FY2013

JOINT BASE MYER-HENDERSON HALL

Army Defense Environmental Restoration Program

Installation Action Plan

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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 Installation Management Command (IMCOM),the US Army Environmental Command (USAEC), Fort Myer, 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

AAFES	Army & Air Force Exchange Service
AAFMAA	Army and Air Force Mutual Aid Association
AEDB-R	Army Environmental Database-Restoration
AOC	Area of Concern
AR	Administrative Record
AST	Above Ground Storage Tank
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CIP	Community Involvement Plan
COC	Contaminants of Concern
DCE	Dichloroethylene
DD	Decision Document
DES	Design
DoD	Department of Defense
DRU	Direct Reporting Unit
ER,A	Environmental Restoration, Army
FMMC	Fort Myer Military Community
FMY	Site Designation for Fort Myer
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
HQ	Headquarters
IAP	Installation Action Plan
IMCOM	Installation Management Command
IMP(C)	Implementation (Construction)
IMP(O)	Implementation (Operations)
INV	Investigation
IR	Information Repository
IRA	Interim Remedial Action
IRP	Installation Restoration Program
ISC	Initial Site Characterization
JFHQ-NCR/MDW	Joint Force Headquarters-National Capital Region and Military District of Washington
K	thousand
LTM	Long-Term Management
MCL	Maximum Contaminant Level
MDW	US Army Military District of Washington
MFR	Memorandum for Record
N/A	Not Applicable
NERO	Northeast Regional Office
NPL	National Priorities List
PA	Preliminary Assessment
PCE	Perchloroethylene
PX	Post Exchange

Acronyms

RA	Remedial Action
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RACER	Remedial Action Cost Engineering and Requirements
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SVE	Soil Vapor Extraction
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TCE	Trichloroethylene
TRC	Technical Review Committee
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAPAHC	US Army Public Health Command
USCHPPM	US Army Center for Health Promotion and Preventive Medicine
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
VDEQ	Virginia Department of Environmental Quality
VOC	Volatile Organic Compounds

Acronym Translation Table

CERCLA		RCRA Underground Storage Tank (UST) Site Phase Terms
Preliminary Assessment(PA)	=	Initial Site Characterization(ISC)
Remedial Investigation(RI)	=	Investigation(INV)
Feasibility Study(FS)	=	Corrective Action Plan(CAP)
Remedial Design(RD)	=	Design(DES)
Remedial Action (Construction)(RA(C))	=	Implementation (Construction)(IMP(C))
Remedial Action (Operation)(RA(O))	=	Implementation (Operations)(IMP(O))
Long Term Management(LTM)	=	Long Term Management(LTM)
Interim Remedial Action(IRA)	=	Interim Remedial Action(IRA)

Installation Information

Installation Locale

Installation Size (Acreage): 256
City: Arlington
County: Arlington
State: Virginia
Other Locale Information

Fort Myer consists of 256 acres located in Arlington, Virginia, adjacent to the Arlington National Cemetery. The county of Arlington bounds the installation on the west side. Access is provided by US Route 50 (Arlington Boulevard) from the west and Virginia Route 27 (Washington Boulevard) from the south.

Installation Mission

Joint Base Myer-Henderson Hall (JBM-HH) provides installation services and support to military members, civilians, retirees and their families with a quality of life commensurate with the quality of their service. On order, JBM-HH provides base support to the Military District of Washington (MDW)/ Joint Force Headquarters-National Capital Region (JFHQ-NCR), facilitating deployment of forces for Homeland Defense and Defense Support to Civil Authorities in the National Capital Region (NCR).

Lead Organization

IMCOM

Lead Executing Agencies for Installation

US Army Environmental Command (USAEC)

Regulator Participation

Federal	US Environmental Protection Agency (USEPA) Region III
State	Virginia Department of Environmental Quality (VDEQ)

National Priorities List (NPL) Status

JOINT BASE MYER-HENDERSON HALL is not on the NPL

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

Installation at RIP/RC.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Volatiles (VOC)

Affected Media of Concern: Groundwater

5-Year / Periodic Review Summary

No 5-Year / Periodic Reviews have been scheduled

Cleanup Program Summary

Installation Historic Activity

Fort Myer is located on land that was owned by George Washington Parke Custis, the grandson of Martha Custis Washington. His daughter, Mary Anna Randolph Custis, married Lieutenant Robert E. Lee in 1831. The Lees left Arlington at the start of the Civil War in 1861. The US government expropriated the land because she was not able to pay the property taxes in person as required. Fort Cass was built at the location of the Caisson Stables in 1861. Fort Whipple was built on the land in 1863 as one of the seventy forts whose original mission was to form a protective barrier around the city of Washington. The fort was named in honor of Major General Amiel Whipple who died of war wounds. On Feb. 4, 1881, the post was renamed Fort Myer, in honor of Brigadier General Albert A. Myer, the first chief signal officer of the Army, who commanded the Signal Corps School at Fort Myer from 1869 until his death in 1880. Fort Myer is best known for its long history as a cavalry post.

By 1909, most of the present-day historic district of Fort Myer had been built. Spacious senior officer quarters were constructed along Jackson, Grant, and Lee Avenues. It was from Fort Myer that the first round-the-world radio messages were sent. The post is also widely known as the "Home of the Generals" because of the many high-ranking members of the Department of Defense (DoD) who reside on the post. Between the two World Wars, Fort Myer continued its mission as a cavalry post. At the beginning of the US involvement in World War II, the Cavalry was mechanized and the post served as a processing station and housing for defense troops, which were stationed here to protect the nation's capital. In 1942 the US Army School of Music moved to Fort Myer. In 1948, the 3rd Infantry Regiment, better known as "The Old Guard," was reactivated and assigned to Fort Myer and Fort McNair.

The installation houses several organizations which provide base operations support for the US Army and DoD. Organizations throughout the NCR which conduct official ceremonies and public events on behalf of the US government civilian and military leadership are housed here. These tenants include the 3rd US Infantry ("The Old Guard") and the US Army Band ("Pershing's Own").

The Fort Myer historic district was listed as a National Historic Landmark in 1972 and in 1973 was listed on the Virginia landmarks register.

Fort Myer is a direct reporting unit (DRU) to headquarters (HQ) IMCOM.

The Fort Myer Military Community (FMMC), consisting of Fort Myer in Arlington, Virginia, and Fort Lesley J. McNair in southwest Washington DC, and Henderson Hall Headquarters, United States Marine Corps, in Arlington, Virginia, merged to become JBM-HH Oct. 1, 2009, one of 12 DoD joint base initiatives.

Joint basing was designed to realign 26 co-located or close-proximity military installations into 12 joint bases to achieve economies of scale and provide common cross-service standards for installation management. Established by the Base Realignment and Closure (BRAC) 05 Recommendation No. 146, dated Nov. 5, 2005, joint basing became part of a DoD transformation to improve readiness in addition to achieving cost efficiencies. Full compliance is required by Sept. 15, 2011.

In the first Army-led redesignation ceremony, the FMMC Garrison Commander became the Joint Base Commander, and the Henderson Hall Commanding Officer became Commanding Officer of Headquarters and Service Battalion, Headquarters Marine Corps Henderson Hall.

JBM-HH serves over 150,000 active duty service men and women (to include Soldiers, sailors, airmen, marines and coast guard) and their families, DoD civilian personnel, and retired military personnel in the NCR.

JBM-HH provides installation services and support to military members, civilians, retirees and their families with a quality of life commensurate with the quality of their service. On order, provide base support to MDW/JFHQ- NCR facilitating deployment of forces for Homeland Defense and Defense Support to civil authorities in the NCR.

Installation Program Cleanup Progress

IRP

Prior Year Progress: After the meeting in spring 2012, a determination was made that the treatability study should continue because towards the end progress was demonstrated in decreasing the groundwater concentrations ; therefore, the contract was modified to treat the groundwater again to see if a significant decrease could be obtained by controlling the pH. If so, the RA will move forward next year,

Future Plan of Action: Fiscal year (FY) 2013-FY2014: Continue groundwater sampling and add soybean oil and pH stabilizers.

FY2014-FY2015: Scoping the RA.

JOINT BASE MYER-HENDERSON HALL

Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 7/6

Installation Site Types with Future and/or Underway Phases

1 Spill Site Area
(FMY-01)

Most Widespread Contaminants of Concern

Volatiles (VOC)

Media of Concern

Groundwater

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

Site ID	Site Name	Action	Remedy	FY
FMY-06	MOTOR POOL (BLDG 209)	FRA	WASTE REMOVAL - SOILS	1995
FMY-01	OLD DRY CLEANING PLANT-SVE & GW RISK	FRA	WASTE REMOVAL - SOILS	1996
FMY-01	OLD DRY CLEANING PLANT-SVE & GW RISK	FRA	SOIL VAPOR EXTRACTION	1996
FMY-04	OLD AFES SERVICE STATION - VAPOR TREATME	FRA	WASTE REMOVAL - SOILS	2001

Duration of IRP

Date of IRP Inception: 199003

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 200108/201801

Date of IRP completion including Long Term Management (LTM): 201712

IRP Contamination Assessment

Contamination Assessment Overview

The old dry cleaning plant site (FMY-01) is comprised of two sites: the old post exchange (PX) station site (FMY-04) and the Building 448 site (FMY-09). Contamination plumes from the old PX Station site and the old dry cleaning plant site overlap. The sites were combined into the old dry cleaning plant site per a determination by the major Army Command. In FY2000 the FMMC required Environmental Restoration, Army (ER,A) funds to remediate soil contamination in the old PX station site (FMY-04) and reopened the site.

In April 1990, the old dry cleaning plant (FMY-01) was closed and subsequently demolished. In late-1996 construction of a new Army, Air Force Exchange Services (AAFES) shoppette/class VI store was completed at that location. The dry cleaning plant operation leaked and/or spilled a significant amount of perchloroethylene (PCE) into the soil and groundwater. Prior to construction of the shoppette, the soils on-site were remediated with a soil vapor extraction (SVE) system. During construction, several tons of contaminated soil were removed and disposed of appropriately. On Jan. 30, 1996 excavation and disposal of the contaminated soil at the site was completed. In FY2000 meetings with the VDEQ resulted in requirements for eight rounds of groundwater sampling, an RI/FS, and development of a decision document (DD) in accordance with Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) protocol.

In 1999 during pre-construction activities for the emergency service center, a "black layer" was discovered on the site of the former commissary near the old PX station site. The "black layer," located within several feet of the ground surface, is believed to be the result of oils applied to the surface for dust suppression prior to the placement of fill for construction of the former commissary. This material was properly excavated and disposed of during recent site development.

In 2007, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) conducted groundwater sampling at FMY-01 to assess its status. Chlorinated volatile organic compounds (VOC) were identified above maximum contaminant level (MCL) in at least one of 13 wells sampled. High concentrations were 35,000 parts per billion (ppb) PCE, 2,400 ppb trichloroethylene (TCE), and 2,100 ppb cis 1,2-dichloroethylene (DCE). A two-phased approach was recommended. During the first phase baseline groundwater data was collected and natural attenuation parameters were determined for the site. Based on the data collected, a pilot study (a combination of bioaugmentation and biostimulation) was selected for the site.

During the second phase, a pilot test was undertaken to determine if the chlorinated solvents in the groundwater could be reduced to ethene. Sampling was completed in March 2012 and the concentrations of chlorinated solvents were not decreasing as predicted.

The Army and stakeholders met in April 2012 to discuss the appropriate path forward. It was decided to extend the treatability study to better evaluate the in situ-bioremediation of the chlorinated solvents on the groundwater. In addition, vapor intrusion sampling in Army and Air Force Mutual Aid Association (AAFMAA) (building 468) and the Fort Myer boiler plant (building 447) will be completed in 2013.

Cleanup Exit Strategy

Following the completion of the treatability study in 2013, it is assumed that a RA and LTM will take place. As required by CERCLA, an FS work plan and a community involvement plan (CIP) will be completed.

IRP Previous Studies

	Title	Author	Date
1991			
	Site Histories Report to US Army Corps of Engineers, Baltimore District on four Bldgs	Woodward - Clyde	MAY-1991
1992			
	Characterization Report	Baltimore District Corps of Engineers	JAN-1992
1995			
	Sample Analysis Report of Fort Myer Class Six Site	General Physics Corporation	AUG-1995
	Soil Samples to Evaluate Soil Vapor Extraction System (Former Dry Cleaning Plant/Service Station - Fort Myer)	Woodward Clyde Federal Services	OCT-1995
1997			
	Corrective Action Plan (CAP)	Woodward-Clyde Federal Services	MAR-1997
2007			
	Groundwater Monitoring Report	USACHPPM	OCT-2007
2010			
	Final Phase I Confirmation Study Memorandum for Former PX Dry Cleaning Facility	CDM	SEP-2010
2011			
	Final Phase II Pilot Study Work Plan for Former PX Dry Cleaning Facility	CDM	MAR-2011
2012			
	Final Extended Phase II Treatability Study Work Plan Update for Former PX Dry Cleaning Facility, Joint Base Myer-Henderson Hall,	CDM SMITH	JAN-2012
	Two-Phased Treatability Study, Former PX Dry Cleaning Facility, Joint Base Myer-Henderson Hall, Extended Treatability Study - Draft Work Plan Update	CDM SMITH	NOV-2012

JOINT BASE MYER-HENDERSON HALL

Installation Restoration Program

Site Descriptions

Site ID: FMY-01

Site Name: OLD DRY CLEANING PLANT-SVE & GW RISK

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA	199011	199201
SI	199011	199201
RI/FS	199206	199211
RD	199209	199601
RA(C)	199401	199601
RA(O)	199601	201712

RIP Date: 199601

RC Date: 201801

SITE DESCRIPTION

In the early-1990s, a PCE and benzene, toluene, ethylbenzene, and xylene (BTEX) release from UST and aboveground storage tanks (AST), and interior floor drains from dry cleaning operations and the old gas station, was discovered. Soon after, a SVE system was installed in 1993 and operated until 1997, when VDEQ and JBM-HH determined it was not longer effective. In 1996, during construction of the Shoppette, contaminated soils were excavated and disposed of. In 2001, prior to construction of the emergency service center, the FMMC conducted site characterization and remediation, excavating 2,009 cubic yards of soil at the site. The VDEQ required FMMC to monitor the groundwater quarterly.

In 2007, the US Army Public Health Command (USAPHC) conducted groundwater sampling to assess the current status. Chlorinated VOCs were identified above MCLs at concentrations as high as 35,000 ppb in at least one of 13 wells sampled. However, a remedial design was not pursued until a delivery order was issued in 2010 under a US Army Corps of Engineers (USACE) Baltimore District contract for phase I of a two-phased treatability study. The first phase of the study was concluded in January 2011. This provided us with the biological information required to select the appropriate active bioremediation technique for phase II of the study. A combination of bioaugmentation (adding bacteria that degrade VOCs) and biostimulation (adding food for the bacteria) was applied at the site. The second phase is currently underway, and is scheduled to be completed Dec. 31, 2013.

Version 11 of Remedial Action Cost Engineering and Requirements (RACER) was used to develop the cost for groundwater monitoring, employing an in situ RA, and LTM for FY2018 forward. The assumptions and calculations are included in this memorandum for record (MFR).

CLEANUP/EXIT STRATEGY

The extended treatability study will continue in 2013. As required by CERCLA, a FS work plan will be completed.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FMY-02	CARPENTER ROAD LANDFILL	199207	Study Completed, No Cleanup Required
FMY-03	OLD DEBRIS LANDFILLS (3)	199009	The Virginia Department of Environmental Quality issued an NFA letter in 1990 indicating that the site was grandfathered due to age of the landfill (closed in the 1960s) and the nature of the debris deposited.
FMY-04	OLD AFES SERVICE STATION - VAPOR TREATME	200108	The data was combined with FMY-01 Old Dry CLN-PLNT-GW. Risk assessment. This site may be deleted. The funds are used to remediate the areas affected by the contamination from AAFES station. However, the site was combined with FMY-01. Per conversation with the USAEC, US Army Military District of Washington (MDW), and FMMC, on 9/26/00 all agreed to open FMY-04 site to accommodate the requirements for public safety center remediation at the Old PX site.
FMY-05	BOILER PLANT AREA	199208	Study Completed, No Cleanup Required
FMY-06	MOTOR POOL (BLDG 209)	199505	Study Completed, No Cleanup Required
FMY-07	NIKE SITE 93, OLNEY, MD	200009	NIKE silo closure plan was approved by the Maryland Department of the Environment in 1998 and closure was approved in 2000 by the same agency.

IRP Schedule

Date of IRP Inception: 199003

Past Phase Completion Milestones

1990	
PA	(FMY-02 - CARPENTER ROAD LANDFILL, FMY-03 - OLD DEBRIS LANDFILLS (3))
1992	
ISC	(FMY-06 - MOTOR POOL (BLDG 209))
PA	(FMY-01 - OLD DRY CLEANING PLANT-SVE & GW RISK, FMY-04 - OLD AFES SERVICE STATION - VAPOR TREATME, FMY-05 - BOILER PLANT AREA)
SI	(FMY-01 - OLD DRY CLEANING PLANT-SVE & GW RISK, FMY-02 - CARPENTER ROAD LANDFILL, FMY-05 - BOILER PLANT AREA)
1993	
RI/FS	(FMY-01 - OLD DRY CLEANING PLANT-SVE & GW RISK)
1994	
CAP	(FMY-06 - MOTOR POOL (BLDG 209))
INV	(FMY-06 - MOTOR POOL (BLDG 209))
DES	(FMY-06 - MOTOR POOL (BLDG 209))
PA	(FMY-07 - NIKE SITE 93, OLNEY, MD)
1995	
IMP(O)	(FMY-06 - MOTOR POOL (BLDG 209))
IMP(C)	(FMY-06 - MOTOR POOL (BLDG 209))
1996	
SI	(FMY-07 - NIKE SITE 93, OLNEY, MD)
RD	(FMY-01 - OLD DRY CLEANING PLANT-SVE & GW RISK)
RA(C)	(FMY-01 - OLD DRY CLEANING PLANT-SVE & GW RISK)
1998	
RI/FS	(FMY-07 - NIKE SITE 93, OLNEY, MD)
2000	
SI	(FMY-04 - OLD AFES SERVICE STATION - VAPOR TREATME)
RI/FS	(FMY-04 - OLD AFES SERVICE STATION - VAPOR TREATME)
2001	
RA(C)	(FMY-04 - OLD AFES SERVICE STATION - VAPOR TREATME)

Projected Phase Completion Milestones

See attached schedule

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

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

Final RA(C) Completion Date: 200108

Schedule for Next Five-Year Review: N/A

Estimated Completion Date of IRP at Installation (including LTM phase): 201712

JOINT BASE MYER-HENDERSON HALL IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FMY-01	OLD DRY CLEANING PLANT-SVE & GW RISK	RA(O)						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 199806

Restoration Advisory Board (RAB): No

Reason Not Established: Installation at RIP/RC.

Additional Community Involvement Information

The remaining issue at the last active site is groundwater contaminated with PCE from the old dry cleaners. The groundwater is not moving, so there is no threat to off-site facilities or residences in the area. Thus, the installation staff sees no need for a RAB.

A CIP is being developed for JBM-HH. Community interviews in the area surrounding JBM-HH will be conducted in 2013. The results will be incorporated in a CIP for the installation.

Administrative Record is located at

The administrative record is located in the Directorate of Environmental Management, 111 Stewart Road, Bldg 321, Fort Myer, Virginia. Installation documentation was digitized in 2012.

Information Repository is located at

Currently, there is no information repository. In the future the information repository may be located at a branch library of the Arlington public library in Arlington, Virginia.

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

TAPP Title: N/A

Potential TAPP: N/A