

**FY2016**

**CORNHUSKER ARMY AMMUNITION PLANT**

**Installation Action Plan**

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## Statement of Purpose

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

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), the Cornhusker Army Ammunition Plant (CHAAP), the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

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

## Acronyms

|        |  |
|--------|--|
| AEDB-R | Army Environmental Database- Restoration                                     |
| AOC    | Area of Concern  |
| AR     | Administrative Record  |
| AST    | Above Ground Storage Tank  |
| BRAC   | Base Realignment and Closure   |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act of 1980 |
| CHAAP  | Cornhusker Army Ammunition Plant   |
| CPNRD  | Central Platte Natural Resources District                                    |
| Cr     | Chromium   |
| CRL    | Certified Reporting Limits   |
| DBG    | Demolition and Burning Grounds   |
| DD     | Decision Document  |
| DDESB  | Department of Defense Explosive Safety Board                                 |
| DMM    | Discarded Military Munitions   |
| DNT    | Dinitrotoluene   |
| EE/CA  | Engineering Evaluation / Cost Analysis                                       |
| ER,A   | Environmental Restoration, Army  |
| ESD    | Explanation of Significant Differences                                       |
| ESS    | Explosive Safety Submission  |
| ESTCP  | Environmental Security Testing and Certification Program                     |
| FFA    | Federal Facilities Agreement   |
| FONSI  | Finding of No Significant Impact   |
| FRA    | Final Remedial Action  |
| FY     | Fiscal Year  |
| gpm    | gallons per minute   |
| GW     | Groundwater  |
| HMX    | Cyclotetramethylenetetranitramine  |
| HQ     | Headquarters   |
| HRS    | Hazard Ranking System  |
| IAP    | Installation Action Plan   |
| IOC    | Industrial Operations Command  |
| IRA    | Interim Remedial Action  |
| IRIP   | Installation Restoration Incineration Program                                |
| K      | thousand   |
| LAP    | Load, Assemble and Pack  |
| LTM    | Long-Term Management   |
| LTO    | Long-Term Operations   |
| MC     | Munitions Constituent  |
| MEC    | Munitions and Explosives of Concern  |
| MFR    | Memorandum For Record  |
| MMRP   | Military Munitions Response Program  |
| MNA    | Monitored Natural Attenuation  |
| MRS    | Munitions Response Site  |
| MRSP   | Munitions Response Site Prioritization Protocol                              |
| N/A    | Not Applicable   |

## Acronyms

|          |   |
|----------|---|
| NB       | Nitrobenzene  |
| NDAI     | No DoD Action Indicated   |
| NDEQ     | Nebraska Department of Environmental Quality                          |
| NE       | Nebraska  |
| NFA      | No Further Action   |
| NPL      | National Priorities List  |
| NPPD     | Nebraska Public Power District  |
| OB       | Open Burn   |
| OD       | Open Detonation   |
| OU       | Operable Unit   |
| PA       | Preliminary Assessment  |
| Pb       | Lead  |
| PP       | Proposed Plan   |
| ppb      | parts per billion   |
| ppm      | parts per million   |
| PRG      | Preliminary Remediation Goals   |
| QAPP     | Quality Assurance Project Plan  |
| RA       | Remedial Action   |
| RA(C)    | Remedial Action (Construction)  |
| RA(O)    | Remedial Action (Operation)   |
| RC       | Response Complete   |
| RDX      | Cyclotrimethylenetrinitramine   |
| RI       | Remedial Investigation  |
| RIP      | Remedy-in-Place   |
| ROD      | Record of Decision  |
| SI       | Site Inspection   |
| SPPD     | Southern Public Power District  |
| TAPP     | Technical Assistance for Public Participation                         |
| TBD      | To Be Determined  |
| TCA      | Trichloroethane   |
| TNB      | Trinitrobenzene   |
| TNT      | Trinitrotoluene   |
| TRC      | Technical Review Committee  |
| ug/g     | micrograms per gram   |
| US       | United States   |
| USACE    | US Army Corps of Engineers  |
| USAEC    | US Army Environmental Command   |
| USATECES | US Army Technical Explosives Safety                                   |
| USATHAMA | US Army Toxic and Hazardous Materials Agency (currently called USAEC) |
| USEPA    | US Environmental Protection Agency                                    |
| UST      | Underground Storage Tank  |
| VOC      | Volatile Organic Compound   |
| WWII     | World War II  |

## Installation Information

### Installation Locale

**Installation Size (Acreage):** 356.00

**City:** Grand Island

**County:** Hall

**State:** Nebraska

### Other Locale Information

Cornhusker Army Ammunition Plant (CHAAP) is located approximately two miles west of Grand Island, Nebraska. It was originally 11,960 acres but presently consists of 356 acres awaiting restoration for public transfer and disposal to public buyers. The current working population at the facility is one part-time civilian. The plant was operated intermittently over a period of over 30 years from 1942 to 1974 and has remained inactive from 1974 to the present. During past production activities the working population exceeded 5,000. In 1990 the facility maintenance contract was terminated following the facility's addition to the property excess list. The area surrounding CHAAP is primarily rural; the city of Grand Island (population 50,000) is located two miles east of the installation.

### Installation Mission

Current activities at CHAAP are limited to pending Military Munitions Response Program (MMRP) restoration, long-term management (LTM), remedial action - operation (RA(O)), Department of Defense Explosive Safety Board (DDESB) clearance and regulatory agency approval, and leasing of the property for agriculture.

### Lead Organization

Base Realignment and Closure Division

### Lead Executing Agencies for Installation

US Army Corps of Engineers (USACE)

### Regulator Participation

**Federal** US Environmental Protection Agency (USEPA), Region VII

### National Priorities List (NPL) Status

A score of 51 was recorded on 01-JUL-87.

**Final RA(C) Completion Date:** 200403

**Date for NPL Deletion:** TBD

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

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

### Installation Program Summaries

#### IRP

**Primary Contaminants of Concern:** Asbestos, Explosives, Munitions and explosives of concern (MEC)

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

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## Installation Information

### MMRP

**Primary Contaminants of Concern:** Explosives, Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

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



# Cleanup Program Summary

## Installation Historic Activity

CHAAP was constructed for the production of artillery, bombs, boosters and supplementary charges for World War II (WWII). The plant was operated intermittently over a period of 30 years. From 1942 to 1945 it was activated for munitions production for WWII, from 1950 to 1957 during the Korean Conflict, and from 1965 to 1973 during the Vietnam Conflict. Between 1945 and 1948, the ammonium nitrate area formerly used for nitrates production was used for the production of fertilizer. The most recent operations terminated in 1974 and land disposal began in 1999.

Current activities at the facility reflect a declining industrial and agricultural lease base. The local community formed a reuse committee to guide the transfer and disposal of the property to the public, in accordance with the 1994 public law requiring the Hall County Reuse Committee to direct prioritization to the Army to excess the facility in accordance with the "Comprehensive Reuse Plan for the Cornhusker Army Ammunition Plant," dated Dec. 30, 1997. Approximately 2.5 percent of CHAAP remains for sale to designees.

On July 22, 1987, due to the waste disposal procedures to the load-line cesspools and leach pits and from the disposal of waste, the installation was listed on the NPL with a hazard ranking system (HRS) score of 51.13. A federal facility agreement (FFA) was signed by the USEPA, Region VII, the Nebraska Department of Environmental Quality (NDEQ) and the Army, effective Sept. 4, 1990.

## Installation Program Cleanup Progress

### IRP

**Prior Year Progress:** Groundwater restoration of operable unit (OU) 1 on-site was accelerated with the concurrence of the regulatory agencies.

**Future Plan of Action:** RA(O), which includes the monitoring and application of groundwater amendments (on-site) to accelerate the removal of explosive contaminants, will continue to be performed. After RA(O) has been completed, LTM will continue until the USEPA maximum contaminant level requirements are met.

### MMRP

**Prior Year Progress:** The MMRP cleanup work is in progress under an engineering evaluation/ cost analysis (EE/CA). Currently, the site is being remediated to remove an immediate explosive hazard. When this work is complete, environmental sampling will commence and the remedial investigation (RI) will commence. The interim removal action fieldwork was complete in fiscal year (FY)15.

**Future Plan of Action:** The final report will be completed in FY 2016. In FY 2016 a new contract will be awarded to re-enter the Comprehensive Environmental Response, Compensation and Liabilities Act of 1980 (CERCLA) process. A remedial investigation/feasibility study (RI/FS), proposed plan (PP), and record of decision (ROD) will be required. The selected remedy is anticipated to be no further action (NFA).

# 5-Year / Periodic Review Summary

## 5-Year / Periodic Review Summary

| Status   | Begin Date | End Date | End FY |
|----------|------------|----------|--------|
| Complete | 200209     | 200210   | 2003   |
| Complete | 200903     | 200909   | 2009   |
| Complete | 201410     | 201509   | 2015   |
| Planned  | 201910     | 202009   | 2020   |

## Last Completed 5-Year / Periodic Review Details

| Associated ROD/DD Name    | Sites  |
|---------------------------|--|
| GROUNDWATER TREATMENT/OU1 | CAAP-001A, CAAP-001AA, CAAP-001AB, CAAP-001AD, CAAP-001AE, CAAP-001AG, CAAP-001AH, CAAP-001AI, CAAP-001AJ, CAAP-001AK, CAAP-001AL, CAAP-001AM, CAAP-001AN, CAAP-001AO, CAAP-001AP, CAAP-001AQ, CAAP-001AR, CAAP-001AS, CAAP-001AT, CAAP-001AU, CAAP-001AV, CAAP-001B, CAAP-001C, CAAP-001F, CAAP-001G, CAAP-001H, CAAP-001I, CAAP-001J, CAAP-001K, CAAP-001L, CAAP-001M, CAAP-001N, CAAP-001O, CAAP-001P, CAAP-001Q, CAAP-001R, CAAP-001S, CAAP-001T, CAAP-001U, CAAP-001V, CAAP-001W, CAAP-001X, CAAP-001Y, CAAP-001Z, CAAP-002B, CAAP-002C, CAAP-002D, CAAP-002E, CAAP-002F, CAAP-002G, CAAP-002I, CAAP-002J, CAAP-004, CAAP-010 |

**Results** The site remain protective of human health and the environment.

**Actions** No new actions will continue with current remedial actions already in place.

**Plans** To perform another five year review in 2020.

|  |
|--|
| <b>Recommendations and Implementation Plans:</b> |
|  |

## Summary of Parcel Prioritization and Transfer Strategy

**Parcel Name:** LL 1 & Tract 37C/37D

**Parcel Size:** 228.00

**Associated Sites:**

**Transfer Date:** 200710

**Current Land Use:** Agricultural

**Future Land Use:** Industrial

**Encumbrances:** No residence or development for drinking water wells.

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** SPPD

**Other Issues Affecting Transfer:**N/A

**Parcel Name:** LL 2 & T-24/35/36

**Parcel Size:** 733.83

**Associated Sites:**

**Transfer Date:** 200710

**Current Land Use:** Agricultural

**Future Land Use:** Industrial

**Encumbrances:** No residence or development for drinking water wells.

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** NPPD

**Other Issues Affecting Transfer:**N/A

**Parcel Name:** LL 3 & T-33 & 34

**Parcel Size:** 640.00

**Associated Sites:**

**Transfer Date:** 200710

**Current Land Use:** Agricultural

**Future Land Use:** Industrial

**Encumbrances:** No residence or development for drinking water wells.

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** NPPD

**Other Issues Affecting Transfer:**N/A

## Parcel Summary

**Parcel Name:** LL 4 & T-32

**Parcel Size:** 363.15

**Associated Sites:**

**Transfer Date:** 200909

**Current Land Use:** Agricultural

**Future Land Use:** Industrial

**Encumbrances:** No residence or development for drinking water wells.

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** NPPD

**Other Issues Affecting Transfer:**N/A

**Parcel Name:** Pistol Range - Tract 21A (Clean)

**Parcel Size:** 331.51

**Associated Sites:**

**Transfer Date:** 200710

**Current Land Use:** Agricultural

**Future Land Use:** Other (Storage-excavated soil from storm detention cells)

**Encumbrances:** N/A

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** CPNRD

**Other Issues Affecting Transfer:**N/A

**Parcel Name:** Pistol Range - Tract 21B

**Parcel Size:** 32.67

**Associated Sites:**

**Transfer Date:** 201209

**Current Land Use:** Other (no current land use)

**Future Land Use:** Other (Storage-excavated soil from storm detention cells)  
Other (CHAAP-005 Site)

**Encumbrances:** No excavating or drinking water wells.

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** Central Platte Natural Resources District

**Other Issues Affecting Transfer:**Soils have to be place elsewhere (other than a landfill). If so, they are going on the pistol range. No transferring any property until RI/FS is complete and excavated soils that are currently stockpiled have been characterized.

## Parcel Summary

**Parcel Name:** Pump Station

**Parcel Size:** 16.16

**Associated Sites:**

**Transfer Date:** 203512

**Current Land Use:** Other (groundwater treatment plant)

**Future Land Use:** Industrial

**Encumbrances:** N/A

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** Designee to be determined by Hall County

**Other Issues Affecting Transfer:**N/A

**Parcel Name:** Tract 19B

**Parcel Size:** 20.53

**Associated Sites:**

**Transfer Date:** 202009

**Current Land Use:** Agricultural

**Future Land Use:** Other (storm water detention cells)

**Encumbrances:** N/A

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** CPNRD

**Other Issues Affecting Transfer:**N/A

**Parcel Name:** Tract 19C - OB/OD

**Parcel Size:** 33.13

**Associated Sites:**

**Transfer Date:** 202009

**Current Land Use:** Other (none-due to micro gravel mines)

**Future Land Use:** Other (storm water detention cells)

**Encumbrances:** N/A

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** Central Platte Natural Resources District

**Other Issues Affecting Transfer:**5X certification/restoration or Army owns/maintains the property.

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## Parcel Summary

**Parcel Name:** Tract 20B

**Parcel Size:** 71.60

**Associated Sites:**

**Transfer Date:** 202009

**Current Land Use:** Agricultural

**Future Land Use:** Other (storm water detention cells)

**Encumbrances:** N/A

**Leases/Permits/Licenses:** N/A

**Transfer Strategy:** Public Sale

**Recipient Organization:** CPNRD

**Other Issues Affecting Transfer:**N/A

# **CORNHUSKER ARMY AMMUNITION PLANT**

## **Non-BRAC Excess Installation Restoration Program**

# IRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 66/64

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

- 1 Contaminated Ground Water  
(CAAP-010)
- 1 Landfill  
(CAAP-003)

**Most Widespread Contaminants of Concern**

Asbestos, Explosives, Munitions and explosives of concern (MEC)

**Media of Concern**

Groundwater, Soil

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-001A  | PINK WATER DISP DP-01 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AA | PINK WATER DISP DP-27 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AB | PINK WATER DISP DP-28 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AC | L LINE 3 PINK WATER DISP DP-29 (CP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AD | PINK WATER DISP DP-30 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AE | PINK WATER DISP DP-31 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AF | L LINE 2 PINK WATER DISP DP-32 (CP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AG | PINK WATER DISP DP-33 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AH | PINK WATER DISP DP-34 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AI | PINK WATER DISP DP-35 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AJ | PINK WATER DISP DP-36 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AK | PINK WATER DISP DP-37 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AL | PINK WATER DISP DP-38 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AM | PINK WATER DISP DP-39 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AN | PINK WATER DISP DP-40 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AO | PINK WATER DISP DP-41 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AP | PINK WATER DISP DP-42 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AQ | PINK WATER DISP DP-43 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AR | PINK WATER DISP DP-44 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AS | PINK WATER DISP DP-45 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AT | PINK WATER DISP DP-46 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |



## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-001AU | PINK WATER DISP DP-47 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001AV | PINK WATER DISP DP-48 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001B  | PINK WATER DISP DP-02 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001C  | PINK WATER DISP DP-03 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001D  | L LINE 4 PINK WATER DISP DP-04 (LP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001E  | L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001F  | PINK WATER DISP DP-06 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001G  | PINK WATER DISP DP-07 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001H  | PINK WATER DISP DP-08 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001I  | PINK WATER DISP DP-09 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001J  | PINK WATER DISP DP-10 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001K  | PINK WATER DISP DP-11 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001L  | PINK WATER DISP DP-12 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001M  | PINK WATER DISP DP-13 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001N  | PINK WATER DISP DP-14 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001O  | PINK WATER DISP DP-15 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001P  | PINK WATER DISP DP-16 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001Q  | PINK WATER DISP DP-17 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001R  | PINK WATER DISP DP-18 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001S  | PINK WATER DISP DP-19 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001T  | PINK WATER DISP DP-20 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001U  | PINK WATER DISP DP-21 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001V  | PINK WATER DISP DP-22 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001W  | PINK WATER DISP DP-23 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001X  | PINK WATER DISP DP-24 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001Y  | PINK WATER DISP DP-25 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001Z  | PINK WATER DISP DP-26 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |

## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-002A  | L LINE 1 PINK WATER DISP DP-49 (CP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002B  | PINK WATER DISP DP-50 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002C  | PINK WATER DISP DP-51 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002D  | PINK WATER DISP DP-52 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002E  | PINK WATER DISP DP-53 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002F  | PINK WATER DISP DP-54 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002G  | PINK WATER DISP DP-55 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002H  | LAUNDRY FAC PINK WATER DISP DP-56(OU4)   | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002I  | PINK WATER DISP DP-57 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-002J  | PINK WATER DISP DP-58 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-010   | OU1 GROUNDWATER                          | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1986 | TBD  |
| CAAP-001A  | PINK WATER DISP DP-01 (LP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AA | PINK WATER DISP DP-27 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AB | PINK WATER DISP DP-28 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AC | L LINE 3 PINK WATER DISP DP-29 (CP)(OU4) | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AD | PINK WATER DISP DP-30 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AE | PINK WATER DISP DP-31 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AF | L LINE 2 PINK WATER DISP DP-32 (CP)(OU4) | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AG | PINK WATER DISP DP-33 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AH | PINK WATER DISP DP-34 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AI | PINK WATER DISP DP-35 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AJ | PINK WATER DISP DP-36 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AK | PINK WATER DISP DP-37 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AL | PINK WATER DISP DP-38 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AM | PINK WATER DISP DP-39 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AN | PINK WATER DISP DP-40 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001AO | PINK WATER DISP DP-41 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |

## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy       | FY   | Cost |
|------------|--|--------|--------------|------|------|
| CAAP-001AP | PINK WATER DISP DP-42 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001AQ | PINK WATER DISP DP-43 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001AR | PINK WATER DISP DP-44 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001AS | PINK WATER DISP DP-45 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001AT | PINK WATER DISP DP-46 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001AU | PINK WATER DISP DP-47 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001AV | PINK WATER DISP DP-48 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001B  | PINK WATER DISP DP-02 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001C  | PINK WATER DISP DP-03 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001D  | L LINE 4 PINK WATER DISP DP-04 (LP)(OU4) | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001E  | L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4) | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001F  | PINK WATER DISP DP-06 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001G  | PINK WATER DISP DP-07 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001H  | PINK WATER DISP DP-08 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001I  | PINK WATER DISP DP-09 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001J  | PINK WATER DISP DP-10 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001K  | PINK WATER DISP DP-11 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001L  | PINK WATER DISP DP-12 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001M  | PINK WATER DISP DP-13 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001N  | PINK WATER DISP DP-14 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001O  | PINK WATER DISP DP-15 (LP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001P  | PINK WATER DISP DP-16 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001Q  | PINK WATER DISP DP-17 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001R  | PINK WATER DISP DP-18 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001S  | PINK WATER DISP DP-19 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001T  | PINK WATER DISP DP-20 (CP)               | IRA    | INCINERATION | 1988 | TBD  |
| CAAP-001U  | PINK WATER DISP DP-21 (CP)               | IRA    | INCINERATION | 1988 | TBD  |

## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-001V  | PINK WATER DISP DP-22 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001W  | PINK WATER DISP DP-23 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001X  | PINK WATER DISP DP-24 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001Y  | PINK WATER DISP DP-25 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-001Z  | PINK WATER DISP DP-26 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002A  | L LINE 1 PINK WATER DISP DP-49 (CP)(OU4) | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002B  | PINK WATER DISP DP-50 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002C  | PINK WATER DISP DP-51 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002D  | PINK WATER DISP DP-52 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002E  | PINK WATER DISP DP-53 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002F  | PINK WATER DISP DP-54 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002G  | PINK WATER DISP DP-55 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002H  | LAUNDRY FAC PINK WATER DISP DP-56(OU4)   | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002I  | PINK WATER DISP DP-57 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-002J  | PINK WATER DISP DP-58 (CP)               | IRA    | INCINERATION                                  | 1988 | TBD  |
| CAAP-005   | DEMO AND BURNG GD(OU5)                   | IRA    | WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS | 1988 | TBD  |
| CAAP-005   | DEMO AND BURNG GD(OU5)                   | IRA    | FENCE OR OTHER SITE ACCESS CONTROL MEASURES   | 1994 | TBD  |
| CAAP-009   | UNDERGROUND STORAGE TANKS(INSTALL. WIDE) | IRA    | WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS | 1994 | TBD  |
| CAAP-001A  | PINK WATER DISP DP-01 (LP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AA | PINK WATER DISP DP-27 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AB | PINK WATER DISP DP-28 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AC | L LINE 3 PINK WATER DISP DP-29 (CP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AC | L LINE 3 PINK WATER DISP DP-29 (CP)(OU4) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AD | PINK WATER DISP DP-30 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AD | PINK WATER DISP DP-30 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AE | PINK WATER DISP DP-31 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AE | PINK WATER DISP DP-31 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |

## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-001AF | L LINE 2 PINK WATER DISP DP-32 (CP)(OU4) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AF | L LINE 2 PINK WATER DISP DP-32 (CP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AG | PINK WATER DISP DP-33 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AG | PINK WATER DISP DP-33 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AH | PINK WATER DISP DP-34 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AH | PINK WATER DISP DP-34 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AI | PINK WATER DISP DP-35 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AI | PINK WATER DISP DP-35 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AJ | PINK WATER DISP DP-36 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AJ | PINK WATER DISP DP-36 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AK | PINK WATER DISP DP-37 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AK | PINK WATER DISP DP-37 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AL | PINK WATER DISP DP-38 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AL | PINK WATER DISP DP-38 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AM | PINK WATER DISP DP-39 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AM | PINK WATER DISP DP-39 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AN | PINK WATER DISP DP-40 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AN | PINK WATER DISP DP-40 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AO | PINK WATER DISP DP-41 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AO | PINK WATER DISP DP-41 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AP | PINK WATER DISP DP-42 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AP | PINK WATER DISP DP-42 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AQ | PINK WATER DISP DP-43 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AR | PINK WATER DISP DP-44 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AR | PINK WATER DISP DP-44 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AS | PINK WATER DISP DP-45 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AS | PINK WATER DISP DP-45 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |

## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-001AT | PINK WATER DISP DP-46 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AT | PINK WATER DISP DP-46 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AU | PINK WATER DISP DP-47 (CP)               | IRA    | REMOVAL                                       | 1995 | TBD  |
| CAAP-001AU | PINK WATER DISP DP-47 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001AV | PINK WATER DISP DP-48 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001AV | PINK WATER DISP DP-48 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001B  | PINK WATER DISP DP-02 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001B  | PINK WATER DISP DP-02 (LP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001C  | PINK WATER DISP DP-03 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001C  | PINK WATER DISP DP-03 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001D  | L LINE 4 PINK WATER DISP DP-04 (LP)(OU4) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001D  | L LINE 4 PINK WATER DISP DP-04 (LP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001E  | L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001E  | L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001F  | PINK WATER DISP DP-06 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001F  | PINK WATER DISP DP-06 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001G  | PINK WATER DISP DP-07 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001G  | PINK WATER DISP DP-07 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001H  | PINK WATER DISP DP-08 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001H  | PINK WATER DISP DP-08 (LP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001I  | PINK WATER DISP DP-09 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001I  | PINK WATER DISP DP-09 (LP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001J  | PINK WATER DISP DP-10 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001J  | PINK WATER DISP DP-10 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001K  | PINK WATER DISP DP-11 (LP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001K  | PINK WATER DISP DP-11 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001L  | PINK WATER DISP DP-12 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |

## IRP Summary

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

| Site ID   | Site Name                  | Action | Remedy  | FY   | Cost |
|-----------|----------------------------|--------|---|------|------|
| CAAP-001L | PINK WATER DISP DP-12 (LP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001M | PINK WATER DISP DP-13 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001M | PINK WATER DISP DP-13 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001N | PINK WATER DISP DP-14 (LP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001N | PINK WATER DISP DP-14 (LP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001O | PINK WATER DISP DP-15 (LP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001O | PINK WATER DISP DP-15 (LP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001P | PINK WATER DISP DP-16 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001P | PINK WATER DISP DP-16 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001Q | PINK WATER DISP DP-17 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001Q | PINK WATER DISP DP-17 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001R | PINK WATER DISP DP-18 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001R | PINK WATER DISP DP-18 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001S | PINK WATER DISP DP-19 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001S | PINK WATER DISP DP-19 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001T | PINK WATER DISP DP-20 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001T | PINK WATER DISP DP-20 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001U | PINK WATER DISP DP-21 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001U | PINK WATER DISP DP-21 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001V | PINK WATER DISP DP-22 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001V | PINK WATER DISP DP-22 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001W | PINK WATER DISP DP-23 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001W | PINK WATER DISP DP-23 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001X | PINK WATER DISP DP-24 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001X | PINK WATER DISP DP-24 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001Y | PINK WATER DISP DP-25 (CP) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001Y | PINK WATER DISP DP-25 (CP) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |

## IRP Summary

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

| Site ID    | Site Name                                | Action | Remedy  | FY   | Cost |
|------------|--|--------|---|------|------|
| CAAP-001Z  | PINK WATER DISP DP-26 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-001Z  | PINK WATER DISP DP-26 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002A  | L LINE 1 PINK WATER DISP DP-49 (CP)(OU4) | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002A  | L LINE 1 PINK WATER DISP DP-49 (CP)(OU4) | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002B  | PINK WATER DISP DP-50 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002B  | PINK WATER DISP DP-50 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002C  | PINK WATER DISP DP-51 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002C  | PINK WATER DISP DP-51 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002D  | PINK WATER DISP DP-52 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002D  | PINK WATER DISP DP-52 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002E  | PINK WATER DISP DP-53 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002E  | PINK WATER DISP DP-53 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002F  | PINK WATER DISP DP-54 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002F  | PINK WATER DISP DP-54 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002G  | PINK WATER DISP DP-55 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002G  | PINK WATER DISP DP-55 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002H  | LAUNDRY FAC PINK WATER DISP DP-56(OU4)   | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002H  | LAUNDRY FAC PINK WATER DISP DP-56(OU4)   | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002I  | PINK WATER DISP DP-57 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-002I  | PINK WATER DISP DP-57 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002J  | PINK WATER DISP DP-58 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-002J  | PINK WATER DISP DP-58 (CP)               | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-004   | CLAY PIT DISPOSAL AREA(OU3-4)            | IRA    | WASTE REMOVAL - SOILS                         | 1995 | TBD  |
| CAAP-010   | OU1 GROUNDWATER                          | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1995 | TBD  |
| CAAP-001A  | PINK WATER DISP DP-01 (LP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1996 | TBD  |
| CAAP-001AA | PINK WATER DISP DP-27 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1996 | TBD  |
| CAAP-001AB | PINK WATER DISP DP-28 (CP)               | IRA    | ALTERNATE WATER SUPPLY/WATER SUPPLY TREATMENT | 1996 | TBD  |



## IRP Summary

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

| Site ID  | Site Name                                   | Action | Remedy   | FY   | Cost |
|----------|---|--------|--|------|------|
| CAAP-010 | OU1 GROUNDWATER                             | FRA    | GROUND WATER TREATMENT                         | 1999 | TBD  |
| CAAP-005 | DEMO AND BURNG GD(OU5)                      | IRA    | FENCE OR OTHER SITE ACCESS<br>CONTROL MEASURES | 2000 | TBD  |
| CAAP-008 | MOTOR POOL(OU3)                             | IRA    | WASTE REMOVAL - SOILS                          | 2000 | TBD  |
| CAAP-003 | NON ACTIVE DEMOLITION<br>DEBRIS LF(OU3)     | FRA    | WASTE REMOVAL - SOILS                          | 2001 | TBD  |
| CAAP-003 | NON ACTIVE DEMOLITION<br>DEBRIS LF(OU3)     | FRA    | GROUND WATER TREATMENT                         | 2001 | TBD  |
| CAAP-003 | NON ACTIVE DEMOLITION<br>DEBRIS LF(OU3)     | FRA    | NATURAL ATTENUATION                            | 2001 | TBD  |
| CAAP-004 | CLAY PIT DISPOSAL<br>AREA(OU3-4)            | FRA    | WASTE REMOVAL - SOILS                          | 2001 | TBD  |
| CAAP-009 | UNDERGROUND STORAGE<br>TANKS(INSTALL. WIDE) | FRA    | WASTE REMOVAL - SOILS                          | 2004 | TBD  |

### Duration of IRP

Year of IRP Inception: 197901

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 200408/204609

Date of IRP completion including Long Term Management (LTM): 204609

# IRP Contamination Assessment

## Contamination Assessment Overview

In March 1980, an installation assessment of CHAAP was completed by the US Army Toxic and Hazardous Materials Agency (USATHAMA). Based on the findings of that report, subsequent investigations confirmed the presence of munitions contamination and the migration of contaminants. Subsequent investigations confirmed the presence of munitions contamination in soils and groundwater. A residential well survey was conducted to assure that all potential residential wells exposed to cyclotrimethylenetrinitramine (RDX) were sampled. A portion of the alluvial aquifer, extending northeast of Load Line 1 from the boundary of CHAAP into the northwest portion of Grand Island (Capital Heights area), is contaminated with explosive compounds. Recent and historical sampling results indicate that RDX has migrated the greatest distance within the aquifer. The presence of RDX in the alluvial aquifer approximately four miles east of the CHAAP boundary has been verified. Sampling for cyclotetramethylenetetranitramine (HMX) indicates that small concentrations of this analyte also occur in the Capital Heights area.

As a result of this groundwater contamination, the United States (US) Army paid for the installation of a permanent water supply for residences in the area based on a drinking water criteria for RDX of 35 parts per billion (ppb). Because explosive compounds were detected in off-post domestic water supply wells at levels above the required water quality criteria levels, an alternative water supply was provided to residences that were affected. From January 1984 through June 1986, the Army supplied bottled water to residents, until a permanent alternative water supply system could be constructed. In August 1986 an extension of the city water system to the affected area began. Due to a shallow water table, a system of dewatering wells was used to lower the water table sufficiently to allow installation of the water mains. The contaminated groundwater from the dewatering wells was discharged into Silver Creek, north of the residential area. Construction was completed in phases with residential hookups completed in December 1988. Approximately 800 residences, including the affected area and adjacent neighborhoods that could be affected in the future, were provided an opportunity to hook up to the northwest Grand Island Water Supply Extension.

From September 1986 to August 1988, contaminated soils were removed and incinerated. Contaminated groundwater has migrated beneath the Capital Heights area of Grand Island, Nebraska, contaminating approximately 246 drinking water sources in residences there. On July 22, 1987 the installation was listed on the NPL with an HRS score of 51.13 due to the groundwater contamination emanating from the load-line cesspools and leach pits.

An FFA was signed by the USEPA, Region VII, the NDEQ and the Army, effective Sept. 4, 1990. The FFA included all RAs, including removal and RA as the terms were defined by CERCLA, to be undertaken at CHAAP. In December 1991 an RI/FS task for all seven study areas (the load-line sites) was awarded. The scope of the contract carried Operable Unit (OU) 1 through the interim ROD. The ROD for OU1's explosive plume was signed by the USEPA, Region VII on Sept. 29, 1994 and by the Army on Nov. 18, 1994. On Dec. 2, 1994 the NDEQ concurred with the Interim ROD and in March 1994 the design contract for the interim action ROD was awarded.

After the installation of the waterline extension, the US Army and the USEPA's office of drinking water published a health advisory, which recommended that the drinking water criteria for the general population be established at 10 ppb for ingestion only and two ppb for multiple pathways. Based upon this recommendation, the US Army, in agreement with the NDEQ, sampled additional residential wells near the area of concern (AOC) using the two-ppb health advisory as the decision point for alternative water implementation. The residents were provided bottled water as an interim action and all affected residents have been provided with the opportunity to access city water. In December 1993 a second waterline extension was constructed. The maintenance of the waterline was transferred to the city. This extension covers the area east of the furthest detection of explosives.

The proposed design for the pump and treat station, included extraction of 750 gallons per minute (gpm) in the source areas on-post, 150 gpm at the 20 ppb isopleth near Capital Heights, and 800 gpm at the distal end of the plume to prevent further migration of the RDX plume to the east. The explanation of significant differences (ESD) implemented work on-post for the primary source areas and discharge to on-post canals. The explosives-contaminated water is pumped through a granular activated carbon system and discharged to on-post canals. On June 13, 1997 a construction contract for the on-post phase was awarded and on Dec. 18, 1998 the official OU1 groundwater treatment plant operation and maintenance began. In September 2001 the amended ROD for OU1 was signed to better define institutional controls. (The city has enacted an ordinance concerning wells within the plume.)

In 1995 the waterline extension was completed, providing service to 50 additional residents in the affected area. In December 1994 the removal of approximately 5000 tons of explosives-contaminated soils was completed. During spring 1995 confirmation of the removal was completed. In July 1994 a contract was awarded to fill data gaps and to complete the remaining RI/FS. This contract completed the final RI for the facility for bringing the entire site to a final ROD and excessing CHAAP. In addition, a

## IRP Contamination Assessment

preliminary assessment (PA) screening report and statement of condition was completed in FY95 for a portion of the Phase I property planned for excessing. In November 1996 the final RI was completed and the final FS was approved in February 1998. In September 1998 the final ROD NFA for OU2 was completed, the OU3 ROD was signed in December 1999 and the OU4 ROD was signed in February 2000. The RA for the removal of explosives and lead-contaminated soil was completed in 2000.

Previous investigations will serve to support excessing actions for the preparation of the statement of condition of CHAAP and plans to parcel/excess properties. The Hall County Reuse Committee determines prioritization of properties for disposal. In December 1997 the reuse plan was completed.

In December 1998 the construction of OU1 pump and treatment plant was completed. Removal from the NPL will be initiated in FY35.

The OUs are:

- OU1: Load, assemble and pack (LAP) groundwater plume (primarily trinitrotoluene (TNT) and RDX).
- OU2: NFA; Administration Base Housing Area, Abandoned Burning Ground, Magazine Areas, Drainage Ditches and Miscellaneous Storage Areas
- OU3: Nitrate Area, Pistol Range, Shop Area, Sanitary Landfill (explosives, volatile organic compounds (VOC), and metals).  
NFA
- OU4: LAP Facility soils, sediments and surface water. All other AOCs are under institutional control; remedy-in-place (RIP), therefore, NFA.
- OU5: Burning and Demo Grounds (explosives and metals)

### Cleanup Exit Strategy

RA(O) will continue to be performed until contamination in the groundwater meets the ROD requirements. Groundwater amendments to the contaminant sources and peripheral areas in the direction of the groundwater flow will be implemented until ROD requirements are met and verified by two years of post-LTM. The entire explosive plume on-site could be remediated prior to 2043, followed by the decommissioning of the groundwater processing plant.

## IRP Previous Studies

|             | Title   | Author                       | Date     |
|-------------|---|------------------------------|----------|
| <b>1990</b> | Fact Sheet, RDX Health Effects  | USATHAMA                     | MAR-1990 |
|             | Federal Facility Agreement  | EPA, NDEQ, and DA            | APR-1990 |
| <b>1991</b> | Community Interviews  | USATHAMA                     | JAN-1991 |
|             | Community Relations Plan  | USATHAMA                     | NOV-1991 |
|             | Data Management Plan  | USATHAMA                     | NOV-1991 |
|             | Sampling & Analysis Plan- Field Sampling Work Plan  | USATHAMA                     | NOV-1991 |
| <b>1992</b> | Facts Sheet, CAAP Summary of IAG  | USAEC                        | JAN-1992 |
|             | Remedial Investigation/Feasibility Study  | USAEC                        | JUN-1992 |
|             | Engineering Evaluation/Cost Analysis  | USAEC                        | JUL-1992 |
|             | Public Health Assessments for Cornhusker AAP  | ATSDR                        | AUG-1992 |
|             | Assessment of Chemical ARARs & Pump Test  | USATHAMA                     | OCT-1992 |
|             | Site Characterization Report  | USAEC, Stollar               | DEC-1992 |
| <b>1993</b> | Facts Sheet, Flooded Basements & RDX  | USAEC & Watkins-Johnson Inc. | MAY-1993 |
|             | Plant Site Characterization Report  | USAEC & Watkins-Johnson Inc. | JUN-1993 |
|             | Initial Screening of Technologies   | USAEC & Watkins-Johnson Inc. | JUL-1993 |
| <b>1994</b> | Focused Feasibility Study for Groundwater Operable Unit One                                   | USAEC & Watkins-Johnson Inc  | MAR-1994 |
|             | Proposed Plan CAAP, Operable Unit One Explosives Groundwater Plume                            | USAEC                        | MAY-1994 |
|             | Public Availability Session - Groundwater Cleanup   | CHAAP                        | MAY-1994 |
|             | Record of Decision (ROD) Summary, Operable Unit One   | USAEC                        | SEP-1994 |
|             | Groundwater Modeling  | Watkins-Johnson Inc          | SEP-1994 |
|             | Work Plan OU1 Groundwater   | RUST Corporation             | NOV-1994 |
|             | Background Data Review & Evaluation   | ICF Kaiser Inc.              | DEC-1994 |
|             |   |                              |          |
| <b>1995</b> | RD/RA Predesign Technical Summary OU1 Groundwater   | RUST Corporation             | FEB-1995 |
|             | Preliminary Assessment Screening (PAS) of Agricultural Tracts 41, 42, 44, 53, 54, 55, 56 & 57 | USAEC                        | MAY-1995 |
|             | Technical Plan, Part A & B RI/FS  | ICF Kaiser Inc.              | JUN-1995 |
|             | Quality Assurance Project Plan  | ICF Kaiser Inc.              | JUN-1995 |
|             | Concept Design Analysis, OU-1   | RUST Corporation             | AUG-1995 |
|             | Report, Groundwater Interim Remedial Action Design-Basis Model                                | Dames & Moore Inc.           | SEP-1995 |
|             |   |                              |          |
| <b>1996</b> | Report, USAEC/ICF Kaiser Remedial Investigation/Feasibility Study RI/FS of Tanks UST/AST      | ICF Kaiser Inc.              | MAY-1996 |

## IRP Previous Studies

|             | Title   | Author              | Date     |
|-------------|---|---------------------|----------|
| <b>1996</b> | Explanation of Significant Differences (ESD) AEC Change in Effluent Water Discharge Location  | USAEC               | AUG-1996 |
|             | Symptom & Disease Prevalence-Health Study- Final Report   | ATSDR               | SEP-1996 |
|             | Remedial Investigation Report CHAAP, US AEC Final Chapters  | ICF Kaiser Inc      | SEP-1996 |
|             | OU2 Remedial Investigation Addendum, Final Document "No Further Action"   | USAEC               | NOV-1996 |
| <b>1997</b> | Proposed Plan (Final) No Further Action OU2 (Administration Area, Magazines, Housing, Miscellaneous Storage, Abandoned Burning Grounds, Drainage Ditches) | USAEC               | FEB-1997 |
|             | Explanation of Significant Differences (ESD) & Related Public Meeting Documents for OU1 Record of Decision (ROD)  | USAEC & USEPA       | FEB-1997 |
|             | Proposed Plan - OU2 Public Meeting includes Restoration Advisory Board (RAB) Briefing   | USAEC               | MAR-1997 |
|             | Feasibility Study - Operable Unit One (Unsaturated Zone) and Operable Unit Three, Final Document  | USAEC               | MAY-1997 |
|             | 1996 Annual Sampling LTM Program  | URS Woodward Clyde  | JUL-1997 |
|             | Environmental Assessment / FONSI, OU1 Groundwater Treatment Plant   | COE, Omaha District | JUL-1997 |
|             | Underground / Above Ground Storage Tanks, UST / AST site Investigation, Final   | AEC                 | OCT-1997 |
| <b>1998</b> | Proposed Plan- OU3 and OU4 Public Meeting   | USAEC               | FEB-1998 |
|             | 1997 Annual Sampling LTM Program  | URS Woodward Clyde  | MAR-1998 |
|             | OU2, ROD  | ICF Kaiser Inc.     | SEP-1998 |
|             | June 1998 Annual Sampling Event for Long-term Monitoring Program  | Woodward Clyde      | OCT-1998 |
|             | Environmental Baseline Study  | USACHPPM            | NOV-1998 |
| <b>1999</b> | Groundwater Flow Modeling   | URS Woodward Clyde  | MAY-1999 |
|             | Closure Report for Site Investigation and Screening of Unexploded Ordnance at OB/OD Area, May   | MKM Engineers, Inc. | MAY-1999 |
|             | 1999 Annual Sampling Event for LTM Program  | URS Woodward Clyde  | JUL-1999 |
|             | OU3 ROD   | ICF Kaiser Inc      | DEC-1999 |
| <b>2000</b> | OU4 ROD   | ICF Kaiser Inc.     | FEB-2000 |
|             | Final Groundwater Flow & Contaminant Fate & Transport Modeling  | URS Woodward Clyde  | MAR-2000 |
|             | OU3 and OU5 LTM Report  | HydroGeologic Inc.  | SEP-2000 |
|             | Final Report March 2000 Annual Sampling Event for Long-term Monitoring  | URS Woodward Clyde  | SEP-2000 |
|             | OU3 Final Soils Report  | CET                 | DEC-2000 |
|             | Final Report First Annual GW Sampling for OPM for Burning Ground and Shop Area  | HydroGeologic       | DEC-2000 |

## IRP Previous Studies

|      | Title   | Author  | Date     |
|------|---|---|----------|
| 2000 | OU3 final Soils Report  | CET   | DEC-2000 |
|      | Demolition of Load Line #5 at Cornhusker Army Ammunition Plant  | MKM Engineers, Inc.                             | DEC-2000 |
| 2001 | Revised PP for OU1 ROD Amendment  | URS Woodward Clyde                              | FEB-2001 |
|      | Annual Sampling LTM March 01  | URS Woodward Clyde                              | JUN-2001 |
|      | Workplan Disassembly and Decontamination of Select Process Equipment at Load Lines 1, 2, 3 and 4  | MKM Engineers, Inc.                             | JUL-2001 |
| 2002 | 5X Certification of Load Lines 1 through 5 at Cornhusker Army Ammunition Plant  | MKM Engineers, Inc.                             | MAY-2002 |
|      | Draft CERCLA Review   | HydroGeologic                                   | SEP-2002 |
| 2003 | Draft Annual Sampling Event for LTM   | HydroGeologic                                   | JAN-2003 |
|      | Final Report - Thermal Decomposition, Demolition and Certification of Nitrate Area and Selected Buildings in Shop Area  | MKM Engineers, Inc.                             | JAN-2003 |
|      | Final Work plan for OU1 ROD Amendment   | USACE   | JAN-2003 |
|      | Groundwater Sampling Event Technical Plan Letter Addendum   | HydroGeologic, Inc. and URS, Inc                | FEB-2003 |
|      | Demonstration of Operating Properly & Successfully for Explosive Soil Remediation Actions in the Load Lines in OU4 & No Further Action/No Response Action in OU2 &GWTP, LTM & Off-Site Natural Attenuation of Contaminated Explosive Plume in OU1 | USACE   | FEB-2003 |
|      | Letter CHAAP Review of Quality Assurance Project Plan For Remediation of Lead Impacted Soil at the Pistol Range Static Ejection Site/Backstop Berm,   | NDEQ  | MAY-2003 |
|      | Scope of Work for Contaminated Soil Removal, Cornhusker AAP   | Deerinwater Environmental Management Services   | MAY-2003 |
|      | Closed, Transferring & Transferred/Site Inventory Report  | engineering environmental Management Inc./USACE | JUL-2003 |
|      | ESTCP Demonstration Project Summary - Oregon Health and Science   | University of Oregon                            | JUL-2003 |
|      | Final March 03 Annual Sampling Event  | HydroGeologic                                   | AUG-2003 |
|      | Scope of Work, Thermal Decomposition and 5X Certification of Load Line #3   | MKM Engineers, Inc.                             | SEP-2003 |
|      | Scope of Work for Thermal Decomposition, Demolition and 5X Certification of Select Buildings in Nitrate and Shop Areas  | MKM Engineers, Inc.                             | SEP-2003 |
|      | Proposal for Thermal Decomposition, Demolition and 5X Certification of Load Line #4   | MKM Engineers, Inc.                             | SEP-2003 |
|      | Final March 03 Annual Sampling Event for LTM  | HydroGeologic                                   | SEP-2003 |
|      | Draft Project Work Plan, Contaminated Soil Removal, Cornhusker Army Ammunition Plant  | Deerinwater Environmental Management Services   | OCT-2003 |
|      | 2003 Monitoring Well Maintenance, Cornhusker Army Ammunition Plant  | HydroGeologic, Inc.                             | OCT-2003 |
|      | Environmental Security Testing and Certification Program (ESTCP) Design and Installation Plan   | Oregon Health & Science University of Oregon    | NOV-2003 |

## IRP Previous Studies

|  | Title  | Author  | Date                  |          |
|--|--|---|-----------------------|----------|
| <b>2003</b>  | Quality Assurance Project Summary for Remediation of Lead Impacted Soil at CHAAP Pistol Range Static Ejection Site/Backstop Berm | Jacobsen/Helgoth Consultants  | DEC-2003              |          |
|  | Draft Report Contaminated Soil Removal CHAAP   | Deerinwater Environmental Management Services Inc.  | DEC-2003              |          |
|  | 5X Certification of Load Line #5   | MKM Engineers, Inc.   | DEC-2003              |          |
| <b>2004</b>  | Final Report - Thermal Decomposition, Demolition and Certification of Nitrate Area and Selected Buildings in Shop Area           | MKM Engineers, Inc.   | JAN-2004              |          |
|  | January 2003-December 2003 Groundwater Treatment System Sampling & Analysis CHAAP (Chemical Quality Control Summary Report)      | HydroGeologic, Inc  | FEB-2004              |          |
|  | March 2004 Groundwater Sampling Event Draft Technical Plan Addendum, Cornhusker AAP  | Hydrogeologic Inc.  | FEB-2004              |          |
|  | CAAP Feb 2004 Monitoring Well Installation Trip Report   | Hydrogeologic, Inc.   | MAR-2004              |          |
|  | Final First Five Year (CERCLA) Review  | Hydrogeologic Inc.  | MAR-2004              |          |
|  | Final Contaminated Soil Removal OU3, Cornhusker AAP  | Deerinwater Environmental Management Services, Inc.   | MAR-2004              |          |
|  | Draft LTM Optimization Study for CHAAP   | Hydrogeologic Inc.  | MAY-2004              |          |
|  | Draft Groundwater Model Review, CHAAP  | Hydrogeologic Inc.  | MAY-2004              |          |
|  | Long-term Operations (LTO) Groundwater Treatment Facility at OU1 and Long-term Monitoring (LTM) at OU1, OU3, & OU5               | USACE   | MAY-2004              |          |
|  | Draft March 2004 Annual Sampling Event for the LTM Program   | Hydrogeologic Inc.  | JUL-2004              |          |
|  | Final LTM Optimization Study   | HydroGeologic, Inc.   | JUL-2004              |          |
|  | Final March 2004 Annual Sampling Event for LTM Program   | HydroGeologic, Inc.   | SEP-2004              |          |
|  | Thermal Decomposition and Demolition of Load Line #3   | MKM Engineers, Inc.   | OCT-2004              |          |
|  | Quality Assurance Project Summary for Remediation of Lead-Impacted Soil at CHAAP Pistol Range Static Ejection Site/Backstop Berm | Jacobsen/Helgoth Consultants  | DEC-2004              |          |
|  | Thermal Decomposition, Demolition and 5X Certification of Load Line #1 - Vol 1-5   | MKM Engineers, Inc.   | DEC-2004              |          |
|  | <b>2005</b>  | Work Plan - Geophysical Survey and Anomaly Investigation and Removal of Industrial And Sewers, Testing Water Supply Lines and Limited Soil Screening for Explosives in Load Lines 3 And 4 | PIKE International    | JAN-2005 |
|  |  | Work Plan for Geophysical Investigation and Site Survey of the Pistol Range and the New OB/OD Grounds   | Lakeshore Engineering | JAN-2005 |
| Closeout Report for Geophysical Investigation And Site Survey of the Pistol Range and The OB/OD Grounds  |  | Lakeshore Engineering   | FEB-2005              |          |
| Site Activities Work Plan for Asbestos Abatement Building Demolition, Creosote Wood Removal and Fence Installation   |  | Lakeshore Engineering   | FEB-2005              |          |
| Geophysical Prove Out Report - Geophysical Survey and Anomaly Investigation and Removal of Industrial and Sewers, Testing of Water Supply Lines and Limited Soil |  | PIKE International  | FEB-2005              |          |

## IRP Previous Studies

| 2005 | Title   | Author                                | Date     |
|------|---|---------------------------------------|----------|
|      | Screening for Explosives in Load Lines 3 And 4  |                                       |          |
|      | Final Estimation of Minimum Distance for Groundwater Extraction Wells and Groundwater Flow Model Update   | HydroGeologic, Inc                    | FEB-2005 |
|      | Closeout Report for Geophysical Investigation And Site Survey of the Pistol Range and The OB/OD Grounds, Lakeshore Engineering  | MKM Engineers, Inc.                   | FEB-2005 |
|      | Chemical Quality Control Summary Report Jan 04 - Dec 04 Groundwater Treatment System Sampling Analysis  | HydroGeologic, Inc.                   | MAR-2005 |
|      | Thermal Decomposition, Demolition and 5X Certification of Load Line #2-3 Volumes  | PIKE International                    | MAR-2005 |
|      | Long-Term Monitoring in Support of Natural Attenuation - March 05 Results, CHAAP  | EA/URS                                | MAR-2005 |
|      | Workplan Asbestos Abatement at Load Line #4,  | PIKE International                    | APR-2005 |
|      | Closeout Report, Asbestos Abatement, Building Demolition, Creosote Wood Removal and Fence Installation  | Lakeshore Engineering                 | JUL-2005 |
|      | Disassembly, Decontamination and Demolition of Buildings and Installed Equipment Containing Explosives Residues at Load Line 4, CHAAP, PIKA International   | MKM Engineers, Inc.                   | JUL-2005 |
|      | Geophysical Survey and Anomaly Investigation, Removal of Industrial and Sanitary Sewers, Testing of Water Supply Lines and Limited Soil Screening for Explosives in Load Lines 3 & 4, CHAAP, Volumes I, II, III, PIKA International | MKM Engineers, Inc.                   | OCT-2005 |
| 2006 | Asbestos Abatement at Load Line #4 and Asbestos Sewer Removal at Load Lines 1, 2, 3, CHAAP, PIKE International  | MKM Engineers, Inc.                   | FEB-2006 |
|      | Asbestos Containing Material Removal at Load Lines 1 and 2, Cornhusker AAP, Grand Island, NE; Final Work Plan Addendum  | URS Group, Inc                        | JUN-2006 |
|      | Decant Station Groundwater Remediation, Cornhusker AAP, Grand Island, NE; Draft Work Plan Addendum  | URS Group, Inc                        | OCT-2006 |
|      | March 2006 Annual Sampling Event for the Long Term Monitoring Program, Cornhusker AAP, Grand Island, NE   | EA Engineering Science and Technology | NOV-2006 |
|      | Explosives Safety Submission for Tract 19 Fuze Destruction Area, Tract 20 Fuze Destruction Area, Tract 20 Ammonium Nitrate Burning Area and Tract 21 Static Ejection Test Site, Cornhusker AAP, Grand Island, NE                    | URS Group, Inc                        | DEC-2006 |
| 2007 | Pistol Range Open Burning/Open Detonation Freon Site Investigation, Cornhusker AAP, Grand Island, NE, Final Work Plan Addendum  | URS Group, Inc                        | JAN-2007 |
|      | March 2007 Long-Term Monitoring Groundwater Sampling Event Technical Plan Letter Addendum, Cornhusker AAP, Grand Island, NE   | URS Group, Inc                        | JAN-2007 |
|      | Asbestos Containing Material Removal at Load Lines 1 and 2, Cornhusker AAP, Grand Island, NE; Draft Final Report  | URS Group, Inc                        | FEB-2007 |
|      | CHAAP-005 Open Burning/Open Detonation Burning Grounds, Engineering Evaluation/Cost Analysis (EE/CA), Cornhusker AAP, Grand Island, NE, Internal Army Draft   | URS Group, Inc                        | FEB-2007 |



## IRP Previous Studies

| 2007 | Title   | Author                                | Date     |
|------|---|---------------------------------------|----------|
|      | Subsurface Injection Work Plan Addendum, OU1 Remedial Action Operation, Cornhusker AAP, Grand Island, NE Draft  | Bay West, Inc.                        | FEB-2007 |
|      | Pre-Injection Groundwater Investigation Final Letter Work Plan Addendum, Operable Unit 1 Remedial Action Operation, Cornhusker AAP, Grand Island, NE                  | Bay West, Inc.                        | MAR-2007 |
|      | Chemical Quality Control Summary Report, January 2006 to December 2006, Groundwater Treatment System Sampling and Analysis, Cornhusker AAP, Grand Island, NE          | EA Engineering Science and Technology | MAR-2007 |
|      | Final Report of March 2007 Annual Sampling Event for the Long-Term Monitoring Program, Cornhusker Army Ammunition Plant, Grand Island, NE.                            | URS Corporation                       | OCT-2007 |
| 2008 | CHAAP-005 Demolition and Burning Grounds Engineering Evaluation/Cost Analysis, Cornhusker Army Ammunition Plant, Grand Island, NE (Revised Draft)                     | URS Corporation                       | JAN-2008 |
|      | Final Report for Explosives Contaminated Soil Investigation and Removal at Load Line 4; Cornhusker Army Ammunition Plant, Grand Island, NE                            | URS Corporation                       | JAN-2008 |
|      | CHAAP-005 Demolition and Burning Grounds Engineering Evaluation/Cost Analysis, Cornhusker Army Ammunition Plant, Grand Island, NE (Revised)                           | URS Corporation                       | FEB-2008 |
|      | 2007 Draft Subsurface Injection Annual Report, OU1 Remedial Action Operation, Cornhusker Army Ammunition Plant, Grand Island, NE                                      | URS Corporation                       | MAR-2008 |
|      | Pre-Injection Groundwater Investigation Letter Work Plan Addendum, 2008 Operable Unit 1 Remedial Action Operation, Cornhusker Army Ammunition Plant, Grand Island, NE | URS Corporation                       | MAR-2008 |
|      | Explosive Contaminated Soils Investigation and Removal at Load Line 4   | Bay West/URS                          | JUN-2008 |
|      | Monitoring Well Installation Letter Work Plan Addendum 2008/2009 OU1 LTM CHAAP  | Bay West/URS                          | AUG-2008 |
|      | March 2008 Annual Sampling Event for the LTM Program CHAAP - Draft Report   | Bay West/URS                          | AUG-2008 |
|      | March 2008 Annual Long-Term Monitoring Groundwater Sampling Event Draft Final Technical Plan Letter Addendum, Cornhusker Army Ammunition Plant, Grand Island, NE      | URS Corporation                       | SEP-2008 |
|      | CHAAP-005 Demolition and Burning Grounds Engineering Evaluation/Cost Analysis, Cornhusker Army Ammunition Plant, Grand Island, NE (Draft Final)                       | URS Corporation                       | OCT-2008 |
|      | Decant Station Groundwater Pilot Study  | Bay West/URS                          | OCT-2008 |
|      | CHAAP-005 Demolition and Burning Grounds Action Memorandum (Interim Removal Action-IRA), Cornhusker Army Ammunition Plant, Grand Island, NE (Draft)                   | URS Corporation                       | NOV-2008 |
| 2009 | March 2009 LTM Sampling Event Draft Technical Plan Letter Addendum CHAAP  | URS/Bay West                          | JAN-2009 |
|      | Monitoring Well Installation and Abandonment Letter Report, 2008 LTM CHAAP  | Bay West/URS                          | JAN-2009 |

## IRP Previous Studies

| 2009 | Title  | Author          | Date     |
|------|--|-----------------|----------|
|      | Pre-Injection Groundwater Investigation Letter Work Plan Addendum, 2009 OU1 RAO  | Bay West/URS    | FEB-2009 |
|      | CHAAP-005 Demolition and Burning Grounds Engineering Evaluation/Cost Analysis (Revised Draft)                                    | URS Corporation | FEB-2009 |
|      | March 2009 LTM Sampling Event Final Technical Plan Letter Addendum CHAAP   | Bay West/URS    | FEB-2009 |
|      | Pre-Injection Groundwater Investigation Final Letter Work Plan Addendum 2009 OUT RAO CHAAP                                       | Bay West/URS    | MAR-2009 |
|      | BayWest/URS and USEPA Split Sample Results Comparison Tables 2009 Long Term Monitoring Program at CHAAP                          | BayWest/URS     | JUL-2009 |
|      | March 2009 Annual Sampling Event for the LTM Program at CHAAP - Final Report   | BayWest/URS     | NOV-2009 |
| 2010 | Monitoring Well Installation and Abandonment Letter Report   | Bay West / URS  | JAN-2010 |
|      | Monitoring Well Installation and Abandonment Letter Report 2009 Long Term Monitoring Program at CHAAP                            | BayWest/URS     | JAN-2010 |
|      | Preinjection Groundwater Investigation Draft Letter Work Plan Addendum 2010 Operable Unit 1 Remedial Action Operation at CHAAP   | BayWest/URS     | FEB-2010 |
|      | 2010 Additional Investigation and Subsurface Injection Letter Work Plan Addendum Decant Station Groundwater Pilot Study at CHAAP | URS             | MAR-2010 |
|      | March 2010 Long Term Monitoring Sampling Event Final Technical Plan Letter Addendum at CHAAP                                     | BayWest/URS     | MAR-2010 |
|      | Chemical Quality Control Summary Report January 2009 to December 2009  | BayWest         | MAR-2010 |
|      | Subsurface Injection Design Technical Memorandum   | Bay West / URS  | APR-2010 |
|      | Pre-Injection Groundwater Investigation Final Letter Work Plan Addendum  | Bay West / URS  | APR-2010 |
|      | Final Subsurface Design Technical Memorandum   | Bay West / URS  | JUN-2010 |
| 2011 | Mar 2011 Annual LTM Sampling Event Draft Technical Plan Letter Addendum  | Bay West / URS  | JAN-2011 |
|      | Preinjection Groundwater Investigation Draft Letter Work Plan Addendum   | Bay West / URS  | FEB-2011 |
|      | Subsurface Injection Design Technical Memorandum   | Bay West/URS    | JUN-2011 |
| 2012 | Final Facility Wide UFP QAPP   | Bay West        | JUN-2012 |
|      | Final Decant Station Work Plan   | Bay West        | JUL-2012 |
| 2013 | LTM Report   | Bay West        | JUN-2013 |
|      | 2013 UFPQAPP WorkPlan FINAL  | Bay West        | SEP-2013 |
|      | Final Subsurface Injection Annual Report   | Bay West        | SEP-2013 |
| 2015 | LTM Report   | URS             | JUL-2015 |

# **CORNHUSKER ARMY AMMUNITION PLANT**

## **Non-BRAC Excess**

### **Installation Restoration Program**

#### **Site Descriptions**

Site ID: CAAP-003

Site Name: NON ACTIVE DEMOLITION DEBRIS LF(OU3)

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Asbestos, Munitions and explosives of concern (MEC)

Media of Concern: Groundwater, Soil

| Phases     | Start       | End    |
|------------|-------------|--------|
| PA.....    | 197904..... | 198003 |
| SI.....    | 197904..... | 199106 |
| RI/FS..... | 199101..... | 199801 |
| RD.....    | 199904..... | 199912 |
| RA(C)..... | 200001..... | 200106 |
| RA(O)..... | 199812..... | 203512 |

RIP Date: 200106

RC Date: 203512

## SITE DESCRIPTION

This site was reopened in 2013 due to a change in site conditions (i.e., building demolition and slab removal to meet explosive safety requirements). Characterization is required to ensure environmental conditions have not changed. (See the site history of Load Lines 1, 2, 3 and 4 for further details.).

Post-explosive safety removal actions uncovered asbestos debris pits. Removal of concrete slabs/ramps revealed explosive concentration exceeding 10 percent, which were reduced to comply with the DDESB certification and 5X certification for public disposal. The explosives contaminants left in place exceed preliminary remediation goals (PRG) and require remediation.

An explosive safety submission (ESS) was submitted to DDESB for NFA for MEC/ordnance and explosives sub-sites in Tract 19 (fuze destruction area), Tract 20 (fuze destruction area and ammonium nitrate burning ground) and Tract 21 (open burn/open detonation [OB/OD]).

Asbestos-containing material discovered during a geophysical survey of FY05 Load Lines 1 and 2 was excavated and disposed of as discarded military munitions (DMM) anomalies; 5X was certified for public disposal. Soil chemical characterization was completed and explosive-contaminated soils removed.

In FY06 soil chemical characterization and removal of explosives-contaminated soils was completed for Load Line 3. Explosive contaminated soil remediation of Load Lines 1-4 is complete and request for NFA is pending. The pilot test for groundwater remediation at the Decant Station is complete. The ESS for No Department of Defense Action Indicated (NDAI) using existing geophysical RI/FS data was not approved by the US Army Technical Center for Explosives Safety (USATECES) because the geophysical data was for environmental investigation (1995) and was not done in accordance with MMRP protocol. This will continue to delay clean transfer to the Hall County Reuse Committee designee. This site has been rolled into CAAP-010 as the costs for cleanup are to operate the groundwater treatment plant which is treating contaminated groundwater from this site. Please refer to CAAP-010.

## CLEANUP/EXIT STRATEGY

Groundwater injections will be followed by groundwater monitoring. Funding for this site is being tracked under CAAP-010.

**Site ID: CAAP-010**

**Site Name: OU1 GROUNDWATER**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

**Contaminants of Concern:** Explosives

**Media of Concern:** Groundwater

| <b>Phases</b> | <b>Start</b> | <b>End</b> |
|---------------|--------------|------------|
| PA.....       | 197901.....  | 198003     |
| SI.....       | 197904.....  | 198410     |
| RI/FS.....    | 199101.....  | 199405     |
| RD.....       | 199405.....  | 199704     |
| IRA.....      | 198404.....  | 199503     |
| RA(C).....    | 199706.....  | 199811     |
| RA(O).....    | 199812.....  | 204609     |

**RIP Date:** 199812

**RC Date:** 204609

## SITE DESCRIPTION

The five LAP facilities at CHAAP constituted the major set of buildings and center for operations at the site during munitions production years. Munitions production within the load lines at CHAAP required use and disposal of large amounts of water. Major operations where explosives wastewater was produced included: screening, melting and mixing, rod and pellet manufacturing, remelt and refill, and washing and laundry.

Physical screening operations were conducted as the first process for incorporating explosives (i.e., 2,4,6-TNT and RDX) into munitions. Explosives were received in flake form and screened and sifted for material handling purposes. Wastewater was generated in the operation by the ventilation systems which collected explosive dust generated by the screening operation and washed it from the air with Schneible units (wet scrubbers). The water from the Schneible units was run through settling tanks and recycled; however, excess wastewater was produced. Wastewater was also generated from periodic wash down of machinery and interior building surfaces. The wastewater was disposed of via interior building drains into a sack sump (concrete pit) that was equipped with a filter bag. The bag made of canvas-like material was designed to filter out the solid explosive particles. The wastewater was then transferred via open concrete channels into a circular earthen impoundment. The impoundment wall is masonry-lined with the bottom open to the sand and gravel strata. An overflow channel was routed from the impoundment to a leaching pit that was designed to handle any water that did not infiltrate into the bottom of the impoundment. This overflow occurred due to the limited filtering capacity of the sack sump to trap explosive particulates. Particles were periodically scraped from the bottom of both the earthen impoundments and leaching pits and ignited at the Burning Grounds (CAAP-005, OU5) located in the northwest section of CHAAP.

In 1988 during the Installation Restoration Incineration Program (IRIP), 58 impoundments were determined to have received explosives-contaminated wastewater. A determination was made to remove soil from the impoundments if concentrations were greater than 5 parts per million (ppm) for 2,4,6-TNT, 10 ppm for RDX, 15 ppm for 1,3,5-trinitrobenzene (TNB), and 0.5 ppm for 2,4-dinitrotoluene (DNT). Several guidelines, originally incorporated into the proposed excavation plan related to the distance between the water table and the impoundments bottom and the location of adjacent building foundations. Ongoing treatment and RA(O) at this site are projected to continue until 2044. Costs for CAAP-003 are included in this site as well. The pump and treat addresses the groundwater remedy for both OU1 and OU3, and associated estimates for CAAP-003 and CAAP-010 are combined under one memorandum for record (MFR).

During this activity, soil was removed from the bottoms of the impoundments until action levels were met at a depth of 6 feet or the excavations had reached a depth of 1 foot below the groundwater level, whichever occurred first. Additional guidelines specified that soil be removed laterally until the action levels were met, or until building foundations were threatened by operations. Due to the high water table conditions at the time of the scheduled excavations, the criteria regarding the depth of the soil removal were

**Site ID: CAAP-010**  
**Site Name: OU1 GROUNDWATER**

changed to require meeting action levels or until soil had been removed to a depth of 5 feet below the water-table surface, whichever occurred first. In spring 1988 soil was removed in 29 of the 58 impoundments to the point where action levels were met. In the other 29 impoundments, soil was removed to 5 feet below the water table. In these impoundments, concentrations of one or more of the explosive compounds were still above action levels. Action levels were achieved in all but two instances in the lateral direction.

In fall 1990, surface soil samples were collected. Analytical results showed high concentrations of 2,4,6- TNT [3,200 micrograms per gram (ug/g) and 6,000 ug/g] and elevated concentrations of lead (Pb) (175 ug/g) and chromium (Cr) (58.5 ug/g) in samples collected near Building 1L-10 in Load Line 1. Elevated concentrations of Cr (25.1 ug/g) and lead (135 ug/g) occurred in a sample taken southwest of the Building 1L-18 along the railroad tracks at the north end of this load line. RDX, nitrobenzene (NB), HMX and 1,3,5-TNB were detected at concentrations below 100 ug/g, but above certified reporting limits (CRL) in several other samples.

In the Phase I RI, 20 sites with surface soil containing 2,4,6-TNT at concentrations greater than 5 ug/g were identified in the LAP area based on field screening analytical results. The lateral extent of these hot spots ranged from approximately 40 to 380 feet. Three of the remaining cesspools have 2,4,6-TNT level contamination above 5 ug/g. The results also indicate that four non-explosive wastewater cesspools contained Cr and Pb above levels of concern. Isolated areas of petroleum hydrocarbons were detected ranging from 40 to 7,000 ug/g. In 1994 soil removal and off-site treatment of 5,000 tons of soil from 25 removal areas was carried out by the Army.

In the Phase II RI confirmation of the FY94 removal action was completed in June 1996. A more detailed background data collection was conducted to determine the elevation of metals in the LAP soils. In addition, work was carried out to determine the potential of contamination beneath the LAP structures. Samples from the November 1996 RI showed a minimal amount of contamination below the LAP structures and indicated complete removal of explosives from the soil in all but interim remedial action (IRA) Site 4 at Load Line 1 (1,400 ug/g).

In September 2001 the ROD amendment was signed. Explosive safety actions included a media day prior to a controlled burn of Load Lines 1, 2 and 3, and a tour of Load Line 4. Media representatives were given access to observe the controlled burn of Load Lines 1, 2 and 3. In 1998 the RA(O) phase began.

## **CLEANUP/EXIT STRATEGY**

RA(O), which includes the monitoring and application of groundwater amendments (on-site) to accelerate the removal of explosive contaminants, will continue to be performed.

## IRP Site Closeout (No Further Action) Summary

| Site ID    | Site Name                                | NFA Date | Documentation              |
|------------|--|----------|----------------------------|
| CAAP-001A  | PINK WATER DISP DP-01 (LP)               | 199603   | ROD signed by USEPA 200109 |
| CAAP-001AA | PINK WATER DISP DP-27 (CP)               | 199603   | ROD signed by USEPA 200109 |
| CAAP-001AB | PINK WATER DISP DP-28 (CP)               | 199603   | ROD signed by USEPA 200109 |
| CAAP-001AC | L LINE 3 PINK WATER DISP DP-29 (CP)(OU4) | 199909   | ROD signed by USEPA 200002 |
| CAAP-001AD | PINK WATER DISP DP-30 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AE | PINK WATER DISP DP-31 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AF | L LINE 2 PINK WATER DISP DP-32 (CP)(OU4) | 199909   | ROD signed by USEPA 200002 |
| CAAP-001AG | PINK WATER DISP DP-33 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AH | PINK WATER DISP DP-34 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AI | PINK WATER DISP DP-35 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AJ | PINK WATER DISP DP-36 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AK | PINK WATER DISP DP-37 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AL | PINK WATER DISP DP-38 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AM | PINK WATER DISP DP-39 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AN | PINK WATER DISP DP-40 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AO | PINK WATER DISP DP-41 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AP | PINK WATER DISP DP-42 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AQ | PINK WATER DISP DP-43 (CP)               | 199512   | ROD signed by USEPA 200109 |
| CAAP-001AR | PINK WATER DISP DP-44 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AS | PINK WATER DISP DP-45 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AT | PINK WATER DISP DP-46 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001AU | PINK WATER DISP DP-47 (CP)               | 199502   | ROD signed by USEPA 200109 |
| CAAP-001AV | PINK WATER DISP DP-48 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001B  | PINK WATER DISP DP-02 (LP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001C  | PINK WATER DISP DP-03 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001D  | L LINE 4 PINK WATER DISP DP-04 (LP)(OU4) | 199909   | ROD signed by USEPA 200002 |
| CAAP-001E  | L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4) | 199909   | ROD signed by USEPA 200002 |
| CAAP-001F  | PINK WATER DISP DP-06 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001G  | PINK WATER DISP DP-07 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001H  | PINK WATER DISP DP-08 (LP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001I  | PINK WATER DISP DP-09 (LP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001J  | PINK WATER DISP DP-10 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001K  | PINK WATER DISP DP-11 (LP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001L  | PINK WATER DISP DP-12 (LP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001M  | PINK WATER DISP DP-13 (CP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001N  | PINK WATER DISP DP-14 (LP)               | 199503   | ROD signed by USEPA 200109 |
| CAAP-001O  | PINK WATER DISP DP-15 (LP)               | 199503   | ROD signed by USEPA 200109 |

## IRP Site Closeout (No Further Action) Summary

| Site ID   | Site Name                                | NFA Date | Documentation   |
|-----------|--|----------|---|
| CAAP-001P | PINK WATER DISP DP-16 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001Q | PINK WATER DISP DP-17 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001R | PINK WATER DISP DP-18 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001S | PINK WATER DISP DP-19 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001T | PINK WATER DISP DP-20 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001U | PINK WATER DISP DP-21 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001V | PINK WATER DISP DP-22 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001W | PINK WATER DISP DP-23 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001X | PINK WATER DISP DP-24 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001Y | PINK WATER DISP DP-25 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-001Z | PINK WATER DISP DP-26 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002A | L LINE 1 PINK WATER DISP DP-49 (CP)(OU4) | 199909   | ROD signed by USEPA 200002  |
| CAAP-002B | PINK WATER DISP DP-50 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002C | PINK WATER DISP DP-51 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002D | PINK WATER DISP DP-52 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002E | PINK WATER DISP DP-53 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002F | PINK WATER DISP DP-54 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002G | PINK WATER DISP DP-55 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002H | LAUNDRY FAC PINK WATER DISP DP-56(OU4)   | 199909   | ROD signed by USEPA 200002  |
| CAAP-002I | PINK WATER DISP DP-57 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-002J | PINK WATER DISP DP-58 (CP)               | 199503   | ROD signed by USEPA 200109  |
| CAAP-004  | CLAY PIT DISPOSAL AREA(OU3-4)            | 200106   | ROD signed by USEPA 200109  |
| CAAP-005  | DEMO AND BURNG GD(OU5)                   | 200609   | ER,A responsibilities transferred to MMRP for RI, MEC/MC removal, IRA, FS, PP, and ROD. |
| CAAP-006  | SWWTP(OU2)                               | 199809   | ROD signed by USEPA 199809  |
| CAAP-007  | CISD SANITARY WWTF(OU2)                  | 199809   | ROD signed by USEPA 199809  |
| CAAP-008  | MOTOR POOL(OU3)                          | 200909   | ROD signed by USEPA 199809  |
| CAAP-009  | UNDERGROUND STORAGE TANKS(INSTALL. WIDE) | 200512   | ROD signed by USEPA 200002  |



# IRP Schedule

Date of IRP Inception: 197901

## Past Phase Completion Milestones

1980

PA

(CAAP-001A - PINK WATER DISP DP-01 (LP), CAAP-001AA - PINK WATER DISP DP-27 (CP), CAAP-001AB - PINK WATER DISP DP-28 (CP), CAAP-001AC - L LINE 3 PINK WATER DISP DP-29 (CP)(OU4), CAAP-001AD - PINK WATER DISP DP-30 (CP), CAAP-001AE - PINK WATER DISP DP-31 (CP), CAAP-001AF - L LINE 2 PINK WATER DISP DP-32 (CP)(OU4), CAAP-001AG - PINK WATER DISP DP-33 (CP), CAAP-001AH - PINK WATER DISP DP-34 (CP), CAAP-001AI - PINK WATER DISP DP-35 (CP), CAAP-001AJ - PINK WATER DISP DP-36 (CP), CAAP-001AK - PINK WATER DISP DP-37 (CP), CAAP-001AL - PINK WATER DISP DP-38 (CP), CAAP-001AM - PINK WATER DISP DP-39 (CP), CAAP-001AN - PINK WATER DISP DP-40 (CP), CAAP-001AO - PINK WATER DISP DP-41 (CP), CAAP-001AP - PINK WATER DISP DP-42 (CP), CAAP-001AQ - PINK WATER DISP DP-43 (CP), CAAP-001AR - PINK WATER DISP DP-44 (CP), CAAP-001AS - PINK WATER DISP DP-45 (CP), CAAP-001AT - PINK WATER DISP DP-46 (CP), CAAP-001AU - PINK WATER DISP DP-47 (CP), CAAP-001AV - PINK WATER DISP DP-48 (CP), CAAP-001B - PINK WATER DISP DP-02 (LP), CAAP-001C - PINK WATER DISP DP-03 (CP), CAAP-001D - L LINE 4 PINK WATER DISP DP-04 (LP)(OU4), CAAP-001E - L LINE 5 PINK WATER DISP DP-05 (LP)(OU4), CAAP-001F - PINK WATER DISP DP-06 (CP), CAAP-001G - PINK WATER DISP DP-07 (CP), CAAP-001H - PINK WATER DISP DP-08 (LP), CAAP-001I - PINK WATER DISP DP-09 (LP), CAAP-001J - PINK WATER DISP DP-10 (CP), CAAP-001K - PINK WATER DISP DP-11 (LP), CAAP-001L - PINK WATER DISP DP-12 (LP), CAAP-001M - PINK WATER DISP DP-13 (CP), CAAP-001N - PINK WATER DISP DP-14 (LP), CAAP-001O - PINK WATER DISP DP-15 (LP), CAAP-001P - PINK WATER DISP DP-16 (CP), CAAP-001Q - PINK WATER DISP DP-17 (CP), CAAP-001R - PINK WATER DISP DP-18 (CP), CAAP-001S - PINK WATER DISP DP-19 (CP), CAAP-001T - PINK WATER DISP DP-20 (CP), CAAP-001U - PINK WATER DISP DP-21 (CP), CAAP-001V - PINK WATER DISP DP-22 (CP), CAAP-001W - PINK WATER DISP DP-23 (CP), CAAP-001X - PINK WATER DISP DP-24 (CP), CAAP-001Y - PINK WATER DISP DP-25 (CP), CAAP-001Z - PINK WATER DISP DP-26 (CP), CAAP-002A - L LINE 1 PINK WATER DISP DP-49 (CP)(OU4), CAAP-002B - PINK WATER DISP DP-50 (CP), CAAP-002C - PINK WATER DISP DP-51 (CP), CAAP-002D - PINK WATER DISP DP-52 (CP), CAAP-002E - PINK WATER DISP DP-53 (CP), CAAP-002F - PINK WATER DISP DP-54 (CP), CAAP-002G - PINK WATER DISP DP-55 (CP), CAAP-002H - LAUNDRY FAC PINK WATER DISP DP-56(OU4), CAAP-002I - PINK WATER DISP DP-57 (CP), CAAP-002J - PINK WATER DISP DP-58 (CP), CAAP-003 - NON ACTIVE DEMOLITION DEBRIS LF(OU3), CAAP-004 - CLAY PIT DISPOSAL AREA(OU3-4), CAAP-005 - DEMO AND BURNING GD(OU5), CAAP-006 - SWWTP(OU2), CAAP-007 - CISD SANITARY WWTF(OU2), CAAP-008 - MOTOR POOL(OU3), CAAP-009 - UNDERGROUND STORAGE TANKS(INSTALL. WIDE), CAAP-010 - OU1 GROUNDWATER)

1985

**1985**

SI (CAAP-001A - PINK WATER DISP DP-01 (LP), CAAP-001AA - PINK WATER DISP DP-27 (CP), CAAP-001AB - PINK WATER DISP DP-28 (CP), CAAP-001AC - L LINE 3 PINK WATER DISP DP-29 (CP)(OU4), CAAP-001AD - PINK WATER DISP DP-30 (CP), CAAP-001AE - PINK WATER DISP DP-31 (CP), CAAP-001AF - L LINE 2 PINK WATER DISP DP-32 (CP)(OU4), CAAP-001AG - PINK WATER DISP DP-33 (CP), CAAP-001AH - PINK WATER DISP DP-34 (CP), CAAP-001AI - PINK WATER DISP DP-35 (CP), CAAP-001AJ - PINK WATER DISP DP-36 (CP), CAAP-001AK - PINK WATER DISP DP-37 (CP), CAAP-001AL - PINK WATER DISP DP-38 (CP), CAAP-001AM - PINK WATER DISP DP-39 (CP), CAAP-001AN - PINK WATER DISP DP-40 (CP), CAAP-001AO - PINK WATER DISP DP-41 (CP), CAAP-001AP - PINK WATER DISP DP-42 (CP), CAAP-001AQ - PINK WATER DISP DP-43 (CP), CAAP-001AR - PINK WATER DISP DP-44 (CP), CAAP-001AS - PINK WATER DISP DP-45 (CP), CAAP-001AT - PINK WATER DISP DP-46 (CP), CAAP-001AU - PINK WATER DISP DP-47 (CP), CAAP-001AV - PINK WATER DISP DP-48 (CP), CAAP-001B - PINK WATER DISP DP-02 (LP), CAAP-001C - PINK WATER DISP DP-03 (CP), CAAP-001D - L LINE 4 PINK WATER DISP DP-04 (LP)(OU4), CAAP-001E - L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4), CAAP-001F - PINK WATER DISP DP-06 (CP), CAAP-001G - PINK WATER DISP DP-07 (CP), CAAP-001H - PINK WATER DISP DP-08 (LP), CAAP-001I - PINK WATER DISP DP-09 (LP), CAAP-001J - PINK WATER DISP DP-10 (CP), CAAP-001K - PINK WATER DISP DP-11 (LP), CAAP-001L - PINK WATER DISP DP-12 (LP), CAAP-001M - PINK WATER DISP DP-13 (CP), CAAP-001N - PINK WATER DISP DP-14 (LP), CAAP-001O - PINK WATER DISP DP-15 (LP), CAAP-001P - PINK WATER DISP DP-16 (CP), CAAP-001Q - PINK WATER DISP DP-17 (CP), CAAP-001R - PINK WATER DISP DP-18 (CP), CAAP-001S - PINK WATER DISP DP-19 (CP), CAAP-001T - PINK WATER DISP DP-20 (CP), CAAP-001U - PINK WATER DISP DP-21 (CP), CAAP-001V - PINK WATER DISP DP-22 (CP), CAAP-001W - PINK WATER DISP DP-23 (CP), CAAP-001X - PINK WATER DISP DP-24 (CP), CAAP-001Y - PINK WATER DISP DP-25 (CP), CAAP-001Z - PINK WATER DISP DP-26 (CP), CAAP-002A - L LINE 1 PINK WATER DISP DP-49 (CP)(OU4), CAAP-002B - PINK WATER DISP DP-50 (CP), CAAP-002C - PINK WATER DISP DP-51 (CP), CAAP-002D - PINK WATER DISP DP-52 (CP), CAAP-002E - PINK WATER DISP DP-53 (CP), CAAP-002F - PINK WATER DISP DP-54 (CP), CAAP-002G - PINK WATER DISP DP-55 (CP), CAAP-002H - LAUNDRY FAC PINK WATER DISP DP-56(OU4), CAAP-002I - PINK WATER DISP DP-57 (CP), CAAP-002J - PINK WATER DISP DP-58 (CP), CAAP-010 - OU1 GROUNDWATER)

**1989**

SI (CAAP-008 - MOTOR POOL(OU3), CAAP-009 - UNDERGROUND STORAGE TANKS(INSTALL. WIDE))

**1991**

SI (CAAP-003 - NON ACTIVE DEMOLITION DEBRIS LF(OU3), CAAP-004 - CLAY PIT DISPOSAL AREA(OU3-4), CAAP-005 - DEMO AND BURNG GD(OU5), CAAP-006 - SWWTP(OU2), CAAP-007 - CISD SANITARY WWTF(OU2))

**1994**

RI/FS (CAAP-010 - OU1 GROUNDWATER)

IRA (CAAP-009 - UNDERGROUND STORAGE TANKS(INSTALL. WIDE))

**1995**

## IRP Schedule

### 1995

IRA (CAAP-001AC - L LINE 3 PINK WATER DISP DP-29 (CP)(OU4), CAAP-001AD - PINK WATER DISP DP-30 (CP), CAAP-001AE - PINK WATER DISP DP-31 (CP), CAAP-001AF - L LINE 2 PINK WATER DISP DP-32 (CP)(OU4), CAAP-001AG - PINK WATER DISP DP-33 (CP), CAAP-001AH - PINK WATER DISP DP-34 (CP), CAAP-001AI - PINK WATER DISP DP-35 (CP), CAAP-001AJ - PINK WATER DISP DP-36 (CP), CAAP-001AK - PINK WATER DISP DP-37 (CP), CAAP-001AL - PINK WATER DISP DP-38 (CP), CAAP-001AM - PINK WATER DISP DP-39 (CP), CAAP-001AN - PINK WATER DISP DP-40 (CP), CAAP-001AO - PINK WATER DISP DP-41 (CP), CAAP-001AP - PINK WATER DISP DP-42 (CP), CAAP-001AR - PINK WATER DISP DP-44 (CP), CAAP-001AS - PINK WATER DISP DP-45 (CP), CAAP-001AT - PINK WATER DISP DP-46 (CP), CAAP-001AU - PINK WATER DISP DP-47 (CP), CAAP-001AV - PINK WATER DISP DP-48 (CP), CAAP-001B - PINK WATER DISP DP-02 (LP), CAAP-001C - PINK WATER DISP DP-03 (CP), CAAP-001D - L LINE 4 PINK WATER DISP DP-04 (LP)(OU4), CAAP-001E - L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4), CAAP-001F - PINK WATER DISP DP-06 (CP), CAAP-001G - PINK WATER DISP DP-07 (CP), CAAP-001H - PINK WATER DISP DP-08 (LP), CAAP-001I - PINK WATER DISP DP-09 (LP), CAAP-001J - PINK WATER DISP DP-10 (CP), CAAP-001K - PINK WATER DISP DP-11 (LP), CAAP-001L - PINK WATER DISP DP-12 (LP), CAAP-001M - PINK WATER DISP DP-13 (CP), CAAP-001N - PINK WATER DISP DP-14 (LP), CAAP-001O - PINK WATER DISP DP-15 (LP), CAAP-001P - PINK WATER DISP DP-16 (CP), CAAP-001Q - PINK WATER DISP DP-17 (CP), CAAP-001R - PINK WATER DISP DP-18 (CP), CAAP-001S - PINK WATER DISP DP-19 (CP), CAAP-001T - PINK WATER DISP DP-20 (CP), CAAP-001U - PINK WATER DISP DP-21 (CP), CAAP-001V - PINK WATER DISP DP-22 (CP), CAAP-001W - PINK WATER DISP DP-23 (CP), CAAP-001X - PINK WATER DISP DP-24 (CP), CAAP-001Y - PINK WATER DISP DP-25 (CP), CAAP-001Z - PINK WATER DISP DP-26 (CP), CAAP-002A - L LINE 1 PINK WATER DISP DP-49 (CP)(OU4), CAAP-002B - PINK WATER DISP DP-50 (CP), CAAP-002C - PINK WATER DISP DP-51 (CP), CAAP-002D - PINK WATER DISP DP-52 (CP), CAAP-002E - PINK WATER DISP DP-53 (CP), CAAP-002F - PINK WATER DISP DP-54 (CP), CAAP-002G - PINK WATER DISP DP-55 (CP), CAAP-002H - LAUNDRY FAC PINK WATER DISP DP-56(OU4), CAAP-002I - PINK WATER DISP DP-57 (CP), CAAP-002J - PINK WATER DISP DP-58 (CP), CAAP-004 - CLAY PIT DISPOSAL AREA(OU3-4), CAAP-010 - OU1 GROUNDWATER)

### 1996

IRA (CAAP-001A - PINK WATER DISP DP-01 (LP), CAAP-001AA - PINK WATER DISP DP-27 (CP), CAAP-001AB - PINK WATER DISP DP-28 (CP), CAAP-001AQ - PINK WATER DISP DP-43 (CP))

### 1997

RD (CAAP-010 - OU1 GROUNDWATER)

### 1998

RI/FS (CAAP-001AC - L LINE 3 PINK WATER DISP DP-29 (CP)(OU4), CAAP-001AF - L LINE 2 PINK WATER DISP DP-32 (CP)(OU4), CAAP-001D - L LINE 4 PINK WATER DISP DP-04 (LP)(OU4), CAAP-001E - L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4), CAAP-002A - L LINE 1 PINK WATER DISP DP-49 (CP)(OU4), CAAP-002H - LAUNDRY FAC PINK WATER DISP DP-56(OU4), CAAP-003 - NON ACTIVE DEMOLITION DEBRIS LF(OU3), CAAP-004 - CLAY PIT DISPOSAL AREA(OU3-4), CAAP-006 - SWWTP(OU2), CAAP-007 - CISD SANITARY WWTF(OU2))

### 1999

RA(C) (CAAP-010 - OU1 GROUNDWATER)

LTM (CAAP-001AC - L LINE 3 PINK WATER DISP DP-29 (CP)(OU4), CAAP-001AF - L LINE 2 PINK WATER DISP DP-32 (CP)(OU4), CAAP-001D - L LINE 4 PINK WATER DISP DP-04 (LP)(OU4), CAAP-001E - L LINE 5 PINK WATER DSIP DP-05 (LP)(OU4), CAAP-002A - L LINE 1 PINK WATER DISP DP-49 (CP)(OU4), CAAP-002H - LAUNDRY FAC PINK WATER DISP DP-56(OU4))

### 2000

IRA (CAAP-005 - DEMO AND BURNG GD(OU5), CAAP-008 - MOTOR POOL(OU3))

**2000**

RD (CAAP-003 - NON ACTIVE DEMOLITION DEBRIS LF(OU3), CAAP-004 - CLAY PIT DISPOSAL AREA(OU3-4))

**2001**

RI/FS (CAAP-008 - MOTOR POOL(OU3))

RA(C) (CAAP-003 - NON ACTIVE DEMOLITION DEBRIS LF(OU3), CAAP-004 - CLAY PIT DISPOSAL AREA(OU3-4))

**2003**

RD (CAAP-009 - UNDERGROUND STORAGE TANKS(INSTALL. WIDE))

**2004**

RA(C) (CAAP-009 - UNDERGROUND STORAGE TANKS(INSTALL. WIDE))

**2006**

LTM (CAAP-005 - DEMO AND BURNG GD(OU5), CAAP-009 - UNDERGROUND STORAGE TANKS(INSTALL. WIDE))

**2009**

LTM (CAAP-008 - MOTOR POOL(OU3))

**Projected Phase Completion Milestones**

See attached schedule

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

| Site ID | Site Name | ROD/DD Title | ROD/DD Date |
|---------|-----------|--------------|-------------|
|---------|-----------|--------------|-------------|

**Final RA(C) Completion Date:** 200403

**Schedule for Next Five-Year Review:** 2020

**Estimated Completion Date of IRP at Installation (including LTM phase):** 204609

## CORNHUSKER ARMY AMMUNITION PLANT IRP Schedule

= phase underway

| SITE ID  | SITE NAME                               | PHASE | FY17 | FY18 | FY19 | FY20 | FY21 | FY22+ |
|----------|---|-------|------|------|------|------|------|-------|
| CAAP-003 | NON ACTIVE DEMOLITION DEBRIS<br>LF(OU3) | RA(O) |      |      |      |      |      |       |
| SITE ID  | SITE NAME                               | PHASE | FY17 | FY18 | FY19 | FY20 | FY21 | FY22+ |
| CAAP-010 | OU1 GROUNDWATER                         | RA(O) |      |      |      |      |      |       |

# **CORNHUSKER ARMY AMMUNITION PLANT**

## **Non-BRAC Excess Military Munitions Response Program**

# MMRP Summary

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

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

- 1 Open Burn  
(CHAAP-005-R-01)

**Most Widespread Contaminants of Concern**

Explosives, Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

**Media of Concern**

Groundwater, Soil

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

| Site ID | Site Name | Action | Remedy | FY | Cost |
|---------|-----------|--------|--------|----|------|
| N/A     |           |        |        |    |      |

**Duration of MMRP**

**Year of MMRP Inception:** 200201

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 201809/201809

**Date of MMRP completion including Long Term Management (LTM):** 201809

# MMRP Contamination Assessment

## Contamination Assessment Overview

In May 2003 the Phase III Army Range Inventory was completed at CHAAP. One site was identified as eligible for the MMRP, (CHAAP-005-R-01) formerly known as site CAAP-05. The Phase III inventory serves as a PA under CERCLA.

In October 2004 a site inspection (SI) was initiated and was completed in October 2006. The site is currently operating under an EE/CA. Upon removal of the risk, the RI program will be initiated.

## Cleanup Exit Strategy

For site CHAAP-005-R-01, removal of the MEC, DMM, and MC through an IRA will be conducted prior to the RI/FS. This was due to the high volume of ordinance scattered above ground throughout the site. The site was deemed too hazardous to wait for the completion of the RI/FS. The IRA consists of remote excavation and sifting to a depth of native soil. No additional groundwater work is proposed for the site. An EE/CA and action memorandum were prepared and approved prior to the IRA. An RI/FS, PP and a ROD will be prepared after completion of the IRA. An NFA ROD is anticipated for the site.



## MMRP Previous Studies

|      | Title   | Author                                     | Date     |
|------|---|--|----------|
| 2003 | US Army Closed Transferring and Transferred Range/Site Inventory for Cornhusker Army Ammunition Plant, Nebraska                         | Engineering-Environmental Management, Inc  | OCT-2003 |
| 2005 | Military Munitions Response Program (MMRP) Limited Site Inspection, Cornhusker Army Ammunition Plant, Grand Island Nebraska             | Engineering-Environmental Management, Inc. | MAR-2005 |
| 2006 | Draft Military Munitions Response Program Site Inspection for Cornhusker Army Ammunition Plant, Nebraska                                | Engineering-Environmental Management, Inc. | APR-2006 |
| 2009 | Explosive Safety Submission - Removal of Munitions and Explosives of Concern (MEC) at the Demolition and Burning Grounds (DBG) at CHAAP | PIKA International                         | DEC-2009 |
| 2010 | Final Explosives Safety Submission, Removal of Munitions and Explosives of Concern at OBOD  | PIKA International                         | FEB-2010 |
|      | Final Work Plan - Removal of Munitions and Explosives of Concern at Demolition and Burning Grounds at CHAAP                             | PIKA International                         | FEB-2010 |
|      | Final Quality Assurance Surveillance Plan Removal of Munitions and Explosives of Concern at Demolition and Burning Grounds at CHAAP     | PIKA International                         | FEB-2010 |
|      | Final Project Management Plan - Removal of Munitions and Explosives of Concern at Demolition and Burning Grounds at CHAAP               | PIKA International                         | FEB-2010 |
|      | Final Project Management Plan, Removal of Munitions and Explosives of Concern at OBOD   | PIKA International                         | APR-2010 |
| 2012 | Final Explosives Site Plan, SI Former Burning Ground  | PIKA                                       | APR-2012 |
|      | Final Explosives Safety Submission Plan, Burning Ground   | PIKA                                       | MAY-2012 |
|      | Final Explosive Safety Work Plan, SI Former Burning Ground  | PIKA                                       | OCT-2012 |
| 2015 | Draft IRA Report  | URS  | JUN-2015 |

# **CORNHUSKER ARMY AMMUNITION PLANT**

**Non-BRAC Excess**

**Military Munitions Response Program**

**Site Descriptions**

## Site ID: CHAAP-005-R-01

### Site Name: Demolition and Burning Grounds

#### STATUS

Parcel: NONE

Regulatory Driver: CERCLA

MRSP Score: 04

Contaminants of Concern: Explosives, Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Groundwater, Soil

| Phases     | Start       | End    |
|------------|-------------|--------|
| PA.....    | 200201..... | 200305 |
| SI.....    | 200410..... | 200610 |
| RI/FS..... | 200607..... | 201809 |
| IRA.....   | 200907..... | 201610 |

RIP Date: N/A

RC Date: 201809

#### SITE DESCRIPTION

The Demolition and Burning Grounds site (CHAAP-005-R-01) is located in the northwest corner of the installation and covers an area of approximately 22 acres. It is surrounded by chain-link fence (restricted zone) and a locked gate. A small area, known as IRA Site 1, is located to the west and outside of the restricted zone fence. The exclusion zone area consisted of a "T" shaped area with a separate fence inside the restricted zone. Inside the exclusion zone there were the remains of two burning pads used for detonation and burning explosives. Other areas within the restricted zone include the following: a drainage ditch area; a stressed vegetation area near the northeast corner of the OB/OD area; a metal flashing area used to burn explosives contaminated machinery, equipment, scrap metal, pipe, and bomb casings; and an ammonium nitrate/aluminum powder burning area that may have extended 100 to 200 feet west (outside) of the restricted zone.

Dispersion Area, residue from explosives burning in the OB/OD area were collected and tested, and if the material was certified to contain less than one percent residue, it was dispersed in this area. Types of MEC, DMM, and MC observed in the OB/OD include aluminum munitions scrap, fuse components type 404A1, plastic explosive waste, micro-gravel mines, and other MEC, plus significant amounts of MC (tritonals and lead azide).

From 1991 through 2000 investigations were conducted and completed under CAAP-005. These investigations included an environmental assessment in 1991, a site conceptual design study in 1993, and an RI in 1995. The investigations included the collection of surface and subsurface soil and groundwater samples. As part of the 1991 environmental assessment and 1993 site conceptual design study, geophysical surveys (electro-magnetic and ground penetrating radar) were also completed to help screen the area for contamination.

In 1967 several attempts were made to detonate canisters and drums filled with micro-gravel mines within the southern part of the exclusion zone. Apparently, these canisters were filled with Freon 113 to desensitize the lead azide contained in the micro-gravel mines. Any scattered debris from these failed detonation attempts was saturated with Freon 113, transported back to the burning pads, and re-detonated. As a result of this activity, groundwater in the area contains Freon, but levels below the cleanup criteria. In 2000 groundwater sampling at several monitoring wells in the area was initiated to monitor for Freon. In 1994 an IRA was completed which included the excavation of explosives in the soil within IRA Site 1.

From 1999 to 2002, a munitions response was performed by the Army Industrial Operations Command. Grids measuring 100 feet by 100 feet were surveyed within the exclusion zone, and remote excavation and sifting was used to clear the grids of munitions. Several of the grids were cleared only by locating anomalies and excavating them, while other grids were excavated entirely to a depth of 4 feet.

In 2002, under the MMRP, a site inventory was completed for CHAAP which identified the Demolition and Burning Grounds as a munitions response site (MRS). In May 2004, the environmental restoration, Army (ER,A) responsibilities for IRP CAAP-005 were transferred to MMRP (now CHAAP-005-R-01).

**Site ID: CHAAP-005-R-01**  
**Site Name: Demolition and Burning Grounds**

In March 2005 limited soil samples were collected at the MRS as part of the SI phase within the MMRP. In April 2006 a draft SI report was issued. In October 2006 the SI report, which recommended further investigation and action to address the MEC, DMM, and MC at the site, was finalized.

In February 2007 a draft EE/CA report was prepared and was finalized in 2012. A performance-based acquisition for MEC removal was prepared in May 2009 and awarded in early July 2009. A new contract for site completion to native soil was awarded in FY13. Removal action will continue until 2016, and the IRA will be completed in 2018. Due to safety concerns limited work can be conducted under CERCLA until after the removal action.

### **CLEANUP/EXIT STRATEGY**

The Central Platte Natural Resource District (CPND) has acquired adjoining tracks of land from the Army and has expressed interest in Track 19C. The CPNRD is currently completing a final design for a Flood Control Project within the area. Prior to their acquisition of Track 19C, the CPNRD has required that the site be cleared of MEC in order to construct a storm detention cell. Removal of the MEC, DMM, and MC through an IRA is being conducted. The IRA consisted of remove excavation and sifting to a depth of undisturbed soil. The IRA was completed in late 2015. A final EE/CA was signed. An NFA ROD is anticipated for the site. A contract to complete the RI/FS, PP, and ROD will be awarded in FY16.

## MMRP Site Closeout (No Further Action) Summary

**Site ID**

**Site Name**

**NFA Date**

**Documentation**

There are no NFA sites

# MMRP Schedule

**Date of MMRP Inception** 200201

## **Past Phase Completion Milestones**

**2003**

PA (CHAAP-005-R-01 - Demolition and Burning Grounds)

**2007**

SI (CHAAP-005-R-01 - Demolition and Burning Grounds)

## **Projected Phase Completion Milestones**

See attached schedule

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

| Site ID | Site Name | ROD/DD Title | ROD/DD Date |
|---------|-----------|--------------|-------------|
|---------|-----------|--------------|-------------|

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

**Schedule for Next Five-Year Review:** 2020

**Estimated Completion Date of MMRP at Installation (including LTM phase):** 201809

## CORNHUSKER ARMY AMMUNITION PLANT MMRP Schedule

  = phase underway

| SITE ID       | SITE NAME                      | PHASE | FY17 | FY18 | FY19 | FY20 | FY21 | FY22+ |
|---------------|--------------------------------|-------|------|------|------|------|------|-------|
| CHAAP-005-R-0 | Demolition and Burning Grounds | RI/FS |      |      |      |      |      |       |
|               |                                | IRA   |      |      |      |      |      |       |

## Community Involvement

**Technical Review Committee (TRC):** None

**Community Involvement Plan (Date Published):** 199504

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

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

**Community Interest Solicited on:** 200903

### **Efforts Taken to Determine Interest**

In spring 1995, Headquarters (HQ), IOC and the USAEC conducted community interviews to determine interest in a RAB, and on April 19, 1995 the initial RAB orientation session was held at Grand Island City Hall. News releases were printed in the newspaper and announced on TV and radio. Fact sheets were printed and distributed in the community.

### **Results**

Less than a dozen citizens attended the initial meeting along with an equal number of government personnel. Many of the citizens were interested in contracts and doing business with the Army.

In September 2001 a public meeting was held for comment concerning the OU1 ROD amendment. No citizens attended.

Attendance was poor (as few as three citizens) at follow-on RAB meetings in 1998 and 1997 with very little media interest.

### **Follow-up Procedures**

Due to the limited amount of local interest, the installation does not plan on pursuing a RAB and the technical review committee was discontinued due to lack of public attendance at meetings.

Public availability sessions will be held for the remaining FS, PP, and ROD signing. Public affairs statements are issued after significant events. Public notice of annual LTM sampling dates and results are issued by the news media.

### **Additional Community Involvement Information**

CHAAP, regulators, and advisory members of the reuse committee work together on decisions; the public has given their representation to the CPNRD for groundwater issues. Public notification was made of CHAAP transfer to USACE.

Explosive safety actions included a media day prior to a controlled burn of Load Lines 1, 2 and 3, and a tour of Load Line 4. Media were given access to observe the controlled burn of Load Lines 1, 2 and 3.

A public notice was posted in the local newspaper in March 2009 soliciting comments on the EE/CA. In April 2009 a public notice was posted in the local newspaper soliciting comments on the five-year review. The next public notice will be posted when CHAAP enters the RI/FS phase.

### **Administrative Record is located at**

The AR was moved from the CHAAP office to the Omaha USACE in September 2011.

USACE, Omaha District  
1616 Capitol Avenue  
Omaha, NE 68102  
Phone: 402-995-2753

### **Information Repository is located at**

The information repository is located at the Grand Island Public Library.



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## Community Involvement

Grand Island Public Library  
211 North Washington Street  
Grand Island, NE 68801  
Phone: 308-385-5336

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

**TAPP Title:** N/A

**Potential TAPP:** N/A

