

FY2012

FORT BUCHANAN

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 Buchanan, the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and 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

AOC	Area of Concern
ARO	Army Reserve Office
Bldg	Building
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CC	Compliance-related Cleanup
CMI(C)	Corrective Measures Implementation - Construction
CMI(O)	Corrective Measures Implementation - Operation
CR	Compliance Restoration
CVOC	Chlorinated Volatile Organic Compound
DA	Department of the Army
DMM	Discarded Military Munitions
DPW	Directorate of Public Works
DRO	Diesel Range Organics
ER,A	Environmental Restoration, Army
FRA	Final Remedial Action
FY	Fiscal Year
GPR	Ground Penetrating Radar
GRO	Gasoline Range Organics
IMA-SE	Installation Management Agency- South East Region
IMCOM	Installation Management Command
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
LTM	Long-Term Management
N/A	Not Applicable
NPL	National Priorities List
ORO	Oil Range Organics
PBA	Performance-Based Acquisition
POL	Petroleum, Oil and Lubricants
PR	Puerto Rico
PREQB	Puerto Rico Environmental Quality Board
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-in-Place
SA	Site Assessment
SOUTHCOM	Southern Command
SVOC	Semi-Volatile Organic Compound
SWI	Site-Wide Investigation
TAPP	Technical Assistance for Public Participation
TPP	Technical Planning Project
TRC	Technical Review Committee

Acronyms

USARSO US Army South

VOC Volatile Organic Compounds

Acronym Translation Table

CERCLA

Preliminary Assessment(PA)
Site Inspection(SI)
Remedial Investigation/Feasibility Study(RI/FS)
Remedial Design(RD)
Remedial Action (Construction)(RA(C))
Remedial Action (Operation)(RA(O))
Long Term Management(LTM)
Interim Remedial Action(IRA)

RCRA

= RCRA Facility Assessment(RFA)
= Confirmation Sampling(CS)
= RCRA Facility Investigation/Corrective Measures Study(RFI/CMS)
= Design(DES)
= Corrective Measures Implementation (Construction)(CMI(C))
= Corrective Measures Implementation (Operation)(CMI(O))
= Long Term Management(LTM)
= Interim Measure(IM)

Installation Information

Installation Locale

Installation Size (Acreage): 746

City: San Juan

County: Bayamón and Guaynabo

State: Puerto Rico (PR)

Other Locale Information

Fort Buchanan is located within the San Juan metropolitan area on the north coast of Puerto Rico which is the smallest of the Greater Antilles that separates the Caribbean Sea from the Atlantic Ocean. The installation lies approximately six miles southwest of old San Juan and occupies approximately 746 acres within two municipalities, Bayamón and Guaynabo.

Physiographically, Fort Buchanan is located on the northern coastal plain, which is about five miles wide and slopes gently upward to the central mountain chain, the Cordillera Central. A busy commercial area lies to the east of Fort Buchanan outside the East Main Gate. State Road PR-2 connects San Juan with the municipalities of Guaynabo and Bayamón, and the surrounding shopping areas, restaurants, and other businesses. Fort Buchanan is surrounded to the north by Puerto Rico State Highway 28, to the northeast by Amelia Industrial Park, and to the northeastern corner by a federal detention center. The Puma Chemical Storage Facility (formerly the Caribbean Gulf Refinery) and the Puerto Rico Department of Corrections occupy land to the west of the installation. A privately owned wooded area lies to the southwest, and numerous residential areas including Tintillo Gardens, Villa Caparra, Chalets de Caparra, Villa España, Tintillo Hills, and Victor Bragger lie to the south.

Installation Mission

Our mission is to provide Soldiers, civilians and their families with a quality of life commensurate with the quality of their service.

Lead Organization

Lead Executing Agencies for Installation

USAEC

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Caribbean Field Office, Region II
State	Puerto Rico Environmental Quality Board (PREQB)

National Priorities List (NPL) Status

FORT BUCHANAN is not on the NPL

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

The community has expressed no sufficient, sustained interest in a RAB.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Metals, Pesticides, Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil

MMRP

Primary Contaminants of Concern: Munitions and explosives of concern (MEC), Munitions constituents (MC)

Affected Media of Concern: Groundwater, Soil

CR

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

Affected Media of Concern: Groundwater, Soil, Surface Water

5-Year / Periodic Review Summary

No 5-Year / Periodic Reviews have been scheduled

Cleanup Program Summary

Installation Historic Activity

In 1903, the first Puerto Rican US Army unit, the Puerto Rico Regiment, was established under the command of Lieutenant Colonel James A. Buchanan. Camp Buchanan, established in 1923, was originally located on a 300-acre tract of land some six miles south of San Juan Bay.

From 1926 to 1930 Camp Buchanan was used as a maneuver training area and range by the regular Army and National Guard troops and as a Citizen Military Training Camp. A small arms firing range was established on 32 acres and was known as Camp Buchanan Training Area. Records indicated that chemical warfare material (CWM) was requested received and stored at Fort Buchanan. In May 1940, Camp Buchanan training area was designated as Fort Buchanan and expanded to 1,514 acres and later to 4,500 acres and permanent facilities were constructed.

During World War II, Fort Buchanan housed a depot supplying the Army Antilles Department. It also processed local troops through its replacement center. The industrial complex included pier facilities, ammunition storage areas, and an extensive railroad network connecting it to the bay.

After World War II, the post was gradually reduced to its present 746 acres. The post continued to be used throughout the Korean War as a supply and replacement depot.

Until closure as an Army post in 1966, it remained a command depot with post facilities, a personnel center, and a special training center. With the deactivation of the Antilles Command on Dec. 31, 1966, Fort Buchanan came under US Navy control. A detachment of approximately 100 personnel remained as a residual element designated as US Army Command Group and was placed under command of the US Army Forces Southern Command (SOUTHCOM) in Panama. This element consisted of a small command group and support detachment, Rodriguez US Army Hospital (inactivated in 1971), and advisory groups for the US Army Reserves (USAR), the National Guard and the Reserve Officers' Training Corps. While not organic to the command, an armed forced examining and entrance station and intelligence corps detachment (inactivated in 1971) also received support from the command.

In December 1971, Fort Buchanan returned to US Army control under the Third Army. It continued to support the USAR, including seven Army Reserve Centers throughout Puerto Rico. It became host to a number of tenant activities of the Reserve components, Navy, Coast Guard, Air Force and several nonmilitary federal agencies.

On July 1, 1973 as a result of Army reorganization, Camp Buchanan was redesignated as US Army Garrison (USAG), Fort Buchanan, under direct control of Headquarters US Army Forces Command. Initially the Commander, USAG, commanded the Senior Army Advisors to the USAR and National Guard elements in Puerto Rico and the US Virgin Islands, the Readiness Group, and the USAR.

Following the Department of Defense (DoD) Unified Command Plan, Fort Buchanan came under control of SOUTHCOM. On Aug. 13, 1999 became the home of US Army South (USARSO).

On Oct. 1, 2003, Fort Buchanan became the third Army Reserve Installation within the Installation Management Agency, southeast Region (IMA-SE) with the Deputy Commanding General of the US Army Reserve Command as our Senior Mission Commander.

In October of 2006, IMA became the US Army IMCOM.

Today, Buchanan is the only DoD installation in the Caribbean Basin area. It continues to support the reserve component and the active component Soldiers in Puerto Rico and US Virgin Islands. A definite asset for DoD relations with Central and South America. The installation also provides support to DoD operations in the Caribbean area.

Installation Program Cleanup Progress

IRP

Prior Year Progress: In fiscal year (FY) 2012 the Resource Conservation and Recovery Act (RCRA) facility investigation(RFI)/corrective measures study (CMS) phase was completed at the northwest boundary investigation (NWB). Anticipate a CMS site-wide investigation (SWI) in FY12.

Future Plan of Action: A statement of basis is anticipated in FY12. Design (DES) corrective measures implementation

Cleanup Program Summary

(Construction) for groundwater remediation will be completed. Five years of monitored natural attenuation (MNA) are anticipated.

MMRP

Prior Year Progress: PREQB has requested delineation of lead hits in soil and evaluate the presence for lead in groundwater. This was completed in October 2011 and do not anticipate any further action. A technical planning project (TPP) 3 meeting was conducted in November 2011. Anticipate completion of remedial investigation(RI)/feasibility study (FS) in 2012.

Future Plan of Action: Based on the RI/FS results, it is anticipated that land use controls (LUC) will be implemented. This will include notations to the master plan; LUCs will be documented in a LUC plan and will involve implementation of physical and administrative measures to limit the access or use of the site. The only remaining actions will include: yearly inspections to ensure that LUCs remain in place and any updates of the LUC plan.

CR

Prior Year Progress: Completion of construction and initiate operation system for Compliance Restoration (CR) sites CCFB04S003, CCFB04S007, and CCFB07S001. RA completed at CR clean up site and CCFB04S008.

Future Plan of Action: Continue to operate remedial system at CR Sites CCFB04S003, CCFB04S007, and CCFB07S001. Complete corrective measure studies for Sites FTB-035; FTB-036 and FTB-037 and initiate removal action if required.

FORT BUCHANAN
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 18/16

Installation Site Types with Future and/or Underway Phases

2 Contaminated Ground Water
(FTB-034, Site Wide Inv.)

Most Widespread Contaminants of Concern

Metals, Pesticides, 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
FTB-007	PX SERVICE STATION	FRA	OTHER	1984
FTB-016	BUILDING 539 PESTICIDE STORAGE	FRA	WASTE REMOVAL - SOILS	1991

Duration of IRP

Date of IRP Inception: 198309

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201305/202005

Date of IRP completion including Long Term Management (LTM): 202005

IRP Contamination Assessment

Contamination Assessment Overview

In January 2005 the USAG Fort Buchanan was notified by the USEPA Region II to conduct an RFI for 15 sites. These include: five solid waste management units (SWMU); nine AOCs and one site (FTB-001-R-01) being addressed under the Military Munitions Response Program (MMRP). One of the five SWMU sites is the trichloroethylene (TCE) contamination site and is being tracked separately as FTB-034. The remaining four SWMUs and nine AOC sites are collectively referred to as the SWI. Please see the site-specific descriptions for more details on the actions taken for each site.

Based on the Army's research and confirmed by USEPA there is no consent order issued for the site nor is there a RCRA permit. Cleanup is being performed under a voluntary cleanup agreement.

During the RFI the USEPA recommended the NWB component address the groundwater for the entire site since it was investigated in detail for the NWB area. The RFI SWI will address soils for the entire site and include limited groundwater evaluation as it pertains to each site.

A draft RFI report for the SWI component was submitted to USEPA in July 2009. Comments made by USEPA were received in December 2009. The SWI draft RFI report was resubmitted in June 2010 and comments received in December 2010.

A draft RFI report was submitted to USEPA for the TCE component in September 2009. Comments made by USEPA were received in September 2010. It is anticipated that the draft/final TCE report will be submitted in April 2012.

Based on RFI review comments from USEPA dated Dec. 17, 2010, there were concerns raised regarding the site background concentration levels for pesticides and metals. Subsequently, what is the extent of the contamination. Considering these comments it is anticipated that future limited RA (e.g., limited excavation/removal) may be required at sites FTB-035, FTB-036 and FTB-037. The three sites were opened up as CR sites. It is anticipated that the site-wide RFI Report will be submitted in April 2012.

Cleanup Exit Strategy

As a result of the SWI RFI, 10 sites are recommended for closure and three sites may require some RA (FTB-035, FTB-036 and FTB-037).

A CMS for FTB-034 will be completed to evaluate remedial alternatives for groundwater and a remedy will be selected. It is anticipated that the groundwater source area will be treated with bioremediation providing a RIP by FY13.

IRP Previous Studies

Year	Title	Author	Date
1984	Installation Assessment of Fort Buchanan	Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency	JUN-1984
1992	Geophysical Investigation at Solid Waste Management Unit NO. 3, Fort Buchanan, PR	Geotechnical Laboratory	FEB-1992
1993	Soil Sampling Program at Solid Waste Management Unit No. 3, Fort Buchanan, PR	Geotechnical Laboratory	MAR-1993
1997	Environmental Baseline Survey	Woodward-Clyde Federal Services	JAN-1997
1999	Geohydrologic Study No. 38-EH-8181-98, US Army Garrison, Fort Buchanan, PR	USACHPPM	OCT-1999
2006	Draft Final Project Management Plan	HGS Engineering, Inc.	MAR-2006
	Northwest Boundary Investigation Work Plan and Quality Assurance Project Plan	EA Engineering, Science, and Technology	DEC-2006
2007	Addendum #1 to the Northwest Boundary Investigation Work Plan	EA Engineering, Science, and Technology	APR-2007
	Addendum #2 Northwest Boundary Investigation Work Plan	EA Engineering, Science, and Technology	OCT-2007
2008	RCRA Facility Investigation Work Plan and Quality Assurance Project Plan	EA Engineering, Science, and Technology	MAR-2008
	Addendum #3 to the Northwest Boundary Investigation Work Plan	EA Engineering, Science, and Technology	MAR-2008
	Memorandum about the Phase III Well Completion Report - Northwest Boundary Investigation Area	EA Engineering, Science, and Technology	MAR-2008
	Addendum #4 to the Northwest Boundary Investigation Work Plan, Draft Version	EA Engineering, Science, and Technology	JUL-2008
	Addendum #5 to the Northwest Boundary Investigation Work Plan, Draft Version	EA Engineering, Science, and Technology	AUG-2008
	Quality Assurance Project Plan RCRA Facility Investigation, U.S. Army Garrison Fort Buchanan, PR	EA Engineering, Science, and Technology	SEP-2008
	Phase IV and Phase VI Well Completion and Soil Investigation Report, Northwest Boundary Investigation Area, Fort Buchanan, PR	EA Engineering, Science, and Technology	NOV-2008
	Revised Phase IV and Phase VI Well Completion and Soil Investigation Report, Northwest Boundary Investigation Area, Fort Buchanan, PR	EA Engineering, Science, and Technology	NOV-2008
2009	Draft Final RCRA Facility Investigation Report U.S Army Garrison Fort Buchanan	EA Engineering Science, and Technology	APR-2009
	Draft Final RCRA Facility Investigation Report U.S Army Garrison Fort Buchanan	EA Engineering Science, and Technology, Inc.	JUL-2009
	Draft RCRA Facility Investigation northwest Boundary Investigation Final Report U.S. Army Garrison Fort	EA Engineering Science, and Technology	AUG-2009

IRP Previous Studies

Year	Title	Author	Date
2009	Buchanan, Puerto Rico		
2010	Draft Final RCRA Facility Investigation Report U.S Army Garrison Fort Buchanan	EA Engineering Science & Technology	JUN-2010
	Well Integrity Monitoring Well Sampling Report	EA Engineering Science & Technology	SEP-2010
	Addendum #6 to the Northwest Boundary Investigation Work Plan U.S. Army Garrison Fort Buchanan, Puerto Rico	EA Engineering Science & Technology	NOV-2010
2011	Addendum #1 Technical Memorandum Background Concentrations of Metals and Organochlorine Pesticides for the Fort Buchanan RFI. (Draft)	EA Engineering Science & Technology	FEB-2011
	ADDENDUM #1 TO THE RCRA FACILITY INVESTIGATION WORK PLAN	EA Engineering Science & Technology	MAY-2011
	Northwest Boundary TCE Investigation Corrective Measures Study Work Plan Draft	EA Engineering Science & Technology	MAY-2011
	ADDENDUM #1 to the RCRA Facility Investigation Work Plan Final Version	EA Science & Technology	JUL-2011
	Northwest Boundary TCE Investigation Corrective Measures Study Work Plan US Army Garrison Fort Buchanan, Puerto Rico (Draft)	EA Engineering Science & Technology	JUL-2011
	Addendum #2 to the RCRA Facility Investigation Work Plan US Army Garrison, Fort Buchanan, Puerto Rico (Draft)	EA Engineering Science & Technology	AUG-2011
	Northwest Boundary TCE Investigation Corrective Measures Study Work Plan US Army Garrison Fort Buchanan, Puerto Rico (Final)	EA Engineering Science & Technology	SEP-2011
	Northwest Boundary TCE Investigation Corrective Measures Study Work Plan US Army Garrison Fort Buchanan, Puerto Rico (Final)	EA Engineering Science & Technology	NOV-2011
	DRAFT LETTER REPORT Site 12, Old Landfill, Results of Sediment Porewater Sampling for the Fort Buchanan Site-wide RCRA Facility Investigation US ARMY GARRISON, Fort Buchanan, Puerto Rico	EA Engineering Science & Technology	DEC-2011
	RCRA Facility Investigation, northwest Boundary Area, US Army Garrison Fort Buchanan, Puerto Rico Working final with response to comments.	EA Engineering Science & Technology	DEC-2011
	Technical Memorandum Background Concentrations of Metals and Organochlorine Pesticides for the Fort Buchanan RFI. (Draft)	EA Engineering Science & Technology	DEC-2011

FORT BUCHANAN
Installation Restoration Program
Site Descriptions

Site Name: TCE Groundwater Investigation

STATUS

Regulatory Driver: RCRA

RRSE: HIGH

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	199602.....	199701
CS.....	199602.....	199701
RFI/CMS.....	200602.....	201206
DES.....	201207.....	201211
CMI(C).....	201212.....	201304
CMI(O).....	201305.....	202005
RIP Date:	201305	
RC Date:	202005	

SITE DESCRIPTION

This site is composed of a groundwater plume of approximately 50 acres on and off the installation footprint. Chlorinated solvents, primarily TCE, have been detected along the northwest boundary of Fort Buchanan and within the adjacent Puma Chemical Storage Facility (formerly the Caribbean Refinery Company property). In accordance with the USEPA's letter of January 2005, the Army has installed a total of 48 monitoring wells (MW) located in the northwest corner of Fort Buchanan and adjoining non-DoD property. The groundwater exceeds maximum contaminant levels (MCLs) for TCE, tetrachloroethylene, vinyl chloride, and arsenic. The area of contamination is located beneath the northwest portion of Fort Buchanan and extends northwesterly across Route 28 and Route 22 beneath adjoining non-DoD property. The Army initiated a phased delineation for the TCE plume.

A draft RFI report was submitted to USEPA in September 2009. USEPA comments were received in September 2010. A second draft version of the RFI was submitted to USEPA in December 2011. The final RFI was submitted in April 2012. A draft CMS Report was submitted in November 2011. The CMS report presented five alternative remediation methods and proposed a third alternative: in situ enhanced bioremediation reductive dechlorination.

The enhanced bioremediation process stimulates anaerobic reductive dechlorination using an available substrate such as emulsified vegetable oil. The remediation system proposes to use sixteen injection wells and two extraction wells to expedite the remediation process. MNA and LUCs will be part of the proposed remediation action.

NOTE: Based on the Army's research and confirmed by USEPA in FY10 there is no consent order or RCRA permit for the site. As a result, clean up is being performed as a voluntary action.

CLEANUP/EXIT STRATEGY

Anticipated cleanup action will include source treatment with in situ enhanced bioremediation using an available substrate such as emulsified vegetable oil to stimulate anaerobic reductive dechlorination as the principal treatment mechanism using 16 injection wells and two extraction wells with MNA monitoring and LUCs.

Site ID: Site Wide Inv. Site Name: Site Wide Investigation

STATUS

Regulatory Driver: RCRA
RRSE: LOW

Phases	Start	End
RFA.....	198309.....	198403
RFI/CMS.....	200503.....	201204

RIP Date: N/A

RC Date: 201204

SITE DESCRIPTION

Fort Buchanan received notice from the USEPA Region II in January 2005 that required additional investigation of previous sites identified in RCRA facility assessment (RFA) and environmental baseline survey (EBS) studies.

The following 15 sites were identified in the letter:

- SWMU 1 old hazardous waste containers
- SWMU 3 pesticides and chemicals burial trench
- SWMU 4 spent solvents storage area
- SWMU 5 polychlorinated biphenyl (PCB) transformers storage area No. 1
- SWMU 6 PCB transformers storage area No. 2
- AOC 2 pesticide storage and formulating area No. 2
- Building 541
- Building S-563
- Used oil staging area
- 65th Army Reserve Command refueling area
- Heavy equipment storage area
- Old landfill
- Potential hazardous material burial site
- Small arms firing range (MMRP site FTB-001-R-01)
- Building S-159

Although the small arms firing range was identified in the letter from the USEPA, it is being addressed under the MMRP and not under this site.

An RFI work plan was prepared in conjunction with USEPA Region II and PREQB in order to address the sites listed above in FY07.

A PBA was awarded in FY08 that includes funds to complete RFI for 14 sites at Fort Buchanan identified in the January 2005 letter from the USEPA. The Army submitted a draft RFI report to USEPA in July 2009 and received comments back in December 2009. The Army submitted a draft final in June 2010 and received comments back in December 2010. The Army expects to finalize RFI report in April 2012.

Based on the RFI Investigation it was determine that only Sites 1 ,7, 13 also known as SWMU No. 1, and two AOCs (Building 541 and potential hazardous material burial site) would be the only sites potentially requiring further action; therefore, new sites were created in Army Environmental Database - Restoration (AEDB-R) for FTB-035, FTB-036, and FTB-037. All future actions and costs associated with these sites will be tracked under their individual AEDB-R numbers. Based on this, the SWI AEDB-R Site will be administratively closed April 2012. It is anticipated that the remaining sites will not require further action.

Based on the Army's research and confirmed by USEPA there is no consent order issued for the site nor is there a RCRA permit. Clean up is being performed under a voluntary clean up agreement.

Site ID: Site Wide Inv.
Site Name: Site Wide Investigation

CLEANUP/EXIT STRATEGY

All future actions and costs associated with this site will be tracked under individual AEDB-R site identifications (ID) CC FTB-035, -036 and - 037. Based on this, the SWI in AEDB-R will be administratively closed April 2012.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTB-001	DEH MOTOR POOL/SHOP BUILDING 556	198403	This site was closed based on the 1997 EBS but subsequently was reopened under USEPA's request in letter dated 31 January 2005 to conduct an RFI. This site was investigated under the Site-Wide Investigation.
FTB-002	ANTILES SCHOOL SYS MOTOR POOL/SHOP	198403	This site was closed based on the 1984 Installation Assessment of Fort Buchanan (Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency).
FTB-003	AREAWIDE MILITARY SUPPORT ACTIVITY MP	198403	This site was closed based on the 1984 Installation Assessment of Fort Buchanan (Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency).
FTB-006	DIRECTORATE OF PERSONNEL AND CA AC SHOP	198403	This site was closed based on the 1984 Installation Assessment of Fort Buchanan (Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency).
FTB-007	PX SERVICE STATION	199201	This site was transferred to CC and received NFA.
FTB-008	WASH RACK BUILDING 538	198403	This site was closed based on the 1997 EBS but subsequently was reopened under USEPA's request in letter dated 31 January 2005 to conduct an RFI. This site is currently tracked under the Site-Wide Investigation.
FTB-012	MEDDAC LAB BUILDING 518	198403	This site was closed based on the 1984 Installation Assessment of Fort Buchanan (Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency).
FTB-013	VET LAB	198403	This site was closed based on the 1984 Installation Assessment of Fort Buchanan (Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency).
FTB-015	BUILDING 556 PESTICIDE STORAGE	198403	This site was closed based on the 1997 EBS but subsequently was reopened under USEPA's request in letter dated 31 January 2005 to conduct an RFI. This site is currently tracked under the Site-Wide Investigation.
FTB-016	BUILDING 539 PESTICIDE STORAGE	199101	This site was closed based on the 1997 EBS but subsequently was reopened under USEPA's request in letter dated 31 January 2005 to conduct an RFI. This site was investigated under the Site-Wide Investigation.
FTB-017	PESTICIDE BURIAL N PR 28	199507	This site was closed based on the 1997 EBS but subsequently was reopened under USEPA's request in letter dated 31 January 2005 to conduct an RFI. This site

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			was investigation under the Site-Wide Investigation.
FTB-019	DEH UST BUILDING 556	198403	NFA letter from PREQB from June 2001.
FTB-027	PHOTO LAB DPTSEC/TASC	198403	This site was closed based on the 1984 Installation Assessment of Fort Buchanan (Environmental Science & Engineering Inc. and US Army Toxic and Hazardous Materials Agency).
FTB-028	CONSTRUCTION LANDFILL	198403	This site was closed based on the 1997 EBS but subsequently was reopened under USEPA's request in letter dated 31 January 2005 to conduct an RFI. This site is currently tracked under the Site-Wide Investigation.
FTB029	ABANDONEDUST BLDG 152	199710	NFA letter from PREQB from April 1997.
PBC@Buchanan	RCRA Sites and TCE Groundwater	201203	

IRP Schedule

Date of IRP Inception: 198309

Past Phase Completion Milestones

1984

SI (FTB-001 - DEH MOTOR POOL/SHOP BUILDING 556, FTB-002 - ANTILES SCHOOL SYS MOTOR POOL/SHOP, FTB-003 - AREAWIDE MILITARY SUPPORT ACTIVITY MP, FTB-006 - DIRECTORATE OF PERSONNEL AND CA AC SHOP, FTB-007 - PX SERVICE STATION, FTB-008 - WASH RACK BUILDING 538, FTB-012 - MEDDAC LAB BUILDING 518, FTB-013 - VET LAB, FTB-017 - PESTICIDE BURIAL N PR 28, FTB-027 - PHOTO LAB DPTSEC/TASC, FTB-028 - CONSTRUCTION LANDFILL)

RA(C) (FTB-007 - PX SERVICE STATION)

INV (FTB-019 - DEH UST BUILDING 556)

ISC (FTB-019 - DEH UST BUILDING 556)

PA (FTB-001 - DEH MOTOR POOL/SHOP BUILDING 556, FTB-002 - ANTILES SCHOOL SYS MOTOR POOL/SHOP, FTB-003 - AREAWIDE MILITARY SUPPORT ACTIVITY MP, FTB-006 - DIRECTORATE OF PERSONNEL AND CA AC SHOP, FTB-007 - PX SERVICE STATION, FTB-008 - WASH RACK BUILDING 538, FTB-012 - MEDDAC LAB BUILDING 518, FTB-013 - VET LAB, FTB-017 - PESTICIDE BURIAL N PR 28, FTB-027 - PHOTO LAB DPTSEC/TASC, FTB-028 - CONSTRUCTION LANDFILL)

CS (FTB-015 - BUILDING 556 PESTICIDE STORAGE, FTB-016 - BUILDING 539 PESTICIDE STORAGE)

RFA (FTB-015 - BUILDING 556 PESTICIDE STORAGE, FTB-016 - BUILDING 539 PESTICIDE STORAGE, PBC@Buchanan - RCRA Sites and TCE Groundwater, Site Wide Inv. - Site Wide Investigation)

1991

CMI(C) (FTB-016 - BUILDING 539 PESTICIDE STORAGE)

1994

RI/FS (FTB-017 - PESTICIDE BURIAL N PR 28)

1997

RFA (FTB-034 - TCE Groundwater Investigation)

CS (FTB-034 - TCE Groundwater Investigation)

1998

ISC (FTB029 - ABANDONEDUST BLDG 152)

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: 201304

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of IRP at Installation (including LTM phase): 202005

FORT BUCHANAN IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTB-034	TCE Groundwater Investigation	DES						
		CMI(C)						
		CMI(O)						

FORT BUCHANAN
Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 2/1

Installation Site Types with Future and/or Underway Phases

1 Firing Range
(FTB-001-R-01)

Most Widespread Contaminants of Concern

Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY
N/A				

Duration of MMRP

Date of MMRP Inception 200204

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201301/201301

Date of MMRP completion including Long Term Management (LTM): 204302

MMRP Contamination Assessment

Contamination Assessment Overview

One MMRP site, the Camp Buchanan training area, has been identified at Fort Buchanan. Fort Buchanan was listed as a Base Realignment and Closure (BRAC) site in 1995. At that time, an AEDB-R site was opened in response to the BRAC designation and an EBS was developed that identified several AOCs including this MMRP site, even though this site was outside the 1995 BRAC footprint. When Fort Buchanan was removed from the BRAC list in 1999 due to the relocation of the USARSO from Panama to Fort Buchanan, the AEDB-R site associated with BRAC AOCs was closed out and the site was listed prematurely as RC; a comprehensive MEC/MC investigation was never completed.

The site inspection (SI) was completed in FY08 and the RI/FS was initiated in FY09. RI fieldwork performed in FY10 did not encounter any additional MEC items. State Regulator PREQB requested to delineate the lead hits in soil and evaluate the groundwater for lead. This was completed in October 2011 and do not anticipate any further action. TPP meeting was conducted in November 2011.

An RI/FS Report is recommending implementation of LUCs. LUCs will be documented in a LUC plan and will involve implementation of physical and administrative measures to limit the access or use of the site. The preferred alternative will be discussed with the stakeholders as part of the review of this document and in preparation for selection of an alternative for presentation in the proposed plan.

Cleanup Exit Strategy

Based on the results of the RI/FS, the future phase will be long-term management. Remaining actions will include: yearly inspections to ensure that LUCs remain in place, any updates of the LUC plan, and five-year reviews.

MMRP Previous Studies

Year	Title	Author	Date
1997	Archive Search Report	USACE - St Louis District	OCT-1997
2003	Closed, Transferring, and Transferred Ranges/Sites Inventory, Fort Buchanan	Malcolm Pirnie, Inc.	APR-2003
2004	Final Property Eligibility Report, Fort Allen, Fort Buchanan, PR	TechLaw	NOV-2004
2007	Final Historical Records Review, Fort Buchanan, PR	URS	OCT-2007
2008	Final Site Inspection Work Plan, Fort Buchanan, PR	URS	APR-2008
	Final Site Inspection Report, Fort Buchanan, PR	URS	SEP-2008
2009	Project Management Plan Fort Buchanan Munitions Response Site Camp Buchanan Training Area San Juan, Puerto Rico	ECC	SEP-2009
	Draft Accident Prevention Plan Fort Buchanan, San Juan, Puerto Rico	ECC	SEP-2009
	Quality Assurance Surveillance Plan Environmental Remediation Services for the Fort Buchanan Munitions Response Site, Camp Buchanan Training Area Fort Buchanan, Puerto Rico	ECC	SEP-2009
	Explosive Site Plan Camp Buchanan Training Area (FTB-001-R-01) Fort Buchanan, Puerto Rico	ECC	SEP-2009
	FINAL PROJECT MANAGEMENT PLAN FORT BUCHANAN MUNITIONS RESPONSE SITE CAMP BUCHANAN TRAINING AREA SAN JUAN, PUERTO RICO	ECC	DEC-2009
2010	Final Explosive Site Plan Camp Buchanan Training Area (FTB-001-R-01) Fort Buchanan, Puerto Rico	ECC	JAN-2010
	DRAFT WORK PLAN FOR THE MUNITIONS RESPONSE REMEDIAL INVESTIGATION FORT BUCHANAN MUNITIONS RESPONSE SITE CAMP BUCHANAN TRAINING AREA SAN JUAN, PUERTO RICO	ECC	JAN-2010
	Explosive Site Plan Camp Buchanan Training Area (FTB-001-R-01) Fort Buchanan, Puerto Rico	Environmental Chemical Corp (ECC)	FEB-2010
	DRAFT WORK PLAN FOR THE MUNITIONS RESPONSE REMEDIAL INVESTIGATION FORT BUCHANAN MUNITIONS RESPONSE SITE CAMP BUCHANAN TRAINING AREA SAN JUAN, PUERTO RICO	ECC	MAR-2010
	Explosive Site Plan Camp Buchanan Training Area (FTB-001-R-01) Fort Buchanan, Puerto Rico Final	Environmental Chemical Corp. (ECC)	APR-2010
	Final Work Plan for the Munitions Response Remedial Investigation Fort Buchanan Munitions Response Site Camp Buchanan Training Area San Juan, Puerto Rico.	Environmental Chemical Coproration	JUN-2010
2011			

MMRP Previous Studies

2011

Title	Author	Date
Draft Munitions Response Remedial Investigation Fort Buchanan Munitions Response Site Camp Buchanan Training Area San Juan, Puerto Rico.	Environmental Chemical Corp (ECC)	MAR-2011
Draft Munitions Response remedial Investigation/Feasibility Study Report Fort Buchanan Munitions Response Site, Camp Buchanan Training Area, San Juan, Puerto Rico	Environmental Chemical Corporation	MAR-2011
Munitions Response Remedial Investigation Final Report (Rev.0) Fort Buchanan Munitions Response Site Camp Buchanan Training Area San Juan, Puerto Rico.	Environmental Chemical Corp (ECC)	OCT-2011

FORT BUCHANAN
Military Munitions Response Program
Site Descriptions

Site ID: FTB-001-R-01

Site Name: CAMP BUCHANAN TRAINING AREA

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 04

Contaminants of Concern: Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Soil

Phases	Start	End
PA.....	200204.....	200305
SI.....	200612.....	200809
RI/FS.....	200901.....	201210
RA(C).....	200901.....	201301
LTM.....	201302.....	204302

RIP Date: N/A

RC Date: 201301

SITE DESCRIPTION

Historical data indicate that Camp Buchanan training area was a 32-acre range used in the 1930s for small arms training. The range had multiple firing lines and a target butt oriented in front of the haystack hills that served as a buffer zone. By the 1940s, that type of training occurred elsewhere in Puerto Rico. The training area was destroyed during the expansion of the fort in the early-1940s. Later, in the 1950s, a golf course, a baseball field, and some buildings were built on the property once occupied by the training area. All of these facilities are in use today.

Fourteen MEC items in the form of discarded military munitions (DMM) (13 three-inch stoke mortars found buried in the subsurface at two locations in the baseball field and one M29 3.5-inch rocket was found lying on the surface on north side of installation fence located north of Maxi Willams Jr. Baseball Field.) at the site, but are not believed to be associated with firing or training. These materials may have been part of fill during construction, or may have been inadvertently discarded during the extremely hectic build-up for the Korean War. The final SI dated September 2008 recommended further investigation at the site for both MEC and MC.

The RI/FS process was initiated in FY10. Fieldwork for the RI was completed in October 2011 and did not encounter any MEC items. The RI at the Fort Buchanan training area munitions response site (MRS) consisted of a geophysical investigation and environmental sampling for MC. No MEC items were discovered as part of this investigation. Lead concentrations were not above human health risk screening criteria and not above ecological risk criteria and the RI/FS Report determined that there are no ecological or human health risks associated with lead found at the MRS. The RI/FS was submitted for regulatory review in Dec 2011 and recommends no further action (NFA) with LUCs. All actions through completion of the RI/FS and development of a LUC plan have been previously funded under the current PBA contract.

A proposed plan will be prepared to provide the opportunity for public comment on the proposed remedial alternative and a ROD is anticipated in October 2012.

CLEANUP/EXIT STRATEGY

Based on the results of the RI/FS, implementation of LUCs is anticipated and future actions will include development of a LUC plan, yearly inspections, any needed updates of the LUC plan, and five-year reviews.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTB-002-R-01	PUNTA SALINAS RIFLE RANGE	200701	Based on the Final HRR dated April 2008, this site was found to be FUDS eligible. All future actions will be handled under FUDS.

MMRP Schedule

Date of MMRP Inception 200204

Past Phase Completion Milestones

2003

PA (FTB-001-R-01 - CAMP BUCHANAN TRAINING AREA, FTB-002-R-01 - PUNTA SALINAS RIFLE RANGE)

2008

SI (FTB-001-R-01 - CAMP BUCHANAN TRAINING AREA)

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
FTB-001-R-01	CAMP BUCHANAN TRAINING AREA	Camp Buchanan Training Site FTB-001-R-01	20120716

Final RA(C) Completion Date: 201301

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of MMRP at Installation (including LTM phase): 204302

FORT BUCHANAN MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTB-001-R-01	CAMP BUCHANAN TRAINING AREA	RI/FS						
		RA(C)						
		LTM						

FORT BUCHANAN
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 9/1

Installation Site Types with Future and/or Underway Phases

- 1 Chemical Disposal
(CC FTB-037)
- 1 Landfill
(CC FTB-039)
- 1 Oil Water Separator
(CCFB04S003)
- 2 Spill Site Area
(CC FTB-036, CC FTB-038)
- 1 Storage Area
(CC FTB-035)
- 2 Underground Storage Tank
(CCFB04S007, CCFB07S001)

Most Widespread Contaminants of Concern

Metals, Pesticides, Petroleum, Oil and Lubricants (POL)

Media of Concern

Groundwater, Soil, Surface Water

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

Site ID	Site Name	Action	Remedy	FY
CCFB04S00 8	Building 746 UST Corrective Actions	FRA	REMOVAL	2008
CCFB07S00 1	UST Corrective Action Site 376	FRA	GROUND WATER TREATMENT	2011
CCFB04S00 3	Building 380 OWS	FRA	GROUND WATER TREATMENT	2012
CCFB04S00 3	Building 380 OWS	FRA	FREE PRODUCT RECOVERY	2012
CCFB04S00 7	Building 390 UST Corrective Actions	FRA	FREE PRODUCT RECOVERY	2012
CCFB04S00 7	Building 390 UST Corrective Actions	FRA	REMOVAL	2012
CCFB04S00 8	Building 746 UST Corrective Actions	FRA	WASTE REMOVAL - SOILS	2012

Duration of CR

Date of CR Inception: 199006

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201310/201310

Date of CR completion including Long Term Management (LTM): 202309

CR Contamination Assessment

Contamination Assessment Overview

Prior to FY10, the Compliance-related Cleanup (CC) environmental program was managed and funded by each installation. In FY10, the CR program was created by migrating former CC projects from the CC program into the restoration program that is managed under the USAEC and is centrally funded. The CR projects include environmental projects that generally occurred after 1986. These projects include soil and groundwater impacted with fuels from spills emanating from former underground storage tanks (USTs) and oil/water separators (OWS); or individual projects that developed as a result of the SWI that require a CMS.

CR sites include:

- Fuel impacted sites from former USTs at Buildings 376, 390, and 746;
- A petroleum, oil and lubricant (POL) site that includes Building 380;
- Individual sites from the SWI that will move forward in the cleanup process. These sites include former SWI No. 1 - (FTB-035) old hazardous waste container storage area, former SWI No. 7 (FTB-036 Building 541) and former SWI Site No. 13 (FTB-037) potential hazardous burial area.

Cleanup Exit Strategy

The investigations and RAs will develop toward a goal of NFA. Methods of remediation include in situ treatment using chemical oxidation (Perozone®) for POL contamination followed by monitoring for a specified number of years. In addition, source removal is proposed for isolated hot spots at Building 380, Building 390, FTB-035, FTB-036 and FTB-037.

CR Previous Studies

Year	Title	Author	Date
2008	Us Army Garrison Fort Buchanan Limited Source Removal Report for Area 746	Water & Air Research Inc.	OCT-2008
2009	US Army Garrison Fort Buchanan Supplemental Site Assessment Report for Area 376	Water & Air Research, Inc.	MAR-2009
	US Army Garrison Fort Buchanan Supplemental Site Assessment Report for Area 390	Water & Air Research Inc.	MAR-2009
	Health & Safety Plan Soil Clean up Activities at Army Garrison Fort Buchanan Building 390D Guaynabo, Puerto Rico	CR Environmental Inc. (CRE Inc)	OCT-2009
	Work Plan Soil Clean up Activities at Army Garrison Fort Buchanan Building 390D Guaynabo, Puerto Rico	CR Environmental Inc. (CRE Inc)	OCT-2009
2010	Work Plan Soil Clean up Activities at Army Garrison Fort Buchanan Building 390D Guaynabo, Puerto Rico	CR Environmental Inc. (CRE Inc.)	FEB-2010
	US Army Garrison Fort Buchanan April 2010 Supplemental Site Assessment Report for Area 376; Prepared for the United States Army Corp of Engineers Jacksonville CESAJ-CT Draft Version	Water & Air Research inc.	APR-2010
	US Army Garrison Fort Buchanan May 2010 Supplemental Site Assessment Report for Area 376; Prepared for the United States Army Corp of Engineers Jacksonville CESAJ-CT	Water & Air Research Inc.	MAY-2010
	US Army Garrison Fort Buchanan April 2010 Supplemental PilotTest Report for Area 390D; Prepared for the United States Army Corp of Engineers Jacksonville CESAJ-CT Draft Version	Water & Air Research Inc.	JUN-2010
	US Army Garrison Fort Buchanan Air Sparge/Soil Vapor Extraction Pilot Test Report for Area 390; Draft Version, August 2010.	Water & Air Research Inc.	AUG-2010
2011	Final Report Soil Cleanup Activities at the US Army Garrison Fort Buchanan Building 746 Guaynabo, Puerto Rico	CR Environmental Inc. (CRE Inc.)	FEB-2011
	Final Report Soil Cleanup Activities at the US Army Garrison Fort Buchanan Building 746 Guaynabo, Puerto Rico	CR Environmental Inc. (CRE Inc.)	MAR-2011
	DRAFT ACCIDENT PREVENTION PLAN (APP) CLEANUP COMPLIANCE at FORT BUCHANAN, Puerto Rico	AEROSTAR	MAY-2011
	DRAFT FIELD SAMPLING PLAN (FSP) CLEANUP COMPLIANCE at FORT BUCHANAN, Puerto Rico	AEROSTAR	MAY-2011
	DRAFT Quality Control PLAN (QCP) CLEANUP COMPLIANCE at FORT BUCHANAN, Puerto Rico	AEROSTAR	MAY-2011
	DRAFT WORK PLAN (WP) CLEANUP COMPLIANCE at FORT BUCHANAN, Puerto Rico	AEROSTAR	MAY-2011
	DRAFT SITE SAFETY & HEALTH PLAN (SSHP) CLEANUP COMPLIANCE at FORT BUCHANAN, Puerto Rico	AEROSTAR	MAY-2011

FORT BUCHANAN
Compliance Restoration
Site Descriptions

Site ID: CC FTB-035

Site Name: SWMU 1: Old Haz Waste Cont. Storage

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Metals, Pesticides

Media of Concern: Soil

Phases	Start	End
RFA.....	199101.....	199112
CS.....	199201.....	199212
RFI/CMS.....	200806.....	201304
CMI(C).....	201304.....	201308

RIP Date: N/A

RC Date: 201308

SITE DESCRIPTION

Fort Buchanan was notified in February 2005 by USEPA Region II to conduct an RFI, which included five SWMU and nine areas of potential concern. These sites were collectively combined and addressed in the SWI (RFI). Based on the Army's research and confirmed by USEPA there is no consent order issued for the site nor is there a RCRA permit. Clean up is being performed under a voluntary clean up agreement. The fieldwork for the SWI (RFI) was performed from 2006 to 2009. Of the 14 sites it appears that only sites CCFTB-035, 36, 37 and 39 will require additional action.

Site CCFTB-035 is associated with a 600 square feet (sq ft), concrete-floored building (Building 539) that stored various chemicals (e.g. acids, bases, solvents, and pesticides) from 1968 to 1977. Previous investigations indicated that pesticides were present in the soil around the building. Surface soil, subsurface soil, and groundwater data were evaluated as part of this RFI.

Based on RFI review comments from USEPA dated Dec. 17, 2010 there were concerns raised regarding what are the site background concentration levels for pesticides and metals. This issue is currently under review and completion of a final RFI is anticipated in FY12.

CLEANUP/EXIT STRATEGY

Anticipated cleanup includes contaminated soil removal and confirmation sampling.

Site ID: CC FTB-036
Site Name: Building 541

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Metals, Pesticides
Media of Concern: Soil

Phases	Start	End
RFA.....	199701.....	199712
RFI/CMS.....	200806.....	201304
CMI(C).....	201304.....	201308

RIP Date: N/A
RC Date: 201308

SITE DESCRIPTION

Fort Buchanan was notified in February 2005 by USEPA Region II to conduct an RFI, which included five SWMU and nine areas of potential concern. These sites were collectively combined and addressed in the SWI (RFI). Based on the Army's research and confirmed by USEPA there is no consent order issued for the site nor is there a RCRA permit. Clean up is being performed under a voluntary clean up agreement. The fieldwork for the SWI (RFI) was performed from 2006 to 2009. Of the 14 sites it appears that only sites CCFTB-035, 36 and 37 will require additional action.

Site CCFTB-036 is associated with Building 541 (referred to as Site No. 7 of the RFI SWI), that historically housed a hazardous material storage area. Reportedly the drainage system discharged directly to a 55 gallon capacity drum containment system located immediately north of the building. The area around the containment system is grass, relatively flat, and with no visible staining on the ground surface. In the RFI report, soil samples and groundwater samples were collected for the area around the containment. Analytical results indicated that elevated levels of mercury was detected in soil. The concentration for mercury (six mg/kg) in the subsurface soil sample was greater than the industrial human health criteria, and ten times the background concentrations. A duplicate sample was taken and results were 0.15 mg/kg) which is under the limit of 0.2 ppm). RFI determined that there were elevated levels of pesticides(dieldrin) and metals (vanadium).

Based on RFI review comments from USEPA dated Dec. 17, 2010 there were concerns raised regarding site background concentrations for pesticides and metals. This issue is currently under review and anticipate a completion of a final RFI in FY12.

CLEANUP/EXIT STRATEGY

Although risks are minimal, it is likely that regulators will require some minor removal action for soil due to metals and pesticides.

Site ID: CC FTB-037
Site Name: Potential Haz. Mat. Burial

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Metals, Pesticides
Media of Concern: Soil

Phases	Start	End
RFA.....	199701.....	199712
RFI/CMS.....	200806.....	201304
CMI(C).....	201304.....	201308
RIP Date:	N/A	
RC Date:	201308	

SITE DESCRIPTION

Fort Buchanan was notified in February 2005 by USEPA Region II to conduct an RFI, which included five SWMUs and nine areas of potential concern. These sites were collectively combined and addressed in the SWI (RFI). Based on the Army's research and confirmed by USEPA there is no consent order issued for the site nor is there a RCRA permit. Clean up is being performed under a voluntary clean up agreement. The fieldwork for the SWI (RFI) was performed from 2006 to 2009. Of the 14 sites it appears that only sites CCFTB-035, 36 and 37 will require additional action.

As a result of the RFI, Site FTB-037 (Site 13) refers to a potential hazardous material disposal area located south of former building S-18. It was reported that unused chemicals from the school may have been disposed in the wooded area at this location. Surface soil, subsurface soil, and groundwater data were evaluated as part of the RFI.

The RFI found that numerous metals were present in surface and subsurface soil at concentrations above screening levels. Concentrations of arsenic, chromium, and vanadium exceeded screening levels to the greatest extent; however, concentrations of these three metals were below background upper prediction levels (UPL).

Pentachlorophenol was found in multiple surface soil samples at concentrations above the ecological screening level, and organochlorine pesticides were found in surface soil at concentrations above the ecological screening levels. In addition, elevated concentrations of total petroleum hydrocarbons (TPH)-diesel range organics (DRO) were detected in surface and subsurface soil samples. No compounds were detected in groundwater.

Based on RFI review comments from USEPA dated Dec. 17, 2010 there were concerns raised regarding site background concentration levels for pesticides and metals. This issue is currently under review and anticipate a completion of a final RFI in FY12.

CLEANUP/EXIT STRATEGY

Although risks are minimal, it is likely that regulators will require some minor removal action for soil due to metals and pesticides.

Site ID: CC FTB-038

Site Name: Fuel impacted soil near Bldg. 517

STATUS

Regulatory Driver: RCRA

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

Media of Concern: Soil

Phases	Start	End
RFA.....	200808.....	201111
CS.....	200808.....	201111
RFI/CMS.....	201202.....	201308
CMI(C).....	201308.....	201310

RIP Date: N/A

RC Date: 201310

SITE DESCRIPTION

Soils contaminated with fuel were discovered while replacing a light pole within the Fort Buchanan In August 2008. The source of the fuel contamination has not been determined and there are no known USTs or aboveground storage tanks (AST) sites in the immediate vicinity. Light pole (No. LH021) is located between Building 501 occupied by the installation bank - Banco Popular; and Building 517 occupied by DOL. During the process to install the new light pole, the excavated soil had a petroleum odor. A grab soil sample was collected on Aug. 1, 2008 from the excavated soil and analyzed for TPH-DRO, gasoline range organics (GRO), and organic range organics (ORO) and TCLP pesticides (method 8081A); TCLP herbicides (method 8151A); TCLP VOC (method 8260B); TCLP semi volatiles (Method 8270). The soil sample results exceeded regulatory levels for TPH-DRO (225 ppm), TPH-ORO (260 ppm), TPH total (485 ppm); semi volatiles 1- Methylanthalene [(132 parts per billion (ppb)], 2- Methylanthalene (180 ppb) and Benz(a)anthracene (27 ppb). Due to regulatory exceedances for TPH, it was determined that additional investigation/delineation is required.

CLEANUP/EXIT STRATEGY

The RFI is expected to delineate contamination, and a subsequent soil removal action is anticipated. The site is assumed to be closed out by the PQEB UST Division and will require a final closure report and approval letter from PQEB UST Division.

Site ID: CC FTB-039
Site Name: Former rubble landfill

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Metals, Pesticides
Media of Concern: Groundwater

Phases	Start	End
RFA.....	199101.....	199112
CS.....	199201.....	199212
RFI/CMS.....	201202.....	201304
CMI(C).....	201304.....	201308
LTM.....	201309.....	202309

RIP Date: N/A
RC Date: 201308

SITE DESCRIPTION

Fort Buchanan was notified in February 2005 by USEPA Region II to conduct an RFI, which included five SWMUs and nine areas of potential concern. These sites were collectively combined and addressed in the SWI (RFI). Based on the Army's research and confirmed by USEPA there is no consent order issued for the site nor is there a RCRA permit. Clean up is being performed under a voluntary clean up agreement. The fieldwork for the SWI (RFI) was performed from 2006 to 2009. Of the 14 sites it appears that only sites CCFTB-035, 36, 37 and 39 will require additional action. Site CCFTB-039 is associated with a former rubble landfill.

Site No.12 is an inactive waste disposal area that is overgrown with vegetation (mostly trees). The old landfill is located adjacent and southwest to an elementary school; and is surrounded on the south, east and west by an area currently being protected for the Puerto Rican Boa (*Epicrates inornatus*). The area occupies approximately two acres. Currently, access to the disposal area is limited. The area is enclosed within a fence; just inside the fence is a swath of thick vegetation and a steep ravine with bedrock outcrops. Because access to the landfill area is limited and because the debris observed on the land surface was just construction rubble, the potential for physical dangers to humans associated with the site are considered limited.

Surface soil, sediment, surface water, and groundwater data were evaluated for Site No. 12 as part of this RFI. The nature and extent evaluation found that numerous metals were present in soil at concentrations above screening levels, although concentrations arsenic, chromium, and vanadium exceeded screening levels to the greatest extent; all metals concentrations were found to be below background UPLs. Fort Buchanan has collected additional soil samples at background locations to evaluate background levels for metals and pesticides in order to establish an updated human health risk and ecological risk analysis.

Based on RFI review comments from USEPA pore water samples were collected downgradient of the landfill and analyzed for pesticides and metals detections. Metal concentrations are elevated. This issue is currently under review and anticipate a completion of a final RFI in FY12. It is anticipated that corrective measures implementation - construction [CMI (C)] will include administrative LUCs and extend fence line and LTM will be requested from the agency.

CLEANUP/EXIT STRATEGY

Conduct groundwater monitoring for 10 years followed by LUCs.

Site ID: CCFB04S003

Site Name: Building 380 OWS

STATUS

Regulatory Driver: RCRA

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

Media of Concern: Soil, Surface Water

Phases	Start	End
ISC.....	199006.....	199106
INV.....	200601.....	200609
CAP.....	200609.....	200709
DES.....	200709.....	200809
IMP(C).....	201105.....	201202
IMP(O).....	201203.....	201308

RIP Date: 201203

RC Date: 201308

SITE DESCRIPTION

Area 380/381 (gasoline station):

Building 380 was constructed in 1947, and served as a motor pool dispensing POLs for military tactical vehicles. The site contained two washracks, a below grade OWS and two 5000 gallon USTs. In 1991, the USTs were replaced with two 10,000 gallon USTs. In November 2003, free-product was observed in a nearby storm drain drop inlet where an abandoned concrete pipeline was located. The pipeline originated from the backside of Building 380 where the old OWS was believed to be located. The OWS used to be connected to the storm drain but a new OWS was installed and is connected to the sewer system. Site investigations were conducted and identified petroleum hydrocarbon and metal impacted soil and groundwater at the site. During subsequent investigations, free-product was measured in MW-14 and a trace was noted in MW-5. During 2008, remedial activities were initiated and consisted of a free-product recovery system. The system was removed because was not operating correctly. In 2009 the Army decided to use the site for refueling government operated vehicles. In 2010, Building 380 was demolished, but the pump dispensers were checked and made operational. The two USTs, OWS and the underground hydraulic components of the washrack lift remained. Free-product was discovered during the installation for security fence in the vicinity of the service station (Building 380).

In FY11 USACE Jacksonville District provided technical oversight for remedial efforts. These efforts included conduct a baseline groundwater sampling; delineate free-product plume and set up a collection system; remove the existing OWS; investigate and remove any UST used to operate the hydraulic lift bays; install a chemical oxidation remediation system.

Baseline groundwater samples were collected in May 2011. Groundwater sample results indicated that concentrations of TPH were below regulatory limits but levels in benzene and naphthalene exceeded. Ten 10-inches of free-product was measured in MW-14. A new free-product recovery well consisting of a 4-inch dia. PVC pipe x five feet deep with two 10 feet long laterals replaced the existing MW-14. Sixty cubic yards of fuel impacted soil was removed, characterized and disposed as non hazardous waste. Fifteen gallons of oxygen releasing compound (ORC) was added to the backfill to enhance the micro- bacterial remediation of the fuel impacted soils. The reconstruction around MW-14 was finished with a new recovery well.

The OWS was removed. In addition, ground penetrating radar (GPR) was used over the hydraulic powered lift bays looking for two UST. Anomalies identified at the site were excavated but no tanks were found. The tanks are believed to have been removed during the demolition activities of Building 380.

In FY12 the USACE recommended in situ treatment (chemical oxidation Perozone ®) for POL contamination.

CLEANUP/EXIT STRATEGY

In situ treatment will start in 2012 and will continue for an estimated six months followed by monitoring and an additional injection if needed.

Site Name: Building 390 UST Corrective Actions

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Petroleum, Oil and Lubricants (POL)
Media of Concern: Groundwater, Soil

Table with 3 columns: Phases, Start, End. Rows include ISC, INV, CAP, DES, IMP(C), IMP(O), RIP Date, and RC Date.

SITE DESCRIPTION

Historically, this site was used as a soldier's barracks with a food preparation facility. At present it is the headquarters to the USAG. The site has two areas of contamination: Area 390 the area of a former UST containing diesel fuel for an emergency generator; and 390D the area of free-product and a suspected 125 gallon capacity UST used for cooking or heating oil.

During the 2009 site investigation at Building 390 a second area of petroleum impacted soil and groundwater was found under the Commander's parking space, between Building 390 and the air conditioner compressor units.

During backfilling of the excavation, an oxygen enhancing agent (calcium peroxide) was introduced to enhance bioremediation. In FY10 the free-product level was measured at approximately .02 of a foot. An air sparging (AS)/soil vapor extraction (SVE) pilot test was conducted in May 2010.

The USACE recommended that a remediation system not be installed since TPH values were below regulatory limits. The USACE recommended to excavate the limited area where free-product was delineated around PT-7 and install a new recovery well consisting of a four inch diameter.

CLEANUP/EXIT STRATEGY

Monitor quarterly and free-product pump out every two months through August 2013.

Site ID: CCFB07S001
Site Name: UST Corrective Action Site 376

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Petroleum, Oil and Lubricants (POL)
Media of Concern: Groundwater

Phases	Start	End
ISC.....	199601.....	199701
INV.....	200712.....	201007
CAP.....	201010.....	201103
DES.....	201103.....	201104
IMP(C).....	201105.....	201108
IMP(O).....	201108.....	201308
RIP Date:	201108	
RC Date:	201308	

SITE DESCRIPTION

This site is located within Communication Center (Building 376) across the street from CC site Building 380 [Army, Air Force Exchange Services (AAFES) Gas Station]. In the late-1990s a UST diesel tank for an electrical generator was removed. During the removal an unknown UST tank containing gasoline was discovered. This additional tank did not have any connecting distribution piping. The PREQB requested a site investigation to determine the presence of petroleum in groundwater and/or the soil beneath the excavation area. A work plan was submitted to PREQB for soil and groundwater for TPH-DRO and BTEX in FY08.

The Army initiated a phase approach. Initially, 14 wells were installed around the former diesel tank and former gasoline tank area. Based on the findings of trace amounts of gasoline components in groundwater, six additional wells were installed to delineate the area. Subsequent soil and groundwater investigations completed in FY10 delineated two separate and relatively localized areas of petroleum impacted soil and groundwater which persisted at the east and west sides of Building 379. These areas were in the vicinity of the former gasoline and diesel USTs, respectively. Due to numerous underground utilities, source removal was not feasible.

Remediation was initiated in In FY11 using in situ chemical oxidation. Chemical oxidation system was operated for six months starting August 2011 until January 2012. Following chemical oxidation treatment of groundwater, contaminant levels were below the state's standard of 5000 ppb for TPH. In order to close out the site, confirmation groundwater monitoring will be conducted for one year.

CLEANUP/EXIT STRATEGY

Semiannual groundwater sampling will be conducted; closure is assumed for 2013.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CCFB04S008	Building 746 UST Corrective Actions	201112	NFA letter from PREQB dated 18 Jan 2012.

CR Schedule

Date of CR Inception: 199006

Past Phase Completion Milestones

1991

ISC (CCFB04S003 - Building 380 OWS)

1992

RFA (CC FTB-035 - SWMU 1: Old Haz Waste Cont. Storage, CC FTB-039 - Former rubble landfill)

1993

CS (CC FTB-035 - SWMU 1: Old Haz Waste Cont. Storage, CC FTB-039 - Former rubble landfill)

1997

ISC (CCFB04S007 - Building 390 UST Corrective Actions, CCFB04S008 - Building 746 UST Corrective Actions, CCFB07S001 - UST Corrective Action Site 376)

1998

RFA (CC FTB-036 - Building 541, CC FTB-037 - Potential Haz. Mat. Burial)

2006

INV (CCFB04S003 - Building 380 OWS)

2007

CAP (CCFB04S003 - Building 380 OWS)

INV (CCFB04S008 - Building 746 UST Corrective Actions)

2008

DES (CCFB04S003 - Building 380 OWS)

INV (CCFB04S007 - Building 390 UST Corrective Actions)

2009

DES (CCFB04S008 - Building 746 UST Corrective Actions)

CAP (CCFB04S008 - Building 746 UST Corrective Actions)

2010

INV (CCFB07S001 - UST Corrective Action Site 376)

2011

IMP(C) (CCFB07S001 - UST Corrective Action Site 376)

CAP (CCFB04S007 - Building 390 UST Corrective Actions, CCFB07S001 - UST Corrective Action Site 376)

DES (CCFB04S007 - Building 390 UST Corrective Actions, CCFB07S001 - UST Corrective Action Site 376)

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: 201310

Schedule for Next Five-Year Review: 2017

Estimated Completion Date of CR at Installation (including LTM phase): 202309

FORT BUCHANAN CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FTB-035	SWMU 1: Old Haz Waste Cont. Storage	RFI/CMS						
		CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FTB-036	Building 541	RFI/CMS						
		CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FTB-037	Potential Haz. Mat. Burial	RFI/CMS						
		CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FTB-038	Fuel impacted soil near Bldg. 517	RFI/CMS						
		CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FTB-039	Former rubble landfill	RFI/CMS						
		CMI(C)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CCFB04S003	Building 380 OWS	IMP(O)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CCFB04S007	Building 390 UST Corrective Actions	IMP(O)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CCFB07S001	UST Corrective Action Site 376	IMP(O)						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): TBD

Restoration Advisory Board (RAB): No

Reason Not Established: The community has expressed no sufficient, sustained interest in a RAB.

Community Interest Solicited on: 201104

Efforts Taken to Determine Interest

Community interest in a RAB was solicited in 1997 when the installation was almost placed in a BRAC round. In March 2009 and April 2011, Fort Buchanan re-solicited community interest in a RAB as part of the ongoing investigations.

During the Earth Day Celebration on April 30, 2010 and again in April 2011 a RAB sign-up sheet and an information request sheet were placed at the restoration booth. There were no signatures either time.

Results

In March 2009, only two representing participants showed up for the RAB meeting (PREQB and a CAPECO Representatives). Based on solicitation results, interest was determined to be insufficient. In April 2011, again there were two representatives from the community with personal interest. Neither wanted to cochair the RAB. It was determined that there was insufficient interest. Letters were sent to the community representatives indicating to them that they will be informed of the status of restoration projects.

Follow-up Procedures

Public interest will again be solicited as part of the MMRP RI/FS process.

Additional Community Involvement Information

None

Administrative Record is located at

DPW-BLDG.81, Room 18
Miles Loop Rd
Fort Buchanan, PR 00934
787-707-3575/3573

Information Repository is located at

Carnegie Library #7, 2nd fl.
Ave De Constitution Ave.
San Juan, PR 00901
787-722-4734

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

TAPP Title: N/A

Potential TAPP: N/A

