

**FY2016**

**LONGHORN ARMY AMMUNITION PLANT**

**Installation Action Plan**

Printed 27 September 2016

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## Table of Contents

Statement Of Purpose.....	1
Acronyms.....	2
Installation Information.....	5
Cleanup Program Summary.....	7
5-Year / Periodic Review Summary.....	9
Land Use Control (LUC) Summary.....	11
Parcel Summary.....	12
Installation Restoration Program.....	17
IRP Summary.....	18
IRP Contamination Assessment.....	20
IRP Previous Studies.....	21

# Table of Contents

<b>Installation Restoration Program Site Descriptions.....</b>	<b>28</b>
LHAAP-001 INERT BURNING GROUNDS (SWMU 1).....	29
LHAAP-002 VACCUM TRUCK OVERNITE PARKING LOT.....	30
LHAAP-003 BUILDING 722-PAINT SHOP.....	31
LHAAP-004 LHAAP PILOT WASTEWATER TREATMENT PLANT.....	32
LHAAP-006 BUILDING 54F SOLVENT.....	33
LHAAP-007 BUILDING 50G DRUM PROCESSING.....	34
LHAAP-008 SEWAGE TREATMENT PLANT.....	35
LHAAP-011 SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11).....	36
LHAAP-012 ACTIVE LANDFILL (SWMU 12).....	37
LHAAP-016 OLD LANDFILL (SWMU 16).....	39
LHAAP-017 NO 2 FLASHING AREA BRN GROUND(SWMU 17).....	41
LHAAP-018 BURNING GROUND/WASHOUT POND(SWMU 18).....	42
LHAAP-019 CONSTRUCTION MATERIALS LANDFILL.....	43
LHAAP-024 FORMER UNLINED EVAP POND (SWMU 24).....	44
LHAAP-029 FORMER TNT PRODUCTION AREA(SWMU 29).....	45
LHAAP-035 SUMPS (145) VARIOUS.....	46
LHAAP-036 EXPLOSIVE WASTE PADS (27).....	47
LHAAP-037 CHEMICAL LABORATORY WASTE PAD.....	48
LHAAP-045 MAGAZINE AREA.....	49
LHAAP-046 PLANT 2 AREA.....	50
LHAAP-047 PLANT 3 AREA.....	51
LHAAP-049 FORMER ACID STORAGE AREA.....	52
LHAAP-050 FORMER WASTE DISPOSAL FACILITY.....	53
LHAAP-051 PHOTOGRAPHIC LABORATORY/BLDG #60B.....	54
LHAAP-052 MAGAZINE AREA WASHOUT.....	55
LHAAP-055 SEPTIC TANK (10).....	56
LHAAP-056 VEHICLE WASH RACK AND OIL/WATER SEP.....	57
LHAAP-058 MAINTENANCE COMPLEX.....	58
LHAAP-059 BUILDING 725.....	59
LHAAP-060 FORMER STORAGE BUILDING #411 & #714.....	60
LHAAP-063 BURIAL PITS.....	61
LHAAP-064 TRANSFORMER STORAGE.....	62
LHAAP-065 BUILDING 209.....	63
LHAAP-066 TRANSFORMER AT BLDG 401.....	64
LHAAP-067 ABOVE GROUND STORAGE TANK.....	65
LHAAP-068 MOBILE STORAGE TANK PARKING AREA.....	66
LHAAP-069 SERVICE STATION UST'S.....	67
LHAAP-070 LOADING DOCK-MAGAZINE AREA.....	68
LHAAP-071 OIL SPILL, BLDG 813.....	69
PBC Longhorn PBC at Longhorn.....	70

# Table of Contents

<b>IRP Site Closeout (No Further Action) Summary.....</b>	<b>72</b>
<b>Installation Restoration Program Schedule.....</b>	<b>73</b>
Installation Restoration Program Milestones.....	73
Installation Restoration Program Schedule Chart.....	76
<b>Military Munitions Response Program.....</b>	<b>79</b>
MMRP Summary.....	80
MMRP Contamination Assessment.....	81
MMRP Previous Studies.....	82
<b>Military Munitions Response Program Site Descriptions.....</b>	<b>83</b>
LHAAP-001-R-01 SOUTH TEST AREA / BOMB TEST AREA.....	84
LHAAP-003-R-01 GROUND SIGNAL TEST AREA.....	86
LHAAP-004-R-01 PISTOL RANGE.....	87
<b>MMRP Site Closeout (No Further Action) Summary.....</b>	<b>88</b>
<b>Military Munitions Response Program Schedule.....</b>	<b>89</b>
Military Munitions Response Program Milestones.....	89
Military Munitions Response Program Schedule Chart.....	90
<b>Community Involvement.....</b>	<b>91</b>

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## Statement of Purpose

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

In an effort to coordinate planning information between the restoration manager, Base Realignment and Closure (BRAC), the US Army Environmental Command (USAEC), Longhorn Army Ammunition Plant (LHAAP), 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
ammo	Ammunition
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
BIP	Blow in Place
Bldg	Building
BRAC	Base Realignment and Closure
BRACO	Base Realignment and Closure Office
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLI	Caddo Lake Institute
CS	Confirmatory Sampling
cy	cubic yards
DD	Decision Document
DERPMIS	Defense Environmental Restoration Program Management Information System
DoD	Department of Defense
EBS	Environmental Baseline Survey
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
ER,A	Environmental Restoration, Army (formerly DERA)
ESS	Explosives Safety Submission
FFA	Federal Facility Agreement
FRA	Final Remedial Action
FS	Feasibility Study
FWS	(US) Fish and Wildlife Service
FY	Fiscal Year
GWTP	Groundwater Treatment Plan
HTRW	Hazardous, Toxic and Radioactive Waste
IAP	Installation Action Plan
INF	Intermediate-Range Nuclear Force
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
LAP	Load, Assemble, and Pack
LHAAP	Longhorn Army Ammunition Plant
LTM	Long-Term Management
LUC	Land Use Controls
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
mm	millimeters
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MOA	Memorandum of Agreement
MRSP	Munitions Response Site Prioritization Protocol
MSCs	Medium-Specific Concentrations

## Acronyms

N/A	Not Applicable
NA	No Action
NFA	No Further Action
NPL	National Priorities List
ORIS	Operational Range Inventory - Sustainment
PA	Preliminary Assessment
PBA	Performance-Based Acquisition
PBC	Performance-Based Contract
PCB	Polychlorinated Biphenyls
POL	Petroleum, Oil, and Lubricants
PP	Proposed Plan
ppm	parts per million
PSI	Post-Screening Investigation
QA	Quality Assurance
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Actions - Operation
RAB	Restoration Advisory Board
RAWP	Remedial Action Work Plan
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RIP	Remedy-in-Place
RMS	Restoration Management Information System
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TCE	Trichloroethylene
TCEQ	Texas Commission on Environmental Quality
TERC	Total Environmental Restoration Contract
TNT	Trinitrotoluene
TRC	Technical Review Committee
TWC	Texas Water Commission
TX	Texas
UEP	Unlined Evaporation Pond
ug/L	micrograms per liter
USACE	US Army Corps of Engineers
USACHPPM	US Army Center for Health, Promotion and Preventive Medicine

## Acronyms

USAEC US Army Environmental Command  
USAEHA US Army Environmental Hygiene Agency  
USATHAMA US Army Toxic and Hazardous Materials Agency  
USEPA US Environmental Protection Agency  
USFWS US Fish and Wildlife Service  
USSR Union of Soviet Socialist Republics  
VOC Volatile Organic Compound  
WP White Phosphorous  
WWII World War II  
WWTP Wastewater Treatment Plant



## Installation Information

### Installation Locale

**Installation Size (Acreage):** 8,416.00

**City:** Marshall

**County:** Harrison

**State:** Texas

### Other Locale Information

LHAAP is located in central east Texas, in the northeast corner of Harrison County, approximately 14 miles northeast of Marshall, Texas, and 40 miles west of Shreveport, Louisiana. The closed installation currently occupies approximately 1,400 of its original 8,416 acres between State Highway 43 and the western shore of Caddo Lake. The area surrounding LHAAP is primarily rural and consists of forest lands, the small towns of Karnack and Uncertain, Texas, Caddo Lake, and Caddo Lake State Park.

### Installation Mission

The LHAAP was an Army Materiel Command installation which the Army declared excess to its needs in July 1997. While active, the installation's mission was the production of trinitrotoluene (TNT) [World War II (WWII) era only], pyrotechnic items, and rocket motors. In 2003, the BRAC Division was tasked with its disposal.

### Lead Organization

Base Realignment and Closure Division

### Lead Executing Agencies for Installation

US Army Corps of Engineers (USACE), Tulsa District

### Regulator Participation

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

**State** Texas Commission on Environmental Quality (TCEQ)

### National Priorities List (NPL) Status

A score of 40 was recorded on 01-AUG-90.

**Final RA(C) Completion Date:** 202106

**Date for NPL Deletion:** TBD

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

RAB established 2004

### Installation Program Summaries

#### IRP

**Primary Contaminants of Concern:** Explosives, Metals, Munitions constituents (MC), Perchlorate, Petroleum, Oil and Lubricants (POL), Volatiles (VOC)

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

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## Installation Information

### MMRP

**Primary Contaminants of Concern:** Explosives

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

# Cleanup Program Summary

## Installation Historic Activity

The LHAAP was established in October 1942, with the primary mission of producing 2,4,6-TNT flake. Monsanto Chemical Company was the first contract operator of the plant. Production of 2,4,6-TNT continued through WWII until August 1945, when the plant went on standby status until February 1952. From then until 1956, Universal Match Corporation was the contracting operator, producing such pyrotechnic ammunition as photoflash bombs, simulators, hand signals, and tracers for 40 millimeter (mm) ammunition. With the departure of Universal Match Corporation in 1956, Thiokol assumed this responsibility, along with rocket motor production. Production of rocket motors continued to be the primary mission of LHAAP until 1965, when the production of pyrotechnic and illuminating ammunition was re-established.

Prior to 1994, operations consisted of compounding pyrotechnic and propellant mixtures, load, assemble, and pack (LAP) activities, accommodating receipt and shipment of containerized cargo, and maintenance and/or layaway of standby facilities and equipment as they apply to mobilization planning. The installation was also responsible for the static firing and elimination of Pershing I and II rocket motors in compliance with the intermediate-range nuclear force (INF) treaty in effect between the US and the former Union of Soviet Socialist Republics (USSR). In October 1996, a lease in excess of 1,000 of the 8,416 acres was granted to the Caddo Lake Institute (CLI) for biological and ecological studies by local schools and universities.

In July 1997, the plant became inactive and excess to the Army's needs. In July 1998 the Army contracted EarthTech, Inc. to liquidate all personal property and specific installed property. That contract was completed in fiscal year (FY)2000. In 1999 the Army contracted with Project Development Corporation to demolish specified structurally unsafe buildings. In 2003 the demolition of all remaining buildings began. The demolition of the power plant was completed in 2009. Only the transformers remaining, all planned demolition has taken place. A memorandum of agreement (MOA) between the Army and the US Fish and Wildlife Service (USFWS), was signed on Oct. 21, 2000 designating an area, consisting of approximately 7,200 acres, for establishment of a wildlife refuge overlay at LHAAP. In October 2002 LHAAP was transferred to the Base Realignment and Closure Office (BRACO) to manage as an excess property. In April 2004, the Army and the USFWS entered into an MOA that set forth the transfer process of LHAAP acreage. Since May 2004, approximately 7,200 LHAAP acres have been transferred to the USFWS. The USFWS manages these acres as the Caddo Lake National Wildlife Refuge within the perimeter fence of the former installation. Although the perimeter fence and gates remain functional, guards are no longer posted since the Army's security contract expired on March 14, 2007. The CLI lease with the Army was transferred to the USFWS with the affected acreage.

On Aug. 9, 1990, the LHAAP was placed on the NPL. After being listed on the NPL, LHAAP, the USEPA, and the Texas Water Commission (TWC) (now called the TCEQ) entered into a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120 Agreement for remedial activities at LHAAP. The CERCLA Section 120 agreement, referred to as the federal facility agreement (FFA), became effective Dec. 30, 1991. The installation applied for a Resource Conservation and Recovery Act (RCRA) Part A permit.

In February 1992, a RCRA Part B permit was signed. As a result, a RCRA facility assessment (RFA) identified 57 potential sites of concern. Since that time, scrubbing of the list [removal of non-Environmental Restoration, Army (ER,A) eligible sites, redundancies, etc.] has resulted in the current Army Environmental Database - Restoration (AEDB-R) list of 50 sites. In late 2007, the USEPA Region VI clarified their view of the NPL status of LHAAP as consisting of only those sites listed in the FFA and any additional sites with significant contamination. During a meeting between the Army, the USEPA and the TCEQ held in February 2008 at TCEQ headquarters, regulators and the Army agreed on the sites that will be addressed as NPL, including those listed and those considered to be NPL-caliber. The NPL sites are LHAAP-004, LHAAP-037, LHAAP-046, LHAAP-047, LHAAP-049, LHAAP-050, LHAAP-058, and LHAAP-067 as well as the following sites which are listed in the FFA: LHAAP-001, LHAAP-011, LHAAP-012, LHAAP-013, LHAAP-014, LHAAP-016, LHAAP-017, LHAAP-018, LHAAP-024, LHAAP-027, LHAAP-029, LHAAP-032, LHAAP-054. The USEPA will continue to provide review and concurrence on documents related to these sites and will co-sign records of decision (RODs). The schedule for each of these sites will be described in this IAP, which will serve as formal documentation of the resolution between the Army and USEPA.

The non-NPL sites will be addressed through CERCLA, with RCRA issues addressed, as necessary, as applicable or relevant and appropriate requirements (ARAR), with the TCEQ as lead regulator. The USEPA will provide review; however, the decision documents (DD) will be signed by the Army alone with the TCEQ providing a letter of concurrence. In addition to the site listing of the FFA, an installation assessment by the Army in February 1980 and the RFA in April 1988 identified additional potential sites of concern. The information management system used in the early-1990s [Defense Environmental Restoration Program Management Information System (DERPMIS)] identified 59 sites at that time. In the mid-1990s, the tracking system being used at the time [the Restoration Management Information System (RMIS)] was updated to remove duplicate sites, sites contained within other sites, sites that were not a part of the restoration program, and sites that never existed.

## Cleanup Program Summary

The following sites have been transferred: LHAAP-001, LHAAP-005, LHAAP-008, LHAAP-009, LHAAP-011, LHAAP-12, LHAAP-013, LHAAP-014, LHAAP-015, LHAAP-032, LHAAP-034, LHAAP-035, LHAAP-036, LHAAP-045, LHAAP-048, LHAAP-049, LHAAP-052, LHAAP-053, LHAAP-055, LHAAP-057, LHAAP-061, LHAAP-063 and LHAAP-002-R-01.

### Installation Program Cleanup Progress

#### IRP

- Prior Year Progress:**
- LTM continues for LHAAP-012
  - RA(O) underway for LHAAP-046
  - RA(O) underway for LHAAP-050
  - RA(O) underway for LHAAP-058
  - RA(O) underway for LHAAP-067
- Future Plan of Action:**
- Remedial action (operations) [RA(O)]/long-term management (LTM) will be implemented for LHAAP-037 and will continue for LHAAP-12, LHAAP-046, LHAAP-050, LHAAP-058 and LHAAP-067
  - A ROD will be completed for LHAAP-003, LHAAP-004, LHAAP-016, LHAAP-017, LHAAP-018/024, LHAAP-029, and LHAAP-047

#### MMRP

- Prior Year Progress:** None, awaiting resolution of dispute with the USEPA.
- Future Plan of Action:** A ROD will be completed for LHAAP-001-R-01 and LHAAP-003-R-01. The LTM phase will begin.

## 5-Year / Periodic Review Summary

### 5-Year / Periodic Review Summary

Status	Begin Date	End Date	End FY
Complete	201203	201405	2014
Complete	200706	200706	2007
Complete	200206	200206	2002
Planned	201703	201905	2019

### Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
BURNING GROUND #3(LHAAP-018 & LHAAP-024)	LHAAP-018, LHAAP-024
BURNING GROUND #3(LHAAP-018 & LHAAP-024)	LHAAP-018, LHAAP-024
CAPPING LANDFILLS 12 & 16	LHAAP-012, LHAAP-016
CAPPING LANDFILLS 12 & 16	LHAAP-012, LHAAP-016
Decision Document LHAAP-08, 48 & 53	LHAAP-008, LHAAP-053
Decision Document LHAAP-08, 48 & 53	LHAAP-008, LHAAP-053
Final ROD LHAAP-035B (037) & LHAAP-067	LHAAP-067
Final ROD LHAAP-035B (037) & LHAAP-067	LHAAP-067
Final ROD LHAAP-050, Former Sump Water..	LHAAP-050
Final ROD LHAAP-050, Former Sump Water..	LHAAP-050
Final ROD LHAAP-35A(058), Shops Area	LHAAP-058
Final ROD LHAAP-35A(058), Shops Area	LHAAP-058
Flashing Area/Burning Grnd No 2:LHAAP-17	LHAAP-017
Flashing Area/Burning Grnd No 2:LHAAP-17	LHAAP-017
Former TNT Waste Disposal Plant:LHAAP-32	LHAAP-032
Former TNT Waste Disposal Plant:LHAAP-32	LHAAP-032
LHAAP-02, Vacuum Truck Overnight Parking	LHAAP-002
LHAAP-02, Vacuum Truck Overnight Parking	LHAAP-002
LHAAP-12 Final ROD	LHAAP-012
LHAAP-12 Final ROD	LHAAP-012
NO ACTION ROD 1, 11, 27, 54	LHAAP-001, LHAAP-011, LHAAP-027, LHAAP-054
NO ACTION ROD 1, 11, 27, 54	LHAAP-001, LHAAP-011, LHAAP-027, LHAAP-054
NO ACTION ROD 13 & 14	LHAAP-013, LHAAP-014
NO ACTION ROD 13 & 14	LHAAP-013, LHAAP-014
ROD Former Pistol Range	PBC Longhorn
ROD Former Pistol Range	PBC Longhorn
ROD LHAAP-49, Former Acid Storage Area	PBC Longhorn
ROD LHAAP-49, Former Acid Storage Area	PBC Longhorn
SUMPS (145) VARIOUS	LHAAP-035, LHAAP-036
SUMPS (145) VARIOUS	LHAAP-035, LHAAP-036

**Results**LHAAP-12: Minor erosion & subsidence of landfill cap and well within plume dry

LHAAP-16: Need O&M plan for cap, minor erosion of cap and high concentrations of TCE detected

LHAAP-18/24: ICT issues and perchlorate discharge from plant exceedance

**Actions**LHAAP-12: Repaired erosion and backfilled and seeded subsidence area

LHAAP-16: Repaired erosion

**Plans**LHAAP-12: Install new well

## 5-Year / Periodic Review Summary

**Plans**LHAAP-16: Prepare O&M Plan for landfill cap and implement final remedy

LHAAP-18/24: The FS which is planned for 2014 will address the issues

<b>Recommendations and Implementation Plans:</b>
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The draft revised feasibility study (FS) for LHAAP-18/24 was submitted for regulatory review in January 2015.
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## Land Use Control (LUC) Summary

**LUC title:** LHAAP-037 & 067 GW

**Site(s):** LHAAP-067

**ROD/DD title:** Final ROD LHAAP-035B (037) & LHAAP-067

**Location of LUC**

LHAAP-037 and LHAAP-067 groundwater

**Land Use Restriction:** Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes

**Types of Engineering Controls:** None

**Types of Institutional Controls:** Restrictions on Groundwater Withdrawal

**Date in Place:** 201110

**Modification Date:** N/A

**Date Terminated:** N/A

**Inspecting Organization:** USACE District

**Record of LUC:** Master Plan or Equivalent

**Documentation Date:** N/A

**LUC Enforcement:** Annual Inspections, 5 Year Reviews

**Contaminants:** VOC

**Additional Information**

N/A

**LUC title:** LUC for LHAAP-012 Capping

**Site(s):** LHAAP-012

**ROD/DD title:** LHAAP-12 Final ROD

**Location of LUC**

Site LHAAP-012

**Land Use Restriction:** Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Media specific restriction - restrict drinking water well installation, Media specific restriction - restrict withdrawal or use of groundwater for agricultural/irrigation purposes

**Types of Engineering Controls:** Fences, Signs

**Types of Institutional Controls:** Deed Restrictions, Dig Permits

**Date in Place:** 200706

**Modification Date:** N/A

**Date Terminated:** N/A

**Inspecting Organization:** USACE District

**Record of LUC:** Master Plan or Equivalent

**Documentation Date:** 200706

**LUC Enforcement:** Annual Inspections, 5 Year Reviews

**Contaminants:** VOC

**Additional Information**

N/A

## Summary of Parcel Prioritization and Transfer Strategy

### **Parcel Name: Burning Ground (FWS)**

**Parcel Size:** 380.00

**Associated Sites:** LHAAP-017, LHAAP-016, LHAAP-024, LHAAP-018

**Transfer Date:** 202009

**Current Land Use:** Other (under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

### **Parcel Name: Debris Landfill**

**Parcel Size:** 13.00

**Associated Sites:** LHAAP-019

**Transfer Date:** 201709

**Current Land Use:** Industrial

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** N/A

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

### **Parcel Name: East FIA I (FWS)**

**Parcel Size:** 182.00

**Associated Sites:**

**Transfer Date:** 200708

**Current Land Use:** Recreational

**Future Land Use:** Other (N/A)

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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



## Parcel Summary

**Parcel Name: East FIA II(FWS)**

**Parcel Size:** 175.00

**Associated Sites:** PBC Longhorn, LHAAP-035, LHAAP-047

**Transfer Date:** 202009

**Current Land Use:** Industrial

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Fire House (FWS)**

**Parcel Size:** 2.98

**Associated Sites:**

**Transfer Date:** 200705

**Current Land Use:** Recreational

**Future Land Use:** Other (N/A)

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Ground Signal Test (FWS)**

**Parcel Size:** 80.00

**Associated Sites:** LHAAP-003-R-01

**Transfer Date:** 201709

**Current Land Use:** Other (Under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

## Parcel Summary

**Parcel Name: LANDFILL 12 (FWS)**

**Parcel Size:** 51.00

**Associated Sites:** LHAAP-012

**Transfer Date:** 201403

**Current Land Use:** Industrial

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

**Other Issues Affecting Transfer:** Land Use Control/maintenance costs

**Parcel Name: Pistol Range (FWS)**

**Parcel Size:** 1.00

**Associated Sites:** PBC Longhorn, LHAAP-004-R-01

**Transfer Date:** 201709

**Current Land Use:** Other (under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Production Area II**

**Parcel Size:** 467.00

**Associated Sites:** PBC Longhorn, LHAAP-046, LHAAP-047

**Transfer Date:** 202009

**Current Land Use:** Other (Under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

## Parcel Summary

**Parcel Name: Production Area Ia (FWS)**

**Parcel Size:** 456.72

**Associated Sites:** PBC Longhorn, LHAAP-035

**Transfer Date:** 200708

**Current Land Use:** Residential

**Future Land Use:** Other (N/A)

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Production Area Ib (FWS)**

**Parcel Size:** 107.59

**Associated Sites:** PBC Longhorn, LHAAP-035

**Transfer Date:** 200701

**Current Land Use:** Recreational

**Future Land Use:** Other (N/A)

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Production Area Ic (FWS)**

**Parcel Size:** 54.88

**Associated Sites:** LHAAP-008, LHAAP-049

**Transfer Date:** 201504

**Current Land Use:** N/A

**Future Land Use:** N/A

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

## Parcel Summary

**Parcel Name: South Test/Bomb (FWS)**

**Parcel Size:** 72.00

**Associated Sites:** LHAAP-001-R-01

**Transfer Date:** 201709

**Current Land Use:** Other (Under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Static Test (FWS)**

**Parcel Size:** 40.37

**Associated Sites:**

**Transfer Date:** 201504

**Current Land Use:** Other (Under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

**Parcel Name: Y Area (FWS)**

**Parcel Size:** 17.24

**Associated Sites:**

**Transfer Date:** 201504

**Current Land Use:** Other (Under remediation)

**Future Land Use:** Recreational

**Encumbrances:** N/A

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

**Transfer Strategy:** Transfer to Other Federal Agencies

**Recipient Organization:** USFWS

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

# **LONGHORN ARMY AMMUNITION PLANT**

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

# IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 54/14

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

- 2 Above Ground Storage Tank  
(LHAAP-049, LHAAP-067)
- 3 Burn Area  
(LHAAP-001, LHAAP-017, LHAAP-018)
- 1 Contaminated Ground Water  
(PBC Longhorn)
- 1 Disposal Pit/Dry Well  
(LHAAP-063)
- 4 Landfill  
(LHAAP-011, LHAAP-012, LHAAP-016, LHAAP-019)
- 1 Oil Water Separator  
(LHAAP-056)
- 6 Spill Site Area  
(LHAAP-051, LHAAP-052, LHAAP-058, LHAAP-066, LHAAP-070, LHAAP-071)
- 12 Storage Area  
(LHAAP-002, LHAAP-003, LHAAP-006, LHAAP-007, LHAAP-036, LHAAP-037, LHAAP-045, LHAAP-059, LHAAP-060, LHAAP-064, LHAAP-065, LHAAP-068)
- 1 Surface Impoundment/Lagoon  
(LHAAP-024)
- 2 Underground Storage Tank  
(LHAAP-035, LHAAP-069)
- 4 Waste Lines  
(LHAAP-029, LHAAP-046, LHAAP-047, LHAAP-050)
- 3 Waste Treatment Plant  
(LHAAP-004, LHAAP-008, LHAAP-055)

## Most Widespread Contaminants of Concern

Explosives, Metals, Munitions constituents (MC), Perchlorate, Petroleum, Oil and Lubricants (POL), Volatiles (VOC)

## Media of Concern

Groundwater, Sediment, Soil, Surface Water

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

Site ID	Site Name	Action	Remedy	FY	Cost
LHAAP-018	BURNING GROUND/WASHOUT POND(SWMU 18)	IRA	REMOVAL	1997	TBD
LHAAP-024	FORMER UNLINED EVAP POND (SWMU 24)	IRA	REMOVAL	1997	TBD
LHAAP-024	FORMER UNLINED EVAP POND (SWMU 24)	IRA	CAPPING	1997	TBD
LHAAP-012	ACTIVE LANDFILL (SWMU 12)	IRA	CAPPING	2005	\$5.0 K
LHAAP-016	OLD LANDFILL (SWMU 16)	IRA	CAPPING	2005	\$14.0 K
LHAAP-012	ACTIVE LANDFILL (SWMU 12)	FRA	NATURAL ATTENUATION	2007	TBD
LHAAP-012	ACTIVE LANDFILL (SWMU 12)	FRA	INSTITUTIONAL CONTROLS	2007	TBD
LHAAP-018	BURNING GROUND/WASHOUT POND(SWMU 18)	IRA	GROUND WATER TREATMENT	2011	TBD
LHAAP-024	FORMER UNLINED EVAP POND (SWMU 24)	IRA	GROUND WATER TREATMENT	2011	TBD
LHAAP-035	SUMPS (145) VARIOUS	FRA	WASTE REMOVAL - SOILS	2011	TBD

## IRP Summary

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

Site ID	Site Name	Action	Remedy	FY	Cost
LHAAP-004	LHAAP PILOT WASTEWATER TREATMENT PLANT	IRA	WASTE REMOVAL - SOILS	2012	TBD
LHAAP-046	PLANT 2 AREA	FRA	INSTITUTIONAL CONTROLS	2013	TBD
LHAAP-046	PLANT 2 AREA	FRA	NATURAL ATTENUATION	2013	TBD
LHAAP-050	FORMER WASTE DISPOSAL FACILITY	FRA	REMOVAL	2013	TBD
LHAAP-058	MAINTENANCE COMPLEX	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2013	TBD
LHAAP-067	ABOVE GROUND STORAGE TANK	FRA	INSTITUTIONAL CONTROLS	2013	TBD
LHAAP-067	ABOVE GROUND STORAGE TANK	FRA	NATURAL ATTENUATION	2013	TBD

### Duration of IRP

**Year of IRP Inception:** 197906

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 202106/209909

**Date of IRP completion including Long Term Management (LTM):** 209909

# IRP Contamination Assessment

## Contamination Assessment Overview

In early 2008, the installation-wide ecological risk assessment was completed. In 2012 it was discovered that explosives analysis data which had been deemed unusable was inadvertently included in the ecological risk assessment. The impact of removing the unusable data from the ecological risk assessment was evaluated with additional samples collected and an ecological risk assessment addendum completed in 2014. Work currently being conducted under a performance-based acquisition (PBA) includes conducting additional sampling activities at several sites and finalizing outstanding FSs, with proposed plans (PP) and a ROD to follow during calendar year 2016. Regulatory concurrence was obtained for reports recommending no action for these 11 sites: LHAAP-06, LHAAP-07, LHAAP-23, LHAAP-35, LHAAP-36, LHAAP-51, LHAAP-55, LHAAP-60, LHAAP-64, LHAAP-66, and LHAAP-68.

In 2008, DDs were signed for sites LHAAP-6, 7, 48, 51, 55, 60, 64, 66, and 68. Also in 2008 the FSs were completed for all applicable total environmental restoration contract (TERC) sites including the three TERC NPL sites (LHAAP-32, LHAAP-37, and LHAAP-67) and a ROD document was signed for TERC NPL site LHAAP-32 in 2008. No action DDs were signed in 2008 for the remaining TERC sites (LHAAP-8, LHAAP-48, LHAAP-53, and LHAAP-59) and in 2010 the RODs were signed for LHAAP-37, LHAAP-46, LHAAP-49, LHAAP-50, LHAAP-58, LHAAP-67 and Pistol Range. In 2014 a no further action (NFA) DD was completed for LHAAP-19, -56, -65 and -69. In 2015, an NFA DD was completed for LHAAP-05, -09, -15, -34, -52, -57, -61, -63, -70, and -71. In 2012, the following IRP sites were added to AEDB-R: LHAAP-46, -47, -49, -56, -59, and -65.

Sediment samples collected by the Army from Caddo Lake near the mouths of two branches of Goose Prairie Creek indicated elevated lead and mercury concentrations. The sampling locations are outside of the installation boundary. In 2004, an investigation of contaminants in fish tissue from three Caddo Lake sites, one of which is upgradient at Clinton Lake, was funded by the USEPA Region 6 and performed by the TCEQ Region 5. It concluded that mercury was present at elevated levels from all three sites, dioxin was also present, but highest at Clinton Lake (a lake upstream from LHAAP), and pesticides, polychlorinated biphenyls (PCB) and perchlorate were not detected in either edible fish fillets or whole fish.

Approximately 7,200 acres of the plant have transferred to the USFWS and are being operated as the Caddo Lake National Wildlife Refuge. The remaining acreage is also expected to transfer to the USFWS as restoration activities are completed.

## Cleanup Exit Strategy

As RODs are finalized and remedial designs (RD) and RAs are implemented, long-term RA(O) and monitoring will continue until ramp-down.

Ramp-down/exit strategies at the sites will continue to be based on human and environmental exposure.



## IRP Previous Studies

Year	Title	Author	Date
1979	Assessment of Contaminant Migration, Longhorn Army Ammunition Plant	Robert H. Balter Co	APR-1979
1980	Installation Assessment of Longhorn Army Ammunition Plant, Report No. 150	U.S. Army Toxic and Hazardous Materials Agency	FEB-1980
	Land Disposal Study No. 38-26-0104-81, LHAAP, 23 January - 8 February 1980	USAEHA	MAY-1980
1981	Wastewater Engineering Special Study No. 32-62-0182-82	Wastewater Engineering Special Study No. 32-62-0182-82	SEP-1981
1983	Phase II, Hazardous Waste Management Special Study No. 39-26-0147-83, DARCOM Open-Burning/Open-Detonation Grounds Evaluation, LHAAP, 31 July - 3 August 1981	USAEHA	SEP-1983
1984	Closure of Unlined Evaporation Pond	Kindle, Stone and Associates	JUN-1984
	Longhorn Army Ammunition Plant Contamination Survey, Contract # DAAA09-78-C-3004,	Environmental Protection Systems, Inc	JUN-1984
1986	Closure Report, Unlined Evaporation Pond, Longhorn Army Ammunition Plant	Army Corps of Engineers, Tulsa	JUN-1986
1994	Interim Risk Assessment for Burning Ground 3 & Unlined Evaporation Pond Sites (18 & 24)	Army Corps of Engineers, Tulsa	JAN-1994
	Soil and Groundwater Background Concentration Study	Army Corps of Engineers, Tulsa	MAY-1994
	Remedial Investigation /Feasibility Study Report for Areas 13 & 14	Army Corps of Engineers, Tulsa	JUN-1994
	Draft Final Workplan Addendum Soil and Groundwater Background Concentration Study	Army Corps of Engineers, Tulsa	JUN-1994
1995	Final Soil Background Concentration Report (Revised)	Army Corps of Engineers, Tulsa	MAR-1995
	Groundwater Background Concentration Report	Army Corps of Engineers, Tulsa	MAY-1995
	Final HydroGeologic Assessment Report	Army Corps of Engineers, Tulsa	MAY-1995
	Final Prop Plan of Action for Sites 13 & 14	Army Corps of Engineers, Tulsa	JUN-1995
	Groundwater Sampling Results-May 95, Interim Remedial Action-Phase III, Burning Ground 3 and UEP, LHAAP 18 & 24	Army Corps of Engineers, Tulsa	JUN-1995
	Remedial Investigation/Feasibility Study Report for Sites 13 & 14	Army Corps of Engineers, Tulsa	JUN-1995
	Final Record of Decision for Early Interim Remedial Action at Landfill Sites 12 & 16	Army Corps of Engineers, Tulsa	JUL-1995
1996			

## IRP Previous Studies

Year	Title	Author	Date
1996	Final Work Plan for Phase III Interim Remedial Action at Burning Ground 3	Army Corps of Engineers, Tulsa	JAN-1996
	Group 4 Baseline Risk Assessment Work Plan	Army Corps of Engineers, Tulsa	FEB-1996
	Final Project Work Plans, Interim Remedial Action Landfills 12 & 16 Caps	Army Corps of Engineers, Tulsa	JUN-1996
	Group 4 Sumps Groundwater Monitoring Quarterly Report	Army Corps of Engineers	JUN-1996
	Draft Final Design Analysis Report for the Site 16 Time Critical Removal Action	Army Corps of Engineers	JUN-1996
	Draft Final Comprehensive Chemical Data Acquisition Plan for the RI/FS	Army Corps of Engineers, Tulsa	JUL-1996
	Draft Final Field Summary Report for the Phase II, Group 2 Sites Remedial Investigation	Army Corps of Engineers, Tulsa	JUL-1996
	Treatment Simulation and Toxicity Testing Results of Site 16 Groundwater	Army Corps of Engineers, Tulsa	AUG-1996
	Final Project Construction Drawings, Interim Remedial Action, Landfill 12 & 16 Caps	Army Corps of Engineers, Tulsa	AUG-1996
	1997	Final Remedial Investigation Report Group 1 Sites (Sites 1, 11, 27, and XX) and Vol. 2 Baseline Risk Assessment	Army Corps of Engineers, Tulsa
1998	Final Record of Decision for Early Interim Remedial Action at Group 1 Sites	Army Corps of Engineers, Tulsa	FEB-1998
	Group 2 Final Workplan	Army Corps of Engineers, Tulsa	MAR-1998
	Environmental Baseline Study	Army Corps of Engineers, Tulsa	APR-1998
	Group 4 Final Workplan	Army Corps of Engineers, Tulsa	JUL-1998
2000	Site 16 Risk Assessment	Army Corps of Engineers, Tulsa	MAR-2000
	Hazardous and Medical Waste Study - Response Complete Verification and Relative Risk Site Evaluation for the Longhorn Army Ammunition Plant	USACHPPM	JUL-2000
	Final Site 16 Remedial Investigation Report	Army Corps of Engineers, Tulsa	OCT-2000
2001	Final Remedial Investigation Report for Group 2 Sites	Jacobs Engineering Group, Inc	APR-2001
	Baseline Risk Assessment: Human Health for Site 16 Landfill Remedial Investigation and Feasibility Study	Jacobs Engineering Group, Inc	JUN-2001
	Final Ecological Risk Assessment: Supplement to Site 16 Landfill Remedial Investigation Report	Jacobs Engineering Group, Inc	OCT-2001
2002	Final Group 4 Sites Remedial Investigation Report (Sites 35A, 35B, 46, 47, 48, 50, 60, and Goose Prairie Creek)	Jacobs Engineering Group, Inc	JAN-2002
	Final Group 4 Sites Remedial Investigation Addendum (Sites 04, 08, 67, and Hydrocarbon Study)	Jacobs Engineering Group, Inc	FEB-2002
	Final Group 2 Sites Remedial Investigation Report Addendum (Site 49)	Jacobs Engineering Group, Inc	FEB-2002

## IRP Previous Studies

Year	Title	Author	Date
2002	Final Feasibility Study for Site 16	Jacobs Engineering Group, Inc	MAR-2002
	Final Five-Year Review for Sites 18 & 24 (Burning Ground No. 3), Site 16 (Old Landfill), and Site 12 (Sanitary Landfill)	Complete Environmental Service	AUG-2002
	Group 2 Sites Baseline Human Health and Screening Ecological Risk Assessment (Sites 12, 17, 18/24, 29, 32, 49, Harrison Bayou, and Caddo Lake)	Jacobs Engineering Group, Inc	AUG-2002
2004	Final Installation-Wide Background Study Workplan	Shaw Environmental and Infrastructure	JAN-2004
	Final Groundwater Data Gaps Investigation Workplan (Groups 2 and 4)	Shaw Environmental and Infrastructure	FEB-2004
	Final Technical Memorandum: Modeling Approach for Derivation of Soil and Groundwater Concentrations Protective of Surface Water and Sediment	Shaw Environmental and Infrastructure	MAR-2004
	Final Sediment Sampling Report for Caddo Lake and Clinton Lake	Shaw Environmental and Infrastructure	APR-2004
	Final Environmental Condition of Property I	Shaw Environmental and Infrastructure	MAY-2004
	Final Background Soil Study Report	Shaw Environmental and Infrastructure	JUL-2004
	Final Evaluation of LHAAP-45 Surface Soil Analytical Data	Shaw Environmental and Infrastructure	SEP-2004
	Final Groundwater Data Gaps Investigation Workplan (Groups 2 and 4), Addenda 1 and 2	Shaw Environmental and Infrastructure	SEP-2004
	Final Environmental Condition of Property II	Army Corps of Engineers, Tulsa	NOV-2004
	2005	Final Site 12 Feasibility Study	Shaw Environmental and Infrastructure
Final Environmental Site Assessment Phase I and II Report		Plexus Scientific Corporation	FEB-2005
Final Feasibility Report for Site 12 Addendum (Revision 2)		Shaw Environmental and Infrastructure	MAR-2005
Final Proposed Plan for Landfill 12 (LHAAP-12),		Shaw Environmental and Infrastructure	MAR-2005
Final Project Report Plant-Wide Perchlorate Investigation		Solutions To Environmental Problems (STEP)	APR-2005
Final Site Inspection Report for the Military Munitions Response Program		Engineering-Environmental Management, Inc	JUN-2005
Final Feasibility Study for LHAAP-67 (Aboveground Storage Tank Farm),		Shaw Environmental and Infrastructure	AUG-2005
Final Feasibility Study for LHAAP-35B (37) (Chemical Laboratory)		Shaw Environmental and Infrastructure	OCT-2005
Final Site Evaluation Report for LHAAP-32 (Former Waste TNT Disposal Plant)		Shaw Environmental and Infrastructure	NOV-2005
2006		Final Installation-Wide Work Plan	Shaw Environmental and Infrastructure
	Decision Documentation for LHAAP-03 (Wastewater	Shaw Environmental and Infrastructure	JAN-2006

## IRP Previous Studies

2006

Title	Author	Date
Collection At Paint Shop), LHAAP-06 (Building 54F), and LHAAP-23 (Building 707-C Storage Area for PCBs),	Infrastructure	
Final Work Plan for Engineering Evaluation / Cost Analysis for Military Munitions Response Program	Cape Environmental Management, Inc.	MAR-2006
Final Background Surface Water and Sediment Study Report	Shaw Environmental and Infrastructure	JUL-2006
Draft Final Proposed Plan, LHAAP-37 & 67	Shaw Environmental and Infrastructure	JUL-2006
Final Record of Decision, LHAAP-12	US Army	JUL-2006
Remainder of PBC docs that have been submitted :	Workplans; Summary report for 46 and pistol range (Draft); Evaluation Report for 02 (Draft)	SEP-2006
Draft Final Site Evaluation Report, LHAAP-02; Work Plan Addenda for LHAAP-04, 07, 46, 51, 35/36, 29, Pistol Range, and Chromium Specification;	Shaw Environmental and Infrastructure	SEP-2006
Draft Final Evaluation of Monitored Natural Attenuation, LHAAP-12, 37 & 67	Shaw Environmental and Infrastructure	DEC-2006

2007

Final Groundwater Monitoring Report Sites 12 and 16 (spring 2003, spring 2004 and winter 2004)	ALL Consulting	JAN-2007
Final Modeling Report, Derivation of Soil and Groundwater Concentrations Protective of Surface Water and Sediment, Rev. 01	Shaw Environmental and Infrastructure	FEB-2007
Final LHAAP-12 Well Abandonment and Installation Report Groundwater, Data Gaps Investigation Groups 2 and 4	Shaw Environmental, Inc.	APR-2007
Final Site Evaluation Report, LHAAP-48 & 53	Shaw Environmental and Infrastructure	APR-2007
Final Addendum 11 Monitored Natural Attenuation Sampling LHAAP-16, -17, -29, -46, -47, -50, 35A(58), Final Installation-Wide Work Plan	Shaw Environmental, Inc.	MAY-2007
Legal Notice - Industrial Solid Waste Notice of Land Use Controls at LHAAP-12	Rose Zeiler, LHAAP Site Manager	JUN-2007
Final Results of Modeling for Natural Attenuation of Trichloroethene at LHAAP-12	Shaw Environmental, Inc.	JUN-2007
Evaluation of Perimeter Well Data for Use as Groundwater Background	Shaw Environmental, Inc.	JUN-2007
Final Natural Attenuation Evaluation LHAAP-12, LHAAP-35B(37) and LHAAP-67 (Report and Appendix A)	Shaw Environmental, Inc.	JUN-2007
Remedial Design Addendum Landfill 12 (LHAAP-12)	Shaw Environmental, Inc.	JUN-2007
Baseline Ecological Risk Assessment Surface Water Sampling Plan for Goose Prairie Creek, Revision 01	Shaw Environmental, Inc.	JUL-2007
Final Results of Modeling for Natural Attenuation of Chlorinated Solvents in Groundwater at LHAAP-35B(37) & 67	Shaw Environmental, Inc.	JUL-2007
Final LHAAP-59 Site Investigation Report	Shaw Environmental, Inc.	AUG-2007
Draft Final Second Five year review Report, LHAAP-12, 16, 18 & 24	Shaw Environmental, Inc.	AUG-2007
Memorandum: Supplemental Groundwater Activities at LHAAP-37	Shaw Environmental, Inc.	SEP-2007

## IRP Previous Studies

Year	Title	Author	Date
<b>2007</b>	Final Landfill 12 (LHAAP-12) Operating Properly and Successfully Demonstration Report	Shaw Environmental, Inc.	SEP-2007
	Memorandum: Analysis of Soil Samples Collected from LHAAP-59 on September 14, 2007	Shaw Environmental, Inc.	OCT-2007
	Final Installation-Wide Baseline Ecological Risk Assessment Vols. I & II	Shaw Environmental, Inc.	NOV-2007
	Final Site Investigation Report: LHAAP-06, 07, 51, 55, 64, 66 and 68 (rev 1)	Shaw Environmental, Inc.	DEC-2007
<b>2008</b>	Final Proposed Plan, LHAAP-08	Shaw Environmental, Inc.	JAN-2008
	Final Data Evaluation Report Chemical Concentrations in soil Samples Associated with LHAAP-35/36 Sumps	Shaw Environmental, Inc.	JAN-2008
	Final Proposed Plan, LHAAP-32	Shaw Environmental, Inc.	JAN-2008
	Final Proposed Plan, LHAAP-48 & 53	Shaw Environmental, Inc.	JAN-2008
	Draft Final LHAAP-32 Record of Decision	Shaw Environmental, Inc.	MAR-2008
	Draft Final LHAAP-08, 48 & 53 Decision Document	Shaw Environmental, Inc.	MAR-2008
	Final Decision Document, LHAAP-6, 7, 51, 55, 64, 66 and 68	Shaw Environmental, Inc.	JUL-2008
	Final LHAAP-32 Record of Decision	Shaw Environmental, Inc.	AUG-2008
	Final LHAAP-59 Decision Document	Shaw Environmental, Inc.	SEP-2008
	Final Five-Year Review Second Five-Year Review Report for LHAAP-12, 16 and 18/24	Shaw Environmental Inc.	SEP-2008
	Final LHAAP-60 Decision Document	Shaw Environmental, Inc.	OCT-2008
	Final LHAAP-8, 48, 53 and 002-R Decision Document	Shaw Environmental, Inc.	NOV-2008
<b>2009</b>	Draft Site Evaluation Report and Soil Removal Report for LHAAP-49	Shaw Environmental, Inc.	JAN-2009
	Draft Final LHAAP-37/67 Record of Decision	Shaw Environmental, Inc.	JAN-2009
	Final Site Investigation Report, LHAAP-2	Shaw Environmental, Inc.	JAN-2009
	Final Engineering Evaluation/Cost Analysis, LHAAP-4	Shaw Environmental, Inc.	MAR-2009
<b>2010</b>	Final Proposed Plan, LHAAP-46	Shaw Environmental, Inc.	JAN-2010
	Final Proposed Plan, LHAAP-35A(58)	Shaw Environmental, Inc.	JAN-2010
	Final Proposed Plan, LHAAP-50	Shaw Environmental, Inc.	JAN-2010
	Final Proposed Plan, LHAAP-49	Shaw Environmental, Inc.	JAN-2010
	Final Proposed Plan, LHAAP-17	Shaw Environmental, Inc.	MAY-2010
	Final Record of Decision, LHAAP-37/67	US Army	JUN-2010
	Final Decision Document, LHAAP-02	Shaw Environmental, Inc.	JUL-2010
	Final Record of Decision, LHAAP-49	Shaw Environmental, Inc.	AUG-2010
	Final Cover Evaluation & Final Landfill Closure Report, LHAAP-19, C&D Landfill	ETTL Engineers & Consultants Inc.	SEP-2010
	Final Record of Decision, LHAAP-46	Shaw Environmental, Inc.	SEP-2010
	Final Record of Decision, LHAAP-50	Shaw Environmental, Inc.	SEP-2010

## IRP Previous Studies

	Title	Author	Date
<b>2010</b>	Final Record of Decision, LHAAP-35A(58)	Shaw Environmental, Inc.	SEP-2010
	Final Proposed Plan, LHAAP-16	Shaw Environmental, Inc.	SEP-2010
	Final Decision Document, LHAAP-35/36	Shaw Environmental, Inc.	OCT-2010
<b>2011</b>	Final Proposed Plan, LHAAP-29	Shaw Environmental, Inc.	MAR-2011
	Final MC Summary Report, LHAAP-001-R-01 & LHAAP-003-R-01	Shaw Environmental, Inc.	JUN-2011
	Final Proposed Plan, LHAAP-001-R-01 & LHAAP-003-R-01	Shaw Environmental, Inc.	JUN-2011
	Final Feasibility Study, LHAAP-47	Shaw Environmental, Inc.	JUL-2011
	Final Remedial Design, LHAAP-35B(37) & LHAAP-67	US Army Corps of Engineers, Tulsa District	AUG-2011
	Final Remedial Design, LHAAP-46	Shaw Environmental, Inc.	SEP-2011
	Final Remedial Design, LHAAP-50	Shaw Environmental, Inc.	SEP-2011
	Final Remedial Design, LHAAP-35A(58)	Shaw Environmental, Inc.	SEP-2011
<b>2012</b>	Final Remedial Action Operation Summary Report, Years 1 and 2, Landfill-12	Shaw Environmental, Inc.	JUL-2012
	Final Remedial Action Operation Summary Report, Years 3 and 4, Landfill-12	Shaw Environmental, Inc.	JUL-2012
	Final Feasibility Study for Groundwater, LHAAP-04, Former Pilot Wastewater Treatment Plant	Shaw Environmental, Inc.	AUG-2012
<b>2013</b>	Final Remedial Action Work Plan for LHAAP-67, Aboveground Storage Tank Farm	AECOM Technical Services	MAR-2013
	Final Remedial Action Work Plan for LHAAP-46, Plant 2 Area	AECOM Technical Services	MAR-2013
	Final Remedial Investigation/Focused Feasibility Study for LHAAP-03, Former Waste Collection Pad near Building 722-P, Paint Shop	AECOM Technical Services	MAR-2013
	Final Proposed Plan for LHAAP-03, Former Waste Collection Pad Building 722-P Paint Shop	AECOM Technical Services	MAY-2013
	Final Remedial Action Work Plan for LHAAP-50, Former Sump Water Tank	AECOM Technical Services	JUN-2013
	Final Remedial Action Work Plan for LHAAP-35B(37), Chemical Laboratory	AECOM Technical Services	JUN-2013
	Final Remedial Action Work Plan, LHAAP-58	AECOM Technical Services	AUG-2013
	Final Proposed Plan for LHAAP-47, Plant 3 Area Solid Rocket Motor Fuel Production	AECOM Technical Services	DEC-2013
	Final Post-Screening Investigation Report for LHAAP-18/24, Burning Ground No. 3 and Evaporation Pond	AECOM Technical Services	DEC-2013
<b>2014</b>	Final Decision Document for LHAAP-19, LHAAP-56, LHAAP-65 and LHAAP-69 Sites	U.S. Army Corps of Engineers	JAN-2014
	Final Explanation of Significant Differences, Record of Decision for Early Interim Remedial Action at Burning Ground No. 3	AECOM Technical Services	FEB-2014
	Final 2013 Five-Year Review Report For LHAAP	AECOM Technical	MAY-2014

## IRP Previous Studies

2014	Title	Author	Date
		Services	
	Final Post-Screening Investigation Work Plan Addendum, LHAAP-18/24	AECOM Technical Services	JUN-2014
	Final LHAAP-29 Remedial Investigation/Feasibility Addendum Work Plan	AECOM Technical Services	JUN-2014
	Final Baseline Ecological Risk Assessment Addendum, LHAAP	AGEISS Inc.	JUL-2014
2015			
	Draft Final Remedial Action Completion Report, LHAAP-46	AECOM Technical Services	JAN-2015
	Draft Final Remedial Action Completion Report, LHAAP-35A(58)	AECOM Technical Services	APR-2015
	Final Decision Document for LHAAP-05, -09, -15, -34, -52, -57, -61, -63, -70, and -71 Sites	U.S. Army Corps of Engineers	SEP-2015

# **LONGHORN ARMY AMMUNITION PLANT**

**Non-BRAC Excess**

**Installation Restoration Program**

**Site Descriptions**



**Site ID: LHAAP-001**

**Site Name: INERT BURNING GROUNDS (SWMU 1)**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** LOW

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198406
SI.....	197906.....	198406
RI/FS.....	199008.....	199801
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 199801

## SITE DESCRIPTION

A no action ROD was signed by the USEPA in February 1998; the site is closed and suitable for non-residential use. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

The LTM in the form of five-year reviews is required and will continue.

**Site ID: LHAAP-002**

**Site Name: VACCUM TRUCK OVERNITE PARKING LOT**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** NOT EVALUATED

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
RI/FS.....	200901.....	201007
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 201007

## SITE DESCRIPTION

A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. Five-year review costs are captured with LHAAP-35A(58) five-year review costs because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

The LTM in the form of five-year reviews are required and will continue.

**Site ID: LHAAP-003**

**Site Name: BUILDING 722-PAINT SHOP**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** MEDIUM

**Contaminants of Concern:** Metals

**Media of Concern:** Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198705
SI.....	200710.....	200909
RI/FS.....	200909.....	201701
RD.....	201402.....	201704
RA(C).....	201406.....	201709

**RIP Date:** N/A

**RC Date:** 201709

## SITE DESCRIPTION

LHAAP-03 was a waste collection site outside of the paint shop at Building 722-P. Building 722-P was used for paint spraying and polyurethane spray coating of various items. Heavy metal-based primers, other waste solvents and contaminated rags were collected in a 55-gallon drum on a gravel pad in an open-sided shed.

The site investigation report for LHAAP-03 was completed in August 2009. The site investigation identified soil contaminated with metals exceeding medium-specific concentrations (MSC). A remedial investigation (RI)/FS was finalized to evaluate removal action alternatives for the metals-contaminated soil at LHAAP-03. A ROD is delayed until dispute is resolved with the USEPA. The RD and soil removal action will also be covered under the PBA. Five-year review costs for this site will be captured with LHAAP-35A(58) five-year review costs because this site falls within the boundary of LHAAP-35A(58).

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. The remedy being considered for this site is excavation and off-site disposal. Tasks to be completed before the PBA ends are completion of primary documents (ROD and RD), and accomplishment of remedy-in-place (RIP). At this time, it is expected that the post-PBA LTM will involve five-year reviews, which will be addressed as part of the remedial action for LHAAP-35A(58).

**Site ID: LHAAP-004**

**Site Name: LHAAP PILOT WASTEWATER TREATMENT PLANT**

**STATUS**

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Perchlorate

Media of Concern: Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
RI/FS.....	201112.....	201701
RD.....	201201.....	201705
IRA.....	200908.....	201111
RA(C).....	201404.....	201711
RA(O).....	201201.....	204609

RIP Date: 201711

RC Date: 204609

**SITE DESCRIPTION**

The LHAAP Pilot wastewater plant was closed under RCRA guidelines in November 1997. The installation-wide baseline ecological risk assessment in 2007 did not identify any potential risk to ecological receptors. Additional investigations after the risk assessment found unacceptable levels of mercury in soil, and perchlorate, an emerging contaminant, in soil at levels that could potentially migrate into the groundwater. A soil removal action was recommended in the 2009 engineering evaluation/cost analysis (EE/CA) for LHAAP-04. The soil removal was performed, and is documented in the final completion report, non-time critical removal action at LHAAP-04. As part of the removal action, a well was installed to sample groundwater beneath the backfilled excavation area. The results indicated that perchlorate was present in the groundwater at a concentration that exceeded the TCEQ groundwater industrial use value for perchlorate. The FS evaluating remedial alternatives for LHAAP-04 was finalized in August 2012. The RAs for this site have been funded under an existing contract. The ROD is delayed until the dispute is resolved with the USEPA. The costs for the ROD and RD are captured under the PBA. RA(O) and five-year reviews will be required. A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

**CLEANUP/EXIT STRATEGY**

This site is being addressed under a PBA through September 2017. Tasks to be completed before the PBA ends are completion of primary documents (ROD and RD), and accomplishment of RIP. The FS was completed in 2012. The remedy being considered for this site is: in situ bioremediation and monitored natural attenuation (MNA) for groundwater, and LTM. The final remedy has not been selected yet for this site. At this time, it is expected that the post-PBA long-term RA(O) will involve MNA and LUC.

**Site ID: LHAAP-006**  
**Site Name: BUILDING 54F SOLVENT**

**STATUS**

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** NOT EVALUATED

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
RI/FS.....	200712.....	200812
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 200812

**SITE DESCRIPTION**

An NFA DD was signed in December 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-007**

**Site Name: BUILDING 50G DRUM PROCESSING**

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
RI/FS.....	200712.....	200812
LTM.....	201201.....	204609

RIP Date: N/A

RC Date: 200812

## SITE DESCRIPTION

The site was originally closed under RCRA in 1987. An NFA DD under CERCLA was signed in December 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-008**

**Site Name: SEWAGE TREATMENT PLANT**

## STATUS

**Parcel:** Production Area 1c (FWS) (54.88 acres)

**Regulatory Driver:** CERCLA

**RRSE:**

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
RI/FS.....	200202.....	200811
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 200811

## SITE DESCRIPTION

The site was originally closed under RCRA in 1987. An NFA DD under CERCLA was signed in 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-011**

**Site Name: SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11)**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** LOW

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199008.....	199801
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 199801

## SITE DESCRIPTION

An NFA ROD was signed by the USEPA by February 1998. The site is closed and suitable for industrial use. A five-year review report in the form of a memorandum report stating the use of the site remains industrial will be required for internal Army records. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.



**Site ID: LHAAP-012**

**Site Name: ACTIVE LANDFILL (SWMU 12)**

## STATUS

**Parcel:** LANDFILL 12 (FWS) (51 acres)

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

**Contaminants of Concern:** Volatiles (VOC)

**Media of Concern:** Groundwater

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199008.....	200607
RD.....	200509.....	200706
IRA.....	199509.....	200509
RA(C).....	200509.....	200706
RA(O).....	200509.....	209909

**RIP Date:** 200706

**RC Date:** 209909

## SITE DESCRIPTION

Landfill 12 (previously called the Active Landfill), consisting of seven acres, was used for the disposal of nonhazardous industrial waste. The landfill had been used intermittently since 1963. Continuous use of the landfill began around 1978. Although the back section had been closed, the front section of the landfill continued to be used until its closure in March 1994. Site inspections (SI) conducted in 1993 concluded that an early IRA (landfill cap) was necessary to reduce further contamination to the groundwater. In 1997 the cap was completed, using treated soils from LHAAP-18 as subgrade fill. Cap maintenance started in 1998, and in 2002 the first five-year review was completed. The second five-year review was completed in 2008. The third five-year review was completed in 2013.

In 2002 the RI was completed. Groundwater analysis showed that some metals, chlorides, VOC, explosive compounds, and low levels of perchlorate were present. Surface water and sediment sample analysis showed similar contamination. Low levels of perchlorate were also detected in the soils. In three groundwater sampling rounds conducted in February 2003, February 2004, and December 2004, perchlorate was not detected with reporting limits of four micrograms per liter (ug/L) in the first two rounds, and only detected twice when a method with a lower reporting limit (0.2 ug/L) was used. Chromium in groundwater is now believed to be related to stainless steel well casings. In January 2006 the 12 wells with stainless steel casings and screen were removed. In 2006, five new wells were installed for long-term monitoring using polyvinyl chloride casing and screen. Results of subsequent groundwater sampling supported the postulation that the stainless steel casing in the monitoring wells was the source of the chromium.

In 2005 the FS was finalized. The recommended final remedy is MNA with LUCs consisting of cap protective provisions and groundwater restrictions. In August 2006 sampling to support MNA began. The PP addressed human and ecological risk. The ROD has been signed (July 2006), and in June 2007 the RD addendum was signed. The surrounding sediment and surface water were evaluated as part of the plant-wide ecological risk assessment and no chemicals of concern were identified.

Post-PBA (FY2017 and out-years) actions will include MNA with LUC consisting of cap protective provisions and groundwater restrictions. The expected duration of RA(O) is 118 years based on the groundwater model from the remedial design. Ten years of RA(O) will have been completed by the end of the PBA, leaving 108 years beyond FY17; however, AEDB-R limits phase schedule extension to 2099 thus 82 years are reported. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

**Site ID: LHAAP-012**  
**Site Name: ACTIVE LANDFILL (SWMU 12)**

As a part of RA(O), cap maintenance, MNA, and five-year reviews will be funded under the PBA through September 2017. Post-PBA activities will be limited to long-term RA(O) and five-year reviews to review MNA progress and any new site information.

**Site ID: LHAAP-016**

**Site Name: OLD LANDFILL (SWMU 16)**

## STATUS

**Parcel:** Burning Ground (FWS) (380 acres)

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

**Contaminants of Concern:** Perchlorate, Volatiles (VOC)

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

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199008.....	201701
RD.....	200508.....	201704
IRA.....	199410.....	200509
RA(C).....	200508.....	201712
RA(O).....	200508.....	204609

**RIP Date:** 201712

**RC Date:** 204609

## SITE DESCRIPTION

Landfill 16 (formally called the old landfill), consisting of about 22 acres, was originally used to dispose of products generated from the TNT wastewater treatment plant (WWTP); however, a variety of waste was disposed of in the landfill until the 1980s. This waste may have included burned rocket motor casings, substandard TNT, barrels of chemicals, oil, paint, scrap iron and wood. VOCs and metals above action levels have been found in the soil, surface water and groundwater around the site. Low levels of explosive compounds were detected in the groundwater.

SIs conducted in 1993 concluded that an early IRA (landfill cap) was necessary to reduce further contamination to the groundwater. The cap was completed in 1998, using treated soils from LHAAP-18 as subgrade fill. In late-1997, as part of the treatability study, eight extraction wells were installed to prevent contaminated groundwater from impacting Harrison Bayou. This system is still in operation; however, extracted water volume is low. Groundwater extracted from the Landfill 16 containment system is piped to the LHAAP-18 groundwater treatment plant (GWTP).

Perchlorate was first detected in groundwater at this site in 2000. VOCs and perchlorate have been detected in the surface water of Harrison Bayou.

In 2002 the RI was completed along with a five-year review. In March 2002 a final interim FS for Site 16 was issued. Under the PBC, a draft FS addendum to the March 2002 interim FS was submitted in February 2007. The FS was finalized in March 2010. A preliminary MNA evaluation was completed in 2007. The second five-year review was completed in 2008. The third five-year review was completed in 2013. The PP was finalized September 2010. Quarterly surface water sampling of the Harrison Bayou area has not shown significant contamination. The ROD is delayed until the dispute is resolved with the USEPA. The ROD will include cap maintenance, in situ bioremediation, biobarriers, MNA and LUCs.

An environmental security technology certification program research and development project for enhanced in situ bioremediation (VOCs, perchlorate and explosives in groundwater) was started in 2003 and continued to 2008. Ecological concerns most likely will be addressed with the final remedy at this site. Post-PBA actions will include groundwater monitoring and LUC RA(O). A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

**Site ID: LHAAP-016**  
**Site Name: OLD LANDFILL (SWMU 16)**

This site is being addressed under a PBA through September 2017. The remedy being considered for this site is passive biobarriers, in situ bioremediation and MNA for groundwater, and LTM. Tasks to be completed before the PBA ends are completion of primary documents (ROD and RD), and accomplishment of remedy-in-place (RIP). At this time, it is expected that the post-PBA long-term RA(O) will involve MNA with maintenance of the cap and LUC.

**Site ID: LHAAP-017**

**Site Name: NO 2 FLASHING AREA BRN GROUND(SWMU 17)**

## STATUS

**Parcel:** Burning Ground (FWS) (380 acres)

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

**Contaminants of Concern:** Explosives, Perchlorate, Volatiles (VOC)

**Media of Concern:** Groundwater, Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199008.....	201701
RD.....	201402.....	201704
RA(C).....	201406.....	201709
RA(O).....	201707.....	204609

**RIP Date:** 201709

**RC Date:** 204609

## SITE DESCRIPTION

This site (about 500 by 600 feet) was used to burn bulk TNT, photoflash powder, and reject material from Universal Match Corporation's production processes. From 1959 until 1980 the site was operated as a burning ground. In 1959 buildings razed at Site 29 (the former TNT production area) were burned at Burning Ground No. 2/Flashing Area (LHAAP-17). This site is situated about 400-500 feet southwest of Burning Ground No. 3.

In 1984 waste residues were removed and the area grassed over. VOCs and explosive compounds were found in the groundwater. Explosive compounds were found in the soil. In 2000 perchlorate was detected at this site [in groundwater at 300 parts per million (ppm), but less in soil].

In 2002 the RI was completed and a draft FS was prepared. In 2004 additional data gap studies were completed. A revised draft FS was submitted in 2009 by the PBC and the FS was finalized in 2010. The PP was finalized in May 2010. The ROD is delayed until the dispute is resolved with the USEPA. The ROD will include soil removal, extraction and treatment of groundwater, MNA and LUCs.

A research and development project for enhanced in situ-bioremediation (VOCs, perchlorate and explosives in soil and groundwater) was started in 2002 and completed in 2004. Results indicate that perchlorate contamination was reduced. An additional intermediate well was installed at the site in February 2008.

Post-PBA actions during RA(O) will involve monitoring of MNA. A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. The remedy being considered for this site is groundwater extraction, followed by MNA for groundwater, and excavation and disposal for soil. Tasks to be completed before September 2017 are completion of primary documents (ROD and RD), and accomplishment of RIP. At this time, it is expected that the post-PBC long-term RA(O) will involve MNA and LUC.

Site ID: LHAAP-018

Site Name: BURNING GROUND/WASHOUT POND(SWMU 18)

## STATUS

Parcel: Burning Ground (FWS) (380 acres)

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Metals, Perchlorate, Volatiles (VOC)

Media of Concern: Groundwater, Soil, Surface Water

Phases	Start	End
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199008.....	201809
RD.....	200508.....	201906
IRA.....	199503.....	201108
RA(C).....	200508.....	202106
RA(O).....	200508.....	204609

RIP Date: 202106

RC Date: 204609

## SITE DESCRIPTION

This 34.5 acre site, also known as Burning Ground No. 3, began operations in 1955. It was used for the treatment, storage, and disposal of solid and liquid explosives, pyrotechnics, and combustible solvent wastes by open burning, open detonation, and burial. The unlined evaporation pond (UEP) (LHAAP-024) was constructed in 1963 within Burning Ground No. 3. Explosive compounds, VOCs, and metals were detected in the soils and groundwater. In 1998 perchlorate was detected in the groundwater. In 1986 sludge from the UEP was removed and the area was capped. Quarterly monitoring has been conducted at the site since closure of the UEP.

In May 1995 an IRA ROD was signed. This IRA addressed soil and shallow groundwater contamination. In 1997, 30,000 cubic yards (cy) of soil were excavated and treated. The treated soil was used as fill in LHAAP-012 and -016. A GWTP, with approximately 5,000 feet of interception collection trenches, has been installed to control migration of contaminated groundwater. After treatment the extracted groundwater is discharged into Harrison Bayou. In 1999 perchlorate was detected at this site and a fluidized bed reactor treatment system was installed.

In 2002 the RI was completed, followed by a draft FS. In September 2007 the PBC contractor began an optimization pilot study for the groundwater extraction system with a report completed in February 2009. A post-screening investigation (PSI) work plan was finalized in 2013 to address site data gaps and support completion of the RI/FS. The PSI work has continued into 2016 and the revised FS is planned to be completed in 2017.

Post-PBC actions are expected to include RD, RA(C) and review of MNA progress. A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. The remedy being considered for this site is optimization of the groundwater extraction system, bioaugmentation, and MNA. Tasks to be completed before September 2017 are completion of primary documents (FS, PP, ROD, RD) and accomplishment of RIP and continued RA(O).

The final remedy has not been selected yet for this site. At this time, the post-PBC long-term RA(O) is expected to include groundwater extraction, bioremediation and five-year reviews.

**Site ID: LHAAP-019**

**Site Name: CONSTRUCTION MATERIALS LANDFILL**

## STATUS

**Parcel:** Debris Landfill (13 acres)

**Regulatory Driver:** CERCLA

**RRSE:**

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	201009.....	201401
LTM.....	201401.....	204609

**RIP Date:** N/A

**RC Date:** 201401

## SITE DESCRIPTION

The site was originally closed under RCRA in 1987. A NFA DD under CERCLA was finalized in early 2014. A notification (not a remedy or LUC) was filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

Post-PBA activities will be limited to five-year review reports in the form of a letter stating the use of the site remains non-residential.

**Site ID: LHAAP-024**

**Site Name: FORMER UNLINED EVAP POND (SWMU 24)**

## STATUS

**Parcel:** Burning Ground (FWS) (380 acres)

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

**Contaminants of Concern:** Metals, Perchlorate, Volatiles (VOC)

**Media of Concern:** Groundwater, Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199005.....	199005
SI.....	199005.....	199008
RI/FS.....	199008.....	201809
RD.....	200508.....	201906
IRA.....	199503.....	201108
RA(C).....	200508.....	202106
RA(O).....	200508.....	204609

**RIP Date:** 202106

**RC Date:** 204609

## SITE DESCRIPTION

This three-acre UEP was constructed in 1963 within Burning Ground No. 3. Explosive compounds, VOCs, and metals were detected in the soils and groundwater. In 1999, perchlorate was detected in the groundwater. In 1986, sludge from the UEP was removed and the area was capped. Quarterly monitoring has been conducted at the site since closure of the UEP.

In May 1995, an IRA ROD was signed. This IRA addressed soil and shallow groundwater contamination. In 1997, 30,000 cy of soil were excavated and treated. The treated soil was used as fill in LHAAP-012 and LHAAP-016. A GWTP, with approximately 5,000 feet of interception collection trenches, has been installed to control migration of contaminated groundwater. After treatment, the extracted groundwater is discharged into Harrison Bayou. In 1999 perchlorate was detected at this site and in 2001 a fluidized bed reactor treatment system was installed.

In 2002 the RI was completed, followed by a draft FS. In September 2007 the PBC contractor began an optimization study for the groundwater extraction system with a report on the results completed February 2009. A PSI work plan was finalized in 2013 to address site data gaps and support completion of the RI/FS. The PSI work has continued into 2016 and the revised FS is planned to be completed in 2017.

Post-PBC actions are currently expected to involve completion of RD, RA(C) and review of MNA progress. A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. As with LHAAP-018, the remedy being considered for this site is optimization of the groundwater extraction system, bioaugmentation and MNA. Tasks to be completed before September 2017 are completion of primary documents (FS, PP, ROD, RD) and accomplishment of RIP and continued RA(O).

The final remedy has not been selected yet for this site but the post-PBC long-term RA(O) is expected to include groundwater extraction, bioremediation and five-year reviews.



Site ID: LHAAP-029

Site Name: FORMER TNT PRODUCTION AREA(SWMU 29)

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Munitions constituents (MC), Perchlorate, Volatiles (VOC)

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

Phases	Start	End
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199008.....	201809
RD.....	200508.....	201906
RA(C).....	200508.....	202003
RA(O).....	200508.....	204609

RIP Date: 202003

RC Date: 204609

## SITE DESCRIPTION

The former TNT production area, consisting of about 85 acres, was in operation from April 1943 to August 1945 as a six-line plant, with a supporting acid plant. The plant produced 180 million kilograms of TNT throughout the period of operation. A bulk toluene storage area, servicing the TNT production area, was located adjacent to the production area. The TNT wastewater (red water) from the production of the TNT was sent through wooden pipelines to a storage tank and pump house, and then to the TNT WWTP (LHAAP-032). Cooling water (blue water) from the production area ran through main lines and into an open ditch. In 1959, the structures, except for the foundations, were demolished and removed. Through the late-1980s a portion of the northeast corner of the site (approximately two acres) was used for the washout of Pershing 1 and 2 rocket motor casings using trichloroethylene (TCE) and methylene chloride.

Explosive compounds have been detected in the soil, surface water, sediment, and groundwater samples. High concentrations of VOCs (including TCE and methylene chloride) have been detected in the groundwater with the highest concentrations in the intermediate hydrostratigraphic unit, and methylene chloride, dense non-aqueous phase liquid is suspected. In 2000 perchlorate was first detected in the soil and in the groundwater (at 88 ppm) at this site.

In 2002, the RI was completed. In FY2005 field sampling for soils was conducted. In FY2006, six wells were installed and sampled. Sediment samples were also collected from waste lines and outfall ditches. A revised draft FS was submitted in 2008 and was finalized in 2010. The ROD is delayed until the dispute is resolved with the USEPA. The ROD currently includes soil removal, flushing and plugging lines, in situ chemical oxidation treatment of groundwater, MNA and LUCs. A finite period of 30 years is used where RA(O) is expected to continue indefinitely. Fieldwork to support an addendum to the RI/FS for LHAAP-29 was completed in 2013 and the RI/FS addendum is underway. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

LHAAP-49, the former acid plant (also known as former acid storage), was originally funded under LHAAP-29 due to the association in plant function. This was the location where acids were received and prepared for use in the TNT manufacturing process. The final site evaluation was finalized in 2009 and the ROD was finalized in 2010 and is reported under LHAAP-49.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. The remedy being considered for this site is in situ groundwater remediation followed by MNA, flushing and plugging lines, and excavation and disposal for soil and sediments. Tasks to be completed before September 2017 are completion of primary documents (ROD, RD), and accomplishment of RIP. The final remedy has not been selected yet for this site. At this time, the post-PBA RA(O) is expected to involve MNA and LUC.

**Site ID: LHAAP-035**

**Site Name: SUMPS (145) VARIOUS**

## STATUS

**Parcel:** East FIA II(FWS) (175 acres),Production Area Ib (FWS) (107.59 acres),Production Area Ia (FWS) (456.72 acres)

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

Contaminants of Concern: Perchlorate

Media of Concern: Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199301.....	201011
RD.....	200508.....	201011
RA(C).....	200508.....	201011
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 201011

## SITE DESCRIPTION

This site contained 125 industrial wastewater sumps. The sumps were located in different production areas within LHAAP. Many of the sumps were removed or closed in 1996.

Several buildings at sites where sumps were located have a history of perchlorate use. Perchlorate contamination at these sites has been identified in the soil, surface water and groundwater. Remedial action-construction RA(C) consisted of soil removal around sumps.

In 2002, the RI was completed and in late FY2003 the initial perchlorate assessment was completed. Additional soil sampling, for the sumps, was completed in fall 2006. The NFA DD was signed in November 2010. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

The following are associated with LHAAP-35 in AEDB-R because there were sumps at the sites; however, they are being addressed as separate sites for other environmental issues [i.e. five-year reviews, RA(O)/LTM]:

LHAAP-002 LHAAP-003 LHAAP-004 LHAAP-006 LHAAP-007 LHAAP-036

LHAAP-058 LHAAP-060 LHAAP-65 LHAAP-068 (PBC) LHAAP-008 LHAAP-037 (TERC)

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required. Soil that was found to be contaminated with perchlorate at sites where sumps were located is being addressed at those individual sites (i.e., LHAAP-047 and LHAAP-050).

**Site ID: LHAAP-036**

**Site Name: EXPLOSIVE WASTE PADS (27)**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:**

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198705
SI.....	197906.....	198705
RI/FS.....	199301.....	201011
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 201011

## SITE DESCRIPTION

This site consists of 20 waste pads made of metal roof over four by eight concrete pads. It is included in Group 4 RI/FS. The NFA DD was signed in November 2010. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.

Site ID: LHAAP-037

Site Name: CHEMICAL LABORATORY WASTE PAD

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA.....	199005.....	199008
RI/FS.....	201003.....	201006
RD.....	201006.....	201108
RA(C).....	201201.....	201309
RA(O).....	201201.....	204609

RIP Date: 201309

RC Date: 204609

## SITE DESCRIPTION

This site is a collection point for spent solvents from the quality assurance (QA) lab. It consists of one 55-gallon drum set on a concrete pad. The site is included in the Group 4 RI/FS. The ROD was finalized in August 2010 and included MNA and LUCs for the site. The RD was finalized in August 2011. The remedial action work plan (RAWP) was finalized in 2013. RIP was achieved in September 2013. The RA(O) was on hold while a two-year bioplug demonstration was implemented at the site. The bioplug demonstration was completed at the end of 2014 and the aquifer is currently being monitored for return to pre-study conditions before proceeding with RA(O). A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. Actions to be completed before the PBA ends are accomplishment of RA(O) including institutional controls (LUC). The RD completed in 2011 includes the following remedies for this site: MNA for groundwater, and RA(O). At this time, it is expected that the post-PBA long-term RA(O) will involve MNA and LUC.

**Site ID: LHAAP-045**  
**Site Name: MAGAZINE AREA**

**STATUS**

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** MEDIUM

**Contaminants of Concern:** Perchlorate

**Media of Concern:** Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199005.....	199008
SI.....	200003.....	200409
RI/FS.....	200409.....	200409
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 200409

**SITE DESCRIPTION**

This site consists of 800 acres with 58 bunkers and two buildings used for storage of munitions. An SI conducted by US Army Center for Health, Promotion and Preventive Medicine (USACHPPM) (now known as the Public Health Command), determined perchlorate contamination. The RI was completed in September 2003. The final evaluation of LHAAP-45 surface soil analytical data was finalized in September 2004. The site received USEPA concurrence for no further environmental investigation necessary. The site is closed and suitable for industrial use. A five-year review report in the form of a memorandum report stating the use of the site remains industrial will be required for internal Army records. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-046**  
**Site Name: PLANT 2 AREA**

**STATUS**

**Parcel:** Production Area II (467 acres)

**Regulatory Driver:** CERCLA

**RRSE:** MEDIUM

**Contaminants of Concern:** Volatiles (VOC)

**Media of Concern:** Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	200201.....	200201
RI/FS.....	201006.....	201009
RD.....	201106.....	201109
RA(C).....	201201.....	201304
RA(O).....	201201.....	204609
<b>RIP Date:</b>	201304	
<b>RC Date:</b>	204609	

**SITE DESCRIPTION**

LHAAP-46, also known as Plant 2, had facilities for production of JB-2 propellant fuel from 1944-1945 and was used to produce pyrotechnic ammunition, such as photoflash bombs, simulators, hand signals, and tracers for 40mm ammo from 1952-1956. Plant 2 was reactivated to produce pyrotechnic and illuminating devices from 1964 to 1997. Site investigations determined that groundwater was contaminated with VOCs. The ROD was finalized in September 2010 and includes MNA and LUCs for the site. A notification (not a remedy or LUC) will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. The RD was finalized in September 2011. The RAWP was finalized in 2013 and RIP was achieved in April 2013. This site is in RA(O). A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

**CLEANUP/EXIT STRATEGY**

This site is being addressed under a PBA through September 2017. The remedy selected for this site is MNA for groundwater. Tasks to be completed before September 2017 are accomplishment of RA(O). The final remedy has been selected for this site. At this time, it is expected that the post-PBA RA(O) will involve monitoring MNA and LUC.

**Site ID: LHAAP-047**  
**Site Name: PLANT 3 AREA**

**STATUS**

**Parcel:** East FIA II(FWS) (175 acres),Production Area II (467 acres)

**Regulatory Driver:** CERCLA

**RRSE:** HIGH

**Contaminants of Concern:** Metals, Perchlorate, Volatiles (VOC)

**Media of Concern:** Groundwater, Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	197906.....	198705
RI/FS.....	201201.....	201701
RD.....	201201.....	201704
RA(C).....	201406.....	201802
RA(O).....	201803.....	204609
<b>RIP Date:</b>	201803	
<b>RC Date:</b>	204609	

**SITE DESCRIPTION**

LHAAP-47, also known as Plant 3, was used from 1954 to the early-1980s to produce rocket motors. Some of the rocket motor facilities converted to produce pyrotechnic and illumination devices, and continued this operation until 1997. Site investigations determined that groundwater was contaminated with VOCs, perchlorate, and metals and a soil source for perchlorate was identified. The FS evaluating remedial alternatives for LHAAP-47 was finalized in July 2011. The RAs for this site have been funded under an existing contract. The ROD is delayed until the dispute is resolved with the USEPA. A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

**CLEANUP/EXIT STRATEGY**

This site is being addressed under a PBA through September 2017. The remedy being considered for this site includes bioaugmentation, biobarriers and MNA. Tasks to be completed before September 2017 are completion of primary documents (ROD and RD) and accomplishment of RIP and continued RA(O).

The final remedy has not been selected yet for this site. At this time, the post-PBC long-term RA(O) is expected to include MNA and five-year reviews.

**Site ID: LHAAP-049**

**Site Name: FORMER ACID STORAGE AREA**

## STATUS

**Parcel:** Production Area 1c (FWS) (54.88 acres)

**Regulatory Driver:** CERCLA

**RRSE:**

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	200903.....	200906
RI/FS.....	201005.....	201008
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 201008

## SITE DESCRIPTION

LHAAP-49 is the former acid storage area, which was used from 1942 to 1945 for storage and formulation of acids and acid mixtures in support of TNT production during WWII. The NFA ROD was finalized in August 2010. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.



Site ID: LHAAP-050

## Site Name: FORMER WASTE DISPOSAL FACILITY

### STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: HIGH

Contaminants of Concern: Metals, Perchlorate, Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
PA.....	199005.....	199008
SI.....	199506.....	199707
RI/FS.....	199801.....	201001
RD.....	200508.....	201102
RA(C).....	200508.....	201309
RA(O).....	200508.....	204609

RIP Date: 201309

RC Date: 204609

### SITE DESCRIPTION

This site of about one acre received wastewater from the sumps at Plants 2 and 3 from 1955 to the early-1970s. Washout of ammonium perchlorate containers was also performed on this site.

VOCs and perchlorate were detected in the soil samples. VOCs, metals and perchlorate were detected in groundwater. The VOCs and perchlorates in groundwater pose an unacceptable risk. In 2004 an additional data gap sampling was completed and in February 2008 an additional shallow well was installed downgradient of this site.

In 2002, the RI was completed and the FS was finalized in 2010. The ROD was finalized in 2010. The ROD includes soil removal, MNA and LUCs (groundwater use restriction) for the site. A notification (not a remedy or LUC) will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. The RD was finalized in September 2011. The RAWP was finalized in 2013. RIP was achieved in September 2013. This site is in RA(O). A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

### CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. The remedy selected for this site is MNA for groundwater, and excavation and disposal for soil. Tasks to be completed before September 2017 are accomplishment RA(O). The final remedy has been selected for this site. At this time, it is expected that the post-PBA RA(O) will involve MNA and LUC.

**Site ID: LHAAP-051**

**Site Name: PHOTOGRAPHIC LABORATORY/BLDG #60B**

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
RI/FS.....	200712.....	200812
LTM.....	201201.....	204609

RIP Date: N/A

RC Date: 200812

## SITE DESCRIPTION

Building 60B was the location for processing x-ray film. It was closed under RCRA. A NFA DD was signed in December 2008 under CERCLA. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-052**  
**Site Name: MAGAZINE AREA WASHOUT**

**STATUS**

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** LOW

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
SI.....	199506.....	199804
RI/FS.....	199706.....	201509
LTM.....	201509.....	204609

**RIP Date:** N/A

**RC Date:** 201509

**SITE DESCRIPTION**

A standpipe near the intersection of Avenue E and 19th was used to wash out trucks used for transport of TNT. An NFA DD was finalized in September 2015. Limited monitoring in the form of certification of proper land use every five years is required for this site. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

Post-PBA activities will be limited to five-year review reports in the form of a letter stating the use of the site remains non-residential.

**Site ID: LHAAP-055**  
**Site Name: SEPTIC TANK (10)**

**STATUS**

Parcel: NONE  
Regulatory Driver: CERCLA  
RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
RI/FS.....	199008.....	200812
LTM.....	201201.....	204609

RIP Date: N/A  
RC Date: 200812

**SITE DESCRIPTION**

This site was closed under RCRA guidelines. An NFA DD was signed in December 2008 under CERCLA. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-056**

**Site Name: VEHICLE WASH RACK AND OIL/WATER SEP**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** NOT EVALUATED

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199304.....	200801
RI/FS.....	201201.....	201401
LTM.....	201401.....	204609

**RIP Date:** N/A

**RC Date:** 201401

## SITE DESCRIPTION

This site consisted of a concrete washrack sloped to drain, connected to an oil/water separator. The site had a permitted discharge to a drainage ditch. The site is located within the shop area. The sump on this site was investigated under LHAAP-035. The DD was finalized in early 2014. A notification will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. Because LHAAP-056 is entirely contained within the LHAAP-35A(58) land use control boundary, this requirement is being met under LHAAP-35A(58). A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. Five-year review costs are captured with LHAAP-35A(58) because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

This is a zero cost site. An NFA DD was funded in 2012.

**Site ID: LHAAP-058**

**Site Name: MAINTENANCE COMPLEX**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** MEDIUM

**Contaminants of Concern:** Volatiles (VOC)

**Media of Concern:** Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199005.....	199008
SI.....	199502.....	199506
RI/FS.....	201006.....	201009
RD.....	201106.....	201109
RA(C).....	201109.....	201309
RA(O).....	201109.....	204609

**RIP Date:** 201309

**RC Date:** 204609

## SITE DESCRIPTION

LHAAP-35A(58), also known as the shops area, was used to provide plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical services. VOCs were detected in groundwater. The ROD was finalized in 2010 and includes in situ bioremediation for the eastern plume and MNA and LUCs (groundwater use restriction) for both the eastern and western groundwater plume for the site. A notification (not a remedy or LUC) will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. Five-year review costs for LHAAP-002, 003, 056, 059, 060, 065, 068, and 069 are captured with LHAAP-35A(58) because these sites fall within the boundary of LHAAP-35A(58). The RD was finalized in September 2011. The RAWP was finalized in 2013. RIP was achieved in September 2013. This site is in RA(O). A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. The remedy selected for this site is in situ bioremediation and MNA for groundwater. Tasks to be completed before September 2017 are accomplishment of RA(O), which will involve MNA and LUC.

**Site ID: LHAAP-059**  
**Site Name: BUILDING 725**

**STATUS**

Parcel: NONE  
Regulatory Driver: CERCLA  
RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	200705.....	200708
RI/FS.....	200805.....	200808
LTM.....	201201.....	204609

RIP Date: N/A  
RC Date: 200808

**SITE DESCRIPTION**

Building 725 at LHAAP-59 was constructed in 1984 to support maintenance activities at the plant as a pesticide storage building. It was determined through site investigations that no significant release had occurred at this site. The NFA DD was finalized in August 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. Five-year review costs are captured with LHAAP-35A(58) five-year review costs because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-060**

**Site Name: FORMER STORAGE BUILDING #411 & #714**

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: MEDIUM

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
SI.....	199506.....	199707
RI/FS.....	199801.....	200812
LTM.....	201201.....	204609

RIP Date: N/A

RC Date: 200812

## SITE DESCRIPTION

This site consists of two buildings formerly used for storage of pesticides and herbicides. It is included in Group 4 for RD/RA efforts. An NFA DD was signed in December 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. Five-year review costs are captured with LHAAP-35A(58) because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.



**Site ID: LHAAP-063**  
**Site Name: BURIAL PITS**

**STATUS**

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** LOW

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	199005.....	199008
SI.....	199506.....	199804
RI/FS.....	199804.....	201509
LTM.....	201509.....	204609

**RIP Date:** N/A

**RC Date:** 201509

**SITE DESCRIPTION**

LHAAP-063 was used in late-1950s for the detonation of Plant 3 reject material of unknown composition. An NFA DD was finalized in September 2015. Limited monitoring in the form of certification of proper land use every five years is required for this site. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

Post-PBA activities will be limited to five-year review reports in the form of a letter stating the use of the site remains non-residential.

**Site ID: LHAAP-064**  
**Site Name: TRANSFORMER STORAGE**

**STATUS**

Parcel: NONE

Regulatory Driver: CERCLA

RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
SI.....	199502.....	199506
RI/FS.....	199506.....	200812
LTM.....	201201.....	204609

RIP Date: N/A

RC Date: 200812

**SITE DESCRIPTION**

LHAAP-064 was used for storage of non-PCB transformers. NFA was required and an NFA DD was signed in December 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-065**  
**Site Name: BUILDING 209**

**STATUS**

**Parcel:** NONE  
**Regulatory Driver:** CERCLA  
**RRSE:** NOT EVALUATED

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	201103.....	201106
RI/FS.....	201201.....	201401
LTM.....	201401.....	204609

**RIP Date:** N/A  
**RC Date:** 201401

**SITE DESCRIPTION**

Building 209 was used for chemical storage for items such as paint and solvents. This building has a concrete floor with floor drains connected to sumps. The site is located just off of 11th street near the fire station. A DD was finalized in early 2014. A notification will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. Because LHAAP-065 is entirely contained within the LHAAP-35A(58) land use control boundary, this requirement is being met under LHAAP-35A(58). A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. Five-year review costs are captured with LHAAP-35A(58) five-year review costs because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-066**

**Site Name: TRANSFORMER AT BLDG 401**

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
SI.....	199502.....	199506
RI/FS.....	199506.....	200812
LTM.....	201201.....	204609

RIP Date: N/A

RC Date: 200812

## SITE DESCRIPTION

A transformer at Building 401 dripped oil for approximately one year. The transformer did not contain PCBs, so NFA was required. An NFA DD was signed in December 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-067**

**Site Name: ABOVE GROUND STORAGE TANK**

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA.....	199005.....	199008
SI.....	199809.....	199906
RI/FS.....	200110.....	201006
RD.....	201105.....	201108
RA(C).....	201201.....	201304
RA(O).....	201201.....	204609

RIP Date: 201304

RC Date: 204609

## SITE DESCRIPTION

This site consisted of seven aboveground storage tanks (AST) containing No. 2 fuel oil, kerosene or solvents. The ASTs had earthen dikes sufficient to contain a potential spill. Motor fuel tanks were registered with the state and have been removed. Central Creek runs to the south of this site.

In 2001, VOCs (TCE, 1,1-dichloroethene, 1,2-dichloroethane, 1,1,2-trichloroethane) were detected in the groundwater. The data indicates that the impact is limited.

In 2002, the RI was completed and in 2004 additional sampling was conducted, with the final FS completed in August 2005. The ROD was finalized in August 2010 and included MNA and LUCs (groundwater use restriction) for the site. A notification (not a remedy or LUC) will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. The RD was finalized in August 2011. The RAWP was finalized in 2013 and RIP was achieved in April 2013. This site is in RA(O). A finite period of 30 years is used where RA(O) is expected to continue indefinitely. The costs for the installation-wide five-year reviews are captured under LHAAP-058.

## CLEANUP/EXIT STRATEGY

This site is being addressed under a PBA through September 2017. Actions to be completed before the PBA ends are accomplishment of RA(O). The ROD completed in 2010 selected the following remedies for this site: MNA for groundwater, and RA(O). At this time, it is expected that the post-PBA long-term RA(O) will involve MNA and LUC.

**Site ID: LHAAP-068**

**Site Name: MOBILE STORAGE TANK PARKING AREA**

## STATUS

Parcel: NONE

Regulatory Driver: CERCLA

RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
RI/FS.....	199008.....	200812
LTM.....	201201.....	204609

RIP Date: N/A

RC Date: 200812

## SITE DESCRIPTION

This site was corrected under RCRA guidelines in 1993. An NFA DD was signed in December 2008. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. Five-year review costs are captured with LHAAP-35A(58) five-year review costs because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

LTM in the form of five-year reviews is required.

**Site ID: LHAAP-069**  
**Site Name: SERVICE STATION UST'S**

**STATUS**

Parcel: NONE

Regulatory Driver: CERCLA

RRSE:

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	199005.....	199008
RI/FS.....	199008.....	201401
LTM.....	201401.....	204609

RIP Date: N/A

RC Date: 201401

**SITE DESCRIPTION**

LHAAP-069 was corrected under RCRA guidelines in 1993. A NFA DD was finalized in early 2014. A notification will be filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. Because LHAAP-069 is entirely contained within the LHAAP-35A(58) land use control boundary, this requirement is being met under LHAAP-35A(58). A five-year review report in the form of a letter stating the use of the site remains non-residential will be required. Five-year review costs are captured with LHAAP-35A(58) five-year review costs because this site falls within the boundary of LHAAP-35A(58). A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

Post-PBA activities will be limited to five-year review reports in the form of a letter stating the use of the site remains non-residential.

**Site ID: LHAAP-070**

**Site Name: LOADING DOCK-MAGAZINE AREA**

## STATUS

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** NOT EVALUATED

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
SI.....	199502.....	199506
RI/FS.....	199506.....	201509
LTM.....	201509.....	204609

**RIP Date:** N/A

**RC Date:** 201509

## SITE DESCRIPTION

There was a report of spill of boxes of TNT at LHAAP-070; however, SIs revealed no visual evidence of TNT contamination. NFA is required. A DD was finalized in September 2015. Limited monitoring in the form of certification of proper land use every five years is required for this site. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

## CLEANUP/EXIT STRATEGY

Post-PBA activities will be limited to five-year review reports in the form of a letter stating the use of the site remains non-residential.



**Site ID: LHAAP-071**  
**Site Name: OIL SPILL, BLDG 813**

**STATUS**

**Parcel:** NONE

**Regulatory Driver:** CERCLA

**RRSE:** NOT EVALUATED

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	197906.....	198705
SI.....	199502.....	199506
RI/FS.....	199506.....	201509
LTM.....	201509.....	204609

**RIP Date:** N/A

**RC Date:** 201509

**SITE DESCRIPTION**

An oil tank spill occurred at Building (Bldg) 813 in 1978. The spill was contained before it could reach Central Creek. An NFA DD was finalized in September 2015. Limited monitoring in the form of certification of proper land use every five years is required for this site. The costs for the installation-wide five-year reviews would be captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

Post-PBA activities will be limited to five-year review reports in the form of a letter stating the use of the site remains non-residential.

**Site ID: PBC Longhorn**  
**Site Name: PBC at Longhorn**

**STATUS**

**Parcel:** Pistol Range (FWS) (1 acres), East FIA II (FWS) (175 acres), Production Area II (467 acres), Production Area Ib (FWS) (107.59 acres), Production Area Ia (FWS) (456.72 acres)

**Regulatory Driver:** CERCLA

**RRSE:** LOW

Contaminants of Concern: Explosives, Metals, Perchlorate, Volatiles (VOC)

Media of Concern: Groundwater

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	200501.....	200503
RD.....	201203.....	201706
RA(C).....	201203.....	201803
RA(O).....	201203.....	201809

**RIP Date:** 201803

**RC Date:** 201809

**SITE DESCRIPTION**

The PBC was awarded in March 2012. The goal was to achieve RIP by September 2013 for the following sites and RA(O)/LTM upon achievement:

- LHAAP-03: Building 722 paint shop
- LHAAP-04: Pilot WWTP
- LHAAP-16: Old landfill (solid waste management unit (SWMU) 16)
- LHAAP-17: No. 2 flashing area/burning ground (SWMU 17)
- LHAAP-18: Burning ground/washout pond (SWMU 18)
- LHAAP-24: Former UEP (SWMU 24)
- LHAAP-29: Former TNT production area (SWMU 29)
- LHAAP-37: Chemical laboratory
- LHAAP-46: Plant 2/pyrotechnic operation
- LHAAP-47: Plant 3 Area, solid rocket fuel motor production
- LHAAP-50: Former waste disposal facility
- LHAAP-58: Maintenance complex
- LHAAP-67: AST farm

The RIP is delayed for several sites until the dispute is resolved with the USEPA.

It is currently assumed that the period of performance for the PBC will be extended through FY18 to account for these delays.

The PBC also covers LTM and LUC maintenance for:

- LHAAP-12: Active landfill
- LHAAP-001-R-01: South test area
- LHAAP-003-R-01: Ground signal test area

The PBC also covers a CERCLA 121 (c) review in 2013 for all sites with RIP. The costs for the out-year installation-wide five-year reviews are captured under LHAAP-058.

**CLEANUP/EXIT STRATEGY**

These sites are being addressed under a PBA through September 2017 with anticipation of potential period of performance

**Site ID: PBC Longhorn**  
**Site Name: PBC at Longhorn**

extension to September 2020. Any follow-on actions will be funded under a separate contract mechanism.

## IRP Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
LHAAP-005	POWER HOUSE BOILER POND	201509	A No Action Decision Document Signed in 2015.
LHAAP-009	BUILDING 31-W DRUM STORAGE	201509	A No Action Decision Document Signed in 2015.
LHAAP-013	SUS TNT BET ACTIVE&OLD LANDFILL(SWMU 13)	199512	ROD for NFA signed in 1996.
LHAAP-014	AREA 54 BURIAL GRND (SWMU 14)	199512	ROD for NFA signed in 1996.
LHAAP-015	AREA 49W DRUM STORAGE	201509	A No Action Decision Document Signed in 2015.
LHAAP-023	BUILDING 707-STORAGE AREA PCBS	200601	Decision Documentation for NFA in 2006, including a letter from TNRCC signed in September 2000 releasing the site from deed recordation and post-closure requirements.
LHAAP-027	SOUTH TEST AREA/BOMB TEST AREA(SWMU 27)	199801	ROD for NFA signed in 1998
LHAAP-032	FORMER TNT WASTEWATER PLT(SWMU 32)	200809	ROD for NFA - signed September 2008
LHAAP-034	BUILDING 701 PCB STORAGE	201509	A No Action Decision Document Signed in 2015.
LHAAP-039	25X WASHOUT PAD	199008	PP - September 1994; Combined with LHAAP-18/24 IRA - Capping Site 18 1986; IRA - Soil Removal and Capping 1986; LTM - Groundwater Monitoring System Installed 1989;
LHAAP-053	STATIC TEST AREA	200811	A no action decision document signed in 2008.
LHAAP-054	GRD SIGNAL TEST AREA (LHAAP-XX)	199801	ROD for NFA signed in 1998.
LHAAP-057	RUBBLE BURIAL SITE	201509	A No Action Decision Document Signed in 2015.
LHAAP-061	POTABLE WTP SEDIMENT POND	201509	A No Action Decision Document Signed in 2015.

# IRP Schedule

Date of IRP Inception: 197906

## Past Phase Completion Milestones

### 1984

PA (LHAAP-001 - INERT BURNING GROUNDS (SWMU 1))

SI (LHAAP-001 - INERT BURNING GROUNDS (SWMU 1))

### 1987

PA (LHAAP-002 - VACCUM TRUCK OVERNITE PARKING LOT, LHAAP-003 - BUILDING 722-PAINT SHOP, LHAAP-004 - LHAAP PILOT WASTEWATER TREATMENT PLANT, LHAAP-005 - POWER HOUSE BOILER POND, LHAAP-006 - BUILDING 54F SOLVENT, LHAAP-007 - BUILDING 50G DRUM PROCESSING, LHAAP-008 - SEWAGE TREATMENT PLANT, LHAAP-009 - BUILDING 31-W DRUM STORAGE, LHAAP-011 - SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11), LHAAP-012 - ACTIVE LANDFILL (SWMU 12), LHAAP-013 - SUS TNT BET ACTIVE&OLD LANDFILL(SWMU 13), LHAAP-014 - AREA 54 BURIAL GRND (SWMU 14), LHAAP-015 - AREA 49W DRUM STORAGE, LHAAP-016 - OLD LANDFILL (SWMU 16), LHAAP-017 - NO 2 FLASHING AREA BRN GROUND(SWMU 17), LHAAP-018 - BURNING GROUND/WASHOUT POND(SWMU 18), LHAAP-019 - CONSTRUCTION MATERIALS LANDFILL, LHAAP-023 - BUILDING 707-STORAGE AREA PCBS, LHAAP-027 - SOUTH TEST AREA/BOMB TEST AREA(SWMU 27), LHAAP-029 - FORMER TNT PRODUCTION AREA(SWMU 29), LHAAP-032 - FORMER TNT WASTEWATER PLT(SWMU 32), LHAAP-034 - BUILDING 701 PCB STORAGE, LHAAP-035 - SUMPS (145) VARIOUS, LHAAP-036 - EXPLOSIVE WASTE PADS (27), LHAAP-047 - PLANT 3 AREA, LHAAP-070 - LOADING DOCK-MAGAZINE AREA, LHAAP-071 - OIL SPILL, BLDG 813)

SI (LHAAP-011 - SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11), LHAAP-012 - ACTIVE LANDFILL (SWMU 12), LHAAP-013 - SUS TNT BET ACTIVE&OLD LANDFILL(SWMU 13), LHAAP-014 - AREA 54 BURIAL GRND (SWMU 14), LHAAP-016 - OLD LANDFILL (SWMU 16), LHAAP-017 - NO 2 FLASHING AREA BRN GROUND(SWMU 17), LHAAP-018 - BURNING GROUND/WASHOUT POND(SWMU 18), LHAAP-019 - CONSTRUCTION MATERIALS LANDFILL, LHAAP-023 - BUILDING 707-STORAGE AREA PCBS, LHAAP-027 - SOUTH TEST AREA/BOMB TEST AREA(SWMU 27), LHAAP-029 - FORMER TNT PRODUCTION AREA(SWMU 29), LHAAP-032 - FORMER TNT WASTEWATER PLT(SWMU 32), LHAAP-034 - BUILDING 701 PCB STORAGE, LHAAP-035 - SUMPS (145) VARIOUS, LHAAP-036 - EXPLOSIVE WASTE PADS (27))

### 1990

SI (LHAAP-024 - FORMER UNLINED EVAP POND (SWMU 24), LHAAP-054 - GRD SIGNAL TEST AREA (LHAAP-XX))

PA (LHAAP-024 - FORMER UNLINED EVAP POND (SWMU 24), LHAAP-037 - CHEMICAL LABORATORY WASTE PAD, LHAAP-045 - MAGAZINE AREA, LHAAP-050 - FORMER WASTE DISPOSAL FACILITY, LHAAP-051 - PHOTOGRAPHIC LABORATORY/BLDG #60B, LHAAP-052 - MAGAZINE AREA WASHOUT, LHAAP-053 - STATIC TEST AREA, LHAAP-054 - GRD SIGNAL TEST AREA (LHAAP-XX), LHAAP-055 - SEPTIC TANK (10), LHAAP-057 - RUBBLE BURIAL SITE, LHAAP-058 - MAINTENANCE COMPLEX, LHAAP-060 - FORMER STORAGE BUILDING #411 & #714, LHAAP-061 - POTABLE WTP SEDIMENT POND, LHAAP-063 - BURIAL PITS, LHAAP-064 - TRANSFORMER STORAGE, LHAAP-066 - TRANSFORMER AT BLDG 401, LHAAP-067 - ABOVE GROUND STORAGE TANK, LHAAP-068 - MOBILE STORAGE TANK PARKING AREA, LHAAP-069 - SERVICE STATION UST'S)

RFA (LHAAP-039 - 25X WASHOUT PAD)

### 1995

SI (LHAAP-058 - MAINTENANCE COMPLEX, LHAAP-064 - TRANSFORMER STORAGE, LHAAP-066 - TRANSFORMER AT BLDG 401, LHAAP-070 - LOADING DOCK-MAGAZINE AREA, LHAAP-071 - OIL SPILL, BLDG 813)

### 1996

RI/FS (LHAAP-013 - SUS TNT BET ACTIVE&OLD LANDFILL(SWMU 13), LHAAP-014 - AREA 54 BURIAL GRND (SWMU 14))

### 1997

## IRP Schedule

### 1997

SI (LHAAP-050 - FORMER WASTE DISPOSAL FACILITY, LHAAP-060 - FORMER STORAGE BUILDING #411 & #714)

### 1998

SI (LHAAP-052 - MAGAZINE AREA WASHOUT, LHAAP-063 - BURIAL PITS)

RI/FS (LHAAP-001 - INERT BURNING GROUNDS (SWMU 1), LHAAP-011 - SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11), LHAAP-027 - SOUTH TEST AREA/BOMB TEST AREA(SWMU 27), LHAAP-054 - GRD SIGNAL TEST AREA (LHAAP-XX))

### 1999

SI (LHAAP-067 - ABOVE GROUND STORAGE TANK)

### 2002

PA (LHAAP-046 - PLANT 2 AREA)

### 2004

SI (LHAAP-045 - MAGAZINE AREA)

RI/FS (LHAAP-045 - MAGAZINE AREA)

### 2005

PA (PBC Longhorn - PBC at Longhorn)

IRA (LHAAP-012 - ACTIVE LANDFILL (SWMU 12), LHAAP-016 - OLD LANDFILL (SWMU 16))

### 2006

RI/FS (LHAAP-012 - ACTIVE LANDFILL (SWMU 12), LHAAP-023 - BUILDING 707-STORAGE AREA PCBS)

### 2007

PA (LHAAP-059 - BUILDING 725)

RA(C) (LHAAP-012 - ACTIVE LANDFILL (SWMU 12))

RI/FS (LHAAP-032 - FORMER TNT WASTEWATER PLT(SWMU 32))

RD (LHAAP-012 - ACTIVE LANDFILL (SWMU 12))

### 2008

RI/FS (LHAAP-059 - BUILDING 725)

PA (LHAAP-056 - VEHICLE WASH RACK AND OIL/WATER SEP)

LTM (LHAAP-032 - FORMER TNT WASTEWATER PLT(SWMU 32))

### 2009

PA (LHAAP-049 - FORMER ACID STORAGE AREA)

SI (LHAAP-003 - BUILDING 722-PAINT SHOP)

RI/FS (LHAAP-006 - BUILDING 54F SOLVENT, LHAAP-007 - BUILDING 50G DRUM PROCESSING, LHAAP-008 - SEWAGE TREATMENT PLANT, LHAAP-051 - PHOTOGRAPHIC LABORATORY/BLDG #60B, LHAAP-053 - STATIC TEST AREA, LHAAP-055 - SEPTIC TANK (10), LHAAP-060 - FORMER STORAGE BUILDING #411 & #714, LHAAP-064 - TRANSFORMER STORAGE, LHAAP-066 - TRANSFORMER AT BLDG 401, LHAAP-068 - MOBILE STORAGE TANK PARKING AREA)

### 2010

RI/FS (LHAAP-002 - VACCUM TRUCK OVERNITE PARKING LOT, LHAAP-037 - CHEMICAL LABORATORY WASTE PAD, LHAAP-046 - PLANT 2 AREA, LHAAP-049 - FORMER ACID STORAGE AREA, LHAAP-050 - FORMER WASTE DISPOSAL FACILITY, LHAAP-058 - MAINTENANCE COMPLEX, LHAAP-067 - ABOVE GROUND STORAGE TANK)

# IRP Schedule

<b>2011</b>	
PA	(LHAAP-065 - BUILDING 209)
RA(C)	(LHAAP-035 - SUMPS (145) VARIOUS)
IRA	(LHAAP-018 - BURNING GROUND/WASHOUT POND(SWMU 18), LHAAP-024 - FORMER UNLINED EVAP POND (SWMU 24))
RD	(LHAAP-035 - SUMPS (145) VARIOUS, LHAAP-037 - CHEMICAL LABORATORY WASTE PAD, LHAAP-046 - PLANT 2 AREA, LHAAP-050 - FORMER WASTE DISPOSAL FACILITY, LHAAP-058 - MAINTENANCE COMPLEX, LHAAP-067 - ABOVE GROUND STORAGE TANK)
RI/FS	(LHAAP-035 - SUMPS (145) VARIOUS, LHAAP-036 - EXPLOSIVE WASTE PADS (27))
<b>2012</b>	
IRA	(LHAAP-004 - LHAAP PILOT WASTEWATER TREATMENT PLANT)
<b>2013</b>	
RA(C)	(LHAAP-037 - CHEMICAL LABORATORY WASTE PAD, LHAAP-046 - PLANT 2 AREA, LHAAP-050 - FORMER WASTE DISPOSAL FACILITY, LHAAP-058 - MAINTENANCE COMPLEX, LHAAP-067 - ABOVE GROUND STORAGE TANK)
<b>2014</b>	
RI/FS	(LHAAP-019 - CONSTRUCTION MATERIALS LANDFILL, LHAAP-056 - VEHICLE WASH RACK AND OIL/WATER SEP, LHAAP-065 - BUILDING 209, LHAAP-069 - SERVICE STATION UST'S)
<b>2015</b>	
RI/FS	(LHAAP-005 - POWER HOUSE BOILER POND, LHAAP-009 - BUILDING 31-W DRUM STORAGE, LHAAP-015 - AREA 49W DRUM STORAGE, LHAAP-034 - BUILDING 701 PCB STORAGE, LHAAP-052 - MAGAZINE AREA WASHOUT, LHAAP-057 - RUBBLE BURIAL SITE, LHAAP-061 - POTABLE WTP SEDIMENT POND, LHAAP-063 - BURIAL PITS, LHAAP-070 - LOADING DOCK-MAGAZINE AREA, LHAAP-071 - OIL SPILL, BLDG 813)

## 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
LHAAP-017	NO 2 FLASHING AREA BRN GROUND(SWMU 17)	Flashing Area/Burning Grnd No 2:LHAAP-17	20160930

**Final RA(C) Completion Date:** 202106

**Schedule for Next Five-Year Review:** 2019

**Estimated Completion Date of IRP at Installation (including LTM phase):** 209909

## LONGHORN ARMY AMMUNITION PLANT IRP Schedule

[Green Box] = phase underway

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-001	INERT BURNING GROUNDS (SWMU 1)	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-002	VACCUM TRUCK OVERNITE PARKING LOT	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-003	BUILDING 722-PAINT SHOP	RI/FS	[Green]					
		RD	[Green]					
		RA(C)	[Green]					
LHAAP-004	LHAAP PILOT WASTEWATER TREATMENT PLANT	RI/FS	[Green]					
		RD	[Green]					
		RA(C)	[Green]	[Green]				
		RA(O)	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-006	BUILDING 54F SOLVENT	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-007	BUILDING 50G DRUM PROCESSING	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-008	SEWAGE TREATMENT PLANT	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-011	SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11)	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-012	ACTIVE LANDFILL (SWMU 12)	RA(O)	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-016	OLD LANDFILL (SWMU 16)	RI/FS	[Green]					
		RD	[Green]					
		RA(C)	[Green]	[Green]				
		RA(O)	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-017	NO 2 FLASHING AREA BRN GROUND(SWMU 17)	RI/FS	[Green]					
		RD	[Green]					
		RA(C)	[Green]					
		RA(O)	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-018	BURNING GROUND/WASHOUT POND(SWMU 18)	RI/FS	[Green]	[Green]				
		RD	[Green]	[Green]	[Green]			
		RA(C)	[Green]	[Green]	[Green]	[Green]	[Green]	
		RA(O)	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]
LHAAP-019	CONSTRUCTION MATERIALS LANDFILL	LTM	[Green]	[Green]	[Green]	[Green]	[Green]	[Green]



## LONGHORN ARMY AMMUNITION PLANT IRP Schedule

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-024	FORMER UNLINED EVAP POND (SWMU 24)	RI/FS						
		RD						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-029	FORMER TNT PRODUCTION AREA(SWMU 29)	RI/FS						
		RD						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-035	SUMPS (145) VARIOUS	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-036	EXPLOSIVE WASTE PADS (27)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-037	CHEMICAL LABORATORY WASTE PAD	RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-045	MAGAZINE AREA	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-046	PLANT 2 AREA	RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-047	PLANT 3 AREA	RI/FS						
		RD						
		RA(C)						
		RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-049	FORMER ACID STORAGE AREA	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-050	FORMER WASTE DISPOSAL FACILITY	RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-051	PHOTOGRAPHIC LABORATORY/BLDG #60B	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-052	MAGAZINE AREA WASHOUT	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-055	SEPTIC TANK (10)	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-056	VEHICLE WASH RACK AND OIL/WATER SEP	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-058	MAINTENANCE COMPLEX	RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-059	BUILDING 725	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-060	FORMER STORAGE BUILDING #411 & #714	LTM						

## LONGHORN ARMY AMMUNITION PLANT IRP Schedule

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-063	BURIAL PITS	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-064	TRANSFORMER STORAGE	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-065	BUILDING 209	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-066	TRANSFORMER AT BLDG 401	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-067	ABOVE GROUND STORAGE TANK	RA(O)						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-068	MOBILE STORAGE TANK PARKING AREA	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-069	SERVICE STATION UST'S	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-070	LOADING DOCK-MAGAZINE AREA	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-071	OIL SPILL, BLDG 813	LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
PBC Longhorn	PBC at Longhorn	RD						
		RA(C)						
		RA(O)						

# **LONGHORN ARMY AMMUNITION PLANT**

**Non-BRAC Excess**

**Military Munitions Response Program**

# MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 4/1

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

- 1 Explosive Ordnance Disposal Area  
(LHAAP-003-R-01)
- 1 Pistol Range  
(LHAAP-004-R-01)
- 1 Unexploded Munitions/Ordnance  
(LHAAP-001-R-01)

## Most Widespread Contaminants of Concern

Explosives

## Media of Concern

Groundwater, Soil

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

Site ID	Site Name	Action	Remedy	FY	Cost
LHAAP-001-R-01	SOUTH TEST AREA / BOMB TEST AREA	IRA	UXO CLEARANCE	2009	TBD
LHAAP-001-R-01	SOUTH TEST AREA / BOMB TEST AREA	IRA	INSTITUTIONAL CONTROLS	2009	TBD
LHAAP-004-R-01	PISTOL RANGE	IRA	WASTE REMOVAL - SOILS	2010	TBD

## Duration of MMRP

Year of MMRP Inception: 200202

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201701/201701

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

# MMRP Contamination Assessment

## Contamination Assessment Overview

In May 2003 the Phase 3 Army range inventory was completed at LHAAP. The inventory identified three sites as eligible for the Military Munitions Response Program (MMRP). The Phase 3 inventory serves as the preliminary assessment (PA) under CERCLA. In June 2005 an SI was completed. An EE/CA was finalized on the three sites in October 2007. The EE/CA indicated that no Department of Defense (DoD) action was required for LHAAP-002-R-01. An interim removal action was funded for the two other sites and was completed in 2009. In March 2008 an explosives safety submission (ESS) was finalized for the three sites. The final MC summary report was completed in 2011 for LHAAP-001-R-01 and LHAAP-003-R-01. In 2012 the Pistol Range (LHAAP-004-R-01) was added to the MMRP. A soil removal action was completed at LHAAP-004-R-01 and an NFA ROD was signed in September 2010.

## Cleanup Exit Strategy

Limited groundwater monitoring for perchlorate and five-year reviews are planned for LHAAP-001-R-01 and LHAAP-003-R-01. Five-year reviews are planned for LHAAP-004-R-01. The five-year reviews will ensure that the site is inspected, LUCs are still in place and that any new data regarding the condition of the site is reviewed.

## MMRP Previous Studies

	Title	Author	Date
<b>2001</b>	U.S. Army Active/Inactive Range Inventory, Longhorn AAP	Army Materiel Command	AUG-2001
<b>2002</b>	CTT Range Inventory	e2M	JAN-2002
<b>2003</b>	Phase 3 Army Range Inventory at Longhorn Army Ammunition Plant	e2M	MAY-2003
<b>2005</b>	Final Site Inspection Report, Military Munitions Response Program Site Inspection, Munitions Response Sites	e2M	JUN-2005
<b>2006</b>	Final Work Plan Engineering Evaluation/Cost Analysis at the Longhorn Army Ammunition Plant	Cape Environmental Management, Inc.	MAR-2006
	Draft Operational Range Inventory Sustainment (ORIS) for Longhorn AAP	US Army	NOV-2006
<b>2007</b>	Final Engineering Evaluation/Cost Analysis at the Longhorn Army Ammunition Plant	Cape Environmental Management, Inc.	OCT-2007
<b>2008</b>	Final Explosives Safety Submission - Munitions and Explosives of Concern Removal Action	USACE, Huntsville	FEB-2008
	Final Work Plan for MEC Removal Action at Former LHAAP LHAAP-001-R(Site 27) and LHAAP-003-R(Site 54)	EOD Technology, Inc.	JUL-2008
<b>2009</b>	Final EE/CA Former Pistol Range	Shaw Environmental, Inc.	FEB-2009
	Final Site-specific Final Report for MEC Removal Action, LHAAP-001-R(Site 27) and LHAAP-003-R(Site 54)	EOD Technology, Inc.	SEP-2009
<b>2010</b>	Final Completion Report Non-Time Critical Removal Action at the Former Pistol Range	Shaw Environmental, Inc.	JAN-2010
	Final Proposed Plan for the Former Pistol Range	Shaw Environmental, Inc.	JAN-2010
	Final ROD, Former Pistol Range	Shaw Environmental, Inc.	SEP-2010
<b>2011</b>	Final Proposed Plan for South Test Area/Bomb Test Area, LHAAP-001-R and Ground Signal Test Area, LHAAP-003-R	Shaw Environmental Inc.	JUN-2011

# **LONGHORN ARMY AMMUNITION PLANT**

**Non-BRAC Excess**

**Military Munitions Response Program**

**Site Descriptions**

## Site ID: LHAAP-001-R-01

## Site Name: SOUTH TEST AREA / BOMB TEST AREA

### STATUS

**Parcel:** South Test/Bomb (FWS) (72 acres)

**Regulatory Driver:** CERCLA

**MRSP Score:** 04

**Contaminants of Concern:** Explosives

**Media of Concern:** Groundwater, Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	200202.....	200305
SI.....	200402.....	200506
RI/FS.....	200503.....	201701
IRA.....	200710.....	200904
LTM.....	201702.....	204609

**RIP Date:** N/A

**RC Date:** 201701

### SITE DESCRIPTION

This site of approximately 79 acres is also known as environmental site LHAAP-027 and is located southeast of Avenue P and the magazine area, at the end of 70th street, near the southern boundary of LHAAP. The site was constructed in 1954 and used by Universal Match Corporation to test photoflash bombs that were produced at the facility until about 1956. The bombs were tested by exploding them in the air over an elevated, semi-elliptical earthen test pad. Bombs awaiting testing were apparently stored in three earth-covered concrete bunkers. The bombs tested were 150-pound M120/M120A photoflash bombs, filled with photoflash powder and containing a black powder booster charge for bursting the bomb with a timed nose fuse.

The location of the site, for this purpose, was not ideally suited to the task, as fragments from this testing landed beyond the installation boundary. By June 1954, static testing of photoflash bombs had been discontinued because of the possibility of damage and injuries beyond the installation boundary. During the late-1950s, illuminating signal devices were also demilitarized within pits at this site. During the early-1960s, leaking production items were demilitarized in the area. The May 1997 final RI report for Group I sites indicates approximately 52,000 one-half and one-pound photoflash cartridges were demilitarized at the site in the early-1980s.

In 1982, investigations included installation and sampling of two wells and three shallow soil samples. Explosives, metals, chloride and sulfate were detected above background levels in the soil samples. In January 1998, an NFA ROD was signed by the USEPA, based upon the site-specific risk analysis for human and ecological exposure to the contaminants of potential concern for the site.

In 2004, the Explosive Ordnance Disposal (EOD) unit at Fort Polk blew in place (BIP) one 155 mm white phosphorous (WP) round. The identification of this round as a live 155 mm WP round is suspect. Plexus, in the 2005 environmental baseline survey (EBS) (page 46), states that "confirmatory sampling (CS) WP operations at LHAAP were assembly and packout operations only; no loading of these materials was conducted at the site. The WP rounds were stored and worked in the east line area of Plant 2 [US Army Toxic and Hazardous Materials Agency (USATHAMA), 1980]." Testing of the payload at LHAAP would not be part of the mission, since it was not manufactured at Longhorn. Others indicate that it was a 105 or 81 mm smoke round.

A reported demolition site was identified on the northwest perimeter of this site. This was added to the investigation. In FY2008 an EE/CA report was completed, approved and signed. In October 2007 the report was finalized. An IRA has been funded with the final ESS completed in March 2008. The removal action was completed in 2009. The ROD is delayed until the dispute is resolved with the USEPA. The ROD will include limited groundwater monitoring for perchlorate and LUCs of restrictions against digging and residential use and sign maintenance. The costs for the ROD and RD are captured under the PBA. Five-year reviews are required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. The costs reported under this site include out-year LUC maintenance costs for a finite period of 30 years where LTM phase is expected to continue indefinitely.



**Site ID: LHAAP-001-R-01**

**Site Name: SOUTH TEST AREA / BOMB TEST AREA**

## **CLEANUP/EXIT STRATEGY**

Five-year reviews are planned for this site. These five-year reviews will ensure that the site is inspected and that any new data regarding the condition of the site is reviewed. The LUCs are in place and will be formally enforced upon ROD signature.

## Site ID: LHAAP-003-R-01

## Site Name: GROUND SIGNAL TEST AREA

### STATUS

**Parcel:** Ground Signal Test (FWS) (80 acres)

**Regulatory Driver:** CERCLA

**MRSP Score:** 04

**Contaminants of Concern:** Explosives

**Media of Concern:** Groundwater, Soil

<u>Phases</u>	<u>Start</u>	<u>End</u>
PA.....	200202.....	200305
SI.....	200402.....	200506
RI/FS.....	200503.....	201701
IRA.....	200710.....	200904
LTM.....	201702.....	204609

**RIP Date:** N/A

**RC Date:** 201701

### SITE DESCRIPTION

This site, also known as environmental site LHAAP-054, encompasses approximately 80 acres and is located in the southeastern portion of LHAAP. Starting in April 1963 the site was used intermittently for aerial and on-ground testing and destruction of a variety of devices, including red phosphorus smoke wedges, infrared flares, illuminating 60 and 81 mm mortar shells, illuminating 40 to 155 mm cartridges, button bombs, and various types of explosive simulators. The site was also used intermittently over a 20-year period for testing and burnout of rocket motors from Nike-Hercules, Pershing, and Sergeant missiles. Around 1970, one of the Sergeant rocket motors exploded in an excavated pit near the center of the site. Debris was reportedly placed in the resulting crater and backfilled. From late-1988 through 1991, the site was also used for burnout of rocket motors in Pershing missiles destroyed in accordance with the INF Treaty between the United States (US) and the former Soviet Union. In January 1998 an NFA ROD for hazardous, toxic and radioactive waste (HTRW) under CERCLA was signed. The site is currently undeveloped.

In December 2004, the EOD unit at Fort Polk BIP 105 mm and 81 mm rounds. In FY2008 an EE/CA report was completed, approved and signed. In October 2007 the report was finalized. An IRA has been funded with the final ESS completed in March 2008. The removal action was completed in 2009. The ROD is delayed until the dispute is resolved with the USEPA. The ROD will include limited groundwater monitoring for perchlorate LUCs of restrictions against digging and residential use and sign maintenance. The costs for the ROD and RD are captured under the PBA. Five-year reviews are required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. The costs reported under this site include out-year LUC maintenance costs for a finite period of 30 years where LTM phase is expected to continue indefinitely.

### CLEANUP/EXIT STRATEGY

Five-year reviews are planned for this site. These five-year reviews will ensure that the site is inspected and that any new data regarding the condition of the site is reviewed. The LUCs are in place and will be formally enforced upon ROD signature.

**Site ID: LHAAP-004-R-01**  
**Site Name: PISTOL RANGE**

**STATUS**

**Parcel:** Pistol Range (FWS) (1 acres)

**Regulatory Driver:** CERCLA

**MRSP Score:** No longer required

**Contaminants of Concern:** Metals

**Media of Concern:** Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	200809.....	200902
RI/FS.....	201005.....	201008
IRA.....	200912.....	201001
LTM.....	201201.....	204609

**RIP Date:** N/A

**RC Date:** 201008

**SITE DESCRIPTION**

The former pistol range was known to have been used by LHAAP security personnel for small arms target qualification and recertification. The pistol range was established in the 1950s and used intermittently through 2004. Site investigation results identified areas where the surface and near surface soil was contaminated with lead at concentrations that exceeded the TCEQ soil MSCC for industrial use. A non-time critical removal action was completed. The IRA for this site became the FRA. An NFA ROD was finalized in August 2010. A notification (not a remedy or LUC) has been filed in Harrison County, TX stating that the site is suitable for non-residential use in accordance with Texas Administrative Code Title 30 §335.566. A five-year review report in the form of a letter stating the use of the site remains non-residential is required. The costs for the installation-wide five-year reviews are captured under LHAAP-058. A finite period of 30 years is used where LTM is expected to continue indefinitely.

**CLEANUP/EXIT STRATEGY**

LTM in the form of five-year reviews is required.

## MMRP Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
LHAAP-002-R-01	STATIC TEST AREA	200811	A no action decision document signed in 2008.

# MMRP Schedule

**Date of MMRP Inception** 200202

## **Past Phase Completion Milestones**

### **2003**

PA (LHAAP-001-R-01 - SOUTH TEST AREA / BOMB TEST AREA, LHAAP-002-R-01 - STATIC TEST AREA, LHAAP-003-R-01 - GROUND SIGNAL TEST AREA)

### **2005**

SI (LHAAP-001-R-01 - SOUTH TEST AREA / BOMB TEST AREA, LHAAP-002-R-01 - STATIC TEST AREA, LHAAP-003-R-01 - GROUND SIGNAL TEST AREA)

### **2008**

RI/FS (LHAAP-002-R-01 - STATIC TEST AREA)

### **2009**

PA (LHAAP-004-R-01 - PISTOL RANGE)

IRA (LHAAP-001-R-01 - SOUTH TEST AREA / BOMB TEST AREA, LHAAP-003-R-01 - GROUND SIGNAL TEST AREA)

### **2010**

RI/FS (LHAAP-004-R-01 - PISTOL RANGE)

IRA (LHAAP-004-R-01 - PISTOL RANGE)

## **Projected Phase Completion Milestones**

**See attached schedule**

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

To Be Determined

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

**Schedule for Next Five-Year Review:** 2019

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

## LONGHORN ARMY AMMUNITION PLANT MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-001-R-0	SOUTH TEST AREA / BOMB TEST AREA	RI/FS						
		LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-003-R-0	GROUND SIGNAL TEST AREA	RI/FS						
		LTM						
SITE ID	SITE NAME	PHASE	FY17	FY18	FY19	FY20	FY21	FY22+
LHAAP-004-R-0	PISTOL RANGE	LTM						

## Community Involvement

**Technical Review Committee (TRC):** 199203

**Community Involvement Plan (Date Published):** 201311

**Restoration Advisory Board (RAB):** RAB established 2004

**RAB Adjournment Date:**

**RAB Adjournment Reason:**

### **Additional Community Involvement Information**

While the Army leads the Installation Restoration Program (IRP) at LHAAP, a close working relationship with the regulatory community has been developed. The local public community has been involved in the past through the TRC process.

In April 1996 and in 1998 formation of a RAB was attempted; however, community involvement in the TRC process was determined to be sufficient for community needs. In September 2004, in response to public notices and private mailings, a group of citizens attended a RAB-interest meeting. Enthusiastic support resulted in the first RAB meeting in December 2004. It was well attended. The RAB has created its own symbol, finalized its charter, and elected a co-chair. The RAB meets quarterly and public meetings are held for each PP. These will continue as needed.

An update to the community involvement plan was finalized in 2013.

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

Longhorn Army Trailer  
Groundwater Treatment Plant Compound  
Highway 134 and Spur 449  
Karnack, TX 75661

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

Marshall Texas Library  
300 South Alamo  
Marshall, TX 75670

**Current Technical Assistance for Public Participation (TAPP):** 199909

**TAPP Title:** Grnd/surf water migration

**Current Technical Assistance for Public Participation (TAPP):** 200103

**TAPP Title:** TAPP2

**Potential TAPP:** N/A

