INSTALLATION ACTION PLAN

For

IOWA ARMY AMMUNITION PLANT

March 2001

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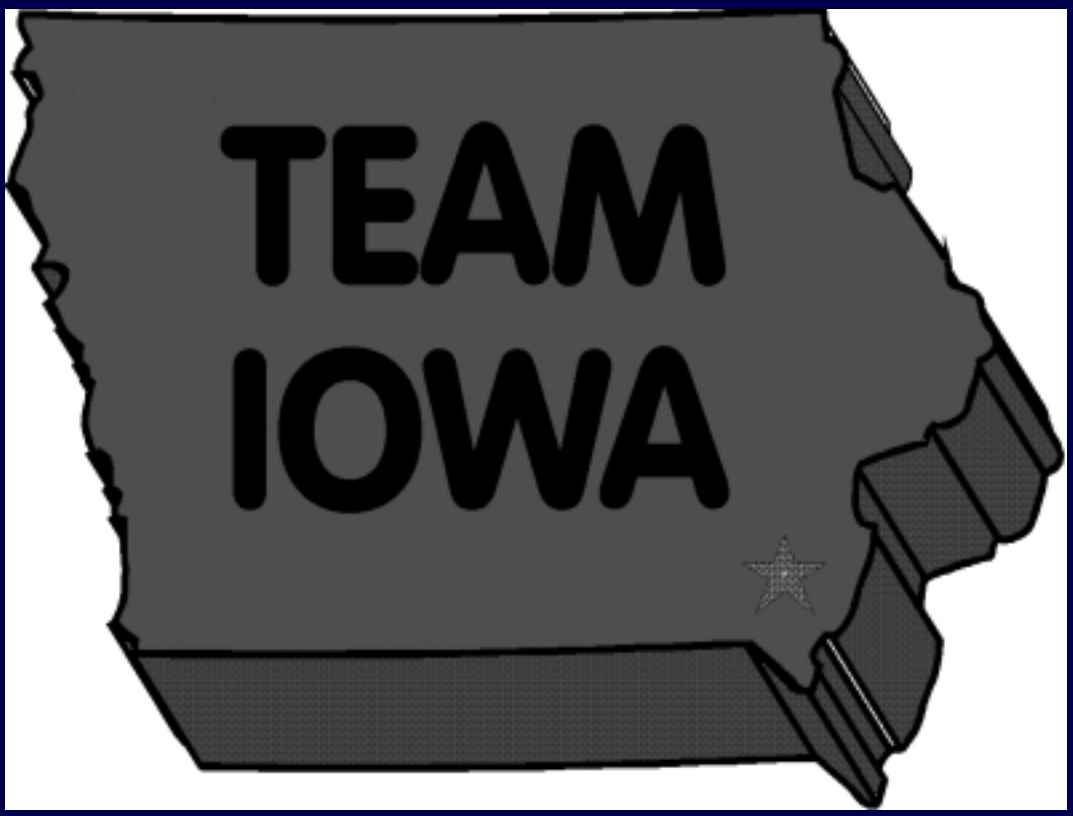

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INSTALLATION ACTION PLAN
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PURPOSE

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan will define Installation Restoration Program (IRP) requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Solid Waste Management Unit (SWMU) at the installation and other areas of concern.

In an effort to coordinate planning information between the IRP manager, major army commands (MACOMs), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for the Iowa Army Ammunition Plant (IAAAP). The IAP is used to track requirements, schedules and tenative budgets for all major Army installation restoration programs.

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change during the document's annual review. Under current project funding, all remedies will be in place at the IAAAP by the end of 2008.

CONTRIBUTORS TO THIS YEAR'S IAP

NAME	ORGANIZATION
Rodger Allison	IAAAP, IRP Manager
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George Gricius	U.S. Army Forces Command
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IOWA ARMY AMMUNITION PLANT

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ARMY MATERIEL COMMAND

APPROVAL

MR. JEWEL SIMMONS
Environmental Restoration Program Manager

INFORMATION SHARING

AMC, as well as MSCs and installations believe that it should make its environmental restoration information available openly. This Installation Action Plan was forwarded to the following people:

Jeff Bergman

Jeff Bergman, RAB Co-chair (document provided to all RAB members)

John Vedder

John Vedder, State Regulator

Scott Marquess

Scott Marquess, EPA Regulator

ACRONYMS & ABBREVIATIONS

AMC	Army Materiel Command
AR	Army Regulation
ATSDR	Agency for Toxic Substances and Disease Registry
CAMU	Corrective Action Management Unit
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CO	Commanding Officer
CWP	Contaminated Waste Processer
cy	cubic yards
DA	Department of the Army
DERA	Defense Environmental Restoration Account (currently called ER,A)
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System
EA	Environmental Assessment
EDA	Explosive Disposal Area
ER,A	Environmental Restoration, Army (formerly called DERA)
EIS	Environmental Impact Statement
EWI	Explosive Waste Incinerator
FONSI	Finding of No Significant Impact
FS	Feasibility Study
FTP	Fire Training Pit
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	Fiscal Year
GIS	Geographical Information System
HMX	High Melting Explosives (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
IAAAP	Iowa Army Ammunition Plant
IDA	Inert Disposal Area
IDNR	Iowa Department of Natural Resources
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LAP	Load, Assemble, Pack
LTM	Long Term Monitoring
LTTD	Low Temperature Thermal Desorption
MCL	Maximum Contaminant Level
MEP	Master Environmental Plan
NE	Not Evaluated
NEPA	National Environmental Protection Act
NFA	No Further Action
OSC	Operations Support Command
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oil & Lubricants
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RAD	Radionuclides
RBCA	Risk Based Corrective Action
RCRA	Resource Conservation and Recovery Act

ACRONYMS & ABBREVIATIONS

RD	Remedial Design
RDX	Royal Demolition Explosive (Hexahydro-1,3,5-trinitro-1,3,5-triazine) also known as cyclonite
REC	Record of Environmental Consideration
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SVOC	Semi-Volatile Organic Compounds
TCE	Trichloroethylene
TNT	Trinitrotoluene
TPH	Total Petroleum Hydrocarbons
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (replaced by CHPPM)
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by AEC)
USF&W	United States Fish and Wildlife
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds

SUMMARY

STATUS: Iowa AAP has been on the NPL since Aug 1990, with a HRS score of 29.73.

NUMBER OF DSERTS SITES:

42 DSERTS sites
- 26 Active ER.A Eligible Sites
- 9 Response Complete ER,A Eligible
- 7 Response Complete Non-ER,A Eligible Sites

DIFFERENT DSERTS SITE TYPES:

2	Burn Areas	1	Fire/Crash Training Area
2	Contaminated Buildings	2	Surface Disposal Areas
3	Disposal Pit/ Dry Wells	1	Incinerator
4	Landfills	3	Storage Areas
3	Surface Impoundment/Lagoons	12	Spill Site Areas
3	Waste Treatment Plant	4	Explosive Ordnance Disposal
1	Underground Storage Tank		

CONTAMINANTS OF CONCERN: Explosives, Metals, RAD, SVOCs, VOCs

MEDIA OF CONCERN: Groundwater, Surface Water, Soil, Sediment

COMPLETED REM/IRA/RA:

• REM: Coal Pile '93	$ 22.7K
• Pesticide Pit '95	$ 423.3K
• Explosive Sump Removal '95	$ 852.8K
• Alternative Water Supply, Off-Post Residents '94	$ 172.9K
• North Burn Pads	$ 800.0K
• North Burn Pads Landfill	$ 2,200.0K
• East Burn Pads	$ 2,000.0K

CURRENT IRP PHASES:

RI/FS (15 sites)	IRA (3 sites)	RD (4 sites)
RA (5 site)	LTM (3 sites)	

PROJECTED IRP PHASES:

RI/FS (8 sites)	IRA (4 site)	RD (12 sites)
RA (13 sites)	RA(O) (5 sites)	LTM (3 sites)

IDENTIFIED POSSIBLE REM/IRA/RA:
- IAAP-001, 004, 005, 007, 009, 011, 016, 021, 040, 045 Soil removal
- IAAP-010 Soil removal and treatment
- IAAP-002, 003, 044 Soil removal and GW treatment
- IAAP-020, 032 Soil treatment
- IAAP-039 GW treatment

FUNDING:

PRIOR YEAR:	$ 62,704,300
FY2001:	$ 4,800,000
FUTURE REQUIREMENTS:	$ 36,935,000
TOTAL:	$ 104,439,300

DURATION:

YEAR OF IRP INCEPTION:	1991
YEAR OF IRP COMPLETION EXCLUDING LTM:	2008
YEAR OF LTM COMPLETION:	2030
REMOVAL FROM THE NPL:	2030

INSTALLATION INFORMATION

LOCALE

Iowa AAP is located adjacent to Middletown, Des Moines County, Iowa. Iowa AAP is approximately 10 miles west of the largest city in Des Moines County, Burlington, with an estimated population of 27,208 people. The installation consists of 19,015 acres.

COMMAND ORGANIZATION

MAJOR COMMAND: U.S. Army Materiel Command; Engineering, Housing, Environmental and Installation Logistics, Environmental Quality Division

SUBCOMMAND: U.S. Army Operations Support Command; Industrial Base Management Center; Restoration Management Team, Rock Island, IL

INSTALLATION: Iowa AAP Installation Management Division

INSTALLATION RESTORATION PROGRAM (IRP) EXECUTING AGENCY

- U.S. Army Corps of Engineers, Omaha District, North West Division
- U.S. Army Operations Support Command; Industrial Base Management Center; Restoration Management Team, Rock Island, IL

REGULATOR PARTICIPATION

FEDERAL: U.S. Environmental Protection Agency, Region VII, Federal Facilities and Special Emphasis Branch, Superfund Division
U.S. Fish and Wildlife Service

STATE: Iowa Department of Natural Resources

REGULATORY STATUS

- NPL Installation Site with Federal Facilities Compliance Agreement under CERCLASection 120 (IAG) Admin Docket No. VII-F-90-0029
- Registry of Hazardous Waste or Hazardous Substance Disposal Sites & Hazardous Waste Remedial Fund

MAJOR CHANGES TO ACTION PLAN FROM PREVIOUS YEAR (FY 00)

- Soil treatment costs are now captured under IAAP-020 Inert Disposal Area.
- Installation wide GW Monitoring costs are captured under IAAP-044 Line 800 Pinkwater Lagoon.
- Creation of DSERTS Site IAAP-045 Former Fuel Station UST's approved by AEC.
- DSERTS Site IAAP-046 Off Post contamination submitted to AEC for approval.

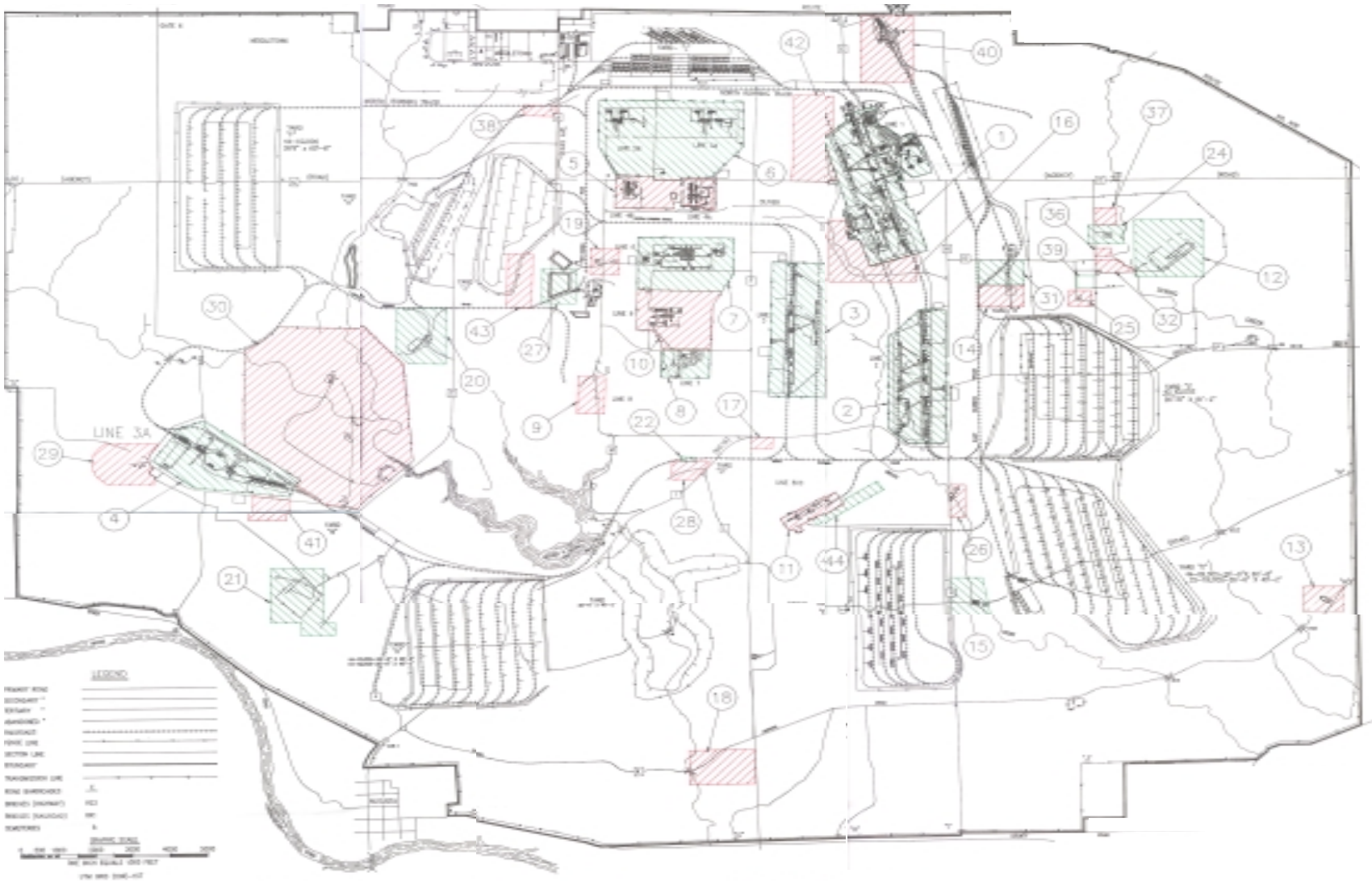
INSTALLATION DESCRIPTION

Iowa AAP (IAAAP) is an active U.S. Army Operations Support Command facility operated by the civilian contractor American Ordnance LLC. IAAAP's current mission is to load, assemble and pack (LAP) ammunition items, including projectiles, mortar rounds, warheads, demolition charges, and munitions components such as fuzes, primers, and boosters.

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

See Map of the following page for site locations.

IAAP-001 Line 1 Ammo LAP
IAAP-002 Line 2 Ammo LAP
IAAP-003 Line 3 Ammo LAP
IAAP-004 Line 3A Ammo LAP
IAAP-005 Line 4A & 4B Ammo Assembly
IAAP-006 Line 5A & 5B Ammo Assmebly
IAAP-007 Line 6 Ammo Production
IAAP-008 Line 7 Ammo LAP
IAAP-009 Line 8 Ammo LAP
IAAP-010 Line 9 Ammo LAP
IAAP-011 Line 800 Ammo Renov
IAAP-012 Explosive Disposal Area
IAAP-013 Incendiary Disposal Area
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
IAAP-019 Contaminated Clothing Laundry
IAAP-020 Inert Disposal Area
IAAP-021 Demolition Area/Deactivation Furnance
IAAP-022 Unidentifies Substance Waste Site
IAAP-024 Contaminated Waste Processor
IAAP-025 Explosive Waste incinerator
IAAP-026 Sewage Treatment Plant/ Dry Beds
IAAP-028 Construction Debris Landfill
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-036 North Burn Pads
IAAP-037 North Burn Pads Landfill
IAAP-038 Building 600-86 Septic System
IAAP-039 Fire Training Pit
IAAP-040 Roundhouse Transformer Storage Area
IAAP-041 Line 3A Pond
IAAP-042 Abandoned Coal Storage Area
IAAP-043 Fly Ash Disposal Area
IAAP-044 Line 400 Pinkwater Lagoon


LINE 3A
LEGEND

CONTAMINATION ASSESSMENT

The primary source of contamination is attributable to past operating practices in which explosives contaminated wastewaters and sludges were discharged to uncontrolled onsite drainage areas. Additional sources of historical contamination included routine open burning of explosives materials and munitions and landfilling of waste material. These practices no longer occur; however, residual contamination remains both on and off post.

In 1993, off-post contamination of private drinking water wells with explosives (RDX and 2,6 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. IAAP is investigating groundwater contamination both on and off post. The off post efforts were accelerated due to complaints in 1998 from members of the public whose drinking water wells were impacted.

The 1998 discovery of the Indiana Bat (a Federally endangered species) on IAAAP and other factors will require a re-evaluation of the Ecological Risk Assessment and may impact clean up criteria.

The installation was proposed for the National Priorities List (NPL) in August 1989 due to surface water contaminated with explosives leaving the installation boundary. IAAAP's Hazard Ranking Score (HRS) is 29.73. An Interagency Agreement (IAG) was signed by the U.S. Environmental Protection Agency (USEPA) Region VII and the U.S. Army in September 1990 and became effective in December of 1990. This agreement defines objectives, responsibilities, procedural and schedule frameworks for implementing the Installation Restoration Program (IRP) at IAAAP.

The IAG originally listed 30 Solid Waste Management Units (SWMUs) as IAAP-1 through IAAP-30; these sites are represented in DSERTS as sites IAAP-001 through IAAP-030. The Deactivation Furnance Site, IAAP-023, has been included with the Demolition Area Site, IAAP-021, because it is within the Demolition Area. Since publication of the IAG, sites IAAP-031 through IAAP-043 were identified in the February 1991 USATHAMA Draft Potential Areas of Concern Supplement document. Sites IAAP-032 through IAAP-035 were collectively listed under the number IAAP-032 because of close location to one another. The Line 800 Pinkwater Lagoon was added as IAAP-044 (Remedial Investigation, JAYCO & ICAIR Lifesystems, 21 May 1996). Former Fuel Station USTs (IAAP-045) was added in the fall 1999 DSERTS submission. This site was separated from IAAP-006 to better manage the soil and groundwater clean-up efforts from the LUST's removal in 1988. There are 41 DSERTS sites listed in this IAP.

Preliminary Assessments (PAs) and Site Investigations (SIs) were implemented in 1991 and consisted of limited biased sampling at each site to determine whether contamination was present. Consequently, the following sites were proposed for no futher action: IAAP-013 Incendiary Disposal Area, IAAP-014 Boxcar Unloading Area, IAAP-015 Old Fly Ash Waste Pile, IAAP-018 Possible Demolition Site, IAAP-019 Contaminated Clothing Laundry, IAAP-022 Unidentified Substance (Oil) Waste Site. In 1999, the Old Fly Ash waste pile (IAAP-015) and the Contaminated Clothing Laundry (IAAP-019) were reopened.

The Interim Soils ROD, signed in March 1998 addressed the excavation, relocation and placement of contaminated soils from fifteen 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. Significant source soil clean up actions have been implemented at Line 800 Pinkwater Lagoon (IAAP-044), Line 1 Former Wastewater Impoundment (IAAP-016), Fire Training Pit (IAAP-039), East Burn Pads (part of the IAAP-012), North Burn Pads (IAAP-036), North Burn Pads Landfill (IAAP-037), Pesticide Pit (IAAP-017), and sumps from Ammo Producion Lines 1, 2, 3, 3A, 4A, 5A, 6, 7, 8, 9, 800 (IAAP-1 to 11).

PREVIOUS STUDIES

Title	Author	Date
Aquatic Field Survey, Iowa Army Ammunition Plant	U.S. Army Medical Research & Development Command, Washington, D.C.	1-Nov-76
Installation Assessment of Iowa Army Ammunition Plant, Report No. 127	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Jan-80
Aerial Color Infrared Photography Interpretation, Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Sep-79
Contamination Survey, Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	July 1982
Underground Pollution Investigation at Iowa Army Ammunition Plant	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Sep-81
Follow-On Study of Environmental Contamination at the Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Aug-84
Midwest Site Confirmatory Survey Sampling Report for Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	August 1986
Water Quality Engineering Consultation, Investigation of Groundwater Contamination, Iowa Army Ammunition Plant	U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland	1-Sep-85
RCRA Facility Assessment of Iowa Army Ammunition Plant	U.S. Environmental Protection Agency, Region VII, Kansas City, Kansas	8-Jun-85
Confirmatory Water Sampling, Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Jun-87
Groundwater Quality Assessment, Iowa Army Ammunition Plant	U.S. Army Corps of Engineers, Fort Worth, Texas	1-Jan-88
Petroleum Leak/Spill Area, Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Mar-90
Endangerment Assessment/Feasibility Study of Former Line 1 Impoundment and Line 800 Lagoon, Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	July/August 1989
Draft Potential Areas of Concern Supplement	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Feb-91
Site Investigation of Iowa Army Ammunition Plant	U.S. Army Toxic & Hazardous Materials Agency, Aberdeen Proving Ground, Maryland	1-Jun-91
Accelerated Groundwater Quality Assessment for the Ash Disposal Cell in Trench 5 and Line 6, Iowa Army Ammunition Plant	U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	1-Oct-94
Letter Report Quarterly Groundwater Monitoring Results for Rounds 6, 7 and 8 Ash Disposal Cell in Trench 5, Iowa Army Ammunition Plant	16. U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	1-Aug-95
Revised Draft Final Remedial Investigation Risk Assessment Iowa Army Ammunition Plant (11 Volumes)	17. U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	21-May-96

PREVIOUS STUDIES

Title	Author	Date
Action Memorandum for the Line 800 Pink Water Lagoon, Former Line 1 Impoundment at the Iowa Army Ammunition Plant	18. U.S. Army Corps of Engineers, Omaha, Nebraska	1-Oct-96
Annual Report Semi-Annual Groundwater Monitoring of the Inert Disposal Area, Iowa Army Ammunition Plant	Industrial Operations Command, Rock Island, Illinois.	1-Mar-97
Engineering Evaluation / Cost Analysis (EE/CA) Study Fire Training Pit Iowa Army Ammunition Plant	U.S. Army Corps of Engineers, Omaha, Nebraska	April 1996
Proposed Plan for Interim Action - Soils Operable Unit	U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	1-May-97
Draft Final Soils Focused Feasibility Study	U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	08 May 1997
Action Memorandum for the Inert Landfill at the Iowa Army Ammunition Plant	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Sep-97
Ecological Risk Assessment Addendum Iowa Army Ammunition Plant - Draft Report	Army Corps of Engineers, Omaha, Nebraska	1-Oct-97
Draft Final Feasibility Study for Operable Unit 1: Contaminated Soils	U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	10-Nov-97
Draft Environmental Protection Plan Iowa Army Ammunition Plant Focused Feasibility Study Soils Removal	U.S. Army Corps of Engineers, Omaha, Nebraska	14-Nov-97
Fire Training Pit - Iowa Army Ammunition Plant Explanation of Significant Differences & Action Memorandum	U.S. Army Corps of Engineers, Omaha, Nebraska	December 1997
Supplemental Groundwater Remedial Investigation Report	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Dec-97
Groundwater Feasibility Study Report	U.S. Army Corps of Engineers, Omaha, Nebraska	23-Dec-97
U.S. Army Interim Soils Action for Operable Unit #1 Record of Decision	U.S. Army Corps of Engineers, Omaha, Nebraska	4-Mar-98
Draft Soils Feasibility Study Report	U.S. Army Corps of Engineers, Omaha, Nebraska	16-Mar-98
Draft Proposed Plan for Operable Unit #1	U.S. Army Corps of Engineers, Omaha, Nebraska	17-Mar-98
Draft Final Ecological Risk Assessment Addendum	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Mar-98
Draft ROD Non-Significant Differences	U.S. Army Corps of Engineers, Omaha, Nebraska	30 April 1998
Draft Final Proposed Plan for Operable Unit #1	U.S. Army Corps of Engineers, Omaha, Nebraska	4-May-98
Draft Final Soils Feasibility Study Report	U.S. Army Corps of Engineers, Omaha, Nebraska	18-May-98
Superfund Proposed Plan for OU#1	U.S. Army Corps of Engineers, Omaha, Nebraska	17-Jun-98
Final Soils Feasibility Study Report	U.S. Army Corps of Engineers, Omaha, Nebraska	19-Jun-98
Draft Record of Decision Soils OU#1	U.S. Army Corps of Engineers, Omaha, Nebraska	10 July 1998
Draft Interim Groundwater Study Report	U.S. Army Corps of Engineers, Omaha, Nebraska	4-Aug-98
Final Record of Decision Soils OU#1	U.S. Army Corps of Engineers, Omaha, Nebraska	August 1998 (signed by EPA Sep 98)
Demonstration Test Plan for Low Temperature Thermal Desorption of Explosive Soils	U.S. Army Corps of Engineers, Omaha, Nebraska	6-Nov-98

PREVIOUS STUDIES

Title	Author	Date
Draft Demonstration Test Summary of Results: LTTD of Explosive Contaminated Soils	U.S. Army Corps of Engineers, Omaha, Nebraska	17-Dec-98
Summary Report Pre-Design Excavation Delineation at 5A/5B, Roundhouse RDX Site, IDA Storage Yard, Burning Grounds	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Dec-98
Draft Final Report for Multiple Removal Actions	U.S. Army Corps of Engineers, Omaha, Nebraska	11-Jan-99
Independent Technical Review Questionnaire Response	Iowa Army Ammunition Plant, Middletown, IA	28-Jan-99
Supplemental Groundwater Remedial Investigation Report Line 800/ Pinkwater Lagoon - Analytical Data Report	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Mar-99
Draft Monitoring Well Management Plan	U.S. Army Corps of Engineers, Omaha, Nebraska	15-Apr-99
Independent Technical Review Draft Reccommendations Report	U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland	3-May-99
Recommendations for Additional Remedial Investigation Line 800/ Pinkwater Lagoon	HARZA Engineering Co, Chicago Illinios	10-May-99
Technical Memorandum, Supplemental Investigation, Off-Site Groundwater, Surface Water & Sediment, HARZA Engineering Co.	U.S. Army Corps of Engineers, Omaha, Nebraska	25-Jan-00
RBCA Tier II Report (Revised), American Ordnance/Trileaf	Operations Support Command, Rock Island, IL	1-Feb-00
Well Completion Report, Fall 1999 LTM, HARZA Engineering Co.	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Jun-00
Long Term Monitoring Report, Fall 1999, HARZA Engineering Co.	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Jun-00
Well Completion Report, HARZA Engineering Co., July 2000	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Jul-00
Final Remedial Action Report, Fire Training Pit, Environmental Chemical Corporation	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Oct-00
Final Remedial Action Report, Focused Feasibility Study Sites-Phase 1, Environmental Chemical Corporation	U.S. Army Corps of Engineers, Omaha, Nebraska	1-Oct-00

ER, A ELIGIBLE ACTIVE DSERTS SITES

IAAP-001
LINE 1 AMMO LAP (MISSILE/ FORMER AEC)

SITE DESCRIPTION

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

Line 1 is an ammunition production line that has been in operation since the inception of IAAAP in 1941. This Line produces missile warheads and cartridges. This site occupies about 188 acres and includes 106 buildings. These buildings include equipment rooms, explosive magazines, and about 22 buildings for explosive processing. The majority of the contamination occurred as a result of building wash downs and sump failures.

The Atomic Energy Commission operated a portion of Line 1 between 1947 and 1975. Radiological materials were "received in a sealed configuration and were swipe-tested for leaks before use". The Atomic Energy Commission sampled buildings for radionuclides in the 1970's and none were found. Interim Soil ROD identified 266cy of radionuclide-contaminated soil that the Army now believes to be at background levels.

The PA/SI was completed in 1991, and initial RI was completed in May 1996. The Interim ROD requires the removal of 7411cy of metals and explosives-contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. Building sampling in 2000, detected no radiological materials.

FUSRAP is currently conducting an investigation to determine their future involvement in Atomic Energy Commision cleanup activities.

IRP STATUS

RRSE RATING: High Risk

CONTAMINANTS OF CONCERN:
Explosives, Metals, RAD

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	30	100					
RD		25	75				
RA			1350	150			
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $1,730,000

PROPOSED PLAN

Supplemental RI work (including additional radiological sampling) is currently being performed to better delineate soil contamination. Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

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

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current activities will be addressed under compliance (non-IRP funding). The past contamination is a direct result of practice of washing of 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 120mm ammunition. The melt building appears to be where the highest volumes of wastes are produced. The buildings include equipment rooms, explosives magazines and nine sump buildings.

The PA/SI was completed in 1991, and initial RI was completed in May 1996. The Interim ROD requires the removal of 1948cy of contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

IRP STATUS

RRSE RATING: High Risk (1A)

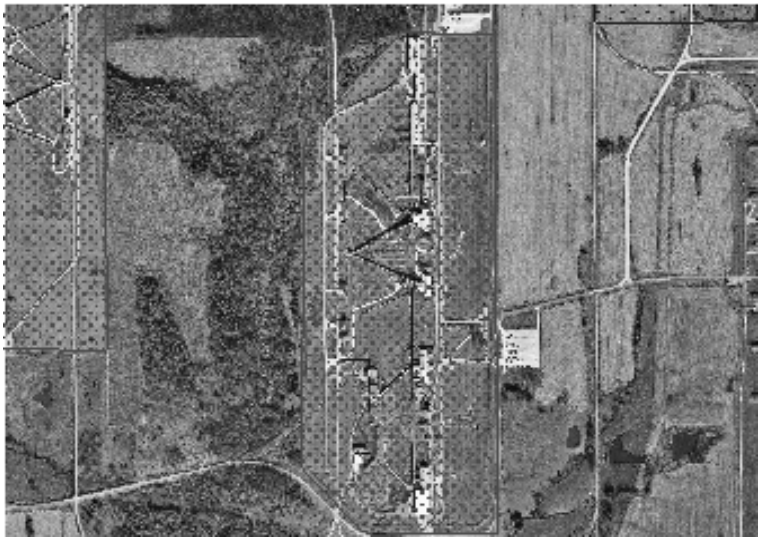
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, IRA, RD, RA, RA(O)



PROPOSED PLAN

Complete Supplemental RI report. Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020. With current information a limited groundwater treatment will be required.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	125	35	25				
RD				100			
RA					1000		
RA(O)						125	250
IRA					425		
LTM							

PROJECTED TOTAL: $2,085,000

IAAP-003
LINE 3 AMMO LAP (ARTILLERY)

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current activities will be addressed under compliance (non-IRP 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.

The Interim Soil ROD identified 119cy of radionuclide-contaminated soil that the Army now believes to be at background levels.

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, treated with sodium hydroxide, and disposed in the Line 3A Pond (IAAP-041).

The PA/SI was completed in 1991, and initial RI was completed in May 1996. The Interim ROD requires the removal of 3493cy of contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. Supplemental RI work is currently being performed to better delineate groundwater contamination.

PROPOSED PLAN

Complete Supplemental RI report. Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020. With current information a limited groundwater treatment will be required.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IRP STATUS

RRSE RATING: High Risk (1A)

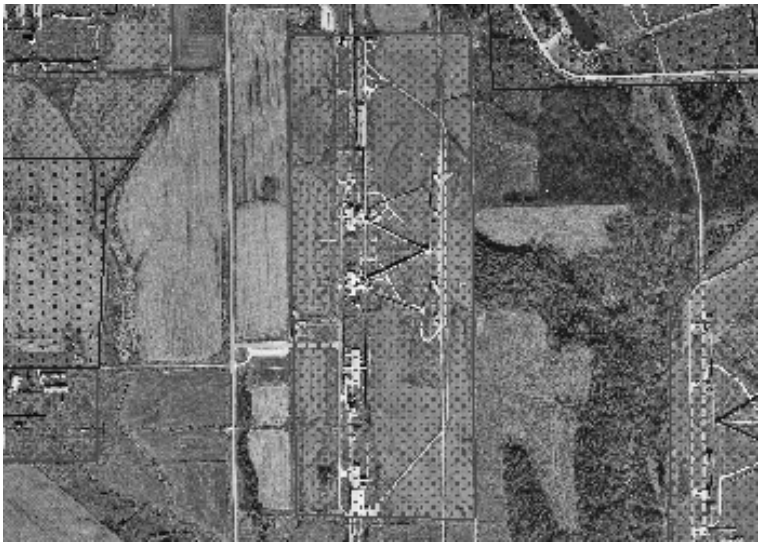
CONTAMINANTS OF CONCERN:
Metals, Pesticides/PCBs

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, IRA, RD, RA, RA(O)



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	125	35	25				
RD				100			
RA					1000		
RA(O)						125	250
IRA				745			
LTM							

PROJECTED TOTAL: $2,405,000

IAAP-004
LINE 3A AMMO LAP (ARTILLERY)

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current activities will be addressed under compliance (non-IRP 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 and mortar rounds. The melt building appears to be the area where the highest volumes of wastes were produced during operations.

Metal cleaning operations were also conducted here from 1977 to 1985. 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 initial RI was completed in May 1996. The Interim ROD requires the removal of 2036cy of contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

IRP STATUS

RRSE RATING: High Risk (1A)

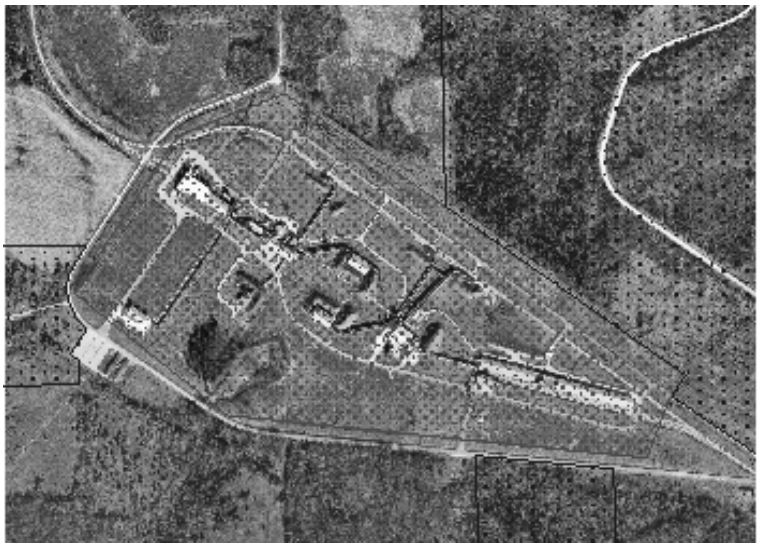
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
None

FUTURE IRP PHASE:
RD, RA



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD				40			
RA				400			
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $440,000

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-005
LINE 4A & 4B AMMO ASSEMBLY

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current activities will be addressed under compliance (non-IRP 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 1960's. 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 initial RI was completed in May 1996. The Interim ROD requires the removal of 153cy of contaminated soil from Line 4A and none from Line 4B. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IRP STATUS

RRSE RATING: Medium Risk (2A)

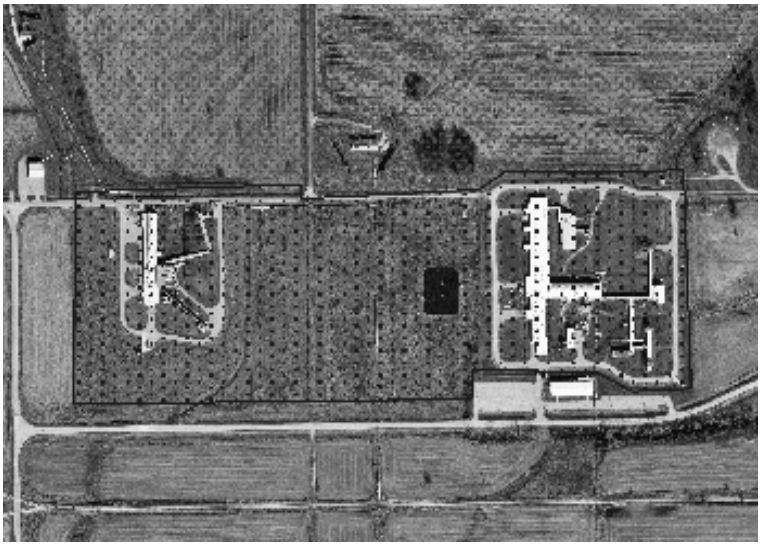
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Sediment, Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI. RI/FS, IRA

CURRENT IRP PHASE:
RD, RA

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD	5						
RA	35						
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $40,000

IAAP-006
LINE 5A & 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. Principle 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 lay-away 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 initial RI was completed in May 1996. The Interim ROD requires the removal of approximately 6,000cy of contaminated soil from Lines 5A/5B. This soil removal was completed in FY00-01.

IRP STATUS

RRSE RATING: High Risk (1A)

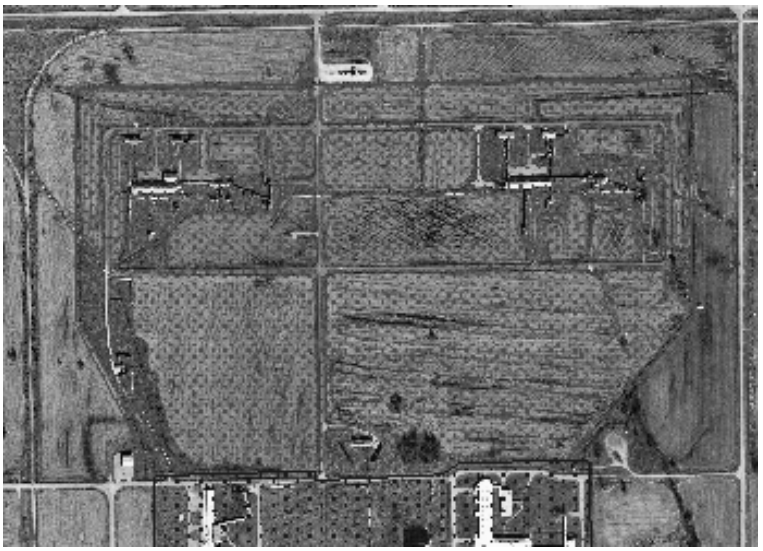
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	10						
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $10,000

PROPOSED PLAN

Complete Supplemental RI for the Tripod Area.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-007
LINE 6 AMMO PRODUCTION (DETONATOR)

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current or future activities will be addressed under compliance (non-IRP 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, 800cy of contaminated soil was removed in 1994.

The PA/SI was completed in 1991, and initial RI was completed in May 1996. The Interim ROD requires the removal of approximately 445cy of contaminated 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.

IRP STATUS

RRSE RATING: Low Risk (3A)

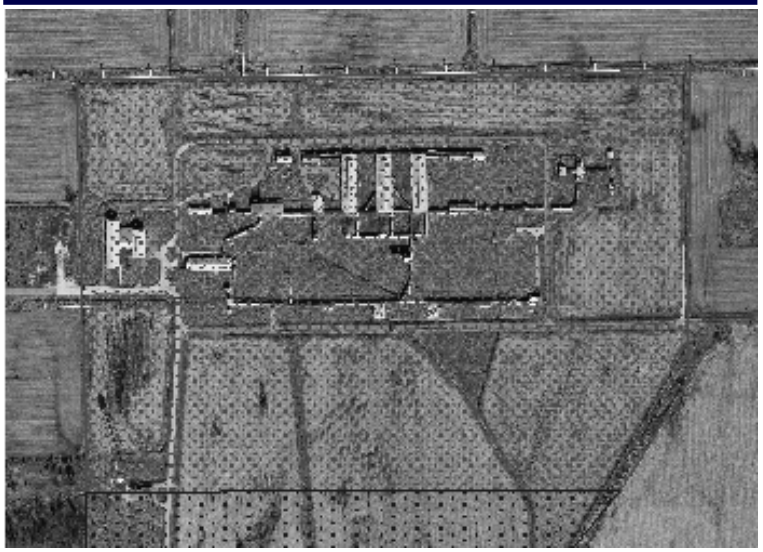
CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA

CURRENT IRP PHASE:
None

FUTURE IRP PHASE:
RD, RA



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD		15					
RA		120					
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $135,000

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

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

SITE DESCRIPTION

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

Line 8 was a production Line that was constructed in 1941 and was used during World War II to produce Amatol. 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 initial RI was completed in May 1996. The Interim ROD requires the removal of approximately 476cy of contaminated soil. This soil will be taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

IRP STATUS

RRSE RATING: Medium Risk (2A)

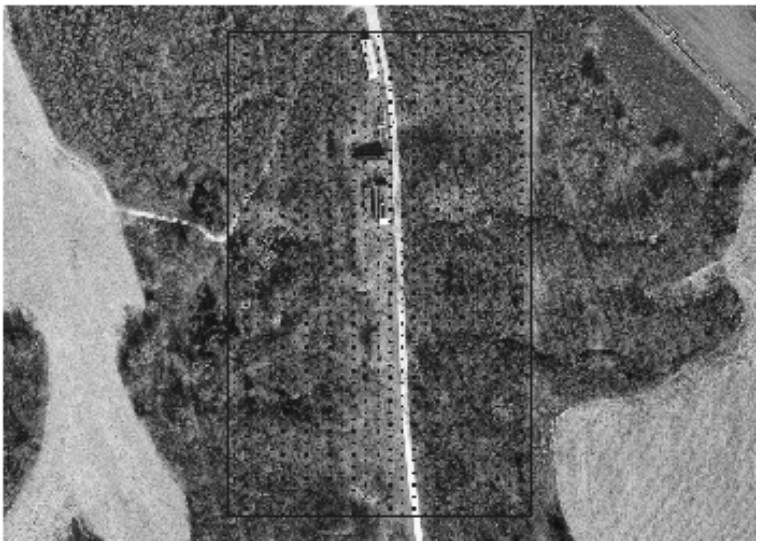
CONTAMINANTS OF CONCERN:
Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA

CURRENT IRP PHASE:
None

FUTURE IRP PHASE:
RD, RA



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD		15					
RA		140					
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $155,000

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-010
LINE 9 AMMO LAP (MINE)

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current or future activities will be addressed under compliance (non-IRP 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 lay-away status.

The PA/SI was completed in 1991, and initial RI was completed in May 1996. During the Supplemental RI, high levels of freon were found in groundwater. The Interim ROD requires the removal of 469cy of metals-contaminated soil.

IRP STATUS

RRSE RATING: High Risk (1A)

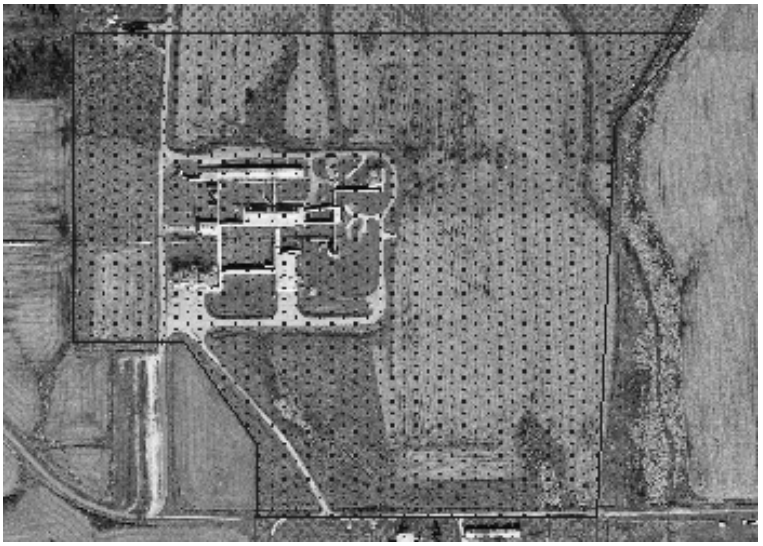
CONTAMINANTS OF CONCERN:
Metals, Freon

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, IRA, RD, RA



PROPOSED PLAN

Complete RI to fully delineate freon contamination. With current information, air stripping to reduce freon may be needed.

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	100	50	50				
RD			20				
RA				250			
RA(O)							
IRA		155					
LTM							

PROJECTED TOTAL: $625,000

IAAP-011
LINE 800 AMMO RENOV

SITE DESCRIPTION

The IRP site consists of the contamination from past munition production. Any contamination from current or future activities will be addressed under compliance (non-IRP 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 75mm 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.

IRP STATUS

RRSE RATING: Medium Risk (2A)

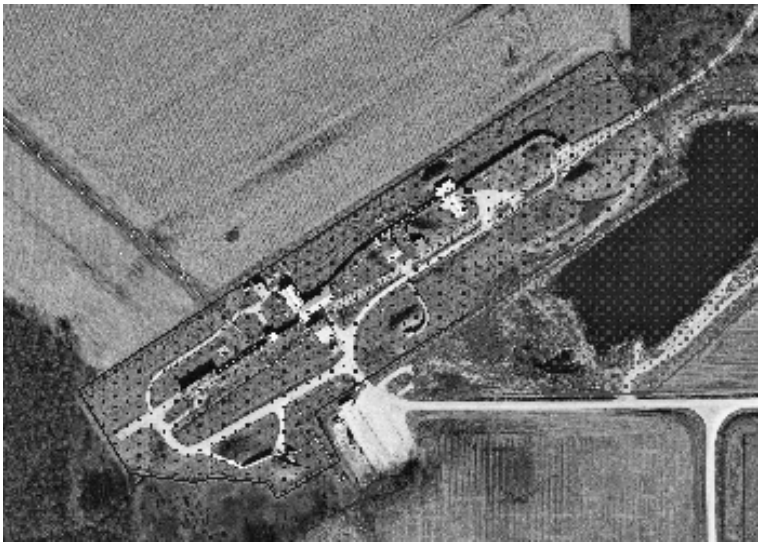
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA

CURRENT IRP PHASE:
RD, RA

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD	40						
RA	410						
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $450,000

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-013
INCENDIARY DISPOSAL AREA (EAST YARD D)

SITE DESCRIPTION

Based upon the recollection of 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-1940's. It was believed to be small (approximately 40x60') and surrounded by 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. Samples taken during the SI found no contamination.

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 are spead of 10 acres. A fence with "Danger" signs runs through the cratered area.

IRP STATUS

RRSE RATING: Low Risk (3A)

CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC

PROPOSED PLAN

A RI/FS will be completed for the cratered area.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	15						
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $15,000

IAAP-015
OLD FLY ASH WASTE PILE

SITE DESCRIPTION

The Old Fly Ash Waste Pile is located in the southeastern portion of the IAAAP. It was used to deposit fly ash from the Main Heating Plant and the building 1-62 Heating Plant from 1940 until 1976. It lies east of Plant Road H between Yards D and E. The eastern boundary of the site slopes steeply down to Brush Creek; the top of the site is approximately 40 feet vertical above the creek. Ash was dumped directly on the ground surface. Sludge from the Sewage Disposal Plant was placed on this landfill once or twice a year since the early 1940's. It is unclear when this practice stopped. There is no record of the amounts of ash or sludge placed here. The majority of the surface of the Fly Ash Waste Pile is vegetated. Surface runoff flows into Brush Creek.

The PA/SI was completed in 1991, and the limited RI was completed in May 1996.

In 1999 it was discovered that the steep slope of this Old Fly Ash Waste Pile has begun to fall away into Brush Creek. It appears there may be an impact to Brush Creek. Further evaluation is necessary. Uncontrolled dumping of solid waste including tires, bricks, 5-gallon cans, vegetation was found at this site in May 1999.

IRP STATUS

RRSE RATING: Medium Risk (2A)

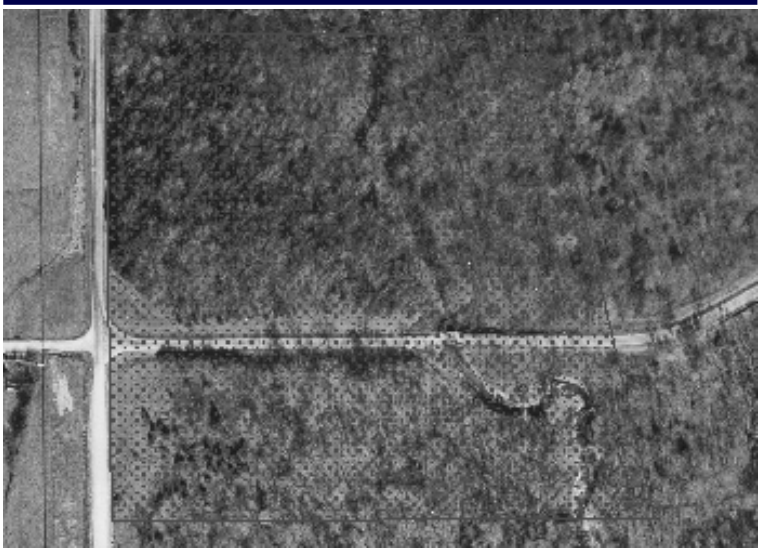
CONTAMINANTS OF CONCERN:
Metals, Sulfates

MEDIA OF CONCERN:
Groundwater, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	10						
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $10,000

PROPOSED PLAN

USACHPPM will complete additional sampling.

Erosion control will be addressed with non-IRP funds.

IAAP-016
LINE 1 FORMER WASTEWATER IMPOUNDMENT

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 before it discharged downstream. This impoundment received large volumes of discharge from 1948 to 1957. The wastes included TNT, coal pile runoff, and condensate from the coal fired power plant. Fly ash would be added to the impoundment liquid to absorb the explosives and reduce the color. It was estimated that the impoundment was 3.6 acres in size and as large as 7.5 acres (1,300 to 2,400 feet long) during periods of high flow. The embankment was breached after 1957; Brush Creek flowed through the breach and the former impounded area was allowed to re-vegetate naturally.

RI work for the Impoundment area was completed in 1991.

The Army Decision Document was approved in 1995, and the Action Memo was approved in 1996. Contaminated soils IRA was completed during 1997 when 8,270cy of explosives-contaminated soils were excavated from this area. This excavated soils contained greater than 3,900lbs. of explosives. This soil was taken to the Inert Disposal Area (IAAP-020) where it was separated by level of contamination. The higher contaminated soil was placed in Trench 7 and will be treated as required by the ROD.

This site has been converted into wetlands. Native plants containing the nitroreductase enzyme needed to "phytoremediate" the surface and groundwater contaminated with residual levels of explosives are being established.

In 1999, new information indicates that multiple settling basins were located up-gradient of the Line 1 Former Wastewater Impoundment. Additional investigation will be required to locate these basins and assess their impact.

PROPOSED PLAN

Perform additional RI work on the up-gradient basins. Based on current information soil/sediment excavation and treatment at the Inert Disposal Area (IAAP-020) is expected. Cost for the treatment will be funded under IAAP-020.

Surface water management will continue.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS, IRA

FUTURE IRP PHASE:
RD, RA, LTM

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	25						
RD			35				
RA			200	15			
RA(O)							
IRA	25						
LTM					15	15	180

PROJECTED TOTAL: $525,000

IAAP-018
POSSIBLE DEMOLITION SITE (SOUTH YARD G)

SITE DESCRIPTION

This site, also called SWMU 18, 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 directly 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 sites appears to be larger then previously thought and previous samples may not be representative of the site condistions.

IRP STATUS

RRSE RATING: Low Risk (3A)

CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Sample locations will be expanded to insure that the complete site was sampled.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	10						
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $10,000

IAAP-020
INERT DISPOSAL AREA

SITE DESCRIPTION

The Inert Disposal Area (IDA) 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, Cap Extension Area (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 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. Closure of the landfill under the IRP began in 1996 and is currently underway. During 1997, a low-permeability synthetic cap was placed over Trenches 1 through 5 (approximately 17 acres). This area was seeded in 1998.

The lagoon holding area was closed in 1984 following the transfer of the blue sludge to a concrete-lined sludge drying bed, where it remained until January 1997. The excavated area was backfilled and capped with clay and a vegetative cover established. In 1997 the blue sludge was excavated from this drying bed and deposited into Trench 6. Explosives and metals-contaminated soils from a 1993/4 multi-site sump removal project were placed in Trench 6 in 1997.

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. This area was capped and the RCRA closure plan was completed in April 1988; the plan was amended in February 1997. Radionuclides were found in groundwater samples during 1997 routine sampling and were determined to be “within normal background levels for IAAAP” and within safe limits.

IRAs at the Inert Disposal Area (IAAP-020), Former Line 1 Impoundment Area (IAAP-016), and the Line 800 Lagoon (IAAP-044) were initiated in 1996 and completed in 1997.

Soil and debris from the burning grounds were 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 (LTTD) unit at the Trench 6.

A LTTD pilot test to determine the effectiveness of this treatment method for explosives contaminated soils from Trench 7 (CAMU) began in 1998. Preliminary results are promising.

Groundwater monitoring began in 1994 and has found no significant contamination.

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN: Explosives, Metals

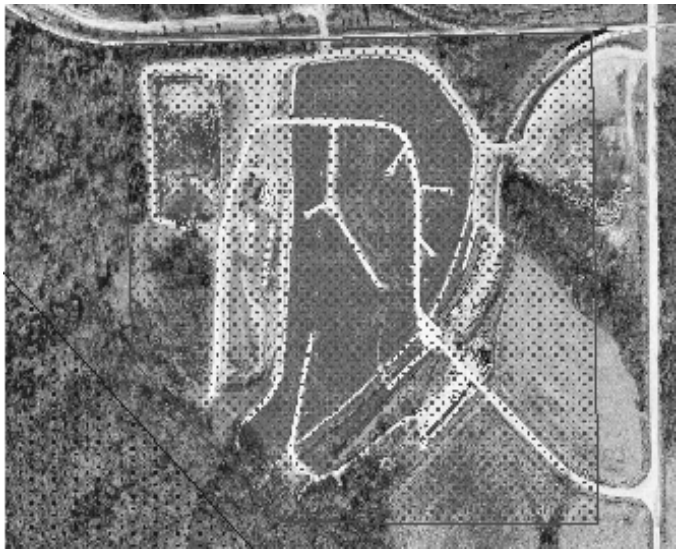
MEDIA OF CONCERN:

Groundwater, Soil, Surface Water

COMPLETED IRP PHASE: PA/SI, IRA, RI/FS

CURRENT IRP PHASE: RA

FUTURE IRP PHASE: RD, RA, RA(O)



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD					250		
RA	950	2420	2840	2100	475	2310	3730
RA(O)							2275
IRA							
LTM							

PROJECTED TOTAL: $17,580,000

PROPOSED PLAN

Manage remediation waste awaiting treatment and capping, continue to receive contaminated soil from other sites, control and treat storm water and leachate and maintain existing cap.
Treatment of all the contaminated soil that will be relocated to this location will be funded under this site.
After all contaminated soil has been treated, Trench 6, CAMU and the Cap Extention Area will be capped. The site will require long term maintenance.
Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-021
DEMOLITION AREA/ DEACTIVATION FURNANCE

SITE DESCRIPTION

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 and was discontinued in early 1980's. The Deactivation Furnace (IAAP-023) was incorporated into this site due to their 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 IDNR is required to be notified of an open detonation event. The open detonation of unsafe ammunition occurs in an emergency only.

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 initial RI was completed in May 1996. The Interim ROD requires the removal of 753cy of lead-contaminated soil from the Deactivation Furnace subsite.

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IRP STATUS

RRSE RATING: Medium Risk (2A)

CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
None

FUTURE IRP PHASE:
RD, RA

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD		25					
RA		225					
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $250,000

IAAP-030
FIRING SITE AREA

SITE DESCRIPTION

This is an active site and is not generally eligible for IRP funds except for the radiation-related work.

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

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 238 and High Explosives. Area FS-12 was surveyed for radioactivity and decontaminated by removal of topsoil (shipped off-site to Sheffield, IL in 1974).

The PA/SI was completed in 1991, RI in May 1996 and found radionuclides and metals in soil and groundwater. A Supplemental RI was started in FY00.

IRP STATUS

RRSE RATING: Medium Risk (2A)

CONTAMINANTS OF CONCERN:
Explosives, Metals, Radionuclides

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Complete the Supplemental RI.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	25						
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $25,000

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. Ash generated from the burn operations was disposed of in the adjacent landfills. The landfills are approximately three acres in size and heavily vegetated.

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 and well as various solid waste to include sanitary and industrial.

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

The PA/SI was completed in 1991, the RI in May 1996. The Interim ROD requires the removal of 1451cy 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 contamination that were not previously known. Groundwater monitoring began in 1994.

Soil removal (~45,000cy) was completed in late 2000. Of that removal ~18,000cy of soil were treated for barium contamination.

Low levels of explosives were detected in creek south of the WBPLF during 2000.

PROPOSED PLAN

Complete RI/FS and reports for barium treatment

Cost for the metal/explosive-contaminated soil treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044). This data will be used to evaluate the impact of the soil cleanup on groundwater and surface water.

IRP STATUS

RRSE RATING: High Risk (1A)

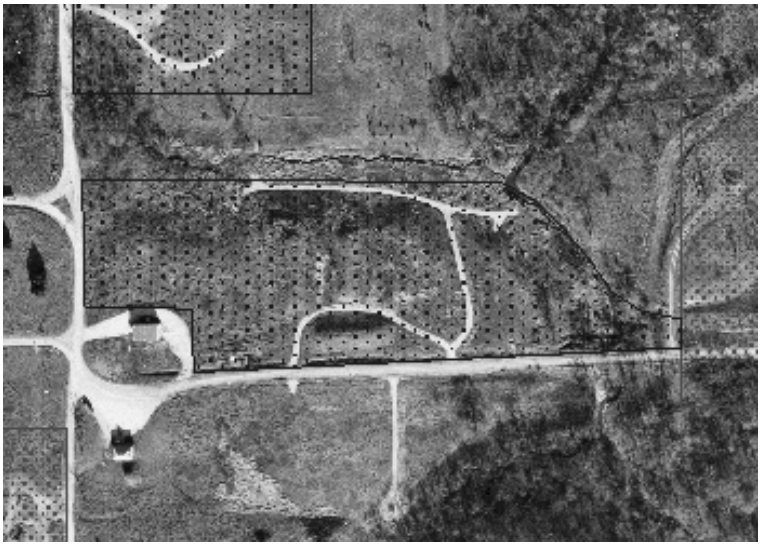
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Surface Water, Soil, Sediment

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RA

FUTURE IRP PHASE:
RI/FS



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS			75	75			
RD							
RA	440						
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $590,000

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 feet by 50 feet 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 in May 1996 and found metals and small amounts of explosives.

Contaminated soils were removed (3000cy) 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.

IRP STATUS

RRSE RATING: Medium Risk (2A)

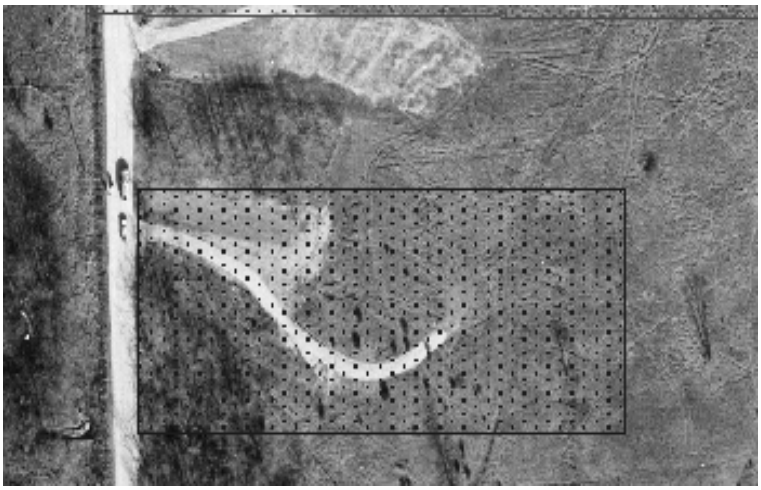
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Soil, Groundwater, Sediment

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
RC



PROPOSED PLAN

Continue groundwater monitoring.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD							
RA							
RA(O)							
IRA							
LTM	3						

PROJECTED TOTAL: $3,000

IAAP-037
NORTH BURN PADS LANDFILL

SITE DESCRIPTION

The North Burn Pads Landfill measures approximately 75 x 475 feet and was used to receive 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, EPA Region VII requested RI work be performed 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.

The IRA work in 1998 removed 12,000cy of contaminated soils and debris and placed it in the appropriate areas at the Inert Disposal Area (IAAP-020).

IRP STATUS

RRSE RATING: Low Risk (3A)

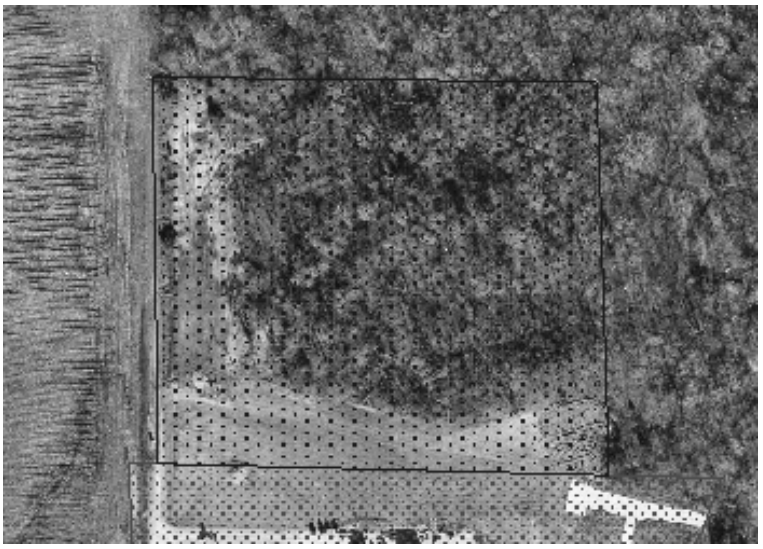
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil, Surface Water

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA

CURRENT IRP PHASE:
LTM

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD							
RA							
RA(O)							
IRA							
LTM	6						

PROJECTED TOTAL: $6,000

PROPOSED PLAN

Continue groundwater monitoring.

IAAP-039
FIRE TRAINING PIT

SITE DESCRIPTION

The former Fire Training Pit was an unlined pit that measured approximately 40x16x2 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 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. Supplemental RI work is currently being performed to fill groundwater data gaps. Groundwater monitoring began in 1994.

An Engineering Evaluation/Cost Analysis (EE/CA) and an Explanation of Significant Differences (ESD) & 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 clean up effort removed 5200cy 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.

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN:
VOCs, SVOCs, Metals

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS, IRA

FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O)

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	150	25	25				
RD				50			
RA					300		
RA(O)						10	40
IRA	10						
LTM							

PROJECTED TOTAL: $610,000

PROPOSED PLAN

Complete Supplemental RI report. With current information a limited groundwater treatment will be required.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-040
ROUNDHOUSE TRANSFORMER STORAGE AREA

SITE DESCRIPTION

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

This area was used since the 1940's 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 50ppm PCB were moved to Building L-37-34, the old storage site. Those transformers having less than 50ppm 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 in May 1996; samples found PCBs and explosives. The Interim ROD requires the removal of 599cy 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 50ppm. If levels unexpectedly exceed 50ppm, it will be disposed of off site.

IRP STATUS

RRSE RATING: Medium Risk (2A)

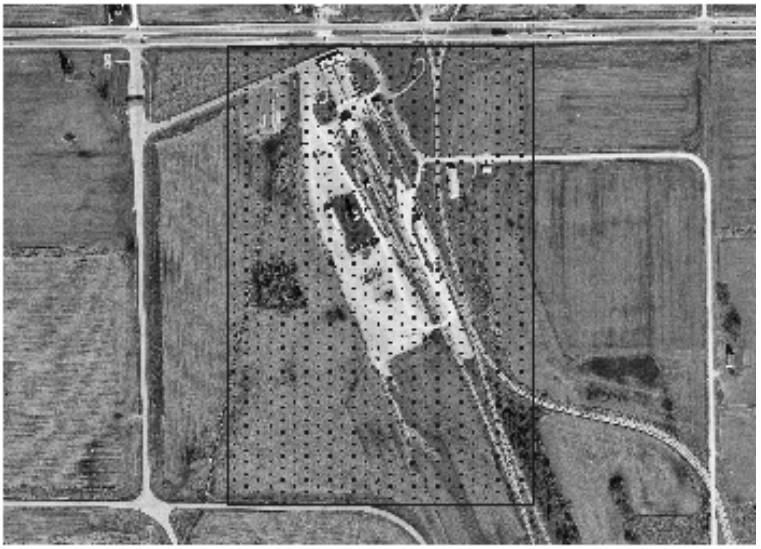
CONTAMINANTS OF CONCERN:
PCBs, Explosives

MEDIA OF CONCERN:
Soil, Surface Water, Sediment

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RD, RA

FUTURE IRP PHASE:
RC



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS							
RD	5						
RA	60						
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $65,000

PROPOSED PLAN

Complete a soil excavation, and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

IAAP-041
LINE 3A POND

SITE DESCRIPTION

Line 3A Pond is assumed to be an excavated, unlined pit, measuring approximately 60x30x8 feet deep. The pond area is relatively flat and slopes gently to the west and south. This site was excavated and backfilled circa 1959.

At Line 3A, casings for bombs were treated with an alkaline de-greaser and solvent paint stripper. The casings were then bathed in phosphoric acid. A diluted chromic acid rinse was then applied. Approximately 15,000 gallons of spent sulfuric and hydrochloric acid were disposed in the pond and neutralized with sodium hydroxide.

The PA/SI was completed in 1991, the RI in May 1996; samples found no explosives or metals above action levels in the soil.

USACHPPM Phase II Complete.

IRP STATUS

RRSE RATING: Medium Risk (2A)

CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Soil, Sediment, Surface Water

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI?FS

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Documents will be reviewed to issure the proper location was sampled.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	1						
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $1,000

IAAP-044
LINE 800 PINKWATER LAGOON

SITE DESCRIPTION

The IRP site consists of the contamination from past activities.

The Line 800 Pink Water 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 1945. The Pink Water 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 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 74,736cy of explosives-contaminated soils were excavated from this area during 1997. The excavated soils contained greater than 80,000lbs of explosives. This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type. Supplemental RI work is currently being performed to better delineate groundwater contamination. Significant levels of explosive contamination are known to exist in the groundwater at this site.

Two areas of explosives 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 evaluation and excavation.

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

PROPOSED PLAN

The groundwater monitoring for entire installation will be funded under this site.

Complete RI/FS. Complete a soil excavation (1,000cy), and place in the Inert Disposal Area (IAAP-020) for treatment. Cost for the treatment will be funded under IAAP-020.

IRP STATUS

RRSE RATING: High Risk (1A)

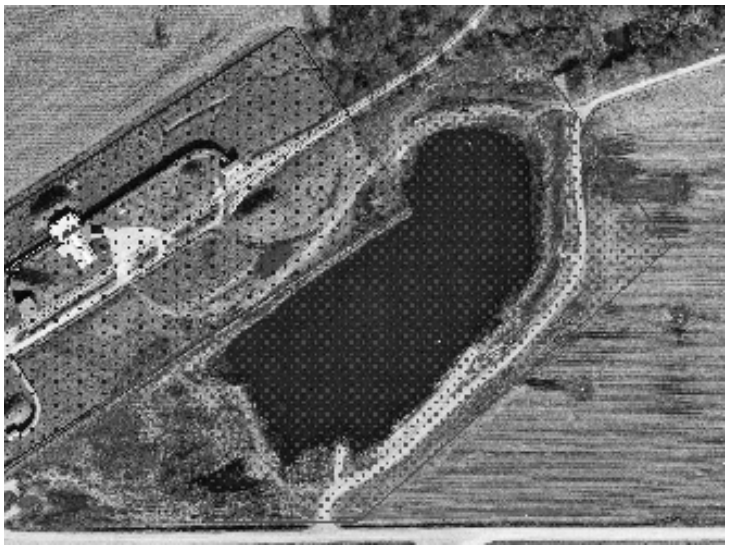
CONTAMINANTS OF CONCERN:
Explosives, Metals

MEDIA OF CONCERN:
Groundwater, Soil

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS, IRA, LTM

FUTURE IRP PHASE:
RI/FS, IRA, RD, RA, RA(O), LTM



CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	100		40	40			
RD				525			
RA					1125	1890	
RA(O)						115	1060
IRA	210	15					
LTM	1200	1200	600	600	600	600	3000

PROJECTED TOTAL: $12,920,000

IAAP-045
FORMER FUEL STATION USTs

SITE DESCRIPTION

The Fuel Station was located directly east of Texas Ave. north of 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. The IRP 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.

IRP STATUS

RRSE RATING: High Risk (1A)

CONTAMINANTS OF CONCERN:
POL

MEDIA OF CONCERN:
Soil, Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS, RD

FUTURE IRP PHASE:
RA, LTM

PROPOSED PLAN

A Correction Action Design Report (CADR) will be prepared to propose removal of contaminated soil (200cy).

Groundwater monitoring will continue.

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	10						
RD	65						
RA		205					
RA(O)							
IRA							
LTM			10	10	10	10	30

PROJECTED TOTAL: $350,000

IAAP-046
OFF-POST CONTAMINATION

SITE DESCRIPTION

Historical discharges of explosive-contaminated waste water has resulted in surface water and groundwater contamination off post, mainly the Brush Creek watershed.

In 1993, off-post contamination of private drinking water wells with explosives (RDX and 2,6 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. IAAP is investigating groundwater contamination both on and off post. The off post efforts were accelerated due to complaints in 1998 from members of the public whose drinking water wells were impacted.

High levels (50-100ug/L) of RDX were detected in the Bush Creek watershed approximately 2 miles off post.

IRP STATUS

RRSE RATING: Not Evaluated

CONTAMINANTS OF CONCERN:
Explosives

MEDIA OF CONCERN:
Groundwater, Surface Water

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Complete the RI/FS: delineate the contamination and define contamination pathway (surface water or groundwater). Pursue institutional controls: notify residents, state and local authorities that groundwater is contaminated.

Installation wide and off-post groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

CONSTRAINED COST TO COMPLETE

PHASE	2001	2002	2003	2004	2005	2006	2007+
RI/FS	600	50	50				
RD							
RA							
RA(O)							
IRA							
LTM							

PROJECTED TOTAL: $700,000

AREAS OF POTENTIAL CONCERN

Durning 2000, a hunter located a “Danger, TNT burial site” sign. This sign has not been re-located. The area will be sampled by USACHPPM when is is located. If contamination is detected, it will evaluated for IRP eligibility.

ER, A ELIGIBLE RESPONSE COMPLETE DSERTS SITES

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. Line 7 and will no longer be maintained or used by the Army (modified caretaker status).

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 initial RI was completed in May 1996. No contaminants above action levels were found.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Metals, Explosives, VOCs, SVOCs, Pesticides/PCBs
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

NFA is required, USACHPPM Phase II Complete.

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 1941until 1982, when the Explosive Waste Incinerator was built.

The PA/SI was completed in 1991, and initial RI was completed in May 1996. The Interim ROD required the removal of contaminated soil, and 12,000cy of soil were removed in l998 (funded as IRA). This soil was taken to the Inert Disposal Area (IAAP-020) and sorted by contaminant level and type.

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN: Explosives, Metals
MEDIA OF CONCERN: Groundwater, Soil
COMPLETED IRP PHASE: PA/SI, RI/FS, IRA
CURRENT IRP PHASE: LTM
FUTURE IRP PHASE: RD/RA, LTM

PROPOSED PLAN

Cost for the soil treatment will be funded under IAAP-020.

Installation wide groundwater monitoring will be funded under Line 800 Pinkwater Lagoon (IAAP-044).

No further action is needed at this site.

IAAP-014
BOXCAR 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.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Explosives, Metals, SVOCs
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site requires NFA under the IRP.

IAAP-017
PESTICIDE PIT

SITE DESCRIPTION

The Pesticide Pit was in operation between 1968 and 1974 for the disposal of small quantities of insecticides and herbicides. This site is located approximately 25 feet east of the Winnebago school House (Bldg 500-30-6) on an upland terrace surrounded by agricultural fields. The school house is current vacant. The Pesticide Pit was a small plywood structure (8'x8'x3') lined with limestone and polyester resin geomembrane. However, the integrity of the structure that contained these wastes was questionable. The pit was capped with clay of unknown thickness during the late 1970s to early 1980s.

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

In 1995 based on preliminary RI results, 160cy of soils were excavated and the site was backfilled with pea gravel and clean soil. Follow-on groundwater sampling and analyses indicated all contaminants were below Federal Action Levels. Remedial actions were completed in 1996. The soils were transported to an off-site incinerator for disposal.

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN:
Pesticides, Herbicides, Metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

NFA is required, USACHPPM Phase II Complete.

IAAP-022
UNIDENTIFIED 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.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Metals, VOCs, SVOCs
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site requires NFA under 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 120x40x8ft. The pit was 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.

IRP STATUS

RRSE RATING: Medium Risk (2B)
CONTAMINANTS OF CONCERN:
Explosives, Metals
MEDIA OF CONCERN:
Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

NFA is required, USACHPPM Phase II

IAAP-038
BUILDING 600-86 SEPTIC SYSTEM

SITE DESCRIPTION

The IRP site consists of the contamination from past activities. Any contamination from current and future activities will be addressed with non-IRP 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 in May 1996; sampling found metals below action levels in soil and groundwater.

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN:
Exlposives, Metals, VOCs, SVOCs
MEDIA OF CONCERN:
Soil, Groundwater, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI, RI/FS, LTM
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:

PROPOSED PLAN

NFA is required, USACHPPM Phase II Complete.

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.

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Metals, Nitrates, Sulfates
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site requires NFA under the IRP.

IAAP-043
FLY ASH DISPOSAL AREA

SITE DESCRIPTION

In operation from the 1940's to the 1950's, 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 in May 1996; sampling found no significant contamination.

IRP STATUS

RRSE RATING: Medium Risk (2A)

CONTAMINANTS OF CONCERN:

Metals, Nitrates, Sulfates

MEDIA OF CONCERN:

Surface Water, Soil, Sediment

COMPLETED IRP PHASE:

PA/SI, RI/FS

CURRENT IRP PHASE:

RC

FUTURE IRP PHASE:

RC

PROPOSED PLAN

NFA is required, USACHPPM Phase II Complete.

NON-ER,A ELIGIBLE, RESPONSE COMPLETE, DSERTS SITES

IAAP-019
CONTAMINATED CLOTHING LAUNDRY

SITE DESCRIPTION

This site is not eligible for IRP 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 a building 500-125 north of the Main Heating Plant and west of Line 6 on Plant Road A. Laundry operations have occurred from the 1940's 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 but is not operational. 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.

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN:
Explosives
MEDIA OF CONCERN:
Soil, Sediment
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
IRA
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site is not eligible for IRP funds.

IAAP-024
CONTAMINATED WASTE PROCESSOR

SITE DESCRIPTION

This is an active site, therefore is not eligible for IRP 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 in May 1996. The RI work found low levels of explosives and metals in soil.

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN:
Explosives, Metals
MEDIA OF CONCERN:
Groundwater, Surface Water
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site requires NFA from the IRP, future activities will be addresses with non-IRP funds.

IAAP-025
EXPLOSIVE WASTE INCINERATOR

SITE DESCRIPTION

This site is not eligible for IRP funds because of the years of use.

The Explosive Waste Incinerator (EWI) was located in the southwest corner of the Explosive Disposal Area (IAAP-012). The EWI was within building BG-199-1 and contained an adjoining air pollution control system. The site treated explosive wastes, sump scrap, and explosives-contaminated waste solvents. Explosives-contaminated carbon was originally treated in the EWI, but is now recycled. Resultant ash was collected and managed as a hazardous waste. The EWI site underwent RCRA closure, and the incinerator was removed from the installation in 1999.

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

IRP STATUS

RRSE RATING: Low Risk (3A)
CONTAMINANTS OF CONCERN:
Exlposives, Metals
MEDIA OF CONCERN:
Soil
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

NFA is required, USACHPPM Phase II Complete.

IAAP-026
SEWAGE TREATMENT PLANT/ DRY BEDS

SITE DESCRIPTION

This is an active site, therefore is not eligible for IRP funds.

The Sewage Treatment Plant is the facility's main sewage treatment plant and has been in operation since the early 1940's. 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 in May 1996.

IRP STATUS

RRSE RATING: High Risk (1A)
CONTAMINANTS OF CONCERN:
Explosives, Metals
MEDIA OF CONCERN:
Surface Water
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site requires NFA from the IRP, future activities will be addresses with non-IRP funds.

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

SITE DESCRIPTION

This is an active site, therefore is not eligible for IRP 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-IRP funds.

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

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN:
Explosives, Metals
MEDIA OF CONCERN:
Groundwater, Soil, Surface Water
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:
RC

PROPOSED PLAN

This site requires NFA from the IRP, future activities will be addresses with non-IRP funds.

IAAP-028
CONSTRUCTION DEBRIS LANDFILL (NW YARD O)

SITE DESCRIPTION

This site is not eligible for IRP funds because of the recent closure date.

The Construction Debris Landfill is located in the central portion of the installation. Wastes were placed in a ravine with periodic soil cover. Waste included brick, stone, concrete, wire and 55-gallon drums. It is believed that this site was in operation from 1941 to September 1992. The site was originally reported to be 3 acres; after the initial RI, the site was determined to be 10 acres.

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

IRP STATUS

RRSE RATING: Medium Risk (2A)
CONTAMINANTS OF CONCERN:
Explosives, Metals, Pesticides/PCBs
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC
FUTURE IRP PHASE:

PROPOSED PLAN

This site requires NFA under the IRP; any future activities will be addressed with non-IRP funds. It is believed that there is unauthorized dumping occurring at this site; the Installation should take steps to stop this practice. Future sampling is recommended to characterize the site.

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 reclusive 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 is domestic waste and blowdown water from boilers at the steam generating plant near Line 3A.

The PA/SI was completed in 1991, RI in May 1996. Significant levels of explosives were found in the outfall and down stream surface water. Samples were collected from the outfalls in October 2000.

IRP STATUS

RRSE RATING: Medium Risk (2A)

CONTAMINANTS OF CONCERN:

Explosives, Metals

MEDIA OF CONCERN:

Surface Water

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RC

PROPOSED PLAN

This site is RC under the IRP.

SCHEDULE

PROJECTED MILESTONES

- IAAP-001, 004, 005, 007, 009, 011, 016, 021, 040, 045 Soil removal
- IAAP-010 Soil removal and treatment
- IAAP-002, 003, 044 Soil removal and GW treatment
- IAAP-020, 032 Soil treatment
- IAAP-039 GW treatment

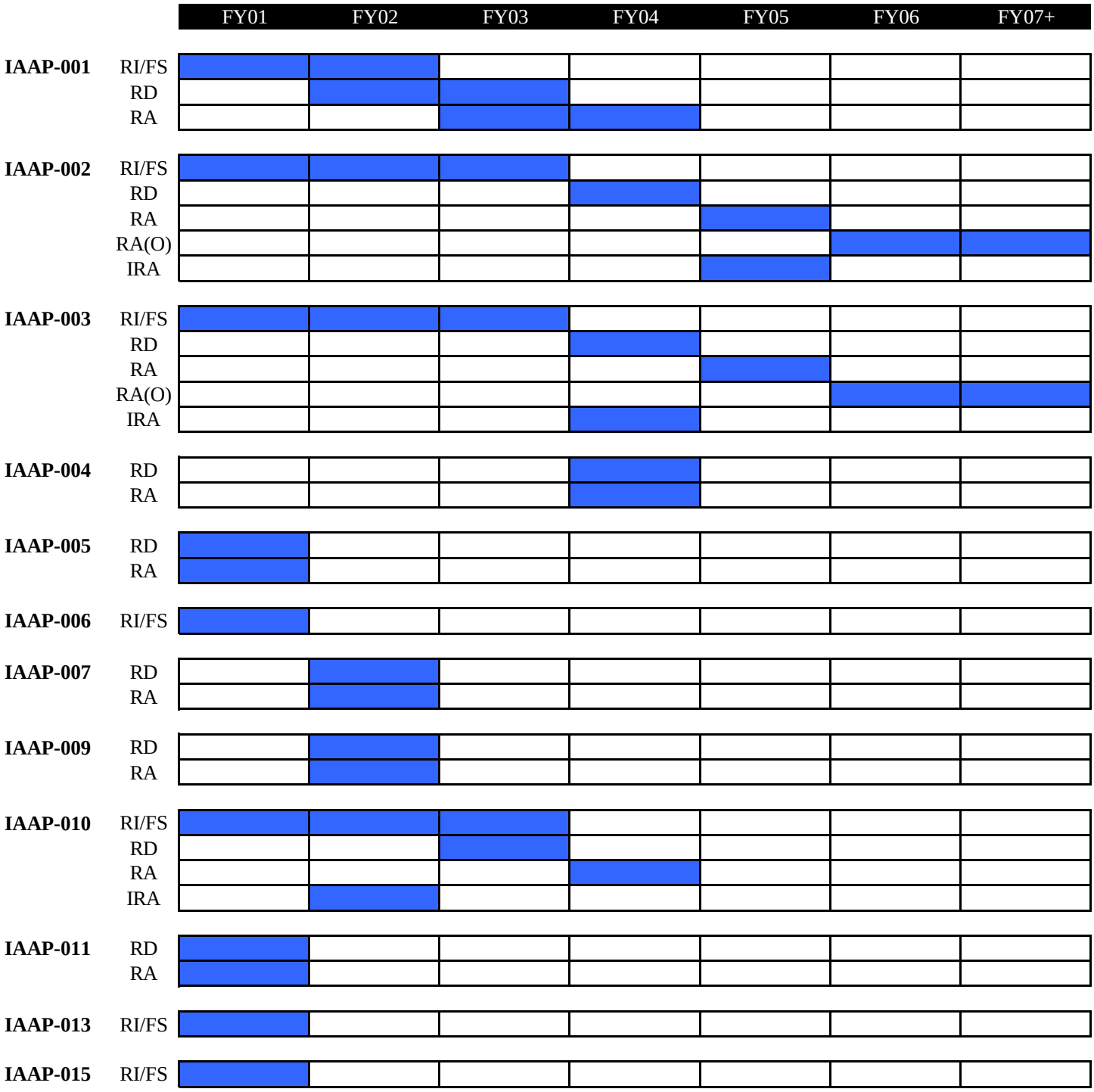
SCHEDULE

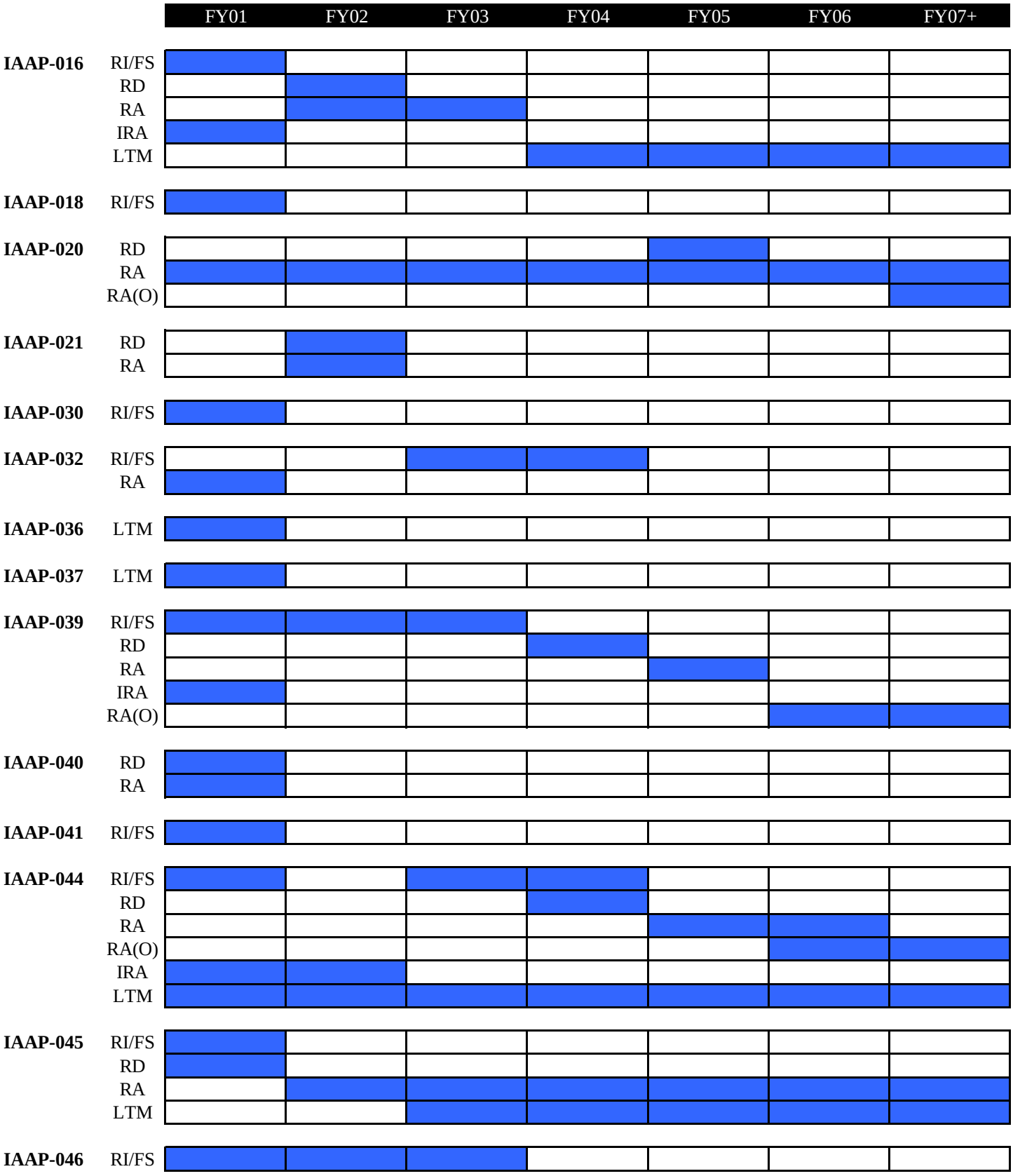
NO FURTHER ACTION SITES

IAAP-008	Line 7 Ammo LAP (Fuze/Blank)
IAAP-012	Explosive Disposal Area (East Burn Pads)
IAAP-014	Boxcar Unloading Area
IAAP-017	Pesticide Pit
IAAP-019	Contaminated Clothing Laundry
IAAP-022	Unidentified Substance (Oil) Waste Site
IAAP-024	Contaminated Waste Processor
IAAP-025	Explosive Waste Incinerator
IAAP-026	Sewage Treatment Plant/ Dry Beds
IAAP-027	Fly ash Landfill (new Bldg 400-139)
IAAP-028	Construction Debris Landfill (NW Yard O)
IAAP-029	Line 3A Sewage Treatment Plant/ Dry Beds
IAAP-031	Yard B Ammo Box Chipper Disposal Pit
IAAP-038	Building 600-86 Septic System
IAAP-042	Abandoned Coal Storage Yard
IAAP-043	Fly ash Disposal Area

Iowa Army Ammunition Plant

(Based on current funding constraints)




FY01
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IAAP-016
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IAAP-020
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IAAP-021
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IAAP-030
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IAAP-036
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IAAP-044
RI/FS
RD
RA
RA(O)
IRA
LTM
IAAP-045
RI/FS
RD
RA
LTM
IAAP-046
RI/FS

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 4. Installation Phase Summary Report 1/18/01

Installation: IOWA ARMY AMMUNITION PLANT

Programs: BRAC I, BRAC II, BRAC III, BRAC IV, IRP

Subprograms: Compliance, Restoration, UXO

Installation count for Programs: 1

NPL Options: Delisted, No, Proposed, Yes

Installations count for Programs and N 1

Site count for Programs and NPL: 40

Phase / Status / Sites

PA

C	U	F	RC
40	0	0	0

SI

C	U	F	RC
40	0	0	4

RI / FS

C	U	F	RC
18	18	0	6

RD

C	U	F
6	7	11

RA(C)

C	U	F	RC
5	2	17	5

RA(O)

C	U	F	RC
0	1	7	0

LTM

C	U	F	N
0	4	6	30

Remedy / Status / Sites (Actions)

IRA

C	U	F
9 (10)	1 (1)	0 (0)

FRA

C	U	F
5 (6)	2 (2)	18 (27)

RIP Total: 0

RC Total: 15

Reporting Period End Date: 3/31/2001

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Site, 9. RISK INSTALLATION ACTION PLAN REPORT 03/20/2001

Installation: INDIANA AAP
Major Command: AMC

SubCommand: OSC
Program Options: IRP, BRAC I, BRAC II, BRAC III, BRAC IV

Subprogram Options: Compliance, Restoration, UXO

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date
INAAP-01	2B	SH SL WH	PA SI		RI				F		200506
INAAP-02A	1B	SH SL WH	PA SI						F		198708
INAAP-02B	NE		PA SI						N		199705
INAAP-03	1B	SH WH	PA SI	RI					N		200206
INAAP-04	2B	SH WH	PA SI	RI	RAC RD				F		200809
INAAP-05	2B	SH WH	PA SI	RI	RAC RD				F		200609
INAAP-06	1B	SEF SH SL WEF WH	PA SI	RI					N		200303
INAAP-07	NE		PA RI SI						N		199707
INAAP-08	NE		PA RI SI						N		199707
INAAP-09	2B	SL	PA SI		RAC RD RI				N		200703
INAAP-10	NE		PA RI SI						N		199707
INAAP-11	NE		PA RI SI						N		199707
INAAP-12	NE		PA RI						N		199707

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date	
			SI									
INAAP-13	NE		PA RI SI						N			199707
INAAP-14	NE		PA RI SI						N			199707
INAAP-15	NE		PA RI SI						N			199707
INAAP-16	NE		PA RI SI						N			199707
INAAP-17	2B	SL	PA RI SI						N			199809
INAAP-18	2B	SL	PA RI SI						N			199609
INAAP-19	1B	SL	PA SI		RAC RD RI				N			201103
INAAP-20	NE		PA RI SI						N			199707
INAAP-21	NE		PA RI SI						N			199707
INAAP-22	NE		PA RI SI						N			199707
INAAP-23	NE		PA RI SI						N			199707
INAAP-24	2B	SL	PA SI		RAC RD RI				N			200512
INAAP-25	1B	SEF SH WEF WH	PA SI	RI	RAC RD				F			200403
INAAP-26	2B	SL	PA SI	RI	RAC RD				F			200809
INAAP-27	1B	SL	PA SI	RI	RAC RD				N			200809
INAAP-28	2B	SH SL WH	PA SI	RI	RAC RD				N			200809

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date	
INAAP-29	NE		PA RI SI						N			199707
INAAP-30	NE		PA RI SI						N			199707
INAAP-31	NE		PA RI SI						N			199707
INAAP-32	2B	SL	PA SI						N			199202
INAAP-33	NE		PA RI SI						N			199707
INAAP-34	2B	SL	PA SI	RI	RAC RD				N			200809
INAAP-35	3B	SH SL WH	PA RI SI						N			199501
INAAP-36	2B	SL	PA RI SI						N			199909
INAAP-37	NE		PA RI SI						N			199707
INAAP-38	NE		PA RI SI						N			199707
INAAP-39	NE		PA RI SI						N			199707

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date	
INAAP-40	NE		PA RI SI						N			199709
INAAP-41	NE		PA RI SI						N			199707
INAAP-42	NE		PA RI SI						N			199707
INAAP-43	NE		PA RI SI						N			199710
INAAP-44	NE		PA SI						N			199404
INAAP-45	2B	SH SL WH	PA RI SI		RAC RD				N			200503
INAAP-46	1B	SL	PA SI	RI	RAC RD				F			200509
INAAP-47	NE		PA RI SI						N			199707
INAAP-48	NE		PA RI SI						N			199710
INAAP-49	NE		PA RI SI						N			199707
INAAP-50	NE		PA RI SI						N			199707
INAAP-51	NE		PA RI SI						N			199707
INAAP-52	NE		PA RI SI						N			199707
INAAP-53	NE		PA RI SI						N			199710

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date	
INAAP-54	1B	SEF SH WEF WH	PA SI	RI					N			200203
INAAP-55	2B	SL	PA SI		RI				N			200309
INAAP-56	3B	SL	PA SI	RI	RAC RD				N			200509
INAAP-57	NE		PA RI SI						N			199707
INAAP-58	NE		PA RI SI						N			199707
INAAP-59	2B	SH SL WH	PA SI	RI	RAC RD				F			200609
INAAP-60	2B	SL	PA SI	RI	RAC RD				N			200803
INAAP-61	NE		PA RI SI						N			199710
INAAP-62	NE		PA RI SI						N			199707
INAAP-63	1B	SL	PA SI	RI	RAC RD				F			200806
INAAP-64	NE		PA RI SI						N			199707
INAAP-65	NE		PA RI SI						N			199707
INAAP-66	NE		PA SI						N			199209
INAAP-67	NE		PA SI						N			199209
INAAP-68	NE		PA RI SI						N			199707
INAAP-69	2B	SH SL	PA SI		RAC RD RI				N			200503
INAAP-70	3B	SL	PA RI SI						N			199706
INAAP-71	NE		PA RI				1		N			199707

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date	
			SI									
INAAP-72	NE		PA RI SI				1		N			199707
INAAP-73	NE		PA RI SI				1		N			199707
INAAP-74	NE		PA RI SI						N			199707
INAAP-75	3B	SL	PA SI	RI	RAC RD				N			200506
INAAP-76	NE		PA SI						N			199404
INAAP-77	NE		PA SI						N			199404
INAAP-78	NE		PA RI SI						N			199710
INAAP-79	NE		PA RI SI						N			199707
INAAP-80	NE		PA RI SI						N			199707
INAAP-81	NE		PA RI SI						N			199707
INAAP-82	3B	SH SL	PA SI		RAC RD RI				F			200609
INAAP-83	NE		PA SI						N			199404
INAAP-84	NE		PA RI SI						N			199707

Site	RRSE	Media Evaluated	Phase (s) Completed	Phase (s) Underway	Phase (s) Future	#IRA Completed	#IRA Underway	#IRA Future	LTM Status	RIP Date	RC Date	
INAAP-85	NE		PA						N			199404
			SI									
INAAP-86	NE		PA						N			199404
			SI									
INAAP-87	3B	SH	PA		RAC				N			200506
		SL	RI		RD							
		WH	SI									
INAAP-89	2B	SH	PA						N			199604
		WH	SI									
INAAP-90	1B	GW	PA		RI							200903

RRSE - Relative Risk Site Evaluation; Risk Category - 1=High, 2=Medium, 3=Low;
Legal Agreement - A = with agreement, B = without agreement; C = Complete, U = Underway, F = Future, N = Not Applicable

Reporting Per 03/31/2001

REM/IRA/RA ASSESSMENT

PAST REM/IRA/RA

1992

IAAP-042, Abandoned Coal Storage Yard: Removal completed, the area was backfilled and vegetated with native grasses.

1994

The Army connected off post residents south of the Plant to a rural water supply thereby removing the exposure pathway of contaminants to them.

1995

- Removal Actions at the Pesticide Pit and Explosive Sumps were completed under Rapid Response Program.
- Soils from the Pesticide Pit were transported to an approved off site incinerator.
- Soils from the sumps were temporarily held and subsequently placed in Trench 6 of the Inert Landfill in 1997.

1996

- The RI was completed.
- Corrective Action Management Unit was completed.

1997

- Over 80,000 cy of soil was removed from the Former Line 1 Impoundment Area and the Line 800 Pinkwater Lagoon.
- Soils from the sumps which were excavated in 1995 and stored at the IDA were placed into Trench 6 .
- Blue sludge which was also stroed at the IDA was placed in Trench 6.

1998

- Capped 5 cells at the IDA.
- Removed impacted soil from East Burn Pads and the North Burn Pads.
- Completed Bio-Slurry Study
- Completed Humic Polymer Study
- Began Supplemental RI activities for Eco-risk, Line 800 Pinkwater lagoon, and other areas.
- Signed Interim and Final RODs

1999

- Completed soil removals at the East Burn Pads
- Completed soil removals at the Fire Training Pit
- Completed soil treatment of Fire Training Pit soils
- Conducted small field study of Low Temperature Thermal Desorption treatment for explosive contaminated soils.
- Placed monitoring wells around Corrective Action Management Unit (IDA Trench 7)
- Placed 11 Long Term Monitoring Wells

REM/IRA/RA ASSESSMENT

PAST REM/IRA/RA

2000

- Completed Soil Removal at the West Burn Pad Area
- Completed Cap Extension for the Inert Disposal Area
- Completed soil Removal around production buildings at Lines 5A/5B

PRIOR YEAR FUNDING

FY 80	Initial Assessments & Preliminary Survey	$ 411.5K	
	* Former Site Investigation - 15 Wells	159.4K	570.9
FY 83	Follow-on Contamination Study	124.9K	124.9
FY 85	Limited Sampling & Analysis	196.1K	
	Alternatives Analysis	362.7K	558.8
FY 86	Data Management	18.2K	
	Imagery Acquisition & Interpretation	24.0K	42.2
FY 87	Remedial Actions Assessment	215.2K	
	Limited Confirmatory Sampling & Support	24.4K	
	* Inert Landfill Groundwater Quality Assessment	450.0K	689.6
FY 88	* Inert Landfill Groundwater Quality Assessment	21.0K	
	Install Frost Free Hydrant on Monitoring Well	0.8K	21.8
FY 89	Petroleum Leak/Spill Area Assessment	213.1K	
	Pink Water Lagoon Additional RI/FS	37.3K	
	* Pink Water Lagoon Remedial Action Design	5.0K	
	* Inert Landfill and RI/FS Contract	275.0K	
FY 90	* Inert Landfill/Line 6 Contract Modification/S&A	1,629.2K	2,159.6
FY 91	Remedial Investigation/Feasibility Study	3,328.0K	
	Corps of Engineers S&A	11.3K	3,339.3
FY 92	Remedial Investigation/Feasibility Study	3,955.2K	
	Coal Pile Closure/Removal	22.7K	3,977.9
FY 93	Accelerated GW Assessment (IAAP92-012)	643.3K	
	Installation Support (IAAP92-029)	12.1K	
	Sump Removals	10.6K	
	Procure Bottled Water	0.9K	
	Public Water Line Construction (IAAP93-010)	168.9K	
	RI Stormwater Samplers (IAAP92-006)	41.4K	877.2
FY 94	RI/FS (IAAP92-012)	808.8K	
	Installation Support (IAAP92-029)	31.3K	
	Bottled Water (IAAP93-009)	3.1K	
	Biostudy of Explosives (CEWES)(IAAP94-031)	150.0K	
	Survey/ID/Abandon Well Project (IAAP93-005)	5.8K	

PRIOR YEAR FUNDING

	Restoration of MW's	8.8K	
	RD/RA Inert Landfill	65.0K	
	RD line 1/Line 800	50.0K	
	RD/RA S&A	30.0K	
	Explosive Sump Removal	842.2K	
	Pesticide Pit Removal	114.3K	2,109.3
FY 95	RI/FS Gas Station (IAAP94-030)	61.4K	
	RI/FS - Contract Modification	1,329.1K	
	Installation Support	245.8K	
	Environmental Monitoring	298.9K	
	GW Quality Assessment/Trench 5	482.0K	
	Treatability Study - WES	180.0K	
	Remove/Dispose Blue Sludge	11.8K	
	Remedial Action - Explosive Sumps	96.1K	
	Remedial Action - Pesticide Pit	206.3K	
	Remedial Action - Line 1/800 Lagoon	5,950.5K	
	Removal Action - Fire Training Pit	105.0K	
	RD/RA Corps S&A	50.0K	
	Inert Landfill Closure	2,496.6K	11,513.5
FY 96	Remedial Action - Fire Training Pit	1,018.0K	
	Inert Landfill Closure (IAAP92-S004)	315.0K	
	Remedial Action - Line 1/800	1,736.0K	
	RI/FS - Fuel Station	187.0K	
	Environmental Monitoring	704.0K	
	RI/FS & Treatability Study	1,520.0K	
	Remove/Dispose of Blue Sludge	14.0K	
	Installation Support/GOCO	450.0K	
	Explosive Sump Removal	48.0K	
	Burn Pad Closures	720.0K	
	Phytoremediation Study	204.0K	
	Pesticide Pit Removal	318.0K	
	Bioremediation of Explosives Soils	10.0K	
	RD/RA S&A	48.0K	7,292
FY 97	Removal Action - Line 1/800	2,783.5K	
	Explosive Sump Removal	5.5K	
	Inert Landfill Closure	696.5K	
	Fire Training Pit RA	28.7K	
	RD/RA (Supl. RI/GW Data Gaps)	1,569.0K	
	Focused FS - soils REM	3,475.1K	

PRIOR YEAR FUNDING

	Installation Support	134.6K	
	Monitoring of IRP Wells	214.8K	
	RI/FS Fuel Station	11.8K	
	RAB	8.0K	8,927.5
FY 98	Inert Landfill Closure	742.5K	
	Removal @ Lines 1 & 800	1,042.5K	
	Focused Soils Removal	3,638.5K	
	Interim Groundwater RD/RA	133.9K	
	Fuel Station RI/FS/RA	16.0K	
	Long Term Well Monitoring and Maintenance	465.4K	
	Fire Training Pit Closure	100.0K	
	Prepare Soils Proposed Plan / ROD	300.0K	
	RAB	8.5K	6,447.3
FY99	Removal Actions at Lines 1/800	400.0K	
	Removal Action at the Inert Landfill	300.0K	
	Removal Action at Fire Training Pit	585.0K	
	Interim Groundwater RD/RA(Data Gaps)	1,180.9K	
	Focused FS Removals	5,380.0K	
	Long Term Well Monitoring and Maintenance	908.0K	
	RAB	4.9K	8,758.8
FY00	Fire Training Pit	5.0K	
	Removal Action at the Inert Disposal Area	533.1K	
	Removal Action at the Line 1 Impoundment/800 Lagoon	629.4K	
	Focused FS Removals	1980.5K	
	Installation Support	15.2K	
	Former Fuel Station UST's	5.1K	
	Periodic Groundwater Monitoring	1208.3K	
	Interim Groundwater RD/RA	110.0K	
	Line 1 and Firing Site	802.7K	
	RAB	4.4K	5,293.7
Prior Year Funding		$ 62,704,300	
Funds needed FY01+		$ 41,735,000	
Total		$ 104,439,300	

Iowa Army Depot FY01 Constrained Cost to Complete

DSERTS #	SITE TITLE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
IAAP-001	Line 1 Ammo LAP (Missile/ Former AEC)	RI/FS	30	100							Supplemental RI COE Inhouse/S&R (30K), Additional sampling (100K)
		RD		25	75						design
		RA			1350	150				1730	removal of 7411cy of metal, explosive-contaminated soil, move to IAAP-020
IAAP-002	Line 2 Ammo LAP (Artillery/ Shaped)	RI/FS	125	35	25						Complete RI report (35K), FS/Proposed Plan/ROD for GW contamination (150K)
		IRA					425				removal of 1948cy of contaminated soil, move to IAAP-020
		RD				100					design GW treatment
		RA					1000				GW treatment (hot spots)
		RA(O)						125	250	2085	GW treatment operation
IAAP-003	Line 3 Ammo LAP (Artillery)	RI/FS	125	35	25						Complete RI report (35K), FS/Proposed Plan/ROD for GW contamination (150K)
		IRA				745					removal of 3493cy of contaminated soil, move to IAAP-020
		RD				100					design GW treatment
		RA					1000				GW treatment (hot spots)
		RA(O)						125	250	2405	GW treatment operation
IAAP-004	Line 3A Ammo LAP (Artillery)	RD				40					design
		RA				400				440	removal of 2036cy of contaminated soil, move to IAAP-020
IAAP-005	Line 4A and 4B Ammo Assembly	RD	5								design
		RA	35							40	removal of 153cy of contaminated soil, move to IAAP-020
IAAP-006	Line 5A and 5B	RI/FS	10							10	additional sampling in the tripod area/closure reports
IAAP-007	Line 6 Ammo Production	RD		15							design
		RA		120						135	removal of 445cy of contaminated soil, move to IAAP-020
IAAP-009	Line 8 Ammo LAP (Fuse/ Rocket)	RD		15							design
		RA		140						155	removal of 476cy of contaminated soil, move to IAAP-020
IAAP-010	Line 9 Ammo LAP (Mine)	RI/FS	100	50	50						delineate freon contamination (100K), ROD (100K)
		IRA		155							removal of 469cy of contaminated soil, move to IAAP-020
		RD			20						design
		RA				250				625	air stripping for freon
IAAP-011	Line 800 Ammo Renovation	RD	40								design
		RA	410							450	removal of 1325y of contaminated soil, move to IAAP-020
IAAP-013	Incendiary	RI/FS	15							15	samples craters
IAAP-015	Old Fly Ash Waste	RI/FS	10							10	Complete RI
IAAP-016	Line 1 Former Wastewater Impoundment	RI/FS	25								additional sampling in the basins (10K), surface water management (15K)
		IRA	25								Inhouse/PY S&A (25K),
		RD		35							design, , surface water management (15K)
		RA		200	15						soil/sediment removal (~1000cy), surface water management (15K)
		LTM				15	15	15	180	525	surface water management (sampling and lagoon pumping as needed)
IAAP-018	Possible Demolitio	RI/FS	10							10	Complete RI

Iowa Army Depot FY01 Constrained Cost to Complete

DSERTS #	SITE TITLE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
IAAP-020	Inert Disposal Area	RD					250		230		design treatment (250K), design caps (230K)
		RA	950	2420	2840	2100	475	2310	3730		Inhouse/PY S&A (250K), Repair Detail G area (100K), Storm water and leachate control and treatment, existing can maint, carbon, analytical (600K/year per 3 years and 475 K/year until area it capped); Treatment of ~20,000cy of metal/explosive contaminated soil (8M=1.82M in 02, 2,24M in 03, 1.625M in 04, 1.835M in 06, 480K in 07); Cap Trench 6 & CEA (1.8M), OU4 ROD (300K), Cap Trench 7 (500K) (14 areas total)
		RA(O)							2275	17580	maintain caps, treat leachate
IAAP-021	Demolition Area/ Deactivation	RD		25							design
		RA		225						250	removal of 753cy of contaminated soil, move to IAAP-020
IAAP-030	Firing Site Area	RI/FS	25							25	PY/ S&R
IAAP-032	Burn Cages, BCLF, West Burn	RI/FS			75	75					FS/Proposed Plan/ROD for GW contamination (150K)
		RA	440							590	Complete barium treatment (90K), Inhouse/PY S&A (350K)
IAAP-036	North Burn Pads (2	LTM	3							3	3 wells, semi-annual
IAAP-037	North Burn Pads La	LTM	6							6	4 wells, semi-annual
IAAP-039	Fire Training Pit	RI/FS	150	25	25						Complete RI report (50K), FS/Proposed Plan/ROD for GW contamination (150K)
		IRA	10								Inhouse/PY S&A (10K)
		RD				50					design
		RA					300				GW treatment (reactive wall)
		RA(O)						10	40	610	(wall) maintenance
IAAP-040	Roundhouse Transformer	RD	5								design
		RA	60							65	removal of 599cy of contaminated soil, move to IAAP-020
IAAP-041	Line 3A Pond	RI/FS	1							1	Document review
IAAP-044	Line 800 Pinkwater Lagoon	RI/FS	100		40	40					FS/Proposed Plan/ROD for GW contamination (150K), wetland maintenance (15K/year for 2 years)
		IRA	210	15							remove ~500 cy of soil (120K), Inhouse/PY S&A (75K), wetland maintenance (15K/year for 2 years)
		RD				525					design GW treatment
		RA					1125	1890			GW treatment, wetland maintenance (15K/year for 1 year)
		RA(O)						115	1060		GW treatment maintenance (100K/year for 10 years), wetland maintenance (15K/year for 5 years)
		LTM	1200	1200	600	600	600	600	3000	12920	Installation Wide GW monitoriong: start with ~220 wells, semi-annual for 2 years; ~220 wells, annual for 4 years; then ~110 wells, annual for 10 years
IAAP-045	Former Fuel Station	RI/FS	10								GW monitoring
		RD	65								design
		RA		205							remove ~200cy of POL soil (195K), GW monitoring (10K)
		LTM			10	10	10	10	30	350	GW monitoring (10K/year)

Iowa Army Depot FY01 Constrained Cost to Complete

DSERTS #	SITE TITLE	PHASE	FY01	FY02	FY03	FY04	FY05	FY06	FY07+	SITE TOTAL	DESCRIPTION OF WORK
IAAP-046	Off-Post Contamination	RI/FS	600	50	50					700	RI/FS: direct push samples, ~20 new wells, public notification (500K), FS/Proposed Plan/ROD for GW contamination (150K)
FY TOTALS IN THOUSANDS OF $			**$ 4,800**	**$ 5,090**	**$ 5,200**	**$ 5,200**	**$ 5,200**	**$ 5,200**	**$ 11,045**	**$ 41,735**	
		POM	4,800	5,090	5,200	5,200	5,200	5,200	6,654		
		Difference	$0	$0	$0	$0	$0	$0	$4,391	41735	

COMMUNITY INVOLVEMENT

A Restoration Advisory Board (RAB) was established in August 1997. The RAB has been very active since its inception by meeting approximately every two months to receive training and provide input to the environmental restoration process. Members are from surrounding towns of Burlington, West Burlington, Danville, Fort Madison, and Wever. Government members are from the Installation, the U.S. Environmental Protection Agency, and the State of Iowa.

The installation's restoration advisory board (RAB) acted as a resource for Senator Harkin, DOE Secretary Richardson, and others for reaching the public on worker health issues surrounding former Atomic Energy Commission's work at the installation. The RAB has reviewed documents, provided input to the community relations plan, conducted an Earth Day tour of restoration sites, and helped establish project priorities.

DEFENSE SITE ENVIRONMENTAL RESTORATION TRACKING SYSTEM

Installation, 7. RAB REPORT 01/18/2001

Comman AMC **SubComm** OSC
Installati IOWA ARMY AMMUNITION PLANT

RAB Established Date: 199708 **Reason RAB Not Establish:**
RAB Adjourned Date: **Reason RAB Adjourned:**

TRC Date: 199204

RAB Community Members: **Total RAB Community Members:** 13
Business Community
RAB Government Members: **Total RAB Government Members:** 4
Environmental Protection Agency
RAB Activities:
Advice On Scope/Sch Studies/Cleanup
RAB Advice
Other
TAPP Application Approval Date:
TAPP Project Title: 03/31/2001
TAPP Project Description:
Study Of Cleanup Schedule **Purchase Order**
Award Number **Award Date** **Completion Date**