FY2016

FORT DETRICK

Army Defense Environmental Restoration Program

Installation Action Plan

Printed 02 June 2017

Table of Contents

Table of Contents

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA). This IAP summarizes the actions taken and projects the future cleanup exit strategy. The information contained in this document is a snapshot in time based on the remedial approach and assumptions developed during the current FY Spring Army Environmental Database - Restoration (AEDB-R) data call. Changes to the program subsequent to the Spring data call will not be reflected until the issuance of the next IAP.

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), Fort Detrick (FTD), the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation cleanup programs.

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

Acronyms

AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
ASR	Archives Search Report
AST	Aboveground Storage Tank
bgs	below ground surface
Bldg	Building
BW	Biological Warfare
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CSM	Conceptual Site Model
cy	cubic yard
DD	Decision Document
DERA	Defense Environmental Restoration Account
ER,A	Environmental Restoration, Army
FFA	Federal Facility Agreement
FRA	Final Remedial Action
FS	Feasibility Study
FTD	Fort Detrick
FY	Fiscal Year
GIS	Geographic Information System
GRO	Gasoline Range Organics
IAP	Installation Action Plan
IMCOM	Installation Management Command
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LTM	Long-Term Management
LUC	Land Use Control
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
MEDCOM	US Army Medical Command
NCI	National Cancer Institute
NFA	No Further Action
NPL	National Priorities List
OCP	Oil Control Program
PA	Preliminary Assessment
PBA	Performance-Based Acquisition
PCE	Tetrachloroethylene
POL	Petroleum, Oil, and Lubricants
PP	Proposed Plan
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete

Acronyms

RI	Remedial Investigation
RIP	Remedy-in-Place
RRSE	Relative Risk Site Evaluation
SVOC	Semi Volatile Organic Compounds
TAPP	Technical Assistance for Public Participation
TCE	Trichloroethylene
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency
USAG	US Army Garrison
USAHSC	US Army Health Services Command
USAMRIID	US Army Medical Research Institute of Infectious Disease
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Installation Information

Installation Locale

Installation Size (Acreage): 1212
City: Frederick
County: Frederick
State: Maryland
Other Locale Information

Fort Detrick (FTD) occupies 1,212 acres of land northwest of and within the boundary of the city of Frederick, Maryland. It consists of four noncontiguous tracts of land designated Area A, Area B, Area C Water Treatment Plant (WTP), and Area C Wastewater Treatment Plant (WWTP). Area A, the center of FTD activity, covers 797 acres. In 1972 approximately 69 acres of FTD's Area A were transferred to the National Cancer Institute (NCI) to create the Frederick Cancer Research Facility. Area B, the location of the post's main waste disposal area, covers 399 acres. The Area C WTP and WWTP consist of two separate tracts of land totaling 16 acres along the Monocacy River.

Installation Mission

Fort Detrick is an Installation Management Command (IMCOM) facility supporting tenant organizations such as the US Army Medical Command. Fort Detrick supports a multi-governmental community that conducts biomedical research and development, medical materiel management, worldwide communications, and the study of foreign plant pathogens. Each branch of the US military is represented among the approximately 10,000 military, federal, and contractor employees assigned here.

Lead Organization

IMCOM

Lead Executing Agencies for Installation

FTD, U.S. Army Garrison (USAG)

Regulator Participation

Federal	US Environmental Protection Agency (USEPA) Region III, Federal Facilities (Area B Groundwater Site)
State	Maryland Department of the Environment (MDE) Federal Facilities Division (Areas A, B, and C)

National Priorities List (NPL) Status

A score of 49.5 was recorded on 09-APR-09.

Date for RA(C) Completion: 202308

Date for NPL Deletion: TBD

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

RAB established 199306

Installation Information

Installation Program Summaries

IRP

Primary Contaminants of Concern: Biological Material, Metals, Radionuclides, Semi-volatiles (SVOC), Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil

CR

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

Affected Media of Concern: Groundwater, Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	201001	201109	2011
Complete	200702	200901	2009
Underway	201308	201708	2017

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
DD for FRA of TCE Spill Site (FTD66)	FTD 66
DD for FRA of TCE Spill Site (FTD66)	FTD 66
Five Areas located at WWTP IRP Site 54	FTD 54
Five Areas located at WWTP IRP Site 54	FTD 54

Results Remedies are protective

Actions Need to verify extent of LUCs at Site 54 - Ash Disposal Area

Plans Extent of LUCs will be verified by 30 Sep 2012

Recommendations and Implementation Plans:
Recommendations from the five-year review are as follows: 1. Based on sampling results, modify the extent of land use controls (LUC) at Site 54 - Ash Disposal Area; 2. Perform vapor intrusion testing for buildings near the trichloroethylene (TCE) spill site FTD 66. This work will be completed by FY16.

Land Use Control (LUC) Summary

LUC Title: Area B Landfill (LF) Caps

Site(s): FTD 49, FTD 51, FTD 69, FTD 71, FTD70

ROD/DD Title: Areas B-3,B-6 and Western Disposal Areas

Location of LUC

Area B along western edge of the property

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic

Types of Engineering Controls: Markers, Signs

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

Date in Place: 201005

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

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

Contaminants: INORGANICS, METALS, ORGANICS, PAH, VOC

Additional Information

N/A

LUC Title: Area B-2 Landfill Cap

Site(s): FTD 50

ROD/DD Title: Area B-2 (FTD-50) Decision Document

Location of LUC

Area B-2 landfill cap

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic

Types of Engineering Controls: Markers, Signs

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

Date in Place: 201005

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

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

Land Use Control (LUC) Summary

Contaminants: INORGANICS, METALS, ORGANICS

Additional Information

N/A

LUC Title: Area C WWTP

Site(s): FTD 54

ROD/DD Title: Five Areas located at WWTP IRP Site 54

Location of LUC

Area C WWTP former ash disposal area

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

Types of Engineering Controls: Signs

Types of Institutional Controls: Dig Permits

Date in Place: 200512

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200604

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS

Additional Information

N/A

LUC Title: Water Tower Restrictions

Site(s): FTD 68

ROD/DD Title: Area A Seven No Further Action Sites

Location of LUC

Areas below three water towers have lead contamination from weathering and flaking of lead based paint. In addition, past sandblasting operations have also contributed to lead in the soil. Please see Fort Detrick's geographic information system (GIS) for exact locations.

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

Types of Engineering Controls: Signs

Types of Institutional Controls: Construction Permit, Notations in Master Plan

Date in Place: 200107

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS

Land Use Control (LUC) Summary

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

FTD is an active Army installation, managed under the IMCOM, housing over 30 tenant organizations, including some tenants not affiliated with the Department of Defense. These tenants are primarily involved in medical research and development, medical logistics and acquisitions, secure worldwide telecommunications, and reserve activities. Contained within FTD's Area A is the National Cancer Institute (NCI) Frederick Cancer Research Center, which was transferred to the Department of Health and Human Services in 1972. On Feb. 5, 1993, environmental AOCs located on NCI property were transferred from the Formerly Used Defense Sites program to the active Installation Restoration Program (IRP).

FTD began in 1929 when Frederick County purchased 90 acres of farmland for use as a municipal airport. In 1930, the Maryland National Guard leased the property for use as a summer training camp for the 104th Observation Squadron. This was the first military presence at this site. It was named Detrick Field in honor of the late Dr. Frederick L. Detrick, a squadron surgeon and distinguished teaching surgeon at Johns Hopkins University Hospital. The site became Camp Detrick in 1943 and Fort Detrick in 1956.

In 1940, by joint agreement of Frederick County and the Maryland National Guard, the U.S. Army Corps for Aviation leased the property for a pilot training center. The airfield was abandoned in 1941.

In 1941, President Roosevelt ordered the establishment of the U.S. Biological Warfare Program to ensure the United States would be able to respond if attacked by an enemy deploying biological weapons. In 1943, the U.S. government purchased the 90-acre Detrick Field parcel and established Camp Detrick which was assigned to the Army Chemical Warfare Service for the research and development of offensive and defensive biological warfare (BW) techniques and agents. In 1944, an adjoining 53 acres was purchased. The camp was expanded in 1946 when an additional 153 acres were purchased and again in 1952 when 503 acres were purchased. These purchases expanded Area A to its present size of approximately 799 acres.

Camp Detrick's biological research and development included a strong focus on the safety of laboratory staff, which was uncommon in comparison to the rest of the scientific community at that time. Class III research cabinets, Laminar Flow Hoods, and glove ports were designed by the Camp Detrick staff, and their use continued into modern times.

In 1946, 399 acres, now designated as Area B, were acquired to provide an outdoor test area, commonly called the "grid test area."

In 1952, the Army purchased 503 acres of land between West 7th Street and Opossumtown Pike to expand the permanent research and development facilities.

In 1955 and 1956, the Flair U.S. Army Reserve Center was constructed as a separate entity in the northeast corner of Area B. Subsequently, the land transfer reverted to Fort Detrick, and in 1958 the facility became an on-post tenant.

In response to the concern that America's enemies might contaminate American water and food supplies; the Crops Division was established to study defensive and offensive measures. Anti-crop research included herbicides and defoliants. Research on protective masks, particulate filters, protective clothing, and shelters was closely integrated with the chemical defense programs. The Crops Division operated from the 1940s to the 1970s.

In 1962, FTD added a parcel of less than three acres along Rosemont Avenue completing the total land area for the current Fort Detrick.

The demilitarization of Fort Detrick began after the U.S. outlawed biological research for offensive operations. A decontamination and certification program was completed during the early 1970s. After biological warfare activities were discontinued on April 1, 1972, the control of Fort Detrick was transferred from the U.S. Army Materiel Command to the Office of the Surgeon General and was further assigned as a subordinate installation of the U.S. Army Medical Department. In 1973, Fort Detrick was reassigned from the U.S. Army Surgeon General to the newly created U.S. Army Health Services Command. On Oct. 1, 2011, Fort Detrick was reassigned to U.S. Army IMCOM.

Historical & Current Army Activities at Area A

Camp Detrick (Area A) housed the main laboratories and research facilities for investigating biological agents and developing the dispersal methods or weaponization means for those agents, along with providing limited production capabilities of BW agents.

Cleanup Program Summary

Installation Historic Activity

BW testing using agents and simulants that mimicked an agent included small scale laboratory tests and tests within enclosed chambers located inside buildings. Larger-scale open-air field tests conducted at Detrick were limited to use of BW simulants or a limited amount of anti-crops agents. Army installations located elsewhere provided large-scale production facilities or field locations for pathogen tests. Investigators Tests conducted with the pathogenic agents included bacteria, rickettsia, viruses, fungi, or toxins derived from living organisms.

Since the inception of BW research and development on Fort Detrick, the Army's primary safety concern was preventing releases of the BW agents to the surrounding environment. As such, Fort Detrick made extensive efforts to contain BW agents within the laboratories, test chambers, pilot plants and other facilities on the installation. Additionally, Detrick prohibited open air testing of BW agents on post, limiting the field tests to the use of BW simulants, non-toxic substance that mimicked the properties of the pathogens being tested in the laboratories. Field test also included a limited amount of anti-crops agents, the testing of which was timed in order to eliminate any potential threat to local crops.

Area A is the center of Fort Detrick's activity, which has historically included a mix of both scientific research and development; and industrial support activities. The scientific research and development activities included laboratory testing of BW agents (e.g., anti-crop) and outdoor testing of simulants and anti-crop agents. Industrial support activities ranged from fuel storage, dispensing and use operations; vehicle maintenance (e.g., mechanical and wash racks), boiler operations, pest management, and various disposal activities (incineration, burn pit and burial).

Anti-crop research was conducted at Area A, some of which included biological agents as well as chemical herbicides and defoliants. Small amounts of the herbicide 2, 4, 5-T (trichlorophenoxyacetic acid), one of the major components of what is known as Agent Orange, were used in tests at Area A.

The chlorinated solvents trichloroethylene (TCE) and tetrachloroethylene (PCE) were used for degreasing operations on Area A. Records identified the use of TCE in three Area A buildings for refrigeration and/or freeze-drying purposes for test chambers and other activities dating back to the 1960s. Accidental leaks or spills from a refrigeration operation in Building 568 resulted in TCE contamination of groundwater on Area A.

Industrial operations involving petroleum fuel storage, dispensing and use had associated infrastructure such as underground fuel lines, pumping/dispensing areas, and storage tanks [both above ground storage tanks (ASTs) and underground storage tanks (UST)]. As a result of infrastructure failure and accidental releases, Fort Detrick has a number of sites with historical petroleum contamination including gasoline releases from USTs associated with a former motor pool at Building 940 and #6 fuel oil from USTs at the Building 190 boiler plant.

Historical & Current Army Activities at Area B

Area B is the location of Fort Detrick's municipal landfill, animal farm, former skeet range, former explosives storage area, and waste disposal/test areas associated with former research activities.

In 1946, the Army acquired 399 acres, now designated as Area B, to be used as an outdoor test area, commonly called the Grid Test Area. The Army used Area B until 1970 to test biological simulants, which were non-toxic substances that mimicked the properties of pathogens being tested in laboratories.

Anti-crop research was conducted at Area B, some of which included biological agents as well as chemical herbicides and defoliants. Small amounts of the herbicide 2, 4, 5-T, were used in tests at Area B.

The Army used Area B as the primary location for Fort Detrick's waste management activities. Area B served as a disposal area for chemical, biological, and radiological material from 1955 to the early 1970s. Past waste disposal practices (prior to 1972) at Area B has led to the contamination of the groundwater with the chlorinated solvents, TCE and PCE and chloroform. In February 1992, the Army detected TCE at concentrations above EPA's standards and elevated levels of trichloroflouromethane (freon) in an Area B monitoring wells sampled as part of the State's requirements for permitted landfills. In October 1992, the Maryland Department of the Environment sampled 21 off-post residential groundwater wells in the vicinity of Area B and found TCE concentrations above the EPA drinking water standard in four wells, all located along Montevue Lane. The Army provided the affected residents with bottled water and eventually connected these homes to the City of Frederick water system.
From 1992 through today, the Army conducted various investigations to evaluate conditions on Area B, to locate potential burial sites, and to determine the contamination present. Investigations included geologic studies, soil gas surveys, geohydrologic

Installation Historic Activity

studies, and a remedial investigation (RI) to assess the nature and extent of contamination and associated potential human health and ecological risks. The ongoing RI has occurred in phases and involved extensive sampling of the soil, surface water, groundwater and sediment, as well as geophysical surveys, borings, soil-gas surveys, vapor intrusion studies, test trenches, and dye trace studies. From 2001 to 2004, the Army performed an interim removal action at Area B-11 to remove buried materials which are believed to be the primary source of the Area B TCE and other compounds in the groundwater. In 2010, the Army completed the installation of landfill caps over the Area B disposal sites.

The RI to determine the full nature and extent of the groundwater contamination has been challenging due to the complex Karst geology of the site. Uncertainty of the nature and extent of contamination lead to Fort Detrick's Area B groundwater being placed on the National Priorities List (NPL), also known as the Superfund List, in April 2009. The US Army and EPA signed a Federal Facilities Agreement in December 2010 to address Area B groundwater.

Historical & Current Army Activities at Area C

The northern tract of Area C (seven acres) contains the Fort Detrick WTP. The southern tract (nine acres) is located one-quarter mile downstream from the WTP and contains the Fort Detrick WWTP. The WWTP was originally designed as a gravity-flow system consisting of primary and secondary clarifiers and a trickling filter. An incinerator operated at this site from 1944 to 1960. Some ash from the incinerator was disposed of on-site, adjacent to the incinerator.

Installation Program Cleanup Progress

IRP

Prior Year Progress: FY16 actions: (1) Continued RI work for Area B Groundwater (FTD 72), (2) Long-term management (LTM) continued at the landfill sites (FTD 49, 50, 51, 69, 70, and 71) and Building 568 TCE spill site (FTD 66), (3) Complete SI data collection for sites identified in the archives search report (ASR) and (4) Complete non-time-critical removal action to connect five residences to public water.

Future Plan of Action: FY 17/18 plans: (1) Finalize the remedial investigation (RI) for the Area B Groundwater; (2) Perform LTM at landfill sites (FTD 49, 50, 51, 69, 70, and 71) and Area C WWTP (FTD 54); (3) Perform RA (operation) [RA(O)] at Building 568 (FTD 66); (4) Complete SI data report for sites identified in the ASR

CR

Prior Year Progress: FY15 activities: (1) Performed groundwater monitoring; (2) Removed OOS USTs using base funding and excavated contaminated soils from CC FTD 73 spill site using Defense Environmental Restoration Account (DERA) funds].

Future Plan of Action: FY17/18 activities: Request MDE Oil Control Program for site closure.

FORT DETRICK

Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 43/34

Installation Site Types with Future and/or Underway Phases

2 Contaminated Ground Water
(FTD 66, FTD 72)

6 Landfill
(FTD 49, FTD 50, FTD 51, FTD 69, FTD 71, FTD70)

1 Sewage Treatment Plant
(FTD 54)

Most Widespread Contaminants of Concern

Biological Material, Metals, Radionuclides, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY
FTD 66	TCE SPILL SITE (AREA A)	FRA	GROUND WATER TREATMENT	2001
FTD 49	CHEMICAL WASTE PITS B-11 (AREA B)	IRA	WASTE REMOVAL - SOLIDS (NON-SOILS)	2004
FTD 49	CHEMICAL WASTE PITS B-11 (AREA B)	FRA	CAPPING	2009
FTD 50	LANDFILL B-2(PKA 1.2 ACRE)	FRA	CAPPING	2009
FTD 51	LANDFILL B-3 INACTIVE (PKA 5 ACRE)	FRA	CAPPING	2009
FTD 69	Area B-6	FRA	CAPPING	2009
FTD 71	Area B-10 and B-Grove	FRA	CAPPING	2009
FTD70	Areas B-8, B-18,& Trenches N of B-8	FRA	CAPPING	2009

Duration of IRP

Date of IRP Inception: 197610

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 202310/205409

Date of IRP completion including Long Term Management (LTM): 205310

IRP Contamination Assessment

Contamination Assessment Overview

In November 1976, an installation contamination assessment of FTD was performed by the Chemical Demilitarization and Installation Restoration office per the direction of USAEC which was formerly known as the US Army Toxic and Hazardous Materials Agency. In January 1977, the installation assessment report was finalized. The report indicated that there was a potential for on-post contamination from biological agents, pesticides, herbicides, and unexploded ordnance, with the potential of migration. The USAEC recommended follow-on studies to define the extent of the contamination; however, the US Army Health Services Command (USAHSC) requested that an ad hoc committee review special hazards associated with drilling in Area B, and a separate analysis of the significant findings to identify any mitigating factors of contaminant source or migration. The contamination review committee did not support a need for follow-on work. In November 1977, the office of the Surgeon General approved the committee's position.

In June 1981, following the installation assessment, the USEPA Region III conducted a preliminary assessment (PA) of uncontrolled hazardous waste sites in which a site visit and limited interviews were performed. The USEPA report surmised that Area B may have been the disposal area for biological, chemical, radioactive, industrial and munitions wastes. In addition, although buildings in Area A (FTD 01) associated with biological research were decontaminated by the Army, there was a potential for anthrax contamination in some areas. The USEPA report recommended that the state and the USEPA monitor the Army's investigations.

In September 1987, the US Army biomedical research and development laboratory discovered TCE in a groundwater supply well used for aquacultural research at Area A Building 568. Investigations to determine the source, extent, and degree of contamination were conducted from 1988 through 1993.

In February 1988, FTD was listed on the Federal Facilities Compliance Docket. During the same year, the Army conducted an environmental audit to determine the existence of or potential for environmental contamination and to assess human health and environmental risks associated with the installation.

In October 1991, Advanced Sciences Inc. performed a preliminary SI of FTD, using existing sampling and analysis data. The purpose of the report was to score FTD for possible inclusion on the NPL by using the hazard ranking system model. Since the site was not adequately sampled, the report recommended further sampling.

In February 1992, TCE concentrations above the maximum contaminant level (MCL) and elevated levels of trichloroflouromethane were detected in an Area B monitoring well after being sampled as part of FTD's state landfill permit requirements. In March 1992, FTD met with the US Army Environmental Hygiene Agency (USAEHA) to discuss the elevated levels. Based on this meeting, the USAEHA began a study of the active landfill and Area B that included installation and sampling of monitoring wells. In February 1993, the report was published.

In October 1992, MDE sampled 21 off-post residential wells adjacent to Area B. TCE concentrations above the MCL levels were identified in four of the tested wells. Following the discovery of TCE in domestic wells, the Army provided bottled water or connected potentially affected residences to public water along Shookstown Road and Montevue Lane. One residence was connected to FTD's drinking water system.

From 1992 through 1993, various investigations were performed to evaluate conditions in Areas A, B, and C, locate potential burial sites, and determine the contamination present at the various AOCs. Reports included geologic studies, soil gas surveys, geohydrologic studies, a preliminary SI, and various groundwater assessments.

From 1994 to the present, RIs were performed to assess the nature and extent of contamination and associated potential human health and ecological risks. The RI was conducted in several phases. Field activities associated with the Phase I RI occurred during 1994 and 1995. Sampling and monitoring operations associated with the Phase II RI occurred in 1997, July 1998 and October 2000. Phase II test trench and subsequent geophysical and soil-gas surveys identified the Area B TCE and PCE groundwater contamination source in the vicinity of Area B-11. In June 2000, Area A's RI report was completed. Since the completion of the Phase II sampling, additional follow-on sampling has occurred in both Areas B and C.

In February 2001, a feasibility study (FS) was performed to assess remedial alternatives for Area A groundwater. In March 2001, the Area A groundwater proposed plan (PP) was finalized. In July 2001, decision documents (DD) selecting hydraulic containment of Building 568 groundwater and no further action (NFA) for seven Area A sites were signed. Subsequent to the DD,long-term monitoring began in May 2002 and has occurred semiannually. Mission-funded groundwater production wells are providing hydraulic containment for the site. The Area A TCE plume is no longer migrating off-post above MCLs.

IRP Contamination Assessment

Contamination Assessment Overview

In March 2001, a post-operation cleanup was performed at the former Area B Skeet Range (FTD 29) to excavate, remove, and dispose of lead shot and clay pigeon debris that was dispersed over an area approximately 565,487 square feet. In August 2005, an additional area by the firing line and pigeon throwers was scraped to remove clay pigeon debris missed during the first cleanup action.

From 2001 to 2004 the installation performed an IRA at Area B-11 (FTD 49) to remove potential intact drums of TCE and PCE before the contents could leak and cause further groundwater contamination at Area B. During this removal action, viable biological material was discovered commingled with the excavated hazardous waste. Because of this discovery, FTD and the Army have decided to limit future intrusive activities into other Area B disposal areas due to safety concerns and the associated costs.

In January 2002, a former ash disposal area at the Area C WWTP was excavated to remove all visible ash, to the extent practicable, with conventional excavation equipment. Approximately 1,020 cubic yards (cy) of overburden, ash and commingled soil were excavated and disposed of at the Area B active landfill.

In August 2004, a multiyear fixed-price performance-based acquisition (PBA) was awarded. Sites included in the PBA are FTD 49 (Area B-11), FTD-50 (Area B-2), FTD 51 (Area B-3), FTD 66 (TCE Spill Site, Area A), FTD 68 (Water Towers, Area A), FTD 69 (Area B-6), FTD 70 (Area B-8, B-18, and trenches north of B-8), FTD 71 (Area B-10 and B-10 Grove), and FTD 72 (Area B Groundwater).

In December 2004, Area C's RI report was completed. In June 2005, the Area C WWTP FS was completed. The PP was finalized in August 2005. A DD implementing institutional controls for the former ash disposal area was signed by the Garrison Commander on Dec. 15, 2005.

In February 2008, an NFA DD for five sites in Area B was signed. Sites FTD 05 (Area B-Grid), FTD 07 (Area B-Ammo), FTD 29 (Area B-Skeet) and FTD 43 (Area B-20 North/South) were closed out under the restoration program with no additional funding requirements.

In December 2007 and March 2009, DDs were signed selecting capping with LUCs for six restoration sites encompassing eight disposal areas. These areas include FTD 49 (Area B-11), FTD 50 (Area B-2), FTD 51 (Area B-3), FTD 69 (Area B-6), FTD 70 (Areas B-8, Trenches N of B-8, and B-18), and FTD 71 (Area B-10). The caps at sites FTD 49, 50, 51, 69, 70, and 71 were completed in June 2010.

A draft 2008 conceptual site model (CSM) was developed for Area B Groundwater which described the site-specific pathways that contaminants may follow from the original (primary) source to receptors, including release mechanisms, secondary sources that have developed migration pathways, and exposure routes. An uncertainty analysis evaluated each component of the CSM and identified data gaps or uncertainties that warranted further investigation. The Army partnered with USEPA and MDE to develop a groundwater work plan to fill the data gaps and reduce uncertainties. The Area B Groundwater work plan was finalized in June 2010. The data collected for this effort is considered the Phase III of the required RI work. The Army is currently collecting the Phase III RI data for the Area B Groundwater site (FTD 72).

On April 9, 2009, the USEPA formally listed FTD Area B Groundwater on the NPL. A federal facility agreement (FFA) was signed on Dec. 14, 2010 and made effective on Aug. 5, 2011.

In 2010, the installation became aware of the historic outdoor testing of tactical herbicides at multiple locations on the installation. Based on this revelation, the Army initiated an ASR to determine if previously unidentified past practices occurred that may have led to environmental contamination. A part I ASR report on testing of herbicides at Fort Detrick was completed in FY12. A part II ASR that will evaluate all other types of contamination was finalized in FY14. Locations of potential concern identified in the ASR reports will be evaluated in a SI to determine if further investigation is warranted. The SI will be completed in FY16/17.

In the most recent five-year review, recommendations were made to perform VI testing at the TCE spill site (FTD 66) and to perform additional soil sampling at the Area C WWTP (site FTD 54). The results of the VI testing and the additional soil sampling at the Area C WWTP will be incorporated into the next five-year review.

Cleanup Exit Strategy

The Area B Groundwater site (FTD 72) is currently projected to have remedy-in-place (RIP) in FY24. Installation RIP is also expected in FY24. Area B groundwater site was added to the NPL in April 2009. The Army is currently implementing a Phase III RI under a work plans approved by USEPA and MDE. Future remedy selection will be based on the outcome of a FS. Potential remedies may include treatment systems for potable wells in use or with connections to public water supplies and chemical oxidation or other in situ treatment technologies, and natural attenuation for the aquifer. LUCs with annual operations/monitoring of the caps and LUCs and five-year reviews will be required into the future at the capped locations and for Area B Groundwater.

Groundwater monitoring and additional five-year reviews will be needed at the Area A TCE spill site (FTD 66) until the site is at RC.

For the Area C WWTP former ash disposal area, (FTD 54), annual monitoring and five-year reviews for the LUCs will remain in place.

IRP Previous Studies

	Title	Author	Date
1975			
	Environmental Impact Assessment	USAHSC	JAN-1975
1977			
	Installation Assessment of Fort Detrick, Maryland - Record Evaluation Report No. 106 Volume I and II - January 1977	USCDIR	JAN-1977
1981			
	Field Investigations of Uncontrolled Hazardous Waste Sites FIT Project Preliminary Assessment of Fort Detrick	Ecology & Environment, Inc	JUN-1981
1983			
	Study of Proposed Sanitary Landfill Area B	USACE	OCT-1983
1984			
	Report of Audit: Storage and Disposal of Hazardous Materials	USAAA	JAN-1984
1988			
	Report of Audit: Storage and Disposal of Hazardous Materials	USAAA	JAN-1988
	Environmental Audit No. 38-26-7001-89	USAEHA	JAN-1988
	Report of Phase I Investigations of TCE Contamination at Fort Detrick Military reservation Federick, MD	EA Engineering Science and Technology, Inc.	APR-1988
	Report of Phase II Investigation of TCE Contamination at Fort Detrick Military Reservation Frederick MD	EA Engineering Science and Technology, Inc.	DEC-1988
1990			
	Report No. EC 90-17: Toxic and Hazardous Materials and Wastes Fort Detrick, Maryland	USAAA	JAN-1990
1991			
	Installation Environmental Assessment	USAG	JAN-1991
	Environmental Compliance Assessment System External Assessment No. 37-26-J193-92	USAEHA	JAN-1991
	Field Investigations of Uncontrolled Hazardous Waste Sites (FIT Project) - June 1981 and Installation Environmental Assessment, Preliminary Assessment of Fort Detrick - February 1991	Ecology and Environment, Inc.	FEB-1991
1992			
	Geohydrologic Study No. 38-26-KI32-92 Fort Detrick, Maryland (Phase I and II)	USAEHA	JAN-1992
	Preliminary Site Inspection	USACE/Advanced Sciences, Inc.	FEB-1992
	Sample Results from 4 Moitoring Wells Around Building 568 and Farmer's Well in Area B	Data Chem	APR-1992
	Hazard ranking System (HRS2) Score Summary Report for Fort Detrick, Frederick MD	Advanced Sciences, Inc.	JUL-1992
	Work Plan for Site Investigation TCE Contamination-Bldg 568	USACE	AUG-1992
	Final Report NCI-Frederick Cancer Research and Development CenterFort Detrick, Frederick, Maryland	Viar & Company	OCT-1992
1993			
	Site Investigation Report TCE Contamination - Bldg 568	USACE	JAN-1993

IRP Previous Studies

	Title	Author	Date
1993			
	No report available, VOC sampling and analysis in sediment and surface water in and around Area B	USAEC	JAN-1993
	Geohydrologic Study No. 38-26-KF70-93: Area B Fort Detrick	USAEHA	FEB-1993
	TCE Contamination - Building 568 - Site Investigation Report - July 1993	USACE Baltimore District	JUL-1993
	Groundwater Consultation No. 38-26-K1KJ-93 Area B Fort Detrick	USAEHA/ USAEC	JUL-1993
	Seismic Refraction and Electromagnetic Surveys at Fort Detrick, Maryland	Waterways Experiment Station (USACE)	JUL-1993
	Final Report on the Findings of the Petrex Soil Gas Survey Performed at the Fort Detrick Area B Site in Frederick, Maryland	USGS/ USAEC	SEP-1993
1994			
	Remedial Investigation Data Report	USAEC/ERM	JAN-1994
	Final Phase I Remedial Investigation Work Plan	USAEC/ Woodward Clyde	JUL-1994
1995			
	Work Plan for a Groundwater Tracing Study At Area B	OZARK Underground Laboratory	APR-1995
	Statistical Evaluation and Assessment of Water Quality Data Collated During Four Assessment Monitoring Events (October - December, 1994), Fort Detrick Sanitary Landfill, Area B - May 1995		MAY-1995
	Semiannual Groundwater Monitoring Report with Statistical Evaluation and Assessment - Fort Detrick Sanitary Landfill, Area B - Volume I: Report Text and Appendices A-F - May 1995		MAY-1995
1996			
	USACHPPM - Hazardous Waste Study, Area A Laboratory Complex - June 1996	USACHPPM	JUN-1996
	Geohydrologic Study No. 38-EH-3925-95 Area A UST Investigation FTD Frederick MD - 7 Aug - 6 Dec 1995	USACHPPM	AUG-1996
1997			
	U.S. Army Environmental Center - Fort Detrick Remedial Investigation Data Report, ELIN A009 (Volume I & II) - March 1997	Environmental Resources Management, Inc.	MAR-1997
	Groundwater Tracing Study Area B Fort Detrick Frederick MD	OZARK Underground Laboratory	APR-1997
	Data Report for Ground-water Sampling Event Conducted March 17,1997 at the Former UST Farm for the Steam Plant at Fort Detrick, MD	GCI ENVIRONMENTAL SERVICES	APR-1997
1998			
	Remedial Investigation Area B, Draft Document	USAEC/ICF Kaiser	JAN-1998
1999			
	Area C WWTP Expanded Site Investigation	USACE/IT	OCT-1999
	U.S. Army Corps of Engineers - Remedial Investigation Work Plan Technical Addendum IV - October 1999	IT Corporation	OCT-1999
	Hazardous Waste Study No 37-EF-3215-99 Building 1058 Environmental Health Chemical Sampling	USCHPPM	DEC-1999
2000			

IRP Previous Studies

2000

Title	Author	Date
U.S. Army Corps of Engineers - Area C Wastewater Treatment Plant Remedial Investigation Work Plan - February 2000 (final)	IT Corporation	FEB-2000
U.S. Army Corps of Engineers - Remedial Investigation Area B Water Sampling Data Report - November 1999 to February 2000		FEB-2000
U.S. Army Corps of Engineers - Area B-11 Disposal Pits Engineering Evaluation and Cost Analysis - February 2000	USACE/IT	FEB-2000
Area B-11 Chemical Waste Disposal Pits Proposed Plan	IT Corporation	MAY-2000
Remedial Investigation Area A, Revised Final Document	USACE/IT	JUN-2000
U.S. Army Corps of Engineers - Environmental Restoration Program, Community Involvement Plan, Final Document - July 2000	IT Corporation	JUL-2000
Fort Detrick Final Area B-11 Chemical Waste Disposal Pits Decision Document	IT Corporation	JUL-2000
Value Engineering Study Report Interim Removal Action Area B-11 Disposal Pits	IT Corporation	DEC-2000

2001

RI Area B Water Sampling Data Report, Nov. 1999 - Feb. 2000	USACE/IT	JAN-2001
USEPA Aerial Photographic Analysis Fort Detrick (Area B) Site Frederick, Maryland	USEPA	JAN-2001
Fort Detrick Anthrax File Summary	UNITECH	JAN-2001
Fort Detrick Final Preliminary Assessment and Limited Site Investigation for a Site Near a Tributary to Carroll Creek	IT Corporation	JAN-2001
Feasibility Study, Area A	USACE/IT	FEB-2001
Area A Proposed Plan, Final Document	USACE/IT	MAR-2001
Changes to Decision Document, (Area B-11 Chemical Waste Disposal Pits Decision Document)	Ft Detrick	MAR-2001
Fort Detrick, MD Photogeologic Analysis Amended Final Report	USACE	APR-2001
U.S. Army Corps of Engineers - Evaluation of Subsurface Vapor Intrusion Utilizing the Johnson and Ettiger (1991) Model Off Post Residence	IT Corporation	JUN-2001
Fort Detrick Area A Groundwater Decision Document/Seven No Further Action Sites Decision Document, Final June 2001	USACE/IT	JUN-2001
Final Remedial Investigation, Area B, Water Sampling Data Report, May- June 2000	IT Corporation	JUL-2001
Report on Airborne Geophysical Survey of Fort Detrick, MD Final, August 2001	USACE	AUG-2001
Chemical Oxidation Bench-Scale Test Report, Final, August 2001	USACE/IT	AUG-2001
Fort Detrick Final Preliminary Assessment and Limited Site Investigation for a Site Near a Tributary to Carroll Creek	IT Corporation	NOV-2001
Final Remedial Investigation Area B, Water Sampling Data Report August 2000 - September 2000, Final November 2001	USACE/IT	NOV-2001

IRP Previous Studies

	Title	Author	Date
2002			
	Final Remedial Investigation Area B, Water Sampling Data Report Nov - Dec 2000, Final January 2002	USACE/IT	JAN-2002
	Final Remedial Investigation Area B, Water Sampling Data Report Jan - Mar 2001, Final January 2002	USACE/IT	JAN-2002
	Final Remedial Investigation Area B, Water Sampling Data Report Apr - Jul 2001, Final March 2002	USACE/IT	MAR-2002
	Final Remedial Investigation Area B, Water Sampling Data Report Aug - Sep 2001, Final March 2002	USACE/IT	MAR-2002
	Fort Detrick Final Area A Long Term Groundwater Monitoring April 2002	USACE/IT	APR-2002
	Final Remedial Investigation Area B, Water Sampling Data Report Nov - Dec 2001, Final June 2002	USACE/IT	JUN-2002
	Fort Detrick Area B, Water Sampling Data Report February 2002, Final June 2002	USACE/IT	JUN-2002
	Fort Detrick Area B, Water Sampling Data Report - May 2002, Final September 2002	USACE/IT	SEP-2002
	Fort Detrick Revised Final Area B-11 Disposal Pits Operations Work Plan	USACE/IT	SEP-2002
	Fort Detrick Area B Water Sampling Data Report August 2002 - November 2002 Final Document	USACE/IT	NOV-2002
	Fort Detrick Final Area A Long-Term Groundwater Monitoring Design Testing Data Report	USACE/IT	NOV-2002
	Fort Detrick Area B-11 Pit 1 Explanation of Significant Differences, Final Document	Shaw Environmental, Inc.	DEC-2002
2003			
	Remedial Investigation, Area B Data Report for Field Efforts Occurring Between February 1998 and December 1999 Final February 2003	USACE/IT	FEB-2003
	Fort Detrick Area B Water Sampling Data Report November 2002 - March 2003 Final Document	USACE/IT	MAR-2003
	Surface Geophysical Survey Report Area B, Sites B-6 and B-8	USACE/IT	MAR-2003
	Fort Detrick Final Area B-11 Disposal Pits Operations Work Plan, Phase II Activities	USACE/IT	MAY-2003
	Geophysical Survey Report Proposed NIAID/USAMRIID and NCI Construction Sites	Shaw E & I, Inc.	JUN-2003
	Trenching Data Report Proposed NIAID/USAMRIID Construction Site	Shaw E & I, Inc.	JUN-2003
	Remedial Investigation, Area B Water Sampling Data Report May/June 2003 Sampling Event	Shaw E & I, Inc.	JUN-2003
	Fort Detrick Area A Long-Term Groundwater Monitoring Design Testing Data Report June 2003 Sampling Event,	Shaw E & I, Inc.	JUN-2003
2004			
	Fort Detrick Area A Long-Term Groundwater Monitoring Design Testing Data Report October 2003 Sampling Event	Shaw E & I, Inc.	JAN-2004
	Remedial Investigation, Area B Water Sampling Data Report October 2003 Sampling Event	Shaw E & I, Inc.	JAN-2004
	Fort Detrick Area B Background Study Report	Shaw E & I, Inc.	JAN-2004
	Geophysical Investigation Report, Priority Areas 1 through 5 Within Area B Fort Detrick	USACE Baltimore District	JAN-2004
	Area B-11 Chemical Waste Disposal Pits Interim Removal Action Close-out Report	Shaw E & I, Inc.	JUN-2004

IRP Previous Studies

	Title	Author	Date
2004			
	Area C Waste Water Treatment Plant Remedial Investigation	Shaw E&I Inc.	DEC-2004
2005			
	Area B Remedial Investigation Water Sampling Data Report, September 2004 Sampling Event	Shaw E&I Inc.	FEB-2005
	Fort Detrick Area B-1 IRP Site Close-Out Document, Final Document Oct 2004	Shaw E&I Inc.	MAR-2005
	Fort Detrick Area A Long-Term Groundwater Monitoring Design Testing Data Report, September 2004 Sampling Event	Shaw E&I Inc.	MAY-2005
	Area C Wastewater Treatment Plant Feasibility Study	Shaw E & I, Inc.	JUN-2005
	Proposed Plan for Fort Detrick Area C, Five Areas Located at the Wastewater Treatment Plant	Shaw E & I, Inc.	JUL-2005
	Remedial Investigation, Area B Water Sampling Data Report, December 2004 and February 2005 Sampling Event	Shaw E & I, Inc.	JUL-2005
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report March 2005 Sampling Event	Shaw E & I, Inc.	JUL-2005
	Remedial Investigation, Area B Water Sampling Data Report, March - April 2005 Sampling Event	Shaw E & I, Inc.	JUL-2005
	Fort Detrick Remedial Investigation Area B (IRP Site 72) Water Sampling Data Report, July 2005 Sampling Event	Shaw Environmental, Inc.	SEP-2005
	Fort Detrick Decision Document for Area C, Five Areas Located at The Wastewater Treatment Plant	Shaw Environmental, Inc.	DEC-2005
2006			
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report - September 2005 Sampling Event, Final Document	Shaw Environmental, Inc.	MAR-2006
	Fort Detrick Remedial Investigation Area B Water Sampling Data Report, September 2005 Sampling Event, Final Document	Shaw Environmental, Inc.	MAR-2006
	Fort Detrick Remedial Investigation Area B Water Sampling Data Report, December 2005 Sampling Event, Final Document	Shaw Environmental, Inc.	MAR-2006
	Fort Detrick Remedial Investigation Area B (IRP Site 72) Water Sampling Data Report, March 2006 Sampling Event	Shaw Environmental, Inc.	JUL-2006
	Fort Detrick Area A Long-Term Groundwater Monitoring Design Testing Data Report Mar 2006 Sampling Event	Shaw Environmental, Inc.	JUL-2006
	Area B-2 (IRP Site FTD 50) Remedial Investigation/Feasibility Study, Final Document, October 2006	Shaw Environmental, Inc.	OCT-2006
	Remedial Investigation of Five Sites in Area B; Areas B-Ammo, B-Grid, B-20 North, B-20 South, and B-Skeet. (Sites FTD 07, 05, 43, and 29), Final Document, December 2006	Shaw Environmental, Inc.	DEC-2006
2007			
	Fort Detrick Remedial Investigation Area B (IRP Site 72) Water Sampling Data Report, June 2006 Sampling Event	Shaw Environmental, Inc.	FEB-2007
	Fort Detrick Remedial Investigation Area B (IRP Site	Shaw Environmental, Inc.	FEB-2007

IRP Previous Studies

	Title	Author	Date
2007			
	72) Water Sampling Data Report, September 2006 Sampling Event		
	Area B-6 (IRP Site FTD 69) Remedial Investigation/Feasibility Study, Final Document, February 2007	Shaw Environmental, Inc.	FEB-2007
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report September 2006 Sampling Event, Final Document March 2007	Shaw Environmental, Inc.	MAR-2007
	Remedial Investigation, Area B (IRP Site 72) Water Sampling Data Report, December 2006 Sampling Event, Final Document June 2007	Shaw Environmental, Inc.	JUN-2007
	Proposed Plan for Area B-2 (Site FTD 50) Final Document August 2007	Shaw Environmental, Inc.	AUG-2007
	Proposed Plan for Five Sites in Area B Areas B-Ammo (FTD 07), B-Grid (FTD 05), B-20 North (FTD 43), B-20 South (FTD 43), and B-Skeet (FTD 29) Final Document August 2007	Shaw Environmental, Inc.	AUG-2007
	Fort Detrick Decision Document of Five Sites in Area B: Areas B-Ammo, B-Grid, B-20 North, B-20 South, and B-Skeet	Shaw Environmental, Inc.	DEC-2007
	Fort Detrick Decision Document for Area B-2 (FTD-50)	Shaw Environmental, Inc.	DEC-2007
2008			
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report March 2007 Sampling Event, Final Document February 2008	Shaw Environmental, Inc.	FEB-2008
	Fort Detrick Remedial Investigation Area B (IRP Site 72) Water Sampling Data Report, March/May 2007 Sampling Event	Shaw Environmental, Inc.	FEB-2008
	Fort Detrick Western Disposal Areas (FTDs 70, 71, 49) Area B-8, Area B-10/Grove, and Area B-11 Remedial Investigation/Feasibility Study	Shaw Environmental, Inc.	APR-2008
	Fort Detrick Area B-3 Inactive(FTD 51) Remedial Investigation/Feasibility Study	Shaw Environmental, Inc.	AUG-2008
	Fort Detrick Remedial Investigation, Area B (IRP Site 72) Water Sampling Data Report July 2007 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008
	Fort Detrick Remedial Investigation, Area B (IRP Site 72) Water Sampling Data Report September 2007 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report October 2007 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008
	Fort Detrick Remedial Investigation, Area B (IRP Site 72) Water Sampling Data Report January 2008 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report March 2008 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008
	Fort Detrick Remedial Investigation, Area B (IRP Site 72) Water Sampling Data Report March 2008 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008
	Fort Detrick Remedial Investigation, Area B (IRP Site 72) Water Sampling Data Report June 2008 Sampling Event, Final Document September 2008	Shaw Environmental, Inc.	SEP-2008

IRP Previous Studies

	Title	Author	Date
2008			
	Area B-18 (FTD 70) Data Report, December 2008	Shaw Environmental, Inc.	DEC-2008
2009			
	Proposed Plan for Area B-3 Inactive (FTD 51), Area B-6 (FTD 69), and the Western Disposal Areas (FTDS 70, 71, 49)	Shaw Environmental, Inc.	JAN-2009
	Fort Detrick Five-Year Review Area A Groundwater Building 568 TCE Spill Site (FTD66) Final Document - January 2009	Shaw Environmental, Inc.	JAN-2009
	Decision Document for Area B-3 Inactive (FTD51), Area B-6 (FTD 69), and the Western Disposal Areas (FTD 70, 71, 49), Final Document February 2009	Shaw Environmental, Inc.	FEB-2009
	Public Health Assessment for Evaluation of Drinking Water Well Exposures via Confirmed Off-site Contamination Fort Detrick Area B Groundwater, Frederick, Maryland, EPA Facility ID MDD985397249	Agency for Toxic Substances and Disease Registry	DEC-2009
2011			
	Preliminary Archives Search Report Findings for Use/Testing of 2,4,5-Trichlorophenoxyacetic Acid Compounds at Fort Detrick, October 2010	U.S.Army Corps of Engineers, St. Louis District	FEB-2011
2012			
	Fort Detrick Five-Year Review Area A Building 568 Trichloroethylene Spill Site (FTD-66) and Area C WWTP Former Ash Disposal Area (FTD-54), Fort Detrick, Frederick Maryland, Final Document March 2012	U.S.Army Corps of Engineers, Baltimore District, Engineering Division	MAR-2012
	Archives Search Report Findings for Field Testing of 2,4,5-T and Other Herbicides, Fort Detrick, Frederick MD, 4 April 2012	U.S.Army Corps of Engineers, St. Louis District	APR-2012
	Environmental Restoration Program Community Involvement Plan U.S. Army Fort Detrick, Frederick, Maryland,	PIKA-ARCADIS/Malcolm Pirnie-Bridge Consulting Corp.	JUL-2012
2013			
	Engineering Evaluation/Cost Analysis Provision of a Safe Potable Water Source for Five Kemp Lane Residences Fort Detrick, Maryland	PIKA International, Inc. and ARCADIS U.S., Inc.	JUN-2013
	Final Quarterly Report (November 2011) Offpost Well Investigation and Associated Activities, Supplemental Public Outreach and Monitoring Well Sampling, Fort Detrick Area B Groundwater, Fort Detrick, Maryland June 2013	PIKA International, Inc. and ARCADIS U.S., Inc.	JUN-2013
2014			
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) September 2012 Sampling Event	Shaw Environmental, Inc.	JAN-2014
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66), March 2010 Sampling Event	Shaw Environmental, Inc.	JAN-2014
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) September 2011 Sampling Event	Shaw Environmental, Inc.	JAN-2014
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site	Shaw Environmental, Inc.	JAN-2014

IRP Previous Studies

2014

Title	Author	Date
(FTD 66) March 2011 Sampling Event		
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) September 2013 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) September 2008 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) September 2010 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) September 2009 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) March 2013 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) March 2012 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Fort Detrick Area A Long-Term Groundwater Monitoring Data Report Building 568 TCE Spill Site (FTD 66) March 2009 Sampling Event	Shaw Environmental, Inc.	JAN-2014
Final Conceptual Site Model, Area B Groundwater (FTD-72) Remedial Investigation, Fort Detrick, Maryland, March 2014	ARCADIS U.S. Inc.	MAR-2014
Archives Search Report Operational History for Potential Environmental Releases, Fort Detrick, Frederick, MD 16 June 2014	U.S.Army Corps of Engineers, St. Louis District	JUN-2014
Area B Waste Pit Capping Project Completion Report, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Plan, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Report for Jun 24, 2011, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Report for Oct 13, 2011, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Report for Aug 15, 2012, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Report for Dec 11, 2012, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Report for Sep 12, 2013, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Waste Pit Capping Project O&M Report for Jul 7, 2014, August 2014	CB&I Federal Services LLC	AUG-2014
Area B Groundwater (FTD-72) Snapshot Data Report - September 2010 Final Document August 2014	CB&I Federal Services LLC	AUG-2014
Final Fort Detrick, Maryland Action Memorandum Provision of a Safe Potable Water Source for Five Kemp Lane Residences -September 2014	PIKA International, Inc. and ARCADIS U.S., Inc.	SEP-2014
Off-Post Private Well Investigation and Associated Activities, Supplemental Public Outreach and Monitoring Well Sampling Quarterly Report April/June 2012, Quarterly Report September/December 2012, Quarterly Report March 2013, Quarterly Report	PIKA International, Inc. and ARCADIS U.S., Inc.	OCT-2014

IRP Previous Studies

	Title	Author	Date
2014			
	December 2013, and Quarterly Report March 2014		
2015			
	Final Round 4 Synoptic Water Levels Rounds for Area B, Fort Detrick, Maryland, January 2015	ARCADIS U.S., Inc.	JAN-2015
	Final Quarterly Report June 2014, Off-Post Private Well Investigation and Associated Activities, Supplemental Public Outreach and Monitoring Well Sampling, January 2015	PIKA International, Inc. and ARCADIS U.S., Inc.	JAN-2015
	Final Round 2 Synoptic Groundwater and Surface Water Sampling Report, Rounds 2/3 Synoptic Water Levels Rounds for Area B, Fort Detrick, Maryland, January 2015	ARCADIS U.S., Inc.	JAN-2015
	Final Vapor Intrusion Data Report for Area B, Fort Detrick, Maryland, January 2015	ARCADIS U.S., Inc.	JAN-2015
	Final Round 2 Shallow Groundwater DPT Sampling and Piezometer Installation Report for Area B, Fort Detrick, Maryland	ARCADIS U.S., Inc.	MAR-2015
	FINAL Fort Detrick Off-Post Well Investigation Report, July 2015	PIKA International, Inc. / ARCADIS U.S., Inc.	JUL-2015

FORT DETRICK

Installation Restoration Program

Site Descriptions

Site ID: FTD 49
Site Name: CHEMICAL WASTE PITS B-11 (AREA B)

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Biological Material, Radionuclides, Volatiles (VOC)

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200809
RD	200407	200906
IRA	200102	200406
RA(C)	200406	200909
RA(O)	200407	201005
LTM	201005	204609

RIP Date: 200909

RC Date: 201005

SITE DESCRIPTION

This site currently addresses soil contamination only. Because of the complexity of the Area B disposal sites, the groundwater component for this site and all other Area B sites was broken out as a separate site called Area B Groundwater (FTD 72).

This landfill is a 5.2-acre section of a larger 19.6-acre landfill complex. For administrative purposes, sections of this complex were broken out into three other AEDB-R sites: FTD 69 (Area B-6), FTD 70 (Area B-8), and FTD 71 (Area B-10).

Area B-11 is located on the southwest side of Area B and consists of numerous disposal pits. These pits received wastes from FTD, the US Bureau of Standards, and Walter Reed Army Medical Center. Wastes included metals, general wastes from laboratory modifications, general housing refuse, laboratory chemicals, pesticides/herbicides, drums of TCE/PCE, radiological materials including carbon, sulfur and phosphorus compounds, and medical wastes.

In 1992, TCE contamination was discovered off-post in residential wells above MCLs. The highest historical off-post measurement was 20,000 parts per billion PCE (4,000 times the MCL) in a spring. Data from the RI indicated that B-11 was the likely source of the groundwater TCE/PCE plume. In 2004, an IRA was completed at four pits within Area B-11 and 3,484 tons of waste and contaminated soil were removed. During excavation, viable bacteria in heat-sealed vials were discovered. This discovery significantly increased the cost and health and safety requirements for this IRA due to the need for biological testing of air and soil, increased processing of soil and debris, application of disinfectants, and the installation of high efficiency particulate air filters on containment exhaust.

A DD was signed in March 2009 which selected capping with LUCs as the preferred remedy. MDE approved capping design plans on June 23, 2009. Cap construction activities began June 25, 2009. Weather events caused significant delays in construction activities. The impervious liner (the remedy) was in place in January 2010. Soil cover and seeding was completed in May 2010. LUCs are in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap, groundwater monitoring, LUCs with annual monitoring, and five-year reviews will continue.

Site ID: FTD 50
Site Name: LANDFILL B-2(PKA 1.2 ACRE)

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Biological Material, Metals

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200610
RD	200407	200906
RA(C)	200407	200909
RA(O)	200407	201005
LTM	201005	204609

RIP Date: 200909

RC Date: 201005

SITE DESCRIPTION

This site currently addresses soil contamination only. Because of the complexity of the Area B disposal sites, the groundwater component for this site and all other Area B sites was broken out as a separate site called Area B Groundwater (FTD 72).

This 1.2-acre landfill is located in the north central portion of Area B. It operated between 1948 and the mid-1970s, receiving unknown quantities of waste (metal, wood, general refuse from laboratory remodeling and building demolition). Four groundwater monitoring wells located downgradient of the site have contamination above risk based concentrations, but below MCLs.

A DD, signed in February 2008, selected capping with LUCs as the preferred remedy. On June 23, 2009 MDE approved capping design plans. Cap construction activities began June 25, 2009. Weather events caused significant delays in construction activities. The impervious liner (the remedy) was in place in January 2010. Soil cover and seeding was completed in May 2010. LUCs are in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap, groundwater monitoring, LUCs with annual monitoring, and five-year reviews will continue.

Site ID: FTD 51
Site Name: LANDFILL B-3 INACTIVE (PKA 5 ACRE)

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Biological Material, Metals

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200809
RD	200407	200906
RA(C)	200407	200909
RA(O)	200407	201005
LTM	201005	204609

RIP Date: 200909

RC Date: 201005

SITE DESCRIPTION

This site currently addresses soil contamination only. Because of the complexity of the Area B disposal sites, the groundwater component for this site and all other Area B sites was broken out as a separate site called Area B Groundwater (FTD 72).

Area B-3, previously known as "the five-acre site," is a 7.3-acre disposal site located in the north central portion of Area B. Area B-3 consists of the operating landfill (Area B-3 Active) and a group of inactive disposal areas known as Area B-3 East and West, collectively known as Area B-3 Inactive. The active landfill was not investigated as part of the RI; however, it is part of an ongoing monitoring program.

Area B-3 inactive received unknown quantities of waste (metals, sludge from WWTP, general refuse from laboratory remodeling and building demolition, drums, herbicide/pesticide waste, potential dioxin contamination associated with phenoxy-acid herbicides, laboratory glassware and autoclaved animal carcasses and municipal trash).

B-3 West is immediately adjacent to the operating landfill, with its northern border defined by the southern edge of the active landfill liner. This area operated as FTD's sanitary landfill from the 1970s through 1990 and received various types of waste. When the current, active landfill liner was installed in 1990, it effectively capped a portion of the older landfill, leaving a portion of B-3 West uncapped.

Area B-3 East is the older disposal area, located on the north side of a grassy slope near the active landfill gate. B-3 East is physically separated from B-3 West and the active landfill by an access road and fence. This site is believed to have been in operation during the late-1950s or early-1960s. The disposal area received wastes that reportedly included decontaminated laboratory remodeling and building demolition material, herbicide and insecticide waste, decontaminated drums, metal, and general debris. A portion of the area may have also received autoclaved animal carcasses.

A DD signed in March 2009 selected capping with LUCs as the preferred remedy. MDE approved capping design plans on June 23, 2009. Cap construction activities began June 25, 2009. Weather events caused significant delays in construction activities. The impervious liner (the remedy) was in place in January 2010. Soil cover and seeding was completed in May 2010. LUCs are in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap, groundwater monitoring, LUCs with annual monitoring, and five-year reviews will continue.

Site ID: FTD 54
Site Name: WASTEWATER TREATMENT PLANT (AREA C)

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Metals

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200512
LTM	200512	204609

RIP Date: N/A

RC Date: 200512

SITE DESCRIPTION

The WWTP, located on Area C, is a gravity-flow system consisting of primary and secondary clarifiers and a trickling filter. It is operated under a national pollution discharge elimination system permit. The following areas were investigated as potential restoration sites:

- a fill area and area surrounding and downwind of a former incinerator stack,
- a former ash disposal area,
- treatment plant process water (including former mercury seals on trickling filters),
- the Monocacy River and unnamed stream sediment and surface water, and
- Area C groundwater.

Based on results of the RI, the only AOC was the former ash disposal area.

The incinerator operated at this site from 1944 to the mid-1960s. The types of materials burned in this incinerator are not well documented, but are believed to have included medical waste and general refuse. The incinerator was demolished in 1975. Ash from the incinerator was disposed on-site, adjacent to the incinerator. In 2002, a compliance-funded action was completed to transport the ash to FTD's active landfill. Residual amounts of ash still remain at the former ash disposal area.

In December 2005, a DD implementing institutional controls for the former ash disposal area was signed by the Garrison Commander.

The former ash disposal area was added to the FTD GIS LUC layer as an institutional control site. In addition, LUC signs were installed at the site.

In 2012, a five-year review was finalized that recommended additional soil sampling at the Area C WWTP to further delineate the extent of the ash disposal and soil contamination. Sampling was completed in January 2015. The data report will be completed in FY16. The results will be used to further delineate the LUC area. This is not anticipated to result in any changes to the future cost-to-complete.

The next five-year review will be performed in FY19 in order to synchronize the review period with the Area B landfill caps.

CLEANUP/EXIT STRATEGY

The results of the additional sampling indicated areas of contamination that extend beyond the current defined LUC area. A final report will be prepared in FY16 recommending extension of the LUC area to encompass the additional impacted area. Monitoring of the LUCs will continue into the future.

In the event that the Army sells this property, the site restrictions will be incorporated into any real property documents necessary

for transferring ownership from the Army and in a deed restriction for the property.

Site ID: FTD 66
Site Name: TCE SPILL SITE (AREA A)

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200107
RA(C)	200107	200107
RA(O)	200107	202009

RIP Date: 200107

RC Date: 202009

SITE DESCRIPTION

This site is located in Area A near building 568. TCE was used at this building as a refrigerant. Between 1970 and 1971 the refrigeration system that contained the TCE was removed. There were no visible leaks upon removal. The quantity of TCE, which may have spilled during the filling, operation, or maintenance of these tanks, is unknown; however leaks of mechanical seals were documented as early as 1964. Currently, there is a TCE plume in the groundwater. In July 2001, a DD was signed requiring hydraulic containment of the plume and the plume is being monitored to verify that MCLs are not exceeded at the facility boundaries.

A tenant mission-funded groundwater production well (with one backup well) is used to supply water for aquatic biological laboratories housed in building 568. The current well use is providing the required hydraulic containment. The Area A TCE plume is no longer migrating off-post above MCLs.

The levels of TCE within the source area have significantly lowered and are approaching the MCL. The five-year review is planned for FY19 and the Army will evaluate whether the site can be closed out.

CLEANUP/EXIT STRATEGY

Due to decreasing TCE concentrations in groundwater, the Army will evaluate whether the site can be closed out during the five-year review in FY19. Groundwater monitoring is expected to continue at least until 2019.

Site ID: FTD 69
Site Name: Area B-6

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Biological Material, Metals

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200710
RD	200407	200906
RA(C)	200407	200909
RA(O)	200407	201005
LTM	201005	204609

RIP Date: 200909

RC Date: 201005

SITE DESCRIPTION

This site currently addresses soil contamination only. Because of the complexity of the Area B disposal sites, the groundwater component for this site and all other Area B sites was broken out as a separate site called Area B Groundwater (FTD 72).

Area B-6 operated from 1952 until 1970. During this time it received unknown quantities of waste including ash, metals, wood and general debris from laboratory remodeling and building demolition, and animal carcasses. Autoclaved carcasses included animals ranging from mice to horses. Animals that were used in special operations involving live biological agents were routinely incinerated prior to burial. Some carcasses may not have been incinerated prior to disposal, but were reportedly autoclaved prior to leaving the laboratory. Surface and subsurface soil samples have been taken; however, the site has not been sufficiently characterized.

In 1995, 30 soil boring locations were randomly selected with 50-foot spacing between grid nodes. Four additional borings were drilled to characterize waste material. Waste materials were encountered in seven out of 34 borings between 2 to 7 feet below ground surface (bgs).

In October 1999, surface geophysical surveys were conducted to locate and define burial pits containing metal debris and animal remains. The survey mapped several landfill pits and trenches containing buried metal.

In fall 2002, field observations of B-6 showed areas with soil erosion and small animal holes. Miscellaneous stainless steel objects, laboratory apparatuses, and empty laboratory glassware were observed. Severely eroded areas and animal holes were backfilled with clay.

A DD signed in March 2009 selected capping with LUCs as the preferred remedy. MDE approved capping design plans on June 23, 2009. Cap construction activities began June 25, 2009. Weather events caused significant delays in construction activities. The impervious liner (the remedy) was in place in January 2010. Soil cover and seeding was completed in May 2010. LUCs are in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap, groundwater monitoring, LUCs with annual monitoring, and five-year reviews will continue.

Site ID: FTD 71
Site Name: Area B-10 and B-Grove

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Biological Material, Metals

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200809
RD	200407	200906
RA(C)	200407	200909
RA(O)	200407	201005
LTM	201005	204609

RIP Date: 200909

RC Date: 201005

SITE DESCRIPTION

This site currently addresses soil contamination only. Because of the complexity of the Area B disposal sites, the groundwater component for this site and all other Area B sites was broken out as a separate site called Area B Groundwater (FTD 72).

Waste burial activities were conducted in Area B-10 from 1958 to 1970. Area B-10 received general housing area refuse and autoclaved, and sometimes incinerated, animal carcasses. The grove of trees surrounding Area B-10 (referred to as the B-10 Grove) is reported to have been a surface dumping site for unregulated solids, mainly household trash and miscellaneous debris. The quantity and types of waste is unknown. Potential trenches on the east side of the grove have been identified, but have not been investigated.

In 1995, soil samples were taken at fifteen locations selected randomly in a 25-foot grid. Borings were taken to 12 feet bgs or refusal. A plastic bag was encountered in one boring 6 feet bgs. No other wastes were found. Tree cores were acquired to date the nine oldest-appearing trees in the forested area. The tree ages were from 39 to 95 years. The results of the coring in addition to review of historical aerial photographs help support the conclusion that most of the forested area most likely is not a disposal area.

A DD signed in March 2009 selected capping with LUCs as the preferred remedy. MDE approved capping design plans on June 23, 2009. Cap construction activities began June 25, 2009. Weather events caused significant delays in construction activities. The impervious liner (the remedy) was in place in January 2010. Soil cover and seeding was completed in May 2010. LUCs are in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap, groundwater monitoring, LUCs with annual monitoring, and five-year reviews will continue.

Site ID: FTD 72
Site Name: Area B Groundwater

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA	199211	199312
RI/FS	200407	202008
RD	202010	202108
IRA	199211	201704
RA(C)	202108	202308
RA(O)	202310	205310

RIP Date: 202310

RC Date: 205409

SITE DESCRIPTION

All groundwater in Area B was included in this site in FY04. Currently, a TCE/PCE plume extends from Area B-11 in an easterly direction beyond the installation boundary which is approximately 1 mile away. Although Area B-11 is the main source of the plume, other sites in Area B may be contributors to groundwater contamination. The exact dimensions of the plume are unknown due, in part to the Karst geology. Contamination has been found in off-post drinking water wells and alternate water sources have been provided to potentially affected residents.

A draft 2008 CSM was developed for Area B Groundwater which describes the site-specific pathways that contaminants may follow from the original (primary) source to receptors, including release mechanisms, secondary sources that have developed migration pathways, and exposure routes. An uncertainty analysis evaluated each component of the CSM and identified data gaps or uncertainties that warranted further investigation. The Army partnered with USEPA and MDE to develop a groundwater work plan to fill the data gaps and reduce uncertainties. The Area B Groundwater work plan was finalized in June 2010. Work plan components included: additional monitoring wells, a focused dye trace study, direct-push wells in the Carroll Creek basin, stream and sediment sampling, vapor intrusion monitoring for on-post and off-post buildings, and additional site-specific sampling parameters. The data collected for this effort is considered the Phase III of the required RI work. Based on the sampling results, additional data gaps were identified and revised workplans were developed. The Army is currently collecting the additional Phase III RI data to fill in the identified data gaps for the Area B Groundwater site (FTD 72).

On April 9, 2009, the USEPA formally listed FTD Area B Groundwater on the NPL. An FFA was signed on Dec. 14, 2010 and made effective on Aug. 5, 2011.

CLEANUP/EXIT STRATEGY

The Army is implementing the RI work plan. In FY16, the Army will complete an interim response action to connect homes to municipal water that have previously been supplied bottled water by the Army. The Army's future remedy selection for the groundwater site will be based on the outcome of a completed RI/FS. Potential remedies for the aquifer include chemical oxidation or other in situ treatment technologies and natural attenuation.

After RIP, long-term operation of any selected treatment system will likely be necessary. Groundwater monitoring and five-year reviews will likely be needed for 30 years or more.

Site ID: FTD70
Site Name: Areas B-8, B-18,& Trenches N of B-8

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Biological Material, Metals, Radionuclides

Media of Concern: Soil

Phases	Start	End
PA	199110	199202
SI	199110	199202
RI/FS	199303	200809
RD	200407	200906
RA(C)	200407	200909
RA(O)	200407	201005
LTM	201005	204609

RIP Date: 200909

RC Date: 201005

SITE DESCRIPTION

This site currently addresses soil contamination only. Because of the complexity of the Area B disposal sites, the groundwater component for this site and all other Area B sites was broken out as a separate site called Area B Groundwater (FTD 72).

Waste burial activities occurred in Area B-8 from 1948 through 1972. It received unknown quantities of waste including metal, wood, and general debris from laboratory remodeling and building demolition. This area also received autoclaved carcasses of animals ranging from mice to horses. Animals used in special studies, involving live biological agents, were routinely incinerated before burial. Some carcasses may not have been incinerated prior to disposal, but all were reportedly autoclaved prior to leaving the laboratory. Area B-8 also received housing area refuse from 1950 to 1955. In 1971 and 1972, Area B-8 received 150 tons of liquid waste and decontamination plant sludge. The sludge contained viable anthrax spores and was mixed with hypochlorite to kill the anthrax. The sludge was tested for sterility prior to its disposal.

Area B-8 also reportedly received radioactive carbon, sulfur, and phosphorus compounds. The trenches north of Area B-8 consist of depressions, thought to represent abandoned burial trenches. Disposal activities at these locations are unknown. From Environmental Photographic Interpretation Center study photographs, the trenches appear to have been operated in 1958 and 1970. The trenches are apparent as high conductivity anomalies in a 1993 electromagnetic geophysical survey. To further characterize possible contamination, surface and subsurface soil samples were collected and analyzed as part of the Phase II field investigation.

Area B-18 represents a former disposal area located in the central western portion of Area B northeast of the three trenches and northwest of Area B-20 South. The original location was not accurately documented. Area B-18 was a landfill that received all types of waste and operated until 1950. Historical documents mention no other description of the types of waste that were disposed in Area B-18. Waste materials were not encountered in any of the borings completed in the original area thought to be B-18. A small group of trees near the original investigation site for Area B-18 was determined to be the true location of Area B-18. This area contains several sinkholes and a former disappearing stream. Within the sinkholes and around the trees there are miscellaneous pieces of metal and glass debris.

An SI was performed at Area B-18 to determine whether subsurface waste disposal occurred. The inspection included surface debris removal and a geophysical survey. Based on the results, it was concluded that subsurface disposal had occurred. The area was included in the cap design for Area B-8.

A DD signed in March 2009 selected capping with LUCs as the preferred remedy. MDE approved capping design plans on June 23, 2009. Cap construction activities began June 25, 2009. Weather events caused significant delays in construction activities. The impervious liner (the remedy) was in place in January 2010. Soil cover and seeding was completed in May 2010. LUCs are in place.

Site ID: FTD70
Site Name: Areas B-8, B-18,& Trenches N of B-8

CLEANUP/EXIT STRATEGY

Long-term operation of the cap, groundwater monitoring, LUCs with annual monitoring, and five-year reviews will continue.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTD 01	BLDG 201,263,375,470	199407	Not eligible
FTD 02	UNDERGROUND STORAGE TANKS	199407	The site could not be located.
FTD 03	CONTAMINATED SEWER SYSTEM	199407	Initial assessment of site determined no further investigation is required
FTD 04	ABOVE GROUND STORAGE TANK	199407	Not eligible
FTD 05	AREA B OUTDOOR SIMULANT TEST GRID	200709	A No Further Decision Document was signed in February 2008.
FTD 06	INFECTIOUS MATERIALS STORAGE (BLDG 434)	199407	There is no evidence of a CERCLA release and the site is not eligible for ER,A funding.
FTD 07	AMMUNITION STORAGE AREA (AREA B)	200709	A No Further Decision Document was signed in February 2008.
FTD 08	AREA A LANDFILL	199706	Area A Seven No Further Action Sites Decision Document.
FTD 09	CLEAN FILL AREA (FORMALLY CONST DEBR LF)	200006	Area A Seven No Further Action Sites Decision Document.
FTD 10	LANDFILL (0.45 ACRE)	199407	Initial assessment of site determined no further investigation is required
FTD 11	COMBUSTIBLE BURN PIT	200009	Area A Seven No Further Action Sites Decision Document.
FTD 29	SKEET RANGE	200709	A No Further Decision Document was signed in February 2008.
FTD 38	SPRAY FACILITY (BLDG 391)	199407	No evidence of a release to the environment and therefore not eligible for ER,A funding.
FTD 39	CONTAINMENT FACILITY (BLDG 374)	199407	No evidence of a release to the environment and therefore not eligible for ER,A funding.
FTD 43	PIT 20 DETONATION AREA	200709	A No Further Decision Document was signed in February 2008.
FTD 46	INCINERATOR (BLDG 393)	199407	Site is still active, there has no evidence of a CERCLA release and therefore not eligible for ER,A funding.
FTD 47	AREA A TEST AREA	199407	Initial assessment of site determined no further investigation is required
FTD 48	LANDFILL B-1 (PKA 0.5 ACRE)	200503	Fort Detrick B-1 IRP Site Close-out Document, Oct 2005
FTD 52	RAD WASTE STORAGE (BLDG 261)	199407	No evidence of a release to the environment and therefore not eligible for ER,A funding.
FTD 53	HAZ WASTE STORAGE (BLDG 1520)	199408	Maryland Dept. of the Environment Letter November 1, 1994
FTD 55	USAMRID BLDGS 1425	199407	Site is still active, there has no evidence of a CERCLA release and therefore not eligible for ER,A funding.
FTD 56	FIRE PROTECTION DIVISION (BLDG 1504)	199407	Site is still active, there has no evidence of a CERCLA release and therefore not eligible for ER,A funding.
FTD 57	BLDG & GROUND MAINTENANCE SHOP(BLDG 201)	199408	Maryland Dept. of the Environment Letter November 1, 1994
FTD 58	VEHICLE WASH AREA	199407	There was no evidence of a CERCLA release and the site is not eligible for ER,A funding.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTD 59	AUTO CRAFT SHOP	199407	There was no evidence of a CERCLA release and the site is not eligible for ER,A funding.
FTD 60	GENERATOR BUILDING	199407	There is no evidence of a CERCLA release and the site is not eligible for ER,A funding.
FTD 61	VEHICLE MAINTENANCE SHOP	199407	Site could not be located.
FTD 62	CAR WASH (WASH RACK) BLDG 951	200006	Area A Seven No Further Action Sites Decision Document.
FTD 63	WATER TREATMENT PLANT (AREA C)	199408	Maryland Dept. of the Environment Letter November 1, 1994
FTD 64	FORMER BIOLOGICAL RESEARCH LABS (32)	199407	There is no evidence of a CERCLA release and the site is not eligible for ER,A funding.
FTD 65	PESTICIDE & HERBICIDE STORAGE - BLDG 122	200006	Area A Seven No Further Action Sites Decision Document
FTD 67	BLDG 1301 - LABORATORY COMPLEX	200009	Maryland Dept. of the Environment Letter dated August 4, 2000
FTD 68	WATER TOWERS (AREA A)	200103	Initial assessment of site determined no further investigation is required
PBC at Detrick	PBC	201408	This site was used to administratively track funding for the PBC. It was closed in August FY14.

IRP Schedule

Date of IRP Inception: 197610

Past Phase Completion Milestones

1977	
PA	(FTD 01 - BLDG 201,263,375,470, FTD 03 - CONTAMINATED SEWER SYSTEM, FTD 07 - AMMUNITION STORAGE AREA (AREA B), FTD 09 - CLEAN FILL AREA (FORMALLY CONST DEBR LF), FTD 10 - LANDFILL (0.45 ACRE), FTD 11 - COMBUSTIBLE BURN PIT, FTD 29 - SKEET RANGE, FTD 38 - SPRAY FACILITY (BLDG 391), FTD 39 - CONTAINMENT FACILITY (BLDG 374), FTD 43 - PIT 20 DETONATION AREA, FTD 46 - INCINERATOR (BLDG 393), FTD 47 - AREA A TEST AREA, FTD 67 - BLDG 1301 - LABORATORY COMPLEX, FTD 68 - WATER TOWERS (AREA A))
SI	(FTD 01 - BLDG 201,263,375,470, FTD 03 - CONTAMINATED SEWER SYSTEM, FTD 09 - CLEAN FILL AREA (FORMALLY CONST DEBR LF), FTD 11 - COMBUSTIBLE BURN PIT, FTD 38 - SPRAY FACILITY (BLDG 391), FTD 39 - CONTAINMENT FACILITY (BLDG 374), FTD 43 - PIT 20 DETONATION AREA, FTD 47 - AREA A TEST AREA, FTD 67 - BLDG 1301 - LABORATORY COMPLEX, FTD 68 - WATER TOWERS (AREA A))
1992	
PA	(FTD 02 - UNDERGROUND STORAGE TANKS, FTD 04 - ABOVE GROUND STORAGE TANK, FTD 05 - AREA B OUTDOOR SIMULANT TEST GRID, FTD 06 - INFECTIOUS MATERIALS STORAGE (BLDG 434), FTD 08 - AREA A LANDFILL, FTD 48 - LANDFILL B-1 (PKA 0.5 ACRE), FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B), FTD 50 - LANDFILL B-2(PKA 1.2 ACRE), FTD 51 - LANDFILL B-3 INACTIVE (PKA 5 ACRE), FTD 52 - RAD WASTE STORAGE (BLDG 261), FTD 53 - HAZ WASTE STORAGE (BLDG 1520), FTD 54 - WASTEWATER TREATMENT PLANT (AREA C), FTD 55 - USAMRID BLDGS 1425, FTD 56 - FIRE PROTECTION DIVISION (BLDG 1504), FTD 57 - BLDG & GROUND MAINTENANCE SHOP(BLDG 201), FTD 58 - VEHICLE WASH AREA, FTD 59 - AUTO CRAFT SHOP, FTD 60 - GENERATOR BUILDING, FTD 61 - VEHICLE MAINTENANCE SHOP, FTD 62 - CAR WASH (WASH RACK) BLDG 951, FTD 63 - WATER TREATMENT PLANT (AREA C), FTD 64 - FORMER BIOLOGICAL RESEARCH LABS (32), FTD 65 - PESTICIDE & HERBICIDE STORAGE - BLDG 122, FTD 66 - TCE SPILL SITE (AREA A), FTD 69 - Area B-6, FTD 71 - Area B-10 and B-Grove, FTD70 - Areas B-8, B-18,& Trenches N of B-8)
SI	(FTD 02 - UNDERGROUND STORAGE TANKS, FTD 04 - ABOVE GROUND STORAGE TANK, FTD 05 - AREA B OUTDOOR SIMULANT TEST GRID, FTD 06 - INFECTIOUS MATERIALS STORAGE (BLDG 434), FTD 07 - AMMUNITION STORAGE AREA (AREA B), FTD 08 - AREA A LANDFILL, FTD 10 - LANDFILL (0.45 ACRE), FTD 29 - SKEET RANGE, FTD 46 - INCINERATOR (BLDG 393), FTD 48 - LANDFILL B-1 (PKA 0.5 ACRE), FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B), FTD 50 - LANDFILL B-2(PKA 1.2 ACRE), FTD 51 - LANDFILL B-3 INACTIVE (PKA 5 ACRE), FTD 52 - RAD WASTE STORAGE (BLDG 261), FTD 53 - HAZ WASTE STORAGE (BLDG 1520), FTD 54 - WASTEWATER TREATMENT PLANT (AREA C), FTD 55 - USAMRID BLDGS 1425, FTD 56 - FIRE PROTECTION DIVISION (BLDG 1504), FTD 57 - BLDG & GROUND MAINTENANCE SHOP(BLDG 201), FTD 58 - VEHICLE WASH AREA, FTD 59 - AUTO CRAFT SHOP, FTD 60 - GENERATOR BUILDING, FTD 61 - VEHICLE MAINTENANCE SHOP, FTD 62 - CAR WASH (WASH RACK) BLDG 951, FTD 63 - WATER TREATMENT PLANT (AREA C), FTD 64 - FORMER BIOLOGICAL RESEARCH LABS (32), FTD 65 - PESTICIDE & HERBICIDE STORAGE - BLDG 122, FTD 66 - TCE SPILL SITE (AREA A), FTD 69 - Area B-6, FTD 71 - Area B-10 and B-Grove, FTD70 - Areas B-8, B-18,& Trenches N of B-8)
1994	
PA	(FTD 72 - Area B Groundwater)
1997	
RI/FS	(FTD 08 - AREA A LANDFILL)
2000	
RI/FS	(FTD 09 - CLEAN FILL AREA (FORMALLY CONST DEBR LF), FTD 11 - COMBUSTIBLE BURN PIT, FTD 62 - CAR WASH (WASH RACK) BLDG 951, FTD 65 - PESTICIDE & HERBICIDE STORAGE - BLDG 122, FTD 67 - BLDG 1301 - LABORATORY COMPLEX)
2001	
RA(C)	(FTD 66 - TCE SPILL SITE (AREA A))
RI/FS	(FTD 66 - TCE SPILL SITE (AREA A), FTD 68 - WATER TOWERS (AREA A))
PA	(PBC at Detrick - PBC)
2004	
IRA	(FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B))

IRP Schedule

2005	
RI/FS	(FTD 48 - LANDFILL B-1 (PKA 0.5 ACRE))
2006	
RI/FS	(FTD 54 - WASTEWATER TREATMENT PLANT (AREA C))
2007	
RI/FS	(FTD 05 - AREA B OUTDOOR SIMULANT TEST GRID, FTD 07 - AMMUNITION STORAGE AREA (AREA B), FTD 29 - SKEET RANGE, FTD 43 - PIT 20 DETONATION AREA, FTD 50 - LANDFILL B-2(PKA 1.2 ACRE))
2008	
RI/FS	(FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B), FTD 51 - LANDFILL B-3 INACTIVE (PKA 5 ACRE), FTD 69 - Area B-6, FTD 71 - Area B-10 and B-Grove, FTD70 - Areas B-8, B-18,& Trenches N of B-8)
2009	
RA(O)	(PBC at Detrick - PBC)
RA(C)	(FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B), FTD 50 - LANDFILL B-2(PKA 1.2 ACRE), FTD 51 - LANDFILL B-3 INACTIVE (PKA 5 ACRE), FTD 69 - Area B-6, FTD 71 - Area B-10 and B-Grove, FTD70 - Areas B-8, B-18,& Trenches N of B-8, PBC at Detrick - PBC)
RD	(FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B), FTD 50 - LANDFILL B-2(PKA 1.2 ACRE), FTD 51 - LANDFILL B-3 INACTIVE (PKA 5 ACRE), FTD 69 - Area B-6, FTD 71 - Area B-10 and B-Grove, FTD70 - Areas B-8, B-18,& Trenches N of B-8)
2010	
RA(O)	(FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B), FTD 50 - LANDFILL B-2(PKA 1.2 ACRE), FTD 51 - LANDFILL B-3 INACTIVE (PKA 5 ACRE), FTD 69 - Area B-6, FTD 71 - Area B-10 and B-Grove, FTD70 - Areas B-8, B-18,& Trenches N of B-8)
2014	
LTM	(PBC at Detrick - PBC)

Projected Phase Completion Milestones

See attached schedule

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

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

Final RA(C) Completion Date: 202308

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of IRP at Installation (including LTM phase): 205310

FORT DETRICK IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 49	CHEMICAL WASTE PITS B-11 (AREA B)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 50	LANDFILL B-2(PKA 1.2 ACRE)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 51	LANDFILL B-3 INACTIVE (PKA 5 ACRE)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 54	WASTEWATER TREATMENT PLANT (AREA C)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 66	TCE SPILL SITE (AREA A)	RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 69	Area B-6	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 71	Area B-10 and B-Grove	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD 72	Area B Groundwater	RI/FS						
		RD						
		IRA						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
FTD70	Areas B-8, B-18,& Trenches N of B-8	LTM						

FORT DETRICK

Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 1/0

Installation Site Types with Future and/or Underway Phases

1 Underground Tank Farm
(CC FTD 73)

Most Widespread Contaminants of Concern

Petroleum, Oil and Lubricants (POL)

Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY
CC FTD 73	Building 190 #6 Oil Spill	FRA	FREE PRODUCT RECOVERY	2010
CC FTD 73	Building 190 #6 Oil Spill	FRA	FREE PRODUCT RECOVERY	2015

Duration of CR

Date of CR Inception: 199503

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201504/201809

Date of CR completion including Long Term Management (LTM): 201809

CR Contamination Assessment

Contamination Assessment Overview

Ten 50,000-gallon USTs containing number 6 fuel oil were installed between 1954 and 1956 to support the boiler plant, Building 190. When the USTs were excavated and removed in February-March 1995, petroleum product was observed floating on the groundwater surface of the excavated area and leaking from some removed USTs. An estimated 13,000 gallons of groundwater and petroleum product were pumped from the excavation. An unknown quantity of excavated fill material containing total petroleum hydrocarbon (TPH) and naphthalene was removed for proper disposal at the Fort Detrick lined landfill in Area B. The excavation was backfilled with No. 57 stone prior to construction of a new aboveground storage tank (AST) containing No. 6 fuel oil.

The site assessment report and corrective action plan (CA were prepared using data from several investigative phases and long-term monitoring, evaluation of seven MDE Oil Control Program (OCP) risk factors, and evaluation of potential cleanup alternatives (USACE, 2006). The study included a photogeologic analysis, geophysical surveys, and a dye trace study to investigate groundwater flow in the Frederick Limestone and overlying epikarst.

A free petroleum product recovery skimmer was installed in 2000 as part of the Building 190 corrective action. A second skimmer was later added. Skimmers are currently located at wells ARW190-2 and APZ190-Day 5.

Cleanup Exit Strategy

Skimming operations and monitoring at the Building 190 boilerhouse will continue until the UST tanks are removed with over-excavation of contaminated soils and when site closure has been approved by MDE OCP. Monitoring will likely be required until FY19.

CR Previous Studies

	Title	Author	Date
1999			
	Building 190 Corrective Action Plan	U.S.Army Corps of Engineers, Baltimore District	APR-1999
2002			
	Building 190 Corrective Action Report With Oil Skimmer Operation and Maintenance Guide Former NO. 6 Fuel Oil UST Site Boiler Plant, Bldg. 190, Area A, Fort Detrick Frederick, Maryland	U.S. Army Corps of Engineers Baltimore District	FEB-2002
	Pyranine Dye Trace in Area A US Army Garrison (USAG) Fort Detrick, Maryland	Ozark Underground Laboratory	FEB-2002
	Bldg. 190 Groundwater Study Work Management Plan - Well Installation Area A, US Army Garrison Fort Detrick Frederick, Maryland	U.S. Army Corps of Engineers Baltimore District	MAR-2002
2006			
	Draft Final Site Assessment Report - Corrective Action Plan, Former No. 6 Fuel Oil UST Site Boiler Plant, Bldg. 190, US Army Garrison Fort Detrick, Frederick, Maryland MDE Case File No. 95-2030FR, 13 February 2006	U.S. Army Corps of Engineers New England District	FEB-2006
2007			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2007 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	AUG-2007
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2007 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	OCT-2007
2008			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2007 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	FEB-2008
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland Oct - December 2007 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	MAR-2008
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2008 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	APR-2008
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2008 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	AUG-2008
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2008 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	NOV-2008
2009			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland Oct - December 2008 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	FEB-2009

CR Previous Studies

	Title	Author	Date
2009			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2009 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	MAY-2009
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2009 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Center for Health Promotion and Preventive Medicine	AUG-2009
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2009 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	DEC-2009
2010			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland October - December 2009 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	FEB-2010
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2010 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	APR-2010
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2010 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	JUL-2010
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2010 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	OCT-2010
2011			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland October - December 2010 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	JAN-2011
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2011 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	APR-2011
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2011 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	AUG-2011
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2011 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	NOV-2011
2012			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland October - December 2011 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	JAN-2012
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2012 CASE NO. 95 2030-FR 2003-	U.S. Army Public Health Command (Provisional)	JUN-2012

CR Previous Studies

	Title	Author	Date
2012			
	OPT-3190		
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2012 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	JUL-2012
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2012 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	NOV-2012
2013			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland October - December 2012 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	MAY-2013
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland January - March 2013 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	MAY-2013
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2013 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	JUL-2013
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland July - September 2013 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	OCT-2013
2014			
	Quarterly Report For Groundwater Monitoring Fort Detrick Boiler Plant Building 190 Frederick, Maryland April - June 2014 CASE NO. 95 2030-FR 2003-OPT-3190	U.S. Army Public Health Command (Provisional)	JUN-2014

FORT DETRICK

Compliance Restoration

Site Descriptions

Site ID: CC FTD 73
Site Name: Building 190 #6 Oil Spill

STATUS

Regulatory Driver: RCRA

Phases	Start	End
ISC	199503	199508
INV	199508	200509
CAP	200509	200611
IMP(C)	200509	201504
IMP(O)	200709	201809

RIP Date: 201504

RC Date: 201809

SITE DESCRIPTION

No information exists for the Building 190 boilerhouse area prior to its use as the primary steam production for FTD. This location is the site of a No. 6 oil spill from former leaking USTs. Ten 53,000-gallon No. 6 oil USTs were installed between 1954 and 1956. Two 12,000 gallon No. 6 oil UST day tanks and two 30,000 gallon No. 2 diesel fuel USTs were also installed about this time. A June 1994 geo-technical study siting the location for a new 250,000 gallon No. 6 fuel oil AST over the 10 USTs found traces of No. 6 oil in three of four boreholes. When the USTs were excavated and removed during February and March 1995, petroleum product was observed floating on the water surface (MDE, 1999) and leaking from some of the removed USTs. An estimated 13,000 gallons of groundwater and petroleum product were pumped out of the excavation. A 12,000-gallon No. 6 oil UST day tank was removed in November 1995. About 75 gallons of oil was observed floating on the groundwater surface within the excavation. A plume of No. 6 oil currently exists under the entire site of the USTs. Potentially 10,000 to 50,000 gallons of No. 6 oil remains in the subsurface.

SIs and the CAP were funded in prior years. The CAP was submitted to MDE in February 2006. The CAP recommended operation of two existing oil skimmers and LTM of the site. An MDE CAP approval letter dated Nov. 15, 2006 requires the following:

- Quarterly chemical sampling for semi-volatile organic compounds (SVOC) using USEPA Method 8270, TPH/diesel-range organics and TPH/gasoline range organics using USEPA Method 8015b, and USEPA Method 1664.

- Monthly gauging of monitoring wells which includes collection of water level and temperature data.

MDE OCP regulations require the removal of all free-product. Per MDE, the site will not be closed out until all free-product is removed to the fullest extent practicable.

The MDE OCP inspected the site in 2009. MDE indicated that skimming and monitoring data collection should continue until a decision is made to close the boilerhouse or remove the active USTs.

The two day tank USTs were removed from service on March 19, 2015. Excavation of the USTs was completed in February 2016. Both USTs were intact and had not leaked. Petroleum impacted soils from the former spill were encountered to excavation depth in the excavation for day tank #2. Approximately 300 tons of petroleum impacted soil were removed for proper disposal. Petroleum impacted soil encountered along the northwest wall of the excavation of day tank #2 could not be removed for proper disposal due to the presence of building 190's foundation in this immediate area. Approximately 5,268 gallons of petroleum impacted groundwater was removed from the excavation of day tank #2 and transported offsite for proper disposal. The UST closure report was prepared for the site.

CLEANUP/EXIT STRATEGY

Site ID: CC FTD 73
Site Name: Building 190 #6 Oil Spill

Skimming operations at site CC FTD 73 Building 190 will continue until the active USTs at the boilerhouse are taken out of service and removed. During the tank removal, the MDE OCP will require over-excavation of the site to remove as much free-product as practical. A UST removal work plan is being prepared by the USACE in anticipation of the UST removal. After the removal and over-excavation of the site is completed, the Army will petition MDE for closure of the site. Monitoring will likely be required until FY18.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation

There are no NFA sites

CR Schedule

Date of CR Inception: 199503

Past Phase Completion Milestones

1995
ISC (CC FTD 73 - Building 190 #6 Oil Spill)
2005
INV (CC FTD 73 - Building 190 #6 Oil Spill)
2007
CAP (CC FTD 73 - Building 190 #6 Oil Spill)
2015
IMP(C) (CC FTD 73 - Building 190 #6 Oil Spill)

Projected Phase Completion Milestones

See attached schedule

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

To Be Determined

Final RA(C) Completion Date: 201504

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of CR at Installation (including LTM phase): 201809

FORT DETRICK CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
CC FTD 73	Building 190 #6 Oil Spill	IMP(O)						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 201203

Restoration Advisory Board (RAB): RAB established 199306

RAB Adjournment Date: N/A
RAB Adjournment Reason: None

Additional Community Involvement Information

The community relations plan was updated in FY12.

Administrative Record is located at

Installation Restoration Program Office
Building 262
Fort Detrick, MD 21702-5000

Information Repository is located at

C. Burr Artz Central Library
110 East Patrick Street
Frederick, MD 21701
301-694-1630

Fort Detrick Public Library
Building 1520
1520 Freedman Drive
Fort Detrick, MD 21702-5000
301-619-7519

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

TAPP Title: N/A

Potential TAPP: N/A