

**FY2012**

**FORT DETRICK**

**Army Defense Environmental Restoration Program**

**Installation Action Plan**

Printed 24 January 2013

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## Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the 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
bgs	below ground surface
CAA	Civil Aeronautics Administration
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CRP	Community Relations Plan
CTC	Cost-to-Complete
DD	Decision Document
DNAPL	Dense Non-Aqueous Phase Liquid
DoD	Department of Defense
EPIC	Environmental Photographic Interpretation Center
ER,A	Environmental Restoration, Army
FFA	Federal Facility Agreement
FRA	Final Remedial Action
FS	Feasibility Study
FTD	Fort Detrick
FUDS	Formerly Used Defense Site
FY	Fiscal Year
GIS	Geographical Information System
HEPA	High Efficiency Particulate Air
HSC	Health Services Command
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LNAPL	Light Non-Aqueous Phase Liquid
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
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
PA	Preliminary Assessment
PBC	Performance-Based Contract
PCE	Tetrachloroethylene
PP	Proposed Plan
ppm	parts per million
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RBC	Risk Based Concentration
RC	Response Complete

## Acronyms

RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-in-Place
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
TAPP	Technical Assistance for Public Participation
TCE	Trichloroethylene
TRC	Technical Review Committee
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency
USAG	US Army Garrison
USAMRIID	US Army Medical Research Institute of Infectious Disease
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordnance
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 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 (MEDCOM). 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 8,500 military, federal, and contractor employees assigned here.

## Lead Organization

IMCOM

## Lead Executing Agencies for Installation

Fort Detrick, U.S. Army Garrison (USAG)

## Regulator Participation

<b>Federal</b>	US Environmental Protection Agency (USEPA) Region III, Federal Facilities
<b>State</b>	Maryland Department of the Environment (MDE) Federal Facilities Division

## National Priorities List (NPL) Status

FORT DETRICK is not on the NPL

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

RAB established 199306

## Installation Program Summaries

### IRP

**Primary Contaminants of Concern:** Biological Material, Metals, Radionuclides, 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
Planned	201210	201408	2014

### 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. Conduct additional sampling to verify extent of land use controls (LUCs) 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 in fiscal year (FY)13.



## Land Use Control (LUC) Summary

**LUC Title:** Area B 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 GIS system 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

**Additional Information**

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## Land Use Control (LUC) Summary

N/A

# Cleanup Program Summary

## Installation Historic Activity

Fort Detrick is an active IMCOM installation housing over 30 tenant organizations, including some non-Department of Defense (DoD) tenants. 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 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 Site (FUDS) 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 this tract of land was leased to the Maryland National Guard for use as a summer training camp for the 104th Observation Squadron. This was the first military presence at this site.

Detrick Field was used as a summer training camp until 1940 when, by joint agreement of Frederick County and the Maryland National Guard, the field was leased to the US Civil Aeronautics Administration (CAA). The CAA used the field as a pilot training center until the outbreak of World War II.

In 1941 President Roosevelt ordered the establishment of the US Biological Warfare program and in 1943 Camp Detrick was assigned to the Army Chemical Warfare Service for the development of a biological warfare research center. The original 90-acre tracts, plus an adjoining 53 acres, were purchased in 1944. By that time Camp Detrick was well established as an installation for the research and development of offensive and defensive biological warfare techniques and agents.

Camp Detrick was designated a permanent installation shortly after the end of World War II. A seven and a five-acre tract were acquired in 1944 and were respectively developed for use as water and WWTPs. Collectively, these two tracts are now referred to as Area C. In 1946, 399 acres, now designated as Area B, were acquired to provide an outdoor test area, commonly called the "grid test area." An additional 153 acres adjoining Area A were acquired during 1946 and 1947. The Army acquired an additional 503 acres of land adjacent to the post in 1952. This land was used primarily for plant science research.

In 1955 and 1956 the Flair US Army Reserve Center was constructed as a separate entity in the northeast corner of Area B. Subsequently, the land transfer reverted to FTD, and in 1958 the facility became an on-post tenant. In 1972 approximately 69 acres of FTD's Area A were transferred to the NCI, to create the Frederick Cancer Research Facility. Permanent technical and installation support facilities were constructed during subsequent years, including major development projects such as the East Coast Telecommunications Center (now the 302nd Signal Battalion, a subordinate of the 21st Signal Brigade) and the US Army Medical Research Institute of Infectious Diseases (USAMRIID).

After biological warfare activities were discontinued on April 1, 1972, the control of FTD was transferred from the US Army Materiel Command to the Office of the Surgeon General, Department of the Army, and was further assigned as a subordinate installation of the US Army Medical Department. In 1973 FTD was reassigned from the US Army Surgeon General to the newly created US Army Health Services Command (HSC). In 1995 HSC was reorganized into MEDCOM. On 1 Oct 2011 Fort Detrick was reassigned to the Installation Management Command (IMCOM).

Today, FTD is a growing installation with the addition of a national interagency biodefense campus as a result of executive branch and Congressional direction that addresses leveraging and expanding key competencies to achieve productive and efficient interagency cooperation in support of homeland security biodefense.

## Installation Program Cleanup Progress

### IRP

**Prior Year Progress:** The Army continued to collect RI data for the Area B groundwater site (FTD72). A Phase 1 Archive Search Report (ASR) on the field testing of 2,4,5-T and other Herbicides at Fort Detrick was finalized. LTM at the landfill sites (FTD-49,-50,-51,-69,-70, and -71) was conducted.

**Future Plan of Action:** The Phase I RI for the Area B groundwater will be finalized in FY13/14. LTM will continue at landfill sites (FTD-49,-50,-51,-69,-70, and -71); Bldg. 568 (FTD-66); and Area C WWTP (FTD-54). IMP(O) will continue at Bldg. 190 (CC FTD-73). An IRA to connect residences to public water is anticipated in FY13. A VI study at site FTD-66 and soil sampling at FTD-54 is planned in FY13. A Phase 2 ASR that evaluates the handling and disposal other contaminants at Fort Detrick will be completed in FY13.

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## Cleanup Program Summary

### CR

**Prior Year Progress:** Completed monitoring of the Area A groundwater for the building 190 site.

**Future Plan of Action:** Continue monitoring of groundwater for Area A and maintain operation of oil skimmers for the Building 190 spill site.

**FORT DETRICK**  
**Army Defense Environmental Restoration Program**  
**Installation Restoration Program**

# IRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 43/33

**Installation Site Types with Future and/or Underway Phases**

- 3 Contaminated Ground Water  
(FTD 66, FTD 72, PBC at Detrick)
- 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, 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 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):** 202108/205108

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

# IRP Contamination Assessment

## Contamination Assessment Overview

Numerous environmental studies have been conducted at FTD and in the surrounding area to assess and delineate contamination.

In November 1976 an installation contamination assessment of FTD was performed by the Chemical Demilitarization and Installation Restoration office per the direction of the USAEC which was formerly known as the US Army Toxic and Hazardous Materials Agency. In January 1977 the installation assessment report was finalized. There were indications of on-post contamination from biological agents, pesticides, herbicides, and unexploded ordnance (UXO), with the potential of migration. The USAEC recommended follow-on studies to define the extent of the contamination; however, the HSC 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 field investigation of uncontrolled hazardous waste sites (PA) 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 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 trichlorofluoromethane were detected in an Area B monitoring well 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 the 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. 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 remedial investigations (RIs) were performed to assess the nature and extent of contamination and associated potential human health and ecological risks. The RI was conducted in two parts: phase I RI and phase II RI. 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 tetrachloroethylene (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. Area C's RI report was completed in December 2004.

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 (DDs) selecting hydraulic containment of building 568 groundwater and no further action (NFA) for seven Area A sites were signed. Subsequent to the DD,



# IRP Contamination Assessment

## Contamination Assessment Overview

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.

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 interim removal action at Area B-11 (FTD-49) to remove the source of the Area B TCE and PCE groundwater contamination. 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 intrusive activities into 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 of overburden, ash and commingled soil were excavated and disposed of at the Area B active landfill.

In August 2004 a multiyear fixed-price PBC was awarded. Sites included in the PBC 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 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 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 the USEPA and the 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 1 of the required RI work. The Army is currently collecting the Phase 1 RI data for the Area B groundwater site (FTD72). A Phase 2 RI Work Plan is anticipated in FY13/14.

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, Fort Detrick became aware of the historic outdoor testing of tactical herbicides at multiple locations on Fort Detrick. Based on this revelation, the Army initiated an Archive Search Report (ASR) to determine if previously unidentified past practices occurred that may have led to environmental contamination. A Phase 1 ASR report on testing of herbicides at Fort Detrick was completed in FY12. A Phase 2 ASR that will evaluate all other types of contamination will be finalized in FY13. Locations of potential concern identified in the ASR reports will be evaluated in a PA/SI to determine if further investigation is warranted.

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 Wastewater Treatment Plant (site FTD-54). These efforts will be conducted in FY13.

## IRP Contamination Assessment

### Cleanup Exit Strategy

The Area B Groundwater site (FTD 72) is currently projected to have remedy-in-place (RIP) in FY21. Installation RIP is also expected in FY21. The site was added to the NPL in April 2009. The Army is currently implementing a Phase 1 RI under a work plan approved by USEPA and MDE in 2010. A Phase 2 field effort will likely be needed. Future remedy selection will be based on the outcome of the 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.

The Area A TCE spill site (FTD 66) may be closed out prior to the end of the PBC in 2014. If not, groundwater monitoring and additional five-year reviews will be needed until the site is at response complete (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

Year	Title	Author	Date
1975	Environmental Impact Assessment	USAHSC	JAN-1975
1977	USCDIR	Record Evaluation Report No. 106	JAN-1977
1981	Preliminary Assessment of Fort Detrick	Ecology & Environment, Inc	JAN-1981
1983	Study of Proposed Sanitary Landfill Area B	USACE	JAN-1983
1984	Report of Audit: Storage and Disposal of Hazardous Materials	USAAA	JAN-1984
1988	Report of Phase I Investigations of TCE Contamination	EA Engineering, Science and Technology, Inc	JAN-1988
	Report of Phase II Investigations of TCE Contamination	EA Engineering, Science and Technology, Inc.	JAN-1988
	Report of Audit: Storage and Disposal of Hazardous Materials	USAAA	JAN-1988
	Environmental Audit No. 38-26-7001-89	USAEHA	JAN-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
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.	JAN-1992
	Work Plan for Site Investigation TCE Contamination-Bldg 568	USACE	JAN-1992
	Geohydrologic Study No. 38-26-KF70-93: Area B Fort Detrick	USAEHA	JAN-1992
1993	Site Investigation Report TCE Contamination - Bldg 568	USACE	JAN-1993
	Groundwater Consultation No. 38-26-K1KJ-93 Area B Fort Detrick	USAEHA/ USAEC	JAN-1993
	Seismic Refraction and Electromagnetic Surveys at Fort Detrick, Maryland	Waterways Experiment Station (USACE)	JAN-1993
	No report available, VOC sampling and analysis in sediment and surface water in and around Area B	USAEC	JAN-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	JAN-1993
1994			

## IRP Previous Studies

Year	Title	Author	Date
1994	Final Phase I Remedial Investigation Work Plan	USAEC/ Woodward Clyde	JAN-1994
	Remedial Investigation Data Report	USAEC/ERM	JAN-1994
1998	Remedial Investigation Area B, Draft Document	USAEC/ICF Kaiser	JAN-1998
1999	Area C WWTP Expanded Site Investigation	USACE/IT	JAN-1999
2000	Remedial Investigation Area A, Revised Final Document	USACE/IT	JAN-2000
	Area B-11 Chemical Waste Disposal Pits Proposed Plan	USACE/IT	JAN-2000
	Feasibility Study, Area A	USACE/IT	JAN-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
	Area A Proposed Plan, Final Document	USACE/IT	JAN-2001
	Fort Detrick Anthrax File Summary	UNITECH	JAN-2001
	Fort Detrick, MD Photogeologic Analysis Amended Final Report	USACE	JAN-2001
	Fort Detrick Final Preliminary Assessment and Limited Site Investigation for a Site Near a Tributary to Carroll Creek	IT Corporation	JAN-2001
	Installation Action Plan	Fort Detrick	MAR-2001
	Fort Detrick Area A Groundwater Decision Document/Seven No Further Action Sites Decision Document, Final June 2001	USACE/IT	JUN-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
	Final Remedial Investigation Area B, Water Sampling Data Report August 2000 - September 2000, Final November 2001	USACE/IT	NOV-2001
	2002	Final Remedial Investigation Area B, Water Sampling Data Report Nov - Dec 2000, Final January 2002	USACE/IT
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
Fort Detrick Final Area A Long Term Groundwater Monitoring Health and Safety Plan - April 2002		USACE/IT	APR-2002

## IRP Previous Studies

2002	Title	Author	Date
	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
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 Installation Action Plan	USACE Baltimore District	JAN-2004
	Area B-11 Chemical Waste Disposal Pits Interim Removal Action Close-out Report	Environmental Management Division, U.S. Army Garrison, Fort Detrick	FEB-2004
		Shaw E & I, Inc.	JUN-2004
2005	Area C Wastewater Treatment Plant Feasibility Study	Shaw E & I, Inc.	JAN-2005
	Proposed Plan for Fort Detrick Area C, Five Areas Located at the Wastewater Treatment Plant	Shaw E & I, Inc.	JAN-2005
	Fort Detrick Decision Document for Area C, Five Areas Located at The Wastewater Treatment Plant	Shaw Environmental, Inc.	JAN-2005
	Remedial Investigation, Area B Water Sampling Data Report, December 2004 and February 2005 Sampling	Shaw E & I, Inc.	FEB-2005

## IRP Previous Studies

2005	Title	Author	Date
	Event		
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report March 2005 Sampling Event	Shaw E & I, Inc.	MAR-2005
	Remedial Investigation, Area B Water Sampling Data Report, March - April 2005 Sampling Event	Shaw E & I, Inc.	APR-2005
	Fort Detrick Remedial Investigation Area B (IRP Site 72) Water Sampling Data Report, July 2005 Sampling Event	Shaw Environmental, Inc.	JUL-2005
	Fort Detrick Area A Long-Term Groundwater Monitoring Data Report - September 2005 Sampling Event, Final Document	Shaw Environmental, Inc.	SEP-2005
	Area B Remedial Investigation Water Sampling Data Report, September 2004 Sampling Event	Shaw E & I, Inc.	SEP-2005
	Fort Detrick Remedial Investigation Area B Water Sampling Data Report, September 2005 Sampling Event, Final Document	Shaw Environmental, Inc.	SEP-2005
	Fort Detrick Remedial Investigation Area B Water Sampling Data Report, December 2005 Sampling Event, Final Document	Shaw Environmental, Inc.	DEC-2005
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 72) Water Sampling Data Report, September 2006 Sampling Event	Shaw Environmental, Inc.	FEB-2007
	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
	Area B-18 Site Inspection Work Plan / Health and Safety Plan, Final 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

## IRP Previous Studies

2007	Title	Author	Date
	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
	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
2010			

## IRP Previous Studies

	<b>Title</b>	<b>Author</b>	<b>Date</b>
<b>2010</b>			
	Area B Groundwater (FTD-72) Remedial Investigation Work Plan July 2010	Shaw Environmental, Inc.	JUL-2010
<b>2012</b>			
	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



# **FORT DETRICK**

## **Installation Restoration Program**

### **Site Descriptions**

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.....	204009

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 Army Environmental Database - Restoration (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 (ppb) PCE (4,000 times the MCL) in a spring. Data from the RI investigations indicated that B-11 was the likely source of the groundwater TCE/PCE plume. In 2004 an interim removal action 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 (HEPA) filters on containment exhaust.

A DD was signed in March 2009 which selected capping with LUCs as the preferred remedy. The 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 will remain in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap and LUCs with annual monitoring and five-year reviews will remain in place. The current PBC includes operation and monitoring until 2014 and one five-year review. After 2014 new contracts for operation and monitoring and five-year reviews will be awarded.

**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

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199110.....	199202
SI.....	199110.....	199202
RI/FS.....	199303.....	200610
RD.....	200407.....	200906
RA(C).....	200407.....	200909
RA(O).....	200407.....	201005
LTM.....	201005.....	204009

**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 (RBCs), but below MCLs.

A DD was signed in February 2008 which selected capping with LUCs as the preferred remedy. The 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 will remain in place.

**CLEANUP/EXIT STRATEGY**

Long-term operation of the cap and LUCs with annual monitoring and five-year reviews will remain in place. The current PBC includes operation and monitoring until 2014 and one five-year review. After 2014, new contracts for operation and monitoring and five-year reviews will be awarded.

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.....	204009
<b>RIP Date:</b>	200909	
<b>RC Date:</b>	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 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 un-capped.

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 was signed in March 2009 which selected capping with LUCs as the preferred remedy. The 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 will remain in place.

CLEANUP/EXIT STRATEGY

Long-term operation of the cap and LUCs with annual monitoring and five-year reviews will remain in place. The current PBC includes operation/monitoring until 2014 and one five-year review. After 2014, new contracts for operation and monitoring and five-year reviews will be awarded.

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.....	203509

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 (NPDES) 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. Some 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.

The RI did not find any unacceptable risks with the current use of the former ash disposal site; however, there are elevated hypothetical risks for a potential future child resident due to metals. 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 geographic information system (GIS) LUC layer as an institutional control site. In addition, "no-dig" 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. This effort will be funded in FY12. The results will be used to better delineate the LUC area. This is not anticipated to result in any changes to the future cost-to-complete (CTC).

The next five-year review will be performed in FY14 in order to synchronize the review period with the Area B landfill caps. The five-year review for FTD 54 will need to be contracted through the USACE or other method separately from the five-year reviews covered by the PBC. The last review, finalized in FY12, was a low complex site which will make the next review simple. For this reason, the next review for FTD 54 can be funded and completed in FY 14.

CLEANUP/EXIT STRATEGY

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 54**  
**Site Name: WASTEWATER TREATMENT PLANT (AREA C)**

In the most recent five-year review, recommendations were made to perform additional soil sampling at the Area C WWTP (site FTD-54) to further delineate the disposal area. These efforts will be conducted in FY13.

**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

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199110.....	199202
SI.....	199110.....	199202
RI/FS.....	199303.....	200107
LTM.....	200107.....	201409

**RIP Date:** N/A

**RC Date:** 200107

**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 now 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.

This site is included in a PBC that was awarded in August 2004. The PBC requires the contractor to perform LTM and five-year reviews for the site until 2014. The first five-year review was finalized in January 2009.

The levels of TCE within the source area have significantly lowered and are approaching the MCL. The site may be able to be closed out in FY14. Costs associated with this site are tracked under the site "PBC at Detrick".

**CLEANUP/EXIT STRATEGY**

The mission-funded groundwater production well will continue to provide the required hydraulic containment. The five-year review was started in FY10 and coincides with the five-year review for site FTD 54 Area C WWTP. This five-year Review, recommended FTD perform VI testing at the TCE spill site (FTD-66). This effort will be conducted in FY13.

Due to decreasing TCE concentrations in groundwater, the site may be closed out prior to the end of the PBC in 2014. No future costs are anticipated; however, if the site is not closed out, groundwater monitoring and additional five-year reviews may be needed until the site is at RC.

## 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.....	204009
<b>RIP Date:</b> 200909		
<b>RC Date:</b> 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 thirty soil boring locations were randomly selected with 50-foot spacing between grid nodes. Four additional borings were drilled to fully characterize waste material. Waste materials were encountered in seven out of 34 borings between two to seven 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. The 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 will remain in place.

## CLEANUP/EXIT STRATEGY

Long-term operation of the cap and LUCs with annual monitoring and five-year reviews will remain in place. The current PBC includes operation and monitoring until 2014 and one five-year review. After 2014, new contracts for operation and monitoring and five-year reviews will be awarded.



**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.....	204009

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 six 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 conclusion is 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. The 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 will remain in place.

**CLEANUP/EXIT STRATEGY**

Long-term operation of the cap and LUCs with annual monitoring and five-year reviews will remain in place. The current PBC includes operation and monitoring until 2014 and one five-year review. After 2014 new contracts for operation and monitoring and five-year reviews will be awarded.

**Site ID: FTD 72**  
**Site Name: Area B Groundwater**

**STATUS**

**Regulatory Driver:** CERCLA

**RRSE:** MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199211.....	199312
RI/FS.....	200407.....	202005
RD.....	201911.....	202007
IRA.....	199211.....	201412
RA(C).....	202008.....	202108
RA(O).....	202108.....	205108
<b>RIP Date:</b>	202108	
<b>RC Date:</b>	205108	

**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 one 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 the USEPA and the 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 include: 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 1 of the required RI work. The Army is currently collecting the Phase 1 RI data for the Area B groundwater site (FTD72). A Phase 2 RI Work Plan is anticipated in FY13/14.

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 a Phase 1 RI. A Phase 2 field effort most likely will be needed. In FY13, the Army will complete an Engineering Evaluation/Cost Analysis (EE/CA) to evaluate the feasibility of connecting homes the Army has been supplying bottled water to the public water supply. The Army's future remedy selection will be based on the outcome of the completed RI/FS. Potential remedies for the aquifer include chemical oxidation or other in situ treatment technologies, and natural attenuation.

After the remedy is in place, RA(O) groundwater monitoring and five-year reviews will likely be needed for 30 years or more.

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.....	204009

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 (EPIC) 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 B-8.

A DD signed in March 2009 selected capping with LUCs as the preferred remedy. The 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 will remain 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 and LUCs with annual monitoring and five-year reviews will remain in place. The current PBC includes operation and monitoring until 2014 and one five-year review. After 2014, new contracts for operation and monitoring and five-year reviews will be awarded.

**Site ID: PBC at Detrick**  
**Site Name: PBC**

**STATUS**

**Regulatory Driver:** CERCLA  
**RRSE:** LOW

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199809.....	200109
RA(C).....	200407.....	200909
RA(O).....	200407.....	200909
LTM.....	200909.....	201408

**RIP Date:** 200909  
**RC Date:** 200909

**SITE DESCRIPTION**

This site identification is used to track funding for a PBC contract. It is not an actual installation restoration site. Funding covers all PBC work performed at these sites:

- 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).

**CLEANUP/EXIT STRATEGY**

Please see the individual sites for cleanup strategies.

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTD 01	BLDG 201,263,375,470	199407	Initial assessment of site determined no further investigation is required
FTD 02	UNDERGROUND STORAGE TANKS	199407	Initial assessment of site determined no further investigation is required
FTD 03	CONTAMINATED SEWER SYSTEM	199407	Initial assessment of site determined no further investigation is required
FTD 04	ABOVE GROUND STORAGE TANK	199407	Initial assessment of site determined no further investigation is required
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	Initial assessment of site determined no further investigation is required
FTD 07	AMMUNITION STORAGE AREA (AREA B)	200709	A No Further Decision Document was signed in February 2008.
FTD 08	AREA A LANDFILL	199706	Initial assessment of site determined no further investigation is required
FTD 09	CLEAN FILL AREA (FORMALLY CONST DEBR LF)	200006	Initial assessment of site determined no further investigation is required
FTD 10	LANDFILL (0.45 ACRE)	199407	Initial assessment of site determined no further investigation is required
FTD 11	COMBUSTIBLE BURN PIT	200009	Initial assessment of site determined no further investigation is required
FTD 29	SKEET RANGE	200709	A No Further Decision Document was signed in February 2008.
FTD 38	SPRAY FACILITY (BLDG 391)	199407	Initial assessment of site determined no further investigation is required
FTD 39	CONTAINMENT FACILITY (BLDG 374)	199407	Initial assessment of site determined no further investigation is required
FTD 43	PIT 20 DETONATION AREA	200709	A No Further Decision Document was signed in February 2008.
FTD 46	INCINERATOR (BLDG 393)	199407	Initial assessment of site determined no further investigation is required
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	Initial assessment of site determined no further investigation is required
FTD 52	RAD WASTE STORAGE (BLDG 261)	199407	Initial assessment of site determined no further investigation is required
FTD 53	HAZ WASTE STORAGE (BLDG 1520)	199408	Maryland Dept. of the Environment Letter November 1, 1994
FTD 55	USAMRID BLDGS 1425	199407	Initial assessment of site determined no further investigation is required
FTD 56	FIRE PROTECTION DIVISION (BLDG 1504)	199407	Initial assessment of site determined no further investigation is required
FTD 57	BLDG & GROUND MAINTENANCE SHOP(BLDG 201)	199408	Maryland Dept. of the Environment Letter November 1, 1994
FTD 58	VEHICLE WASH AREA	199407	Initial assessment of site determined no further investigation is required
FTD 59	AUTO CRAFT SHOP	199407	Initial assessment of site determined no further investigation is required
FTD 60	GENERATOR BUILDING	199407	Initial assessment of site determined no further investigation is required
FTD 61	VEHICLE MAINTENANCE SHOP	199407	Initial assessment of site determined no further investigation is required
FTD 62	CAR WASH (WASH RACK) BLDG 951	200006	Initial assessment of site determined no

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			further investigation is required
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	Initial assessment of site determined no further investigation is required
FTD 65	PESTICIDE & HERBICIDE STORAGE - BLDG 122	200006	Initial assessment of site determined no further investigation is required
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

# IRP Schedule

Date of IRP Inception: 197610

## Past Phase Completion Milestones

### 1977

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))

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))

### 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

PA (PBC at Detrick - PBC)

RI/FS (FTD 66 - TCE SPILL SITE (AREA A), FTD 68 - WATER TOWERS (AREA A))

### 2004

IRA (FTD 49 - CHEMICAL WASTE PITS B-11 (AREA B))



# IRP Schedule

<b>2005</b>	
RI/FS	(FTD 48 - LANDFILL B-1 (PKA 0.5 ACRE ))
<b>2006</b>	
RI/FS	(FTD 54 - WASTEWATER TREATMENT PLANT (AREA C))
<b>2007</b>	
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))
<b>2008</b>	
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)
<b>2009</b>	
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)
RA(O)	(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)
<b>2010</b>	
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)

**Projected Phase Completion Milestones**

See attached schedule

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

Site ID	Site Name	ROD/DD Title	ROD/DD Date
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**Final RA(C) Completion Date:** 202108

**Schedule for Next Five-Year Review:** 2014

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

## FORT DETRICK IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTD 49	CHEMICAL WASTE PITS B-11 (AREA B)	LTM						
FTD 50	LANDFILL B-2(PKA 1.2 ACRE)	LTM						
FTD 51	LANDFILL B-3 INACTIVE (PKA 5 ACRE)	LTM						
FTD 54	WASTEWATER TREATMENT PLANT (AREA C)	LTM						
FTD 66	TCE SPILL SITE (AREA A)	LTM						
FTD 69	Area B-6	LTM						
FTD 71	Area B-10 and B-Grove	LTM						
FTD 72	Area B Groundwater	RI/FS						
		RD						
		IRA						
		RA(C)						
		RA(O)						
FTD70	Areas B-8, B-18,& Trenches N of B-8	LTM						
PBC at Detrick	PBC	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

**Duration of CR**

**Date of CR Inception:** 199503

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 200910/201309

**Date of CR completion including Long Term Management (LTM):** 201909

## CR Contamination Assessment

### Contamination Assessment Overview

Environmental restoration activities include the IRP and Military Munitions Response Program (MMRP). On Dec. 29, 2008, the Office of the Deputy Under Secretary of Defense for Installations and Environment, ODUSD(I&E), issued an interim policy for Defense Environmental Restoration Program (DERP) eligibility that rescinded the 1986 eligibility date for the IRP and the 2002 eligibility date for the MMRP. This made many sites previously addressed in the Army's Compliance-related Cleanup (CC) program eligible for the DERP. Sites now eligible for the Munitions Response (MR) program have been migrated from AEDB-CC and given the naming convention of other MR sites. The newly eligible non-MR type sites are considered to be Installation Restoration (IR) sites; however, the newly eligible sites are being coded as Compliance Restoration (CR) in AEDB-R to distinguish them from the original IR sites and IR metrics.

### Cleanup Exit Strategy

Skimming operations at site CC FTD 73 Building 190 will continue until the boilerhouse is shut down. Fort Detrick expects to shut down the boilerhouse in FY13. At that time the Army will petition MDE for closure of the site. Monitoring is assumed to be required until FY19.

## CR Previous Studies

**Title**

**Author**

**Date**

There are no Previous Studies

**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.....	200910
IMP(O).....	200709.....	201309
LTM.....	201309.....	201909
<b>RIP Date:</b>	200910	
<b>RC Date:</b>	201309	

**SITE DESCRIPTION**

No information exists for the Building 190 boilerhouse area prior to its use as the primary steam production for FTD.

Location is the site of a No. 6 oil spill from former leaking underground storage tanks (USTs). Ten 53,000-gal 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 aboveground storage tank (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 gals of No. 6 oil remains in the subsurface.

Site investigations and the corrective action plan (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 site.

An MDE CAP approval letter dated Nov. 15, 2006 requires:

- Quarterly chemical sampling for semi-volatile organic compounds (SVOC) using USEPA Method 8270, total petroleum hydrocarbons/diesel-range organics (TPH/DRO) and TPH/gasoline range organics (GRO) using USEPA Method 8015b, and USEPA Method 1664.
- Monthly gauging of monitoring wells which includes collection of water level and temperature data.

MDE 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.)

MDE inspected the site in 2009. MDE indicated that they would like to see two more years of skimming data and monitoring data before a decision is made to potentially close out the site. The boilerhouse may be shut down in late FY13. If boilerhouse is shutdown and existing day tanks are to be removed, a more aggressive approach may be required. This is due to a loss of thermal output from the active boilers and day tanks which heat the groundwater and oil. This heat currently keeps the oil floating as a light non-aqueous phase liquid (LNAPL) and also decreases the oil's viscosity at the same time. If shutdown, it is anticipated that the oil plume will cool resulting in a loss of ability to recover the oil by skimming methods.

**CLEANUP/EXIT STRATEGY**

It is anticipated skimming operations will continue for the next two years until the boilerhouse is shut down. At that time the Army



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

will petition MDE for closure of the site. Monitoring is assumed to be required until FY19.

## 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)

**2010**

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:** 200910

**Schedule for Next Five-Year Review:** 2014

**Estimated Completion Date of CR at Installation (including LTM phase):** 201909

## FORT DETRICK CR Schedule

  = phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FTD 73	Building 190 #6 Oil Spill	IMP(O)						
		LTM						

## 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 (CRP) 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

