 (Soil vapor extraction & bioventing)	FY 95
FTRI-027 (Soil vapor extraction)	FY 95
<u>Preliminary Assessment / Site Investigations</u>	
PA/SI, Installation Wide Site Assessment	Feb 93
SI/SA, FTRI-032, Impact Zone	May 93
SI/SA, FTRI-001, Custer Hill Landfill	Jul 93
PA/SI, FTRI-027, Dry Cleaning Facilities	Oct 93
<u>Remedial Investigation/Feasibility Study</u>	
FTRI-030, Pesticide Storage Facility	Aug 93
FTRI-003, SW Funston Landfill	May 94
<u>Record of Decisions</u>	
FTRI-003, SW Funston Landfill	Mar 96

C. PROJECTED PHASE COMPLETION MILESTONES and
D. IAG DRIVEN MILESTONES

IRP Phase	Completion Date
<u>Site Investigations</u>	
FTRI-006 (DRMO & Wherry)	Jun 97
FTRI-009 (OB/OD)	Jun 98
<u>Proposed Plans</u>	
FTRI-030 (PSF)	Apr 97
FTRI-027 (DCF)	May 98
FTRI-various (Supplemental Multi-Site)	Jun 99
FTRI-019 (FFTA-MAAF)	May 00
FTRI-031 (Bldg 354 Area)	Feb 02
<u>Record of Decisions</u>	
FTRI-030 (PSF)	Sep 97
FTRI-various (Mutli-Site)	Sep 97
FTRI-027 (DCF)	Jan 99
FTRI-various (Supplemental Multi-Site)	Mar 00
FTRI-019 (FFTA-MAAF)	Dec 00
FTRI-031 (Bldg 354 Area)	Oct 02
<u>IRAs</u>	
FTRI-019 (FFTA-MAAF) GW Exposure Control	Sep 97
FTRI-019 (FFTA-MAAF) Focused GW Treatment	Sep 98
FTRI-036 (SEFL) Cover Improvement	Sep 98
FTRI-029 (SEF Incin) Soil abatement	Sep 99
FTRI-038 (Forsyth) Bank Stabilization	Sep 98/Sep 99
FTRI-various (POL/USTS Sites) Free Product Removal	Jun 97/Sep 99
Projected Completion Date of All RA:	FY 2003
Projected Completion Date of IRP:	FY 2031

6. REMOVAL / INTERIM REMEDIAL / REMEDIAL ACTION ASSESSMENT

A. SITES/OPERABLE UNITS ASSESSED

- Dry Cleaning Facility(ies) 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 is underway (1996) to abandon in-place and construct new lines. (These activities were funded.)

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 vapor extraction 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 VOC's. 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, 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.

- Marshall Army Airfield - Former Fire Training Area FTRI-019 FY94/95
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 Bio-venting and 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 is being prepared to evaluate performance of these technologies as Removal Actions. The EE/CA 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.

Private wells in the area have been monitored since this site was discovered. While none of the domestic supply wells have so far been impacted, an Engineering Evaluation/Cost Analysis (EE/CA) has been initiated to assess the need for a Removal Action aimed at Exposure Control. As additional definition of the site hydrogeology and groundwater contamination occurs, opportunities for early groundwater action will be assessed.

B. PAST REM/IRA/RA/LTM

- Numerous UST Removals FTRI-various
- Southwest Funston Landfill FTRI-003 FY94/96
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 Q 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 repairs were completed in 1996. LTM was initiated at the site in FY97.
- Pesticide Storage Facility FTRI-030 FY94
Removal of contaminated soils completed May 1994. Sampling during removal action revealed significantly greater volumes than identified in the RI.
- Sensitive Receptor Lead Sites FTRI-035 FY94
An "expedited" removal assessment performed in June 1993 revealed that a small area near a housing and recreation area is a "hot spot" of lead contamination. Removal of lead contaminated soils was completed May 1994.

C. FUTURE REM/IRA/RA/LTM POSSIBLE OPPORTUNITIES:

- Southwest Funston Landfill FTRI-003 FY18
LTO will include annual inspection of the cover, annual maintenance of the cover FY98 and FY99, bi-annual maintenance of the cover FY00-02, and minor cover repairs FY03 and FY18.
- Camp Funston GW Detections FTRI-011 FY98
LTM to monitor potential migration to the City of Ogden's municipal well field.
- MAAF - Former Fire Training Area FTRI-019 FY97/98
The relative shallow depth and limited area of elevated ground-water contamination off post would permit focused treatment of the contaminated ground water. Options being considered include in-situ treatment (i.e. air sparging, hydrogen peroxide, etc.) and extraction with various treatment alternatives (i.e. air stripper, GAC, spray irrigation). LTM will be necessary until 2030.
- Dry Cleaning Facilities Area FTRI-027 FY99
LTM for assessing natural attenuation of the contaminants in the ground water.
- Former Incinerator Site, Southeast Funston FTRI-029 FY96/97
IRA for possible removal or in-situ stabilization of soils in "hot spot" area.
- Building 354 Area Solvent Detections FTRI-031 FY03
Following further characterization, LTM through FY12.

- Impact Zone FTRI-032 FY00
LTM to consist of annual monitoring of surface soils/sediment at approximately 20 locations.
- Southeast Funston Landfill FTRI-036 FY98
IRA to repair cover due to subsidence of the fill material.
- Forsyth Landfill Area 2 FTRI-038 FY97
IRA for river bank stabilization and erosion control (eroding material includes UXO). LTO/LTM to include annual inspection of the cover and bank and possible repairs.
- POL Tank Farm FTRI-053 FY97
Free phase petroleum found in one monitoring well near the East Pond. UST/POL program is implementing product recovery system.
- USTs FTRI-various FY97
IRAs for free product recovery. Assessment of the sites using Risk Based Corrective Action (RBCA) approach and evaluation of natural attenuation. LTM to assess effectiveness of natural attenuation.
- OB/OD Ground (Range 16) FTRI-009 Not DERA Eligible
Site Investigation results indicate the need for long-term monitoring and perhaps corrective action under RCRA. The timing (now or at time of closure) of any corrective action is to be determined.

D. INNOVATIVE MEANS TO EXPEDITE STUDY PROCESS TO RA PHASE

- With concurrence between the signatories of the IAG, perform Removal Actions as "Time Critical" when actions are simple, straightforward, and quickly implementable. Example: "Sensitive Receptor Lead Sites"
- Again, with concurrence between the signatories of the IAG, perform response actions as either "Time Critical" or "Non-Time Critical" Removal Actions rather than initiating RI/FS's. This approach is planned for all sites identified under the IWSA for site investigations. Time and resources will be saved through streamlined study, documentation and decision-making processes.
- For "Non-time Critical" Removal Actions, initiate and perform design and contract documents concurrent with EE/CA preparation, public comment period, and Decision Document preparation and staffing. Procurement actions can be initiated as well, although Notice-to-Proceed, would not be issued until Decision Document signatures have been obtained. There is some risk that re-design and/or contract modifications may be required due to public comment.
- Transfer projects to other on-going regulatory programs to reduce IAG administrative requirements. Example: OB/OD (Range 16).
- Use of field screening and other data collection methods such as soil gas surveys, "geo-probe" groundwater sampling, cone-penetrometer, geo-physical surveys.
- Use of risk-based corrective action evaluations - particularly helpful in addressing UST sites in lieu of State numerical standards, to avoid costly cleanups where little or no risk exists to receptors.

7. CONCURRENCE

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Fort Riley Kansas

Kent Thomas

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Chief, Environmental Branch
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