JFHQ AZ ARNG

Army Cleanup Program

Installation Action Plan

2023

CONTENTS

ACRONYMS

Acronym	Definition
AEDB-R	Army Environmental Database - Restoration
AZARNG	Arizona Army National Guard
AGC	Advanced Geophysical Classification
CC	Compliance-Related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CMUA	Concentrated Munitions Use Areas
CTC	Cost to complete
DD	Decision Document
DERP	Defense Environmental Restoration Program
FS	Feasibility Study
HQAES	Headquarters Army Environmental System
IRA	Interim Remedial Action
LTM	Long-Term Management
LUC	Land Use Control
MC	Munitions constituents
MCAR	Maroon Crater Artillery Range
MD	Munitions Debris
mm	Millimeter
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
N/A	Not Applicable
NFA	No Further Action
PA	Preliminary Assessment
PP	Proposed Plan
RAB	Restoration Advisory Board
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RC	Response Complete

Acronym	Definition
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-In-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SAIA	Small Arms Impact Area
SAR	Small Arms Range
SARN	Small Arms Range North
SI	Site Inspection
TAPP	Technical Assistance for Public Participation
TRC	Technical Review Committee
USFS	United States Forest Service
UST	Underground Storage Tank
WBS	Work Breakdown Structure

PHASE TRANSLATION TABLE

HQAES Phase ID	CERCLA Phase	RCRA Phase	RCRA UST Phase
.01	Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
.02	Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
.03	Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
.04	Remedial Design (RD)	Design (DES)	Design (DES)
.05	Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
.06	Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
.07	Remedial Action (Operation) (RA(O))	Corrective Measures Implementation (Operation) (CMI(O))	Implementation (Operation) (IMP(O))
.08	Long-Term Management (LTM)	Long-Term Management (LTM)	Long-Term Management (LTM)

SITE ALIAS LIST

HQAES ID	AEDB-R Reference	Site Alias
6876A.1013	CC_AZHQ-006-R-01_NDNODS_KINGMAN RANGE	RRAZ000006
6876A.1014	CC_AZHQ-009-R-01_NDNODS_MAROON CRATER	
6876A.1016	CC_AZHQ-005-R-01_NDNODS FT TUTHILL SMALL ARMS RANGE	

JFHQ AZ ARNG

COMPLIANCE CLEANUP SITES

CC_AZHQ-006-R-01_NDNODS_KINGMAN RANGE

HQAES ID: 6876A.1013

Alias: RRAZ000006

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 08/15/2028

RC Date: 08/15/2028

RC Reason: Not assigned

Program: Compliance Cleanup

Subprogram: CC

Phases	*Start*	*End*
PA	4/15/2007	9/15/2009
SI	7/15/2010	12/15/2012
RI/FS	3/15/2016	10/15/2021
RD	08/15/2023	09/15/2023
IRA	- -	- -
RA(C)	08/15/2023	08/15/2028
RA(O)	- -	- -
LTM	08/15/2028	08/15/2058

Site Narrative

The 8.14-acre Kingman Range Munitions Response Site (MRS) was used by the Arizona Army National Guard as a small arms firing range from 1951 to 1968. A portion of the MRS has been developed as residential property and has been privately owned since 1968. The MRS is in a residential community where access is unrestricted to pedestrian and vehicular traffic. A 2012 Site Inspection (SI) recommended that the MRS proceed to an Remedial Investigation (RI) because the visual survey identified munitions debris (MD) on site. During the 2017-2019 RI, MD from small, medium, and large caliber munitions were found at the MRS. Soil samples collected during both the SI and RI failed to identify a potential source of munitions constituents. An RI/Feasibility Study (FS) has been funded at the site. Work completed through the SI was performed using The Defense Environmental Restoration Program (DERP) funding. The RI/FS phase was performed using Compliance-related Cleanup (CC) Program funding. Any additional phases will be funded through the CC Program.

Restoration/Cleanup Strategy: An RI/FS was funded at this site. The Remedial Design (RD), Remedial Action (Construction) (RAC) are expected to be awarded this Fiscal Year (FY). It is assumed future costs for the site will be for Long Term Management (LTM) (Land Use Controls (LUCs) and five-year reviews).

CC_AZHQ-009-R-01_NDNODS_MAROON CRATER ARTILLERY RANGE

HQAES ID: 6876A.1014

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 9/30/2023

RC Date: 9/30/2023

RC Reason: Not assigned

Program: Compliance Cleanup

Subprogram: CC

Phases	*Start*	*End*
PA	12/15/2010	2/15/2011
SI	2/15/2011	12/15/2012
RI/FS	01/15/2013	09/16/2018
RD	10/1/2018	11/30/2018
IRA	- -	- -
RA(C)	12/1/2018	11/30/2023
RA(O)	- -	- -
LTM	11/30/2028	10/1/2058

Site Narrative

Maroon Crater Artillery Range (MCAR) was used for military training (long-range tanks, artillery, recoilless rifles, mortars, rocket launchers, and other weaponry) post-World War II after artillery training ceased at Fort Tuthill. In 1948, the Arizona National Guard requested a Special Use Permit for 12,817 acres of land located 7 miles northeast of Flagstaff, Arizona. A 1951 Special Use Permit was granted to the Arizona National Guard for 6,900 acres of the area permitted in 1948. Shortly after the Site Inspection (SI) in 2012, it was noted that the 1940s permit with the United States Forest Service (USFS) granted permission to the Arizona National Guard to use Section 3, a 640-acre tract that was not owned by the USFS at the time. Therefore, the original Munitions Response Site (MRS) acreage was reduced to 12,177 acres to reflect this error. Activation of a field artillery battalion in 1948 coincides with the original permit request. A 105 millimeter (mm) illumination round and photographs of artillery impacts on MCAR are on display at the Fort Tuthill museum. The museum's curation confirms 60mm and 81mm mortars and machine guns were used at MCAR. A 2017 Remedial Investigation (RI) confirmed the presence of munitions debris (MD) from medium and large caliber munitions. However, no explosives or metals concentrations were identified above method detection limits or soil regulatory standards. The Site Inspection (SI) recommended that a RI be performed to address the potential for munitions constituents (MC) and munitions and explosives of concern "Concentrated Munitions Use Area" (CMUA) (1,863 acres) and "Buffer Area" (10,314 acres). No further action (NFA) was recommended for the Buffer Area. The CMUA was carried forward into a 2017 Feasibility Study (FS) and a remedy was identified in the Proposed Plan (PP). The 2018 PP indicated that land use controls (LUCs) in combination with a surface/subsurface clearance was the preferred alternative. A 2018 Record of Decision documented the selection of NFA as the preferred alternative for the Buffer Area and LUCs along with a surface/subsurface removal of military munitions using Advanced Geophysical Classification (AGC) Methods for the CMUA MRSs. The Remedial Action (Construction) (RA(C)) phase is underway. The Defense Environmental Restoration Program funded the Preliminary Assessment (PA) and SI phases of MCAR. Compliance-related Cleanup funds have been used for the RI/FS phase and beyond.

Restoration/Cleanup Strategy: The RA(C) phase is underway at this site. Once the RA(C) is completed, the Long Term Management (LTM) phase including five-year reviews will commence.

CC_AZHQ-005-R-01_NDNODS FT TUTHILL SMALL ARMS RANGE

HQAES ID: 6876A.1016

Alias: N

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 02/15/2031

RC Date: 02/15/2031

RC Reason: Not assigned

Program: Compliance Cleanup

Subprogram: CC

Phases	*Start*	*End*
PA	12/31/2010	02/28/2011
SI	02/28/2011	09/30/2012
RI/FS	01/15/2019	11/15/2021
RD	01/15/2029	02/15/2029
IRA	- -	- -
RA(C)	02/15/2029	02/15/2031
RA(O)	- -	- -
LTM	02/15/2032	02/15/2062

Site Narrative

The former target range was used for training during summer encampments by units of the Arizona Army National Guard (AZARNG) from 1928 through 1955. The former target range is located within Fort Tuthill County Park part of Coconino National Forest. The former range is located on a section of land that is state owned land. The firing lines were located north of a small hillside. Firing was directed from north to south with the impact berm located at the base of the hill approximately 50 to 100 feet high. The site consisted of several firing lines including one located at 200 yards. This portion of the site represents 2.6 acres.

In 1929, the Arizona Legislature appropriated funds to build a military training camp, Fort Tuthill, on 50 acres leased to the Arizona National Guard. A 1930 Special Use Permit increased the acreage to support target ranges and maneuver areas. A 1931 Special Use Permit included approximately 7,525 acres for use as an artillery range. A 1950 Special Use Permit reduced the total area to 6,541 acres (excluding the portion of land occupied by Pulliam Airport). The use of long-range tanks, artillery, recoilless rifles, mortars, rocket launchers, and other weaponry acquired after World War II ceased at Fort Tuthill when the Pulliam Airport started operations in 1948. The Fort Tuthill Munitions Response Area includes three Munitions Response Sites: 2.6-acre Small Arms Impact Area (AZHQ-005-R-01); 8,982-acre Artillery Range (AZHQ-005-R-02); and Small Arms Range North (AZHQ-005-R-03).

The small arms range (SAR), which includes both the Small Arms Impact Area (SAIA) and the Small Arms Range North (SARN), was used for training from 1928 through 1955 and is now located within a Coconino County park. Firing was directed from the northeast to the southwest at an impact berm located at the base of a small hill (50 to 100 feet high). A 2012 Site Inspection (SI) was performed on the SAIA, but not the SARN due to access issues. The SAIA SI found no evidence of munitions debris (MD). The SI report recommended no further action for the SAIA and a SI for the SARN when access was obtained. A 2014 SI recommended no further action for the SARN.

A Remedial Investigation (RI) of the SAIA was completed at the site after a 2.36-inch rocket was found near the hill in 2017.

The Defense Environmental Restoration Program funded the investigation of the SAR until the reopening of the RI for the SAIA. Compliance-related Cleanup Program will fund the RI/Feasibility Study (FS), Proposed Plan and beyond.

Restoration/Cleanup Strategy: An RI/FS was completed at this site. The CTC estimate for this site assumes Remedial Design (RD), Remedial Action (Construction) (RAC) and Long Term Management (LTM) (Land Use Controls (LUCs) and five-year reviews).

SITE CLOSEOUT SUMMARY

HQAES ID	Site Name	Site Closeout Date	Program Code
6876A.1001	AZHQ-002-R-01_NDNODS City of Phoenix Air	9/30/2012	ENV Restoration, Army
6876A.1002	AZHQ-004-R-01_NDNODS Flagstaff Artillery	9/30/2012	ENV Restoration, Army
6876A.1003	AZHQ-007-R-01_NDNODS Mesa Range	9/30/2012	ENV Restoration, Army
6876A.1004	AZHQ-001-R-01_NDNODS Camp Stephen D. Lit	11/1/2012	ENV Restoration, Army
6876A.1005	AZHQ-003-R-01_NDNODS Coconino Sportsmans Range Complex	12/30/2012	ENV Restoration, Army
6876A.1006	AZHQ-005-R-01_NDNODS Fort Tuthill Artillery Small Arms Range	12/30/2012	ENV Restoration, Army
6876A.1007	AZHQ-006-R-01_NDNODS Kingman Range	9/30/2012	ENV Restoration, Army
6876A.1008	AZHQ-008-R-01_NDNODS Warren-Bisbee Rifle	9/30/2012	ENV Restoration, Army
6876A.1009	AZHQ-005-R-02_NDNODS Fort Tuthill Artillery Small Arms Range	9/30/2012	ENV Restoration, Army
6876A.1010	AZHQ-009-R-01_NDNODS Maroon Crater Artillery Range	9/30/2012	ENV Restoration, Army
6876A.1011	AZHQ-005-R-03_NDNODS FORT TUTHILL SMALL ARMS RANGE	8/15/2014	ENV Restoration, Army
6876A.1012	CC_AZHQ-008-R-01_NDNODS_WARREN-BISBEE RR	3/15/2013	Compliance Cleanup
6876A.1015	CC_AZHQ-009-R-02_NDNODS MAROON CRATER	12/15/2012	Compliance Cleanup
6876A.1017	CC_AZHQ-006-R-02_KINGMAN RANGE	10/15/2021	Compliance Cleanup

COMMUNITY INVOLVEMENT

Technical Review Committee (TRC) Establishment Date:	N/A
Community Involvement Plan (Date Published):	12/15/2015
Restoration Advisory Board (RAB) Establishment Date:	N/A
RAB Adjournment Date:	N/A
RAB Adjournment Reason:	N/A
Additional Community Involvement:	Interviews with members of the community took place. A RAB solicitation was placed in the Arizona Daily Sun. There was a lack of response by the community, indicating there was no need to create a RAB at this time.
Administrative Record is located at:	Arizona Army National Guard, Environmental Office 5636 E. McDowell Road, M5330 Phoenix, AZ 85008
Information Repository is located at:	Cline Library Northern Arizona University, Building 28 Flagstaff, Arizona 86011-6022
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Review Summary Table

None

ROD/DDs associated with the last Five-Year/Periodic Review

None

Results, Actions & Plans

None

LAND USE CONTROLS (LUC) SUMMARY

None

CAMP NAVAJO

Army Cleanup Program

Installation Action Plan

2023

CONTENTS

ACRONYMS

Acronym	Definition
ADEQ	Arizona Department of Environmental Quality
AEDB-R	Army Environmental Database - Restoration
AHWMA	Arizona Hazardous Waste Management Act
AOI	Areas of interest
AWQS	Aquifer Water Quality Standard
CC	Compliance-Related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CTC	Cost to complete
COCs	Contaminants of concern
DD	Decision Document
DERP	Defense Environmental Restoration Program
ENV	Environmental
EOD	Explosive Ordnance Disposal
FCDL	Former construction debris landfills
FS	Feasibility Study
HQAES	Headquarters Army Environmental System
ICM	Improved Conventional Munitions
IR	Installation Restoration
IRP	Installation Restoration Program
IRA	Interim Remedial Action
LTM	Long-Term Management
LUC	Land Use Control
MC	Munitions constituents
MEC	Munitions of Explosives of Concern
MR	Munitions Response
MRSPP	Munitions Response Site Prioritization Protocol
MRWA	Munitions Response Work Area
NFA	No further action

Acronym	Definition
Ng/L	Nanograms/Liter
OB/OD	Open Burn/Open Detonation
OCPs	Organochlorine pesticides
PA	Preliminary Assessment
PCBs	Polychlorinated biphenyls
PCPA	Post-closure permit area
PFAS	Per- and polyfluoroalkyl substances
PFOS	Perfluorooctanesulfonic acid
PRG	Preliminary remediation goal
PSG	Preliminary Screening Guidance
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
RIP	Remedy-In-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SL	Screening levels
SRL	Soil remediation levels
SWMU	Solid waste management unit
SVOC	Semi-volatile organic compounds
TAL	Target analyte list
TDEM	Time Domain Electromagnetic
TNT	Trinitrotoluene
Ug/kg	Micrograms/kilograms

Acronym	Definition
ug/L	Micrograms per liter
UST	Underground Storage Tank
UXO	Unexploded ordnance
VOCs	Volatile organic compounds
WBS	Work Breakdown Structure
WP	White Phosphorous

PHASE TRANSLATION TABLE

HQAES Phase ID	CERCLA Phase	RCRA Phase	RCRA UST Phase
.01	Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
.02	Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
.03	Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
.04	Remedial Design (RD)	Design (DES)	Design (DES)
.05	Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
.06	Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
.07	Remedial Action (Operation) (RA(O))	Corrective Measures Implementation (Operation) (CMI(O))	Implementation (Operation) (IMP(O))
.08	Long-Term Management (LTM)	Long-Term Management (LTM)	Long-Term Management (LTM)

SITE ALIAS LIST

HQAES ID	AEDB-R Reference	Site Alias
76897.1001	NAAD-01_OLD EOD DEMOLITION AREA	AREE-01
76897.1012	NAAD-11B_BLDG 318/319 TNT WASHOUT FACILITY	AREE-11
76897.1025	NAAD-20_PYROTECHNIC RANGE	AREE-20
76897.1042	NAAD-40_FORMER SANITARY LANDFILL	AREE-40
76897.1066	CC-NAAD-02_NAAD 02 OPEN DETONATION PITS	OD PITS
76897.1072	AZ2020-01-P_CAMP NAVAJO PFAS CONTAMINATION	- -

CAMP NAVAJO

INSTALLATION RESTORATION PROGRAM SITES

NAAD-01_Old EOD Demolition Area

HQAES ID: 76897.1001

Alias: AREE-01

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 04/30/2009

RC Date: 04/30/2009

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	10/31/1989	03/31/1990
SI	10/31/1989	03/31/1990
RI/FS	0 9/30/1994	04/30/2009
RD	- -	- -
IRA	12/31/2005	11/15/2007
RA(C)	- -	- -
RA(O)	- -	- -
LTM	01/15/2015	09/15/2054

Site Narrative

The Old Explosive Ordnance Disposal (EOD) Demolition Area, located south of Igloo Area C, occupies a 700 by 2,100 square foot area. The demolition activities in this area centered on high explosive filled ammunition in shell sizes up to 500 lbs; however, general purpose bombs, some White Phosphorous (WP)- filled projectiles and small arms ammunition were also disposed of at this site. The area was utilized by an EOD unit until the middle 1970s for demolition and training, with some training related to firing 50 caliber machine guns into bordering banks.

Arsenic, beryllium and lead were detected below the State of Arizona's cleanup standards for soil during the Remedial Investigation (RI). In 1995 and 1996, 10 metals were detected in the majority of soil samples analyzed. Arsenic and lead concentrations exceeded Arizona’s nonresidential soil remediation levels (SRLs) in surface and subsurface samples. Chromium concentrations exceeded the United States Environmental Protection Agency's preliminary remediation goal (PRG). 2 ,4-dinitrotoluene and hexahydro-1,3,5-trinitro-1,3,5-triazine were detected in five surface samples and two subsurface samples at concentrations below Arizona’s non-residential SRLs. The remainder of constituents were detected below established residential SRLs and PRGs. In November 2004, the background metals study was finalized. An aerial magnetometer survey was conducted in the summer of 2002. Anomalies i dentified by the survey were investigated in 2004. Additional site characterization, interim removal actions and a risk assessment were conducted November 2005 through April 2006.

A Decision Document (DD) selecting No Further Action (NFA) for munitions constituients (MC) was finalized in April 2009. A Munitions of Explosives of Concern (MEC) investigation was completed in 2005-2006 that defined the outer boundary of the kick-out area and the density and distribution of MEC and munitions debris. A surface MEC removal action was completed in 2007. An Engineering Evaluation and Cost Analysis and DD for MEC hazards were completed in 2009. Due to the suspected presence of subsurface MEC within the operational footprint and the possible presence of surface and near-surface MEC remaining in the kickout area, it was determined that Land Use Controls (LUC) were necessary for the long-term protection of human health.

The NAAD-01 DD determined that the site could be closed with unlimited use/unlimited exposure for site-related MC in soil and surface water, and that the groundwater pathway was incomplete. The Munitions Response Work Area (MRWA) 01 DD requires Long-Term Management (LTM) for MEC and Munitions Constituents (MC) contained in the remaining MEC for a period of 30 years. LUCs implemented include signs and fences, security patrols, MEC awareness training and other educational efforts. LUC inspections and maintenance and five-year

reviews are being performed at the site. A five-year review was funded in FY20-21,and six more periodic reviews will be performed during the 30 year LTM duration. Five-year review costs are included under site NAAD-11B.

NAAD-11B_Bldg 318/319 TNT Washout Facility

HQAES ID: 76897.1012

Alias: AREE-11

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 12/31/2010

RC Date: 12/31/2010

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	10/31/1989	03/31/1990
SI	- -	- -
RI/FS	09/30/1994	12/31/2010
RD	- -	- -
IRA	09/30/1998	11/30/2002
RA(C)	- -	- -
RA(O)	- -	- -
LTM	12/31/2010	09/30/2054

Site Narrative

NAAD-11B is a former trinitrotoluene (TNT) washout plant consisting of approximately 2 acres. The soil has been remediated, but explosives remain in shallow groundwater. Long Term Management (LTM) consisting of groundwater monitoring is required ensure that the contamination plume does not migrate from the site. The sampling frequency and analytical parameters have been reduced significantly according to a negotiated ramp-down strategy. Although further minor ramp-down is possible, it is assumed for this estimate that future LTM will be consistent with the current effort.

In August 1998 and February 1999, Time Domain Electromagnetic (TDEM) and seismic transects revealed two parallel northeast-southwest trending faults which straddle the site, along with the possibility of deeper faults oriented northwest-southeast. Building 319 was demolished and contaminated soil around and underneath the building was removed. A hydrologic investigation verified the vertical and lateral extent of groundwater contamination and characterized the nature of shallow aquifers. It indicated that groundwater contamination was contained in the uppermost 100 feet of alluvium. Subsequent groundwater monitoring confirmed continued explosives contamination, but showed a decrease in concentration and lateral extent after removal of the building and soil in 1999. Confirmatory soil sampling was performed and a report was submitted proposing No Further Action (NFA) for contaminants in soil and long-term groundwater monitoring, which was concurred with by Arizona Department of Environmental Quality (ADEQ) in May of 2005.

Explosives, primarily hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), were detected at concentrations greater that their respective Preliminary Screening Guidance (PSG) or Aquifer Water Quality Standard (AWQS) in eight of the twelve monitoring wells. The highest RDX concentrations reported in the Fall 2009 event were 150 micrograms per liter (µg/L) in well 97-05, 120 µg/L in well 00-02, and 59 µg/L in well 97-08. Perchlorate was detected in five wells at

concentrations less than the PSG of 11 µg/L. Metals were detected in seven wells. Arsenic and barium were detected in two wells at concentrations greater than the PSGs, but they were within the range of background levels. Overall stable or decreasing trends of explosives, metals, and perchlorate at NAAD-11B indicated that the soil removal efforts were effective at removing the source of contamination.

Since 2005, the RDX plume at NAAD-11B has been relatively stable and does not appear to be migrating away from the source area. Changes in the plume appear to be influenced by the seasonal presence or absence of groundwater. The groundwater gradient is toward the source area from both the northeast and the west, suggesting that plume migration is unlikely to occur outside of the source area. Explosives have not been detected in a monitoring well screened below the former source area and below the contaminated shallow water bearing zone, indicating that vertical migration has not occurred. In 2017-2018, a regional perchlorate occurrence study determined that the perchlorate concentrations at NAAD-11B were likely due to natural causes.

A Decision Document (DD) was completed on October 13, 2010, which determined that long-term groundwater monitoring and land use controls (LUCs) were an appropriate remedy. LUCs were implemented, including restrictions on residential development and groundwater usage. According to the DD and subsequent LTM monitoring results, hazardous substances remain in shallow groundwater at levels exceeding screening risk levels.

A five-year review report was completed in 2021. The document concluded that the remedy at NAAD-11B is protective of human health and the environment.

Restoration/Cleanup Strategy: The LTM phase is underway at this site. The CTC estimate for this site assumes monitoring and five-year reviews.

NAAD-20_Pyrotechnic Range

HQAES ID: 76897.1025

Alias: AREE-20

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/29/2015

RC Date: 12/31/2014

RC Reason: Study Completed, No Cleanup Required

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	10/31/1989	03/31/1990
SI	- -	- -
RI/FS	09/30/1994	12/31/2014
RD	01/1/2015	02/1/2015
IRA	- -	- -
RA(C)	02/1/2015	09/29/2015
RA(O)	- -	- -
LTM	09/30/2015	09/30/2054

Site Narrative

NAAD-20 is a former surveillance range for hand- and rifle-grenades, rockets, and other small ordnance. The site is located in the active maneuver training area, and is not eligible for the Military Munitions Response Program. An initial RI performed in 1998 recommended NFA for the site. ADEQ requested additional sampling, including surface water sampling for perchlorate and a MEC investigation. Perchlorate concentrations were non-detect. The DD for chemical constituents in soil and surface water was approved for RC with NFA in 2014. MEC characterization was completed in 2005-2006. Approximately 40% of the area was surveyed and one 3.5-inch rocket motor fuze was recovered. It was determined that the fuze was likely misshandled and was not a result of munitions firing. The DD for MEC hazards was approved for RC with LTM consisting of LUCs in 2009. LUCs include signs and fences, security patrols, MEC awareness training and other educational efforts. Work at the site includes LUC inspections and maintenance, LTM reports, monthly reporting, meetings, and five-year reviews. A five-year review was completed in FY20-21, and six more periodic reviews will be performed during the 30 year LTM duration. Five-year review costs are included under site NAAD-11B.

NAAD-40_Former Sanitary Landfill

HQAES ID: 76897.1042

Alias: AREE-40

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/30/2001

RC Date: 09/30/2001

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	10/31/1989	03/31/1990
SI	- -	- -
RI/FS	09/30/1994	01/31/2001
RD	01/31/2001	02/28/2001
IRA	- -	- -
RA(C)	03/31/2001	09/30/2001
RA(O)	- -	- -
LTM	09/30/2006	09/15/2054

Site Narrative

NAAD-40 is a capped former sanitary landfill approximately four acres in size. The landfill was capped in 2001, the cap was rehabilitated in May 2006, and major maintenance was performed in 2008. Since then, the vegetation cover has stabilized and erosion is minimal. No settlement of the landfill contents has been detected. Maintenance is typically limited to replacement of silt fences and straw bales and wattle.

Groundwater and soil gas monitoring have been conducted since 2005. No groundwater contaminants have been detected at concentrations greater than screening levels, and elevated soil gas concentrations have not been detected. The landfill cap is in good condition and is functioning as designed. Groundwater and soil gas monitoring and landfill cap inspections and minor maintenance are conducted annually in the spring. The landfill cap is inspected biennially by a Professional Engineer, and elevation points on the cap are surveyed biennially by a Registered Land Surveyor.

LUCs (including gates, signs, and excavation prohibitions) prevent unauthorized access and intrusive activities. Hazardous waste remains in the subsurface. Thirty years of LTM costs were stipulated in the Defense Environmental Restoration Program (DERP) Management Guidance, March 9, 2012 Section 13.a.6. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) stipulates that if hazardous substances remain at a site above levels allowed for unlimited use and unrestricted exposure, five-year reviews will be performed. LTM groundwater monitoring, landfill maintenance and inspection, LTM Reports, monthly reports, meetings, and five-year reviews will continue for 30 years at this site. A five-year review was completed in FY20-21, and six more periodic reviews will be performed during the 30 year LTM duration. Five-year review costs are included under site NAAD-11B.

AZ2020-01-P_CAMP NAVAJO PFAS CONTAMINATION

HQAES ID: 76897.1072

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/15/2030

RC Date: 09/15/2030

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	08/11/2017	05/15/2020
SI	05/17/2019	09/15/2023
RI/FS	09/15/2023	09/15/2030
RD	- -	- -
IRA	- -	- -
RA(C)	- -	- -
RA(O)	- -	- -
LTM	- -	- -

Site Narrative

A Preliminary Assessment (PA) was completed for per- and polyfluoroalkyl substances (PFAS) at Camp Navajo in Bellemont, Arizona, to identify areas of known or suspected releases, areas of interest (AOIs) and potential exposure pathways to receptors. Six PFAS-related AOIs were identified at Camp Navajo during the PA. Based on documented releases of aqueous film forming foam materials at these AOIs, there is a potential for exposure to PFAS contamination in media at or near the facility.

A Draft Site Inspection (SI) is complete at the site. Based on the results of this SI, further evaluation is warranted in a Remedial Investigation (RI) for AOI 1: Former Building 1354 209, AOI 3: Building 2, and AOI 6: North and South Holding Ponds. At AOI 1, Former Building 209: The detected concentrations of perfluorooctanesulfonic acid (PFOS) in groundwater exceeded the screening level (SL) of 4 nanograms/Liter (ng/L) with a maximum concentration of 25.9 ng/L. At AOI 3, Building 2: PFOS in surface soil exceeded the SL of 13 micrograms/kilograms (µg/kg), with a maximum concentration of 41.6 µg/kg. At AOI 6, North and South Holding Ponds: PFOS in surface soil exceeded the SL of 13 µg/kg, with a maximum concentration of 51.1 µg/kg. The subject site was tracked as 76897.1001 under the Compliance-related Cleanup (CC) program. In Fiscal Year (FY) 23, this site was determined to be eligible for the Defense Environmental Restoration Program (DERP).

Restoration/Cleanup Strategy: An RI/Feasibility Study (FS) will be completed at this site. The RI is expected to be funded in FY23. FS costs will require future funding. Further actions cannot be determined until after the RI/FS is complete.

CAMP NAVAJO

COMPLIANCE CLEANUP SITES

CC-NAAD-02_NAAD 02 Open Detonation Pits

HQAES ID: 76897.1066

Alias: OD PITS

Regulatory Driver: RCRA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 11/30/2011

RC Date: 12/31/2011

RC Reason: All Required Cleanup(s) Completed

Program: Compliance Cleanup

Subprogram: CC

Phases	*Start*	*End*
RFA	09/30/1993	05/31/1994
CS	09/30/1994	09/30/1998
RFI/CMS	09/30/1998	11/30/2011
DES	- -	- -
IM	01/31/2006	09/30/2010
CMI(C)	- -	- -
CMI(O)	- -	- -
LTM	09/1/2013	09/30/2054

Site Narrative

The Former Open Burn/Open Detonation (OB/OD) area consists of numerous open burn and open detonation sites that were operated from 1942 to 1994 and covers approximately 5,000 acres. Eight sites were abandoned prior to 1982 and were closed under the Installation Restoration Program (IRP). Six sites were operated under Interim Status after submittal of the Resource Conservation and Recovery Act (RCRA) Part A permit application in 1982 and were closed under the Compliance-Related Cleanup Program. CC-NAAD-02 was the last RCRA site to be closed and is the only site with a RCRA Post-Closure Permit for post-closure care and monitoring.

A 2004 agreement between the Army National Guard Directorate (ARNG) and the Arizona Department of Environmental Quality (ADEQ) allowed the following approach to be used for closure of the RCRA Interim Status sites: (1) close out the sites using the Comprehensive Environmental Response and Liability Act (CERCLA) risk-based process and, if necessary, address post-closure care under a RCRA Post-Closure Permit; and (2) address site-related chemical constituents separately from munitions and explosives of concern (MEC).

Kick-out from open detonations at CC-NAAD-02 overlay many of the Former OB/OD area sites, and although open detonations occurred at some of the other IRP and RCRA sites, the clear majority of kick out is related to CC-NAAD-02. Therefore, a Munitions Response Work Area (MRWA 02) was informally designated to address MEC throughout the area. MRWA 02 included the original 200 acres of CC-NAAD-02 and was expanded to include 2,040 acres of MEC kick-out.

Site-related chemical constituents: CC-NAAD-02 has undergone numerous investigations beginning in 1996. The CC-NAAD-02 RI Report (2007) identified a hotspot open burn area (former NAAD-09B) within CC-NAAD-02. This hotspot had elevated concentrations of lead, zinc, Polychlorinated biphenyls (PCBs), and dioxins/furans. The hotspot was excavated during a soil

interim removal action in 2006-2007 and approximately 1,300 cubic yards of soil were disposed off-site as non-hazardous waste. Approximately 2,000 cubic yards of soil were determined acceptable for on-site disposal and were used (along with 10,000 cubic yards excavated from NAAD-09C) to backfill the former open detonation pits in CC-NAAD-02. Although surface water collects seasonally in some of the former open detonation pits and contains elevated concentrations of munitions constituents (MC) - primarily hexahydro-1, 3, 5-trinitro1, 3, 5-triazine (RDX) - surface water sampling did not identify contaminants migrating off-site. MC contaminated soil and surface water remaining at CC-NAAD-02 supported site closure under a CERCLA risk-based approach that addressed human and ecological concerns.

Groundwater has not been sampled directly beneath CC-NAAD-02. The uppermost aquifer lies at a depth of approximately 1,500 feet in faulted and fractured sedimentary bedrock. Because of the depth to groundwater and complex hydrogeology, ARNG and ADEQ agreed that typical groundwater investigation and monitoring using on-site monitoring wells would not confirm with certainty whether past, current, or future groundwater contamination has, is, or will occur. Because the groundwater migration pathway cannot be adequately monitored, ARNG and ADEQ developed an alternative plan to monitor the source using vadose zone monitoring wells (installed 10 to 30 feet deep and screened across the colluvium/bedrock interface) and to monitor exposure points using regional-aquifer water supply wells at Camp Navajo and in the adjacent community of Bellemont.

Twenty vadose zone monitoring wells were installed in 2008 and fifteen temporary piezometers were installed in 2013. In 2018, ten water-bearing piezometers were replaced by vadose zone monitoring wells and five new vadose zone monitoring wells were installed near NAADs 07 and 8A. The vadose zone wells and piezometers were sampled in 2009-2010 and 2014-2020 The number of wells containing enough water for sampling varies from season to season and year to year. Infiltration events that provide the best sampling conditions occur primarily during spring snowmelt and summer monsoons. Elevated concentrations of RDX have been detected in many of the wells.

Five regional-aquifer water supply wells were sampled in 2004-2006 and no site-related contaminants were detected. Five wells (three previously sampled wells and two new wells) were sampled in 2016-2020 Perchlorate has been routinely detected in four of the five wells at concentrations less than 0.30 micrograms per liter. These low concentrations of perchlorate were evaluated in a source assessment conducted in 2018 and are attributed to naturally occurring sources.

MEC and MC contained in remaining MEC: MEC was characterized in 2005-2006 and the kick out area of MRWA 02 was surface cleared in 2007 and 2009. However, the discovery of submunitions required the designation of a 694-acre Improved Conventional Munitions (ICM) Waiver Area and associated use restrictions. The limited potential land use benefits do not warrant the threat to worker safety or cost to remediate this area. Therefore, MEC and MC contained in the MEC remains in the ICM Waiver Area. To properly manage the waste left in place, a RCRA Post-Closure Permit was applied for and granted in 2017. Post-closure care includes several types of land use controls (LUCs) and groundwater monitoring.

MRWA 02 was subdivided to accommodate different land management approaches. MRWA 02-01 consists of the 694-acre ICM Waiver Area which could not be remediated. It is

known to contain MEC in the surface and subsurface and is managed in accordance with a RCRA Post-Closure Permit. MRWA 02-03, which is located immediately adjacent to MRWA 02-01, is comprised of seven-acre area known as NAAD-03, the Former White Phosphorus Detonation and Burn Area. It was surface cleared, but MEC is known or suspected to remain in the subsurface. Although MRWA 02-03 is an Installation Restoration Program (IRP) site, it is also a solid waste management unit (SWMU) subject to RCRA regulations. For administrative purposes, it was combined with MRWA 02-01 to form the 701-acre post-closure permit area (PCPA). MRWA 02-02 consists of the surrounding 1,339-acre kick out area. It was surface cleared, but MEC is suspected to remain in the subsurface. MRWA 02-02 is also a SWMU, but it is not part of the PCPA.

In 2017, the Arizona Department of Environmental Quality (ADEQ) issued an Arizona Hazardous Waste Management Act (AHWMA) permit to AZARNG, Camp Navajo's operator. The term of the permit is ten years. When this term expires, the PCPA must either be clean-closed or a permit application must be submitted for continued post-closure care. For purposes of this document, post-closure care is assumed to continue indefinitely. To maintain compliance, the following strategy will be used to manage the post-closure care at CC-NAAD-02.

Vadose zone and regional aquifer groundwater monitoring is required because waste (MEC and MC contained in the MEC) has been left in place. Vadose zone water is monitored semi-annually at 38 wells. The vadose zone water samples are analyzed for explosives, perchlorate, nitrate/nitrite, white phosphorus, dioxins/furans, semi-volatile organic compounds (SVOCs), and target analyte list (TAL) metals.

Groundwater monitoring of the regional aquifer wells occurs quarterly. Eight regional aquifer wells are currently designated for sampling. The regional aquifer water samples are analyzed for explosives, perchlorate, nitrate/nitrite, white phosphorus, and TAL metals. In addition, samples are collected annually and analyzed for SVOCs, dioxins/furans, volatile organic compounds (VOCs), organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), herbicides, cyanide, and sulfide.

Two springs in Sycamore Canyon are sampled annually and are analyzed for explosives, perchlorate, nitrate/nitrite, TAL metals, SVOCs, white phosphorus, and dioxins/furans.

If migration of contaminants of concern (COCs) is suspected, sediment samples are collected annually at runoff locations in Volunteer Canyon. In addition, if water is present, samples are collected annually at seeps. When collected, these samples are analyzed for explosives, perchlorate, nitrate/nitrite, TAL metals, SVOCs, white phosphorus, and dioxins/furans.

If adequate water is available at the Former NAAD-02 Stock Tank, semi-annual surface water samples are collected and analyzed for explosives, perchlorate nitrate/nitrite, TAL metals, SVOCs, white phosphorus, and dioxins/furans.

Exceedance of monitoring criteria may trigger additional sampling, a corrective measures study, and/or corrective action. However, these actions are not anticipated.

The administrative and physical LUCs have been implemented (signs and fences, security patrols, MEC awareness training, and other educational efforts). Site-related LUC activities include inspections and reviews.

The AHWMA permit requires explosive ordnance disposal (EOD) or unexploded ordnance (UXO) Technician escort support for entry into the PCPA. Contractor UXO Technicians are onsite during the quarterly and annual monitoring and inspection activities; however, unplanned entry (for instance, during an emergency response) into the PCPA may be required. The Luke Air Base EOD Unit does not respond to reports of MEC in controlled locations such as the PCPA. Therefore, contracted on-call UXO Technician support is maintained with a contractor. The AHWMA Permit is a living document that requires routine modification. A permit modification request is submitted by ARNG/AZARNG and is reviewed, commented, and approved by ADEQ. ADEQ charges for reimbursable costs incurred by Class 1 permit modifications with Administrator approval. An Inter-Agency Agreement between ADEQ and AZARNG is maintained to facilitate payment. A 2022 permit medication is pending review and approval by ADEQ. Wells and trails are inspected annually to determine if erosion or other site conditions have changed that require restoration. Maintenance activities include the application of cinders, emplacement of erosion controls, wellhead maintenance, and animal intrusion mitigation.

Restoration/Cleanup Strategy: The LTM phase is underway at this site. The CTC estimate for this site assumes post-closure care monitoring, UXO technician support, maintenance, and AHWMA permit modifications.

HQAES ID: 76897.1072

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/15/2030

RC Date: 09/15/2030

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	08/11/2017	05/15/2020
SI	05/17/2019	09/15/2023
RI/FS	09/15/2023	09/15/2030
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IRA	- -	- -
RA(C)	- -	- -
RA(O)	- -	- -
LTM	- -	- -

Site Narrative

A Preliminary Assessment (PA) was completed for per- and polyfluoroalkyl substances (PFAS) at Camp Navajo in Bellemont, Arizona, to identify areas of known or suspected releases, areas of interest (AOIs) and potential exposure pathways to receptors. Six PFAS-related AOIs were identified at Camp Navajo during the PA. Based on documented releases of aqueous film forming foam materials at these AOIs, there is a potential for exposure to PFAS contamination in media at or near the facility.

A Draft Site Inspection (SI) is complete at the site. Based on the results of this SI, further evaluation is warranted in a Remedial Investigation (RI) for AOI 1: Former Building 1354 209, AOI 3: Building 2, and AOI 6: North and South Holding Ponds. At AOI 1, Former Building 209: The detected concentrations of perfluorooctanesulfonic acid (PFOS) in groundwater exceeded the screening level (SL) of 4 nanograms/Liter (ng/L) with a maximum concentration of 25.9 ng/L. At AOI 3, Building 2: PFOS in surface soil exceeded the SL of 13 micrograms/kilograms (µg/kg), with a maximum concentration of 41.6 µg/kg. At AOI 6, North and South Holding Ponds: PFOS in surface soil exceeded the SL of 13 µg/kg, with a maximum concentration of 51.1 µg/kg. The subject site was tracked as 76897.1001 under the Compliance-related Cleanup (CC) program. In Fiscal Year (FY) 23, this site was determined to be eligible for the Defense Environmental Restoration Program (DERP).

Restoration/Cleanup Strategy: An RI/Feasibility Study (FS) will be completed at this site.

SITE CLOSEOUT SUMMARY

HQAES ID	Site Name	Site Closeout Date	Program Code
76897.1002	NAAD-02_Open Detonation Area	4/30/1998	ENV Restoration, Army
76897.1003	NAAD-03_Former WP Detonation and Burn Area	9/30/2006	ENV Restoration, Army
76897.1004	NAAD-04_Former CK/CG Demilitarization Area	4/30/2009	ENV Restoration, Army
76897.1005	NAAD-05_Former Open Burn Area	4/30/1998	ENV Restoration, Army
76897.1006	NAAD-06_OB/OD Waste Pile and Burn Area	1/31/2000	ENV Restoration, Army
76897.1007	NAAD-07_Closed TNT Retention Ponds	4/30/2009	ENV Restoration, Army
76897.1008	NAAD-08_Former Open Burn Area (Ponds)	4/30/2009	ENV Restoration, Army
76897.1009	NAAD-09_Closed Open Burn Area	4/30/2009	ENV Restoration, Army
76897.1010	NAAD-10_Pad #3	4/30/2009	ENV Restoration, Army
76897.1011	NAAD-11A_Bldg 316 Laundry Facility	4/30/1998	ENV Restoration, Army
76897.1013	NAAD-13_Bldg 334 Deactivation Furnace	9/30/1997	ENV Restoration, Army
76897.1014	NAAD-14A_Bldg 322 Acid Vats	10/31/1997	ENV Restoration, Army
76897.1015	NAAD-14B_Bldg 307 Renovating Shells	3/31/1997	ENV Restoration, Army
76897.1016	NAAD-14C_Bldg 321 Ammunition Workshop	10/31/1997	ENV Restoration, Army
76897.1017	NAAD-14D_Bldg 322 Paint Operations	10/31/2005	ENV Restoration, Army
76897.1018	NAAD-14F_Bldg 325 Ammunition Repair	9/30/2003	ENV Restoration, Army
76897.1019	NAAD-14G_Bldg 327 Rust Removal	10/31/2005	ENV Restoration, Army

HQAES ID	Site Name	Site Closeout Date	Program Code
76897.1020	NAAD-15A_Bldg 301 Paint Operations	12/31/1997	ENV Restoration, Army
76897.1021	NAAD-15B_Bldg 310 Ammunition Renovation	12/31/1997	ENV Restoration, Army
76897.1022	NAAD-17_D-200 Area Igloos	9/30/1997	ENV Restoration, Army
76897.1023	NAAD-18_D-300 Area Igloos	9/30/1997	ENV Restoration, Army
76897.1024	NAAD-19_Bldg 460 Former Chemical Lab	11/30/2002	ENV Restoration, Army
76897.1026	NAAD-21_Bldg 331 Surveillance Workshop	12/31/1997	ENV Restoration, Army
76897.1027	NAAD-23A_New Rifle/Pistol Range	9/30/1997	ENV Restoration, Army
76897.1028	NAAD-23B_Old Firing Range	11/30/2003	ENV Restoration, Army
76897.1029	NAAD-24A_Bldg 23 & 30 Maintenance Shops	11/30/2002	ENV Restoration, Army
76897.1030	NAAD-24B_Bldg 216 & 218 Spray Paint/Weld	11/30/2002	ENV Restoration, Army
76897.1031	NAAD-25_Bldg 35 & 36 Paint Operations	3/31/1994	ENV Restoration, Army
76897.1032	NAAD-26_Bldg 24 Heavy Equipment Storage	3/31/1994	ENV Restoration, Army
76897.1033	NAAD-27_Sewage Treatment System	3/31/1994	ENV Restoration, Army
76897.1034	NAAD-28_Indian Village WW Treatment System	12/31/1997	ENV Restoration, Army
76897.1035	NAAD-29_Former Asphalt Plant	11/30/2002	ENV Restoration, Army
76897.1036	NAAD-30_Bldg 101 Old Hospital	3/31/1997	ENV Restoration, Army
76897.1037	NAAD-31_Bldg 231	11/30/2002	ENV Restoration, Army

HQAES ID	Site Name	Site Closeout Date	Program Code
76897.1038	NAAD-33_Igloo H-118 Former Pesticide Stg	3/31/1990	ENV Restoration, Army
76897.1039	NAAD-34_Bldg 335 Former Pesticide Storage	9/30/1997	ENV Restoration, Army
76897.1040	NAAD-38_Former Open Air Storage Area	9/30/2004	ENV Restoration, Army
76897.1041	NAAD-39_Current Open Air Storage Area	3/31/1994	ENV Restoration, Army
76897.1043	NAAD-41_Cinder Pit #3	11/30/2003	ENV Restoration, Army
76897.1044	NAAD-42_Construction Debris Landfill #1	12/31/1998	ENV Restoration, Army
76897.1046	NAAD-45_Quarry Tank	12/31/1997	ENV Restoration, Army
76897.1047	NAAD-47_Former Warehouse Area Waste Pile	11/30/2002	ENV Restoration, Army
76897.1048	NAAD-48_Fuel-Contaminated Soil Piles	7/31/1994	ENV Restoration, Army
76897.1049	NAAD-49_Igloo Area C Drum Site	12/31/1997	ENV Restoration, Army
76897.1050	NAAD-52_PCB Transformer Areas	10/31/1996	ENV Restoration, Army
76897.1051	NAAD-53_Underground Storage Tanks	8/31/1999	ENV Restoration, Army
76897.1052	NAAD-59_Administration Area Burn Pile	12/31/1997	ENV Restoration, Army
76897.1053	NAAD-60_Bldg #2 16 34	11/30/2002	ENV Restoration, Army
76897.1054	NAAD-61_Bldg 210 & 212 Battery Operation	11/30/2002	ENV Restoration, Army
76897.1055	NAAD-E32_Igloo H-111	9/30/1997	ENV Restoration, Army
76897.1056	NAAD-E36_Igloo F-306	3/31/1997	ENV Restoration, Army

HQAES ID	Site Name	Site Closeout Date	Program Code
76897.1057	NAAD-E37_GSA Warehouses	9/30/1997	ENV Restoration, Army
76897.1058	NAAD-E46_Construction Debris Waste Pile	11/30/2002	ENV Restoration, Army
76897.1059	NAAD-E50_Administration Area Incinerator	3/31/1997	ENV Restoration, Army
76897.1060	NAAD-E58_Pipe Spring	3/31/1990	ENV Restoration, Army
76897.1061	NAAD-E76_POTENTIAL MUSTARD ROUND BURIAL	4/30/2009	ENV Restoration, Army
76897.1062	NAAD-001-R-01_SMALL ARMS RANGE SAFETY FACILITY	9/30/2005	ENV Restoration, Army
76897.1063	NAAD-002-R-01_AMMUNITION DEMOLITION/BURN	5/31/2003	ENV Restoration, Army
76897.1064	NAAD-100_PBC IRP Sites	9/30/2006	ENV Restoration, Army
76897.1065	CC-NAAD09C_NAAD 09C Volunteer Canyon Deb	10/31/2009	Compliance Cleanup
76897.1067	CC-NAAD-05_NAAD 05 Open Burn Site	12/31/2009	Compliance Cleanup
76897.1068	CC-NAAD-06_NAAD 06 OB/OD Waste Pile and	12/31/2009	Compliance Cleanup
76897.1069	CC-NAAD08B_NAAD 08B Open Burn Site	12/31/2009	Compliance Cleanup
76897.1070	CC-NAAD09D_NAAD 09D Open Burn Site	12/31/2009	Compliance Cleanup
76897.1045	NAAD-43_Construction Debris Landfills#1	11/30/2022	ENV Restoration, Army
76897.1071	CCAZ2020-01-P_CAMP NAVAJO PFAS CONTAMINATION	4/23/2023	Compliance Cleanup

COMMUNITY INVOLVEMENT

Technical Review Committee (TRC) Establishment Date:	N/A
Community Involvement Plan (Date Published):	2/15/2003
Restoration Advisory Board (RAB) Establishment Date:	2/28/2002
RAB Adjournment Date:	1/31/2011
RAB Adjournment Reason:	All environmental restoration remedies are in place and are operating properly and successfully.
Additional Community Involvement:	A stakeholder advisory group was formed in 2002. The group disbanded in 2011 following completion of the DDs.
Administrative Record is located at:	Camp Navajo, Hughes Blvd., Building No. 15, Bellemont, AZ. 86015
Information Repository is located at:	Cline Library, Northern Arizona University, Campus Building No. 28, Flagsta
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Review Summary Table

Status	Start Date	End Date	End FY
COMPLETE	2/1/2010	9/30/2010	2010
COMPLETE	2/1/2015	9/30/2015	2016
COMPLETE	01/15/2020	10/30/2021	2021

ROD/DDs associated with the last Five-Year/Periodic Review

Associated ROD/DD Name	HQAES ID
DD FOR FIVE LTM SITES	76897.1012

Results, Actions & Plans

Results	Actions	Plans
Based on the findings of this Five-Year Review, the remedies for NAAD Sites 01, 11B, 20, 40, and 43 are working as intended and are protective of human health and the environment.	No actions are recommended for the Five-Year Review sites.	Remedies in place are working, continue with current remedies.

LAND USE CONTROLS (LUC) SUMMARY

ROD/DD	LUC Title	HQAES ID
DD FOR FIVE LTM SITE	LUC IMPLEMENTATION PLAN	76897.1012
DD FOR FIVE LTM SITE	LUC IMPLEMENTATION PLAN	76897.1042
DD FOR FIVE LTM SITE	LUC IMPLEMENTATION PLAN	76897.1045

PAPAGO MILITARY RESERVATION

Army Cleanup Program

Installation Action Plan

2023

CONTENTS

ACRONYMS

Acronym	Definition
ADEQ	Arizona Department of Environmental Quality
AEDB-R	Army Environmental Database - Restoration
AS	Air sparging
AOI	Area of interest
AWQS	Arizona Water Quality Standards
AZARNG	Arizona Army National Guard
CC	Compliance-Related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
DD	Decision Document
DPE	Dual-phased extraction
ENV	Environmental
FS	Feasibility Study
ft	Feet
FY	Fiscal Year
HQAES	Headquarters Army Environmental System
IMP(O)	Implementation-operation
IR	Installation Restoration
IRA	Interim Remedial Action
LTM	Long-Term Management
LUC	Land Use Control
LUST	Leaking Underground Storage Tank
MR	Munitions Response
MRSPP	Munitions Response Site Prioritization Protocol
ng/L	Nanogram/liter
PA	Preliminary Assessment
PBA	Performance Based Acquisition
PFAS	Per- and polyfluoroalkyl substances
PFBS	Perfluorobutane sulfonate

Acronym	Definition
PFHxS	Perfluorohexane sulfonate
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PPMR	Papago Park Military Reservation
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-In-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SLs	Screening Levels
SI	Site Inspection
SVE	Soil Vapor Extraction
ug/L	Micrograms/liter
UST	Underground Storage Tank
UU/UE	Unlimited use and unrestricted exposure
WBS	Work Breakdown Structure

PHASE TRANSLATION TABLE

HQAES Phase ID	CERCLA Phase	RCRA Phase	RCRA UST Phase
.01	Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
.02	Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
.03	Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
.04	Remedial Design (RD)	Design (DES)	Design (DES)
.05	Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
.06	Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
.07	Remedial Action (Operation) (RA(O))	Corrective Measures Implementation (Operation) (CMI(O))	Implementation (Operation) (IMP(O))
.08	Long-Term Management (LTM)	Long-Term Management (LTM)	Long-Term Management (LTM)

SITE ALIAS LIST

HQAES ID	AEDB-R Reference	Site Alias
1077A.1006	PMR-S_FORMER SKEET RANGE	
1077A.1010	CC-PPMR-01_Building 331 Three 2,000 Gallon USTs	
1077A.1013	AZ2020-02-P_PAPAGO MILITARY RESERVATION	

PAPAGO MILITARY RESERVATION

INSTALLATION RESTORATION PROGRAM SITES

PMR-S_FORMER SKEET RANGE

HQAES ID: 1077A.1006

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/30/2005

RC Date: 09/30/2005

RC Reason: Study Completed, No Cleanup Required

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	09/30/1999	09/30/2000
SI	10/31/2000	01/31/2004
RI/FS	09/30/2004	09/30/2005
RD	- -	- -
IRA	- -	- -
RA(C)	- -	- -
RA(O)	- -	- -
LTM	09/30/2005	09/30/2054

Site Narrative

The Former Skeet Range is located to the south of McDowell Road and is approximately 11 acres. The site is currently vacant property without buildings or structures. A shooting range was used for skeet target practice from 1954 to 1977. Lead pellets and clay pigeon fragments were deposited on the surface during the course of normal range operations. During past construction activities, soil from the former skeet range was moved to northeast of the Pettycrew Armory. Laboratory analysis of soil samples collected from the stockpile area indicated the presence of lead and Polycyclic aromatic hydrocarbon compounds above the Arizona Department of Environmental Quality (ADEQ) soil action levels. In September 2005 a Decision Document (DD) was completed for Long-Term Management (LTM) consisting of reporting to ADEQ, and five-year reviews.
In October 2007 additional soil samples were collected in the western portion of the range footprint as part of a pre-construction site assessment for a new readiness center. This site was not selected for the readiness center. Arizona Army National Guard (AZARNG) conducts annual Land Use Controls (LUC) inspections and reports the findings to ADEQ. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Contingency Plan stipulates that if hazardous substances remain at a site above levels allowed for unlimited use and unrestricted exposure, five-year reviews will be performed at the site.
LTM will continue indefinitely based on FY20 Cost-to-Complete Guidance dated March 29, 2020 (attachment 4). Per the guidance, if there is no finite closure date of long-term management, up to 30 years of cost associated with LTM are allowed. Five-year review costs are based on actual costs from an ongoing five-year review. Five-year review requirement per Federal Register Section 300.430(f)(4)(ii) of the National Contingency Plan. Escalation rates are from the FY21 Presidents Budget Inflation Guidance out of the office of the Assistant Secretary of the Army, Financial Management and Comptroller (ASA/FM&C) - February 2020 in the FY21 Data Call Memo dated 26 February 2021. A five-year review report was completed in 2011. It suggested additional analysis, including a screening level human health and ecological risk assessment to determine if a final removal action might be more

appropriate than continued LTM. However, further evaluation of the site determined that there were no viable or complete exposure pathways, and the initial chosen remedy remained protective of human health and the environment. A five-year review report was completed in 2021.The document concluded that the remedy at Site S is protective of human health and the environment. Implemented access and institutional controls limit public access to the site, prohibit residential use, and monitor disturbance of soil or changes to LUCs at Site S to ensure potential exposure to contaminants of concern in soil and sediment, as well as lead shot that remains on the ground surface.

Restoration/Cleanup Strategy: The Long-Term Management (LTM) phase (five-year reviews) is underway at this site.

CC-PPMR-01_Building 331 Three 2,000 Gallon USTs

HQAES ID: 1077A.1010

Alias: None

Regulatory Driver: RCRA UST

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 10/31/2012

RC Date: 10/15/2025

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
ISC	09/30/1995	09/30/1997
INV	09/30/1997	07/31/2002
CAP	07/31/2002	12/31/2005
DES	05/31/2005	12/31/2005
IRA	12/31/2003	10/31/2008
IMP(C)	03/31/2006	10/31/2012
IMP(O)	10/1/2012	10/15/2025
LTM	- -	- -

Site Narrative

CC-PPMR-01 was one of three sites on a Performance Based Acquisition (PBA) awarded in September 2010 that went through September 2015. A virtual site (CC PBA@PPMR) was created to track the sites in Army Environmental Database – Restoration (AEDB-R). The other two sites (CC-PPMR-02 and CC-PPMR-03) have been closed, but CC-PPMR-01 has not achieved the remediation goals. It must continue in the implementation-operation [IMP (O)] phase and will impose future costs. Therefore, CC-PBA@PPMR was closed in AEDB-R and future costs are being tracked under the site CC-PPMR-01. CC-PPMR-01 is located immediately northeast of the intersection of 52nd Street and East McDowell Road. Building M5331 had been used as a vehicle maintenance shop for approximately 30 years between the 1940s and 1970s. Three 2,000-gallon steel underground storage tanks (USTs) were removed near the west side of Building 331 in July 1988. Two of the USTs stored leaded gasoline and the other stored diesel fuel. The USTs were abandoned in 1971 and removed in 1988. Sampling below the USTs indicated petroleum hydrocarbon contamination. Subsequently, Arizona Department of Environmental Quality (ADEQ) assigned Leaking Underground Storage Tank (LUST) case number 0131.01 to CC-PPMR-01. Since 1989, groundwater monitoring wells have been periodically sampled within the area of the former USTs. In 1989, four borings were advanced in vicinity of the former UST basin using rock coring drilling techniques. Despite documenting elevated organic vapor monitoring readings and strong odors in two borings and one well at depths of 5-15 feet (ft) below ground surface, only soil samples were collected from depths of 13 ft and deeper. Hydrocarbons were detected in the shallowest samples and at concentrations below ADEQ Suggested Soil Clean-up Levels. However, no groundwater samples were collected from those borings. One boring, located approximately 30 ft southwest of the former UST basin, was completed as a monitoring well. When sampled, the water in this well contained hydrocarbon concentrations exceeding Arizona Water Quality Standards (AWQS). In 1993, a subsurface investigation at CC-PPMR-01 was conducted: sixteen borings were advanced using hollow stem auger drilling techniques. Boring locations were located primarily south of the former UST basin with only borings SB-4 and SB-5 in the immediate vicinity of the former UST basin. Because these two borings did not extend into the bedrock, groundwater was not encountered or sampled. No borings were advanced in the former UST basin. In 1995-1997, a remedial investigation was conducted at CC-PPMR-01 to characterize the lateral and vertical extent of petroleum contamination. Soil contamination was identified within the former

UST basin and shallow ground-water contamination and free product was found. After additional characterization in 2001, ADEQ determined that soil had been adequately characterized, but that the groundwater required remediation due to the presence of petroleum hydrocarbons in excess of AWQS. After a successful pilot study, a dual-phased extraction (DPE) system was installed in 2007. However, the system only operated briefly for startup and shakedown activities and was shut down in 2008. In August 2012, a Corrective Action Plan (August 2012) which selected a dual-phase extraction system as the remedy of choice was submitted to and concurred with by ADEQ. The DPE system began full-scale operations in October 2012. Full-scale and consistent operation of the DPE system has limited the extent of free-product to wells closest to the former UST basin. Benzene concentrations exceeding the AWQS (5 micrograms/liter (ug/L)) have been detected in groundwater. Groundwater monitoring since 2012 indicates that free product and dissolved-phase petroleum hydrocarbon concentrations are confined to the former UST vicinity and treatment system wells. Based on analytical results from down-gradient sentry wells, contaminants are not migrating off site. Five new wells and one existing well were added to the DPE system in 2015. The DPE system operation and groundwater monitoring were conducted during FY16-20. In 2016, a pilot test was performed to ascertain if air sparging (AS) was a viable supplement to the existing DPE system. During drafting and review of the AS system design, data gaps were identified that required resolution prior to design completion. Additional characterization was conducted in 2019 and 2020. An AS system was installed in 2021. Since full-scale operation in 2012, the remediation system has removed a cumulative mass of more than 15,211 pounds of total petroleum hydrocarbons as gasoline from CC-PPMR-01.

Restoration/Cleanup Strategy: The IMP (O) phase is underway at this site. A contract was awarded in September 2020 for the installation of a combined DPE/Soil Vapor Extraction (SVE)/AS system and five optional years of operation and maintenance. It is estimated that remediation goals will be met, and ADEQ's LUST case file will be closed after the five years.

AZ2020-02-P_PAPAGO MILITARY RESERVATION PFAS CONTAMINATION

HQAES ID: 1077A.1013

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/30/2029

RC Date: 09/30/2029

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	08/11/2017	09/18/2020
SI	12/6/2019	11/30/2021
RI/FS	09/30/2022	09/30/2029
RD	- -	- -
IRA	- -	- -
RA(C)	- -	- -
RA(O)	- -	- -
LTM	- -	- -

Site Narrative

A Preliminary Assessment (PA) was completed at Papago Park Military Reservation (PPMR) to identify areas of known or suspected releases, areas of interest (AOI), and exposure pathways. One per- and polyfluoroalkyl substances (PFAS) related AOI was identified at PPMR during the PA. Based on documented releases of aqueous film forming foam materials at the AOI, there is a potential for exposure to PFAS contamination in media at or near the facility. A Site Inspection (SI) has been completed at the site. Based on the results of the Site Inspection (SI), at the existing monitoring wells down gradient of the potential PFAS release areas, perfluorooctane sulfonate (PFOS) was detected in groundwater at concentrations exceeding the screening level (SLs) of 4 nanogram/liter (ng/L) with a maximum concentration of 170 ng/L, and in residential soil exceeding the SL of 13 micrograms/kilograms (µg/kg) with a maximum concentration of 26.1 µg/kg. Perfluorooctanoic acid (PFOA) was detected in groundwater at concentrations exceeding the SL of 6 ng/L with a maximum concentration of 292 ng/L. Perfluorohexane sulfonate (PFHxS) was detected in groundwater at concentrations exceeding the SL of 39 ng/L with a maximum concentration of 4,430 ng/L. Based on the exceedances of the SLs, further evaluation at AOI 1 is warranted.

Restoration/Cleanup Strategy: A Remedial Investigation (RI)/Feasibility Study (FS) will be completed at this site. The RI was funded in Fiscal Year 2022 (FY22). FS costs will require future funding. Further actions cannot be determined until after the RI/FS is complete.

SITE CLOSEOUT SUMMARY

HQAES ID	Site Name	Site Closeout Date	Program Code
1077A.1001	PMR-A_BUILDING M5222 WASH RACK	3/31/2003	ENV Restoration, Army
1077A.1002	PMR-F_BLDG M5370 WASTE OIL TANK	3/31/2003	ENV Restoration, Army
1077A.1003	PMR-I_BLDG M5331 FORMER GASOLINE TANK	3/31/2003	ENV Restoration, Army
1077A.1004	PMR-L_OMS- 4 & 7 INJECTION WELLS	3/31/2003	ENV Restoration, Army
1077A.1005	PMR-001-R-01_RANGE 1	4/30/2014	ENV Restoration, Army
1077A.1007	PMR-002-R-01_Small Arms Range Complex	4/30/2014	ENV Restoration, Army
1077A.1008	CC-PPMR-02_JP-4 LUST	12/31/2009	ENV Restoration, Army
1077A.1009	CC-PPMR-03_Bldg 340 (former CSMS)	9/30/2015	ENV Restoration, Army
1077A.1011	CC-PBA@PPMR_PPMR UST PBA	2/28/2015	ENV Restoration, Army
1077A.1012	CCAZ2020-02-P PAPAGO MILITARY RESERVATION PFAS CONTAMINATION	2/22/2022	Compliance Cleanup

COMMUNITY INVOLVEMENT

Technical Review Committee (TRC) Establishment Date:	N/A
Community Involvement Plan (Date Published):	201105
Restoration Advisory Board (RAB) Establishment Date:	N/A
RAB Adjournment Date:	N/A
RAB Adjournment Reason:	N/A
Additional Community Involvement:	N/A
Administrative Record is located at:	Papago Military Reservation 5636 East McDowell Road, Bldg M5330 Phoenix, Arizona 85008 602-267-2663
Information Repository is located at:	Papago Military Reservation 5636 East McDowell Road, Bldg M5330 Phoenix, Arizona 85008 602-267-2663
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Review Summary Table

Status	Start Date	End Date	End FY
COMPLETE	11/1/2009	05/30/2011	2011
COMPLETE	1/1/2016	6/30/2016	2016
UNDERWAY	01/15/2020	10/31/2021	2021

ROD/DDs associated with the last Five-Year/Periodic Review

Associated ROD/DD Name	HQAES ID
PPMR IRP Program Closure Decision Document	1077A.1006

Results, Actions & Plans

Results	Actions	Plans
The remedy at the Former Skeet Range property is not protective of human health. Exposure pathways that could result in unacceptable risks are not currently being controlled.	Five year review recommends that AZ ARNG initiate additional analysis, including a screening level human health and ecological risk assessment.	Alternative 2 in the Decision Document may be warranted if the screening level risk assessment determines unacceptable risk.

LAND USE CONTROLS (LUC) SUMMARY

ROD/DD	LUC Title	HQAES ID
PPMR IRP PROGRAM CLO	PMR-S LUC	1077A.1006

SILVER BELL ARMY HELIPORT

Army Cleanup Program

Installation Action Plan

2023

CONTENTS

ACRONYMS

Acronym	Definition
AEDB-R	Army Environmental Database - Restoration
AFFF	Aqueous film forming foam materials
AOI	Areas of interest
CC	Compliance-Related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
DD	Decision Document
DERP	Defense Environmental Restoration Program
ENV	Environmental
FS	Feasibility Study
FY	Fiscal Year
HQAES	Headquarters Army Environmental System
IR	Installation Restoration
IRA	Interim Remedial Action
LTM	Long-Term Management
LUC	Land Use Control
MR	Munitions Response
MRSPP	Munitions Response Site Prioritization Protocol
Ng/L	Nanograms/Liter
PA	Preliminary Assessment
PFAS	Per- and polyfluoroalkyl substances
PFBS	Perfluorobutane sulfonate
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RC	Response Complete
RCRA	Resource Conservation and Recovery Act

Acronym	Definition
RD	Remedial Design
RI	Remedial Investigation
RIP	Remedy-In-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SBAH	Silver Bell Army Heliport
SL	Screening levels
SI	Site Inspection
ug/kg	Micrograms per kilogram
UST	Underground Storage Tank
WBS	Work Breakdown Structure

PHASE TRANSLATION TABLE

HQAES Phase ID	CERCLA Phase	RCRA Phase	RCRA UST Phase
.01	Preliminary Assessment (PA)	RCRA Facility Assessment (RFA)	Initial Site Characterization (ISC)
.02	Site Inspection (SI)	Confirmation Sampling (CS)	Investigation (INV)
.03	Remedial Investigation/ Feasibility Study (RI/FS)	RCRA Facility Investigation/Corrective Measures Study (RFI/CMS)	Corrective Action Plan (CAP)
.04	Remedial Design (RD)	Design (DES)	Design (DES)
.05	Interim Remedial Action (IRA)	Interim Measure (IM)	Interim Remedial Action (IRA)
.06	Remedial Action (Construction) (RA(C))	Corrective Measures Implementation (Construction) (CMI(C))	Implementation (Construction) (IMP(C))
.07	Remedial Action (Operation) (RA(O))	Corrective Measures Implementation (Operation) (CMI(O))	Implementation (Operation) (IMP(O))
.08	Long-Term Management (LTM)	Long-Term Management (LTM)	Long-Term Management (LTM)

SITE ALIAS LIST

HQAES ID	AEDB-R Reference	Site Alias
2834A.1002	AZ2019-01-P _SILVER BELL ARMY HELIPORT PFAS CONTAMINATION	

SILVER BELL ARMY HELIPORT

INSTALLATION RESTORATION PROGRAM SITES

AZ2019-01-P _SILVER BELL ARMY HELIPORT PFAS CONTAMINATION

HQAES ID: 2834A.1002

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 09/30/2029

RC Date: 09/30/2029

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

Phases	*Start*	*End*
PA	08/11/2017	09/17/2020
SI	09/7/2018	07/15/2022
RI/FS	09/30/2022	09/30/2029
RD	- -	- -
IRA	- -	- -
RA(C)	- -	- -
RA(O)	- -	- -
LTM	- -	- -

Site Narrative

A Preliminary Assessment (PA) was completed at Silver Bell Army Heliport (SBAH), near the town of Marana, Arizona, to identify areas of known or suspected releases, areas of interest (AOIs), and potential exposure pathways. Four per- and polyfluoroalkyl substances (PFAS) related AOIs were identified at SBAH during the PA. The AOIs are locations where aqueous film forming foam materials (AFFF) releases to the environment occurred during fire training, fire suppression system releases, maintenance activities, equipment storage, and responses to fuel spills. Based on known AFFF releases at the AOIs, there is a potential for exposure to PFAS contamination in surface and subsurface soil, groundwater, surface water and sediment to facility and construction workers. Additionally, private off-facility wells exist down gradient from SBAH. Based on the use of groundwater from private wells for domestic purposes, off-facility residents may also be exposed to PFAS via ingestion. A Site Inspection (SI) was completed at the site. Based on the results of the SI, further evaluation of three AOIs is warranted in a Remedial Investigation (RI). At AOI1, perfluorooctane sulfonate (PFOS) in surface soil exceeded the screening level (SL) of 13 microgram/kilogram (µg/Kg) for PFOS, with a maximum concentration of 73 µg/Kg. At AOI2, PFOS and perfluorononanoic acid (PFNA) in surface soil exceeded the individual SLs of 13 (µg/Kg) for PFOS and 19 µg/Kg for PFNA with maximum concentrations of PFOS at 484 µg/Kg and PFNA at 50.1 µg/Kg. At AOI3, PFOS in surface soil exceeded the SL of 13 µg/Kg for PFOS, with a maximum concentration of 23 µg/Kg. There were two facility boundary monitoring wells installed downgradient from all the AOIs. PFOA and PFOS in groundwater exceeded the SL of 6 nanograms/liter (ng/L) for PFOA and 4 ng/L for PFOS with maximum concentrations detected in groundwater of PFOA at 5.8 ng/L and PFOS at 8.44 ng/L Based on the results of the SI, further evaluation of AOI 2 is warranted in an RI.

The subject site was tracked as 2834A.1001 under the Compliance-related Cleanup (CC) program. In June 2022, this site was determined to be eligible for the Defense Environmental Restoration Program (DERP).

3. Restoration/Cleanup Strategy: A RI/Feasibility Study (FS) will be completed at this site. The RI was funded in Fiscal Year 2022 (FY22). FS costs will require future funding. Further actions cannot be determined until after the RI/FS is complete.

SITE CLOSEOUT SUMMARY

HQAES ID	Site Name	Site Closeout Date	Program Code
2834A.1001	CCAZ2019-01-P_SILVER BELL AMRY HELIPORT PFAS CONTAMINATION	06/17/2022	Compliance Cleanup

COMMUNITY INVOLVEMENT

Technical Review Committee (TRC) Establishment Date:	N/A
Community Involvement Plan (Date Published):	TBD
Restoration Advisory Board (RAB) Establishment Date:	N/A
RAB Adjournment Date:	N/A
RAB Adjournment Reason:	N/A
Additional Community Involvement:	Community Involvement Plan, Administrative Record and Information Repository will be developed as the project progresses.
Administrative Record is located at:	TBD
Information Repository is located at:	TBD
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Review Summary Table

None

ROD/DDs associated with the last Five-Year/Periodic Review

None

Results, Actions & Plans

None

LAND USE CONTROLS (LUC) SUMMARY

None