

**FY2013**

**CRANE ARMY AMMUNITION ACTIVITY**  
**Army Defense Environmental Restoration Program**  
**Installation Action Plan**

Printed 08 August 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, Crane Army Ammunition Activity (CAAA), the US Army Environmental Command (USAEC), the Army Materiel Command (AMC), executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

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

## Acronyms

AEDB-CC	Army Environmental Database-Compliance-related Cleanup
AEDB-R	Army Environmental Database-Restoration
AMC	Army Materiel Command
AOC	Area of Concern
Bldg	Building
CAAA	Crane Army Ammunition Activity
CMS	Corrective Measures Study
COE	Corps of Engineers
CR	Compliance Restoration
DD	Decision Document
DERP	Defense Environmental Restoration Program
ER,N	Environmental Restoration, Navy
ESL	Ecological Screening Level
FRA	Final Remedial Action
FY	Fiscal Year
HMX	High Melting Explosive
IAP	Installation Action Plan
IDEM	Indiana Department of Environmental Management
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
LTM	Long-Term Management
LUC	Land Use Control
MEC	Munitions and Explosives of Concern
MR	Munitions Response
NFA	No Further Action
NPL	National Priorities List
NSA	Naval Support Activity
NSAC	Naval Support Activity Crane
NSWC	Naval Surface Warfare Center
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense for Installations and Environment
QA/QC	Quality Assessment/Quality Control
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosive
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
SAIC	Science Applications International Corporation
SLERA	Screening Level Ecological Risk Assessment

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## Acronyms

SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Level
VOC	Volatile Organic Compound
WES	Waterways Experiment Station

## Site Alias List

### AEDB-R Site ID to Alias List

<b>AEDB-R #</b>	<b>Alias</b>
CC-04	SWMU-20

## Installation Information

### Installation Locale

**Installation Size (Acreage):** 62434

**City:** Crane

**County:** Martin

**State:** Indiana

### Other Locale Information

Crane Army Ammunition Activity (CAAA) is located 35 miles southwest of Bloomington, IN and takes up a majority of Martin County. The Main Gate and Visitors Center are located one mile east of the Highway 231 and Highway 558 intersection.

### Installation Mission

The mission of the installation is to provide quality and responsive engineering, technical and material support to the Fleet for combat, subsystems, equipment and components as assigned by the Commander of the Naval Sea Systems Command. These include microelectronics technology, microwave components, electronic warfare, acoustic sensors test, electrochemical power systems, conventional ammunition engineering pyrotechnics, small arms, electronic module test and repair.

Under the Single Service Management Program, a segment of the Naval Support Activity Crane (NSAC) mission is to provide support (including environmental protection) to the CAAA. The Army is tasked with the production and renovation of conventional ammunition and related items; the performance of manufacturing, engineering, and product quality assurance to support production; and the storage, shipment and/or demilitarization and disposal of conventional ammunition and related components. Because of the nature of the Army's operations, CAAA contributes significant financial support for the environmental program through an interservice support agreement.

### Lead Organization

Army Materiel Command (AMC)

### Lead Executing Agencies for Installation

US Army Corps of Engineers (USACE), Louisville District

### Regulator Participation

<b>Federal</b>	US Environmental Protection Agency (USEPA), Region V
<b>State</b>	Indiana Department of Environmental Management (IDEM)

### National Priorities List (NPL) Status

CRANE ARMY AMMUNITION ACTIVITY is not on the NPL

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

Installation or tenant activity is supported by another RAB.

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## Installation Information

### Installation Program Summaries

#### CR

**Primary Contaminants of Concern:** Explosives, Metals, Volatiles (VOC)

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



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## 5-Year / Periodic Review Summary

No 5-Year / Periodic Reviews have been scheduled

# Cleanup Program Summary

## Installation Historic Activity

A number of industrial activities have taken place at the NSAC since operations began in 1941. Production operations have included loading projectiles, bombs, and mines, producing pyrotechnics, and assembling rockets. Demilitarization operations have included steam wash-out of bombs and projectiles and incineration of small arms ammunition. Other operations have included ordnance disposal (through demolition and burning), solid waste disposal, non-explosive ordnance operations, pesticide utilization, small arms range operations, and vehicle maintenance. Many of these operations continue currently. The USACE Waterways Experiment Station (WES) has been conducting investigations at Naval Service Warfare Center (NSWC) since 1981. On Dec. 23, 1989, the USEPA issued the federal portion of the final Resource Conservation and Recovery Act (RCRA) storage permit (No. IN5170023498) for NSWC to the US Navy. The federal portion established the Hazardous and Solid Waste Amendments Corrective Action Requirements and Compliance Schedules. The compliance schedules obligated the US Navy to perform RCRA Facility Investigations (RFIs) at 30 solid waste management units (SWMUs), and, if contamination were found, to conduct corrective measures studies (CMS) and implement any necessary corrective measures. Since the permit was issued, another SWMU (31/001) was identified and remediated. The status of corrective actions at all other SWMUs is ongoing.

The Quality Assessment/Quality Control (QA/QC) Test Area was identified as SWMU No. 20 in the 1995 RCRA Permit. QA/QC testing of pyrotechnics devices is conducted at Building 2167. Lead chromate contamination has been identified on the surface of the ground from testing MARK 1-3 flares. Explosives contamination [High Melting Explosive (HMX) and Royal Demolition Explosive (RDX)] was identified in 1995. Building 2167 was constructed in 1944 as a Hot Melt Building. SWMU No. 20 consists of approximately four acres with Building 2167 and its associated parking areas on the western portion of the SWMU and an overgrown gravel area on the eastern portion of the SWMU. There is a fence around Building 2167; however, this fence does not define the extent of the SWMU. QA/QC testing of pyrotechnic devices has historically occurred inside Building 2167 and outside on the gravel lot and concrete pad located east of Building 2167.

## Installation Program Cleanup Progress

### CR

**Prior Year Progress:** The RFI report recommending no further action (NFA) for CC-04 has been submitted to IDEM for review and comment, and the future course of action will not be determined until IDEM review is completed and the thallium and manganese concerns are addressed fully.

**Future Plan of Action:** If required, CMS would be awarded for CC-04 in April 2014 and completed by April 2015. The 2015 LTM phase is expected to include preparation of a decision document (DD) and implementation of land use controls (LUCs) (site survey and deed recordation in General Plan); however no current documentation is available supporting what the LTM tasks will include so no cost estimate has been prepared.

**CRANE ARMY AMMUNITION ACTIVITY**  
**Army Defense Environmental Restoration Program**  
**Compliance Restoration**

## CR Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 1/0

**Installation Site Types with Future and/or Underway Phases**

1 Burn Area  
(CC-04)

**Most Widespread Contaminants of Concern**

Explosives, Metals, Volatiles (VOC)

**Media of Concern**

Groundwater, Soil, Surface Water

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

Site ID	Site Name	Action	Remedy	FY
N/A				

**Duration of CR**

**Date of CR Inception:** 199111

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 201704/201704

**Date of CR completion including Long Term Management (LTM):** 201704

# CR Contamination Assessment

## Contamination Assessment Overview

Environmental restoration activities include the Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). On Dec. 29, 2008, the Office of the Deputy Undersecretary of Defense for Installation and Environment, ODUSD(I&E), issued an interim policy for DERP eligibility that rescinded the 1986 eligibility date for the IRP and the 2002 eligibility date for the MMRP. This made many sites previously addressed in the Army CC program eligible for the DERP. Sites that are now eligible for the Munitions Response (MR) program have been migrated from AEDB-CC and given the naming convention of other MR sites. The newly eligible sites non-MR sites are considered to be Installation Restoration (IR) sites; however, the newly eligible sites are being coded as Compliance Restoration (CR) in AEDB-R to distinguish them from the original IR sites and IR metrics.

The QA/QC Test Area was identified as SWMU No. 20 in the 1995 RCRA Permit. QA/QC testing of pyrotechnics devices is conducted at Building (Bldg) 2167. Lead chromate contamination has been identified on the surface of the ground from testing MARK 1-3 flares. Explosives contamination (HMX and RDX) was identified in 1995. Bldg 2167 was constructed in 1944 as a Hot Melt Building. SWMU No. 20 consists of approximately four acres with Bldg 2167 and its associated parking areas on the western portion of the SWMU and an overgrown gravel area on the eastern portion of the SWMU. There is a fence around Bldg 2167; however, this fence does not define the extent of the SWMU. QA/QC testing of pyrotechnic devices has historically occurred inside Bldg 2167 and outside on the gravel lot and concrete pad located east of Bldg 2167.

In 2012, Science Applications International Corporation (SAIC) conducted soil sampling at the SWMU 20. Samples were analyzed for explosives, perchlorate, and metals. Although explosives were detected during the 1995 investigation, none were detected during the fall 2012 sampling, suggesting the possibility of false positives during the previous sampling or that all of the contaminated soils were excavated and removed at SWMU 20 during the 1995 efforts. During the SWMU 20 RFI, four metals were detected above background concentrations (calcium, magnesium, selenium, and thallium) in surface soil and five metals above background (calcium, lead, manganese, silver, and thallium) were detected in subsurface soil at SWMU 20. pH results indicate an acidic soil environment. Calcium, lead, magnesium, and silver concentrations above background did not exceed screening criteria. Selenium was detected at a concentration exceeding the background upper tolerance limit (UTL) and the ecological screening level (ESL). Thallium and manganese concentrations above background were detected at concentrations exceeding the direct contact and migration to groundwater screening levels, respectively; these concentrations are similar to background concentrations and are not considered to be a result of site activities.

## Cleanup Exit Strategy

Site CC-04: Based on the Phase I investigation results, the human health screening risk assessment, and the SLERA, Site CC-04 is recommended for NFA. The RFI report has been submitted to IDEM for review and comment, and the future course of action will not be determined until IDEM review is completed and the thallium and manganese concerns are addressed fully.

The CMS, if required, is anticipated for completion by April 2015.

The expected resolution for the site is a LTM phase to include preparation of a DD and implementation of LUCs (site survey and deed recordation in General Plan).

## CR Previous Studies

	<b>Title</b>	<b>Author</b>	<b>Date</b>
<b>1983</b>	Initial Assessment Study of Naval Weapons Support Center, Crane, Indiana	Naval Energy and Environmental Support Activity	MAY-1983
<b>2011</b>	Historical Records Review	US Army Corps of Engineers - Louisville District	MAY-2011

# **CRANE ARMY AMMUNITION ACTIVITY**

## **Compliance Restoration**

### **Site Descriptions**

**Site ID: CC-04**  
**Site Name: CAAA QA/QC TEST AREA**  
**Alias: SWMU-20**

**STATUS**

**Regulatory Driver:** RCRA  
 Contaminants of Concern: Explosives, Metals, Volatiles (VOC)  
 Media of Concern: Groundwater, Soil, Surface Water

Phases	Start	End
RFA.....	199111.....	199309
RFI/CMS.....	201103.....	201704
<b>RIP Date:</b>	N/A	
<b>RC Date:</b>	201704	

**SITE DESCRIPTION**

This site is referred to as CC-04 in AEBD-R, SWMU No. 20 in base Corrective Action Permit, and QA/QC Test Area by installation.

Crane Naval Support Activity (NSA) (operated the site until 1977; thereafter Army took over responsibility for ordnance activities at Crane AAA. Investigations prior to 2005 were funded using ER,Navy dollars. Due to change a in DERP guidance regarding active ranges, Army has assumed funding responsibilities.

The QA/QC Test Area was identified as SWMU. 20 in 1995 RCRA Permit. QA/QC testing of pyrotechnics devices is conducted at Bldg 2167, which lies within the SMWU. Bldg 2167 was constructed in 1944 as a Hot Melt Building. SWMU 20 consists of approximately four acres including Bldg 2167 with its associated parking areas in the western portion and an overgrown gravel area and concrete test pad in the eastern portion. The area around Bldg 2167 is fenced; however, this fence does not define the extent of SWMU 20. QA/QC testing of pyrotechnic devices has historically occurred inside Bldg 2167 and outside on gravel lot and concrete pad located east of Bldg. Explosives contamination (HMX and RDX) was identified in 1995. Lead chromate contamination had been identified on the surface of the ground from testing of MARK 1-3 flares. To date, Army continues to use the site for pyrotechnics testing, specifically flares. Testing SOPs (November 2003) and BMPs (April 2011) for current testing activities at Bldg 2167 were provided to AEC and an in-house review of the documents was completed. It was determined that "procedures put in place will help maintain the site for the future" - correspondence dated 18 October 2011.

In 2009, the site was migrated from Army Environmental Database-Compliance-related Cleanup (AEDB-CC) to AEDB-R.

In 2011, USACE completed an in-house historical records review.

In 2012, a contract was awarded to Science Applications International Corporation (SAIC) to complete an RFI with an option to award a CMS, if required. SAIC conducted soil sampling at SWMU 20. Samples were analyzed for explosives, perchlorate, and metals. Although explosives were detected during the 1995 investigation, none were detected during fall 2012 sampling, suggesting the possibility of false positives during previous sampling or that all contaminated soils were excavated and removed at SWMU 20 during 1995 efforts. During SWMU 20 RFI, four metals were detected above background concentrations (calcium, magnesium, selenium, and thallium) in surface soil and five metals above background (calcium, lead, manganese, silver, and thallium) n subsurface soil. pH results indicate an acidic soil environment. Calcium, lead, magnesium, and silver concentrations above background did not exceed screening criteria. Selenium was detected at a concentration exceeding the background upper tolerance limit (UTL) and ecological screening level (ESL). Thallium and manganese concentrations above background were detected at concentrations exceeding direct contact and migration to groundwater screening levels, respectively. These concentrations are similar to background concentrations and are not considered a result of site activities.

Based on investigation results, human health screening risk assessment, and SLERA, SWMU 20 is recommended for NFA. The RFI report was submitted to IDEM April 2013 for review and comment, and the future course of action will not be determined until IDEM review is completed and the thallium and manganese concerns are addressed fully.

The CMS, if required, is anticipated for completion by April 2015.

The 2015 LTM phase is expected to include preparation of a DD and implementation of LUCs (site survey and deed recordation in



**Site ID: CC-04**  
**Site Name: CAAA QA/QC TEST AREA**  
**Alias: SWMU-20**

Master Plan); however, no current documentation is available to support what LTM tasks may include so no cost estimate has been prepared.

## **CLEANUP/EXIT STRATEGY**

Based on the Phase I investigation results, the human health screening risk assessment, and the Screening Level Ecological Risk Assessment (SLERA), Site CC-04 is recommended for NFA. The RFI report has been submitted to IDEM for review and comment, and the future course of action will not be determined until IDEM review is completed and the thallium and manganese concerns are fully addressed. The CMS, if required, is anticipated for completion by April 2015.

The expected resolution for the site is a LTM phase to include preparation of a DD and implementation of LUCs (site survey and deed recordation in General Plan).

## Site Closeout (No Further Action) Summary

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

## CR Schedule

**Date of CR Inception:** 199111

### **Past Phase Completion Milestones**

**1993**

RFA (CC-04 - CAAA QA/QC TEST AREA )

### **Projected Phase Completion Milestones**

See attached schedule

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

To Be Determined

### **Final RA(C) Completion Date:**

**Schedule for Next Five-Year Review:** N/A

**Estimated Completion Date of CR at Installation (including LTM phase):** 201704

# CRANE ARMY AMMUNITION ACTIVITY CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CC-04	CAAA QA/QC TEST AREA	RFI/CMS						

## Community Involvement

**Technical Review Committee (TRC):** 198910

**Community Involvement Plan (Date Published):** 199603

**Restoration Advisory Board (RAB):** No

**Reason Not Established:** Installation or tenant activity is supported by another RAB.

**Name of Installation with RAB:** Naval Support Activity, Crane

### Additional Community Involvement Information

Our Navy host holds all of the base environmental permits and is the main interface with the Indiana Department of Environmental Management and USEPA. CAAA participates in the Installation Restoration Program, but the majority of the cleanup sites are administered by the Navy.

A base RAB was established by the Navy in March 1996. Regular RAB meetings were held with the USEPA, IDEM, CAAA, and the public until October 2004. Crane's RAB had great difficulty in recruiting public participants. Crane worked with the local community mayors to recruit public RAB representatives, but sustained interest could not be maintained.

At the October 2004 RAB meeting, Crane, IDEM, USEPA, and the public members agreed that Crane's RAB should no longer have face-to-face meetings. Crane's administrative record is available to the public, and any major actions (i.e. RODs, etc.) are shared with the public through the public notice process. The USEPA, IDEM, and Crane still meet on a regular basis to discuss installation restoration efforts and progress, and CAAA cleanup sites are discussed. If Crane, EPA, and IDEM determine that public involvement is needed concerning a particular project, a face-to-face RAB with the public can be set up. Absent face-to-face RAB meetings, a Virtual RAB is maintained at <http://www.crane.navy.mil>.

### Administrative Record is located at

NSA Crane  
Building 3260  
300 Highway 361  
Crane, IN 47522  
<http://www.crane.navy.mil>

### Information Repository is located at

Bedford Public Library  
1323 K Street  
Bedford, IN 47421

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

**TAPP Title:** N/A

**Potential TAPP:** N/A

