

FY2015

PUEBLO CHEMICAL DEPOT
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 the active sites at the installation. The plan identifies environmental cleanup requirements at each site and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RAs).

The IAP was completed to coordinate planning information between the Environmental Restoration Manager, the US Army Environmental Command (USAEC), the Pueblo Chemical Depot (PCD), the regulatory agencies, executing agencies, and the public. The IAP is used to track requirements, schedules, and tentative budgets for all Army installation cleanup programs.

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

Acronyms

AEDB-R	Army Environmental Database-Restoration
AMC	Army Materiel Command
BRAC	Base Realignment and Closure
CDPHE	Colorado Department of Health and Environment
CMS	Corrective Measures Study
CWM	Chemical Weapons Munitions
DD	Decision Document
FRA	Final Remedial Action
FY	Fiscal Year
HE	High Explosive
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LTM	Long-Term Management
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MR	Munitions Response
NFA	No Further Action
NPL	National Priorities List
PCD	Pueblo Chemical Depot
ppm	parts per million
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
SVOC	Semi-volatile Organic Compound
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TRC	Technical Review Committee
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USEPA	US Environmental Protection Agency
WMW	Wilcoxon-Mann-Whitney

Installation Information

Installation Locale

Installation Size (Acreage): 22847.5

City: Avondale

County: Pueblo

State: Colorado

Other Locale Information

The PCD is located in southeastern Colorado, north of the Arkansas River in Pueblo County. PCD encompasses almost 23,000 acres of rolling prairie lands and includes a variety of buildings and other structures, as well as open and undeveloped areas. PCD is surrounded by ranch and farming land.

Installation Mission

The PCD mission is to safely secure, store, and monitor the chemical stockpile while protecting the workforce, the public, and the environment; prepare for and support stockpile elimination; and transition the depot and the workforce for closure.

Lead Organization

Army Materiel Command (AMC)

Lead Executing Agencies for Installation

US Army Corps of Engineers (USACE), Omaha District

Regulator Participation

Federal	United States Environmental Protection Agency (USEPA), Region VIII, Federal Facilities Branch
State	Colorado Department of Public Health and Environment (CDPHE)
Local	Pueblo City-County Health Department

National Priorities List (NPL) Status

PUEBLO CHEMICAL DEPOT is not on the NPL

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

RAB established 199410

Installation Program Summaries

MMRP

Primary Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Explosives, Metals, Munitions and explosives of concern (MEC), Semi-volatiles (SVOC)

Affected Media of Concern: Soil

5-Year / Periodic Review Summary

No 5-Year / Periodic Reviews have been scheduled

Cleanup Program Summary

Installation Historic Activity

PCD was established in 1942 to provide service and supplies in support of World War II. The first chemical weapons were received and stored in 1952. Additional missions have included handling major combat systems - tanks and wheels, Army bridging, raw rubber, manganese, Army missile systems and guidance systems, and Pershing Missile destruction under the Intermediate-Range Nuclear Forces Treaty.

The highest civilian strength of 8,000 employees occurred in the mid-1950s. The Base Realignment and Closure (BRAC) 1988 realignment dispersed most missions, with the sole remaining mission consisting of safely storing chemical weapons awaiting final destruction.

Installation Program Cleanup Progress

MMRP

Prior Year Progress: Sites in BRAC IAP:

RCRA facility investigations (RFI) and CMS for PUADA-001-R-01, 002-R-01, 004-R-01, 005-R-01, 006-R-01, 007-R-01, 008-R-01, and 011-R-01 (SWMU 2, 3, 5, 6, 7, 8, 12, 34) continued. Started work plans for MEC removal at PUADA-011-R-01 and 013-R-01 (SWMUs 34 and 45) started. A new PBA scheduled in FY15 for cleanup at all sites except the CWM site, pending receipt of funding.

Sites in IRP IAP:

RFI and CMS for PUADA-003-R-01 and RFI for 009-R-01 (SWMUs 4 and 13) continued.

Future Plan of Action: Sites in BRAC IAP:

The RFI for PUADA-001 (SWMU 1 - currently operating open burn/open detonation compliance site) will be completed. Work plans for PUADA-001, 001-R-01, 004-R-01, 005-R-01, 006-R-01, 007-R-01, 008-R-01, and 011-R-01 (SWMUs 1, 2, 4, 5, 6, 7, 8, 12, 13, 34) will be completed.

Sites in IRP IAP:

The work plan for PUADA-003-R-01 (SWMU 4) will be completed. A CMS for PUADA-009-R-01 (SWMU 13) will be completed.

PUEBLO CHEMICAL DEPOT
Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 2/0

Installation Site Types with Future and/or Underway Phases

- 1 Disposal Pit/Dry Well
(PUADA-009-R-01)
- 1 Open Burn
(PUADA-003-R-01)

Most Widespread Contaminants of Concern

Chemical weapon munitions (CWM)/Chemical agent, Explosives, Metals, Munitions and explosives of concern (MEC), Semi-volatiles (SVOC)

Media of Concern

Soil

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

Site ID	Site Name	Action	Remedy	FY
PUADA-009-R-01	EAST CHEMICAL BURIAL GROUND	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1997

Duration of MMRP

Date of MMRP Inception 198802

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201910/201910

Date of MMRP completion including Long Term Management (LTM): 204909

MMRP Contamination Assessment

Contamination Assessment Overview

MEC is listed in the PCD Resource Conservation and Recovery Act (RCRA) permit as a contaminant and carries the same weight as any other contaminant. PCD has two munitions response (MR) sites (PUADA-003-R-01 and PUADA-009-R-01) in the IRP program and 12 MR sites in the BRAC program.

PUADA-003-R-01 [Solid Waste Management Unit (SWMU) 4] has had MEC surface clearance and minimal MEC subsurface clearance. Additional clearance and soil removal are planned. A new PBA is scheduled for award in late fiscal year (FY) 15 to address cleanup at PUADA-003-R-01.

PUADA-009-R-01 (SWMU 13) is a CWM burial site. Another CWM site, PUADA-08-R-01 (SWMU 12) is carried under the BRAC program. Additional investigation work and a cap with long-term monitoring are planned for PUADA-009-R-01.

Cleanup Exit Strategy

The PCD Military Munitions Response Program (MMRP) exit strategy consists of the following points:

- Address the MR site cleanup as a single, coordinated effort to optimize economies of scale.
- Initiate non-intrusive investigations at the two CWM sites (PUADA-008-R-01 and PUADA-009-R-01) and proceed with landfill caps followed by long-term monitoring as funding allows. PUADA-008-R-01 is a BRAC site.

MMRP Previous Studies

Title

Author

Date

There are no Previous Studies

PUEBLO CHEMICAL DEPOT
Military Munitions Response Program
Site Descriptions

Site ID: PUADA-003-R-01

Site Name: EAST BURN AREA 1

STATUS

Regulatory Driver: RCRA

MRSPP Score: 04

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern (MEC), Semi-volatiles (SVOC)

Media of Concern: Soil

Phases	Start	End
RFA.....	198802.....	198808
CS.....	198812.....	199410
RFI/CMS.....	198812.....	201510
DES.....	201501.....	201610
CMI(C).....	201511.....	201910

RIP Date: N/A

RC Date: 201910

SITE DESCRIPTION

The East Burn Area No. 1 (SWMU 4) is located in the east-central portion of PCD within the eastern wildlife management reuse area and is approximately 455 acres. SWMU 4 lies within a larger area known as the East Burn Area, comprising approximately 1,000 acres and encompassing SWMUs 32 and 33. These three SWMUs have often been investigated as one area. The East Burn Area No. 1 was used for demilitarization activities from 1946 to 1953. Aerial photographs depict several overlapping burn sites, including scattered trenches within SWMU 4.

Metallic scrap, small-caliber munitions jackets, and other items such as wooden boxes were visible at the East Burn Area during site visits in the 1980s. Media of concern at the East Burn Area No. 1 are soil, surface water, and groundwater. The SWMU 4 RFI was submitted to CDPHE in October 1994. A supplemental RFI work plan was approved by CDPHE in 2014 and fieldwork has been completed. The supplemental RFI was submitted in late 2014.

The primary hazardous soil contaminants are SVOCs, metals and explosives. Historical high concentrations detected in the soil include 2,4,6- Trinitrotoluene at 6,600 parts per million (ppm), antimony at 11,100 ppm, and lead at 166,000 ppm. Contamination was identified in three main areas: the burn piles/trenches, the soil mounds, and the area near the surveillance test range (SWMU 32). A magnetometer survey was performed.

A Huntsville USACE contractor performed one-foot MEC clearance at this site in the late-1990s. However, the work was not properly verified and the clearance depth is now determined to be insufficient.

The cleanup responsibility for this site transferred to the Army active program as of Oct. 1, 2014.

MEC/MC issues include:

- high explosive (HE) bombs,
- HE mortars,
- live ground rockets and rifle grenades,
- detonators,
- blasting caps, fuses, boosters, or bursters,
- expended small arms,
- primary or initiating explosives (lead styphnate, lead azide, nitroglycerin, mercury azide, mercury fulminate, tetracene, etc.)
- military dynamite, and
- solid and liquid propellants.

CLEANUP/EXIT STRATEGY

Cleanup will include a corrective measures study (CMS), excavation with off-site disposal of 9,176 cubic yards of soil, and 456 acres of MEC clearance to a depth of two feet. A total of 95 confirmation samples are assumed for excavation and 271

Site ID: PUADA-003-R-01
Site Name: EAST BURN AREA 1

confirmation samples are assumed for MEC clearance. MEC clearance costs for SWMU 32 (PUADA-081) are included with this site.

Site ID: PUADA-009-R-01
Site Name: EAST CHEMICAL BURIAL GROUND

STATUS

Regulatory Driver: RCRA

MRSPP Score: 04

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals, Munitions and explosives of concern (MEC)

Media of Concern: Soil

Phases	Start	End
RFA.....	198802.....	198808
CS.....	199410.....	199709
RFI/CMS.....	199412.....	201909
DES.....	201709.....	201909
IRA.....	199705.....	199709
CMI(C).....	201809.....	201909
LTM.....	201909.....	204909

RIP Date: N/A

RC Date: 201909

SITE DESCRIPTION

The East Chemical Burial Ground (SWMU 13) is located a half mile north of SWMU 4. The fenced area occupies approximately 3/4 acre. This site was used from 1942 to 1946 to destroy about 100 M-70 bombs. The bombs were both thermally and chemically destroyed in a pit lined with bleach, dunnage, and fuel. The pits were backfilled, the area was fenced, and warning signs were posted.

A surface geophysical survey was conducted in 1994 within the fenced SWMU boundary. The electromagnetic survey detected distinct magnetic anomalies in the central and northeastern portions of the chemical burial ground. Two corresponding topographic depressions appear to lie within the SWMU boundaries. An electromagnetic survey was conducted prior to RFI activities to evaluate the locations of buried materials so that intrusive soil sampling and well installations could be placed strategically.

The RFI did not include samples from the burn pits. The data collected from around the pits indicate that no mustard or mustard degradation products were detected. Chromium was detected in soils at concentrations exceeding background and the hexavalent chromium Wilcoxon, Mann, Whitney (WMW) risk-based screening level. Bis(2-ethylhexyl)phthalate and indeno(1,2,3-cd)pyrene were detected in samples collected from one groundwater monitoring well at concentrations above their respective health-based Colorado Groundwater Quality Standards.

The draft final RFI report was submitted to CDPHE in 1997. Funding for a supplemental RFI was awarded in FY12.

The cleanup responsibility for this site transferred to the Army active program as of Oct. 1, 2014.

CLEANUP/EXIT STRATEGY

Cleanup will include a CMS, design and construction of a 42-inch thick, one-acre geosynthetic cap, and construction of a security fence around one acre. Annual cap maintenance and MEC monitoring (every five years) will follow for 30 years.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
There are no NFA sites			

MMRP Schedule

Date of MMRP Inception 198802

Past Phase Completion Milestones

1988

RFA (PUADA-003-R-01 - EAST BURN AREA 1, PUADA-009-R-01 - EAST CHEMICAL BURIAL GROUND)

1995

CS (PUADA-003-R-01 - EAST BURN AREA 1)

1997

IRA (PUADA-009-R-01 - EAST CHEMICAL BURIAL GROUND)

CS (PUADA-009-R-01 - EAST CHEMICAL BURIAL GROUND)

Projected Phase Completion Milestones

See attached schedule

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

Site ID	Site Name	ROD/DD Title	ROD/DD Date
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Final RA(C) Completion Date: 201910

Schedule for Next Five-Year Review: N/A

Estimated Completion Date of MMRP at Installation (including LTM phase): 204909

PUEBLO CHEMICAL DEPOT MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
PUADA-003-R-01	EAST BURN AREA 1	RFI/CMS						
		DES						
		CMI(C)						
SITE ID	SITE NAME	PHASE	FY16	FY17	FY18	FY19	FY20	FY21+
PUADA-009-R-01	EAST CHEMICAL BURIAL GROUND	RFI/CMS						
		DES						
		CMI(C)						
		LTM						

Community Involvement

Technical Review Committee (TRC): 199309

Community Involvement Plan (Date Published): 200103

Restoration Advisory Board (RAB): RAB established 199410

RAB Adjournment Date: N/A

RAB Adjournment Reason: None

Additional Community Involvement Information

The RAB meets semiannually and consists of government, community, and regulatory members.

Administrative Record is located at

Pueblo Chemical Depot
Environmental Management Office
45825 Highway 96 East, Building 54
Pueblo, CO 81006

Information Repository is located at

Robert Hoag Rawlings Public Library
100 East Abriendo
Pueblo, CO 81004

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

TAPP Title: N/A

Potential TAPP: N/A

