

FY2012

**ROCK ISLAND ARSENAL
Compliance-Related Cleanup
Installation Action Plan**

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear compliance-related cleanup (CC) 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 CC manager, Rock Island Arsenal (RIA), the US Army Environmental Command (USAEC), the Installation Management Command (IMCOM), executing agencies, and regulatory agencies, an IAP was completed. The IAP is used to track requirements, schedules and budgets for all Army installation cleanup programs.

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

The following persons contributed to the formulation and completion of this Installation Action Plan for ROCK ISLAND ARSENAL:

USACE
USAEC
Rock Island Arsenal
PB&A Inc. (for USAEC)

Acronyms

AEDB-CC	Army Environmental Data Base - Compliance-Related Cleanup
CS	Confirmatory Sampling
FRA	Final Remedial Action
GW	Groundwater
HDPE	High Density Polyethylene
HWMU	Hazardous Waste Management Unit
IEPA	Illinois Environmental Protection Agency
IMCOM	US Army Installation Management Command
IRA	Interim Remedial Action
JMC	Joint Munitions Command
K	1,000
LTM	Long-Term Management
LUC	Land Use Control
N/A	Not Applicable
NHL	National Historic Landmark
NRHP	National Register of Historic Places
POL	Petroleum, Oils and Lubricants
RC	Response Complete
RCRC	Resource Conservation and Recovery Act, Subtitle C (HW Management)
RIA	Rock Island Arsenal
RIP	Remedy-in-Place
SHPO	State Historic Preservation Office
TACO	Tiered Approach to Cleanup Objectives
TACOM	US Army Tank-Automotive and Armaments Command
TCA	Trichloroethane
USACE	US Army Corps of Engineers
USAG-RIA	US Army Garrison - Rock Island Arsenal
USEPA	US Environmental Protection Agency
VA	Veterans Administration
VOC	Volatile Organic Compound

Installation Information

Installation Locale

Installation Size (Acreage): 946.3

City:

County: Rock Island

State: Illinois

Other Locale Information

RIA, located in Rock Island County, Illinois, is a 946.3-acre island in the Mississippi River. The US Army Corps of Engineers (USACE) occupies 9.5 acres, the Veterans Administration (VA) occupies 70.3 acres (this includes the 67.3-acre National Cemetery and a three-acre Confederate cemetery), and the RIA occupies the remaining 866.5 acres. The Iowa cities of Davenport (population 98,359) and Bettendorf (population 31,275) are located immediately north, across the Mississippi River from the arsenal. The Illinois cities of Rock Island (population 39,684) and Moline (population 54,500) are located immediately south of RIA and are separated by a channel of the Mississippi River called the Sylvan Slough and the Moline Pool.

Installation Mission

The RIA has two distinct missions:

1. The manufacture of artillery, gun mounts, recoil mechanisms, small arms and spare parts;
2. The provision of administrative, logistical and facility support services for RIA and a number of tenant activities.

Lead Organization

Lead Executing Agencies for Installation

USAEC

Louisville District

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Region V (not currently active at RIA)
State	Illinois Environmental Protection Agency (IEPA)

Installation Program Summaries

CC

Primary Contaminants of Concern: Metals, Volatiles (VOC)

Affected Media of Concern: Groundwater

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201207/201307

Prior Funding: \$3,665.0 K

Current Requirements: \$.0 K

Future Requirements: \$1,791.0 K

Cleanup Program Summary

Installation Historic Activity

The Rock Island Arsenal (RIA) has had numerous activities that may have contributed to contamination on the island.

RIA is in the center of the Quad Cities region, surrounded by four cities. Land use in the four cities consists of retail businesses, services, administrative functions, industrial uses, transportation, wholesaling, warehousing, communications, utilities, recreation, exhibition space, conservation, and cemeteries.

In July 1862 the US Congress passed an act which established an arsenal on Rock Island. In 1866 construction of the first manufacturing shop buildings began; construction continued until 1893.

The arsenal has evolved over the years into a center for weaponry and support equipment. Completion of renovation of armament manufacturing, a multiyear (1982-1989) modernization project, greatly enhanced the physical plant, machine tool inventory, and data processing capabilities.

RIA's tenants include the Joint Manufacturing and Technology Center (JTMC); US Army Joint Munitions Command (JMC); First Army; Army Sustainment Command; US Army Acquisition Support; Edgewood Chemical Biological Center (ECBC); and Navy Surface Warfare Center Div (LOGCON).

The VA maintains two cemeteries on Arsenal Island. The National Cemetery, located on the eastern end of Arsenal Island, inters US military veterans, spouses and dependent children. The Confederate Cemetery, situated to the west of the National Cemetery, contains the remains of 1,959 prisoners who died on Arsenal Island during the Civil War.

The Compliance Clean-up program was initiated in 2004. Under this program there have been six contaminated sites. These sites include the building 64 site (CC-RIA-64); the building 65 site (CC-RIA-65); the building 69 site (CR-RIA-69); the building 54 site (CR-RIA-54); the former Construction Landfill (CC-RIA-007); the former ash pile(CC-RIA-004).

The CC-RIA-64 site was a former plating shop with chromium and trichloroethylene (TCE), trichloroethane (TCA), and cadmium as contaminants of concern. The site remediation began in 1991 and it was placed in the Compliance Clean-up Program in 2004. Work on the site (CC-RIA-64) is being monitored by IEPA through the Resource Conservation and Recovery Act (RCRA) program. Building 64 is centrally located on RIA and has no off-post issues. The IEPA had approved and RIA has completed the interior soil remediation of Building 64, which included removal of contaminated soil, removal of contaminated concrete, and installation of a RCRA cap inside Building 64. The groundwater was bioremediated in 2007 and is being monitored. The groundwater is to be scheduled for more bioremediation. This site, CR-RIA-69, and CC-RIA-07 are included in a performance-based acquisition (PBA) anticipated award date of June or July 2012.

The CC-RIA-65 site was the waste water treatment facility for the former plating shop (CC-RIA-64) and is located in the courtyard of building 64. The site remediation began in 2010 through the Compliance Clean-up program. The contaminants of concern at CC-RIA-65 are chromium and TCE. The site-contaminated soil and concrete has been removed and a RCRA cap has been installed at the site. Currently RIA is waiting for the IEPA to accept the site soil remediation closure plan. Once accepted, the site will be closed and the site groundwater remediation will be included in the CC-RIA-64 site project.

The CR-RIA-69 site is the former production, plating and tinning facility and the remediation began in 2006 through the Compliance Clean-up program using the IEPA SRP (Self-Reporting Program). The contaminants of concern at the site are chromium and TCE. The site was moved from the Compliance Clean-up program to the Army Restoration program and database (AEDB-R) in 2011. This site, CC-RIA-64, and CC-RIA-007 are included in a performance-based acquisition (PBA), with an anticipated award date of June 2012.

The CR-RIA-54 site was the former Oil Storage Building and the remediation began in 2007 through the Compliance Clean-up program through IEPA SRP. The contaminant of concern at the site was #2 fuel oil. The site was moved from the Compliance Clean-up program to the Army Restoration program and database (AEDB-R) in 2011 and the site was closed and received a no further remediation letter from the IEPA in 2011 and placed in the LUC-MOA program with prohibition as to groundwater use and increased personal protection for any site workers.

The CC-RIA-007 site is the former Construction Landfill and the site was entered in the Compliance Clean-up program in FY10 and is being investigated through the IEPA SRP. The contaminant of concern at the site is (TCE). There was a Preliminary Site Assessment completed at the site in FY10. The site was moved from the Compliance Clean-up program to the Army Restoration program and database (AEDB-R) in FY11. This site, CC-RIA-64, and RC-RIA-69 are to be included in performance-based

Cleanup Program Summary

Installation Historic Activity

acquisition (PBA), with an anticipated award date of June or July 2012.

ROCK ISLAND ARSENAL
Compliance-Related Cleanup

CC Summary

Total Number of AEDB-CC Sites: 3

Number of sites with site inspection/confirmation sampling complete:5

Number of sites with remedy selected (RI-FS/CMS/RFI complete): 2

Number of sites with construction completed (RA(C)/CMI(C)): 3

Number of sites with closeout complete:3

CC Site Types with Future and/or Underway Phases

- 1 Plating Shop
(CC-RIA-64)
- 1 Waste Treatment Plant
(CC-RIA-65)

Most Widespread Contaminants of Concern

Metals, Volatiles (VOC)

Media of Concern

Groundwater

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

Site ID	Site Name	Action	Remedy	FY	Cost
CC-RIA-64	Bldg 64	IRA	BIOREMEDIATION - IN SITU GROUNDWATER	2006	\$160.0 K
CC-RIA-64	Bldg 64	FRA	REMOVAL	2008	\$2,812.0 K
CC-RIA-64	Bldg 64	FRA	CAPPING	2010	\$476.8 K
CC-RIA-65	BLDG 65 Plating Wastewater Treatment	FRA	WASTE REMOVAL - SOILS	2011	\$152.0 K
CC-RIA-65	BLDG 65 Plating Wastewater Treatment	FRA	WASTE REMOVAL - SOILS	2011	\$41.0 K

CC Contamination Assessment

Contamination Assessment Overview

The RIA received a notice of violation in 1991; the CC program was initiated in 2004. Work on the site (CC-RIA-64) is being monitored by IEPA through the Resource Conservation and Recovery Act (RCRA) program. Building 64 is centrally located on Arsenal Island and has not caused off-post issues. A biostimulation pilot study was conducted, and results indicate a reduction/breakdown of contaminants in groundwater beneath the site. The IEPA had approved plans and specifications for the interior remediation of Building 64, which included removal of contaminated soil, removal of contaminated concrete, and installation of a RCRA caps inside Building 64 and the courtyard.

The action to remove the soil source of contamination at Bldg 64 (Site CC-RIA-64) has been completed. Bioremediation has also been conducted at the site for the removal of contaminants of concern in the groundwater. Groundwater sampling event results have indicated that the remedial actions have been effective, and closure for the site soil was received from the IEPA. Currently, the site groundwater is being monitored on a semi-annual (twice a year) basis as mandated by the IEPA.

Bldg 65, in the courtyard of Bldg 64, was the wastewater treatment facility. The site-contaminated soil and concrete has been removed and the groundwater treatment has been completed. Once the soil closure report is accepted by the IEPA the site will be rolled into the Bldg 64 site for groundwater monitoring and closure.

The RIA-007 site is an area between the Petroleum, Oils and Lubricants (POL) facility and Sylvan Slough. Sampling results of a 2009 monitoring well survey indicated groundwater contamination at the site. This site was entered into the IEPA SRP (Self-Reporting Program). This site was moved to the Restoration Program and Database (AEDB-R.)This site will also be included in the Fiscal Year (FY)12 performance-based acquisition (PBA), with an anticipated award date of June or July 2012. The future plan is to conduct a remedial investigation/feasibility study (RI/FS) beginning July 2012, which is anticipated to be completed by July 2013. The RI/FS will determine the path forward at this site.

Cleanup Exit Strategy

CC-RIA-64, -65, and -007 will be combined into a PBA.

CC-RIA-64 remediation will be enhanced with further bioremediation.

CC-RIA-65 will be rolled into the CC-RIA-64 site once the closure report is approved by the IEPA (the report is at the IEPA).

CC-RIA-007 There will be an RI/FS conducted at the site; the RI/FS will determine the path forward at this site. This site was moved to the Restoration Program and Database (AEDB-R)

CC Previous Studies

	Sites	Title	Author	Date
1992	CC-RIA-54	Building 54 Investigation	Daily & Associates, Engineers, Inc.	MAR-1992
1997	CC-RIA-64	Draft Final Report Sampling and Analysis for Closure Activities of Building 64	Maxim Technologies	DEC-1997
1999	CC-RIA-64	Plan for Sampling, Analysis, and Developing Remediation Objectives for RCRA Closure of Building 64	Daily and Associates, D&A	AUG-1999
2000	CC-RIA-64	Site Investigation Report, Soil Remediation Objectives Report, Contaminated Soil Remedial Action Plan	Daily and Associates, D&A	DEC-2000
2002	CC-RIA-64	Site Investigation Report and Remediation Objectives Report for the Building 64 RCRA Closure	Daily and Associates, D&A	DEC-2002
2005	CC-RIA-64	Specifications and Procedural Documents for the Interior Remediation Building 64 RCRA Closure	Daily and Associates, D&A	JUN-2005
2006	CC-RIA-64	Bioremediation of Shallow Groundwater: Pilot Study Report	Foth and Van Dyke Daily Division	FEB-2006
2007	CC-RIA-64	Soils Corrective Measures Completion Report for Building 64, Volume I	Foth Infrastructure & Environment, LLC	OCT-2007
	CC-RIA-64	Soils Corrective Measures Completion Report for Building 64, Volume II	Foth Infrastructure & Environment, LLC	OCT-2007
	CC-RIA-65	Building 65 Preliminary Site Investigation	Foth Infrastructure & Environment, LLC	OCT-2007
2010	CC-RIA-69	Preliminary Investigation	Foth	FEB-2010
2011	CC-RIA-004	Preliminary Site Assessment	Environmental Quality Company	FEB-2011
	CC-RIA-007	Preliminary Site Assessment	Environmental Quality Company	FEB-2011
	CC-RIA-69	Remedial Investigation	Foth Infrastructure & Environment, LLC	SEP-2011

ROCK ISLAND ARSENAL
Compliance-Related Cleanup
Site Descriptions

Site ID: CC-RIA-64
Site Name: Bldg 64

STATUS

Regulatory Driver: RCRA D
 Contaminants of Concern: Metals, Volatiles (VOC)
 Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	199201.....	199301
CS.....	199305.....	200304
RFI/CMS.....	200201.....	200503
DES.....	200503.....	200608
IRA.....	200509.....	200601
CMI(C).....	200609.....	200912
CMI(O).....	201207.....	201307
LTM.....	201307.....	204307
RIP Date: 201207		
RC Date: 201307		
Closeout Date: 204307		

SITE DESCRIPTION

Bldg 64 is the previous plating shop on RIA. Contaminants at this site included chlorinated volatile organics (TCE, TCA, and related degradation products) and cyanide in the soils and groundwater, chromium in the soils, groundwater, and concrete flooring, and cadmium in the soils and concrete flooring.

Building 64 is approximately 40,000 square feet, U-shaped, constructed of limestone masonry with high walls (27 feet), and is centrally located on the Rock Island Arsenal. It was built in 1878 and identified as a Natural Historic Landmark. It is currently vacant. From the 1950s through the 1980s, it was an electroplating shop. Contaminants at the site included chlorinated VOCs (trichloroethylene (TCE), trichloroethane (TCA), and related degradation products) and cyanide in the soils and groundwater, chromium in the soils, groundwater, and concrete flooring, and cadmium in the soils and concrete flooring.

In 1994 the electroplating operation was decommissioned and underwent an environmental cleanup for all surfaces above the ground. Subsequent investigations have addressed the cleanup of the structure and underlying soil and groundwater, which were impacted by the plating and associated activities. The investigation and cleanup of the building is being managed as a RCRA closure because the IEPA has determined that the prior electroplating operations at the facility included hazardous waste management units (HWMUs) and the IEPA issuance of a notice of violation (NOV) for improper waste handling. The IEPA has instructed the Department of the Army to undertake a RCRA closure of the site.

Cleanup at the site included the removal of contaminated concrete and soil from within the building and placement of bioremediation material within open excavations. The site was backfilled with limestone dust. Additionally, a concrete cap will need to be installed within the building and in the courtyard to meet the IEPA Tiered Approach to Cleanup Objectives (TACO) requirements. These requirements are cited in the final soil corrective measures completion report submitted to the IEPA in July 2007, but to date have not been funded under the CC program.

CLEANUP/EXIT STRATEGY

Groundwater monitoring wells that were not impacted by bioremediation may require further action (lactate injection) prior to site closure. The building floor has been replaced and capped after the soil was treated with sodium lactate as part of the remedy selected for closure. Long-term management (LTM) is required and will consist of semi-annual groundwater (GW) monitoring. Frequency of sampling and number of analytes monitored may be reduced in the future based on results of the initial year's samples. Corrective measures implementation-construction (CMI(C)) and LTM costs include actions for the courtyard area of the building, which represents site CC-RIA-65.

An installation-wide land use control (LUC) memorandum of agreement has been staffed through command. LUCs are likely to be required indefinitely. A site-specific land use control implementation plan will be incorporated into the base-wide master plan.

Site Name: BLDG 65 Plating Wastewater Treatment

STATUS

Regulatory Driver: RCRA C
Contaminants of Concern: Metals, Volatiles (VOC)
Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	200701.....	200703
CS.....	200703.....	200708
RFI/CMS.....	200709.....	200806
DES.....	200903.....	200908
CMI(C).....	201006.....	201106
CMI(O).....	201109.....	201209
RIP Date: 201109		
RC Date: 201209		
Closeout Date: 201209		

SITE DESCRIPTION

Building 65 was the wastewater treatment facility for electroplating operations which were conducted from the 1950s through the 1980s. Following RCRA requirements due to an NOV, plating operations were moved and the old plating shop was closed. Building 65 has been vacant since the plating operations were moved.

The initial site investigation has been completed and limited surface (concrete) and subsurface soil contamination was identified. The IEPA has directed the RIA to close Building 65 under RCRA. A streamlined RCRA facility investigation (RFI)/corrective measures study (CMS) delineated subsurface contamination. The building was demolished in FY09.

CLEANUP/EXIT STRATEGY

The strategy consists of CMI(C), including demolition of the building foundations and soil excavation. Capping and LTM will be managed under Site CC-RIA-64. The site is currently in the process of remediation through excavation and a bioremediation application. The site should meet closure status and be rolled into the CC-RIA-64 site for LTM.

In FY10 building 65 was demolished and in FY11 the soil over hazardous standards was excavated, bioremediation was completed, and the concrete cap was constructed. The site closure report is currently being reviewed by the IEPA.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CC-RIA-04	Ash Pile	201009	

Past Phase Completion Milestones

1988

PA (CC-RIA-04 - Ash Pile)

1993

RFA (CC-RIA-64 - Bldg 64)

2003

CS (CC-RIA-64 - Bldg 64)

2005

RFI/CMS (CC-RIA-64 - Bldg 64)

2006

DES (CC-RIA-64 - Bldg 64)

IRA (CC-RIA-64 - Bldg 64)

2007

RFA (CC-RIA-65 - BLDG 65 Plating Wastewater Treatment)

CS (CC-RIA-65 - BLDG 65 Plating Wastewater Treatment)

2008

RFI/CMS (CC-RIA-65 - BLDG 65 Plating Wastewater Treatment)

2009

DES (CC-RIA-65 - BLDG 65 Plating Wastewater Treatment)

2010

SI (CC-RIA-04 - Ash Pile)

CMI(C) (CC-RIA-64 - Bldg 64)

2011

CMI(C) (CC-RIA-65 - BLDG 65 Plating Wastewater Treatment)

Projected Phase Completion Milestones

See attached schedule

ROCK ISLAND ARSENAL CC Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC-RIA-64	Bldg 64	CMI(O)						
		LTM						

