

FY2012

ST LOUIS ORDNANCE PLANT
Army Defense Environmental Restoration Program
Installation Action Plan

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial action (RA).

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), the St. Louis Ordnance Plant (SLOP), the Installation Management Command-Army Reserve Office (IMCOM-ARO), regulatory agencies, executing 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

AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DoD	Department of Defense
ER,A	Environmental Restoration, Army
FRA	Final Remedial Action
FS	Feasibility Study
FY	Fiscal Year
IMCOM-ARO	Installation Management Command-Army Reserve Office
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
LTM	Long-Term Management
MCL	Maximum Contaminant Levels
MW	Monitoring Well
N/A	Not Applicable
NASA	National Aeronautics and Space Administration
NPL	National Priorities List
PBC	Performance Based Contract
PCB	Polychlorinated Biphenyl
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RC	Response Complete
RD	Remedial Design
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RSC	Regional Support Command
SLOP	Saint Louis Ordnance Plant
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USEPA	US Environmental Protection Agency

Installation Information

Installation Locale

Installation Size (Acreage): 11

City: St. Louis

County: St. Louis

State: Missouri

Other Locale Information

The SLOP is located at the northwestern border of the city of St. Louis, Missouri in St. Louis County. It is near the intersection of Goodfellow Boulevard and Stratford Avenue.

Installation Mission

Currently the SLOP is excess to the needs of the 88th Regional Support Command (RSC). A few buildings on the site are used for storage.

Lead Organization

Lead Executing Agencies for Installation

88th RSC

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Region 7
State	Missouri Department of Natural Resources

National Priorities List (NPL) Status

ST LOUIS ORDNANCE PLANT is not on the NPL

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

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

Installation Program Summaries

IRP

Primary Contaminants of Concern: Metals, Polychlorinated Biphenyls (PCB), Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Planned	201609	201609	2016

5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
Final SLOP-01 ROD	SLOP-01

Cleanup Program Summary

Installation Historic Activity

From 1941 to 1945, the SLOP was operated solely as a small arms ammunition facility. The property where the SLOP is located produced the primer and tracer components used in the assembly of the final product.

From 1945 to 1959, the facility was used for administrative and record-keeping purposes. From 1959 to 1979 Hanley Industries Inc. leased the property to produce specialized devices for the Department of Defense (DoD) and the National Aeronautics and Space Administration (NASA). The property was unused from 1979 to 1998, when the 88th RSC assumed responsibility for the SLOP.

A contract was awarded in 2007 to prepare a feasibility study (FS), proposed plan (PP), and decision document (DD) for Site SLOP-01, as well as the remedial design (RD), RA, and long-term management (LTM).

Because volatile organic compounds (VOC) groundwater contamination had moved beyond the SLOP property and because of the proximity of residences to the installation, a vapor intrusion (VI) study was conducted at off-post residences that permitted the US Army to conduct the study. Two rounds of sampling were conducted in 2008, and the conclusion of the study, which received regulatory concurrence, was that VI into the off-post residences was not a current issue of concern; however, an increase in VOC levels above the maximum contaminant levels (MCL) in MW107 sampled in August 2010 has resulted in additional evaluation of potential for VI at off-post residences. Site CC SLOP-18 was established in order to assess the potential for VI from contaminated groundwater into nearby residences.

Installation Program Cleanup Progress

IRP

Prior Year Progress: LTM/LUCIP to be finalized. RIP/RC for SLOP-01 to be achieved.

Future Plan of Action: LTM to be initiated for SLOP-01. For Site CC SLOP-18, complete a Project Management Plan and QA/QC Plan, and award an RI in FY13.

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Installation Restoration Program

IRP Summary

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

Installation Site Types with Future and/or Underway Phases

- 1 Contaminated Ground Water
(CC-SLOP-18)
- 1 Spill Site Area
(SLOP-01)

Most Widespread Contaminants of Concern

Metals, Polychlorinated Biphenyls (PCB), Volatiles (VOC)

Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY
SLOP-01	Former Hanley Area - SLOP	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-02	FORMER BUILDING 227T	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-03	Sewer Lines	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-04	FMR MAGAZINE SERIES 227	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-05	POWDER WELLS(#218C & 227/228 SER. MAGS)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-06	FMR BUILDING 236	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-07	FMR BUILDING SERIES 218(A-C)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-08	CONTAMINATED POWDER WELLS(2),BLDG 218A,B	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-09	FMR PROCESS BDLG(219A,D,G)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-10	FMR MAGAZINES(219 FAND 219J)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-11	FMR MAGAZINES(219 B,C,&H)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-12	FMR MAGAZINES(219E)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-13	FMR BLDG. 220 LAB BUILDING	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-14	FMR 226 SERIES MAGAZINES	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-15	FMR 228 SERIES MAGAZINES	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-16	FMR 229 SERIES MAGAZINES	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-17	FMR POWDER WELL(6,FMR.226&228 SER MAGS)	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1979
SLOP-01	Former Hanley Area - SLOP	FRA	REMOVAL	2012
SLOP-01	Former Hanley Area - SLOP	FRA	IN-SITU SOIL TREATMENT	2012

IRP Summary

Duration of IRP

Date of IRP Inception: 197901

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201509/201509

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

IRP Contamination Assessment

Contamination Assessment Overview

Metal-contaminated soils are located around former Building series 218 and 219 and VOC-contaminated soils and groundwater are located northeast of former Building 220. In addition, a small area of soil contaminated with polychlorinated biphenyl (PCB) will be removed from the site. The groundwater contamination extends onto St. Louis city property. Potential VI from groundwater contamination will be assessed.

Cleanup Exit Strategy

Excavation and disposal of metals and PCB-contaminated soils, and soil-mixing and treatment in the area of contaminated groundwater at the SLOP will be conducted through a contract awarded in 2007. LTM and an exit strategy will be developed as part of the cleanup design and remediation of VOC contaminated soils and groundwater.

IRP Previous Studies

Year	Title	Author	Date
1981	Survey of Hazardous/Chemical Area No.2 of the Former St. Louis Ordnance Plant	Installation	JAN-1981
1989	Waste Site Characterization Study	Roy F. Weston, Inc	JUN-1989
1991	St. Louis Ordnance Plant Environmental Study	USATHAMA	JAN-1991
1998	Site Investigation Report, Former St. Louis Ordnance Plant (SLOP), St. Louis, Missouri	Harza Environmental Services	DEC-1998
2001	Preliminary Assessment/Site Investigation Report	Tapan Am Associates, Inc	JUN-2001
2003	Limited Phase II Environmental Assessment Report for the Investigation of Impacted Groundwater	Installation	MAR-2003
	Phase I Environmental Site Assessment, Former St. Louis Ordnance Plant	Pangea, Inc	SEP-2003
2004	Pre-Demolition Environmental Site Investigation Report	SCS Engineers	FEB-2004
2005	Technical Memorandum - Final Hanley Area Phase I Remedial Investigation Former St. Louis Ordnance Plant (SLOP), St. Louis, Missouri	Kansas City District, US Army Corps of Engineers	MAY-2005
2006	Final Supplemental Groundwater Remedial Investigation Technical Memorandum Hanley Area, Former St. Louis Ordnance Plant, St. Louis, Missouri	Kansas City District, US Army Corps of Engineers	OCT-2006
2007	Final Supplemental Soil and Groundwater Phase II Remedial Investigation Technical Memorandum Hanley Areas, Former St. Louis Ordnance Plant, St. Louis, Missouri	Kansas City District, US Army Corps of Engineers	JUN-2007
2009	Final Remedial Investigation Report Hanley Areas, Former St. Louis Ordnance Plant, St. Louis, Missouri	CH2M Hill	NOV-2009
2010	Final Feasibility Study Report, St. Louis Ordnance Plant, Former Hanley Area, St. Louis, Missouri	CH2M Hill	JUL-2010
2011	Final Decision Document (OU-1), St. Louis Ordnance Plant, Former Hanley Area, St. Louis, Missouri	CH2M Hill	SEP-2011
	Final Remedial Design/Remedial Action Work plan (OU-1), St. Louis Ordnance Plant, Former Hanley Area, St. Louis, Missouri	CH2M Hill	SEP-2011

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Installation Restoration Program
Site Descriptions

Site ID: CC-SLOP-18
Site Name: OU-2, Vapor Intrusion Pathway

STATUS

Regulatory Driver: CERCLA

RRSE: NOT EVALUATED

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA.....	200809.....	201109
SI.....	200809.....	201109
RI/FS.....	201202.....	201509

RIP Date: N/A

RC Date: 201509

SITE DESCRIPTION

This project will assess the potential for VI in residential properties adjacent to the northern portion of site SLOP-01 (OU-1). Groundwater contaminated with VOCs has migrated off-site. The VI assessment will be managed as a separate operable unit (OU-2). It is not known at this time if additional remediation/mitigation measures will be required after the RI is completed.

CLEANUP/EXIT STRATEGY

Complete Project Management Plan (PMP) and QA/QC plan in FY12. Award RI in FY13. Assess the VI pathway during the RI and determine a path forward.

Site ID: SLOP-01

Site Name: Former Hanley Area - SLOP

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Metals, Polychlorinated Biphenyls (PCB), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
PA.....	197901.....	198106
SI.....	199802.....	200110
RI/FS.....	200110.....	201007
RD.....	200910.....	201109
IRA.....	197901.....	197908
RA(C).....	201202.....	201209
LTM.....	201210.....	204209

RIP Date: N/A

RC Date: 201209

SITE DESCRIPTION

In October 2001, a preliminary assessment/site inspection (PA/SI) was completed. In fiscal year (FY)03, the SLOP was included in the Reserve Sites performance based contract (PBC), but it was taken out of the PBC in FY04 after bids were received.

A Phase I RI was completed by the Kansas City District of the US Army Corps of Engineers (USACE) in anticipation of an FY05 modification to the Reserve Sites PBC; however, the findings of the RI precluded inclusion in the Reserve Sites PBC.

Between FY05 and FY07, the Kansas City District USACE conducted additional soil and groundwater sampling to delineate a plume in the northeast corner of the property around Building 220. This study was completed in FY07. The findings of the study indicated significantly more soil and groundwater contamination than had been estimated.

In 2007, a PBC was awarded to prepare an RI/FS, PP and DD for the installation, as well as the RD and remedial action (RA). The final RI was completed in November, 2009, and the final FS was completed in July 2010. The final DD was completed in September 2011, and the associated public meeting was held in December 2010. The final Remedial Design (RD/Remedial Action (RA) work plan was completed in September 2011. The draft final LTM/LUCIP was completed in December 2011. RAs chosen for OU-1 consist of in situ groundwater treatment using chemical processes, soil mixing and soil removal.

CLEANUP/EXIT STRATEGY

Excavation and disposal of metals and PCB-contaminated soils, and soil-mixing and treatment in the area of contaminated groundwater at the SLOP are being conducted under a contract awarded in 2007. LTM and an exit strategy will be developed as part of the cleanup design, and remediation of VOC-contaminated soils and groundwater.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
SLOP-02	FORMER BUILDING 227T	199803	Any contamination is addressed under SLOP-01.
SLOP-03	Sewer Lines	200009	Any contamination is addressed under SLOP-01.
SLOP-04	FMR MAGAZINE SERIES 227	200009	Any contamination is addressed under SLOP-01.
SLOP-05	POWDER WELLS(#218C & 227/228 SER. MAGS)	200009	Any contamination is addressed under SLOP-01.
SLOP-06	FMR BUILDING 236	200009	Any contamination is addressed under SLOP-01.
SLOP-07	FMR BUILDING SERIES 218(A-C)	200009	Any contamination is addressed under SLOP-01.
SLOP-08	CONTAMINATED POWDER WELLS(2),BLDG 218A,B	200009	Any contamination is addressed under SLOP-01.
SLOP-09	FMR PROCESS BDLG(219A,D,G)	200009	Any contamination is addressed under SLOP-01.
SLOP-10	FMR MAGAZINES(219 FAND 219J)	200009	Any contamination is addressed under SLOP-01.
SLOP-11	FMR MAGAZINES(219 B,C,&H)	200009	Any contamination is addressed under SLOP-01.
SLOP-12	FMR MAGAZINES(219E)	200009	Any contamination is addressed under SLOP-01.
SLOP-13	FMR BLDG. 220 LAB BUILDING	200009	Any contamination is addressed under SLOP-01.
SLOP-14	FMR 226 SERIES MAGAZINES	199803	Any contamination is addressed under SLOP-01.
SLOP-15	FMR 228 SERIES MAGAZINES	199803	Any contamination is addressed under SLOP-01.
SLOP-16	FMR 229 SERIES MAGAZINES	199803	Any contamination is addressed under SLOP-01.
SLOP-17	FMR POWDER WELL(6,FMR.226&228 SER MAGS	199803	Any contamination is addressed under SLOP-01.

IRP Schedule

Date of IRP Inception: 197901

Past Phase Completion Milestones

1979

IRA (SLOP-01 - Former Hanley Area - SLOP, SLOP-02 - FORMER BUILDING 227T, SLOP-03 - Sewer Lines, SLOP-04 - FMR MAGAZINE SERIES 227, SLOP-05 - POWDER WELLS(#218C & 227/228 SER. MAGS), SLOP-06 - FMR BUILDING 236, SLOP-07 - FMR BUILDING SERIES 218(A-C), SLOP-08 - CONTAMINATED POWDER WELLS(2),BLDG 218A,B, SLOP-09 - FMR PROCESS BDLG(219A,D,G), SLOP-10 - FMR MAGAZINES(219 FAND 219J), SLOP-11 - FMR MAGAZINES(219 B,C,&H), SLOP-12 - FMR MAGAZINES(219E), SLOP-13 - FMR BLDG. 220 LAB BUILDING, SLOP-14 - FMR 226 SERIES MAGAZINES, SLOP-15 - FMR 228 SERIES MAGAZINES, SLOP-16 - FMR 229 SERIES MAGAZINES, SLOP-17 - FMR POWDER WELL(6,FMR.226&228 SER MAGS)

1981

PA (SLOP-01 - Former Hanley Area - SLOP, SLOP-02 - FORMER BUILDING 227T, SLOP-03 - Sewer Lines, SLOP-04 - FMR MAGAZINE SERIES 227, SLOP-05 - POWDER WELLS(#218C & 227/228 SER. MAGS), SLOP-06 - FMR BUILDING 236, SLOP-07 - FMR BUILDING SERIES 218(A-C), SLOP-08 - CONTAMINATED POWDER WELLS(2),BLDG 218A,B, SLOP-09 - FMR PROCESS BDLG(219A,D,G), SLOP-10 - FMR MAGAZINES(219 FAND 219J), SLOP-11 - FMR MAGAZINES(219 B,C,&H), SLOP-12 - FMR MAGAZINES(219E), SLOP-13 - FMR BLDG. 220 LAB BUILDING, SLOP-14 - FMR 226 SERIES MAGAZINES, SLOP-15 - FMR 228 SERIES MAGAZINES, SLOP-16 - FMR 229 SERIES MAGAZINES, SLOP-17 - FMR POWDER WELL(6,FMR.226&228 SER MAGS)

1991

SI (SLOP-02 - FORMER BUILDING 227T, SLOP-14 - FMR 226 SERIES MAGAZINES, SLOP-15 - FMR 228 SERIES MAGAZINES, SLOP-16 - FMR 229 SERIES MAGAZINES, SLOP-17 - FMR POWDER WELL(6,FMR.226&228 SER MAGS)

1998

SI (SLOP-03 - Sewer Lines, SLOP-04 - FMR MAGAZINE SERIES 227, SLOP-05 - POWDER WELLS(#218C & 227/228 SER. MAGS), SLOP-06 - FMR BUILDING 236, SLOP-07 - FMR BUILDING SERIES 218(A-C), SLOP-08 - CONTAMINATED POWDER WELLS(2),BLDG 218A,B, SLOP-09 - FMR PROCESS BDLG(219A,D,G), SLOP-10 - FMR MAGAZINES(219 FAND 219J), SLOP-11 - FMR MAGAZINES(219 B,C,&H), SLOP-12 - FMR MAGAZINES(219E), SLOP-13 - FMR BLDG. 220 LAB BUILDING)

2000

RI/FS (SLOP-03 - Sewer Lines, SLOP-04 - FMR MAGAZINE SERIES 227, SLOP-05 - POWDER WELLS(#218C & 227/228 SER. MAGS), SLOP-06 - FMR BUILDING 236, SLOP-07 - FMR BUILDING SERIES 218(A-C), SLOP-08 - CONTAMINATED POWDER WELLS(2),BLDG 218A,B, SLOP-09 - FMR PROCESS BDLG(219A,D,G), SLOP-10 - FMR MAGAZINES(219 FAND 219J), SLOP-11 - FMR MAGAZINES(219 B,C,&H), SLOP-12 - FMR MAGAZINES(219E), SLOP-13 - FMR BLDG. 220 LAB BUILDING)

2002

SI (SLOP-01 - Former Hanley Area - SLOP)

2010

RI/FS (SLOP-01 - Former Hanley Area - SLOP)

2011

PA (CC-SLOP-18 - OU-2, Vapor Intrusion Pathway)

SI (CC-SLOP-18 - OU-2, Vapor Intrusion Pathway)

RD (SLOP-01 - Former Hanley Area - SLOP)

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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IRP Schedule

Final RA(C) Completion Date: 201209

Schedule for Next Five-Year Review: 2016

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

ST LOUIS ORDNANCE PLANT IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC-SLOP-18	OU-2, Vapor Intrusion Pathway	RI/FS						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
SLOP-01	Former Hanley Area - SLOP	LTM						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 200804

Restoration Advisory Board (RAB): No

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

Community Interest Solicited on: 200804

Efforts Taken to Determine Interest

In April 2008, a questionnaire associated with the Community Involvement Plan was distributed throughout the community to determine interest in an RAB.

Results

Response to the questionnaire was not significant enough to warrant establishing an RAB.

Follow-up Procedures

In FY11, the 88th RSC, in consultation with USAEC and USACE, Kansas City District, will be determining the next procedure to be used to solicit RAB interest.

Additional Community Involvement Information

In May 2006, the 89th RSC met with the local alderman to discuss investigative findings to date. The US Army agreed to provide additional information as it becomes available.

A public meeting was held to discuss the PP in December, 2010. Formal solicitation of RAB interest was not conducted during the meeting.

Administrative Record is located at

88th RSC
60 South O Street
Fort McCoy
Wisconsin 54656
608.388.7518

Information Repository is located at

St. Louis Central Public Library
1301 Olive Street
St. Louis, Missouri 63103
314.241.2288

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

TAPP Title: N/A

Potential TAPP: N/A

