FY2008

IOWA ARMY AMMUNITION 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 multi-year 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, with the costs and schedules required to conduct investigations and take the necessary remedial actions (RAs).

In an effort to coordinate planning information between the US Army Environmental Command (USAEC), the Iowa Army Ammunition Plant (IAAAP) and executing agencies, 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.

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Acronyms

AAP	Army Ammunition Plant
AEC	Atomic Energy Commission
AEDB-R	Army Environmental Database - Restoration
AOC	Area of concern
AR	Administrative Record
ARNG	Army National Guard
bgs	below ground surface
CAMU	Corrective Action Management Unit
CAP	Corrective Action Plan
CEA	Cap Extension Area
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CWP	Contaminated Waste Processor
cy	cubic yards
DNT	Dinitrotoluene
ER	Emergency Removal
ER,A	Environmental Restoration, Army
EWI	Explosive Waste Incinerator
FFA	Federal Facilities Agreement
FS	Feasibility Study
ft	feet
FUSRAP	Formerly Utilized Sites Remedial Action Program
GO/CO	Government Owned/Contractor Operated
GW	Groundwater
HRR	Historical Records Review
HRS	Hazard Rating System
IA	Installation Assessment
IAAAP	Iowa Army Ammunition Plant
IAAP	Iowa Army Ammunition Plant (AEDB-R designation)
IAP	Installation Action Plan
InDA	Incendiary Disposal Area
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	$1,000
LAP	Load, Assemble and Pack
LTM	LongTerm Management
MEC	Munitions and Explosives of Concern
mm	millimeter
MMRP	Military Munitions Response Program
MRSPP	Munitions Response Site Prioritization Protocol
N/A	not applicable
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OU	Operable Unit
PA	Preliminary Assessment
PA/SI	Preliminary Assessment/Site Inspection

Acronyms

PBC	Performance-Based Contract
PCP	Pentachlorophenal
PDS	Possible Demolition Site
PP	Proposed Plan
ppm	parts per million
RA	Remedial Action
RA(O)	Remedial Action (Operation)
RCRA	Resource Conservation and Recovery Act
RDX	Cyclotrimethylenetrinitramine
RI	Remedial Investigation
RI/FS	Remedial Investigation / Feasibility Study
RIP	Remedy-in-Place
ROD	Record of Decision
SI	Site Inspection
TBD	to be determined
TNT	Trinitrotoluene
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WBPLF	West Burn Pads Landfill

Installation Information

Installation Locale

Installation Size (Acreage): 19011
City: Middletown
County: Des Moines
State: Iowa
Other Locale Information

The Iowa Army Ammunition Plant (IAAAP) consists of 19,011 acres located adjacent to Middletown in Des Moines County, Iowa. It is approximately eight miles west of the largest city in Des Moines County, Burlington, with an estimated population of 25,436 people.

Installation Mission

The IAAAP is an active Joint Munitions Command facility operated by the civilian contractor, American Ordnance LLC. The current mission of the IAAAP is to load, assemble and pack (LAP) ammunition items, including projectiles, mortar rounds, warheads, demolition charges, and munitions components such as fuses, primers, and boosters.

Lead Organization

Army Materiel Command (AMC)

Lead Executing Agencies for Installation

IAAAP

Regulator Participation

Federal	US Environmental Protection Agency (USEPA), Region VII Federal Facilities and Special Emphasis Branch, Superfund Division US Fish and Wildlife Service
State	Iowa Department of Natural Resources

National Priorities List (NPL) Status

A score of 30 was recorded on 199008.

Date for RA(C) Completion: 201309

Date for NPL Deletion

IR: N/A
MR: N/A

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

RAB established 199708

Installation Information

Installation Program Summaries

IRP

Primary Contaminants of Concern: Explosives, Metals, Munitions constituents, Pesticides, Polychlorinated Biphenyls, Radionuclides, Semi-volatiles, Volatiles

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

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201109/203809

Prior Funding: $103,291.6 K

Current Requirements: $957.0 K

Future Requirements: $13,843.0 K

MMRP

Primary Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Affected Media of Concern: Groundwater, Soil

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201309/201309

Prior Funding: $305.7 K

Current Requirements: $721.0 K

Future Requirements: $12,155.0 K

Land Use Control (LUC) Summary

Cleanup Program Summary

Installation Historic Activity

The IAAAP was founded in 1941 and has undergone modernization and expansion. In September 1941 production of supplies for World War II began and ended in August 1945. From 1946 to 1951, the IAAAP was operated by the government to produce ammonium nitrate and to store munitions. Ammunition production resumed in 1949 and has continued to the present. From 1947 to 1975 the former Atomic Energy Commission (AEC) operated facilities on the site.

Installation Program Cleanup Progress

IRP

Prior Year Progress: The Remedial Design for Off-Post Groundwater treatment was completed.

Future Plan of Action: The ROD for OU-3 (On-Post Groundwater) and the ROD for OU-4 Sites will be completed.

MMRP

Prior Year Progress: A Remedial Investigation/Feasibility Study (RI/FS) was underway.

Future Plan of Action: An RI/FS is expected to reach completion in FY2010.

IOWA ARMY AMMUNITION PLANT

Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/RC Sites: 53/32

Installation Site Types with Future and/or Underway Phases

3 Burn Area
(IAAP-012G, IAAP-032G, IAAP-039G)

1 Contaminated Ground Water
(IAAP-046)

5 Industrial Discharge
(IAAP-002G, IAAP-003G, IAAP-004G, IAAP-010G, IAAP-044G)

3 Landfill
(IAAP-020, IAAP-020G, PBC at Iowa)

1 Spill Site Area
(IAAP-001)

1 Surface Impoundment/Lagoon
(IAAP-016)

Most Widespread Contaminants of Concern

Explosives, Metals, Munitions constituents, Pesticides, Polychlorinated Biphenyls, Radionuclides, Semi-volatiles, Volatiles

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	Cost
IAAP-042	ABANDONED COAL STORAGE YARD	FRA	WASTE REMOVAL - SOILS	1993	$22.7 K
IAAP-046	OFF POST CONTAMINATION	IRA	ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT	1995	$172.9 K
IAAP-017	PESTICIDE PIT	IRA	WASTE REMOVAL - SOILS	1996	$638.6 K
IAAP-016	LINE 1 FORMER WASTEWATER IMPOUNDMENT	FRA	WASTE REMOVAL - SOILS	1997	$4,523.3 K
IAAP-012	EXPLOSIVE DISPOSAL AREA (EAST BURN PADS)	FRA	WASTE REMOVAL - SOILS	1998	$210.8 K
IAAP-037	NORTH BURN PADS LANDFILL	FRA	REMOVAL	1998	$485.3 K
IAAP-039	FIRE TRAINING PIT	IRA	THERMAL DESORPTION	1998	$1,251.7 K
IAAP-006	LINE 5A AND 5B AMMO ASSEMBLY	FRA	WASTE REMOVAL - SOILS	1999	$2,705.2 K
IAAP-039	FIRE TRAINING PIT	IRA	WASTE REMOVAL - SOILS	1999	$352.2 K
IAAP-011	LINE 800 AMMO RENOV	IRA	REMOVAL	2000	$1,789.0 K
IAAP-020	INERT DISPOSAL AREA	IRA	CAPPING	2000	$6,351.8 K
IAAP-021	DEMOLITION AREA/DEACTIVATION FURNACE	IRA	WASTE REMOVAL - SOILS	2000	$419.5 K
IAAP-040	ROUNDHOUSE TRANSFORMER STORAGE AREA	IRA	WASTE REMOVAL - SOILS	2000	$1,640.9 K
IAAP-044	LINE 800 & PINKWATER LAGOON	IRA	WASTE REMOVAL - SOILS	2000	$8,363.8 K
IAAP-046	OFF POST CONTAMINATION	IRA	ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT	2001	$136.4 K
IAAP-032	BURN CAGES, BCLF; WEST BURN PADS, WBPLF	FRA	WASTE REMOVAL - SOILS	2002	$4,462.1 K

IRP Summary

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

Site ID	Site Name	Action	Remedy	FY	Cost
IAAP-045	FORMER FUEL STATION UST'S	FRA	EX SITU SOIL TREATMENT	2002	$276.2 K
IAAP-039	FIRE TRAINING PIT	IRA	WASTE REMOVAL - SOILS	2004	$25.0 K
IAAP-005	LINE 4A AND 4B AMMO ASSEMBLY	FRA	WASTE REMOVAL - SOILS	2005	$1,121.0 K
IAAP-009	LINE 8 AMMO LAP(FUZE/ROCKET)	FRA	WASTE REMOVAL - SOILS	2005	$1,371.5 K
IAAP-010	LINE 9 AMMO LAP (MINE)	FRA	WASTE REMOVAL - SOILS	2005	$1,569.8 K
IAAP-040	ROUNDHOUSE TRANSFORMER STORAGE AREA	FRA	REMOVAL	2005	$503.7 K
IAAP-002	LINE 2 AMMO LAP(ARTILLERY/SHAPED)	FRA	WASTE REMOVAL - SOILS	2007	$205.4 K
IAAP-003	LINE 3 AMMO LAP (ARTILLERY)	FRA	WASTE REMOVAL - SOILS	2007	$828.1 K
IAAP-004G	LINE 3A AMMO LAP - GROUNDWATER	FRA	NATURAL ATTENUATION	2007	TBD
IAAP-010G	LINE 9 AMMO LAP - GROUNDWATER	FRA	NATURAL ATTENUATION	2007	TBD
IAAP-012G	EDA/EAST BURN PADS - GROUNDWATER	FRA	GROUND WATER TREATMENT	2007	TBD
IAAP-013	INCENDIARY DISPOSAL AREA (EAST YARD D)	FRA	REMOVAL	2007	$79.6 K
IAAP-018	POSSIBLE DEMOLITION SITE(SOUTH YARD G)	FRA	REMOVAL	2007	$73.4 K
IAAP-032G	WEST BURN PAD AREA - GROUNDWATER	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2007	TBD
IAAP-039G	FIRE TRAINING PIT - GROUNDWATER	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2007	TBD
IAAP-044G	LINE 800 & PINKWATER LAGOON- GROUNDWATER	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2007	TBD

Total Environmental Restoration, Army (ER,A) Funding

Prior Funding (Includes BRAC funding from FY04 and prior years) $103,291.6 K

Current Requirements: $957.0 K

Future Requirements: $13,843.0 K

Duration of IRP

Date of IRP Inception: 197803

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201109/203809

Date of IRP completion including Long Term Management (LTM): 203809

IRP Contamination Assessment

Contamination Assessment Overview

The IAAAP is located on U.S. Highway 34, approximately eight miles west of Burlington, Iowa. The facility is a government owned/ contractor-operated (GO/CO) military industrial installation under the jurisdiction of the U.S. Army Joint Munitions Command, headquartered in Rock Island, Illinois. Its primary mission is to manufacture and LAP ammunition items.

The plant was established in July 1941 as the Iowa Ordnance Plant. The plant's mission was to LAP ammunition. It produced munitions for World War II until August 1945 when plant operations reverted to U.S. Army control until 1951. Its mission during that time was the storage of ammunition and surveillance. From 1947 to 1975 the former AEC occupied portions of the IAAAP. Since 1951, when Mason and Hanger-Silas Mason Co. Inc. began operations, the plant has been a GO/CO. The IAAAP is currently an active installation.

The primary source of contamination at the site is attributable to past operating practices in which explosives-contaminated wastewater and sludges were discharged to uncontrolled on-site lagoons and impoundments. Additional sources of contamination included open burning of explosives materials and munitions, and land filling of waste material. Process wastewaters currently are treated and recycled, while only a small portion of the treated wastewater, containing residual explosives and other contaminants regulated under the plant's National Pollutant Discharge Elimination System (NPDES) permit, is discharged to the surface.

In August 1989, the installation was proposed for the National Priorities List (NPL), because surface water contaminated with explosives was leaving the installation boundary. The IAAAP Hazard Ranking Score (HRS) is 29.73. In September 1990 a Federal Facility Agreement (FFA) was signed by the USEPA, Region VII and the US Army; it became effective in December 1990.

The FFA originally listed 30 Solid Waste Management Units (SWMU) as IAAP-1 through IAAP-30; these sites are represented in AEDB-R as sites IAAP-001 through IAAP-030. The Deactivation Furnace Site, IAAP-023, has been merged with the Demolition Area Site, IAAP-021, because it is located within the confines of the Demolition Area. Since publication of the FFA, sites IAAP-031 through IAAP-043 were identified in the February 1991 US Army Toxic and Hazardous Material Agency Draft Potential Areas of Concern Supplement document. Sites IAAP-032 through IAAP-035 were collectively listed under the number IAAP-032, because of their close proximity to one another. The Line 800 Pinkwater Lagoon was added as IAAP-044. In the fall 1999 AEDB-R submission, the former Fuel Station underground storage tanks site (IAAP-045) was added. This site was separated from IAAP-006 to better manage the soil and groundwater cleanup efforts from the 1988 leaking underground storage tank removal. Sites IAAP-046 and IAAP-047 were created to address the Off-Post Groundwater and the Central Test Area, respectively.

In 1991 the PA/SI was conducted. In 1996 the Site-Wide RI was completed. The Interim Operable Unit (OU) 1 Soils Record of Decision (ROD), signed in March 1998, addressed the excavation, relocation and placement of contaminated soils from 15 sites to the Inert Disposal Area, IAAP-020.

The Final Soils ROD, signed in September 1998, addresses the treatment of the most highly contaminated fraction of that soil.

In July 2002, portions of the IAAAP used by the former AEC were designated by the USACE to be under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Thus far, seven areas have been identified as FUSRAP areas. These areas include Line 1 (IAAP-001), Firing Sites Area (IAAP-030), West Burn Pads Area [south of the road] (part of IAAP-032), Warehouse 3-01 (located in IAAP-003), Yard G, Yard C, and Yard L (near Warehouse L-1, -2, -3). Additionally, four areas were screened by FUSRAP in 2004 to determine if radiological contaminates from AEC were present. These screening areas include the Inert Disposal Area (IAAP-020), Demolition Area/Deactivation Furnace (IAAP-021), Former Line 1 Impoundment (IAAP-016), and the Explosive Disposal Area. The Explosive Disposal Area includes the North Burn Pads (IAAP-036), North Burn Pads Landfill (IAAP-037), the West Burn Pads [Area north of road] (part of IAAP-032), and the East Burn Pads (part of IAAP-032). If radiological contamination attributable to the AEC is found at a screening area, this area will be added to the FUSRAP areas list. The USACE will respond to all releases and threats of releases of hazardous substances, pollutants, or contaminants, with the exception of ground and surface water contamination, at all FUSRAP areas.

In FY02, nine G designated sites were created to better manage groundwater cleanup. They are IAAP-002G, IAAP-003G, IAAP-004G, IAAP-010G, IAAP-012G, IAAP-020G, IAAP-032G, IAAP-039G and IAAP-044G. Two other sites, IAAP-011 and IAAP-044, were consolidated so they may be better managed, as they are contiguous.

Three OUs are identified at the IAAAP. They are:
1) Soils OU (#1) to address contamination in the soils

IRP Contamination Assessment

Contamination Assessment Overview

2) Soils OU (#3) to address contamination of groundwater within the IAAAP boundaries and potentially off-site
3) Installation-Wide OU (#4) to address closure of the Corrective Action Management Unit, institutional controls, previously unaddressed areas of soil contamination, surface water, volatile organic compound (VOC)-contaminated media, ecological risks, long-term monitoring requirements, and any other unacceptable risks which may be identified and not addressed in either OU #1 or OU #3.

Cleanup Exit Strategy

A Performance-Based Contract (PBC) has been awarded to bring all the IRP sites to RIP/RC.

IRP Previous Studies

	Title	Author	Date
1976			
	Aquatic Field Survey, Iowa Army Ammunition Plant	US Army Medical Research & Development Command	NOV-1976
1979			
	Aerial Color Infrared Photography Interpretation, Iowa Army Ammo Plant	US Army Toxic & Hazardous Materials Agency	SEP-1979
1980			
	Contamination Survey Scope of Work	Unknown	JAN-1980
	Installation Assessment of Iowa Army Ammunition Plant	US Army Toxic & Hazardous Materials Agency	JAN-1980
1981			
	Evaluation of Pinkwater Lagoon, Line 6 and Line 4A	SCS Engineers	SEP-1981
1982			
	Underground Pollution Investigation at Iowa Army Ammunition Plant	SCS Engineers	FEB-1982
	Subsurface Investigation at Site Z-1 (Abandoned Pinkwater Lagoon) at Iowa Army Ammunition Plant	SCS Engineers	FEB-1982
	Contamination Survey, Iowa Army Ammunition Plant	US Army Toxic and Hazardous Materials Agency	SEP-1982
1984			
	Follow-On Study of Environmental Contamination at the Iowa Army Ammunition Plant	US Army Toxic & Hazardous Materials Agency	AUG-1984
1985			
	Final Report Waste Compatibility Line 4A Spray Pond Liner	Eugene A. Hickok & Associates	JUN-1985
	RCRA Facility Assessment of Iowa Army Ammunition Plant	US Environmental Protection Agency, Region VII, Kansas City	JUN-1985
	Water Quality Engineering Consultation, Investigation of Groundwater Contamination, Iowa Army Ammunition Plant	US Army Toxic and Hazardous Materials Agency	SEP-1985
1986			
	Midwest Site Confirmatory Survey, Sampling Report for Iowa Army Ammunition Plant	USAEHA	AUG-1986
1987			
	Confirmatory Water Sampling, Iowa Army Ammunition Plant	US Army Toxic and Hazardous Materials Agency	JUN-1987
	Test Boring and Monitoring Well Installation Plan at the Inert Landfill and Line 6	Terracon EC	DEC-1987
1988			
	Sampling and Analysis Plan/Quality Control/Quality Assurance Plan for Inert Landfill and Line 6	Terracon EC	MAR-1988
	IAAP Closure Plan for Gravel Filter Beds and Drainage Ditches at Line 6	Mason & Hanger	JUL-1988
1989			
	Endangerment Assessment of Former Line 1	US Army Toxic and	JUL-1989

IRP Previous Studies

	Title	Author	Date
1989			
	Impoundment and Line 800 Pinkwater Lagoon	Hazardous Materials Agency	
	Feasibility Study of Former Line 1 Impoundment and Line 800 Lagoon	US Army Toxic and Hazardous Materials Agency	AUG-1989
	Final Report Groundwater Quality Assessment Inert Landfill and Line 6 Areas	Terracon EC	DEC-1989
1990			
	Final Fuel Station Tank Removal - Work Plan	Dames & Moore	FEB-1990
	Petroleum Leak/Spill Area, Iowa Army Ammunition Plant	US Army Toxic and Hazardous Materials Agency	MAR-1990
	Replace/Upgrade Explosives Collection Sumps Study	Mason & Hanger	DEC-1990
1991			
	Preliminary Assessment (PA) for the 43 IAAAP Sites	Jaycor	JAN-1991
	Draft Final Potential Areas of Concern Supplement	US Army Toxic and Hazardous Materials Agency	MAY-1991
	Sampling and Analysis Plan and Field Sampling Plan, Volume 2	Jaycor	JUN-1991
	Sampling and Analysis Plan and Quality Assurance Project Plan (Revised) Volume 1	Jaycor	JUL-1991
	Conceptual Program Plan for RI/FS at IAAAP	Jaycor	SEP-1991
1992			
	Comprehensive Monitoring Evaluation (Final Report)	PRC Environmental Management	JAN-1992
	Final Work Plan for Remedial Investigation/Feasibility Study (also known as the Site Investigation of Iowa Army Ammunition Plant)	US Army Toxic and Hazardous Materials Agency	JUN-1992
	Risk Assessment Protocol Document for the RI/FS	Jaycor	OCT-1992
1993			
	Basewide Analysis & Drilling Procedures	Jaycor	JAN-1993
	Site Characterization Report R01	Jaycor	JAN-1993
	Site Characterization Report R02 & R03	Jaycor	JAN-1993
	Site Characterization Report R04 - R11	Jaycor	JAN-1993
	Site Characterization Report R12 - R21	Jaycor	JAN-1993
	Site Characterization Report R22 - R30	Jaycor	JAN-1993
	Preliminary Site Characterization Reports	Jaycor	MAR-1993
	Final Report - Contamination Assessment of Concrete Sumps	Jaycor	JUN-1993
	Final Work Plan and Groundwater Quality Assessment Plan for Trench 5 and Line 6	Earth Technology Corporation	OCT-1993
	Site Clean-up Report Contaminated Waste Processor	Geotechnics	NOV-1993
1994			

IRP Previous Studies

	Title	Author	Date
1994			
	Fuel Station Site Clean-Up Report	Geotechnics	APR-1994
	Groundwater Assessment Trench 5 and Line 6	Unknown	MAY-1994
	Draft Final Report (Revised) Feasibility Study Former Line 1 Impoundment and Pinkwater Lagoon	Jaycor and CDM Federal Programs Corporation	JUN-1994
	Draft Final Report (Revised) Baseline Human Health Ecological Risk Assessment Former Line 1 Impoundment and Pinkwater Lagoon	Jaycor and ICAIR	JUN-1994
	Final Report for Line 6 and Billet Splitter Closure	Corps of Engineers	JUN-1994
	Pesticide Pit and Explosive Contaminated Sumps Removal Actions	OHM	SEP-1994
	Final EE/CA for Sumps	CDM Federal Programs Corporation	OCT-1994
	Final Engineering Evaluation/Cost Analysis for Pesticide Pit Removal	CDM Federal Programs Corporation	OCT-1994
	Inert Landfill Closure Plans	Corps of Engineers	OCT-1994
	Accelerated Groundwater Quality Assessment for the Ash Disposal Cell in Trench 5 and Line 6, Iowa Army Ammunition Plant	USAEC	OCT-1994
	Draft EE/CA for the Pinkwater Lagoon and the Line 1 Impoundment	CDM Federal Programs Corporation	DEC-1994
1995			
	Draft Final Field Sampling Plan Addendum Follow-On RI Sampling	Jaycor	MAR-1995
	Action Memorandum for the Pesticide Pit	CDM Federal Programs Corporation	MAR-1995
	Fuel Station CADR	ERS	MAR-1995
	Sampling and Analysis Plan for Rapid Response Interim Removal Actions at the Pesticide Pit and Explosive Contaminated Sumps	OHM	APR-1995
	Final Work Plan - Rapid Response Interim Removal Action at the Pesticide Pit and Explosive Contaminated Sumps	OHM	APR-1995
	Draft Field Investigation Report Former Line 1 Impoundment and Line 800 Pinkwater Lagoon	Corps of Engineers	APR-1995
	Draft Final Engineering Evaluation/Cost Analysis for Three Removal Actions	CDM Federal Programs Corporation	MAY-1995
	Groundwater Quality Assessment Plan Inert Landfill and Line 6	AEHA	JUN-1995
	Draft Evaluation of Treatment Alternatives Line 1 Impoundment and Line 800 Pinkwater Lagoon	Plexus Corp.	JUN-1995
	Project Summary Report for the Environmental Groundwater Monitoring Covering the period 15 July 1994 - 30 June 1995, Technical Data Report for the Environmental Groundwater Monitoring FY1994 Sampling, Technical Data Report for the Environmental Groundwater Monitoring FY1995	LB&M Associates	JUN-1995
	Fuel Station Site Clean-Up Reports dated Aug 1992, June 1993, Dec 1994, and July 1995	Unknown	JUL-1995
	Action Memo Multiple Removal Actions	CDM Federal Programs Corporation	AUG-1995
	Final Action Memorandum for the Explosive-	CDM Federal Programs	NOV-1995

IRP Previous Studies

	Title	Author	Date
1995			
	Contaminated Sump Removal	Corporation	
1996			
	Draft Final Report Removal Actions (Pesticide Pit and Explosive Contaminated Sumps)	OHM	JAN-1996
	Final Implementation Proposal for Environmental Protection	ECC	FEB-1996
	Designation of CAMU	EPA	MAR-1996
	Report for the Fall 1995 Monitoring of IRP Wells	Mason & Hanger	MAR-1996
	Plant Uptake Studies (1990-1996)	ORNL	APR-1996
	Engineering Evaluation/Cost Analysis (EE/CA) Study Fire Training Pit Iowa Army Ammunition Plant	USACE, Omaha	MAY-1996
	Revised Draft Final Remedial Investigation Risk Assessment Iowa Army Ammunition Plant	USACE, Omaha	MAY-1996
	Sampling & Analysis Plan for Treated Discharges of the Water Contained in the Line 800 Pinkwater Lagoon	ECC	AUG-1996
	Wetland Borrow Area Assessment Report	ECC	AUG-1996
	Final Work Plan for Multiple Removal Actions	ECC	AUG-1996
	Information Summary for Focused Feasibility Study Sites	USACE, Omaha	SEP-1996
	Health and Safety Plan for a Biological Soil Slurry Lagoon Pilot Scale Demonstration	Environmental Research Division	SEP-1996
	Report for the Spring 1996 Monitoring of IRP Wells	Mason & Hanger	SEP-1996
	Action Memorandum for the Line 800 Pink Water Lagoon, Former Line 1 Impoundment	USACE, Omaha	OCT-1996
	Final Report Addendum for Final Transportation and Disposal and Other Activities	OHM	NOV-1996
1997			
	Site Groundwater Investigation Fire Training Pit Work Plan (Final) Sampling and Analysis Plan (Final)	Harza Engineering Company	APR-1997
	Site Safety Submission for EDA (East Burn Pads)	Corps of Engineers	APR-1997
	Proposed Plan for Interim Action - Soils Operable Unit	USAEC	MAY-1997
	Multiple Removal Actions Transmittal of Final Radio Active Isotope Analytical Report	Environmental Chemical Corporation	MAY-1997
	Draft Final Soils Focused Feasibility Study	U.S. Army Environmental Center	MAY-1997
	Final Work/Quality Assurance Plan - Ecological Risk Assessment Addendum	Harza Engineering Company	JUL-1997
	Report for the First Cycle 1997 Monitoring of IRP Wells	Mason & Hanger	AUG-1997
	Action Memorandum for the Inert Landfill at the Iowa Army Ammunition Plant	USACE, Omaha	SEP-1997
	Multiple Removal Actions - Construction Progress Photographs	Corps of Engineers	SEP-1997
	Draft Report of Action Laundry Effluent Pretreatment Sampling & Analysis	Mason & Hanger	SEP-1997
	Report for the Second Cycle 1997 Monitoring of IRP Wells	Mason & Hanger	SEP-1997
	Draft Environmental Protection Plan Iowa Army Ammunition Plant Focused Feasibility Study Soils	USACE, Omaha	NOV-1997

IRP Previous Studies

	Title	Author	Date
1997			
	Removal		
	Fire Training Pit-Iowa Army Ammunition Plant Explanation of Significant Differences & Action Memorandum	USACE, Omaha	DEC-1997
	Groundwater Feasibility Study Report	USACE, Omaha	DEC-1997
1998			
	Quality Control Summary Report - Supplemental Groundwater Remedial Investigation	Harza Engineering Company, Chicago, IL	JAN-1998
	Multiple Removal Actions Final Water Treatment Plan for Perched Water at the IDA	Environmental Chemical Corporation	FEB-1998
	U. S. Army Interim Soils Action for Operable Unit #1 Record of Decision	USACE, Omaha	MAR-1998
	Closure/Post Closure Plans for the Inert Landfill April 1998 Amendment to Closure/Post Closure Plan February 1997	Corps of Engineers	APR-1998
	Final Revised Work Plan & Revised Contractor Quality Control Plan (CQCP) - Phase 1	Environmental Chemical Corporation	MAY-1998
	Final Soils Feasibility Study Report	USACE, Omaha	JUN-1998
	Final Proposed Plan for OU #1	USACE, Omaha	JUN-1998
	Final Work Plan, Final Sampling and Analysis Plan Addendum, Final Site Safety & Health Plan Addendum - Fire Training Pit	Environmental Chemical Corporation	JUL-1998
	Public Meeting Transcript for Superfund Soils OU1 Proposed Plan	MJW Court Reporting Services	JUL-1998
	Site Monitoring Reports for the Former Fuel Station March 1994-July 1998	ERS	JUL-1998
	Final Record of Decision Soils OU #1	USACE, Omaha	AUG-1998
	Draft Interim Groundwater Feasibility Study Report	USACE, Omaha	AUG-1998
	Draft/Final Work Plan & Draft/Final Sampling and Analysis Plan - Supplemental Remedial Investigation Line 800 Pinkwater Lagoon	Harza Engineering Company	AUG-1998
	Demonstration Test Plan for Low Temperature Thermal Desorption of Explosive Soils	USACE, Omaha	NOV-1998
	Summary Report Pre-Designed Excavation Delineation at 5A/5B, Roundhouse RDX Site, IDA Storage Yard, Burning Grounds	USACE, Omaha	DEC-1998
1999			
	Independent Technical Review Questionnaire Response	Iowa Army Ammo Plant	JAN-1999
	Draft Monitoring Well Management Plan	USACE, Omaha	JAN-1999
	Line 1 & 800 Phytoremediation Monitoring	Phytoworks Incorporated	FEB-1999
	Analytical Data Report - Supplemental Groundwater Remedial Investigation Line 800/Pink Water Lagoon	Harza Engineering Company, Chicago, IL	MAR-1999
	Recommendations for Additional Remedial Investigation Line 800/Pinkwater Lagoon	Harza Engineering Company, Chicago, IL	MAY-1999
	Draft Final Work Plan Addendum, Contingency Plan, CQCP Addendum, SAP Addendum, SSHP Addendum - Phase 2	Environmental Chemical Corporation	JUN-1999

IRP Previous Studies

	Title	Author	Date
1999			
	Work Plan Addendum - Supplemental Remedial Investigation Line 800 Pinkwater Lagoon (Draft)	Harza Engineering Company	SEP-1999
	Test Plan for a Biological Soil Slurry Lagoon Pilot Scale Demonstration	Environmental Research Division	SEP-1999
	Draft Long-Term Monitoring Events Fall 1999 and Spring 2000 Work Plan Addendum	Harza Engineering Company	NOV-1999
	Iowa AAP Public Health Assessment	Agency for Toxic Substances & Disease Registry	DEC-1999
	Final Report: Closure, Demobilization and Sampling Activities at the Biological Soil Slurry Lagoon	Environmental Research Division	DEC-1999
	Draft Work Plan Amendment & SAP Amendment & SSHP Amendment - Phase 3	Environmental Chemical Corporation	DEC-1999
2000			
	Technical Memorandum Supplemental Investigation Off-Site Groundwater, Surface Water & Sediment	Harza Engineering Company, Chicago, IL	JAN-2000
	Site Monitoring Reports for the Former Fuel Station February 1999, August 1999, and January 2000	Maximum Technologies	JAN-2000
	Fuel Station Closure Report	Trileaf Corporation	JAN-2000
	Long-Term Monitoring Spring 2000 Work Plan Addendum	Harza Engineering Company	APR-2000
	Modification to the Sampling & Analysis Plan (SAP) Revised Investigation Related to the Ecological Assessment	Harza Engineering Company	APR-2000
	RBCA Tier 2 Report (Revised)	Trileaf Corporation	MAY-2000
	Well Completion Report Fall 1999 Long Term Monitoring	Harza Engineering Company, Chicago, IL	JUN-2000
	Long Term Monitoring Report Fall 1999	Harza Engineering Company, Chicago, IL	JUN-2000
	Site Assessment Project Plan for AET Rev. 2	AET	JUN-2000
	Quality Control Summary Report - Groundwater Monitoring Program Fall 1999 Sampling Event	Harza Engineering Company, Chicago, IL	JUL-2000
	Well Completion Report Spring 2000 Groundwater Monitoring Event	Harza Engineering Company, Chicago, IL	JUL-2000
	Draft Treatability Study for Barium Impacted Soil Stabilization	Cape Environmental	AUG-2000
	Quality Control Summary Report - Off-Site Groundwater Investigation (OU3) Phase I, II, III	Harza Engineering Company, Chicago, IL	SEP-2000
	Eco-Risk Round 2 Sampling	Harza Engineering Company, Chicago, IL	SEP-2000
	Groundwater Monitoring Report Spring 2000	Harza Engineering Company, Chicago, IL	OCT-2000
	Final Remedial Action Report Fire Training Pit	Environmental Chemical Corporation	OCT-2000
	Final Remedial Action Report Focused Feasibility Study Sites Remedial Action Phase I	Environmental Chemical Corporation	OCT-2000
	Draft Final Work Plan Amendment Focused Feasibility Studies Soils Remediation Barium Contaminated Soils Stabilization	Cape Environmental	OCT-2000
	Site Monitoring Report	Trileaf Corporation	DEC-2000
	Site Monitoring Reports for the Former Fuel Station Sampled May 2000 and November 2000, Reported	Trileaf Corporation	DEC-2000

IRP Previous Studies

	Title	Author	Date
2000			
	June 2000 and December 2000		
2001			
	IAG Community Relations Plan	IAAAP	FEB-2001
	Field Sampling Report AET BLDG 600-84	AET	FEB-2001
	Iowa AAP Scoring Survey Plan Firing Site 6 & 12	USACE, Omaha	APR-2001
	Fall 2000 Groundwater Monitoring Interim Report	URS Corporation	APR-2001
	Fall 2000 Groundwater Monitoring Results Summary	URS Corporation	APR-2001
	Final Remedial Action Report Focused Feasibility Study Sites Remedial Action Phase 2	Environmental Chemical Corporation	APR-2001
	Ecological Risk Assessment - Screening Level Risk Assessment	Harza Engineering Company, Chicago, IL	APR-2001
	Final Report - Multiple Removal Actions	Environmental Chemical Corporation	APR-2001
	Quality Control Summary Report - Off-Site Groundwater Investigation (OU) Phase IV	Harza Engineering Company, Chicago, IL	MAY-2001
	Final Spring 2001 Groundwater Monitoring Work Plan Addendum	URS Corporation	MAY-2001
	Bioremediation/Metals Treatment	Cape Environmental	JUN-2001
	Options for Corrective Action for Former Fuel Station	Trileaf Corporation	JUN-2001
	Draft Final Technical Memorandum Evaluation of Contaminant Sources to Surface Streams	Harza Engineering Company	JUL-2001
	Draft Final Supplemental Remedial Investigation Report Line 800 Pinkwater Lagoon	Harza Engineering Company	JUL-2001
	Corrective Action Design Report for Former Fuel Station	Trileaf Corporation	JUL-2001
	Bioremediation/Metals Treatment WBPLF Soils in Inert Landfill Trench 6 & Trench 7 Work Plan Amendment	Cape Environmental	JUL-2001
	Supplemental Groundwater Remedial Investigation (1997) Revised Draft Final	Harza Engineering Company, Chicago, IL	AUG-2001
	Quality Control Summary Report Groundwater Monitoring Program Spring 2000 Sampling Event	Harza Engineering Company, Chicago, IL	AUG-2001
	Development of Dose Estimation Models and Toxicity Reference Values Ecological Risk Assessment	Harza Engineering Company, Chicago, IL	AUG-2001
	Screening Level Risk Assessment, Ecological Risk Assessment	Harza Engineering Company, Chicago, IL	AUG-2001
	Fall 2000 and Spring 2001 Groundwater Monitoring Results Summary	URS Corporation	AUG-2001
	Draft Final Monitoring Program	Harza Engineering Company	AUG-2001
	Bioremediation/Metals Treatment WBPLF Soils in Inert Landfill Trench 6 & Trench 7 Supplemental Work Plan	Cape Environmental	AUG-2001
	Draft Off-Site Groundwater Remedial Investigation Work Plan Addendum	URS Corporation	AUG-2001
	Draft Final Work Plans for Supplemental Remedial Investigation Line 1 & Firing Site (Including Historical Site Assessment)	TN & Associates	SEP-2001
	Draft Final Excavation Report - Phase 3	Environmental Chemical Corporation	NOV-2001
	Site Monitoring Report 3rd Quarter 2001, Former Fuel Station	Trileaf Corporation	NOV-2001

IRP Previous Studies

	Title	Author	Date
2001			
	Final Report Results for Sampling and Analysis & Disposal of Six 55 Gallon Drums with Unidentified Contents	American Ordnance	NOV-2001
	Addendum to Screening Level Risk Assessment Ecological Risk Assessment	Montgomery Watson Harza	DEC-2001
	Final FUSRAP Preliminary Assessment	US Army Corps of Engineers, St. Louis, MO	DEC-2001
2002			
	Final A.O. Construction Projects Sampling and Analysis Work Plan	URS Corporation	JAN-2002
	Draft Final Fall 2000 Spring 2001 Groundwater Monitoring Report	URS Corporation	FEB-2002
	Draft Final Facility Wide Work Plan	URS Corporation	FEB-2002
	Draft Final Direct Push Field Investigation Technical Memorandum & Revised Work Plan Off-Site Remedial Investigation	URS Corporation	APR-2002
	Draft Technical Memorandums No 1-4 for the Ecological Risk Assessment	Harza Engineering Company	APR-2002
	Draft Spring 2002 Groundwater Monitoring Work Plan Addendum	Hydrogeologic	MAY-2002
	Draft Final Line 1 & FS Supplemental RI Report	TN & Associates	AUG-2002
	Draft Final Report of Over Excavation for the Former Fuel Station	Trileaf Corporation	AUG-2002
	Draft Final Work Plan Addendum Metals Treatment West Burn Pads Landfill Soils in Inert Landfill Trench 6 and Trench 7	Cape Environmental	AUG-2002
	Site Monitoring Report for the Fuel Station	Trileaf Corporation	OCT-2002
	Draft Final Fire Training Pit, West Burn Pads Area, East Burn Pads Feasibility Study Data Collection Work Plan Addendum	URS Corporation	OCT-2002
	Draft Final Lines 2, 3, and 9 Feasibility Study Data Collection Work Plan	URS Corporation	OCT-2002
	Final Aerial Radiation Survey Work Plan	Environmental Assessment Division	OCT-2002
	Draft Final Remedial Action Report Focused Feasibility Soil Study Sites, Phase III, West Burn Pads Area	Cape Environmental	DEC-2002
	Off-Site Monitoring Well and Staff Gauge Photographic Log	URS Corporation	DEC-2002
2003			
	Draft Final ESD for the Final OU1 Soils ROD, January 2003 signed April 2003	IAAAP	JAN-2003
	Draft Final Technical Memorandum Groundwater Flow and Contaminate Fate & Transport Modeling Line 800 Pinkwater Lagoon	URS Corporation	FEB-2003
	Draft Final Line 800 Pinkwater Lagoon Feasibility Study	URS Corporation	FEB-2003
	Initial Groundwater Analytical Results & Proposed Monitoring Well Locations Six Sites Feasibility Study Data Collection	URS Corporation	FEB-2003
	Line 6 Sewer Collection System Visual Reconnaissance for UXO	American Ordnance	MAR-2003
	Draft Final Work Plan for Supplemental Remedial Design (Including Historical Site Assessment) for Phase	TN & Associates	MAR-2003

IRP Previous Studies

	Title	Author	Date
2003			
	4 Soil Sites		
	Draft Final Off-Site Remedial Investigation Report	URS Corporation	APR-2003
	Draft Proposed Plan for the Line 800 Pinkwater Lagoon Groundwater Explosives Plume	URS Corporation	APR-2003
	Draft Final Aerial Radiological Survey	Argonne National Lab and Remote Sensing Lab	JUL-2003
	Draft Final Facility Wide Work Plan Remedial Design/Remedial Action Activities OU1 Rev. 2	Shaw Environmental, Inc.	JUL-2003
	Draft Final Spring 2002 Groundwater Monitoring Report	Hydrogeologic	AUG-2003
	Final Supplemental Work Plan for the Fire Training Pit Removal Action	ECC	AUG-2003
	Report for the Investigation of the Tar-Like Substance Piles at Iowa AAP	MKM Engineers, Inc.	SEP-2003
	Initial Groundwater Analytical Results Six Sites Feasibility Study Data Collection	URS Corporation	SEP-2003
	Draft Laboratory Qualifications Package	Shaw Environmental, Inc.	OCT-2003
	Final Closed, Transferring, and Transferred Range/Site Inventory Report	Enngineering-Environmental Management	OCT-2003
	Draft Site Monitoring Report for the Fuel Station	Trileaf Corporation	OCT-2003
	Iowa AAP Health Consultation	Agency for Toxic Substances & Disease Registry	DEC-2003
	Draft Proposed Revisions to Work Plan for Supplemental Remedial Design - Phase 4 Soil Sites OU1	Shaw Environmental, Inc.	DEC-2003
2004			
	Final Line 9 Remedial Alternative Analysis	URS Corporation	JAN-2004
	Final Line 3 Remedial Alternative Analysis	URS Corporation	JAN-2004
	Draft Remedial Action Addendum for Soils Excavation Phase 4 Soil Sites	Shaw Environmental, Inc.	JAN-2004
	IAAP Sampling and Reconnaissance of Brush Creek	C.C. Johnson & Malhotra, P.C.	JAN-2004
	Final Line 2 Remedial Alternative Analysis	URS Corporation	FEB-2004
	Draft Final Off-Site Groundwater Feasibility Study	URS Corporation	MAR-2004
	Draft Final Technical Memorandum Groundwater Flow and Contaminant Fate and Transport Modeling Off-Site Groundwater	URS Corporation	MAR-2004
	Six Sites Feasibility Study Data Collection Monitoring Well and Staff Gauge Installation Documentation and Photo Log	URS Corporation	MAY-2004
	Final Fire Training Pit Groundwater Remedial Alternative Analysis	URS Corporation	MAY-2004
	Draft Final Remedial Action Work Plan for Soil Excavation Phase 4 Soil Sites	Shaw Environmental, Inc.	MAY-2004
	Final East Burn Pads Groundwater Remedial Alternative Analysis	URS Corporation	JUN-2004
	Final West Burn Pads Groundwater Investigation	URS Corporation	JUN-2004
	Revised Draft Final Off-Site Groundwater Proposed	URS Corporation	JUL-2004

IRP Previous Studies

	Title	Author	Date
2004			
	Plan		
	Draft After Action Report Installation & Maintenance of Monitoring Well Roadways	MKM Engineers, Inc.	JUL-2004
	Public Meeting Transcript for Off-Post Groundwater Proposed Plan	URS Corporation	JUL-2004
	Former Fuel Station No Further Action Documentation	Trileaf Corporation	AUG-2004
	Draft Final Historical Records Review for Line 6, Line 800, Central Test Area, and Deactivation Furnace	TN & Associates	OCT-2004
	Draft Final Baseline Ecological Risk Assessment	Montgomery Watson Harza	OCT-2004
	Draft Final Off-Site Groundwater Treatability Study Test Plan for Insitu Biodegradation of RDX in Off-Site Groundwater	Tetra Tech, Inc.	NOV-2004
	Draft Final Brush Creek Point Source Control Work Plan	Tetra Tech, Inc.	NOV-2004
	Draft Final 2003 Groundwater Monitoring Report	Hydrogeologic	DEC-2004
2005			
	Draft Final Historical Records Review for Line 2, Line 3, Line 3A, Incendiary Disposal Area, Old Fly Ash Waste Pile, Possible Demolition Site, Explosives Waste Incinerator, Construction Debris Landfill, and Line 3A Pond	Shaw Environmental, Inc.	JAN-2005
	Draft Final 2004 Groundwater Monitoring Report	Hydrogeologic	FEB-2005
	Draft Final Treatability Study Test Plan for In Situ Biodegradation of On-Post Groundwater	Tetra Tech, Inc.	APR-2005
	Final Brush Creek Point Source Control Treatment System Design	Tetra Tech, Inc.	MAY-2005
	Draft Final Report for the Soil Data Collection at The Incendiary Disposal Area, Fly Ash Waste Pile, Possible Demolition Site, Line 3A Pond, Explosive Waste Incinerator and Construction Debris Landfill	MKM Engineers, Inc.	MAY-2005
	Revised Draft Final Off-Site Groundwater Record of Decision	URS Corporation	MAY-2005
	Draft Final MEC Density Survey Report for Line 6 and the Central Test Area	MKM Engineers, Inc.	MAY-2005
	Revised Draft Final Remedial Design/Remedial Action Work Plan and Sampling & Analysis Plan Addendum Soils OU1	Tetra Tech, Inc.	JUN-2005
	IDA Topographical Survey	Martin & Whitacre Surveyors & Engineers, Inc.	JUL-2005
	Draft Addendum Remedial Action Report for the Fire Training Pit Removal Action Appendix B	Environmental Chemical Corporation	JUL-2005
	Final Remedial Action Report Phase 4 Soil Sites OU1	Shaw Environmental, Inc.	AUG-2005
	Draft Final Addendum Remedial Action Report for the Fire Training Pit	Environmental Chemical Corporation	AUG-2005
	Draft Fall 2005 Groundwater and Surface Water Sampling Program Work Plan	Tetra Tech, Inc.	SEP-2005
	Draft Final Operations and Maintenance Optimization Plan at the Inert Disposal Area, Line 1 Pond, and Line 800 Lagoon	Tetra Tech, Inc.	SEP-2005
	Draft Final Technical Memorandum Cesium Source Evaluation	Tetra Tech, Inc.	SEP-2005

IRP Previous Studies

	Title	Author	Date
2005			
	Draft Final 2004-2005 Groundwater Sampling Report	Tetra Tech, Inc.	DEC-2005
	Draft Final Site Safety and Health Plan Remedial Design/Remedial Action Activities	Tetra Tech, Inc.	DEC-2005
2006			
	Draft Final Work Plan for Soil Sampling Line 7 Decontamination and Decommissioning Activities	Tetra Tech, Inc.	JAN-2006
	Draft Final Rev. 1 Brush Creek Surface Water and Sediment Investigation Work Plan OU4	Tetra Tech, Inc.	FEB-2006
	Final Five-Year Review Report	Tetra Tech, Inc.	MAR-2006
	Draft Final Rev. 2 Soil Treatability Test Plan for Bioremediation of Explosives in Trench 7 (CAMU)	Tetra Tech, Inc.	MAR-2006
	Draft Final Rev. 2 Work Plan for Supplemental Remedial Investigation OU4	Tetra Tech, Inc.	MAY-2006
	Final Operation and Maintenance Manual for Brush Creek Point Source Control Treatment System	Tetra Tech, Inc.	JUN-2006
	Final ESD for Deletion of Radiological Contaminants from Interim Record of Decision (IROD) Soils OU1	Tetra Tech, Inc.	JUN-2006
	Final Treatability Study Results for In Situ Enhanced Degradation of Off-Site Groundwater	Tetra Tech, Inc.	AUG-2006
	Final Comprehensive (Brush Creek, Spring Creek, Long Creek, and Skunk River) Watersheds Evaluation and Supplemental Data Collection Work Plan	Tetra Tech, Inc.	DEC-2006
2007			
	Final Focused Feasibility Study for Trench 6, Trench 7, and the Cap Extension Area of the Inert Disposal Area Operable Unit 4	Tetra Tech, Inc.	JAN-2007
	Revised Draft Final Supplemental Remedial Investigation Operable Unit 4	Tetra Tech, Inc.	APR-2007
	Proposed Plan for Trench 6, Trench 7, and the Cap Extension Area of the Inert Disposal Area	Tetra Tech, Inc.	MAY-2007
	Draft Progress Report: Evaluation of Phase 1 Sediment and Surface Water Data and Recommendations for Phase 2 Sampling in Brush Creek, Brush Creek Surface Water and Sediment Investigation OU4	Tetra Tech, Inc.	JUL-2007
	Draft Final Excavation Plan for Remedial Action for Phases 5, 7, and 8 of OU1	Tetra Tech, Inc.	JUL-2007
	Concentration Trends for Selected Wells and Parameters	Tetra Tech, Inc.	AUG-2007
	Draft Final Remedial Design/Remedial Action Work Plan for Off-Site Groundwater	Tetra Tech, Inc.	DEC-2007
2008			
	Work Plan for Unexploded Ordnance (UXO) Support Work Site Investigation BLDG 600-84	PA Weber, LC	JAN-2008
	Final Report for Unexploded Ordnance (UXO) Scan Work BLDG 600-84	PA Weber, LC	JAN-2008
	ESD for the Interim Action Record of Decision (IROD) Soils OU1 - Addition of Environmental Protectiveness to the Remedy and Transfer of Sites from OU4 to OU1	Tetra Tech, Inc.	JAN-2008

IOWA ARMY AMMUNITION PLANT

Installation Restoration Program

Site Descriptions

Site ID: IAAP-001
Site Name: LINE 1 AMMO LAP(MISSILE/FORMER AEC)

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Explosives, Metals, Radionuclides

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200309
LTM	200402	203809

RIP Date: N/A

RC Date: 200309

SITE DESCRIPTION

Line 1 is an ammunition production line. The waste is from washing spilled explosives from floors and equipment. The wastewater is now treated by carbon adsorption in adjacent filter houses. Cleanup action at this site is being handled by the FUSRAP program. The last outstanding issue to be handled by the Army is a Supplemental RI for this site. The RC date was extended due to an informal dispute between the Army and the USEPA. The groundwater costs are captured under Site PBC at Iowa through 2014. Post PBC costs (2015) are covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

The Formerly Utilized Sites Remedial Action Program (FUSRAP) will perform soil excavation and disposal. The interim ROD requires the removal of 7410 cubic yards (cy) (220 cy metals, 4850 cy explosives, 1480 cy explosives and metals, 590 cy VOCs, and 270 cy Radiological) contaminated soil. Soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant type. Costs will be determined at a future time. Groundwater will be handled under ER,A as necessary.

Site ID: IAAP-002G
Site Name: LINE 2 AMMO LAP - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Explosives

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200811
RD	200406	200811
RA(C)	200406	200811
RA(O)	200406	203809

RIP Date: 200811

RC Date: 203809

SITE DESCRIPTION

Line 2 is a production line that has been in operation since the inception of IAAAP, except for a brief hiatus from 1947 to 1949. It occupies nearly 140 acres, including 31 buildings and covered walkways and is used to LAP tank ammunition and blank ammunition. The melt building appears to be where the highest volumes of wastes were produced. The buildings include equipment rooms, explosives magazines and nine sump buildings.

This IRP site consists of groundwater (GW) contamination from past munitions production. Any contamination from current activities will be addressed under compliance [non-Environmental Restoration, Army (ER,A) funding]. The past contamination resulted from the practice of washing spilled explosives from floors and equipment and from spillages resulting from sump failures.

Trinitrolouene (TNT) and cyclotrimethylenetrinitramine (RDX) in concentrations of up to 2 parts per million (ppm) have been found in the GW in shallow localized plumes within 30 feet of the ground surface.

In 1991 the preliminary assessment (PA)/Site Investigation (SI) was completed, and in May of 1996 an initial remedial investigation (RI) was completed. In 2003 a Supplemental RI was completed to fill GW data gaps found in the May 1996 RI.

This site was separated from IAAP-002 to better manage GW cleanup and allow clearer reporting for phase completions and funding allocation.

Phase progress will be tracked at the PBC Site, but funding requirements will be tracked under the Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed, will be assessed in the feasibility study (FS). At present, it is presumed that localized areas of contamination will be remediated.

Site ID: IAAP-003G
Site Name: LINE 3 AMMO LAP - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Explosives

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200811
RD	200406	200811
RA(C)	200406	200811
RA(O)	200406	202711

RIP Date: 200811

RC Date: 202711

SITE DESCRIPTION

Line 3 is a production line that has been in operation since 1941, except for a short time between 1945 and 1949. This line fills and assembles artillery projectiles and occupies about 150 acres, consisting of 26 buildings and covered walkways. The buildings include equipment rooms, explosives magazines, and nine sump buildings for explosive waste processing. The two melt buildings appear to be the areas where the highest volumes of wastes were produced during operations.

This IRP site consists of groundwater contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The practice during the early years of production was to dispose of the wastewater at the Line 800 Pink Water Lagoon. In July of 1995 and September of 1998 this line was upgraded to include self-contained Pinkwater Reroute Systems.

From 1977 to 1984, metal cleaning operations were conducted at Line 3. That process consisted of several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid rinse, then rinsed with water. Sludge that accumulated in the bottom of the sulfuric acid tank was removed and treated with sodium hydroxide.

RDX in concentrations of 0.5-2.2 ppm has been found in the groundwater in a shallow localized plume within 30 feet of the ground surface. Recent data shows a downward trend in groundwater concentrations.

In 1991 the PA/SI was completed and an initial RI was completed in May of 1996. In 2003 supplemental RI work was completed to better delineate groundwater contamination.

Phase progress will be tracked at the PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed, will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

Site ID: IAAP-004G
Site Name: LINE 3A AMMO LAP - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Explosives

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199105
RI/FS	199105	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	203809

RIP Date: 200711

RC Date: 203809

SITE DESCRIPTION

Line 3A was constructed in 1941 and began operations in 1943. The line was shut down from 1945 to 1949, then resumed operations until 1989. It is currently an active LAP operation encompassing 119 acres. The melt building appears to be the area where the highest volume of wastes were produced during operations.

This IRP site consists of the groundwater contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). In December of 1996 this line was upgraded to include a self-contained Pinkwater Reroute System.

Metal cleaning operations were conducted here. The process included several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid bath and water rinsing.

Two isolated, shallow plumes (RDX, low level) have been identified to date. In 1991 the PA/SI was completed and the initial RI was completed in May of 1996.

Phase progress will be tracked at the PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others, outside the Brush Creek watershed will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

Site ID: IAAP-010G
Site Name: LINE 9 AMMO LAP - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Semi-volatiles

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	203809

RIP Date: 200711

RC Date: 203809

SITE DESCRIPTION

Line 9 comprises about nine acres and was built in 1942 for use as a production facility that produced mine and mine fuses during the Vietnam War. The line is in modified caretaker status. In 1991 the PA/SI was completed and in May of 1996 an initial RI was completed. During the Supplemental RI, which was completed in 2003, Freon-113 was found in the groundwater in concentrations of up to 220ppm. The plume most likely extends over approximately five acres, and has been found to produce concentrations that displace oxygen at levels that represent a risk to human health. This information has been provided to AO Safety.

The site consists of groundwater contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

The Army has determined that the facilities at this line are excess and will pursue non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC.

Phase progress will be tracked at this PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed, will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

Site ID: IAAP-012G
Site Name: EDA/EAST BURN PADS - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Explosives, Volatiles

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	203809

RIP Date: 200711

RC Date: 203809

SITE DESCRIPTION

The Explosive Disposal Area (east burn pads, located in the northeast corner of IAAAP, consisted of eight raised earthen burning pads enclosed in a fenced area of approximately 12 acres. Activities included open burning of explosives-contaminated metals, propellant ,explosives and pyrotechnic contaminated materials. Each pad was bermed on three sides to restrict horizontal movement of metal projectiles. The pads were in operation from 1941 until 1982, when the Explosive Waste Incinerator was built.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD required the removal of contaminated soil, and 8,270 cy of soil was removed in 1998 (funded as an IRA). This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

Low levels of explosives and VOCs have been found in shallow groundwater and upper bedrock [30 feet below ground surface (bgs)].

PBC Site - Phase progress will be tracked here, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others, outside the Brush Creek watershed, will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

Site ID: IAAP-016
Site Name: LINE 1 FORMER WASTEWATER IMPOUNDMENT

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Explosives

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

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	199610
RA(C)	199610	199709
RA(O)	199710	203809

RIP Date: 199710

RC Date: 203809

SITE DESCRIPTION

This site consists of the Line 1 Former Wastewater Impoundment and up-gradient settling basins. The Line 1 Former Wastewater Impoundment was formed by damming a portion of the upper reaches of Brush Creek. The primary function of the impoundment was to allow settling of particulate matter from explosives-contaminated wastewater from Line 1 (a former AEC and Army site) before it discharged downstream. From 1948 to 1957 this impoundment received large volumes of discharge. The wastes included TNT, coal pile runoff, and condensate from the coal-fired power plant. Fly ash usually was added to the impoundment liquid to absorb the explosives and reduce the color. During periods of high flow, the impoundment covered from 3.6 acres to 7.5 acres (1,300 to 2,400 feet long). The embankment was breached after 1957; Brush Creek flowed through the breach and the former impounded area was allowed to re-vegetate naturally. In 1991 RI work for the Impoundment area was completed.

In 1995, the Army Decision Document was approved and in 1996 the Action Memo was approved. A contaminated soils IRA was completed during 1997 when 8,270 cy of explosives-contaminated soils were excavated from this area. The excavated soils contained greater than 3,900 pounds of explosives. This soil was taken to the Inert Disposal Area (IAAP-020) where it was separated by level of contamination. Approximately 1000 cy of higher contaminated soil was placed in Trench 7 and will be treated as required by the ROD. The remainder was placed in a landfill without treatment.

This site has been converted into wetlands. Native plants containing the nitroreductase enzyme are being used to phytoremediate the surface water. Low levels of residual explosives remain in surface water within the impoundment, and they are being treated with granular activated carbon prior to discharge into Brush Creek.

The FUSRAP PA identified this area as requiring additional investigation. In August of 2004, the FUSRAP conducted a screening survey of this site to determine if radiological contaminants from AEC activities are present in soil. Preliminary assessments of all screening results indicate no radiological contamination present at this area however, groundwater contamination was discovered in 2004.

Phase progress will be tracked at this PBC Site, but funding requirements for groundwater will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for groundwater at this site, as well as others in the Brush Creek watershed, will be assessed in the FS. At present, it is presumed that localized areas of groundwater contamination will be remediated. Surface water management will continue.

Site ID: IAAP-020
Site Name: INERT DISPOSAL AREA

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Explosives, Metals

Media of Concern: Soil

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	199505
RD	199505	199508
IRA	198809	200001
RA(C)	199603	201009
RA(O)	200406	203809

RIP Date: 201009

RC Date: 203809

SITE DESCRIPTION

The Inert Disposal Area (IDA) encompasses approximately 20 acres and is located west of C Road, north of Line 3A in the west central part of the Installation. It once included an Inert (sanitary) Landfill, a burning ground, a metal salvage operation, the Former Blue Sludge Lagoon, wastewater sludge drying bed, Cap Extension Area (CEA) and an earthen holding area formerly used to store sludge from Line 3 and Line 800.

Soils from other Restoration sites are transported to the IDA for segregation according to health risk. Soils classified as a high health risk are placed in the Corrective Action Management Unit (CAMU) (Trench 7) to be held for treatment. The CAMU was designated by the USEPA via a letter dated March 8, 1996. Soils classified as a medium health risk are placed in a RCRA-type lined cell (Trench 6) and soils that are classified as a low health risk are placed underneath the overall cap at the IDA.

The Inert Landfill was in operation from 1941 to September of 1992, and employed the trench-and-fill operation technique. Trenches 1 through 5 were filled primarily with sanitary landfill materials such as unsalvageable or unrecoverable materials (cafeteria and residential refuse and garbage, broken pallets, plastic, tin cans, and scrap wood/lumber paper, cardboard, and asbestos insulation in double-lined plastic bags). Ash from open burnings and incinerations was also placed in the landfill. In 1980, a Part A Permit was received for the Inert Landfill and the Blue Sludge Lagoon. Interim status was granted that year. During 1997, a low permeability synthetic cap was placed over Trenches 1 through 5 (approximately 17 acres). This area was seeded in 1998.

In 1984 the lagoon holding area was closed following the transfer of the blue sludge to a concrete-lined sludge drying bed, where it remained until January of 1997. The excavated area was backfilled and capped with clay and a vegetative cover was established. In 1997, the blue sludge was excavated from this drying bed and deposited into Trench 6. In 1997 explosives- and metals-contaminated soils from a 1993/1994 multi-site sump removal project were placed in Trench 6.

The north end of Trench 5 contains special waste, such as ash from the Contaminated Waste Processor (CWP) (IAAP-024), Explosive Waste Incinerator (EWI) (IAAP-025), and open burning of explosives and explosives-contaminated wastes.

In April of 1988 this area was capped and the RCRA closure plan was completed. In February of 1997 the plan was amended to address sampling issues. In 1997 during routine sampling radionuclides were found in groundwater samples and were determined to be within normal background levels for IAAAP and within safe limits.

In 1996 IRAs (soil removal and capping) at the IDA, Former Line 1 Impoundment Area (IAAP-016), and the Line 800 Lagoon (IAAP-044) were initiated and were completed in 1997.

Soil and debris from the burning grounds was placed underneath the Inert Landfill cap or in Trench 6, whichever was appropriate, based upon contamination levels. In 1997, the cap construction was completed over Trenches 1 through 5. Soils from the East Burn Pads, North Burn Pads, North Burn Pads Landfill and Fire Training Pit were placed into Trenches 6 or 7. VOC-contaminated soils from the Fire Training Pit were removed and treated via a Low Temperature Thermal Desorption unit at Trench 6. Trench 7

Site ID: IAAP-020
Site Name: INERT DISPOSAL AREA

was designated as a CAMU by the USEPA on March 8, 1996.

In FY02, approximately 6,000cy of soil contaminated with explosives and metals and stored in the CAMU were treated and segregated per the Interim Soil ROD.

An Explanation of Significant Differences, signed in 2003, specified enhanced biological treatment as the primary remedy for explosive-contaminated soils.

Groundwater monitoring and long term maintenance costs associated with sites IAAP-001, 002G, 003G, 004G, 010G, 012G, 016, 017, 020, 020G, 032G, 039G, 044G, and 046 are captured in this site.

To date, approximately 216,000 cy of soil have been taken to the IDA. Four percent has undergone bio-treatment for soils, 1.5 percent has undergone thermal treatment, and nine percent has undergone stabilization for metals. It should be noted that a portion of this volume came from FUSRAP screening areas (IAAP-012, 032, 036, and 037).

During the August 2004 radiological screening of the IDA conducted by FUSRAP, one isolated area of radiological contamination was identified. This area was limited to a small object and the soils around the object (approximately one square yard). Analysis identified that the object contained Cesium-137. The soil where the object was found originated from remediation activities at the West Burn Pads Area (IAAP-032). The area was sufficiently covered with soil to eliminate exposure.

CLEANUP/EXIT STRATEGY

This site is under the PBC awarded in 2004. Actions at this site will manage remediation waste awaiting treatment and capping, continue to receive contaminated soil from other sites, to control and treat storm water and leachate and maintain existing cap.

After all contaminated soil has been treated, the plan is to excavate and move CAMU to Trench 6. Trench 6 and the CEA will be capped. After closure, leachate management and cap maintenance will continue. Programmed costs also include installation-wide RA(O)/LTM for groundwater monitoring and five-year reviews.

Site ID: IAAP-020G
Site Name: INERT DISPOSAL AREA - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Explosives, Metals, Semi-volatiles, Volatiles

Media of Concern: Groundwater

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	200811
RD	200406	200811
RA(C)	200406	200811
RA(O)	200406	203809

RIP Date: 200811

RC Date: 203809

SITE DESCRIPTION

The Inert Disposal Area - Groundwater encompasses approximately 20 acres that once included an Inert (sanitary) Landfill, a burning ground, a metal salvage operation, the Former Blue Sludge Lagoon, wastewater sludge drying bed, CEA and an earthen holding area formerly used to store sludge from Line 3 and Line 800. The IDA is located west of C Road, north of Line 3A in the west central part of the Installation.

The Inert Landfill was in operation from 1941 to September of 1992 and employed the trench and fill operation technique. Trenches 1 through 5 were filled primarily with sanitary landfill materials such as unsalvageable or unrecoverable materials (cafeteria and residential refuse and garbage, broken pallets, plastic, tin cans, and scrap wood/lumber paper, cardboard and asbestos insulation in double-lined plastic bags). Ash from open burnings and incinerations was also placed in the landfill. In 1980, a Part A Permit was received for the Inert Landfill and the Blue Sludge Lagoon. Interim status was granted that year. In 1984 the lagoon holding area was closed following the transfer of the blue sludge to a concrete-lined sludge drying bed, where it remained until January of 1997. The excavated area was backfilled and capped with clay and a vegetative cover was established. In 1997, the blue sludge was excavated from the drying bed and deposited into Trench 6. In 1997 explosives- and metals-contaminated soils from a 1993/1994 multi-site sump removal project were placed in Trench 6. Also during 1997, a low permeability synthetic cap was placed over Trenches 1 through 5 (approximately 17 acres). This area was seeded in 1998.

The north end of Trench 5 contains special waste, such as ash from the CWP (IAAP-024), EWI (IAAP-025), and open burning of explosives and explosives-contaminated wastes. In April of 1988 this area was capped and the RCRA closure plan was completed. In February of 1997 the plan was amended to address sampling issues. In 1997 during routine sampling radionuclides were found in groundwater samples and were determined to be within normal background levels for IAAAP and within safe limits.

In 1994 groundwater monitoring began. Low levels of explosives, VOCs and metals have been found in shallow groundwater (30 feet bgs). High levels of PCP have been found in one well.

Phase progress will be tracked at this PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

Under the PBC awarded in 2004, further characterization of the groundwater will be completed and a FS/Proposed Plan (PP)/ROD under OU4 will be prepared. Remedial action (operation) [RA(O)] will be required until cleanup requirements are met.

Site ID: IAAP-032G
Site Name: WEST BURN PAD AREA - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Explosives, Metals, Volatiles

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	203809

RIP Date: 200711

RC Date: 203809

SITE DESCRIPTION

Because of the complexity in defining site boundaries, sites IAAP-032 (Burn Cages), IAAP-033 (Burn Cage Landfill), IAAP-034 (West Burn Pads), and IAAP-035 [West Burn Pads Landfill (WBPLF)], were incorporated into this one site.

Burn cages were used for the incineration of inert and explosives-contaminated packaging. The flashing of metals parts also was performed here. The site was used from 1949 to 1982 when the cages were removed. In 1991, during the site inspection, metal parts, munitions casings and staining on the ground surface were observed. Ash generated from the burn operations was disposed in the adjacent landfills. The landfills comprise approximately three acres and are heavily vegetated.

The West Burn Pads were used for metals flashing from 1949 to 1982. Between 1949 and 1982 ash from the Burn Cages and West Burn Pads was disposed of at the Burn Cage Landfill and then, between 1950 and 1975, at the WBPLF. The WBPLF also received waste from the East Burn Pads as well as various solid wastes that included sanitary and industrial waste.

This site consists of the contamination from past activities. Any contamination from current and future activities will be addressed with non-Environmental Restoration, Army (ER,A) funding.

In 1991 the PA/SI was completed and the RI was completed in 1996. In 1994 groundwater monitoring began. After the soil removal was completed, relatively high levels of explosives and freon were found in the groundwater.

In 2000 low levels of explosives were detected in the creek south of the WBPLF. In 2003 a Supplemental RI was completed and in 2004 a groundwater model was created.

Phase progress will be tracked at this PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others, outside the Brush Creek watershed, will be assessed in the FS. At present, it is presumed that localized areas of contamination will be remediated.

Costs are being tracked under PBC line item. Post-PBC LTM costs will be captured under IAAP-020.

Site ID: IAAP-039G
Site Name: FIRE TRAINING PIT - GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Metals, Semi-volatiles, Volatiles

Media of Concern: Groundwater

Phases	Start	End
PA	198901	199105
SI	198901	199108
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	203809

RIP Date: 200711

RC Date: 203809

SITE DESCRIPTION

The former Fire Training Pit was an unlined pit measuring approximately 40 by 16 by 2 feet and was used from 1982 to 1987. During training sessions, 55-gallon drums of solvents and petroleum products were set ablaze, then extinguished by firefighters.

In 1991 the PA/SI was completed and the RI was completed in May of 1996. Investigations found localized soil and groundwater contamination consisting of significant quantities of VOCs (including chlorinated solvents), semi-volatile organic compounds (SVOCs), metals and low levels of dioxins and furans. In 1994 groundwater monitoring began.

High levels of VOCs in concentrations greater than 30 ppm have been found in shallow groundwater and the upper bedrock (30 feet bgs). Groundwater contamination has migrated to the Spring Creek Tributary.

In 2003, the supplemental RI was completed and was documented in a Remedial Alternative Analysis document.

Phase progress will be tracked at this PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others outside the Brush Creek watershed, will be assessed in a single FS. At present, it is presumed that localized areas of contamination will be remediated.

Site ID: IAAP-044G
Site Name: LINE 800 & PINKWATER LAGOON- GROUNDWATER

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Explosives

Media of Concern: Groundwater

Phases	Start	End
PA	197803	199105
SI	197803	199105
RI/FS	199012	200711
RD	200406	200711
RA(C)	200406	200711
RA(O)	200406	203809

RIP Date: 200711

RC Date: 203809

SITE DESCRIPTION

The Line 800 Pinkwater Lagoon consisted of an unlined, five acre impoundment, 4 ft deep, surrounded by an earthen berm. This lagoon was located adjacent to Line 800 (IAAP-011) and an intermittent tributary to Brush Creek. The primary activity at Line 800 was ammunition renovation from 1943 to 1945. The Pinkwater Lagoon was constructed in 1943 for the disposal of pink water effluent from adjacent Line 800 production facilities and sludges trucked in from other line operations within the installation. In 1943, leaching fields associated with the lagoon to include evaporation furrows were constructed. The lagoon also received metal cleaning sludge from Line 3 operations. In the 1970s, this lagoon ceased to be used. This IRP site consists of the groundwater contamination from past activities.

Studies conducted from 1991 through 1998 indicated that primary waste disposed at the site included explosives-contaminated washwater and heavy metals from operations at Line 800 and other production lines. Carbon and fly ash disposal also may have occurred at the site. During 1997, as a result of the RI sampling, 63,236 cy of explosives-contaminated soils were excavated from this area. In July of 2001 the supplemental groundwater RI was completed.

High levels of explosives in concentrations of greater than 30 ppm have been found in shallow groundwater (up to 30 feet bgs). The groundwater discharges into a tributary of Brush Creek.

Phase progress will be tracked at this PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedial approach for this site, as well as others in the Brush Creek watershed, will be assessed in the FS.

Costs are being tracked under a PBC line item. Post-PBC LTM costs will be captured under IAAP-020.

Site ID: IAAP-046
Site Name: OFF POST CONTAMINATION

STATUS

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Explosives

Media of Concern: Groundwater, Surface Water

Phases	Start	End
PA	198505	198510
SI	199209	199305
RI/FS	199906	200509
RD	200406	200609
IRA	199305	200110
RA(C)	200406	200709
RA(O)	200406	203809

RIP Date: 200709

RC Date: 203809

SITE DESCRIPTION

Historical discharges of explosive-contaminated wastewater have resulted in surface water and groundwater contamination offpost, mainly in the Brush Creek watershed.

In 1993, off-post contamination of private drinking water wells with explosives [RDX and 2,6 dinitrotoluene (DNT)] was confirmed. The IAAAP contracted to connect residents in the contaminated area to the public water supply. This remedial action was designed to eliminate the pathway of future exposures to contaminated drinking water and was completed in the fall of 1994. IAAAP is investigating groundwater contamination both on- and off-post. In 1998 the off-post efforts were accelerated due to increased stakeholder interest.

High levels of RDX [up to 150 micrograms per liter] were detected in the Brush Creek watershed approximately two miles off-post.

In 2001, IAAAP provided connection of Rathbun Regional Water to 34 homeowners who had declined this in 1993. The total number of homes now connected to the Rathbun Regional Water supply is 188.

In 2003, during annual groundwater sampling, groundwater was analyzed for radionuclides by FUSRAP. Only naturally occurring isotopes were detected.

In 2004 the FS and proposed plan were completed. The preferred alternative is enhanced bioremediation.

In 2005 the ROD for off-post groundwater was signed.

Phase progress will be tracked for this PBC Site, but funding requirements will be tracked under Site PBC at Iowa. Post PBC costs will be covered under Site IAAP-020.

CLEANUP/EXIT STRATEGY

This site is included in the PBC awarded in 2004. The remedy will consist of an enhanced degradation system with monitored natural attenuation, and institutional and engineering controls.

Site ID: PBC at Iowa
Site Name: PBC at Iowa

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Phases	Start	End
PA	200308	200308
RA(C)	200406	201109
RA(O)	201109	201406

RIP Date: 201109

RC Date: 201409

SITE DESCRIPTION

This site was created to address funding information for the PBC for Iowa AAP. The period of performance for this contract is 10 years beginning in 2004. The sites captured under the PBC contract are IAAP-001, 002G, 003G, 004G, 010G, 012G, 016, 017, 020, 020G, 032G, 039G, 044G, and 046.

CLEANUP/EXIT STRATEGY

This PBC was awarded in 2004. The remedial approach for these sites will be assessed in the feasibility study (FS). At present, it is presumed that localized areas of contamination will be remediated. Refer to individual site descriptions for site-specific cleanup strategies.

Response Complete (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
IAAP-002	LINE 2 AMMO LAP(ARTILLERY/SHAPED)	200709	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-003	LINE 3 AMMO LAP (ARTILLERY)	200709	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-004	LINE 3A AMMO LAP (ARTILLERY)	200709	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-005	LINE 4A AND 4B AMMO ASSEMBLY	200508	Phase 4 Soil Remedial Action Report. Contamination not found above action levels.
IAAP-006	LINE 5A AND 5B AMMO ASSEMBLY	199911	Phase 2 Soil Remedial Action Report. Soil removal complete.
IAAP-007	LINE 6 AMMO PRODUCTION(DETONATOR)	200709	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-008	LINE 7 AMMO LAP(FUZE/BLANK)	199605	Contamination not found above action levels. Confirmation sampling conducted after the building deconstruction in January 2006.
IAAP-009	LINE 8 AMMO LAP(FUZE/ROCKET)	200508	Phase 4 Soil Remedial Action Report. Contamination not found above action levels.
IAAP-010	LINE 9 AMMO LAP (MINE)	200508	Phase 4 Remedial Action Report. Soil removal complete.
IAAP-011	LINE 800 AMMO RENOV	200009	Merged with IAAP-044
IAAP-012	EXPLOSIVE DISPOSAL AREA (EAST BURN PADS)	199812	Phase 1 Soil Remedial Action Report. Soil removal complete.
IAAP-013	INCENDIARY DISPOSAL AREA (EAST YARD D)	200710	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-014	BOXCAR UNLOADING AREA	199606	NFA per PA/SI.
IAAP-015	OLD FLY ASH WASTE PILE	200712	
IAAP-017	PESTICIDE PIT	200712	
IAAP-018	POSSIBLE DEMOLITION SITE(SOUTH YARD G)	200710	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-019	CONTAMINATED CLOTHING LAUNDRY	199706	Transferred to CC Program.
IAAP-021	DEMOLITION AREA/DEACTIVATION FURNACE	200009	Transferred to CC Program.
IAAP-022	UNIDENTIFIED SUBSTANCE(OIL) WASTE SITE	199108	NFA per PA/SI.
IAAP-024	CONTAMINATED WASTE PROCESSOR	199605	Transferred to CC Program.
IAAP-025	EXPLOSIVE WASTE INCINERATOR	200712	
IAAP-026	SEWAGE TREATMENT PLANT/DRYING BEDS	200010	Transferred to CC Program.
IAAP-027	FLY ASH LANDFILL (NEW BLDG 400-139)	199605	Transferred to CC Program.
IAAP-028	CONSTRUCTION DEBRIS DISPOSAL AREA	200712	
IAAP-029	LINE 3A SEWAGE TREATMENT PLANT/DRY BED	200010	Transferred to CC Program.
IAAP-030	FIRING SITE AREA	200309	Transferred to FUSRAP.

Response Complete (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
IAAP-031	YARD B AMMO BOX CHIPPER DISPOSAL PIT	200010	NFA per OU3 RI/FS
IAAP-032	BURN CAGES, BCLF; WEST BURN PADS, WBPLF	200212	Phase 1 and Phase 3 Soil Remedial Action Report (north side of the road). Soil removal complete. South side of the road designated to FUSRAP in July 02.
IAAP-036	NORTH BURN PADS (2) (NEAR IAAP-024)	200303	Phase 1 Remedial Action Report. Soil removal complete.
IAAP-037	NORTH BURN PADS LANDFILL	199812	Phase 1 Remedial Action Report. Soil removal complete.
IAAP-038	BUILDING 600-86 SEPTIC SYSTEM	199605	Remedial Investigation Report and substantiated by Comprehensive Watersheds Evaluation. Contamination not above action levels or pathways not complete.
IAAP-039	FIRE TRAINING PIT	200409	RA Report Addendum for the Fire Training Pit. Soil removal complete.
IAAP-040	ROUNDHOUSE TRANSFORMER STORAGE AREA	200508	Phase 4 Soil Remedial Action Report. Contamination not found above action levels.
IAAP-041	LINE 3A POND	200712	
IAAP-042	ABANDONED COAL STORAGE YARD	199310	Per PA/SI.
IAAP-043	FLY ASH DISPOSAL AREA	200010	No significant soil contamination found during the Jaycor RI.
IAAP-044	LINE 800 & PINKWATER LAGOON	200709	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation
IAAP-045	FORMER FUEL STATION UST'S	200208	Certificate of No Further Action dated August 9, 2004
IAAP-047	Central Test Area	200710	Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation

IRP Schedule

Date of IRP Inception: 197803

Past Phase Completion Milestones

1986

PA (IAAP-046 - OFF POST CONTAMINATION)

1989

PA (IAAP-022 - UNIDENTIFIED SUBSTANCE(OIL) WASTE SITE)

1991

PA (IAAP-001 - LINE 1 AMMO LAP(MISSILE/FORMER AEC), IAAP-002 - LINE 2 AMMO LAP(ARTILLERY/SHAPED), IAAP-002G - LINE 2 AMMO LAP - GROUNDWATER, IAAP-003 - LINE 3 AMMO LAP (ARTILLERY), IAAP-003G - LINE 3 AMMO LAP - GROUNDWATER, IAAP-004 - LINE 3A AMMO LAP (ARTILLERY), IAAP-004G - LINE 3A AMMO LAP - GROUNDWATER, IAAP-005 - LINE 4A AND 4B AMMO ASSEMBLY, IAAP-006 - LINE 5A AND 5B AMMO ASSEMBLY, IAAP-007 - LINE 6 AMMO PRODUCTION(DETONATOR), IAAP-008 - LINE 7 AMMO LAP(FUZE/BLANK), IAAP-009 - LINE 8 AMMO LAP(FUZE/ROCKET), IAAP-010 - LINE 9 AMMO LAP (MINE), IAAP-010G - LINE 9 AMMO LAP - GROUNDWATER, IAAP-011 - LINE 800 AMMO RENOV, IAAP-012 - EXPLOSIVE DISPOSAL AREA (EAST BURN PADS), IAAP-012G - EDA/EAST BURN PADS - GROUNDWATER, IAAP-013 - INCENDIARY DISPOSAL AREA (EAST YARD D), IAAP-014 - BOXCAR UNLOADING AREA, IAAP-015 - OLD FLY ASH WASTE PILE, IAAP-016 - LINE 1 FORMER WASTEWATER IMPOUNDMENT, IAAP-017 - PESTICIDE PIT, IAAP-018 - POSSIBLE DEMOLITION SITE(SOUTH YARD G), IAAP-019 - CONTAMINATED CLOTHING LAUNDRY, IAAP-020 - INERT DISPOSAL AREA, IAAP-020G - INERT DISPOSAL AREA - GROUNDWATER, IAAP-021 - DEMOLITION AREA/DEACTIVATION FURNACE, IAAP-024 - CONTAMINATED WASTE PROCESSOR, IAAP-025 - EXPLOSIVE WASTE INCINERATOR, IAAP-026 - SEWAGE TREATMENT PLANT/DRYING BEDS, IAAP-027 - FLY ASH LANDFILL (NEW BLDG 400-139), IAAP-028 - CONSTRUCTION DEBRIS DISPOSAL AREA , IAAP-029 - LINE 3A SEWAGE TREATMENT PLANT/DRY BED, IAAP-030 - FIRING SITE AREA, IAAP-031 - YARD B AMMO BOX CHIPPER DISPOSAL PIT, IAAP-032 - BURN CAGES, BCLF; WEST BURN PADS, WBPLF, IAAP-032G - WEST BURN PAD AREA - GROUNDWATER, IAAP-036 - NORTH BURN PADS (2) (NEAR IAAP-024), IAAP-037 - NORTH BURN PADS LANDFILL, IAAP-038 - BUILDING 600-86 SEPTIC SYSTEM, IAAP-039 - FIRE TRAINING PIT, IAAP-039G - FIRE TRAINING PIT - GROUNDWATER, IAAP-040 - ROUNDHOUSE TRANSFORMER STORAGE AREA, IAAP-041 - LINE 3A POND, IAAP-042 - ABANDONED COAL STORAGE YARD, IAAP-043 - FLY ASH DISPOSAL AREA, IAAP-044 - LINE 800 & PINKWATER LAGOON, IAAP-044G - LINE 800 & PINKWATER LAGOON- GROUNDWATER, IAAP-047 - Central Test Area)

SI (IAAP-001 - LINE 1 AMMO LAP(MISSILE/FORMER AEC), IAAP-002 - LINE 2 AMMO LAP(ARTILLERY/SHAPED), IAAP-002G - LINE 2 AMMO LAP - GROUNDWATER, IAAP-003 - LINE 3 AMMO LAP (ARTILLERY), IAAP-003G - LINE 3 AMMO LAP - GROUNDWATER, IAAP-004 - LINE 3A AMMO LAP (ARTILLERY), IAAP-004G - LINE 3A AMMO LAP - GROUNDWATER, IAAP-005 - LINE 4A AND 4B AMMO ASSEMBLY, IAAP-006 - LINE 5A AND 5B AMMO ASSEMBLY, IAAP-007 - LINE 6 AMMO PRODUCTION(DETONATOR), IAAP-008 - LINE 7 AMMO LAP(FUZE/BLANK), IAAP-009 - LINE 8 AMMO LAP(FUZE/ROCKET), IAAP-010 - LINE 9 AMMO LAP (MINE), IAAP-010G - LINE 9 AMMO LAP - GROUNDWATER, IAAP-011 - LINE 800 AMMO RENOV, IAAP-012 - EXPLOSIVE DISPOSAL AREA (EAST BURN PADS), IAAP-012G - EDA/EAST BURN PADS - GROUNDWATER, IAAP-013 - INCENDIARY DISPOSAL AREA (EAST YARD D), IAAP-014 - BOXCAR UNLOADING AREA, IAAP-015 - OLD FLY ASH WASTE PILE, IAAP-016 - LINE 1 FORMER WASTEWATER IMPOUNDMENT, IAAP-017 - PESTICIDE PIT, IAAP-018 - POSSIBLE DEMOLITION SITE(SOUTH YARD G), IAAP-019 - CONTAMINATED CLOTHING LAUNDRY, IAAP-020 - INERT DISPOSAL AREA, IAAP-020G - INERT DISPOSAL AREA - GROUNDWATER, IAAP-021 - DEMOLITION AREA/DEACTIVATION FURNACE, IAAP-022 - UNIDENTIFIED SUBSTANCE(OIL) WASTE SITE, IAAP-024 - CONTAMINATED WASTE PROCESSOR, IAAP-025 - EXPLOSIVE WASTE INCINERATOR, IAAP-026 - SEWAGE TREATMENT PLANT/DRYING BEDS, IAAP-027 - FLY ASH LANDFILL (NEW BLDG 400-139), IAAP-028 - CONSTRUCTION DEBRIS DISPOSAL AREA , IAAP-029 - LINE 3A SEWAGE TREATMENT PLANT/DRY BED, IAAP-030 - FIRING SITE AREA, IAAP-031 - YARD B AMMO BOX CHIPPER DISPOSAL PIT, IAAP-032 - BURN CAGES, BCLF; WEST BURN PADS, WBPLF, IAAP-032G - WEST BURN PAD AREA - GROUNDWATER, IAAP-036 - NORTH BURN PADS (2) (NEAR IAAP-024), IAAP-037 - NORTH BURN PADS LANDFILL, IAAP-038 - BUILDING 600-86 SEPTIC SYSTEM, IAAP-039 - FIRE TRAINING PIT, IAAP-039G - FIRE TRAINING PIT - GROUNDWATER, IAAP-040 - ROUNDHOUSE TRANSFORMER STORAGE AREA, IAAP-041 - LINE 3A POND, IAAP-042 - ABANDONED COAL STORAGE YARD, IAAP-043 - FLY ASH DISPOSAL AREA, IAAP-044 - LINE 800 & PINKWATER LAGOON, IAAP-044G - LINE 800 & PINKWATER

	LAGOON- GROUNDWATER, IAAP-047 - Central Test Area)
1993	
SI	(IAAP-046 - OFF POST CONTAMINATION)
RD	(IAAP-042 - ABANDONED COAL STORAGE YARD)
RI/FS	(IAAP-042 - ABANDONED COAL STORAGE YARD)
1994	
RA(C)	(IAAP-042 - ABANDONED COAL STORAGE YARD)
1995	
RI/FS	(IAAP-020 - INERT DISPOSAL AREA)
RD	(IAAP-020 - INERT DISPOSAL AREA)
1996	
IRA	(IAAP-017 - PESTICIDE PIT)
RI/FS	(IAAP-002 - LINE 2 AMMO LAP(ARTILLERY/SHAPED), IAAP-003 - LINE 3 AMMO LAP (ARTILLERY), IAAP-004 - LINE 3A AMMO LAP (ARTILLERY), IAAP-008 - LINE 7 AMMO LAP(FUZE/BLANK), IAAP-010 - LINE 9 AMMO LAP (MINE), IAAP-014 - BOXCAR UNLOADING AREA, IAAP-024 - CONTAMINATED WASTE PROCESSOR, IAAP-027 - FLY ASH LANDFILL (NEW BLDG 400-139), IAAP-037 - NORTH BURN PADS LANDFILL, IAAP-038 - BUILDING 600-86 SEPTIC SYSTEM, IAAP-044 - LINE 800 & PINKWATER LAGOON)
1997	
RI/FS	(IAAP-012 - EXPLOSIVE DISPOSAL AREA (EAST BURN PADS), IAAP-016 - LINE 1 FORMER WASTEWATER IMPOUNDMENT, IAAP-019 - CONTAMINATED CLOTHING LAUNDRY)
RA(C)	(IAAP-016 - LINE 1 FORMER WASTEWATER IMPOUNDMENT)
1998	
RD	(IAAP-006 - LINE 5A AND 5B AMMO ASSEMBLY, IAAP-012 - EXPLOSIVE DISPOSAL AREA (EAST BURN PADS))
RI/FS	(IAAP-006 - LINE 5A AND 5B AMMO ASSEMBLY, IAAP-032 - BURN CAGES, BCLF; WEST BURN PADS, WBPLF, IAAP-040 - ROUNDHOUSE TRANSFORMER STORAGE AREA)
1999	
RA(C)	(IAAP-012 - EXPLOSIVE DISPOSAL AREA (EAST BURN PADS), IAAP-037 - NORTH BURN PADS LANDFILL)
RD	(IAAP-032 - BURN CAGES, BCLF; WEST BURN PADS, WBPLF, IAAP-037 - NORTH BURN PADS LANDFILL)
2000	
PA	(IAAP-045 - FORMER FUEL STATION UST'S)
RA(C)	(IAAP-006 - LINE 5A AND 5B AMMO ASSEMBLY)
RI/FS	(IAAP-007 - LINE 6 AMMO PRODUCTION(DETONATOR), IAAP-009 - LINE 8 AMMO LAP(FUZE/ROCKET), IAAP-011 - LINE 800 AMMO RENOV, IAAP-021 - DEMOLITION AREA/DEACTIVATION FURNACE)
IRA	(IAAP-011 - LINE 800 AMMO RENOV, IAAP-020 - INERT DISPOSAL AREA, IAAP-021 - DEMOLITION AREA/DEACTIVATION FURNACE, IAAP-040 - ROUNDHOUSE TRANSFORMER STORAGE AREA, IAAP-044 - LINE 800 & PINKWATER LAGOON)
2001	
RI/FS	(IAAP-005 - LINE 4A AND 4B AMMO ASSEMBLY, IAAP-026 - SEWAGE TREATMENT PLANT/DRYING BEDS, IAAP-029 - LINE 3A SEWAGE TREATMENT PLANT/DRY BED, IAAP-031 - YARD B AMMO BOX CHIPPER DISPOSAL PIT, IAAP-043 - FLY ASH DISPOSAL AREA, IAAP-045 - FORMER FUEL STATION UST'S)
RD	(IAAP-045 - FORMER FUEL STATION UST'S)
2002	
RA(C)	(IAAP-045 - FORMER FUEL STATION UST'S)
IRA	(IAAP-046 - OFF POST CONTAMINATION)
2003	
RA(C)	(IAAP-032 - BURN CAGES, BCLF; WEST BURN PADS, WBPLF)

RI/FS	(IAAP-001 - LINE 1 AMMO LAP(MISSILE/FORMER AEC), IAAP-030 - FIRING SITE AREA, IAAP-036 - NORTH BURN PADS (2) (NEAR IAAP-024))
RD	(IAAP-005 - LINE 4A AND 4B AMMO ASSEMBLY, IAAP-009 - LINE 8 AMMO LAP(FUZE/ROCKET), IAAP-010 - LINE 9 AMMO LAP (MINE), IAAP-040 - ROUNDHOUSE TRANSFORMER STORAGE AREA)
PA	(PBC at Iowa - PBC at Iowa)
2004	
RI/FS	(IAAP-039 - FIRE TRAINING PIT)
IRA	(IAAP-039 - FIRE TRAINING PIT)
2005	
RA(C)	(IAAP-005 - LINE 4A AND 4B AMMO ASSEMBLY, IAAP-009 - LINE 8 AMMO LAP(FUZE/ROCKET), IAAP-010 - LINE 9 AMMO LAP (MINE), IAAP-040 - ROUNDHOUSE TRANSFORMER STORAGE AREA)
RI/FS	(IAAP-046 - OFF POST CONTAMINATION)
2006	
RD	(IAAP-046 - OFF POST CONTAMINATION)
2007	
RA(C)	(IAAP-002 - LINE 2 AMMO LAP(ARTILLERY/SHAPED), IAAP-003 - LINE 3 AMMO LAP (ARTILLERY), IAAP-004 - LINE 3A AMMO LAP (ARTILLERY), IAAP-007 - LINE 6 AMMO PRODUCTION(DETONATOR), IAAP-044 - LINE 800 & PINKWATER LAGOON, IAAP-046 - OFF POST CONTAMINATION)
RD	(IAAP-002 - LINE 2 AMMO LAP(ARTILLERY/SHAPED), IAAP-003 - LINE 3 AMMO LAP (ARTILLERY), IAAP-004 - LINE 3A AMMO LAP (ARTILLERY), IAAP-007 - LINE 6 AMMO PRODUCTION(DETONATOR), IAAP-044 - LINE 800 & PINKWATER LAGOON)

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
IAAP-002	LINE 2 AMMO LAP(ARTILLERY/SHAPED)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-002G	LINE 2 AMMO LAP - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-003	LINE 3 AMMO LAP (ARTILLERY)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-003G	LINE 3 AMMO LAP - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-004	LINE 3A AMMO LAP (ARTILLERY)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-004G	LINE 3A AMMO LAP - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-005	LINE 4A AND 4B AMMO ASSEMBLY	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-006	LINE 5A AND 5B AMMO ASSEMBLY	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-007	LINE 6 AMMO PRODUCTION(DETONATOR)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-008	LINE 7 AMMO LAP(FUZE/BLANK)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-009	LINE 8 AMMO LAP(FUZE/ROCKET)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-010	LINE 9 AMMO LAP (MINE)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-010G	LINE 9 AMMO LAP - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230

IAAP-011	LINE 800 AMMO RENOV	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-012	EXPLOSIVE DISPOSAL AREA (EAST BURN PADS)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-012G	EDA/EAST BURN PADS - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-013	INCENDIARY DISPOSAL AREA (EAST YARD D)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-014	BOXCAR UNLOADING AREA	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-015	OLD FLY ASH WASTE PILE	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-016	LINE 1 FORMER WASTEWATER IMPOUNDMENT	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-017	PESTICIDE PIT	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-018	POSSIBLE DEMOLITION SITE(SOUTH YARD G)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-019	CONTAMINATED CLOTHING LAUNDRY	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-020	INERT DISPOSAL AREA	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-020G	INERT DISPOSAL AREA - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-021	DEMOLITION AREA/DEACTIVATION FURNACE	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-022	UNIDENTIFIED SUBSTANCE(OIL) WASTE SITE	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-024	CONTAMINATED WASTE PROCESSOR	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-025	EXPLOSIVE WASTE INCINERATOR	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-026	SEWAGE TREATMENT PLANT/DRYING BEDS	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-027	FLY ASH LANDFILL (NEW BLDG 400-139)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-028	CONSTRUCTION DEBRIS DISPOSAL AREA	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-029	LINE 3A SEWAGE TREATMENT PLANT/DRY BED	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-030	FIRING SITE AREA	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-031	YARD B AMMO BOX CHIPPER DISPOSAL PIT	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-032	BURN CAGES, BCLF; WEST BURN PADS, WBPLF	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-032G	WEST BURN PAD AREA - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-036	NORTH BURN PADS (2) (NEAR IAAP-024)	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-037	NORTH BURN PADS LANDFILL	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-038	BUILDING 600-86 SEPTIC SYSTEM	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-039	FIRE TRAINING PIT	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-039G	FIRE TRAINING PIT - GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230

IAAP-040	ROUNDHOUSE TRANSFORMER STORAGE AREA	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-041	LINE 3A POND	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-042	ABANDONED COAL STORAGE YARD	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-043	FLY ASH DISPOSAL AREA	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-044	LINE 800 & PINKWATER LAGOON	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-044G	LINE 800 & PINKWATER LAGOON- GROUNDWATER	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-045	FORMER FUEL STATION UST'S	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-046	OFF POST CONTAMINATION	FINAL INSTALLATION ROD - OU #4	20091230
IAAP-001	LINE 1 AMMO LAP(MISSILE/FORMER AEC)	FINAL INSTALLATION ROD - OU #4	20091230

Final RA(C) Completion Date: 201109

NPL Deletion Date: N/A

Schedule for Next Five-Year Review: 2011

Estimated Completion Date of IRP at Installation (including LTM phase): 203809

IOWA ARMY AMMUNITION PLANT IRP Schedule

■ = phase underway

SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-001	LINE 1 AMMO LAP(MISSILE/FORMER AEC)	PA						
		SI						
		RI/FS						
		LTM	■	■	■	■	■	■
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-002G	LINE 2 AMMO LAP - GROUNDWATER	PA						
		SI						
		RI/FS	■					
		RD	■					
		RA(C)	■					
		RA(O)	■	■	■	■	■	■
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-003G	LINE 3 AMMO LAP - GROUNDWATER	PA						
		SI						
		RI/FS	■					
		RD	■					
		RA(C)	■					
		RA(O)	■	■	■	■	■	■
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-004G	LINE 3A AMMO LAP - GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)	■	■	■	■	■	■
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-010G	LINE 9 AMMO LAP - GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)	■	■	■	■	■	■
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-012G	EDA/EAST BURN PADS - GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)	■	■	■	■	■	■

IOWA ARMY AMMUNITION PLANT IRP Schedule

SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-016	LINE 1 FORMER WASTEWATER IMPOUNDMENT	PA						
		SI						
		RI/FS						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-020	INERT DISPOSAL AREA	PA						
		SI						
		RI/FS						
		RD						
		IRA						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-020G	INERT DISPOSAL AREA - GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-032G	WEST BURN PAD AREA - GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-039G	FIRE TRAINING PIT - GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-044G	LINE 800 & PINKWATER LAGOON-GROUNDWATER	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		RA(O)						

IOWA ARMY AMMUNITION PLANT IRP Schedule

SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-046	OFF POST CONTAMINATION	PA						
		SI						
		RI/FS						
		RD						
		IRA						
		RA(C)						
		RA(O)						
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
PBC at Iowa	PBC at Iowa	PA						
		RA(C)						
		RA(O)						

IRP Costs

Total Funding through FY 2004: $87,517.5 K

Prior Funding

FY	Phase	Site ID	Obligations	FY Total
2005	RA(C)	IAAP-010	$.6 K	$9,064.1 K
		IAAP-020	$9.4 K	
		PBC at Iowa	$8,970.1 K	
	RD	IAAP-002	$2.0 K	
		IAAP-003	$2.0 K	
		IAAP-004	$2.0 K	
	RI	IAAP-013	$2.0 K	
		IAAP-015	$2.0 K	
		IAAP-015	$2.0 K	
		IAAP-025	$2.0 K	
		IAAP-028	$2.0 K	
		IAAP-041	$2.0 K	
		IAAP-044G	$42.0 K	
		IAAP-046	$24.0 K	
2006	RA(C)	PBC at Iowa	$5,709.0 K	$5,714.0 K
	RD	IAAP-046	$5.0 K	
2007	RA(C)	IAAP-046	$5.0 K	$996.0 K
		PBC at Iowa	$991.0 K	

TOTAL PRIOR FUNDING: $103,291.6 K

Current Requirements

FY	Phase	Site ID	Requirements	FY Total
2008	RA(C)	PBC at Iowa	$952.0 K	$957.0 K
	RA(O)	IAAP-046	$5.0 K	

TOTAL CURRENT REQUIREMENTS: $957.0 K

TOTAL FUTURE REQUIREMENTS: $13,843.0 K

TOTAL PROGRAM COST: $118,091.6 K

Required Cost-to-Complete

SITE ID	SITE NAME	Phase	FY09	FY10	FY11	FY12	FY13	FY14	FY15		Out Yrs	Total	Description of Work
IAAP-020	INERT DISPOSAL AREA	RA(O)						115			11305	11420	Long-term Operation
												11420	**Site Total**
IAAP-046	OFF POST CONTAMINATION	RA(O)	5	5	5	5	5	5				30	Professional Labor Management
												30	**Site Total**
PBC at Iowa	PBC at Iowa	RA(C)	594	531	501							1626	Professional Labor Management
		RA(O)				501	251	15				767	Long-term Operation
												2393	**Site Total**
Totals			599	536	506	506	256	135			11305	13843	
												13843	**Site Total**

Programmed Cost-to-Complete

SITE ID	SITE NAME	Phase	Start Date	End Date	FY09	FY10	FY11	FY12	FY13	FY14	FY15		Out Yrs	Total	Description of Work
IAAP-020	INERT DISPOSAL AREA	RA(O)	200406	203809						115			11305	11420	Long-term Operation
														11420	**Site Total**
IAAP-046	OFF POST CONTAMINATION	RA(O)	200406	203809	5	5	5	5	5	5				30	Professional Labor Management
														30	**Site Total**
PBC at Iowa	PBC at Iowa	RA(C)	200406	201109	594	531	501							1626	Professional Labor Management
		RA(O)	201109	201406				501	251	15				767	Long-term Operation
														2393	**Site Total**
Totals					599	536	506	506	256	135			11305	13843	
														13843	**Site Total**

IOWA ARMY AMMUNITION PLANT

Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/RC Sites: 7/0

Installation Site Types with Future and/or Underway Phases

1 Firing Range
(IAAP-006-R-02)

1 Open Burn
(IAAP-003-R-01)

5 Unexploded Munitions/Ordnance
(IAAP-001-R-01, IAAP-002-R-01, IAAP-004-R-01, IAAP-005-R-01, IAAP-006-R-01)

Most Widespread Contaminants of Concern

Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY	Cost
N/A					

Total Environmental Restoration, Army (ER,A) Funding

Prior Funding (Includes BRAC funding from FY04 and prior years) $305.7 K
Current Requirements: $721.0 K
Future Requirements: $12,155.0 K

Duration of MMRP

Date of MMRP Inception 200305
Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201309/201309
Date of MMRP completion including Long Term Management (LTM): 204809

MMRP Contamination Assessment

Contamination Assessment Overview

In October of 2003 the Phase 3 Army Range Inventory at IAAAP was completed. The Closed, Transferred and Transferring (CTT) report identified three sites as eligible for the MMRP: the Central Test Area, the Line 6 Ammo Production and the West Burn Pads Area South. The Phase 3 inventory serves as the Preliminary Assessment under CERCLA. In FY07 a Site Inspection was completed.

Although the North Burn Pads are shown in the map as a potential MMRP site, there are no plans to address this site under MMRP, as all soil actions have previously been conducted under the IRP.

The IAAAP has requested that three sites be included in the MMRP: the Possible Demolition Site (PDS) (IAAP-018), the Incendiary Disposal Area (InDA) (IAAP -013), and the East Training Area (AEDB-R TBD). These sites were not included in the CTT report, completed in 2003, because there was little information available on them.

In 2004, the PDS and InDA sites were investigated and MEC concerns were found, as documented in the Draft Final Soils Data Collection Report of 2005. These sites have been accepted by the MMRP to be included in their SI.

Cleanup Exit Strategy

The installation completed the SI in October 2007. Follow-on phases and actions will be executed in accordance with the Resolution of Dispute dated December 20, 2006.

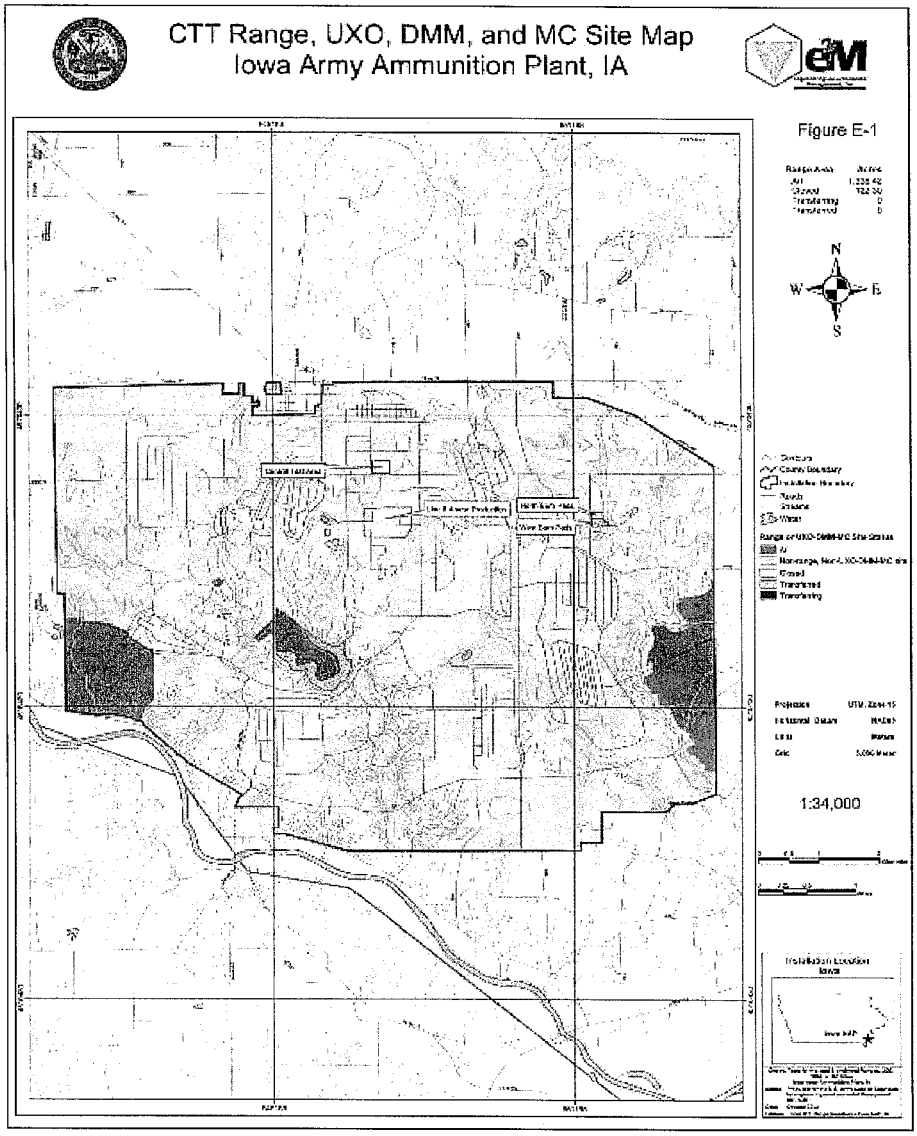
MMRP Previous Studies

	Title	Author	Date
2003			
	Final Closed, Transferred and Transferring Range/Site Inventory Report	engineering - environment Management, Inc.	OCT-2003
2007			
	Final U.S. Army Operational Range Inventory Sustainment FY06	U.S. Army Environmental Center	FEB-2007
	Final Historical Records Review for the Military Munitions Response Program	URS Corporation	JUL-2007
	Final Site Inspection Report for the Military Munitions Response Program	URS Corporation	SEP-2007

MMRP Installation Map(s)

Iowa Army Ammunition Plant MMRP Site Map

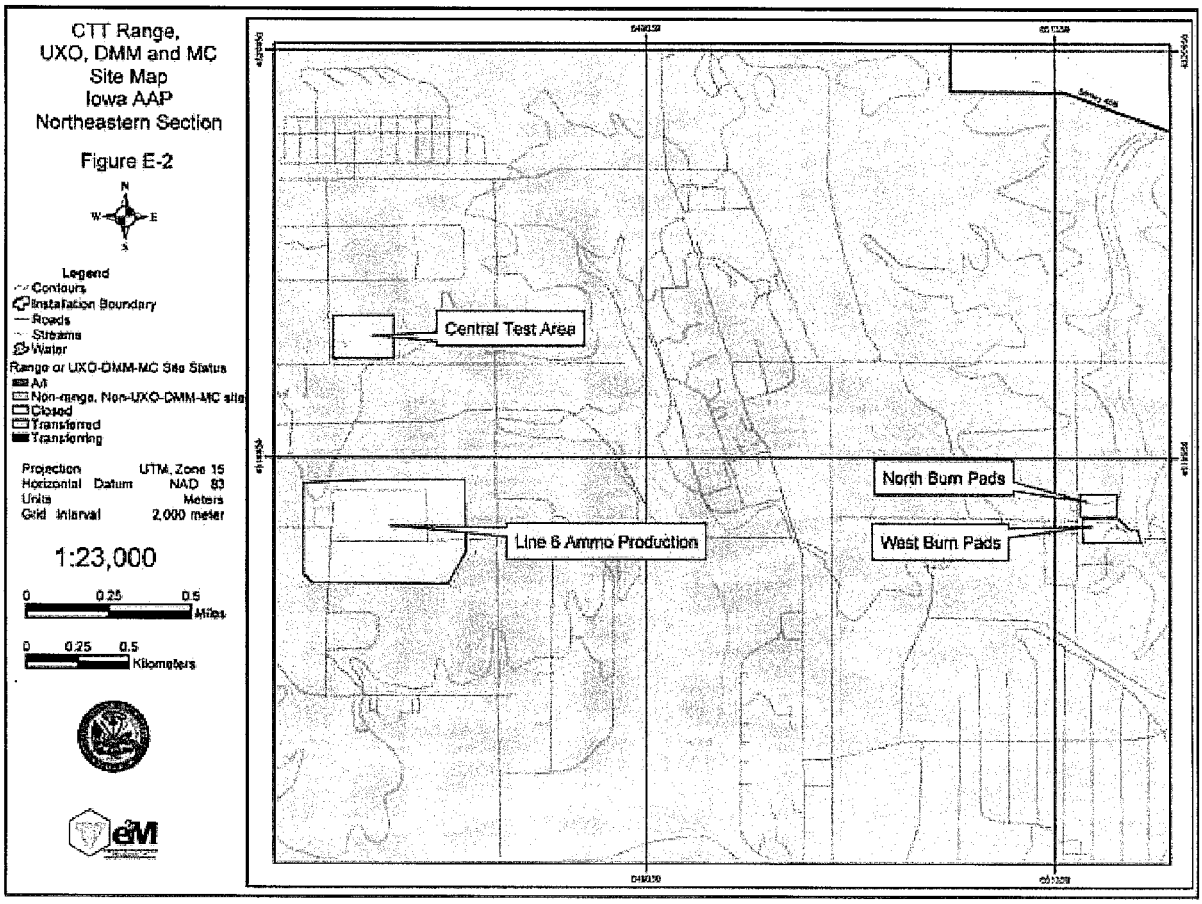
MMRP sites located on IAAP



MMRP Installation Map(s)

Iowa Army Ammunition Plant MMRP Site Map - Northeast Section

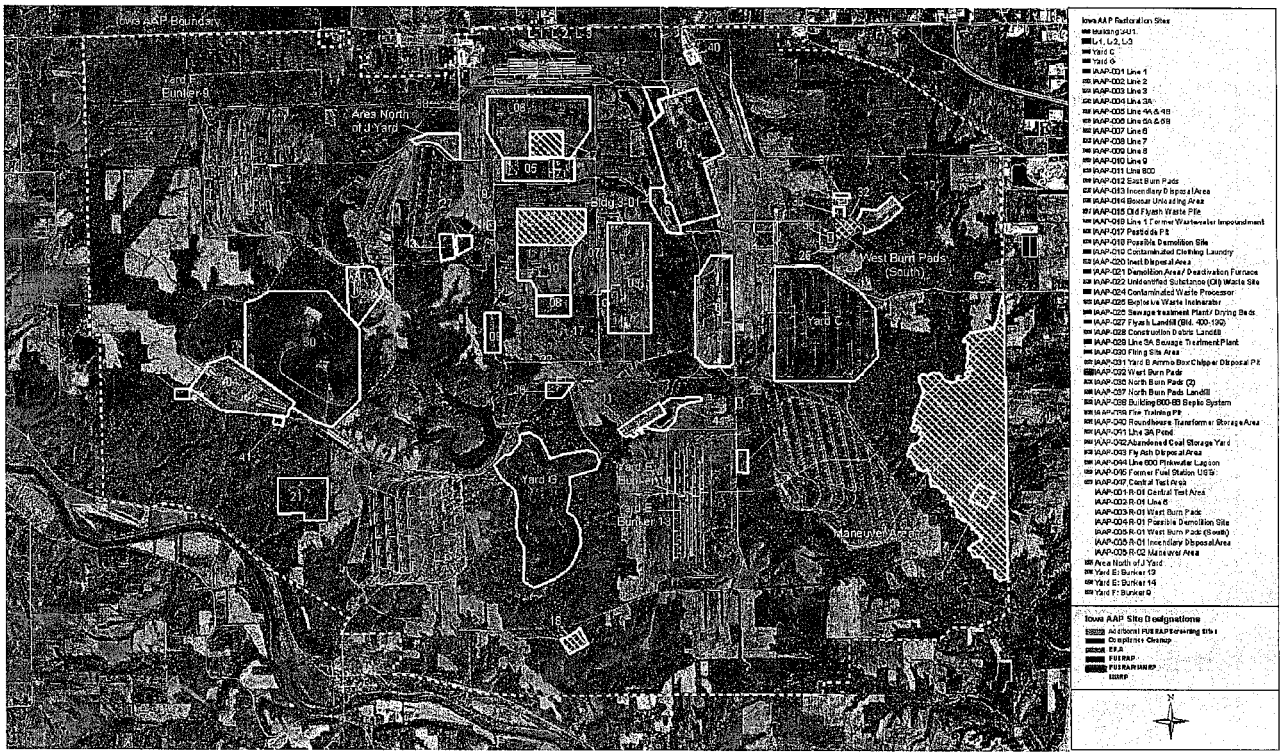
MMRP sites locaed in the NE section of IAAP



MMRP Installation Map(s)

Installation Restoration Site Map

This map depicts the approximate boundaries of the restoration sites.



IOWA ARMY AMMUNITION PLANT

Military Munitions Response Program

Site Descriptions

Site ID: IAAP-001-R-01
Site Name: CENTRAL TEST AREA

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 05

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

The Central Test Area consists of 15.16 acres and is located in the north-central portion of the Iowa AAP within the Line 5 IRP site boundary. It is currently undeveloped. Line 5 is identified as AEDB-R site number IAAP-006. This test area was used from 1943 through 1963 for testing hand grenades, landmines and adapter boosters. A test pit and tripod were located in this area. The test pit had an earthen floor surrounded by wooden walls covered by steel plates. A concrete stand was located in the pit. The tripod area consists of a metal triangular stand, which was used to hold components to be test detonated. Limited information is currently known about the operations that took place in the central test area. No known UXO responses have been conducted at this site.

In the fall of 2004 MKM Engineers Inc. performed a Geophysical Density Survey for Munitions and Explosives of Concern (MEC) at the Central Test Area. The MEC density survey was performed using an electromagnetic metal detector to a depth of 4 ft. below ground surface. MEC construction support is recommended for the two identified concentrated areas prior to performing any intrusive activity. For all other areas at this site, avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

In 2007 the SI was completed and, per the December 20, 2006 Dispute Resolution, this Munitions Response Site (MRS) was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 dispute resolution, the Army has agreed to complete RIs at all MMRP sites at IAAAP.

Site ID: IAAP-002-R-01
Site Name: LINE 6 AMMO PRODUCTION

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 04

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

This site consists of buildings 6-34-2 and 6-92 located in the Line 6 Ammo Production area. It comprises 95.21 acres and is currently inactive. The Line 6 Ammo Production Area is located near the center of the Iowa AAP and was used for the production, storage and shipping of detonators, primers, relays, delays, hand grenade fuses, and mines. Line 6 is identified as AEDB-R site number IAAP-007. Production Building 6-34-2 was used to load detonators. The northern end of the building was used to assemble detonators and the southern end was used for loading black powder into a component known as a candlestick. There was also a room for component storage. In November of 1968, loading black powder caused an explosion in the southern half of the building. Unexploded detonators were found scattered around the area. All visible detonators were recovered at that time.

Component Rumble Building 6-92 was used to clean explosives residue from the newly completed components, such as detonators and relays. Components were mixed with hot sawdust and placed into a rumble machine. The sawdust was removed by vibration. The components were then placed in boxes and sent to the inspection and shipping building. In February of 1970 an explosion occurred in this building. All visible components were recovered at that time. Another visual inspection of the area was recently conducted in preparation for sewer line construction. No UXO was found during this inspection.

In the fall of 2004 MKM performed a Geophysical Density Survey for MEC at Line 6. The MEC density survey was performed using an electromagnetic metal detector to a depth of four feet below ground surface. MEC avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

The Army has determined that the facilities at this line are excess and will pursue non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC.

In 2007 the SI was completed and per the December 20, 2006 Dispute Resolution, this MRS was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 Dispute Resolution, the Army has agreed to complete RIs at all MMRP sites at IAAAP.

Site ID: IAAP-003-R-01
Site Name: WEST BURN PADS

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 07

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

The West Burn Pads consist of 6.98 acres located in the northeast corner of Iowa AAP. This site was used from 1949 through 1982 for flashing metals contaminated with explosives. This site has been combined with burn cages and a landfill to form AEDB-R site number IAAP-032. Soil is the only media expected to be addressed.

In 2000, the IRP program performed a remedial action on the contaminated soil at IAAP-032. Approximately 46,000cy of soil were excavated from the site to depths exceeding four feet. No evidence of munitions or bulk explosives was discovered. After completion of this removal action, an area of potentially contaminated soil located across the road that served as the site's southern boundary was discovered. In 2001 it was discovered that the West Burn Pads area was used by both IAAAP and the former Atomic Energy Commission. Prior to further investigation under the IRP, the newly discovered southern portion of the West Burn Pads was designated by the U.S. Army Corps of Engineers as a site under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

With the exception of ground and surface water contamination, FUSRAP will respond to all releases and threats of releases of hazardous substances, pollutants or contaminants for the West Burn Pads area south of the road.

When the MMRP conducted their PA of the West Burn Pads, the area south of the road was not yet discovered.

No known UXO responses have been conducted at this site. The West Burn Pads north of the road are currently undeveloped. The area south of the road contains several structures including bunkers and buildings.

In 2007 the SI was completed and per the December 20, 2006 Dispute Resolution, this MRS was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 Dispute Resolution, the Army has agreed to complete RI investigations, if required, at all MMRP sites at IAAAP.

Site ID: IAAP-004-R-01
Site Name: POSSIBLE DEMOLITION SITE

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 05

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

This Possible Demolition Site MRS encompasses 15 acres, but was not identified as an Active Army MMRP site in the Final CTT Range/Site Inventory Report (USACE 2003). The HRR findings indicate that the site was located south of the Pistol Range and K Road, and east of Long Creek. It was probably used during the 1940's and early 1950's as a demolition area for ammunition items and for demilitarizing white phosphorous rounds.

Drawings reviewed for the Possible Demolition Site included the 1945 Day and Zimmermann Inc. drawing titled 'Contm'd Areas Near East Boundary-South of Lower Augusta Rd. & East of YD. "E"', which identifies three contaminated areas at IAAAP including the Possible Demolition Site MRS. Based on the location obtained from the drawing, no ground scarring was observed in the aerial photographs reviewed for this area; however, the 1957 aerial photo indicated ground scarring just to the east of the Possible Demolition Site location identified in the 1945 drawing.

There is no documentation to indicate that demolition activities occurred at this site or which types of ammunition items were treated. The size of the site was also unknown. In 1991 PA/SI sampling was completed and no significant contamination was found.

In 2007 the SI was completed and per the December 20, 2006 Dispute Resolution, this MRS was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 Dispute Resolution, the Army has agreed to complete RIs at all MMRP sites at IAAAP.

Site ID: IAAP-005-R-01
Site Name: WEST BURN PADS SOUTH OF THE ROAD

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 03

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

In interviews, the area south of the West Burn Pads MRS was identified as an additional burning area in the early 1940's and, possibly, the 1950's. Hereafter it will be referred to as the West Burn Pads Area South of the Road MRS. The area was not identified in the Final CTT Range/Site Inventory Report (e2M 2003). It is located in the northeast corner of IAAAP and is believed to be an extension of the West Burn Pads MRS. The area did not undergo any remedial actions during the Focused Feasibility Study (FS) at the West Burn Pads MRS (USACE 2003).

The West Burn Pads Area South of the Road MRS appears on a number of historical maps with no indication that munitions or debris were burned there; however, investigative sampling data identified explosive and metals contamination at the site. The number of suspect acres identified during the HRR is 10.58.

In 2007 the SI was completed and per the December 20, 2006 Dispute Resolution, this MRS was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 Dispute Resolution, the Army has agreed to complete RIs at all MMRP sites at IAAAP.

Site ID: IAAP-006-R-01
Site Name: INCENDIARY DISPOSAL AREA

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 03

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

In the Final CTT Range/Site Inventory Report (e2M 2003) the Incendiary Disposal Area MRS was not identified as an Active Army MMRP site. The area is within the boundary of the East Training Range MRA and is believed to have been used in the mid-1940's to bury incendiary material. Historical information indicates that the area consisted of 10 acres, but only one historical map was located that identified the site's dimensions. Two additional historical maps identified contaminated areas within its boundaries. Documentation was not located that specifically identified actual munitions burned at the site. Documents reviewed for the HRR indicate that soil contamination is present. Based on the detonation craters identified in 2005, the acreage of the area was increased to 12 acres to incorporate the detonation craters. The number of acres identified during the SI is 12.

In 2007 the SI was completed and per the December 20, 2006 Dispute Resolution, this MRS was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 Dispute Resolution, the Army has agreed to complete RIs at all MMRP sites at IAAAP.

Site ID: IAAP-006-R-02
Site Name: MANEUVER AREA

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 06

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern, Munitions constituents

Media of Concern: Groundwater, Soil

Phases	Start	End
PA	200305	200310
SI	200606	200710
RI/FS	200703	200912
RD	201010	201109
RA(C)	201110	201309
LTM	201810	204809

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

In the Final CTT Range/Site Inventory Report (e2M 2003) the Maneuver Area MRS was not identified as an Active Army MMRP site. During the SI the area was identified as consisting of 508 acres within the boundary of the East Training Range MRA. Historically, it has been leased to the IA ARNG for dismounted movement, construction of bivouac sites, and night convoy operations. Also, IA ARNG has been authorized to use ammunition blanks and pyrotechnics ordnance during training activities. No other potential munitions were identified. IA ARNG units historically permitted to train at IAAAP have included the 224th Engineer Battalion, the 185th Regional Training Institute, the 19th Area Support Medical Battalion, the 134th Medical Company, the 109th Aviation Detachment, and the 234th Signal Battalion. The number of acres identified during the SI is.

In 2007 the SI was completed and per the December 20, 2006 Dispute Resolution, this MRS was moved directly to the RI/FS phase.

CLEANUP/EXIT STRATEGY

In October 2007 the SI was completed. Per the agreements made in the December 2006 Dispute Resolution, the Army has agreed to complete RIs at all MMRP sites at IAAAP.

Response Complete (No Further Action) Summary

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

MMRP Schedule

Date of MMRP Inception: 200305

Past Phase Completion Milestones

2004

PA (IAAP-001-R-01 - CENTRAL TEST AREA, IAAP-002-R-01 - LINE 6 AMMO PRODUCTION, IAAP-003-R-01 - WEST BURN PADS, IAAP-004-R-01 - POSSIBLE DEMOLITION SITE, IAAP-005-R-01 - WEST BURN PADS SOUTH OF THE ROAD, IAAP-006-R-01 - INCENDIARY DISPOSAL AREA, IAAP-006-R-02 - MANEUVER 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: 201309

NPL Deletion Date: N/A

Schedule for Next Five-Year Review: 2011

Estimated Completion Date of MMRP at Installation (including LTM phase): 204809

IOWA ARMY AMMUNITION PLANT MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-001-R-01	CENTRAL TEST AREA	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-002-R-01	LINE 6 AMMO PRODUCTION	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-003-R-01	WEST BURN PADS	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-004-R-01	POSSIBLE DEMOLITION SITE	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-005-R-01	WEST BURN PADS SOUTH OF THE ROAD	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						
SITE ID	**SITE NAME**	**PHASE**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14+**
IAAP-006-R-01	INCENDIARY DISPOSAL AREA	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						

IOWA ARMY AMMUNITION PLANT MMRP Schedule

SITE ID	SITE NAME	PHASE	FY09	FY10	FY11	FY12	FY13	FY14+
IAAP-006-R-02	MANEUVER AREA	PA						
		SI						
		RI/FS						
		RD						
		RA(C)						
		LTM						

MMRP Costs

Total Funding through FY 2004: $.0 K

Prior Funding

FY	Phase	Site ID	Obligations	FY Total
2006	SI	IAAP-001-R-01	$52.0 K	$156.0 K
		IAAP-002-R-01	$52.0 K	
		IAAP-003-R-01	$52.0 K	
2007	RI/FS	IAAP-001-R-01	$25.0 K	$149.7 K
		IAAP-002-R-01	$25.0 K	
		IAAP-003-R-01	$25.0 K	
	SI	IAAP-001-R-01	$24.9 K	
		IAAP-002-R-01	$24.9 K	
		IAAP-003-R-01	$24.9 K	

TOTAL PRIOR FUNDING: $305.7 K

Current Requirements

FY	Phase	Site ID	Requirements	FY Total
2008	RI/FS	IAAP-0002-R-01	$102.0 K	$721.0 K
		IAAP-001-R-01	$102.0 K	
		IAAP-003-R-01	$100.0 K	
		IAAP-004-R-01	$100.0 K	
		IAAP-005-R-01	$102.0 K	
		IAAP-006-R-01	$102.0 K	
		IAAP-006-R-02	$103.0 K	
	SI	IAAP-001-R-01	$2.0 K	
		IAAP-002-R-01	$2.0 K	
		IAAP-004-R-01	$2.0 K	
		IAAP-005-R-01	$2.0 K	
		IAAP-006-R-01	$2.0 K	

TOTAL CURRENT REQUIREMENTS: $721.0 K

TOTAL FUTURE REQUIREMENTS: $12,155.0 K

TOTAL PROGRAM COST: $13,181.7 K

Required Cost-to-Complete

SITE ID	SITE NAME	Phase	FY09	FY10	FY11	FY12	FY13	FY14	FY15	Out Yrs	Total	Description of Work
IAAP-001-R-01	CENTRAL TEST AREA	RI/FS	465	12							477	Feasibility Study; Remedial Investigation
		RD			12						12	Remedial Design
		RA(C)				333					333	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											1305	**Site Total**
IAAP-002-R-01	LINE 6 AMMO PRODUCTION	RI/FS	242	12							254	Feasibility Study; Remedial Investigation
		RD			27						27	Remedial Design
		RA(C)				1087					1087	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											1851	**Site Total**
IAAP-003-R-01	WEST BURN PADS	RI/FS	242	12							254	Feasibility Study; Remedial Investigation
		RD			9						9	Remedial Design
		RA(C)				249					249	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											995	**Site Total**

Required Cost-to-Complete

SITE ID	SITE NAME	Phase	FY09	FY10	FY11	FY12	FY13	FY14	FY15	Out Yrs	Total	Description of Work
IAAP-004-R-01	POSSIBLE DEMOLITION SITE	RI/FS	242	12							254	Feasibility Study; Remedial Investigation
		RD			11						11	Remedial Design
		RA(C)				309					309	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											1057	**Site Total**
IAAP-005-R-01	WEST BURN PADS SOUTH OF THE ROAD	RI/FS	242	12							254	Feasibility Study; Remedial Investigation
		RD			10						10	Remedial Design
		RA(C)				281					281	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											1028	**Site Total**
IAAP-006-R-01	INCENDIARY DISPOSAL AREA	RI/FS	242	12							254	Feasibility Study; Remedial Investigation
		RD			16						16	Remedial Design
		RA(C)				449					449	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											1202	**Site Total**

Required Cost-to-Complete

SITE ID	SITE NAME	Phase	FY09	FY10	FY11	FY12	FY13	FY14	FY15	Out Yrs	Total	Description of Work
IAAP-006-R-02	MANEUVER AREA	RI/FS	606	12							618	Feasibility Study; Remedial Investigation
		RD			88						88	Remedial Design
		RA(C)				3528					3528	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM								483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
											4717	**Site Total**
Totals			2281	84	173	6236				3381	12155	
											12155	**Site Total**

Programmed Cost-to-Complete

SITE ID	SITE NAME	Phase	Start Date	End Date	FY09	FY10	FY11	FY12	FY13	FY14	FY15		Out Yrs	Total	Description of Work
IAAP-001-R-01	CENTRAL TEST AREA	RI/FS	200703	200912	465	12								477	Feasibility Study; Remedial Investigation
		RD	201010	201109			12							12	Remedial Design
		RA(C)	201110	201309				333						333	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														1305	**Site Total**
IAAP-002-R-01	LINE 6 AMMO PRODUCTION	RI/FS	200703	200912	242	12								254	Feasibility Study; Remedial Investigation
		RD	201010	201109			27							27	Remedial Design
		RA(C)	201110	201309				1087						1087	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														1851	**Site Total**

Programmed Cost-to-Complete

SITE ID	SITE NAME	Phase	Start Date	End Date	FY09	FY10	FY11	FY12	FY13	FY14	FY15		Out Yrs	Total	Description of Work
IAAP-003-R-01	WEST BURN PADS	RI/FS	200703	200912	242	12								254	Feasibility Study; Remedial Investigation
		RD	201010	201109			9							9	Remedial Design
		RA(C)	201110	201309				249						249	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														995	**Site Total**
IAAP-004-R-01	POSSIBLE DEMOLITION SITE	RI/FS	200703	200912	242	12								254	Feasibility Study; Remedial Investigation
		RD	201010	201109			11							11	Remedial Design
		RA(C)	201110	201309				309						309	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														1057	**Site Total**

Programmed Cost-to-Complete

SITE ID	SITE NAME	Phase	Start Date	End Date	FY09	FY10	FY11	FY12	FY13	FY14	FY15		Out Yrs	Total	Description of Work
IAAP-005-R-01	WEST BURN PADS SOUTH OF THE ROAD	RI/FS	200703	200912	242	12								254	Feasibility Study; Remedial Investigation
		RD	201010	201109			10							10	Remedial Design
		RA(C)	201110	201309				281						281	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														1028	**Site Total**
IAAP-006-R-01	INCENDIARY DISPOSAL AREA	RI/FS	200703	200912	91	163								254	Feasibility Study; Remedial Investigation
		RD	201010	201109			16							16	Remedial Design
		RA(C)	201110	201309				449						449	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														1202	**Site Total**

Programmed Cost-to-Complete

SITE ID	SITE NAME	Phase	Start Date	End Date	FY09	FY10	FY11	FY12	FY13	FY14	FY15		Out Yrs	Total	Description of Work
IAAP-006-R-02	MANEUVER AREA	RI/FS	200703	200912		618								618	Feasibility Study; Remedial Investigation
		RD	201010	201109			88							88	Remedial Design
		RA(C)	201110	201309				3528						3528	Excavation, No Sidewall Protection; MEC Institutional Controls; MEC Removal Action; Off-site Transport & Waste Disposal, Hazardous, Solid
		LTM	201810	204809									483	483	MEC Monitoring, 2 Events; MEC Monitoring, 2 Events; MEC Monitoring, 2 Events
														4717	**Site Total**
Totals					1524	841	173	6236					3381	12155	
														12155	**Site Total**

Community Involvement

Technical Review Committee (TRC): 199204

Restoration Advisory Board (RAB): RAB established 199708

RAB Adjournment Date: N/A
RAB Adjournment Reason: None

Community Involvement Plan (Date Published)199809

Additional Community Involvement Information

In August of 1997 a RAB was established. The RAB has been very active since its inception, meeting approximately every two months to receive training and provide input to the environmental restoration process. RAB members are from the surrounding towns of Burlington, West Burlington, Danville, Farmington and Wever. Government members are from the Installation, the USEPA, and the state of Iowa. The RAB continues to review documents, provide input to the community relations plan, and help establish project priorities.

A separate program and Citizens' Advisory Board has been formed by the Department of Energy to address health-related issues of former Atomic Energy Commission (AEC) workers.

Administrative Record is located at

1. Danville City Hall
2. Lee County Health Department
3. Burlington Public Library

Information Repository is located at

IAAP DERP Library

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

TAPP Title: N/A

Potential TAPP: N/A

Appendix A

NFA Sites

IAAP-002
LINE 2 AMMO LAP (ARTILLERY/SHAPED)

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The past contamination has resulted from the practice of washing spilled explosives from floors, equipment and sump failures.

Line 2 is a production line that has been in operation since the inception of IAAAP, except for a brief hiatus from 1947 to 1949, and occupies nearly 140 acres, including 31 buildings and covered walkways. It is used to load, assemble and pack 120 mm ammunition and blank ammunition. The melt building appears to be where the highest volumes of wastes were produced. The buildings include equipment rooms, explosives magazines and nine sump buildings.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim Soil ROD requires the removal of an estimated 1950 cy (885 cy of metals only, 770 cy of explosives only, and 295 cy of metals and explosives) of soil contaminated with metals and explosives. Per the ROD, this soil will be taken to the Inert Disposal Area [IDA(IAAP-020)] and sorted by contaminant level and type.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 3,170 cy of contaminated soil was removed from Line 2 in the Summer/Fall of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

IAAP-003
LINE 3 AMMO LAP (ARTILLERY)

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). The practice during the early years of production was to dispose of wastewater at the Line 800 Pink Water Lagoon. This line was upgraded to include self-contained Pinkwater Reroute Systems in July 1995 and September 1998.

Line 3 is a production line that has been in operation since 1941, except for a short time between 1945 and 1949. This line fills and assembles artillery projectiles, occupies about 150 acres and consists of 26 buildings and covered walkways. The buildings include equipment rooms, explosives magazines, and nine sump buildings for explosive waste processing. The two melt buildings appear to be the areas where the highest volumes of wastes were produced during operations.

From 1977 to 1984, metal cleaning operations were conducted at Line 3. This process consisted of several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid rinse, then rinsed with water. Sludge that accumulated in the bottom of the sulfuric acid tank was removed and treated with sodium hydroxide.

The Interim ROD requires the removal of an estimated 3,500 cy (550 cy of metals only, 1,880 cy of explosives only, 840 cy of metals and explosives, 110 cy of SVOCs and explosives, and 120 cy of Rad).

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of an estimated 3,500 cy of contaminated soil including 120 cy of soil that the Army now believes to contain radionuclides only at background levels. Per the ROD, this soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

Note: Building 3-01 will be addressed under FUSRAP.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 3,443 cy of contaminated soil was removed from Line 3 in the Summer of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

IAAP-004
LINE 3A AMMO LAP (ARTILLERY)

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding). This line was upgraded to include a self-contained Pinkwater Reroute System in December 1996.

Line 3A was constructed in 1941 and began operations in 1943. The line was shut down from 1945 to 1949 then resumed operations until 1989. Line 3A encompasses 119 acres and is currently active. The line is a load, assemble and pack operation for 155mm artillery rounds. The melt building appears to be the area where the highest volumes of wastes were produced during operations.

Metal cleaning operations were conducted here. The process included several stainless steel dip tanks where ammunition casings were immersed in a sulfuric/hydrochloric acid bath, followed by a chromic acid bath and water rinsing.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of an estimated 2,040 cy (1350 cy of explosives-contaminated soil only, and 690 cy of metals and explosives-contaminated soil). Per the ROD, this soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 1,436 cy of contaminated soil was removed from Line 3A in the Summer of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

IAAP-005
LINE 4A AND 4B AMMO ASSEMBLY

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-ER,A funding).

Lines 4A and 4B are located in the north-central portion of the plant and are approximately 1000 feet apart. Line 4A encompasses 20 acres and Line 4B encompasses 17 acres. Both lines were constructed in 1941 for component assembly.

Line 4A produced detonators and was in operation between 1942 and 1945; it was reopened in 1982. It is currently leased to a private corporation (ICI), who reworked the line to make air-bag initiators, and operations have ceased. There are 12 buildings in the area which consists of an assembly building, mixer buildings, lead azide magazine, detonator service magazine and change houses. Hazardous substances at Line 4A include lead azide, RDX, lead styphnate, tetracene, barium nitrate, TNT, HMX, and metals. Fourteen in-ground sumps (treatment tanks) underwent RCRA closure in 1995.

Line 4B is an assembly facility for components manufactured elsewhere. Operations began in 1941 and ceased in 1945. Production resumed in 1962 and the line was used for missile assembly in the late 1960s. Line 4B consists of a fuse assembly and equipment building, detonator service magazine, rest houses and change houses. Hazardous substances of concern are TNT, RDX, Composition B, HMX, and LX-14. Previous materials included tetryl, booster pellets and fuze ingredients. The PA/SI was completed in 1991, and the initial RI was completed in May 1996. The Interim ROD requires the removal of 153 cy of contaminated soil from Line 4A and none from Line 4B. Remedial design sampling, conducted in 2004, did not locate soil contaminants above action levels.

CLEANUP STRATEGY:

This site is considered Response Complete and requires no further action under the IRP per the Phase 4 Soil Remedial Action Report. No contamination found above action levels. This site is considered Response Complete as of August 2005.

IAAP-006
LINE 5A AND 5B AMMO ASSEMBLY

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current activities will be addressed under compliance (non-IRP funding). In the past, both lines were component lines for pelletizing and assembly of explosive components. A testing platform and a firing pit are located within the site boundary. Principal explosives used at these lines were TNT, RDX and Tetryl.

Lines 5A and 5B were booster and grenade lines situated in the north-central portion of the installation. Line 5A is about 33 acres and Line 5B is 41 acres. Both lines were constructed in 1941 and operated from 1942 to 1945. Production resumed in 1949 during the Korean War and intensified in 1961 during the Vietnam War.

Line 5A is currently in a caretaker status; there are no plans to activate this line in the future. Line 5A is under the Industrial Preparedness Plan (IPP). Line 5B is being rented by Advanced Environmental Technology (AET) for destructive disposal of ammunition.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. Approximately 6,000cy of contaminated soil were removed in FY00-01. During the removal action Building 600-84 and the Central Test Area were discovered as potential areas of concern. AET tested the soil at Building 600-84 and found no contamination. RDX and TNT in concentrations of up to 46 ppb have been found in the groundwater in a shallow localized plume within 30 feet of the ground surface. The presence of UXO in and around the Central Test Area will adversely affect cost and schedule of any remedial action. Also, the area considered to be potentially contaminated with explosives and metals is now thought to be as much as 17 acres. This area will be incorporated into a new AEDB-R site IAAP-047, Central Test Area.

IAAP-007
LINE 6 AMMO PRODUCTION (DETONATOR)

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

Line 6 is a detonator production area encompassing 30 acres and located in the center of the installation. Constructed in 1941 and operated until 1981, this line is currently inactive. Line 6 consists of 34 buildings for the production, storage, and shipping of detonators, relays, and hand grenade fuses.

The primary waste stream was related to the production of detonators and included lead azide, lead styphnate, tetracene, RDX, barium nitrate and mercury fulminate. Treatment of black powder was performed in Building 6-68 as a RCRA permitted unit. This unit underwent RCRA closure in 1995 and will no longer be maintained or used by the Army (modified caretaker status). As part of the RCRA closure, 800 cy of contaminated soil were removed in 1994. The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of approximately 445 cy of contaminated (metals) soil that was not addressed under the RCRA closure. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. The principal concern at this site is the potential for surface runoff to migrate to nearby streams, which in turn recharge groundwater off post. Groundwater at the site shows no significant contamination. During the historical site assessment, it was determined there was a potential UXO concern at this site.

A Geophysical Density Survey for Munitions and Explosives of Concern (MEC) was performed at Line 6 in the fall of 2004 by MKM. The MEC density survey was performed using an electromagnetic metal detector to a depth of 4 ft. below ground surface. MEC avoidance procedures should be used during any sampling and clearance is required prior to any large scale soil removal.

The Army has determined that the facilities at this Line are excess and will pursue Non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC. Additional evaluation of soil beneath the slabs will be required after the demolition.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 56 cy of contaminated soil was removed from Line 6 in the Fall of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

MEC and MC will be addressed under the MMRP.

NFA is expected for the groundwater (RI study May 21, 1996 - section 6.7).

IAAP-008
LINE 7 AMMO LAP (FUZE/BLANK)

SITE DESCRIPTION:

Line 7 was a production Line that encompassed 9 acres, built in 1941 and has been inactive since 1970. It was a fuze and blank load, assemble and pack operation where artillery primers, rocket igniters and time fuzes were assembled for World War II and the Korean War.

The IRP site consists of the contamination from past production. Any contamination from current or future activities will be addressed under non-IRP funding.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. No contaminants above action levels were found.

This site is considered Response Complete and requires no further action under the IRP. USACHPPM Phase II Complete.

The Army determined that the facilities at Line 7 were excess and the entire line was deconstructed in FY2006 under the building demolition and debris removal program as documented in the Line 7 Decontamination and Demolition Report. The IRP conducted confirmation sampling post demolition and no contamination was found above action levels.

IAAP-009
LINE 8 AMMO LAP (FUZE/ROCKET)

SITE DESCRIPTION:

The IRP site consists of the contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

Line 8 was a production Line that was constructed in 1941 and was used during World War II to produce Amatol (an explosive mixture of ammonium nitrate and TNT). The Emergency Export Co. utilized the ammonium nitrate crystallization equipment to produce fertilizer to support the Marshall Plan. Subsequent activities were fuze and rocket igniter load, assemble and pack operations. Prior to closing of the production activities around 1950, Line 8 consisted of four process buildings, a gate house, and tank farm to store ammonium nitrate liquor. Ammunition inspection activities took place from 1976 to 1993. Only two buildings remain and will no longer be maintained or used by the Army (modified caretaker status).

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of approximately 476 cy of lead-contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

Remedial design sampling, conducted in 2004, did not locate soil contaminants above action levels.

The Army has determined that the facilities at this Line are excess and will pursue non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC. Additional evaluation of soil beneath the slabs will be required after the demolition.

CLEANUP STRATEGY:

This site is considered Response Complete and requires no further action under the IRP per the Phase 4 Soil Remedial Action Report. No contamination found above action levels.

IAAP-010
LINE 9 AMMO LAP (MINE)

SITE DESCRIPTION:

This site consists of the contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

Line 9 is about 9 acres in size and was built in 1942 for use as a production facility and produced mine and mine fuses during the Vietnam War. This Line is in modified caretaker status.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of an estimated 469 cy of metals-contaminated soil. Remedial design sampling, conducted in 2004, located soil contaminants above action levels.

Approximately 200 cy of soil was removed and disposed of at the IDA (IAAP-020) per the ROD.

The Army has determined that the facilities at this Line are excess and will pursue non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC. Additional evaluation of soil beneath the slabs will be required after the demolition.

CLEANUP STRATEGY:

This site is considered Response Complete and requires no further action under the IRP as documented in the Phase 4 Remedial Action Report.

IAAP-011
LINE 800 AMMO RENOV

SITE DESCRIPTION:

This site has been merged with IAAP-044 and IAAP-044G due to proximity and for better management and cost collection. Contaminants from these sites mix making it impossible to delineate which site the contaminants originate in.

This site consists of the contamination from past munitions production. Any contamination from current or future activities will be addressed under compliance (non-ER,A funding).

Line 800 is nearly 18 acres in size and has been in operation intermittently since plant inception. From 1943 to present, the primary function of the line was ammunition renovation, where the explosives filler is washed from the projectiles, and 75 mm blank salute ammunition was loaded. Wastes were generated by metal cleaning operations at Line 800, which were identical to the metal cleaning operations at Line 3. Waste sludge from the metal cleaning bath was disposed of at the former Blue Sludge Lagoon at the Inert Disposal Area (IDA) (IAAP-020) from 1979-1980. The Blue Sludge material was moved into Trench 6 at the IDA in January 1997. Prior to having the Line 3 Treatment Facility, untreated metal cleaning effluent was discharged to the ditches at Lines 3 and 800.

The PA/SI was completed in 1991 and found explosives concentrations which exceed cleanup criteria in the NW corner of the site and the area adjacent to the east end of Building 800-04 and lead concentrations in excess of cleanup criteria along the west side of Building 800-191. The RI work was finished in May 1996. The Interim ROD requires the removal of 1325cy of contaminated soil.

Soil activities for this site will be addressed under IAAP-044 Line 800 Pinkwater Lagoon. GW activities for this site will be addressed under IAAP-044G Line 800 Pinkwater Lagoon-GW.

IAAP-012
EXPLOSIVE DISPOSAL AREA (EAST BURN PADS)

SITE DESCRIPTION:

The Explosive Disposal Area (EDA) east burn pads, located in the northeast corner of IAAAP, consisted of 8 raised earthen burning pads enclosed in a fenced area of approximately 12 acres. Activities included open burning of explosives-contaminated metals, propellant explosive and pyrotechnic (PEP) contaminated materials. Each pad was bermed on three sides to restrict horizontal movement of metal projectiles. The pads were in operation from 1941 until 1982, when the Explosive Waste Incinerator was built.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD required the removal of contaminated soil, and 12,670 cy of soil were removed in 1998 (funded as an IRA). This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

This site is considered Response Complete and requires no further ER,A action as documented in the Phase 1 Soil Remedial Action Report.

The FUSRAP PA identified this area as requiring additional investigation. In August 2004, FUSRAP conducted a screening survey of this site to determine if radiological contaminates from AEC activities are present in soil. Preliminary assessments of all screening results indicate no radiological contamination present at this area.

IAAP-013
INCENDIARY DISPOSAL AREA (EAST YARD D)

SITE DESCRIPTION:

Based upon an interview with a former installation employee, this site was located east of Yard D and Spring Creek and north of K Road. It was used for incendiary material burial during the mid-1940s. It was believed to be small (approximately 40' x 60') and surrounded by a barbed wire fence. The exact size, location, and material buried at this site cannot be determined because there are no records of this activity ever being performed at the IAAAP. Some indications do exist that magnesium may have been the material disposed of at this site. Previous samples taken during the SI may not have been appropriately located.

IAAP-013 will be expanded to include a cratered area found during a 2000 site walkover, located west of the Incendiary Disposal Area. These craters are approximately 4 ft wide and 2 ft deep and are spread over approximately 10 acres. A fence with "Danger" signs intersects the cratered area.

Additional soil and sediment samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. Elevated levels of Beryllium was detected above the background levels in multi-incremental shallow soil as determined in the OU1 Record of Decision as well as elevated levels of Lead detected in discrete shallow soil. This site was identified within the footprint of the East Training Area/Land Navigation Range which is considered an active range by MMRP. Further policy review is required to determine program applicability.

A draft final supplemental RI was submitted to EPA for review in August 2006.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 179 cy of contaminated soil was removed from the InDA in the Winter of 2006/2007.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

MEC and MC will be addressed under the MMRP.

IAAP-014
BOX CAR UNLOADING AREA

SITE DESCRIPTION:

This site consists of two areas located adjacent to the railroad tracks in Yard B, situated approximately 750 feet west of the southwestern most corner of the Explosive Disposal Area (IAAP-012). The site was utilized as an unloading and temporary storage area for dunnage lumber. The rail cars at times also transported boxes of explosives; therefore, minute amounts of explosives may have come into contact with the dunnage. The area began receiving shipments in the 1940s and continues to do so. However, in recent years, explosives have been transported primarily by trucks. Minute amounts of TNT and RDX may have come into contact with the soil in the area.

Samples taken during the SI in 1987 found no significant contamination.

This site is considered Response Complete and requires no further action under the IRP as documented in the PA/SI.

IAAP-018
POSSIBLE DEMOLITION SITE (SOUTH YARD G)

SITE DESCRIPTION:

This site was apparently used during the 1940s and possibly into the early 1950s as a demolition area for ammunition items. This demolition area was allegedly located South of Plant Road K near Yard G and across the road from the pistol range.

There are no records to substantiate demolition activities or the kind of ammunition items treated at the site. The exact size of the site is also unknown, but is thought to be as big as 15 acres. Specific waste on the site is unknown. The SI sampling was completed in 1991 and no significant contamination was found.

This site appears to be larger then previously thought, and previous samples may not be representative of the site conditions.

Contaminants listed in the PA for this site included white and red phosphorus, as well as explosives and metals.

Additional soil samples were collected in 2004 by MKM and documented in the Draft Final Report for the Soil Data Collection. Elevated levels of TNT and Lead were found in multi-incremental shallow soil above background levels as determined in the OU1 Record of Decision.

A draft final supplemental RI was submitted to EPA for review in August 2006.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 3,952 cy of contaminated soil was removed from the PDS in the Fall of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

MEC and MC will be addressed under the MMRP.

IAAP-019
CONTAMINATED CLOTHING LAUNDRY

SITE DESCRIPTION:

This site is not eligible for ER,A funds because of the years of use.

The installation laundry washes coveralls, underwear and towels used by production and maintenance workers. A minute amount of explosives may be present on coveralls worn by workers in areas where explosives are present. The laundry is located in Building 500-125 north of the Main Heating Plant and west of Line 6 on Plant Road A. Laundry operations have occurred from the 1940s through the present. Wastewater is discharged to a sump and then into the sanitary sewer. Construction of a new filtering facility was completed in 1998 and began operation in 2003. The sump will continue to be used as a holding area prior to the waste being sent to the filtration unit for pretreatment and subsequently discharged into the sanitary sewer.

The PA/SI was completed in 1991 and the analytical did not include testing for explosives-contaminated soils, the soil was subsequently sampled in July 97 and revealed RDX contamination near an adjacent explosives water sump. The RI work was completed in May 1996.

This site was transferred to the Compliance Cleanup Program and is considered Response Complete by the IRP.

IAAP-021
DEMOLITION AREA/DEACTIVATION FURNACE

SITE DESCRIPTION:

The Deactivation Furnace (IAAP-023) was incorporated into this site due to its close proximity. The Furnace subsite was used from 1971 until RCRA closure in 1995.

The Iowa Department of Natural Resources does allow open detonation of ammunition items that require an immediate method of disposition due to safety considerations such as ammunition rounds that become armed during the assembly process. The Demolition Area encompasses 10 acres of land and consists of a fenced field with six shallow craters. Open detonation of rejected ammunition items at this site began in the 1940s on a regular basis. Current practices are limited to an emergency-only basis. The IDNR is required to be notified of an open detonation event. This area is not considered to be ER,A-eligible. However, any cleanup actions necessary will be funded under a different program.

In 1997, EPA approved a change in the RCRA Subpart X interim status. This change allowed for the movement of the open burning of propellant with faulty stabilizer (performed in pans) from the Explosive Disposal Area (IAAP-012) to the Detonation Area. This accommodated the cleanup of former open burning pads at the Explosive Disposal Area in 1998. In 1985, IDNR allowed open burning of propellant determined by the Army to have a faulty stabilizer on a case-by-case basis with an expedited (within 48 hours) approval.

The Deactivation Furnace consists of a feed area, furnace system and air pollution control system. The feed area is housed within a building that provides access to a conveyor system. The furnace was used to destroy small explosive-loaded components such as detonators, primers, and fuses. The furnace incinerated the explosive/propellant content of the munitions and thermally treated the metal casings which were recovered and sold as scrap metal. The ash from these operations were placed in drums and stored as hazardous waste. The Deactivation Furnace has undergone RCRA closure and is now in a temporarily inactive (TIA) status.

The PA/SI was completed in 1991, and an initial RI was completed in May 1996. The Interim ROD requires the removal of 753 cy of lead-contaminated soil from the Deactivation Furnace subsite.

Groundwater contamination will be addressed with a non ER,A source of funding.

The FUSRAP PA identified this area as requiring additional investigation. In August 2004, FUSRAP conducted a screening survey of this site to determine if radiological contaminates from AEC activities are present in soil. Preliminary assessments of all screening results indicate no radiological contamination present at this area.

This site was transferred to the Compliance Cleanup Program and is considered Response Complete by the IRP.

IAAP-022
UNIDENTFIED SUBSTANCE (OIL) WASTE SITE

SITE DESCRIPTION:

This site covered an area approximately 20 by 20 feet. The site is situated in the central portion of the IAAAP, northwest of Yard O along the south side of the railroad track, approximately 150 yards west of Plant Road I.

The unidentified substance thought to be road surfacing oil was discovered on July 16, 1985 (IAG, 1990). The source of the oil spill is thought to have been a leaking railroad tank car (RI/FS Task Order, 1990)

The spill area is located 15 to 20 feet south of the railroad track bed. According to the on-site personnel, this area has been covered with approximately 10 feet of fill material which has created a small incline sloping up and away from the railroad track bed.

The SI sampling was completed in 1991 and no significant contamination was found. This site requires NFA under the IRP.

This site is considered in NFA per PA/SI, but may need to be reopened for additional sampling to support the no further action determination.

IAAP-024
CONTAMINATED WASTE PROCESSOR

SITE DESCRIPTION:

This is an active site, therefore it is not eligible for ER,A funds.

The Contaminated Waste Processor (CWP) is used to flash or burn materials that have come in contact with explosives or other energetic substances. The CWP has been operational since 1982. Metal items are made available for sale as salvage after flashing.

The PA/SI was completed in 1991, the RI was completed in May 1996. The RI work found low levels of explosives and metals in soil.

Any future activities will be addressed with non-ER,A funds.

This site was transferred to the Compliance Cleanup Program and is considered Response Complete by the IRP. This site may need to be reopened for additional sampling to support the no further action determination.

IAAP-026
SEWAGE TREATMENT PLANT/DRYING BEDS

SITE DESCRIPTION:

This is an active site, therefore it is not eligible for ER,A funds.

The Sewage Treatment Plant (STP) is the facility's main sewage treatment plant and has been in operation since the early 1940s. The STP handles all the installation-generated sewage except sewage generated at Line 3A, which has its own sewage treatment system. Since 1982, laundry water from the Contaminated Clothing Laundry has been discharged to the STP. The STP handles domestic wastes, car wash water, laundry facility wastewater, and wastewater from the x-ray processing plant and is about 1 acre in size. Wastewater is treated by an Imhoff tank, trickling filter, clarifier, and sludge drying beds. The treated wastewater goes through a second treatment prior to discharge.

The sludge that is produced from the wastewater treatment process is removed and dewatered on two sludge drying beds. The beds are lined with two feet of sand.

The PA/SI was completed in 1991; the RI was completed in May 1996.

Any future activities will be addressed with non-ER,A funds.

This site was transferred to the Compliance Cleanup Program and is considered Response Complete by the IRP.

IAAP-027
FLY ASH LANDFILL (NEW BLDG 400-139)

SITE DESCRIPTION:

This is an active site, therefore it is not eligible for ER,A funds.

The Fly Ash Landfill covers 9.5 acres and has been in operation since 1985. The landfill accepts only fly ash from the coal-fired heating plant. The landfill was constructed in accordance with the State of Iowa regulations for coal combustion residue in sanitary landfills. Groundwater monitoring began in 1985 and is funded with non-ER,A funds.

The PA/SI was completed in 1991, and the RI was completed in May 1996; no significant contamination was found.

In 2004, a letter was sent to EPA Region VII, RCRA Division, requesting concurrence with Army's recommendation for no further action.

Any future activities will be addressed with non-ER,A funds.

This site was transferred to the Compliance Cleanup Program and is considered Response Complete by the IRP.

IAAP-029
LINE 3A SEWAGE TREATMENT PLANT/DRY BED

SITE DESCRIPTION:

This permitted site is located in the western portion of the installation and is the treatment plant and drying bed for Line 3A. Line 3A has its own treatment plant due to its remote location on the installation. The Sewage Treatment Plant (STP) encompasses about one-half acre and consists of an Imhoff tank, a trickling filter, clarifier, chlorine contact chamber and sludge drying beds. The drying beds are lined with two feet of sand. The plant has been operational from 1943 to 1945, then from 1949 to the present. Wastewater treated here was domestic waste and blowdown water from boilers at the steam generating plant near Line 3A.

The PA/SI was completed in 1991, the RI was completed in May 1996. Significant levels of explosives were found in the outfall and downstream surface water.

Samples were collected from the outfalls in October 2000. These samples showed slightly elevated levels of RDX, HMX and TNT.

This site was transferred to the Compliance Cleanup Program and is considered Response Complete by the IRP.

IAAP-030
FIRING SITE AREA

SITE DESCRIPTION:

The Firing Site area has been in use since the 1940s for testing of static warheads. The fenced site encompasses about 450 acres and is about one mile from the nearest installation boundary.

In 1947, the IAAAP was selected as the first production facility for manufacturing of high explosives components for weapons under the Atomic Energy Commission.

Portions of the Firing Site were under the control of the Atomic Energy Commission from 1948 to 1974. The Atomic Energy Commission operated Sub-Area FS-12 from December 1965 to December 1973. FS-12 was used for destructive testing of ordnance containing depleted Uranium and High Explosives. Area FS-12 was surveyed for radioactivity by the Atomic Energy Commission in 1974 and some contaminated soil was shipped off-site to Sheffield, IL in that same year. In May 2001, a survey conducted by FUSRAP detected numerous fragments of depleted uranium. An aerial radiological survey of the entire plant was conducted in Oct 02, and detectable emissions from man-made radiological sources were found at Firing Site 12. The IRP PA/SI was completed in 1991, and the RI in May 1996 found radionuclides and metals in soil and groundwater. A Supplemental RI was completed in 2002.

FUSRAP performed a Preliminary Assessment (published December 2001) of this site and determined it to be a former Atomic Energy Commission area. In July 2002, the Corps designated this area to be under FUSRAP.

Both radiological and non-radiological contamination attributable to former AEC operations will be addressed by FUSRAP for soils. FUSRAP will complete a supplemental RI for this site. FUSRAP will assume responsibility for cleanup of soils. A non-ER,A source of funding will address groundwater because this is an active site.

This site was transferred to FUSRAP and is considered Response Complete by the IRP.

IAAP-031
YARD B AMMO BOX CHIPPER DISPOSAL PIT

SITE DESCRIPTION:

The Yard B ammunition box chipper disposal pit has been estimated to measure 120 x 40 x 8 ft. The pit was reportedly used for a three month period sometime between 1972 and 1975. Wastes consisted of shredded ammunition boxes treated with the wood preservative pentachlorophenol (PCP).

Investigations conducted during 1997 have not substantiated the former existence of this site. If this site is ever located it will be investigated.

Bis-2-ethylhexylphthalate has been found in GW.

This site is considered Response Complete and requires no further action under the IRP. USACHPPM Phase II is complete.

This site may need to be reopened for additional sampling to support the no further action determination.

IAAP-032
BURN CAGES, BCLF; WEST BURN PADS, WBPLF

SITE DESCRIPTION:

Due to the complexity in defining site boundaries, sites IAAP-032 (Burn Cages), IAAP-033 (Burn Cage Landfill), IAAP-034 (West Burn Pads), and IAAP-035 (West Burn Pads Landfill), were incorporated into one site.

Burn cages were used for the incineration of inert and explosives-contaminated packaging. The flashing of metals parts also was performed here. The site was used from 1949 to 1982 when the cages were removed. Metal parts, munitions casings and staining on the ground surface were observed during the site inspection in 1991.

The West Burn Pads were used for metals flashing from 1949 to 1982. Ash from the Burn Cages and West Burn Pads were disposed of at the Burn Cage Landfill (1949 to 1982) and the West Burn Pads Landfill (1950 to 1975). The WBPLF also received waste from the East Burn Pads as well as various solid waste to include sanitary and industrial. The landfills are approximately three acres in size and heavily vegetated.

The IRP site consists of the contamination from past activities. Any contamination from current and future activities will be addressed with non-ER,A funding.

The PA/SI was completed in 1991, and the RI was completed in May 1996. The Interim ROD required the removal of 1,451cy of contaminated soil to be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. However, pre-design characterization of soils during 1998 located significant levels of barium contamination that were not previously known. Groundwater monitoring began in 1994.

Soil removal (~46,000 cy) was completed in late 2000. Of that removal of ~19,000 cy of soil were treated for barium contamination. Low levels of explosives were detected in the creek south of the WBPLF during 2000. Annual groundwater monitoring did not show an expected decline in explosive concentrations downgradient of the site. These groundwater results, historical records, and a site walk-over in 2001 indicated further soil investigation is warranted in an area that lies across the road to the south of the soil removal area. Also, explosive chunks were found on the surface. USACE notified AO for a safety review and some explosive chunks were removed and sampled.

Historical documents indicate the West Burn pads were used concurrently by the AEC (Atomic Energy Commission) and the Army from 1949 to 1975. Because of these AEC activities, the West Burn pads were included in FUSRAP for future evaluation. FUSRAP performed a Preliminary Assessment (published December 2001) of this site and determined it to be a former AEC area. In July 2002, the Corps designated this area to be under FUSRAP. Both radiological and non- radiological contamination attributable to former AEC operations will be addressed by FUSRAP for soil. FUSRAP will complete a supplemental RI for this site. The ER,A program will be responsible for GW contamination; it is anticipated that in situ bioremediation and MNA will be the remedy.

MEC and MC will be addressed under the MMRP.

This site is considered Response Complete under the IRP as documented in the Phase 1 and Phase 3 Soil Remedial Action Report (north side of road). The south side of the road was designated to FUSRAP in July 2002.

IAAP-036
NORTH BURN PADS (2) (NEAR IAAP-024)

SITE DESCRIPTION:

The North Burn Pads consists of Pads 1-N and 2-N. Each pad measures about 20 x 50 ft and was operational from 1968 to 1972. Lead azide and gun powder were burned here. A 275-gallon diesel fuel station was located at the base of Pad 2-N. The station had an above-ground tank used to refuel equipment operating in the area.

The PA/SI was completed in 1991, the RI was completed in May 1996 and found metals and small amounts of explosives.

Contaminated soils were removed (2990 cy) in 1998 as part of the IRA and placed in the appropriate areas at the Inert Disposal Area (IAAP-020). Groundwater monitoring began in 1994 and ended in 2001.

The FUSRAP PA identified this area as requiring additional investigation. In August 2004, FUSRAP conducted a screening survey of this site to determine if radiological contaminates from AEC activities are present in soil. Preliminary assessments of all screening results indicate no radiological contamination present at this area.

This site is considered Response Complete and no further IRP action is required for soils as documented in the Phase 1 Remedial Action Report. This site will be included in the OU3 Groundwater ROD.

IAAP-037
NORTH BURN PADS LANDFILL

SITE DESCRIPTION:

The North Burn Pads Landfill measures approximately 75 x 475 feet and received the remnants (reported to be flashed cans and containers) from the North Burn Pads. Landfill activities occurred from 1968 to 1972.

A cleanup operation was performed in 1980 during which some of the contents of the landfill were taken to the Inert Disposal Area.

Results from the SI in 1991 did not indicate significant contamination; however, RI work was initiated to fill data gaps. RI work completed in May 1996 found metals in soil and groundwater. Pre-design sampling in 1997/8 found high levels of explosives in soil and leachate. Groundwater monitoring began in 1994.

RDX in concentrations of less than 10 ppb have been found in the groundwater in upper bedrock (30-40 feet bgs).

The IRA work in 1998 removed 13,890 cy of contaminated soils and debris and placed it in the appropriate areas at the Inert Disposal Area (IAAP-020).

The FUSRAP PA identified this area as requiring additional investigation. In August 2004, FUSRAP conducted a screening survey of this site to determine if radiological contaminates from AEC activities are present in soil. Preliminary assessments of all screening results indicate no radiological contamination present at this area.

This site is considered Response Complete and requires no further action under the IRP as documented in the Phase 1 Remedial Action Report. This site will be included in the OU3 Groundwater ROD.

IAAP-038
BUILDING 600-86 SEPTIC SYSTEM

SITE DESCRIPTION:

This site consists of the contamination from past activities. Any contamination from current and future activities will be addressed with non-ER,A funding.

Building 600-86 is located in the north-central portion of the installation. This building has served in several roles since its construction in 1941. It was an analytical laboratory from 1941 to 1953. In 1985, two rooms in the building are used to store RCRA hazardous wastes. Room A is used to store spent solvents with a permitted capacity of 2640 gallons. Room B is used to store waste liquids containing cyanide salts. Both rooms have concrete curbing around the perimeter. Small amounts of solvents that may be contaminated with explosives are accumulated in Room C, then filtered through a carbon filter column before being taken off-site.

The function of the laboratory was to perform drinking water and wastewater analyses, as well as analysis of primer mixes containing lead azide in quantities of 10 to 20 milligrams. The waste from the primer tests was deactivated with ceric ammonium nitrate and the resultant waste solution was disposed of in the Explosive Disposal Area (IAAP-012).

The laboratory building was constructed with its own septic tank and drain. Sometime after 1983, sludge was removed from the septic tank and the tank was filled with sand.
The PA/SI was completed in 1991, the RI was completed in May 1996; sampling found metals below action levels in soil and groundwater.

This site is considered Response Complete and requires no further action under the IRP. USACHPPM Phase II Complete.

This site may need to be reopened for additional sampling to support the no further action determination.

IAAP-039
FIRE TRAINING PIT

SITE DESCRIPTION:

The former Fire Training Pit was an unlined pit that measured approximately 40 x 16 x 2 feet used from 1982 to 1987. During training sessions, 55-gallon drums of solvents and petroleum products were set ablaze, then extinguished by fire fighters.

The PA/SI was completed in 1991, the RI was completed in May 1996. Investigations found localized soil and groundwater contamination consists of significant quantities of VOCs (including chlorinated solvents), SVOCs, metals and low levels of dioxins and furans.

An Engineering Evaluation/Cost Analysis (EE/CA) and an Explanation of Significant Differences (ESD) and Action Memo were prepared for this site. The initial proposed remedy was ex situ soil vapor extraction (SVE). The remedy used was Low Temperature Thermal Desorption (LTTD). This 1998 soil cleanup effort removed 5,200 cy of contaminated soil, half of which was thermally treated. The remaining soil was landfilled or backfilled. This action is believed to have removed the contamination source.

In 2001, ~ 500-1,000 cy of contaminated soil and debris was found in secondary locations. This material contains high levels of metals and/or VOCs. In 2003, 616 cy of soil and debris was removed and disposed of in the IDA (IAAP-020).

This site is included in the PBC awarded in 2004. NFA is required for soils as documented in the Remedial Action Report Addendum for the Fire Training Pit. This site will be addressed in the installation-wide OU4 ROD.

IAAP-040
ROUNDHOUSE TRANSFORMER STORAGE AREA

SITE DESCRIPTION:

This site consists of the contamination from past activities. Any contamination from current and future activities will be addressed with non-ER,A funding.

This area was used since the 1940s to store transformers pending use or disposal; this site is no longer used for PCB storage. The storage yard is a flat, graded area with crushed stone on a hard base. Transformers found to contain greater than 50 ppm PCB were moved to Building L-37-34, the old storage site. Those transformers having less than 50 ppm PCB were moved to an outside storage concrete pad at Yard L, between buildings L-3 and L-4, new storage site E-18.

The PA/SI was completed in 1991, the RI was completed in May 1996; samples found PCBs and explosives. The Interim ROD requires the removal of approximately 600 cy of PCB-contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and landfilled in Trench 6 if PCB levels are below 50 ppm. If levels unexpectedly exceed 50 ppm, it will be disposed of off-site.

Remedial design sampling, conducted in 2004, did not locate soil contaminants above action levels.

CLEANUP STRATEGY:

This site is considered Response Complete as documented in the Phase 4 Soil Remedial Action Report. No Contamination was found above action levels.

IAAP-042
ABANDONED COAL STORAGE YARD

SITE DESCRIPTION:

During the operation of the Steam Generating Plant Line 1, coal was the primary fuel used. The Coal Pile is bounded on the north and east by railroad tracks and on the southeast by the head of Brush Creek. The coal is now scattered around an area about 4 acres. Runoff from the coal pile, augmented by water brought into the area by the three culverts below the rail tracks could have caused the widespread dispersal of the coal pile.

The coal pile was established in 1950 and used through 1968. Currently, it is not in use, because the fuel for the heating plant was changed to No. 2 Oil. When the use of coal for heating plant was discontinued in 1968, the stockpiled coal was left in place. There was no cover for the pile to reduce infiltration of precipitation therefore it can be expected that leaching and runoff have occurred since 1950.

Although, the coal pile covers an area of approximately 3 to 4 acres, runoff may have spread to a greater area. There has been severe erosion of the pile resulting in furrows several feet deep as evidenced by vegetation stress observed on the adjacent storage yards.

The SI sampling was completed in 1991 and no significant contamination was found.

Site IAAP-042, Abandoned Coal Storage Yard was eliminated from RI consideration because the installation completed a State of Iowa Department of Natural Resources Removal Activity. This excavation was summarized in a Finding of No Significant Impact dated 26 October 1992. The RCRA Branch of Region VII EPA have agreed to this removal action. The removal was completed in late 1993, and the area was covered with clean soil and re-vegetated with native grasses.

This site is considered Response Complete and requires no further action under the IRP as documented in the PA/SI.

This site may need to be reopened for additional sampling to support the no further action determination.

IAAP-043
FLY ASH DISPOSAL AREA

SITE DESCRIPTION:

In operation from the 1940s to the 1950s, this area was used for disposal of fly ash, residual coal, clinkers, and other residue from the coal-fired power plant and is nearly 5 acres in size. The site is abandoned and covered with natural vegetation, but has no soil or clay cover. The PA/SI was completed in 1991, the RI was completed in May 1996; sampling found no significant contamination.

This site is considered Response Complete and requires no further action under the IRP per the Jaycor RI. USACHPPM Phase II complete.

This site may need to be reopened for additional sampling to support the no further action determination.

IAAP-044
LINE 800 & PINKWATER LAGOON

SITE DESCRIPTION:

The Line 800 Pinkwater Lagoon consisted of an unlined, 5 acre impoundment, 4 feet deep, surrounded by an earthen berm. This lagoon was located adjacent to Line 800 (IAAP-011) and an intermittent tributary to Brush Creek. The primary activity at Line 800 was ammunition renovation from 1943 to 1980. From 1980 to present, primary activities at Line 800 include remote disassembly of projectiles and assembly of 75 mm and 105 mm blanks. The Pinkwater Lagoon was constructed in 1943 for the disposal of pinkwater effluent from adjacent Line 800 production facilities and sludges trucked in from other line operations within the installation. In 1943, leaching fields associated with the lagoon to include evaporation furrows were constructed. The lagoon also received metal cleaning sludge from Line 3 operations. In the early 1970s, this lagoon ceased to be used.

Studies conducted in 1991 through 1998 indicated that primary waste disposed at the site included explosives-contaminated wash water and heavy metals from operations at Line 800 and other production lines. Carbon and fly ash disposal may also have occurred at the site. As a result of the RI sampling 63,236 cy of explosives-contaminated soils were excavated from this area during 1997. The excavated soil contained greater than 80,000 lbs of explosives. This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. Two additional areas of explosives soil contamination were found in 1998. One area in the southwest portion of the lagoon was found to require no action. The other area, in settling basin #1, requires additional characterization and excavation.

The lagoon currently is used as a phytoremediation wetlands treatment cell.

The Army has determined that the facilities at this Line are excess and will pursue Non-ER,A funding for building demolition and debris removal, which is listed as an option in the PBC. Additional evaluation of soil beneath the slabs will be required after the demolition.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 5,669 cy of contaminated soil was removed from Line 800 in the Summer/Fall of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

IAAP-045
FORMER FUEL STATION UST'S

SITE DESCRIPTION:

The Fuel Station was located directly east of Texas Ave. north of the Fire Station. The station was used from 1941 until 1997. In 1988, three leaking USTs were removed and replaced, some contaminated soil was left in place. This site consists of the contaminated soil and groundwater from the leaking tanks. The new tanks were active from 1988 to 1997. The newer tanks were removed in 1999.

Annual groundwater sampling began in 1990.

A Risk-Based Corrective Action (RBCA), Tier II report was prepared in accordance with Iowa State Code.

Approximately 520 cy of contaminated soil has been removed. A Corrective Action Report was submitted in Aug 2002.

A No Further Action certificate has been received from the State of Iowa dated August 9, 2004.

IAAP-047
CENTRAL TEST AREA

SITE DESCRIPTION:

The Central Test Area was used to test fire hand grenades, adaptor boosters, and aerial mines. Very little historical documentation is available on this particular site, but layout drawings are dated back as far as 1943. It is not known exactly when this area was in operation.

Detonations were performed in the field north and east of the Central Test Area. Steel fixtures still exist at this site. Historical documentation indicated that this area is 800 ft northeast of the Central Test Area laboratory.

Approximately 500 ft northwest of Line 4A and 1,200 ft south of Line 5B, but still within the fence line of Line 5, lies Building 600-84. This building was constructed in 1941 and is considered part of the Central Test Area. The walled-in area northeast of the building was used as a test site for the inside charge of grenades. This charge was composed of lead styphynate, black powder, and tetryl booster. The outer charge was TNT and RDX.

A test pit existed approximately 815 ft to the northeast of Building 600-84. The test pit was approximately 9 ft x 14 ft with wooden walls covered by steel plates. The floor was earthen with a concrete walkway. A concrete pedestal capped by a steel plate was anchored in the floor of the pit. Soil was sloped up the walls to a height of approximately 5 ft. An operator's building was located 105 ft southwest of the test-fire pit. Only limited information about the operations in this pit can be found.

A small area to the west of the test pit area contains a metal triangular stand or tripod used to hold components to be test detonated.

During the historical site assessment, it was determined there was a potential UXO concern at this site.

The geophysical survey field work was completed in 2004 to evaluate the potential for UXO.

CLEANUP STRATEGY:

This site is included in the PBC awarded in 2004.

The soil contaminated with explosives and/or metals at this site have been successfully completed by excavation, in accordance with the RAOs established in the final ROD to protect human health and the environment. Any contaminated soil under the infrastructures of IAAAP, and therefore inaccessible, was left in place. Once confirmation samples determined that all accessible contaminated soil had been removed, each excavation was backfilled with clean soil to the original grade, compacted, and then reclaimed to original conditions. All excavated soil was transported to Trench 6 in the IDA for later treatment. A total of 239 cy of contaminated soil was removed from the CTA in the Fall of 2006.

This site is considered Response Complete (RC) as of September 2007 as documented in the Remedial Action Report for OU1 Soils Phase 5, 7, and 8 Sites and Installation Wide Ecological Evaluation.

MEC and MC will be addressed under the MMRP.