

# **FORT DETRICK**

Army Cleanup Program

Installation Action Plan Final

June 2024

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## STATEMENT OF PURPOSE

The Installation Action Plan (IAP) provides evidence that the Army is firmly committed to expeditious identification and cleanup of environmental contamination, and that the installation has a credible, organized program to carry out that commitment. The IAP provides an outline of the total multi-year environmental cleanup program for each site with ongoing or future planned restoration activity and includes the (1) environmental restoration requirements, (2) the rationale for the selected technical approach, and (3) foundation to develop corresponding financial needs for each cleanup site.

## INSTALLATION OVERVIEW

**Installation Name:** FORT DETRICK

**Installation City:** CITY OF FREDERICK

**Installation County:** FREDERICK

**Installation State:** MD

**Regulatory Participation - Federal:** US Environmental Protection Agency (USEPA) Region III, Federal Facilities (Area B Groundwater)

**Regulatory Participation - State:** Maryland Department of the Environment (MDE) Federal Facilities Division (Areas A, B, and C)

## ACRONYMS

Acronym	Definition
AEDB-R	Army Environmental Database - Restoration
CAP	Corrective Action Plan
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
COC	Contaminant of Concern
CRL	Cleanup Restoration & Liabilities
CSM	Conceptual Site Model
DD	Decision Document
ENV	Environmental
FS	Feasibility Study
FTD	Fort Detrick
FY	Fiscal Year
FYR	Five-Year Review
HRS	Hazard Ranking System
ID	Identification
IAP	Installation Action Plan
IR	Installation Restoration
IRA	Interim Remedial Action
LTM	Long-Term Management
LUC	Land Use Control
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
MR	Munitions Response
MRSP	Munitions Response Site Prioritization Protocol
NPL	National Priorities List
OCP	Oil Control Program
PA	Preliminary Assessment
PCE	Tetrachloroethylene
PFAS	Per- and Polyfluoroalkyl Substances
POL	Petroleum, Oil, and Lubricant
ppm	Parts per Million
PP	Proposed Plan
PR	Periodic Review
RA	Remedial Action
RAB	Restoration Advisory Board
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RC	Response Complete
RCRA	Resource Conservation and Recovery Act

Acronym	Definition
RD	Remedial Design
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RIP	Remedy-In-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SC	Site Closeout
SI	Site Inspection
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TCE	Trichloroethylene
USEPA	US Environmental Protection Agency
UU/UE	Unlimited Use Unlimited Exposure
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

## PHASE TRANSLATION TABLE

CERCLA Phase	RCRA Phase	RCRA UST Phase
Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
Remedial Design (RD)	Design (DES)	Design (DES)
Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
Remedial Action (Operations) (RA(O))	Corrective Measures Implementation (Operations) (CMI(O))	Implementation (Operations) (IMP(O))
Long-Term Management (LTM)	Long-Term Management (LTM)	Long-Term Management (LTM)

## **PROGRAM SUMMARY**

**Number of Open Sites with Response Complete/Total Open IR Sites: 8/11**

**Number of Open Sites with Response Complete/Total Open MR Sites: 0/0**

**Number of Open Sites with Response Complete/Total Open CC Sites: 0/0**

## SITE-LEVEL INFORMATION

## 24225.1019\_FTD 49\_CHEMICAL WASTE PITS B-11 (AREA B)

**Env Site ID:** FTD 49

**Cleanup Site:** CHEMICAL WASTE PITS B-11 (AREA B)

**Alias:** AREA B-11

**Regulatory Driver:** CERCLA

**RIP Date:** 9/15/2009

**RC Date:** 5/15/2010

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/15/1991	2/15/1992
SI:	10/15/1991	2/15/1992
RI/FS:	3/15/1993	9/15/2008
RD:	7/15/2004	6/15/2009
IRA:	2/15/2001	6/15/2004
RA(C):	6/15/2004	9/15/2009
RA(O):	7/15/2004	5/15/2010
LTM:	5/15/2010	9/30/2054

**Site Narrative:** 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 (Fort Detrick (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 trichloroethylene (TCE)/ tetrachloroethylene (PCE), radiological materials including carbon, sulfur and phosphorus compounds, and medical wastes. In 1992, TCE contamination was discovered off-post in residential wells above maximum contaminant level (MCL). The highest historical off-post measurement was 20,000 parts per million (ppm) PCE (4000 times the MCL) in a spring. Data from the remedial investigations (RI) 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 3484 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 interim remedial action (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 decision document (DD) was signed in March 2009 which selected capping with land use controls (LUC) as the preferred remedy. The Maryland Department of the Environment (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. This remedy interrupts the exposure pathways that result from direct contact with the soil and waste material at the

site. The cleanup/exit strategy for FTD-49 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. A monitoring plan was finalized in 2016. The work plan included installation of additional monitoring wells and lysimeters to complete the monitoring network. Wells and lysimeters were installed in 2018. Long-term management (LTM) is underway and will continue indefinitely. The cleanup exit strategy for FTD-49 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for unlimited use unlimited exposure (UU/UE), five-year remedy reviews will continue indefinitely.

## 24225.1020\_FTD 50\_LANDFILL B-2(PKA 1.2 ACRE)

**Env Site ID:** FTD 50

**Cleanup Site:** LANDFILL B-2(PKA 1.2 ACRE)

**Alias:** AREA B-2

**Regulatory Driver:** CERCLA

**RIP Date:** 9/15/2009

**RC Date:** 5/15/2010

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/15/1991	2/15/1992
SI:	10/15/1991	2/15/1992
RI/FS:	3/15/1993	10/15/2006
RD:	7/15/2004	6/15/2009
IRA:	- -	- -
RA(C):	7/15/2004	9/15/2009
RA(O):	7/15/2004	5/15/2010
LTM:	5/15/2010	9/30/2054

**Site Narrative:** Site FTD-50 consists of a 1.2-acre landfill located in the north-central portion of Area B. The landfill was in operation between 1948 and the mid-1970s, and received unknown quantities of waste (metal, wood, general refuse from laboratory remodeling and building demolition). Site FTD-50 addresses soil contamination only; groundwater is addressed under FTD-72. The contaminant of concern (COC) at FTD-50 are biological materials and metals in the soil. A total of four groundwater monitoring wells located downgradient of the site have contamination above risk-based concentrations, but below MCLs. A DD was signed in February 2008 that selected capping with LUCs as the preferred remedy for the site. The impervious liner, soil cover, and seeding were in place/completed by May 2010. This remedy interrupts the exposure pathways that result from direct contact with the soil and waste material at the site. The cleanup/exit strategy for FTD-51 includes long-term operation of the cap, semiannual groundwater, and LUC monitoring, and five-year reviews. A monitoring plan was finalized in 2016. The work plan included installation of additional monitoring wells and lysimeters to complete the monitoring network. Wells and lysimeters were installed in 2018. LTM is underway and will continue indefinitely. The cleanup exit strategy for FTD-50 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

## 24225.1021\_FTD 51\_LANDFILL B-3 INACTIVE (PKA 5 ACRE)

**Env Site ID:** FTD 51

**Cleanup Site:** LANDFILL B-3 INACTIVE (PKA 5 ACRE)

**Alias:** AREA B-3

**Regulatory Driver:** CERCLA

**RIP Date:** 9/15/2009

**RC Date:** 5/15/2010

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/15/1991	2/15/1992
SI:	10/15/1991	2/15/1992
RI/FS:	3/15/1993	9/15/2008
RD:	7/15/2004	6/15/2009
IRA:	- -	- -
RA(C):	7/15/2004	9/15/2009
RA(O):	7/15/2004	5/15/2010
LTM:	5/15/2010	9/30/2054

**Site Narrative:** Site FTD-51 or Area B-3, previously known as “the five-acre site”, consists of a 7.3-acre disposal site located in the north-central portion of Area B. The site is divided into two separate areas, known as Area B-3 East and West, collectively known as Area B-3 Inactive. Area B also contains an operating landfill (Area B-3 active). Area B-3 West operated as Fort Detrick’s sanitary landfill from the 1970s to 1990 and received various types of waste. Area B-3 East is believed to have been in operation during the late-1950s or early-1960s, and reportedly received wastes that included decontaminated laboratory remodeling and building demolition material, herbicide and insecticide waste, decontaminated drums, metal, and general debris. A portion of the site may have received autoclaved animal carcasses. FTD-51 addresses soil contamination only; groundwater is addressed under FTD-72. The COCs at FTD-51 are biological materials and metals in the soil. Area B-3 East is physically separated from B-3 West and the active landfill by an access road and fence. B-3 West is located immediately adjacent to the active landfill. When the current active landfill liner was installed in 1990, it capped a portion of the older landfill, leaving a portion of B-3 West uncapped. A DD was signed in March 2009 that selected capping with LUCs as the preferred remedy for the entire site. The impervious liner, soil cover, and seeding were in place/completed by May 2010. This remedy interrupts the exposure pathways that result from direct contact with the soil and waste material at the site. The cleanup/exit strategy for FTD-51 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. A monitoring plan was finalized in 2016. The work plan included installation of additional monitoring wells and lysimeters to complete the monitoring network. Wells and lysimeters were installed in 2018. LTM is underway and will continue indefinitely. The cleanup exit strategy for FTD-51 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

## 24225.1024\_FTD 54\_WASTEWATER TREATMENT PLANT (AREA

**Env Site ID:** FTD 54

**Cleanup Site:** WASTEWATER TREATMENT PLANT (AREA

**Alias:** WWTP ASH

**Regulatory Driver:** CERCLA

**RIP Date:** 12/14/2005

**RC Date:** 12/14/2005

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/15/1991	2/15/1992
SI:	10/15/1991	2/15/1992
RI/FS:	3/15/1993	10/31/2005
RD:	--	--
IRA:	--	--
RA(C):	11/1/2005	12/14/2005
RA(O):	--	--
LTM:	12/15/2005	9/30/2054

**Site Narrative:** Site FTD-54 is located within Area C and consists of a gravity flow system with primary and secondary clarifiers, and a trickling filter. The wastewater treatment plant (WWTP) is operated under a national pollution discharge elimination system permit. An incinerator operated on the site from 1944 to the mid-1960s. Materials burned are believed to have included general refuse and medical waste. The incinerator was demolished in 1975, and ash was disposed of on-site, adjacent to the incinerator. Ash was transported to Fort Detrick's active landfill in 2002; however, residual amounts of ash still remain at the former disposal area. The COCs at FTD-54 are metals in the soil. Multiple areas associated with the WWTP were investigated as potential restoration sites, including the following- a fill area and area surrounding and downwind of a former incinerator stack, a former ash disposal area, treatment plant process water, the Monocacy River and unnamed stream sediment and surface water, and Area C groundwater. Based on the results of the RI, the only area of concern was the former ash disposal area. In December 2005, a DD was signed that implemented institutional controls for the former ash disposal area. LUC signs were installed at the site. The 2012 five-year review recommended additional soil sampling at the site to further delineate the extent of soil contamination. Sampling was completed in 2015 and indicated contamination that extended beyond the current defined LUC area. The final report recommended the extension of the LUC area to encompass the impacted area. The LUC boundary has been extended and monitoring of the LUCs will continue indefinitely. The cleanup exit strategy for FTD-54 includes long-term monitoring of LUCs and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

## 24225.1036\_FTD 66\_TCE SPILL SITE (AREA A)

**Env Site ID:** FTD 66

**Cleanup Site:** TCE SPILL SITE (AREA A)

**Alias:** TCE SPILL

**Regulatory Driver:** CERCLA

**RIP Date:** 7/15/2001

**RC Date:** 9/30/2054

**RC Reason:** Not assigned

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/15/1991	2/15/1992
SI:	10/15/1991	2/15/1992
RI/FS:	3/15/1993	7/15/2001
RD:	--	--
IRA:	--	--
RA(C):	7/15/2001	7/15/2001
RA(O):	7/15/2001	9/30/2054
LTM:	--	--

**Site Narrative:** 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. 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 hydraulic containment of the plume. The Area A TCE plume is no longer migrating off-post above MCLs. A DD was signed in July 2001 which selected extraction of groundwater to provide hydraulic containment of groundwater in the area defined as the source area, treatment or appropriate management of all waste produced, and monitoring of groundwater to measure the effectiveness of the remedial alternative. It was also described that water levels in the source area will be monitored to evaluate the radius of influence of the groundwater extraction system and samples will be collected to determine if TCE concentrations at or above the Federal MCL are migrating offsite and potentially impacting a receptor. Based on discussions with the MDE Federal Facilities, site close out can be considered when TCE levels in the source-area extraction wells are consistently below the MCL. This communication is documented in an email dated March 19, 2015. Previous analytical sample data collected from the two source-area extraction wells, demonstrated TCE concentrations below the level of detection and at or below the MCL for TCE. This data trend was interpreted as an indication that TCE levels would drop below the MCL by fiscal year (FY)19 enabling site closure by FY20. However, recent trends in data show an increase in TCE concentrations in these wells eliminating the possibility for early site closure in FY20. Therefore, the final FY19 five-year review was completed without a site closure request and continued remedial action (operations) (RA(O)) until the data trends demonstrate TCE concentrations in the source-area extraction wells are consistently below the MCL. A contract was awarded on Sept. 29, 2020, to continue groundwater monitoring with optional contract line-item numbers through FY24. Monitoring is expected

to continue until TCE concentrations in the source-area extraction wells are consistently below the MCL and the Army and MDE can evaluate site close out. The site is currently in the RA(O) phase. The cleanup exit strategy for FTD 66 includes continued operation of groundwater extraction wells with semiannual groundwater monitoring and five-year reviews until TCE concentrations in the source-area extraction wells are consistently below the MCL. Because hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue until UU/UE is achieved.

## 24225.1039\_FTD 69\_Area B-6

**Env Site ID:** FTD 69

**Cleanup Site:** Area B-6

**Alias:** AREA B-6

**Regulatory Driver:** CERCLA

**RIP Date:** 9/30/2009

**RC Date:** 5/31/2010

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/31/1991	2/29/1992
SI:	10/31/1991	2/29/1992
RI/FS:	3/31/1993	10/31/2007
RD:	7/31/2004	6/30/2009
IRA:	- -	- -
RA(C):	7/31/2004	9/30/2009
RA(O):	7/31/2004	5/31/2010
LTM:	5/31/2010	9/30/2054

**Site Narrative:** 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 were taken. 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. 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 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. This remedy interrupts the exposure pathways that result from direct contact with the soil and waste material at the site. The cleanup/exit strategy for FTD-69 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. A monitoring plan was finalized in 2016. The work plan included installation of additional monitoring wells and lysimeters to complete the monitoring network. Wells and lysimeters were installed in 2018. LTM is underway and will continue

indefinitely. The cleanup exit strategy for FTD-69 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

## 24225.1040\_FTD 71\_Area B-10 and B-Grove

**Env Site ID:** FTD 71

**Cleanup Site:** Area B-10 and B-Grove

**Alias:** AREA B-10

**Regulatory Driver:** CERCLA

**RIP Date:** 9/30/2009

**RC Date:** 5/31/2010

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/31/1991	2/29/1992
SI:	10/31/1991	2/29/1992
RI/FS:	3/31/1993	9/30/2008
RD:	7/31/2004	6/30/2009
IRA:	- -	- -
RA(C):	7/31/2004	9/30/2009
RA(O):	7/31/2004	5/31/2010
LTM:	5/31/2010	9/30/2054

**Site Narrative:** Site FTD-71, also known as Area B-10, operated as a waste burial area from 1958 until 1970. During this time, it received general housing area refuse, and autoclaved (sometimes incinerated) animal carcasses. The grove of trees surrounding Area B-10, known as the B-10 Grove, is reported to have been a surface dumping site for unregulated solids (primarily household trash and miscellaneous debris). Analysis of historical maps, aerial photos, and geophysical surveys indicate that subsurface burial has not occurred at B-10 Grove. Site FTD-71 addresses soil contamination only; groundwater is addressed under FTD-72. The COCs at FTD-71 are biological materials and metals in the soil. In 1995, multiple soil samples were collected within a 25-foot grid; no waste was encountered, with the exception of a plastic bag. Tree cores were acquired to date the oldest looking trees within the forested areas. The tree's age ranged from 39 to 95 years old. With a review of historical aerial photographs, it was concluded that most of the forested area is most likely not a disposal area. A 2002 reconnaissance of Area B-10 Grove found a variety of items on the surface, including two empty one-gallon metal chlordane containers, various broken glass debris, mouse traps, a half buried crumpled drum and garbage can, and a plastic industrial syringe with no measurement markings. A DD was signed in March 2009 that selected capping with LUCs as the preferred remedy for the site. The impervious liner, soil cover, and seeding were in place/completed by May 2010. This remedy interrupts the exposure pathways that result from direct contact with the soil and waste material at the site. The cleanup/exit strategy for FTD-71 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. A monitoring plan was finalized in 2016. The work plan included in installation of additional monitoring wells and lysimeters to complete the monitoring network. Wells and lysimeters were installed in 2018. LTM is underway and will continue indefinitely. The cleanup exit strategy for FTD-71 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

## 24225.1041\_FTD70\_Areas B-8, B-18,& Trenches N of B-

**Env Site ID:** FTD70

**Cleanup Site:** Areas B-8, B-18,& Trenches N of B-

**Alias:** AREA B-8

**Regulatory Driver:** CERCLA

**RIP Date:** 9/30/2009

**RC Date:** 5/31/2010

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 9/30/2054

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	10/31/1991	2/29/1992
SI:	10/31/1991	2/29/1992
RI/FS:	3/31/1993	9/30/2008
RD:	7/31/2004	6/30/2009
IRA:	- -	- -
RA(C):	7/31/2004	9/30/2009
RA(O):	7/31/2004	5/31/2010
LTM:	5/31/2010	9/30/2054

**Site Narrative:** Site FTD-70 operated as a waste burial area, and consists of Areas B-8, B-18, and trenches located north of B-8. Area B-8 operated from 1948 through 1972. It received unknown quantities of waste including metal, wood, general debris from laboratory remodeling and building demolition, and autoclaved carcasses of animals ranging from mice to horses. 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 disposal. Area B-8 also reportedly received radioactive carbon, sulfur, and phosphorus compounds. Area B-18 is 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. Area B-18 was a landfill that received all types of waste and operated until 1950. Historical documents do not list the types of waste that were disposed of in Area B-18. The true location of Area B-18 was determined to be a small group of trees near the original investigation site. This area contains several sinkholes and a former disappearing stream; miscellaneous pieces of metal and glass debris were found within the sinkholes and around the trees. The trenches north of Area B-8 consist of depressions, thought to represent abandoned burial trenches. Disposal activities at these locations are unknown, but the trenches appear to have been operated in 1958 and 1970. Site FTD-70 addresses soil contamination only; groundwater is addressed under FTD-72. The COCs at FTD-70 are biological materials and metals in the soil. Site investigations have been completed at FTD-70 and a DD was signed in March 2009 that selected capping with LUCs as the preferred remedy for the site. The impervious liner, soil cover, and seeding were in place/completed by May 2010. This remedy interrupts the exposure pathways that result from direct contact with the soil and waste material at the site. The cleanup/exit strategy for FTD-70 includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. A monitoring plan was finalized in 2016. The work plan included in installation of additional monitoring wells and lysimeters to complete the monitoring network. Wells and lysimeters were installed in 2018. LTM is underway and will continue indefinitely. The cleanup exit strategy for FTD-70

includes long-term operation of the cap, semiannual groundwater and LUC monitoring, and five-year reviews. Because the future land use will remain industrial and hazardous substances, pollutants, or contaminants will remain at the site at concentrations exceeding levels that allow for UU/UE, five-year remedy reviews will continue indefinitely.

## 24225.1043\_FTD 72\_Area B Groundwater

**Env Site ID:** FTD 72

**Cleanup Site:** Area B Groundwater

**Alias:** AREA B GW

**Regulatory Driver:** CERCLA

**RIP Date:** 6/17/2033

**RC Date:** 6/17/2062

**RC Reason:** Not assigned

**SC Date:** 6/18/2062

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** Yes

**Hazardous Ranking Score:** 49.5

**RRSE:** Medium

**MRSPP:** N/A

Phase	Start	End
PA:	11/30/1992	12/31/1993
SI:	--	--
RI/FS:	7/31/2004	7/13/2029
RD:	7/14/2029	5/19/2030
IRA:	11/30/1992	8/30/2017
RA(C):	5/20/2030	6/17/2033
RA(O):	6/17/2033	6/17/2062
LTM:	--	--

**Site Narrative:** Area B Groundwater (FTD-72). All groundwater within Area B is included in site FTD-72; was formally listed on the National Priorities List (NPL) in April 2009, and is part of the Federal Facility Agreement signed by the Army and US Environmental Protection Agency (USEPA) in 2010. In February 1992, TCE concentrations above the MCL and elevated levels of trichlorofluoromethane were detected in Area B monitoring wells. As a result, the Army began an investigation of the active landfill and other areas within Area B. In October of 1992, TCE concentrations above MCL levels were identified in four off-post residential wells. Following this discovery, the Army provided bottled water and subsequently connected affected residences on Shookstown Road and Montevue Lane to public water (one residence was connected to Fort Detrick's drinking water system). Since the discovery of the groundwater contamination, the Army has completed numerous studies to locate the source of the groundwater contamination, and to understand the extent of the migration. The COCs at FTD-72 are volatile organic compounds (VOC) in the groundwater. In 2008 a conceptual site model (CSM) was developed for Area B Groundwater to describe the site-specific pathways that contaminants may follow from the primary source to receptors, including release mechanisms, secondary sources, migration pathways, and exposure routes. After several key data gaps were identified, the Army worked with the USEPA and MDE to identify additional fieldwork needed to further define the nature and extent of groundwater contamination and to complete the RI. A work plan field sampling plan and quality assurance project plan were finalized in 2010. Field investigations under the 2010 RI work plan were completed in 2012. The ongoing RI field investigation is addressing all potential source areas that may be contributing to groundwater contamination. Results from the ongoing RI will be used to update the CSM. The CSM was updated with data collected between April 2011 and May 2012; the updated CSM, submitted in early-2013, provided a refined understanding of the groundwater flow system beneath Area B, and the impacts of the former dump sites on the environment. Based on comments received from USEPA, on the updated CSM, additional data gaps were identified leading to the need for additional site investigation activities. The Army completed additional RI activities in 2017 under a Phase 4 RI work plan addendum;

activities included piezometer and surface water sampling, a seep and spring survey, stream modeling contaminant transport, and an investigation of shallow groundwater contamination. Data collected from all RI phases was incorporated into a comprehensive RI report. A draft RI was submitted to USEPA and MDE in April 2019. Regulatory comments on the Draft RI were received. Two additional data collection efforts were implemented to further refine the CSM and expedite the selection of remedial alternatives for the site. The planned efforts included additional groundwater tracing, and a pilot study to test the effectiveness of potential remedial technologies is currently underway. Once the final RI report has been completed, a feasibility study (FS) a proposed plan (PP) and final record of decision (ROD) will be prepared that will identify the remedy for Area B Groundwater. Additional groundwater flow studies, by the US Geological Survey, were conducted. Tasks included in these studies were designed to address three major goals for the purpose of refining the Area B Groundwater CSM. These goals include- quantify site hydrology; characterize groundwater and surface water geochemistry; and characterize subsurface flow-paths. This effort began in 2018 and is intended to close USEPA identified data gaps in the CSM. A pilot test of pump and treat and surface water aeration technologies was completed. The primary objective of the pilot testing was to collect data needed to evaluate the effectiveness and feasibility of each proposed remedial technology for potential full-scale implementation at the site. The data collected from the pilot tests will be used to support the selection of remedial strategies during the FS. The cleanup exit strategy for FTD-72 is to complete the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) RI/FS, remedial design (RD)/removal action and enter the RA(O) phase. The RA(O) phase will run until remedial goals are met and will include long-term groundwater monitoring, LUCs and five-year reviews.

## 24225.1044\_CC FTD 73\_Building 190 #6 Oil Spill

**Env Site ID:** CC FTD 73

**Cleanup Site:** Building 190 #6 Oil Spill

**Alias:** C0013

**Regulatory Driver:** RCRA-I

**RIP Date:** 2/27/2002

**RC Date:** 5/20/2016

**RC Reason:** All Required Cleanup(s) Completed

**SC Date:** 6/1/2024

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
ISC:	3/31/1995	8/31/1995
INV:	8/31/1995	4/15/1997
CAP:	4/30/1997	4/30/1999
DES:	--	--
IRA:	--	--
IMP(C):	4/30/1999	2/27/2002
IMP(O):	2/27/2002	5/20/2016
LTM:	5/21/2016	6/1/2024

**Site Narrative:** Site CC-FTD-73 is the site of a No. 6 oil spill from former leaking underground storage tanks (UST). The Building 190 boiler-house was used as the primary steam production for Fort Detrick; no information exists prior to this use. A total of ten 53,000-gallon No. 6 oil USTs were installed between 1954 and 1956, along with two 12,000-gallon No. 6 oil UST day tanks and two 30,000-gallon No. 2 diesel fuel USTs. When multiple USTs were excavated and removed in 1995, petroleum product was observed floating on the water surface and leaking from some of the removed USTs. Approximately 13,000-gallons of water and petroleum product were pumped out of the excavation. A 12,000-gallon UST day tank was also removed in 1995. A plume of No. 6 oil currently exists underneath the entire UST site. The COCs at CC-FTD-73 are petroleum, oil, and lubricant (POL) in the soil and groundwater. A corrective action plan (CAP) was submitted to MDE Oil Control Program (OCP) in 2006 which recommended operation of two existing oil skimmers, and LTM. No. 6 fuel oil is a high-viscosity residual oil requiring preheating to enable product flow and enable successful skimming operations. The preheating was achieved via the presence of the two adjacent heated day USTs. MDE approved the CAP and required quarterly groundwater monitoring for COCs, monthly gauging of monitoring wells, and the removal of all free product. Upon inspection of the site in 2009, MDE stated that skimming and monitoring data collection should continue until the boiler-house is closed or the two adjacent day USTs were removed. Both day USTs were removed from service in 2015 and removed via excavation in 2016. During the UST removal, and under the direction of MDE, the two skimmers and associated recovery wells were properly abandoned by means of excavation and removal. Approximately 300 tons of petroleum impacted soils (from the former spill) were removed for proper disposal, although impacted soil along the northwest wall of the excavation could not be removed due to the presence of the building's foundation. Approximately 5,268 gallons of petroleum impacted groundwater was also removed. A draft UST system closure report documenting removal activities was submitted to MDE. MDE responded with a letter, dated Sept. 9, 2016, requesting additional activities to include one year of quarterly groundwater monitoring prior to site close out. Monitoring was completed in FY18, and four quarterly monitoring reports were submitted

to MDE OCP in June 2019, in accordance with MDE OCP's stated requirements. In an email dated Oct. 23 2020, the OCP Manager, outlined the following requirements for a request for site closure- detailed historical summary of all activities performed; a half-mile sensitive receptor (active drinking water wells) survey; tabulated well gauging summary for each well since 2010; tabulated dissolved phase POL concentration for each well since 2010; tabulated liquid petroleum hydrocarbon cumulative recovery data; well abandonment documentation; a risk assessment in accordance with MDE's Maryland Environmental Assessment Technology for leaking underground storage tanks guidance document. The cleanup exit strategy for FTD-73 includes the proper abandonment of unused site wells to gain MDE OCP approval of site close out. Site Closeout Request documentation is with MDE and is under review by the MDE Oil Control Program as of April 2023.

## 24225.1046\_FTD 74\_PFAS

**Env Site ID:** FTD 74

**Cleanup Site:** PFAS

**Alias:** #

**Regulatory Driver:** CERCLA

**RIP Date:** 2/2/2029

**RC Date:** 2/2/2029

**RC Reason:** Not assigned

**SC Date:** 2/3/2029

**Program:** ENV Restoration, Army

**Subprogram:** IR

**NPL Status:** No

**Hazardous Ranking Score:** 0

**RRSE:**

**MRSPP:** N/A

Phase	Start	End
PA:	9/30/2017	6/24/2019
SI:	6/25/2019	10/31/2022
RI/FS:	1/3/2022	2/2/2029
RD:	--	--
IRA:	--	--
RA(C):	--	--
RA(O):	--	--
LTM:	--	--

**Site Narrative:** Per direction from Deputy Chief of Staff G9, site created to account for all per- and polyfluoroalkyl substances (PFAS) costs at the installation. Currently a preliminary assessment (PA)/site inspection (SI) is underway to identify all releases of PFAS to the environment at the installation. During the PA, four areas of potential interest were identified as having stored, used, or released PFAS to the environment. These three sites include the former Fort Detrick Fire Station (Area A Building 1504), the current Fort Detrick Fire Station (Area A Building 1419), and two aqueous film forming foam Equipment Testing Areas (Area 1 and Area 2 on Area B). Data collected to date indicates a PFAS RI is warranted at Fort Detrick. A RI effort is underway to determine the nature and extent of PFAS in soils and groundwater.

## **SITE SUMMARY**

## SITE CLOSEOUT SUMMARY

CRL ID	Site Name	Site Closeout Date
24225.1001	FTD 01_BLDG 201,263,375,470	1/31/1977
24225.1002	FTD 02_UNDERGROUND STORAGE TANKS	2/29/1992
24225.1003	FTD 03_CONTAMINATED SEWER SYSTEM	1/31/1977
24225.1004	FTD 04_ABOVE GROUND STORAGE TANK	2/29/1992
24225.1005	FTD 05_AREA B OUTDOOR SIMULANT TEST GRID	9/30/2007
24225.1006	FTD 06_INFECTIOUS MATERIALS STORAGE (BLD	2/29/1992
24225.1007	FTD 07_AMMUNITION STORAGE AREA (AREA B)	9/30/2007
24225.1008	FTD 08_AREA A LANDFILL	6/30/1997
24225.1009	FTD 09_CLEAN FILL AREA (FORMALLY CONST D	6/30/2000
24225.1010	FTD 10_LANDFILL (0.45 ACRE)	2/29/1992
24225.1011	FTD 11_COMBUSTIBLE BURN PIT	9/30/2000
24225.1012	FTD 29_SKEET RANGE	9/30/2007
24225.1013	FTD 38_SPRAY FACILITY (BLDG 391)	1/31/1977
24225.1014	FTD 39_CONTAINMENT FACILITY (BLDG 374)	1/31/1977
24225.1015	FTD 43_PIT 20 DETONATION AREA	9/30/2007
24225.1016	FTD 46_INCINERATOR (BLDG 393)	2/29/1992
24225.1017	FTD 47_AREA A TEST AREA	1/31/1977
24225.1018	FTD 48_LANDFILL B-1 (PKA 0.5 ACRE )	3/31/2005
24225.1022	FTD 52_RAD WASTE STORAGE (BLDG 261)	2/29/1992
24225.1023	FTD 53_HAZ WASTE STORAGE (BLDG 1520)	2/29/1992
24225.1025	FTD 55_USAMRID BLDGS 1425	2/29/1992
24225.1026	FTD 56_FIRE PROTECTION DIVISION (BLDG 15	2/29/1992
24225.1027	FTD 57_BLDG & GROUND MAINTENANCE SHOP(BL	2/29/1992
24225.1028	FTD 58_VEHICLE WASH AREA	2/29/1992
24225.1029	FTD 59_AUTO CRAFT SHOP	2/29/1992
24225.1030	FTD 60_GENERATOR BUILDING	2/29/1992
24225.1031	FTD 61_VEHICLE MAINTENANCE SHOP	2/29/1992
24225.1032	FTD 62_CAR WASH (WASH RACK) BLDG 951	6/30/2000
24225.1033	FTD 63_WATER TREATMENT PLANT (AREA C)	2/29/1992
24225.1034	FTD 64_FORMER BIOLOGICAL RESEARCH LABS (	2/29/1992
24225.1035	FTD 65_PESTICIDE & HERBICIDE STORAGE - B	6/30/2000
24225.1037	FTD 67_BLDG 1301 - LABORATORY COMPLEX	9/30/2000
24225.1038	FTD 68_WATER TOWERS (AREA A)	1/31/2001
24225.1042	PBC at Detrick_PBC	2/28/2014

## COMMUNITY INVOLVEMENT

<b>Community Involvement Plan (Date Last Reviewed):</b>	10/1/2023
<b>Technical Review Committee Establishment Date:</b>	N/A
<b>Restoration Advisory Board (RAB) Establishment Date:</b>	6/30/1993
<b>RAB Adjournment Date:</b>	N/A
<b>RAB Adjournment Reason:</b>	N/A
<b>Reasons for Not Establishing RAB:</b>	N/A
<b>RAB Date of Solicitation from Community:</b>	N/A
<b>RAB Results of Solicitation:</b>	N/A
<b>Current Technical Assistance for Public Participation (TAPP):</b>	N/A
<b>TAPP Title:</b>	N/A
<b>Potential TAPP:</b>	N/A
<b>Administrative Record Location:</b>	Installation Restoration Program Office, Building 9255 Amber Drive, Fort Detrick, MD 21701
<b>Information Repository Location:</b>	Frederick County Library, Maryland Room C. Burr Artz Central Library, 110 East Patrick Street, Frederick, MD 21701

## FIVE-YEAR / PERIODIC REVIEW SUMMARY

Status	Review Type	Start Date	End Date	Plans Narrative	Actions Narrative	Results Narrative
Completed	FYR	10/01/2018	7/13/2020	O&M of this remedy includes periodic inspections and maintain the integrity of the landfill cap.	Two Decision Documents specified-	The remedy for the Area B Inactive Landfills is protective of human health, environment & exposure pathways because- construction complete; remedy operating; RAOs achieved; O&M ongoing. Follow-up- Control animal burrowing activities at landfill caps.
Underway	FYR	10/01/2023	6/25/2024	TBD	TBD	TBD