

FY2012

PINE BLUFF ARSENAL

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), Pine Bluff Arsenal (PBA), 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

ADEQ	Arkansas Department of Environmental Quality
AEDB-R	Army Environmental Data Base - Restoration
AOC	Area of Concern
AR	Arkansas
ARK-LA	Arkansas - Louisiana
BZ	Benzilate
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CMI(C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operation)
CMS	Corrective Measures Study
CS	Confirmatory Sampling
CWM	Chemical Weapon Munitions
DD	Decision Document
DDT	Dichlorodiphenyltrichloroethane
DES	Design
ER,A	Environmental Restoration, Army
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
HC	Hexachloroethane
HDPE	High Density Polyethylene
IAP	Installation Action Plan
ID	Identification
IM	Interim Measure
IMCOM	US Army Installation Management Command
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
LTM	Long-Term Management
MC	Munitions Constituent
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MRSPP	Munitions Response Site Prioritization Protocol
N/A	Not Applicable
NCTR	National Center for Toxicological Research
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
PA	Preliminary Assessment
PBA	Pine Bluff Arsenal
QA	Quality Assurance
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)

Acronyms

RAB	Restoration Advisory Board
RADD	Remedial Action Decision Document
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TOX	Total Organic Halides
TRC	Technical Review Committee
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAEHA	US Army Environmental Hygiene Agency
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound

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)

Site Alias List

AEDB-R Site ID to Alias List

AEDB-R #	Alias
PBA-001-R-01	Site 62
PBA-002-R-01	Site 63
PBA-04	SWMU 25
PBA-07A	SWMU 22
PBA-07B	SWMU 19
PBA-07C	SWMU 21
PBA-07D	SWMU 20
PBA-08	SWMU 74
PBA-11	SWMU 29
PBA-20A	SWMU 53
PBA-23A	SWMU 62
PBA-24	SWMU 63
PBA-27	SWMU 65
PBA-29	SWMU 27
PBA-41	SWMU 1
PBA-44	SWMU 12

Installation Information

Installation Locale

Installation Size (Acreage): 13500

City:

County: Jefferson

State: Arkansas (AR)

Other Locale Information

PBA occupies approximately 13,500 acres in Jefferson County, Arkansas, approximately eight miles northwest of Pine Bluff and 30 miles southeast of Little Rock, the state capitol.

Installation Mission

PBA is an element of the US Army Joint Munitions Command. PBA satisfies the Department of Defense's peacetime and replenishment requirements by providing the US and Allied forces with critical products and services that are primarily unavailable from other sources. PBA's core primary missions include: conventional ammunition, chemical biological defense, engineering and technical support, mobile and powered system support and base operations support to numerous tenant activities. Also a conventional depot, PBA has 1.3 million square feet of storage capacity with over 75,000 tons of inventory. PBA also provides specialized training and logistical support for the Department of Homeland Security.

Lead Organization

Army Materiel Command (AMC)

Lead Executing Agencies for Installation

PBA (Long-Term Management [LTM])

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Region VI, Site Assessment and Federal Facilities Section, Dallas, TX
State	Arkansas Department of Environmental Quality (ADEQ)

National Priorities List (NPL) Status

PINE BLUFF ARSENAL 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: Chemical weapon munitions (CWM)/Chemical agent, Metals, Munitions constituents (MC), Pesticides, Semi-volatiles (SVOC), Volatiles (VOC)

Affected Media of Concern: Groundwater, Sediment, Soil, Surface Water

MMRP

Primary Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals

Affected Media of Concern: Groundwater, Sediment, Soil, Surface Water

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	200705	200903	2009
Planned	201310	201409	2014

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
Corrective Measure Study	PBA-04, PBA-07A, PBA-07B, PBA-07C, PBA-07D, PBA-08, PBA-11, PBA-11A, PBA-11B, PBA-11C, PBA-11D, PBA-11E, PBA-11F, PBA-20A, PBA-23A, PBA-24, PBA-27, PBA-29, PBA-41, PBA-44

Results This is the first Five-Year Review for PBA and shows all of the analytical results from the last five years.

Actions There will be no general changes to the monitoring plan. At the regulators request during the latest CMS revision PBA will be making some minor changes to the ecological monitoring plan. Some additional parameters will be added to specific sites.

Plans The future plan is to continue to monitor until the next Five-Year Review, scheduled for FY13.

Recommendations and Implementation Plans:

N/A

Cleanup Program Summary

Installation Historic Activity

The War Department established PBA in 1941 for the manufacture, loading and assembly of incendiary and chemical munitions. Facilities were placed in active operation in 1942. Storage magazines, laboratories and associated administrative and support facilities were also constructed. During the ensuing two decades, chemical synthesis on the reservation produced chemicals such as chlorine, mustard, lewisite and biologically active products. Formulations mixed or filled include incendiary bombs, white phosphorous, tear gas (chlorobenzylidenemalononitrile, 2 chlorobenzalmalonitrile), smoke materials and benzilate (BZ) incapacitating agent.

Surplus facilities were leased to a contractor in the 1950s for the synthesis of chlorine, caustics, dichloro-diphenyl-trichloroethane (DDT) and chlorobenzene. Biological demilitarization was completed in 1972 and the associated portion of the facility transferred to the Food and Drug Administration for the National Center for Toxicological Research (NCTR). PBA currently manufactures smoke, riot control, incendiary and pyrotechnic agents and munitions, as well as operating a protective mask rework facility, a storage depot and other facilities.

PBA is a leader in environmental restoration activities, having made the decision to initiate programs to correct past operations of the arsenal well before regulation or law required such efforts. The US Army Environmental Hygiene Agency (USAEHA) placed 15 monitoring wells near suspected groundwater contamination in 1966. Numerous other studies and remedial actions followed through ensuing decades.

PBA submitted a final corrective measures study (CMS) to ADEQ in November 2008. The CMS was approved in January 2009. A remedial action decision document (RADD) was completed and issued by ADEQ in August 2009. The CMS included a LTM plan that is being implemented with ADEQ approval and issuance of the RADD and Resource Conservation and Recovery Act (RCRA) permit modification.

Installation Program Cleanup Progress

IRP

Prior Year Progress: All assessments were completed and submitted to appropriate regulatory agencies.

Future Plan of Action: LTM will continue at all sites. Completion of required annual assessments will continue.

MMRP

Prior Year Progress: Huntsville District Corps of Engineers has acquired a contract and the RI/FS phase is in progress.

Future Plan of Action: Completion of the RI/FS phase and funding and completion of LUCs for the IRA and RA phases. LTM is scheduled to begin in FY15.

PINE BLUFF ARSENAL
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 74/60

Installation Site Types with Future and/or Underway Phases

5	Burn Area (PBA-04, PBA-07C, PBA-08, PBA-20A, PBA-23A)
1	Contaminated Buildings (PBA-11)
1	Landfill (PBA-41)
1	Storage Area (PBA-07A)
3	Surface Disposal Area (PBA-07B, PBA-24, PBA-29)
3	Surface Impoundment/Lagoon (PBA-07D, PBA-27, PBA-44)

Most Widespread Contaminants of Concern

Chemical weapon munitions (CWM)/Chemical agent, Metals, Munitions constituents (MC), Pesticides, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern

Groundwater, Sediment, Soil, Surface Water

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

Site ID	Site Name	Action	Remedy	FY
PBA-15	CLOSED SANI & DDT LANDFILL (SWMU 32)	FRA	CAPPING	1975
PBA-15	CLOSED SANI & DDT LANDFILL (SWMU 32)	FRA	DRAINAGE CONTROLS	1975
PBA-11A	DDT SEDIMENT RETENTION BASIN1(SWMU 18)	IRA	WASTE REMOVAL - SOILS	1978
PBA-11B	DDT SEDIMENT RETENTION BASIN2(SWMU 18)	IRA	WASTE REMOVAL - SOILS	1978
PBA-11C	DDT SEDIMENT RETENTION BASIN3(SWMU 18)	IRA	WASTE REMOVAL - SOILS	1978
PBA-18	CLOSED SANITARY LANDFILL (SWMU 54)	IRA	CAPPING	1980
PBA-11A	DDT SEDIMENT RETENTION BASIN1(SWMU 18)	FRA	DRAINAGE CONTROLS	1985
PBA-11B	DDT SEDIMENT RETENTION BASIN2(SWMU 18)	FRA	DRAINAGE CONTROLS	1985
PBA-11C	DDT SEDIMENT RETENTION BASIN3(SWMU 18)	FRA	DRAINAGE CONTROLS	1985
PBA-27	AGENT BZ POND (SWMU 65)	FRA	CAPPING	1987
PBA-27	AGENT BZ POND (SWMU 65)	FRA	WASTE REMOVAL - SOILS	1987
PBA-02	WEBSTER ROAD TEST SITE (SWMU 6)	FRA	WASTE REMOVAL - SOILS	1988
PBA-07C	MUSTARD AGENT BURNING YARD (SWMU 21)	FRA	CAPPING	1988
PBA-10A	DEPOT DEMOL, N BURN AREA (SWMU 8)	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1988
PBA-13A	ABANDONED BURN PIT (SWMU 11)	FRA	DRAINAGE CONTROLS	1988
PBA-16A	WHITE PHOSPHORUS LANDFILL (SWMU 33)	FRA	CAPPING	1988

IRP Summary

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

Site ID	Site Name	Action	Remedy	FY
PBA-17	OLD PRODUCT TEST RANGE (SWMU 36)	FRA	WASTE REMOVAL - SOILS	1988
PBA-26	PRODUCT ASSURANCE TEST RANGE (SWMU 64)	FRA	WASTE REMOVAL - SOILS	1988
PBA-31A	PRODUCT ASSURANCE TEST RANGE (SWMU 72)	FRA	WASTE REMOVAL - SOILS	1988
PBA-34	NCTR EQUALIZATION POND (SWMU 4)	FRA	WASTE REMOVAL - SOILS	1988
PBA-38	IMPREGNITE SLUDGE LAGOON (SWMU 68)	FRA	WASTE REMOVAL - SOILS	1988
PBA-07B	LEWISITE DISPOSAL AREA (SWMU 19)	FRA	CAPPING	1989
PBA-12	MUSTARD BURN PIT (SWMU 10)	FRA	WASTE REMOVAL - SOILS	1989
PBA-23A	WHITE SMOKE TEST POND (SWMU 62)	FRA	DRAINAGE CONTROLS	1989
PBA-29	SOLID WASTE ARK-LA SITE (SWMU 27)	FRA	DRAINAGE CONTROLS	1989
PBA-29A	SALT PILE (SWMU 30)	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1989
PBA-07D	STORAGE YARD BORROW PITS (SWMU 20)	FRA	CAPPING	1990
PBA-20A	SOUTH DEPOT DISPOSAL AREA (SWMU 53)	FRA	CAPPING	1990
PBA-20A	SOUTH DEPOT DISPOSAL AREA (SWMU 53)	FRA	DRAINAGE CONTROLS	1990
PBA-54	WP STORAGE UST'S (35)	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1991
PBA-61	TANK 33-320A	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1992
PBA-60	OLD BZ PRODUCTION AREA (SWMU 66)	FRA	OTHER	1997
PBA-11	OLD CHEM MANUFACTURING (SWMU 29)	FRA	CONTAINMENT	2004
PBA-11	OLD CHEM MANUFACTURING (SWMU 29)	FRA	CAPPING	2004
PBA-03	OLD DDT DISPOSAL AREA (SWMU 75)	FRA	REMOVAL	2005
PBA-11D	DDT LANDFILL BLDG #54-270 (SWMU 24)	FRA	CONTAINMENT	2005
PBA-11D	DDT LANDFILL BLDG #54-270 (SWMU 24)	FRA	CAPPING	2005
PBA-11E	DDT LANDFILL BLDG #54-325 (SWMU 24)	FRA	CONTAINMENT	2005
PBA-11E	DDT LANDFILL BLDG #54-325 (SWMU 24)	FRA	CAPPING	2005
PBA-11F	SEDIMENTS CONTAINING DDT (SWMU 23)	FRA	CONTAINMENT	2005
PBA-11F	SEDIMENTS CONTAINING DDT (SWMU 23)	FRA	CAPPING	2005

IRP Summary

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

Site ID	Site Name	Action	Remedy	FY
PBA-07A	DEPOT STORAGE YARD (SWMU 22)	FRA	REMOVAL	2010

Duration of IRP

Date of IRP Inception: 197010

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201009/201009

Date of IRP completion including Long Term Management (LTM): 204209

IRP Contamination Assessment

Contamination Assessment Overview

Groundwater contamination studies at PBA began in 1966 when the USAEHA installed 15 groundwater monitoring wells near suspected contaminated areas. Preliminary investigations found high levels of sulfate, phosphorus, nitrates and chlorides. As a result, further sampling was recommended. In 1970, PBA conducted a contaminated areas survey that included reviews of past and present operations, interviews with operations personnel, and preliminary soil, surface water and groundwater investigations.

From 1973 to 1975, more than 1,600 shallow borings (about 20 feet deep) were drilled at 31 sites to determine the extent of soil contamination. The US Army Corps of Engineers (USACE) installed 111 monitoring wells in 1977 and 1978, including 49 along the perimeter of the facility and 62 at specific sites.

In 1975, a preliminary environmental survey of PBA was compiled from biological and ecological studies done in the early-1970s and an ecological study plan was proposed. A variety of reports followed [see Previous Studies section following the Installation Restoration Program (IRP) Contamination Assessment section]. From 1981 through 1983 the USACE installed 65 additional groundwater monitoring wells at sites where the potential for groundwater contamination was greatest and to act as a post-closure monitoring system. In 1983, background levels were determined for 102 soil samples and 105 groundwater samples from 17 sites. In 1987 the USEPA conducted a RCRA facility assessment (RFA), which was used to prepare the corrective action portions of the 13-H permit.

RA at some sites was started by PBA as early as 1978. By 1989, the RA and cleanup of historical sites at PBA were completed. RCRA work plans were prepared by PBA and the USACE in 1990 and 1991 for Group I and II solid waste management units (SWMUs). PBA and the USACE have completed and submitted to the regulators the RCRA facility investigation (RFI) for the Group I and II SWMUs and a CMS for the Group II SWMUs. RAs at Sites-03, -11D, -11E and -11F were completed and a final CMS was submitted for review to ADEQ.

In January FY09 ADEQ issued approval of the final CMS, which includes a monitoring plan for IRP sites. ADEQ issued a RADD for inclusion to a consolidated RCRA permit (1H-RN2) for PBA operations in August 2009. PBA achieved remedy-in-place/response complete (RIP/RC) status when the final RA was completed at PBA Site 7a in March 2010. The first five-year review has been completed and was submitted to ADEQ in April 2010. Per the RCRA permit all sites are now in LTM/five-year review status.

The lead regulatory agency for PBA environmental restoration is the ADEQ, Little Rock, AR. PBA is a non-NPL site with corrective action requirements included in RCRA Part B Permit 1H-RN2.

Cleanup Exit Strategy

In August 2009 ADEQ issued a RADD for inclusion in the PBA consolidated RCRA permit (1H-RN2). This decision document gave regulatory approval to all PBA remedial actions performed to date. The PBA groundwater LTM plan was also approved and included in the RCRA permit. The plan includes ecological monitoring at some sites and is included as a regulatory requirement in the consolidated permit. PBA will perform trend analyses of natural attenuation at all identified sites, with assessments submitted at five-year intervals. Recommendations to discontinue or decrease monitoring will be based on observed trends showing improved or unchanged groundwater quality over time or the decrease of contamination concentrations as compared to USEPA Maximum Contamination Levels (MCL).

IRP Previous Studies

Year	Title	Author	Date
1969	Groundwater Monitoring at PBA, Edgewood Arsenal Technical Report, No. 4287		MAR-1969
1972	Edgewood Arsenal Special Publication, EB-SP-74025, Preliminary Environmental Survey	PBA	DEC-1972
1973	Water Quality Geohydrologic Consultation No. 24-004- 74, PBA	USEHA	JUL-1973
1976	Edgewood Arsenal Technical Report, EB-TR-76038, Results of Aquatic Surveys at PBA		APR-1976
1980	Hydrogeological Survey of PBA	US Army Engineer Waterways Experiment Station	AUG-1980
1981	PBA, Technical Memorandum No. 14, Installation Restoration Activities 1970-1979		OCT-1981
1983	Groundwater Assessment Plan	PBA	DEC-1983
1984	Site Closure Plan, Site 20A, Depot South Burning Pit	Tulsa District Corps of Engineers	JAN-1984
	Site Closure Plan, Site 17, Product Assurance Test Range and Dump Site	Tulsa District Corps of Engineers	JAN-1984
	Site Closure Plan, Site 10A, Depot Demolition and North Open Burning Area	Tulsa District Corps of Engineers	JUL-1984
	Lagoon Sampling and Characterization in Accordance with Appendix A Annex B, PBA	Garver & Garver	OCT-1984
	Site Closure Plan, Site 16A, White Phosphorus Landfill	Tulsa District Corps of Engineers	DEC-1984
	Site Closure Plan, Site 27, BZ Pond	Tulsa District Corps of Engineers	DEC-1984
1985	Site Closure Plan, Sites 2, 20B, 26, 31A, & 31B	Tulsa District Corps of Engineers	FEB-1985
	Environmental Engineering Services for PBA Task 002, Aquatic Bioassays	Battelle Columbus Laboratories	JUN-1985
	Site Closure Plan, Site 34, NCTR Equalization Pool	Tulsa District Corps of Engineers	JUN-1985
	Site Closure Plan, Site 38, Impregnite Sludge Lagoon	Tulsa District Corps of Engineers	JUN-1985
	Groundwater Assessment Plan	PBA	JUL-1985
	Site Closure Plan, Site 4A, Burn Site at 504th Street	Tulsa District Corps of Engineers	JUL-1985
	Site Closure Plan, Site 12, Mustard Burning Pits	Tulsa District Corps of Engineers	JUL-1985
	Site Closure Plan, 13A, Abandoned McCoy Road Burn Pit	Tulsa District Corps of Engineers	JUL-1985
	Site Closure Plan, Site 23A, HC Smoke Test Pond	Tulsa District Corps of Engineers	JUL-1985

IRP Previous Studies

1985	Title	Author	Date
	Site Closure Plan, Sites 2, 10A, 17, 20A, 26, 27, 31A, & 31B, Supplement No. 1	Tulsa District Corps of Engineers	JUL-1985
	Site Closure Plan, Site 24, Thermitite Disposal Area	Tulsa District Corps of Engineers	AUG-1985
	Site Closure Plan, Site 29 Solid Waste Ark-La Site and Site 29A Salt Pile	Tulsa District Corps of Engineers	AUG-1985
	Site Closure Plan, Sites 7B, 7C & 7D	Tulsa District Corps of Engineers	SEP-1985
	Groundwater Quality Background Assessment, Runoff Control Impoundment	PBA	OCT-1985
	Groundwater Quality Background Assessment, Hazardous Waste Landfill	PBA	OCT-1985
	Hazardous Waste Landfill Groundwater Quality Background Assessment	Tulsa District Corps of Engineers	OCT-1985
1986	Groundwater Assessment PBA	Tulsa District Corps of Engineers	OCT-1986
	Groundwater Quality Detection Monitoring Assessment, Hazardous Waste Landfill	PBA	OCT-1986
	Groundwater Assessment	PBA	OCT-1986
1987	Demonstration Report, Source of Significant Increases in Parameters, Hazardous Waste Landfill and Runoff Control Impoundment	PBA	JAN-1987
	Statistical Procedures Evaluation and Detection Monitoring Assessment, Hazardous Waste Landfill and Runoff Control Impoundment	PBA	JAN-1987
1988	Groundwater Quality Detection Monitoring Assessment, Hazardous Waste Landfill and Runoff Control Impoundment	PBA	JAN-1988
	Final Technical Report, Environmental Engineering Services at PBA, Task 002, Aquatic Toxicity Testing	Battelle Columbus Laboratories	MAY-1988
	Groundwater Quality Detection Monitoring Assessment, Hazardous Waste Landfill and Runoff Control Impoundment	PBA	JUN-1988
	Groundwater Quality Background Assessment, Hazardous Waste Landfill FY86	PBA	AUG-1988
1989	Groundwater Quality Detection Monitoring Assessment, FY86 Hazardous Waste Landfill	PBA	OCT-1989
1991	Runoff Control Impoundment, Groundwater Assessment	PBA	JAN-1991
	Runoff Control Impoundment, Groundwater Assessment	PBA	JAN-1991
	FY86 Hazardous Waste Landfill Groundwater Assessment	PBA	JAN-1991
	FY83 Hazardous Waste Landfill Groundwater Assessment	PBA	JAN-1991
	FY83 Hazardous Waste Landfill Groundwater Assessment	PBA	JAN-1991

IRP Previous Studies

Year	Title	Author	Date
1991	FY86 Hazardous Waste Landfill Groundwater Assessment	PBA	JAN-1991
1996	Draft Corrective Measures Study	Tulsa District Corps of Engineers, CDM Federal	AUG-1996
2002	Interim Measures Data Collection Summary Report	Tulsa District Corps of Engineers, WGI	JUN-2002
2004	Final Corrective Measures Study	Tulsa District Corps of Engineers, Washington Group International	MAY-2004
2005	Final RI Work Plan, Site 7a	Shaw Environmental	NOV-2005
2006	Final DDT Soil Remedial Action Construction Report, SWMUs 23, 24 and 75	Tulsa District Corps of Engineers, Shaw Environmental	MAR-2006
	RCI Groundwater Assessment PBA	Great Lakes Environmental Center	JUL-2006
	FY83 Hazardous Waste Landfill Groundwater Assessment Pine Bluff Arsenal	Great Lakes Environmental Center	JUL-2006
2007	RCI Groundwater Assessment PBA	Great Lakes Environmental Center	MAR-2007
	FY83 Hazardous Waste Landfill Groundwater Assessment PBA	Great Lakes Environmental Center	MAR-2007
2008	RCI Groundwater Assessment PBA	Great Lakes Environmental Center	APR-2008
	FY83 Hazardous Waste Landfill Groundwater Assessment PBA	Great Lakes Environmental Center	APR-2008
	Resubmitted Final Corrective Measures	PBA/Washington Group International	NOV-2008
2009	RCI Groundwater Assessment	PBA/GLEC	MAR-2009
	FY83 HWL Groundwater Assessment	PBA/GLEC	MAR-2009
2010	RCI Groundwater Assessment	PBA/GLEC	MAR-2010
	Five-Year GW Assessment and Eco Trend Report	Pine Bluff Arsenal/GLEC	MAR-2010
	FY83 HWL Groundwater Assessment	PBA/GLEC	MAR-2010
	Remedial Action Implementation Report Site 7a	Ayuda Management/PBA	JUN-2010
2011	RCI Groundwater Assessment	PBA/GLEC	MAR-2011
	FY83 HWL Groundwater Assessment	PBA/GLEC	MAR-2011

IRP Previous Studies

2011

Title	Author	Date
RCI Groundwater Assessment	PBA/GLEC	APR-2011
FY83 HWL Groundwater Assessment	PBA/GLEC	APR-2011
2010 Groundwater Assessment and Ecological Monitoring Report	PBA/GLEC	AUG-2011

PINE BLUFF ARSENAL
Installation Restoration Program
Site Descriptions

Site ID: PBA-04
Site Name: 504TH ST BURN SITE (SWMU 25)
Alias: SWMU 25

STATUS

Regulatory Driver: RCRA
RRSE: LOW
 Contaminants of Concern: Metals
 Media of Concern: Groundwater

Phases	Start	End
RFA.....	198008.....	198008
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198507
DES.....	198610.....	198709
CMI(C).....	198712.....	198812
LTM.....	199909.....	204209
RIP Date:	N/A	
RC Date:	198812	

SITE DESCRIPTION

PBA-04 (SWMU 25), a five-acre burn site, is located in the northwestern part of PBA, southwest of the intersection of 504th Street and 6242 Avenue. A large burn area, measuring about 600 feet by 300 feet, existed where most of the burn activity occurred. An elongated depression on the north end of this area was a filled-in dumpsite containing rusted 55-gallon drums, railroad ties and other debris. The site was used as a burning area for various production wastes. Due to a low-permeability clay-shale layer underlying the site, in situ encapsulation of the waste materials was the method of remediation (1987). Lead and chromium were detected in the waste.

In 1991, the RFI was submitted to regulators. Additional wells were installed in FY02. The remedy involved site closure with waste in place and thus LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program. Five wells will be monitored (three wells will be monitored semiannually and two wells annually).

The LTM funding at this site also includes annual ecological monitoring.

A five-year program review (assessment) was completed in January 2009, with the next review scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-07A
Site Name: DEPOT STORAGE YARD (SWMU 22)
Alias: SWMU 22

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals, Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	197702.....	197708
CS.....	198008.....	198008
RFI/CMS.....	200007.....	200308
CMI(C).....	200310.....	201009
LTM.....	201010.....	204209

RIP Date: N/A

RC Date: 201009

SITE DESCRIPTION

PBA-07A is a 40-acre fenced storage area. This site contained drums of a corrosive screening smoke made of sulfur trioxide and chlorosulfonic and pesticides, along with empty blister agent (mustard and lewisite) containers. All deteriorated barrels and visible areas of surface soil contamination were removed in 1984. This unit was used for storage only, not for disposal of hazardous or nonhazardous materials.

This site continues to function as a storage facility for approximately 4,000 one-ton mustard containers. A decontamination facility has been constructed to clean and dispose of these containers. The cost for the cleaning and disposing is non-Environmental Restoration, Army (ER,A) funded. Remediation has been limited to run-on/runoff control structures (concrete berms and a containment ditch) and a high-density polyethylene-lined retention pond.

In response to ADEQ concerns, a soil gas survey over the 40-acre site was performed in FY01. Soil samples were taken and additional monitoring wells were installed in FY02. Metals were found above screening criteria in soil samples around Building 55-320. Based on historical knowledge and perimeter sampling and analysis, the building is considered to be the likely source of the soil contamination. Groundwater samples in the area have shown solvents above MCLs, as well as detections of lead and mercury.

Additional soil samples were taken in February 2006 to evaluate the need for building demolition, which indicated some metals contamination above USEPA Region VI medium-specific screening levels underneath a portion of the building.

The site is included in the installation-wide, long-term groundwater monitoring program.

The building demolition funding came from a source other than the IRP. After building demolition, soil removal was completed in FY10 as the RA for this site. Four wells are sampled, two semiannually and two annually, for metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), chloride and sulfate.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program. A five-year program review (assessment) was completed in January 2009, with the next review scheduled for FY14.

Four wells are sampled, two semiannually and two annually, for metals, VOCs, SVOCs, chloride and sulfate. The LTM funding at this site also includes annual ecological monitoring.

During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-07B
Site Name: LEWISITE DISPOSAL AREA (SWMU 19)
Alias: SWMU 19

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	197705.....	197708
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198509
DES.....	198610.....	198709
CMI(C).....	198710.....	198909
LTM.....	198909.....	204209

RIP Date: N/A

RC Date: 198909

SITE DESCRIPTION

PBA-7B is an unlined, four-acre breached lagoon. This site was used for burning and disposing of lewisite along with mercury, a catalyst used in production. There was no vegetation. The abandoned lagoon contained demilitarized lewisite as a white sludge up to seven feet deep.

Remediation was achieved by capping it with a flexible membrane-lined clay cover and three feet of topsoil in conjunction with a slurry trench extending below the lower limits of detected contaminated soil.

In response to ADEQ concerns, additional soil and groundwater samples were collected in FY02.

Because the remedy involved site closure with waste in place, LTM is required.

In January 2009 a final CMS that included LTM with groundwater monitoring was approved by ADEQ. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Four wells are monitored; two are sampled semiannually and two annually, for chlorides, sulfates, metals, VOCs and SVOCs.

The LTM funding at this site also includes annual ecological monitoring.

A five-year program review (assessment) was completed in January 2009, with the next review scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-07C

Site Name: MUSTARD AGENT BURNING YARD (SWMU 21)

Alias: SWMU 21

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198008.....	198008
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198509
DES.....	198610.....	198709
CMI(C).....	198710.....	198809
LTM.....	198809.....	204209

RIP Date: N/A

RC Date: 198809

SITE DESCRIPTION

PBA-7C is located in the north central part of PBA south of Webster and west of Doolittle roads. The site consisted of a half-acre mustard burning area, a drainage ditch just north of the burning area and a blister agent cleanout area east of the Depot Storage Yard fence.

Remediation was achieved by capping it with a flexible membrane-lined clay cover and three feet of topsoil in conjunction with a slurry trench extending below the lower limits of detected contaminated soil.

The RFI was submitted to regulators in 1991. In response to ADEQ concerns, additional soil and groundwater samples were collected in FY02. Because the remedy involved site closure with waste in place. LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Three wells are monitored semiannually for metals, chloride, sulfates, VOCs, and SVOCs.

The LTM funding at this site also includes annual ecological monitoring.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-07D

Site Name: STORAGE YARD BORROW PITS (SWMU 20)

Alias: SWMU 20

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals, Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	197705.....	197708
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198509
DES.....	198610.....	198709
CMI(C).....	198710.....	198910
LTM.....	198910.....	204209

RIP Date: N/A

RC Date: 198910

SITE DESCRIPTION

PBA-7D is located in the north central part of PBA. It was used for the storage and disposal of mustard and mustard byproducts produced at PBA. The site consisted of two water-filled pits, approximately 75 feet wide and 600 feet long. These pits provided material for the construction of the Depot Storage Yard. After World War II, mustard and lewisite munitions were buried just east of the borrow pits. In 1955 these munitions were excavated and removed.

Remediation was achieved by capping it with a flexible membrane-lined clay cover and three feet of topsoil in conjunction with a slurry trench extending below the lower limits of detected contaminated soil.

Because the remedy involved site closure with waste in place, LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Three wells are monitored semiannually for metals, chloride, sulfates, VOCs and SVOCs.

The LTM funding at this site also includes annual ecological monitoring.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-08

Site Name: N HC SMOKE POT TEST POND (SWMU 74)

Alias: SWMU 74

STATUS

Regulatory Driver: RCRA
RRSE: LOW
 Contaminants of Concern: Metals, Volatiles (VOC)
 Media of Concern: Groundwater

Phases	Start	End
RFA.....	197310.....	198110
CS.....	197310.....	198110
RFI/CMS.....	200007.....	200208
LTM.....	200209.....	204209
RIP Date: N/A		
RC Date: 200208		

SITE DESCRIPTION

PBA-08 is a 0.50-acre lagoon located northeast of Doolittle Road within the northern part of PBA. This unit was used on a limited basis between 1940 and 1970 to test floating hexachloroethane (HC) smoke pots.

Phase I RI work was completed in 1977. In response to draft CMS (1996) comments, additional interim measures investigations were performed. In FY02 three new wells were installed and soil and groundwater samples were collected. Results indicated there was no soil contamination.

Groundwater sampling results were above MCLs for metals and VOCs.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Three wells are monitored semi- annually for metals, chloride, sulfates, VOCs and SVOCs.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-11

Site Name: OLD CHEM MANUFACTURING (SWMU 29)

Alias: SWMU 29

STATUS

Regulatory Driver: RCRA

RRSE: LOW

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

Media of Concern: Groundwater, Soil, Surface Water

Phases	Start	End
RFA.....	197211.....	197503
CS.....	197701.....	197805
RFI/CMS.....	197809.....	200102
CMI(C).....	200311.....	200408
CMI(O).....	200409.....	201002
LTM.....	201003.....	204209

RIP Date: 200409

RC Date: 201002

SITE DESCRIPTION

PBA-11 includes Sites -03, -11A, -11B, -11C, -11D, -11E and -11F and covers approximately 50 acres. Originally, the unit consisted of 168 buildings and structures. Between 1942 and 1943, PBA manufactured non-lethal chemical agents within this unit. During the 1950s, the unit was leased to contractors for the production of pesticides and their intermediates. Widespread DDT contamination was found in the buildings, the surrounding area and Phillips Creek. The surface contamination was removed during the 1976-77 RAs for PBA-11 and all surrounding areas.

In 1985, PBA began the demolition of nine large chemical manufacturing buildings and numerous smaller ones, and the excavation of 24,000 feet of industrial sewer lines. In 1986 soil was removed from around the sewer lines and buildings. This contaminated material and soil was disposed of in the Hazardous Waste Landfill, PBA-41. An ecological risk assessment was completed to answer ADEQ concerns. In FY05 contamination from sites PBA-03, -11D, -11E and -11F was consolidated into one capped containment unit located within the site 11 boundary.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

A five-year program review (assessment) was completed in January 2009, with the next review scheduled for FY14. This site will be evaluated continually during five-year assessments for possible optimization.

The LTM implementation for Sites -03, -11, -11A, -11B, -11C, -11D, -11E, and -11F are funded under this site and includes 18 wells for semiannual monitoring for metals, pesticides, VOCs, SVOCs, nitrates, chlorates, and sulfates. The LTM funding at this site also includes annual ecological monitoring.

Site ID: PBA-20A

Site Name: SOUTH DEPOT DISPOSAL AREA (SWMU 53)

Alias: SWMU 53

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Metals, Munitions constituents (MC)

Media of Concern: Groundwater, Soil, Surface Water

Phases	Start	End
RFA.....	198008.....	198008
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198401
DES.....	198610.....	198709
CMI(C).....	198710.....	198911
LTM.....	198911.....	204209

RIP Date: N/A

RC Date: 198911

SITE DESCRIPTION

PBA-20A is located in the southeastern part of PBA and within the Arkansas River floodplain, adjacent to a swampy wetland. From 1941 to 1978 this five-acre pit was used to burn pyrotechnic mixes and other incendiary devices. This pit contained approximately 58,000 cubic yards of burned fill and contaminated soil. Lead contamination extended to a depth of three feet in the soil below the burn pit.

Remediation in 1988 consisted of in situ encapsulation, since the subsurface consisted of a low-permeability clay-shale layer that serves as a lower boundary and lies under the site. The contaminated materials were placed within a constructed levee that was keyed into the clay layer and covered with an impervious flexible membrane-lined cover.

In FY02, in response to ADEQ concerns, three additional wells were installed and soil and groundwater samples were collected. Because the remedy involved site closure with waste in place, LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Seven wells are monitored (five wells will be sampled semiannually and two annually) for metals, chloride and sulfates.

The LTM funding at this site also includes annual ecological monitoring.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-23A

Site Name: WHITE SMOKE TEST POND (SWMU 62)

Alias: SWMU 62

STATUS

Regulatory Driver: RCRA
RRSE: LOW
 Contaminants of Concern: Metals, Volatiles (VOC)
 Media of Concern: Groundwater

Phases	Start	End
RFA.....	197705.....	197708
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198509
DES.....	198610.....	198709
CMI(C).....	198710.....	198812
LTM.....	198812.....	204209
RIP Date:	N/A	
RC Date:	198812	

SITE DESCRIPTION

PBA-23A is located in the central southeastern part of PBA. It was originally a five-acre wooded area containing a 1.5-acre pond and several small burn piles. The site was used between 1941 and 1976 as a test area for HC smoke pots and smoke grenades, and was also used as a general dump area for production-related material.

Due to a low-permeability clay-shale layer, which lies under the site and acts as a lower boundary, in situ encapsulation of waste materials was the method of remediation. Contaminants are contained within the site by slurry walls along the boundary and by keying the slurry walls into the underlying clay-shale layer. An impervious flexible membrane-lined cover was constructed over the top of the site to prevent vertical migration of the contaminants and provide run-on/runoff control. Approximately 51,500 cubic yards of non-RCRA wastes from sites PBA-2, -10A, -12, -17, -20B, -26 and -31A were deposited at this site. This RA was completed in 1988.

In FY02, in response to ADEQ concerns, two additional wells were installed and soil and groundwater samples were collected. Because the remedy involved site closure with waste in place, LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Eleven wells are monitored (four are sampled semiannually and seven annually) for VOCs, SVOCs, metals, chloride and sulfate.

A five-year program review (assessment) was completed in January 2009, with the next review scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-24
Site Name: THERMITE DISPOSAL AREA (SWMU 63)
Alias: SWMU 63

STATUS

Regulatory Driver: RCRA
RRSE: LOW
 Contaminants of Concern: Metals
 Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198008.....	198008
CS.....	198008.....	198008
RFI/CMS.....	198309.....	200208
LTM.....	200209.....	204209
RIP Date: N/A		
RC Date: 200208		

SITE DESCRIPTION

PBA-24 is located in the central southeastern part of PBA, northwest of the intersection of Stokes Road and Avenue 321B. It is a four-acre barren site that had a three-foot layer of thermite and bomb wash residue, approximately 44,000 cubic yards of the contaminants and contaminated soil. In the 1940s and early-1950s it was used as a dump for the Quality Assurance (QA) Drop Tower, PBA-26, and from 1959 to 1961 for bomb wash from the BZ Pond, PBA-27.

In 1988 remediation was achieved by containment dikes and drainage ditches around the site and a high density polyethylene (HDPE) liner cover system over the site to provide run-on control and eliminate vertical infiltration of surface waters, along with slurry walls, French drains and dewatering wells to lower the perched water table. Because the remedy involved site closure with waste in place, LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Four wells are monitored annually for metals, chloride and sulfate.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-27
Site Name: AGENT BZ POND (SWMU 65)
Alias: SWMU 65

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Sediment, Soil

Phases	Start	End
RFA.....	197705.....	197708
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198412
DES.....	198610.....	198703
CMI(C).....	198704.....	198706
LTM.....	198706.....	204209

RIP Date: N/A

RC Date: 198706

SITE DESCRIPTION

PBA-27 is located in the central southeastern part of PBA, west of the intersection of Stokes Road and Avenue 321B and southwest of the Thermite Disposal Area, PBA-24. It is a 0.25-acre, unlined pond with sections of the side slopes stabilized with large concrete blocks. The pond was used in the 1940s for thermite waste disposal. In the 1940s and late-1960s, bomb wash containing red lead was disposed of in the pond. In 1959 thermite rounds were washed out and into this pond. From 1963 to 1966, the pond was used for disposal of BZ production waste and cyclohexane, a BZ carrier solvent agent. In 1970 the bomb wash facility was converted to an impregnite plant and wastes were disposed of in the pond.

The total contaminated material at this site is approximately 10,000 cubic yards. Due to a low-permeable clay-shale layer, which is suitable for use as a lower boundary, an on-site closure cell scheme was selected.

This plan used a slurry wall and a compacted low-permeable soil cap to close the heavy metal contaminated materials and soil in place. The pond sediments, contaminated with several priority pollutant organic compounds, were solidified and disposed of in the hazardous waste landfill. The pond water was pumped to natural drainage.

In 1988 the RA was complete. In FY02, in response to ADEQ concerns, two additional wells were installed and soil and groundwater samples were collected. Because the remedy involved site closure with waste in place, LTM is required. In FY04 two wells were installed.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Ten wells are monitored (four are sampled semiannually and six annually) for VOCs, SVOCs, metals, chloride and sulfates.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-29

Site Name: SOLID WASTE ARK-LA SITE (SWMU 27)

Alias: SWMU 27

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Metals, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198008.....	198008
CS.....	198008.....	198008
RFI/CMS.....	198309.....	198508
DES.....	198610.....	198709
CMI(C).....	198710.....	198811
LTM.....	198811.....	204209

RIP Date: N/A

RC Date: 198811

SITE DESCRIPTION

PBA-29 is located in the north central part of PBA, northwest of the intersection of Atkisson Road and 504th Street. It is a 40-acre site that was used in the 1940s for the manufacture of chlorine for mustard and lewisite operations. From 1950 to 1969, the site was leased to the Arkansas-Louisiana (ARK-LA) Chemical Corporation, which produced chlorine for commercial purposes. All buildings and most foundations have been removed from the site.

Due to the presence of an underlying clay-shale layer, in situ encapsulation was the method chosen for closure. The site was divided into two sub-sites, north and south. The north sub-site was contained by the use of a slurry wall that was keyed into the clay-shale layer. The south sub-site and material outside the slurry wall was excavated and placed within the limits of the slurry wall. The volume enclosed by the slurry wall was filled, graded and covered with a 40mil HDPE flexible membrane liner. In 1988 the RA was completed.

In FY02, in response to ADEQ concerns, two additional wells were installed and soil and groundwater samples were collected. Because the remedy involved site closure with waste in place, LTM is required.

A final CMS that included LTM with groundwater monitoring was approved by ADEQ in January 2009. A RADD was completed and approved by ADEQ in August 2009.

CLEANUP/EXIT STRATEGY

This site is included in the installation-wide, long-term groundwater monitoring program.

Six wells are monitored (four are sampled semiannually and two annually) for metals, chlorides, sulfates, VOCs and SVOCs.

The LTM funding at this site also includes annual ecological monitoring.

A five-year program review (assessment) was completed in January 2009; the next review is scheduled for FY14. During five-year assessments this site will be evaluated continually for possible optimization.

Site ID: PBA-41

Site Name: MCA 83 HAZARDOUS WASTE LANDFILL (SWMU 1)

Alias: SWMU 1

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Metals, Pesticides

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198708.....	198711
LTM.....	198711.....	204209

RIP Date: N/A

RC Date: 198711

SITE DESCRIPTION

PBA-41 is a RCRA-permitted hazardous waste landfill. This landfill consists of three cells. Two of the cells contain demolition wastes from the Old Chemical Manufacturing Area, PBA-11. Wastes were placed in these cells between October 1985 and October 1986.

This is a RCRA site used for disposal of material removed during the remediation of IRP sites only. In 1999 RCRA closure was achieved by capping the site and removal of the third cell. Groundwater monitoring and periodic leachate removal are the only current activities at this site.

CLEANUP/EXIT STRATEGY

Groundwater monitoring and cap maintenance will continue as required by the post-closure permit. Ten wells are monitored semiannually for metals, total organic halides (TOX) and pesticides. In FY09, a leachate collection system was constructed to reduce operating and life cycle costs.

Site ID: PBA-44

Site Name: MCA 83 SURFACE IMPOUNDMENT (SWMU 12)

Alias: SWMU 12

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Metals, Pesticides

Media of Concern: Groundwater, Surface Water

Phases	Start	End
RFA.....	198708.....	198711
LTM.....	198711.....	204209

RIP Date: N/A

RC Date: 198711

SITE DESCRIPTION

PBA-44 is a nine-acre, lined, RCRA-permitted retention pond. This pond functions as a settling basin that allows surface water runoff to be retained so that potential contaminants can settle out. Runoff from the Old Chemical Manufacturing Area, PBA-11, and the Chemical Munitions Storage and Dump Area, PBA-7, was diverted to the pond during the remediation of these sites. This impoundment is receiving only storm water discharge from the 545 acres that includes PBA sites 11 and 7.

This is a RCRA and National Pollutant Discharge Elimination System (NPDES) permitted facility used for runoff control from IRP sites only.

CLEANUP/EXIT STRATEGY

Groundwater monitoring and NPDES surface water monitoring will continue as required by permit. Eight wells are monitored semiannually for metals, TOX and pesticides.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
PBA-01	N EXCLUSION AREA RUBBLE PILE (SWMU 3)	200209	No Further Action (NFA) will be documented in the RADD expected in 2009
PBA-02	WEBSTER ROAD TEST SITE (SWMU 6)	198804	NFA will be documented in the RADD expected in 2009
PBA-03	OLD DDT DISPOSAL AREA (SWMU 75)	200509	NFA will be documented in the RADD expected in 2009
PBA-06	OLD ARK-LA RUBBLE SITE (SWMU 28)	200209	NFA will be documented in the RADD expected in 2009
PBA-06S	NON-PRODUCTION WASTE BURNING (SWMU 34)	197708	NFA will be documented in the RADD expected in 2009
PBA-07S	M50 BOMBLET PRIMER DEMOLITION (SWMU 73)	197708	NFA will be documented in the RADD expected in 2009
PBA-10	BOMBING MAT (SWMU 7)	198308	NFA will be documented in the RADD expected in 2009
PBA-10A	DEPOT DEMOL, N BURN AREA (SWMU 8)	198807	NFA will be documented in the RADD expected in 2009
PBA-10B	SOLID WASTE STORAGE FACILITY (SWMU 9)	198308	NFA will be documented in the RADD expected in 2009
PBA-11A	DDT SEDIMENT RETENTION BASIN1(SWMU 18)	198509	NFA will be documented in the RADD expected in 2009
PBA-11B	DDT SEDIMENT RETENTION BASIN2(SWMU 18)	198509	NFA will be documented in the RADD expected in 2009
PBA-11C	DDT SEDIMENT RETENTION BASIN3(SWMU 18)	198509	NFA will be documented in the RADD expected in 2009
PBA-11D	DDT LANDFILL BLDG #54-270 (SWMU 24)	200509	NFA will be documented in the RADD expected in 2009
PBA-11E	DDT LANDFILL BLDG #54-325 (SWMU 24)	200509	NFA will be documented in the RADD expected in 2009
PBA-11F	SEDIMENTS CONTAINING DDT (SWMU 23)	200509	NFA will be documented in the RADD expected in 2009
PBA-12	MUSTARD BURN PIT (SWMU 10)	198811	NFA will be documented in the RADD expected in 2009
PBA-13A	ABANDONED BURN PIT (SWMU 11)	198711	NFA will be documented in the RADD expected in 2009
PBA-15	CLOSED SANI & DDT LANDFILL (SWMU 32)	197509	NFA will be documented in the RADD expected in 2009
PBA-16A	WHITE PHOSPHORUS LANDFILL (SWMU 33)	198809	NFA will be documented in the RADD expected in 2009
PBA-17	OLD PRODUCT TEST RANGE (SWMU 36)	198809	NFA will be documented in the RADD expected in 2009
PBA-17T	DILLY FARM TEST RANGE (SWMU 37)	198711	NFA will be documented in the RADD expected in 2009
PBA-18	CLOSED SANITARY LANDFILL (SWMU 54)	200007	NFA will be documented in the RADD expected in 2009
PBA-18A	CURRENT SANITARY LANDFILL (SWMU 55)	200208	NFA will be documented in the RADD expected in 2009
PBA-18B	S ARSENAL BLDG RUBBLE SITE (SWMU 56)	198008	NFA will be documented in the RADD expected in 2009
PBA-18C	CLASS IV LANDFILL (SWMU 57)	198609	NFA will be documented in the RADD expected in 2009
PBA-18D	REUSABLE RUBBLE PIT (SWMU 58)	198609	NFA will be documented in the RADD expected in 2009
PBA-19	FACILITY BURN PIT/ASBESTOS LF (SWMU 59)	198609	NFA will be documented in the RADD expected in 2009

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
PBA-20B	WP SLAG BURN & DISPOSAL AREA (SWMU 60)	198808	NFA will be documented in the RADD expected in 2009
PBA-26	PRODUCT ASSURANCE TEST RANGE (SWMU 64)	198806	NFA will be documented in the RADD expected in 2009
PBA-29A	SALT PILE (SWMU 30)	198811	NFA will be documented in the RADD expected in 2009
PBA-31A	PRODUCT ASSURANCE TEST RANGE (SWMU 72)	198803	NFA will be documented in the RADD expected in 2009
PBA-31B	GRENADE TEST BASIN (SWMU 71)	198008	NFA will be documented in the RADD expected in 2009
PBA-34	NCTR EQUALIZATION POND (SWMU 4)	200208	NFA will be documented in the RADD expected in 2009
PBA-35	NORTH OXIDATION POND (SWMU 13)	198609	NFA will be documented in the RADD expected in 2009
PBA-36	CENTRAL WASTE TREATMENT LAGOON (SWMU 47)	198507	NFA will be documented in the RADD expected in 2009
PBA-37	SOUTH OXIDATION PONDS (SWMU 46)	198609	NFA will be documented in the RADD expected in 2009
PBA-38	IMPREGNITE SLUDGE LAGOON (SWMU 68)	198809	NFA will be documented in the RADD expected in 2009
PBA-39	SANITARY POND	198609	NFA will be documented in the RADD expected in 2009
PBA-40	INCINERATOR COMPLEX (SWMU 38-41)	198308	NFA will be documented in the RADD expected in 2009
PBA-40A	IC COOLING POND (SWMU 44)	198308	NFA will be documented in the RADD expected in 2009
PBA-40B	SOLID WASTE SHREDDER (SWMU 43)	198308	NFA will be documented in the RADD expected in 2009
PBA-40C	WASTE CONTAINER MAGAZINE AT IC (SWMU 42)	198308	NFA will be documented in the RADD expected in 2009
PBA-46	LIQUID WASTE STORAGE BLDG 81-530(SWMU26)	198308	NFA will be documented in the RADD expected in 2009
PBA-47	EOD DETONATION AREA (SWMU35)	198609	NFA will be documented in the RADD expected in 2009
PBA-48	B Z DEMILITARIZATION FACILITY	199008	NFA will be documented in the RADD expected in 2009
PBA-49	FY 86 MCA HAZARDOUS WASTE LANDFILL	198608	NFA will be documented in the RADD expected in 2009
PBA-50	M55 ROCKET STORAGE AREA (SWMU 77)	198512	NFA will be documented in the RADD expected in 2009
PBA-51	WP POLLUTION ABATEMENT FACILITY (SWMU79)	198711	NFA will be documented in the RADD expected in 2009
PBA-52	TEMP HOLDING FOR HAZARDOUS WASTE(SWMU61)	198708	NFA will be documented in the RADD expected in 2009
PBA-53	PCB STORAGE FACILITY (SWMU 70)	198711	NFA will be documented in the RADD expected in 2009
PBA-54	WP STORAGE UST'S (35)	199108	NFA will be documented in the RADD expected in 2009
PBA-55	CLARIFIER FOR N SAN TRMT PLANT (SWMU 14)	198711	NFA will be documented in the RADD expected in 2009
PBA-56	SCREEN FILT FOR N. SAN SEW TRMT (SWMU15)	198711	NFA will be documented in the RADD expected in 2009
PBA-57	SLUDGE DRYING N SAN SEW TRMT PLT(SWMU16)	198711	NFA will be documented in the RADD expected in 2009
PBA-58	TRICKLE FILT N SAN SEW TRMT PLT (SWMU17)	198711	This site is not IRP eligible. It will be

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
			placed in the Compliance-related Cleanup Program.
PBA-59	SEWAGE CLARIFIER SYSTEM (SWMU 45)	198711	NFA will be documented in the RADD expected in 2009
PBA-60	OLD BZ PRODUCTION AREA (SWMU 66)	199709	NFA will be documented in the RADD expected in 2009
PBA-61	TANK 33-320A	199112	NFA will be documented in the RADD expected in 2009
PBA-62	BOMBING MAT VICINITY	200502	Site transferred to the MMRP
SITE 63	YELLOW LAKE BORROW AREA	200409	Site transferred to the MMRP

IRP Schedule

Date of IRP Inception: 197010

Past Phase Completion Milestones

1971

RFA (PBA-03 - OLD DDT DISPOSAL AREA (SWMU 75), PBA-11D - DDT LANDFILL BLDG #54-270 (SWMU 24), PBA-11E - DDT LANDFILL BLDG #54-325 (SWMU 24))

1974

CS (PBA-03 - OLD DDT DISPOSAL AREA (SWMU 75), PBA-11D - DDT LANDFILL BLDG #54-270 (SWMU 24), PBA-11E - DDT LANDFILL BLDG #54-325 (SWMU 24))

1975

PA (PBA-07S - M50 BOMBLET PRIMER DEMOLITION (SWMU 73), PBA-15 - CLOSED SANI & DDT LANDFILL (SWMU 32))

SI (PBA-15 - CLOSED SANI & DDT LANDFILL (SWMU 32))

RFA (PBA-11 - OLD CHEM MANUFACTURING (SWMU 29), PBA-11A - DDT SEDIMENT RETENTION BASIN1(SWMU 18), PBA-11B - DDT SEDIMENT RETENTION BASIN2(SWMU 18), PBA-11C - DDT SEDIMENT RETENTION BASIN3(SWMU 18), PBA-11F - SEDIMENTS CONTAINING DDT (SWMU 23))

CS (PBA-11A - DDT SEDIMENT RETENTION BASIN1(SWMU 18), PBA-11B - DDT SEDIMENT RETENTION BASIN2(SWMU 18), PBA-11C - DDT SEDIMENT RETENTION BASIN3(SWMU 18), PBA-11F - SEDIMENTS CONTAINING DDT (SWMU 23))

RA(C) (PBA-15 - CLOSED SANI & DDT LANDFILL (SWMU 32))

1977

RFA (PBA-07A - DEPOT STORAGE YARD (SWMU 22), PBA-07B - LEWISITE DISPOSAL AREA (SWMU 19), PBA-07D - STORAGE YARD BORROW PITS (SWMU 20), PBA-23A - WHITE SMOKE TEST POND (SWMU 62), PBA-27 - AGENT BZ POND (SWMU 65))

PA (PBA-06S - NON-PRODUCTION WASTE BURNING (SWMU 34), PBA-10A - DEPOT DEMOL, N BURN AREA (SWMU 8), PBA-12 - MUSTARD BURN PIT (SWMU 10), PBA-13A - ABANDONED BURN PIT (SWMU 11), PBA-16A - WHITE PHOSPHORUS LANDFILL (SWMU 33), PBA-18 - CLOSED SANITARY LANDFILL (SWMU 54), PBA-18A - CURRENT SANITARY LANDFILL (SWMU 55), PBA-18B - S ARSENAL BLDG RUBBLE SITE (SWMU 56), PBA-31B - GRENADE TEST BASIN (SWMU 71), PBA-36 - CENTRAL WASTE TREATMENT LAGOON (SWMU 47))

SI (PBA-06S - NON-PRODUCTION WASTE BURNING (SWMU 34), PBA-07S - M50 BOMBLET PRIMER DEMOLITION (SWMU 73))

1978

IRA (PBA-11A - DDT SEDIMENT RETENTION BASIN1(SWMU 18), PBA-11B - DDT SEDIMENT RETENTION BASIN2(SWMU 18), PBA-11C - DDT SEDIMENT RETENTION BASIN3(SWMU 18))

CS (PBA-11 - OLD CHEM MANUFACTURING (SWMU 29))

1980

SI (PBA-10A - DEPOT DEMOL, N BURN AREA (SWMU 8), PBA-12 - MUSTARD BURN PIT (SWMU 10), PBA-13A - ABANDONED BURN PIT (SWMU 11), PBA-16A - WHITE PHOSPHORUS LANDFILL (SWMU 33), PBA-17 - OLD PRODUCT TEST RANGE (SWMU 36), PBA-18 - CLOSED SANITARY LANDFILL (SWMU 54), PBA-18A - CURRENT SANITARY LANDFILL (SWMU 55), PBA-18B - S ARSENAL BLDG RUBBLE SITE (SWMU 56), PBA-20B - WP SLAG BURN & DISPOSAL AREA (SWMU 60), PBA-26 - PRODUCT ASSURANCE TEST RANGE (SWMU 64), PBA-29A - SALT PILE (SWMU 30), PBA-31A - PRODUCT ASSURANCE TEST RANGE (SWMU 72), PBA-31B - GRENADE TEST BASIN (SWMU 71), PBA-34 - NCTR EQUALIZATION POND (SWMU 4), PBA-36 - CENTRAL WASTE TREATMENT LAGOON (SWMU 47), PBA-38 - IMPREGNITE SLUDGE LAGOON (SWMU 68))

IRA (PBA-18 - CLOSED SANITARY LANDFILL (SWMU 54))

PA (PBA-02 - WEBSTER ROAD TEST SITE (SWMU 6), PBA-10 - BOMBING MAT (SWMU 7), PBA-10B - SOLID WASTE STORAGE FACILITY (SWMU 9), PBA-17 - OLD PRODUCT TEST RANGE (SWMU 36), PBA-20B - WP SLAG BURN & DISPOSAL AREA (SWMU 60), PBA-26 - PRODUCT ASSURANCE TEST RANGE (SWMU 64), PBA-29A - SALT PILE (SWMU 30), PBA-31A - PRODUCT ASSURANCE TEST RANGE (SWMU 72), PBA-34 - NCTR EQUALIZATION POND (SWMU 4), PBA-38 - IMPREGNITE SLUDGE LAGOON (SWMU 68), PBA-40 - INCINERATOR COMPLEX (SWMU 38-41), PBA-40A - IC COOLING POND (SWMU 44), PBA-40B - SOLID WASTE SHREDDER (SWMU 43), PBA-40C - WASTE CONTAINER MAGAZINE AT IC (SWMU 42), PBA-46 - LIQUID WASTE STORAGE BLDG 81-530(SWMU26))

IRP Schedule

RFA	(PBA-04 - 504TH ST BURN SITE (SWMU 25), PBA-07C - MUSTARD AGENT BURNING YARD (SWMU 21, PBA-20A - SOUTH DEPOT DISPOSAL AREA (SWMU 53), PBA-24 - THERMITE DISPOSAL AREA (SWMU 63), PBA-29 - SOLID WASTE ARK-LA SITE (SWMU 27))
CS	(PBA-04 - 504TH ST BURN SITE (SWMU 25), PBA-07A - DEPOT STORAGE YARD (SWMU 22), PBA-07B - LEWISITE DISPOSAL AREA (SWMU 19), PBA-07C - MUSTARD AGENT BURNING YARD (SWMU 21, PBA-07D - STORAGE YARD BORROW PITS (SWMU 20), PBA-20A - SOUTH DEPOT DISPOSAL AREA (SWMU 53), PBA-23A - WHITE SMOKE TEST POND (SWMU 62), PBA-24 - THERMITE DISPOSAL AREA (SWMU 63), PBA-27 - AGENT BZ POND (SWMU 65), PBA-29 - SOLID WASTE ARK-LA SITE (SWMU 27))
1982	
RFA	(PBA-08 - N HC SMOKE POT TEST POND (SWMU 74))
PA	(PBA-01 - N EXCLUSION AREA RUBBLE PILE (SWMU 3), PBA-06 - OLD ARK-LA RUBBLE SITE (SWMU 28))
SI	(PBA-01 - N EXCLUSION AREA RUBBLE PILE (SWMU 3), PBA-02 - WEBSTER ROAD TEST SITE (SWMU 6), PBA-06 - OLD ARK-LA RUBBLE SITE (SWMU 28))
CS	(PBA-08 - N HC SMOKE POT TEST POND (SWMU 74))
1983	
RFI/CMS	(PBA-11A - DDT SEDIMENT RETENTION BASIN1(SWMU 18), PBA-11B - DDT SEDIMENT RETENTION BASIN2(SWMU 18), PBA-11C - DDT SEDIMENT RETENTION BASIN3(SWMU 18))
SI	(PBA-10 - BOMBING MAT (SWMU 7), PBA-10B - SOLID WASTE STORAGE FACILITY (SWMU 9), PBA-40 - INCINERATOR COMPLEX (SWMU 38-41), PBA-40A - IC COOLING POND (SWMU 44), PBA-40B - SOLID WASTE SHREDDER (SWMU 43), PBA-40C - WASTE CONTAINER MAGAZINE AT IC (SWMU 42), PBA-46 - LIQUID WASTE STORAGE BLDG 81-530(SWMU26))
PA	(PBA-49 - FY 86 MCA HAZARDOUS WASTE LANDFILL)
1984	
DES	(PBA-11A - DDT SEDIMENT RETENTION BASIN1(SWMU 18), PBA-11B - DDT SEDIMENT RETENTION BASIN2(SWMU 18), PBA-11C - DDT SEDIMENT RETENTION BASIN3(SWMU 18))
RI/FS	(PBA-10A - DEPOT DEMOL, N BURN AREA (SWMU 8), PBA-13A - ABANDONED BURN PIT (SWMU 11), PBA-17 - OLD PRODUCT TEST RANGE (SWMU 36))
RFI/CMS	(PBA-20A - SOUTH DEPOT DISPOSAL AREA (SWMU 53))
1985	
CMI(C)	(PBA-11A - DDT SEDIMENT RETENTION BASIN1(SWMU 18), PBA-11B - DDT SEDIMENT RETENTION BASIN2(SWMU 18), PBA-11C - DDT SEDIMENT RETENTION BASIN3(SWMU 18))
RFI/CMS	(PBA-04 - 504TH ST BURN SITE (SWMU 25), PBA-07B - LEWISITE DISPOSAL AREA (SWMU 19), PBA-07C - MUSTARD AGENT BURNING YARD (SWMU 21, PBA-07D - STORAGE YARD BORROW PITS (SWMU 20), PBA-23A - WHITE SMOKE TEST POND (SWMU 62), PBA-27 - AGENT BZ POND (SWMU 65), PBA-29 - SOLID WASTE ARK-LA SITE (SWMU 27))
RI/FS	(PBA-02 - WEBSTER ROAD TEST SITE (SWMU 6), PBA-12 - MUSTARD BURN PIT (SWMU 10), PBA-16A - WHITE PHOSPHORUS LANDFILL (SWMU 33), PBA-26 - PRODUCT ASSURANCE TEST RANGE (SWMU 64), PBA-29A - SALT PILE (SWMU 30), PBA-31A - PRODUCT ASSURANCE TEST RANGE (SWMU 72), PBA-34 - NCTR EQUALIZATION POND (SWMU 4), PBA-36 - CENTRAL WASTE TREATMENT LAGOON (SWMU 47), PBA-38 - IMPREGNITE SLUDGE LAGOON (SWMU 68))
1986	
SI	(PBA-47 - EOD DETONATION AREA (SWMU35), PBA-49 - FY 86 MCA HAZARDOUS WASTE LANDFILL)
PA	(PBA-18C - CLASS IV LANDFILL (SWMU 57), PBA-18D - REUSABLE RUBBLE PIT (SWMU 58), PBA-19 - FACILITY BURN PIT/ASBESTOS LF (SWMU 59), PBA-35 - NORTH OXIDATION POND (SWMU 13), PBA-37 - SOUTH OXIDATION PONDS (SWMU 46), PBA-39 - SANITARY POND, PBA-47 - EOD DETONATION AREA (SWMU35), PBA-50 - M55 ROCKET STORAGE AREA (SWMU 77), PBA-54 - WP STORAGE UST'S (35), PBA-61 - TANK 33-320A)
1987	
PA	(PBA-52 - TEMP HOLDING FOR HAZARDOUS WASTE(SWMU61))

IRP Schedule

DES	(PBA-04 - 504TH ST BURN SITE (SWMU 25), PBA-07B - LEWISITE DISPOSAL AREA (SWMU 19), PBA-07C - MUSTARD AGENT BURNING YARD (SWMU 21), PBA-07D - STORAGE YARD BORROW PITS (SWMU 20), PBA-20A - SOUTH DEPOT DISPOSAL AREA (SWMU 53), PBA-23A - WHITE SMOKE TEST POND (SWMU 62), PBA-27 - AGENT BZ POND (SWMU 65), PBA-29 - SOLID WASTE ARK-LA SITE (SWMU 27))
RD	(PBA-02 - WEBSTER ROAD TEST SITE (SWMU 6), PBA-10A - DEPOT DEMOL, N BURN AREA (SWMU 8), PBA-12 - MUSTARD BURN PIT (SWMU 10), PBA-13A - ABANDONED BURN PIT (SWMU 11), PBA-16A - WHITE PHOSPHORUS LANDFILL (SWMU 33), PBA-17 - OLD PRODUCT TEST RANGE (SWMU 36), PBA-26 - PRODUCT ASSURANCE TEST RANGE (SWMU 64), PBA-29A - SALT PILE (SWMU 30), PBA-31A - PRODUCT ASSURANCE TEST RANGE (SWMU 72), PBA-34 - NCTR EQUALIZATION POND (SWMU 4), PBA-38 - IMPREGNITE SLUDGE LAGOON (SWMU 68))
CMI(C)	(PBA-27 - AGENT BZ POND (SWMU 65))
1988	
CMI(C)	(PBA-07C - MUSTARD AGENT BURNING YARD (SWMU 21))
RA(C)	(PBA-02 - WEBSTER ROAD TEST SITE (SWMU 6), PBA-10A - DEPOT DEMOL, N BURN AREA (SWMU 8), PBA-13A - ABANDONED BURN PIT (SWMU 11), PBA-16A - WHITE PHOSPHORUS LANDFILL (SWMU 33), PBA-17 - OLD PRODUCT TEST RANGE (SWMU 36), PBA-26 - PRODUCT ASSURANCE TEST RANGE (SWMU 64), PBA-31A - PRODUCT ASSURANCE TEST RANGE (SWMU 72), PBA-34 - NCTR EQUALIZATION POND (SWMU 4), PBA-38 - IMPREGNITE SLUDGE LAGOON (SWMU 68))
RFA	(PBA-41 - MCA 83 HAZARDOUS WASTE LANDFILL (SWMU 1), PBA-44 - MCA 83 SURFACE IMPOUNDMENT (SWMU 12))
RI/FS	(PBA-20B - WP SLAG BURN & DISPOSAL AREA (SWMU 60))
PA	(PBA-17T - DILLY FARM TEST RANGE (SWMU 37), PBA-51 - WP POLLUTION ABATEMENT FACILITY (SWMU79), PBA-53 - PCB STORAGE FACILITY (SWMU 70), PBA-55 - CLARIFIER FOR N SAN TRMT PLANT (SWMU 14), PBA-56 - SCREEN FILT FOR N. SAN SEW TRMT (SWMU15), PBA-57 - SLUDGE DRYING N SAN SEW TRMT PLT(SWMU16), PBA-58 - TRICKLE FILT N SAN SEW TRMT PLT (SWMU17), PBA-59 - SEWAGE CLARIFIER SYSTEM (SWMU 45), PBA-60 - OLD BZ PRODUCTION AREA (SWMU 66))
1989	
RA(C)	(PBA-12 - MUSTARD BURN PIT (SWMU 10), PBA-29A - SALT PILE (SWMU 30))
CMI(C)	(PBA-04 - 504TH ST BURN SITE (SWMU 25), PBA-07B - LEWISITE DISPOSAL AREA (SWMU 19), PBA-23A - WHITE SMOKE TEST POND (SWMU 62), PBA-29 - SOLID WASTE ARK-LA SITE (SWMU 27))
1990	
SI	(PBA-48 - B Z DEMILITARIZATION FACILITY)
PA	(PBA-48 - B Z DEMILITARIZATION FACILITY)
CMI(C)	(PBA-07D - STORAGE YARD BORROW PITS (SWMU 20), PBA-20A - SOUTH DEPOT DISPOSAL AREA (SWMU 53))
1991	
RA(C)	(PBA-54 - WP STORAGE UST'S (35))
1992	
RA(C)	(PBA-61 - TANK 33-320A)
1996	
PA	(PBA-62 - BOMBING MAT VICINITY)
1997	
RA(C)	(PBA-60 - OLD BZ PRODUCTION AREA (SWMU 66))
2000	
RI/FS	(PBA-18 - CLOSED SANITARY LANDFILL (SWMU 54))
2001	
RFI/CMS	(PBA-11 - OLD CHEM MANUFACTURING (SWMU 29))
PA	(SITE 63 - YELLOW LAKE BORROW AREA)

2002

RFI/CMS (PBA-03 - OLD DDT DISPOSAL AREA (SWMU 75), PBA-08 - N HC SMOKE POT TEST POND (SWMU 74), PBA-11D - DDT LANDFILL BLDG #54-270 (SWMU 24), PBA-11E - DDT LANDFILL BLDG #54-325 (SWMU 24), PBA-11F - SEDIMENTS CONTAINING DDT (SWMU 23), PBA-24 - THERMITE DISPOSAL AREA (SWMU 63))

RI/FS (PBA-01 - N EXCLUSION AREA RUBBLE PILE (SWMU 3), PBA-06 - OLD ARK-LA RUBBLE SITE (SWMU 28), PBA-18A - CURRENT SANITARY LANDFILL (SWMU 55))

LTM (PBA-34 - NCTR EQUALIZATION POND (SWMU 4))

2003

RFI/CMS (PBA-07A - DEPOT STORAGE YARD (SWMU 22))

DES (PBA-11F - SEDIMENTS CONTAINING DDT (SWMU 23))

2004

SI (PBA-62 - BOMBING MAT VICINITY, SITE 63 - YELLOW LAKE BORROW AREA)

CMI(C) (PBA-11 - OLD CHEM MANUFACTURING (SWMU 29))

2005

RI/FS (PBA-62 - BOMBING MAT VICINITY)

CMI(C) (PBA-03 - OLD DDT DISPOSAL AREA (SWMU 75), PBA-11D - DDT LANDFILL BLDG #54-270 (SWMU 24), PBA-11E - DDT LANDFILL BLDG #54-325 (SWMU 24), PBA-11F - SEDIMENTS CONTAINING DDT (SWMU 23))

2010

CMI(C) (PBA-07A - DEPOT STORAGE YARD (SWMU 22))

CMI(O) (PBA-11 - OLD CHEM MANUFACTURING (SWMU 29))

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: 201009

Schedule for Next Five-Year Review: 2014

Estimated Completion Date of IRP at Installation (including LTM phase): 204209

PINE BLUFF ARSENAL IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-04	504TH ST BURN SITE (SWMU 25)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-07A	DEPOT STORAGE YARD (SWMU 22)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-07B	LEWISITE DISPOSAL AREA (SWMU 19)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-07C	MUSTARD AGENT BURNING YARD (SWMU 21)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-07D	STORAGE YARD BORROW PITS (SWMU 20)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-08	N HC SMOKE POT TEST POND (SWMU 74)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-11	OLD CHEM MANUFACTURING (SWMU 29)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-20A	SOUTH DEPOT DISPOSAL AREA (SWMU 53)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-23A	WHITE SMOKE TEST POND (SWMU 62)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-24	THERMITE DISPOSAL AREA (SWMU 63)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-27	AGENT BZ POND (SWMU 65)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-29	SOLID WASTE ARK-LA SITE (SWMU 27)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-41	MCA 83 HAZARDOUS WASTE LANDFILL (SWMU 1)	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-44	MCA 83 SURFACE IMPOUNDMENT (SWMU 12)	LTM						

PINE BLUFF ARSENAL
Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 4/2

Installation Site Types with Future and/or Underway Phases

- 1 Open Burn
(PBA-001-R-01)
- 1 Unexploded Munitions/Ordnance
(PBA-002-R-01)

Most Widespread Contaminants of Concern

Chemical weapon munitions (CWM)/Chemical agent, Metals

Media of Concern

Groundwater, Sediment, Soil, Surface Water

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 200203

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201412/201412

Date of MMRP completion including Long Term Management (LTM): 204501

MMRP Contamination Assessment

Contamination Assessment Overview

Four Military Munitions Response Program (MMRP) sites were identified at PBA. In early FY06, when the site inspection (SI) was completed two of these sites were determined to need no further action (NFA). In FY06, an ecological risk assessment was conducted and funded by PBA and the risk assessment report was submitted to the ADEQ in conjunction with the SI.

Cleanup Exit Strategy

Additional investigation is planned for PBA-001-R-01 and PBA-002-R-01. Remediation such as waste removal and LTM may be needed.

MMRP Previous Studies

	Title	Author	Date
2005	Geophysical Survey Results-Site 63-Yellow Lake	Shaw/PBA	JAN-2005
	MMRP Historical Records Review	USCOE/E2M	FEB-2005
	Eco Hazard Assessment and Risk Characterization of MR Sites	PBA/GLEC	NOV-2005
2006	Final Site Inspection Report, Military Munitions Response Program, Site Inspection Munitions Response Sites, PBA, Arkansas for the USACE, Omaha District	Engineering-environmental Management, Inc., ACC Contract Number F44650-99-D-0004	JAN-2006

PINE BLUFF ARSENAL
Military Munitions Response Program
Site Descriptions

Site ID: PBA-001-R-01
Site Name: BOMBING MAT VICINITY
Alias: Site 62

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 02

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent, Metals

Media of Concern: Groundwater, Sediment, Soil, Surface Water

Phases	Start	End
PA.....	200203.....	200305
SI.....	200404.....	200601
RI/FS.....	201010.....	201309
IRA.....	201105.....	201309
RA(C).....	201310.....	201412
LTM.....	201501.....	204501

RIP Date: N/A

RC Date: 201412

SITE DESCRIPTION

Bombing Mat Vicinity, which was known as PBA-62, is approximately 160.57 acres and lies within the former impact zone for testing of thermite bombs in the 1940s. Also within the area are work zones that contain pits that were used for the demilitarization of high explosive munitions. Large quantities of metallic debris have been found scattered across the area. The discovery of empty chemical munitions bodies and glass fragments from identification (ID) sets indicate that the area may contain chemical agent contamination. The area is also close to Site-12 (Mustard Burn Pit) where remediation included the removal of mustard agent-filled German Tractor rockets disposed of during World War II.

The Army has conducted an SI which included a review of historical records and interviews with site personnel. Based on this new information, a revised conceptual site model was produced which may expand the site boundaries. In FY06 an ecological risk assessment funded by PBA was conducted and submitted to the ADEQ.

There is a potential for chemical weapon munitions (CWM) and contamination at this site.

The RI/FS phase is was funded in FY11 and FY12 and is currently underway. Huntsville District Corps of Engineers is the lead and Shaw Environmental is the contractor.

CLEANUP/EXIT STRATEGY

An RI will be conducted for potential munitions constituent (MC) and munitions and explosives of concern (MEC) contamination. No MEC or MC removal is expected. Institutional controls with fencing of the entire area will be instituted. MEC monitoring, groundwater monitoring, and a five-year review will be conducted as part of LTM.

Site ID: PBA-002-R-01
Site Name: YELLOW LAKE BORROW AREA
Alias: Site 63

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 02

Contaminants of Concern: Chemical weapon munitions (CWM)/Chemical agent

Media of Concern: Soil

Phases	Start	End
PA.....	200203.....	200305
SI.....	200404.....	200601
RI/FS.....	201010.....	201309
IRA.....	201103.....	201309
RA(C).....	201310.....	201412
LTM.....	201501.....	204501

RIP Date: N/A

RC Date: 201412

SITE DESCRIPTION

This site, which was known as PBA-63, covers approximately 356.36 acres and was used for several years as a borrow area for sandy soils. In 2000, an unexploded 4.2-inch mustard mortar round was discovered in the area during the removal of borrow, necessitating the investigation of the area for more unexploded ordnance (UXO).

The Army has conducted an SI, which includes a review of historical records and interviews with site personnel. Based on this new information, a revised conceptual site model was produced which may expand the site boundaries. In FY06 PBA funded an ecological risk assessment which was submitted to the ADEQ.

The RI/FS phase is was funded in FY11 and FY12 and is currently underway. Huntsville District Corps of Engineers is the lead and Shaw Environmental is the contractor.

CLEANUP/EXIT STRATEGY

An RI for potential MC and MEC contamination will be conducted. No MEC or MC removal is expected. Institutional controls with fencing of the target area will be instituted and MEC monitoring conducted as part of LTM.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
PBA-003-R-01	MUSTARD BURN PIT	200601	Results of the SI historical records review confirmed that no further action (NFA) is required at this site because it was cleaned up under the IRP and has been made response complete.
PBA-004-R-01	WP SLAG BURN AND DISPOSAL AREA	200601	Results of the SI historical records review confirmed that NFA is required at this site because it was cleaned up under the IRP and has been made response complete.

MMRP Schedule

Date of MMRP Inception 200203

Past Phase Completion Milestones

2003

PA (PBA-001-R-01 - BOMBING MAT VICINITY, PBA-002-R-01 - YELLOW LAKE BORROW AREA, PBA-003-R-01 - MUSTARD BURN PIT, PBA-004-R-01 - WP SLAG BURN AND DISPOSAL AREA)

2006

SI (PBA-001-R-01 - BOMBING MAT VICINITY, PBA-002-R-01 - YELLOW LAKE BORROW AREA, PBA-003-R-01 - MUSTARD BURN PIT, PBA-004-R-01 - WP SLAG BURN AND DISPOSAL 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
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Final RA(C) Completion Date: 201412

Schedule for Next Five-Year Review: 2014

Estimated Completion Date of MMRP at Installation (including LTM phase): 204501

PINE BLUFF ARSENAL MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-001-R-01	BOMBING MAT VICINITY	RI/FS						
		IRA						
		RA(C)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
PBA-002-R-01	YELLOW LAKE BORROW AREA	RI/FS						
		IRA						
		RA(C)						
		LTM						

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: 201102

Efforts Taken to Determine Interest

An advertisement soliciting interest in a RAB was placed in the local Pine Bluff newspaper.

Results

No responses were received from the advertisement.

Follow-up Procedures

Interest in the development of a RAB will continued to be solicited on a periodic basis (every two years).

Additional Community Involvement Information

No community involvement plan has been published. Community interest will continued to be solicited on a periodic basis.

Administrative Record is located at

Pine Bluff Arsenal
10020 Kabrich Circle
Building 10-030
Pine Bluff, AR 71602

Information Repository is located at

University of Arkansas Pine Bluff Library
1200 University Drive
Pine Bluff, AR 71602

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

TAPP Title: N/A

Potential TAPP: N/A

