

RAVENNA ARMY AMMUNITION PLANT

Army Cleanup Program

Installation Action Plan

2020

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ACRONYMS

| Acronym | Definition |
|---------|--|
| AEDB-R | Army Environmental Database - Restoration |
| CC | Compliance-Related Cleanup |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act of 1980 |
| DD | Decision Document |
| ENV | Environmental |
| FS | Feasibility Study |
| 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 |
| PA | Preliminary Assessment |
| 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 |
| SI | Site Inspection |
| 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 |
|------------|---|------------|
| 39747.1001 | RVAAP-01_RAMSDHELL QUARRY LANDFILL | RVAAP-01 |
| 39747.1003 | RVAAP-03_OPEN DEMOLITION AREA #1 | RVAAP-03 |
| 39747.1005 | RVAAP-05_WINKLEPECK BURNING GROUNDS | RVAAP-05 |
| 39747.1006 | RVAAP-06_C BLOCK QUARRY | RVAAP-06 |
| 39747.1008 | RVAAP-08_LOAD LINE 1 | RVAAP-08 |
| 39747.1009 | RVAAP-09_LOAD LINE 2 | RVAAP-09 |
| 39747.1010 | RVAAP-10_LOAD LINE 3 | RVAAP-10 |
| 39747.1011 | RVAAP-11_LOAD LINE 4 | RVAAP-11 |
| 39747.1012 | RVAAP-12_LOAD LINE 12 | RVAAP-12 |
| 39747.1019 | RVAAP-19_LANDFILL NORTH OF WINKLEPECK BU | RVAAP-19 |
| 39747.1034 | RVAAP-34_SAND CREEK DISPOSAL ROAD LANDFI | RVAAP-34 |
| 39747.1038 | RVAAP-38_NACA TEST AREA | RVAAP-38 |
| 39747.1042 | RVAAP-42_LOAD LINE 9 | RVAAP-42 |
| 39747.1045 | RVAAP-45_WET STORAGE AREA | RVAAP-45 |
| 39747.1046 | RVAAP-46_BUILDING F-15 AND F-16 | RVAAP-46 |
| 39747.1050 | RVAAP-50_ATLAS SCRAP YARD | RVAAP-50 |
| 39747.1051 | RVAAP-51_DUMP ALONG PARIS-WINDHAM ROAD | RVAAP-51 |
| 39747.1057 | RVAAP-063-R-01_GROUP 8 MRS | -- |
| 39747.1058 | RVAAP-061-R-01_BLOCK D IGLOO -TD | -- |
| 39747.1059 | RVAAP-016-R-01_FUZE AND BOOSTER QUARRY | -- |
| 39747.1060 | RVAAP-002-R-01_ERIE BURNING GROUNDS | -- |
| 39747.1061 | RVAAP-004-R-01_OPEN DEMOLITION AREA #2 | -- |
| 39747.1062 | RVAAP-060-R-01_BLOCK D IGLOO | -- |
| 39747.1063 | RVAAP-050-R-01_ATLAS SCRAP YARD | -- |
| 39747.1065 | RVAAP-032-R-01_40MM FIRING RANGE | -- |
| 39747.1067 | RVAAP-019-R-01_LANDFILL NORTH OF WINKLEP | -- |
| 39747.1070 | RVAAP-001-R-01_RAMSDHELL QUARRY AREA 2 (S | -- |
| 39747.1072 | RVAAP-66_FACILITY-WIDE GROUNDWATER | -- |
| 39747.1073 | RVAAP-67_FACILITY-WIDE SEWERS | -- |

| HQAES ID | AEDB R Reference | Site Alias |
|------------|--|------------|
| 39747.1074 | RVAAP-001-R-02_RAMSDALL QUARRY AREA 1 N | - - |
| 39747.1077 | CC RVAAP-69_BUILDING 1048 - FIRE STATION | RVAAP-69 |
| 39747.1078 | CC RVAAP-70_EAST CLASSIFICATION YARD | RVAAP-70 |
| 39747.1081 | CC RVAAP-74_BLDG 1034 MOTOR POOL HYDRAUL | RVAAP-74 |
| 39747.1083 | CC RVAAP-76_DEPOT AREA | RVAAP-76 |
| 39747.1086 | CC RVAAP-78_QUARRY POND SURFACE DUMP | RVAAP 78 |
| 39747.1087 | CC RVAAP-79_DLA ORE STORAGE SITES | RVAAP 79 |

RAVENNA ARMY AMMUNITION PLANT

INSTALLATION RESTORATION PROGRAM SITES

RVAAP-01_RAMSDLELL QUARRY LANDFILL

HQAES ID: 39747.1001

Alias: RVAAP-01

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 3/15/2015

RC Date: 3/15/2015

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| RI/FS | 6/30/2003 | 10/31/2009 |
| RD | 6/30/2007 | 9/30/2012 |
| IRA | -- | -- |
| RA(C) | 6/30/2010 | 3/15/2015 |
| RA(O) | -- | -- |
| LTM | 3/15/2015 | 2/15/2050 |

Site Narrative

RVAAP-01 (Ramsdell Quarry Landfill) is located in the eastern section of the RVAAP facility and is approximately 14 acres. The landfill portion is 4 acres. The quarry was excavated to the underlying Sharon Sandstone/Conglomerate. The depth of the soil in the remaining portion of the quarry varies from zero to several feet. Water is intermittently present at the bottom of the quarry at approximately 10.7 meters (35 feet) below ground surface (bgs). This landfill was used from 1941 to 1989. During the period of 1946 to 1950 the site was used as a land-surface burning site to thermally destroy waste explosives from Load Line 1 and napalm bombs. From 1976 to 1989, a portion of the site was used strictly as a nonhazardous solid waste landfill. No historical information has been located for 1950 to 1976. The landfill ceased operation in September 1989. Closure of the landfill was completed in September 1990 under state of Ohio solid waste regulations. Landfilled material consists of variable domestic, commercial, industrial, and solid wastes including but not limited to explosives (TNT, Composition B), napalm, gasoline, acid dip liquor, annealing residue (sulfuric acid, shell casings, sodium ortho silicate, chromic acid and alkali), aluminum chloride, and inert material. The volume of landfilled material is unknown (Jacobs Engineering 1989). Five groundwater monitoring wells were installed around the landfill perimeter in 1987. These wells were decommissioned under regulatory guidelines in 2006. New wells were installed in 1998 to further investigate the nature and extent of groundwater contamination at the landfill. A report of findings was published in October 1998. A final RI/FS was completed and approved in April 2007. A ROD was signed by the Army and Ohio EPA in October 2009. The approved remediation consisted of removing PAHs contamination within an 18-inch soil depth that encompassed 2.5 acres of the quarry bottom. The remediation was immediately curtailed in July 2010 by the discovery of buried transite, an asbestos containing material (ACM). By August 2010, all disturbed ACM was removed. An Engineering Evaluation/Cost Analysis (EE/CA) was prepared and accepted by the Ohio EPA in September 2011. A PP was completed in November 2012. A signed ROD Amendment was completed in August 2013. In June 2014 the RD was approved by the Ohio EPA. In October 2014, the remedial action was completed. Potential MEC was addressed under the MMRP site RVAAP-001-R-02.

Cleanup Strategy

LUCs consisting of personnel briefing, inspections, asbestos signage, and access and digging restrictions will continue. Installation-wide five year review requirements are carried at this site. Costs for LUCs at RVAAP-05 and RVAAP-51 are tracked here. Groundwater monitoring requirements are carried in RVAAP-66.

RVAAP-03_OPEN DEMOLITION AREA #1

HQAES ID: 39747.1003

Alias: RVAAP-03

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 3/15/2022

RC Date: 3/15/2022

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| RI/FS | 10/31/1999 | 3/15/2022 |
| RD | -- | -- |
| IRA | 10/31/1999 | 9/30/2003 |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

RVAAP-03 (Open Demolition Area 1), consisting of approximately six acres, was used to thermally treat munitions by OB/OD. The entire AOC is located within the National Advisory Committee on Aeronautics (NACA) Test Area. The 1989 report from Jacobs Engineering indicates that munition fragments including scrap metal, small arms primers, and fuzes were found outside the bermed area and that the area was operational from 1941 through 1949. In July 2001 an IRA involving removal of approximately six acres of surface hot spots, containing high levels of metals and explosives was completed. In December 2001, a Final Phase I RI report was completed. Site closeout documentation was initiated in 2003. Concern remained over potential MEC kick-outs and push-out material beyond the IRA area. A geophysical investigation was completed in January 2011. A Draft RI/FS was completed in August 2012. The RI was completed in 2016. Groundwater monitoring is being conducted under the Facility-Wide Groundwater Monitoring Program (FWGWMP). This area is currently signed and Siebert staked.

Cleanup Strategy

A probability assessment will be completed in FY20. An NFA PP and ROD will be completed.

RVAAP-05_WINKLEPECK BURNING GROUNDS

HQAES ID: 39747.1005

Alias: RVAAP-05

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 3/27/2018

RC Date: 3/27/2018

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| RI/FS | 10/31/1994 | 9/15/2015 |
| RD | 9/15/2014 | 9/15/2015 |
| IRA | 8/31/2006 | 12/15/2009 |
| RA(C) | 2/15/2015 | 3/27/2018 |
| RA(O) | -- | -- |
| LTM | 4/15/2018 | 3/15/2050 |

Site Narrative

The Winklepeck Burning Grounds (RVAAP-05), consisted of approximately 216 acres and operated from 1948 to 1998. Prior to 1980, there were open-burning activities performed in unlined pits, pads, and sometimes on the roads within the 216-acre area. Materials that were burned included: RDX, antimony sulfide, Composition B, lead azide, TNT, propellants, black powder, waste oils, sludge from the load lines, domestic wastes, explosively contaminated wastes (e.g. rags, papers, cardboard) and small amounts of laboratory chemicals. The pre-1980 burning was conducted on bare ground and resulting ash was abandoned in-place. Munitions, munitions debris (primarily scrap metal) and explosive constituents are present at the site. From 1980-1998, burning of scrap explosives, propellants, and explosively contaminated materials was conducted within raised refractory-lined trays located within a 1.5-acre area. In 1994, the Army notified Ohio EPA of their intent to withdraw the Part B permit application. The burn trays along with the 90-day storage unit, Building 1601, were closed in accordance with Ohio EPA guidance in 1998. The deactivation furnace soils were transferred from the RCRA to the CERCLA program under the DFFOs in June 2004. The management of groundwater monitoring is under the FWGWMP. A limited MEC clean-up took place within various portions of the site during 2004, 2005, 2008, and 2009 and a PP was finalized in 2006. A September 2008 contract was awarded to conduct a Data Quality Objectives (DQO) study for MEC and chemical contaminants remaining within the AOC. The DQO report was completed in 2010. A Work Plan for additional sampling was finalized in 2012. Additional sampling was conducted in Fall 2012 in support of the upcoming multi-purpose machine gun range. Additional sampling results and analysis of the previously selected remedy with additional soil excavation was documented in the RI/FS Supplement. An Explanation of Significant Differences and remedial design (RD) work was completed in 2015. The removal action was completed in 2018.

Cleanup Strategy

LUCs consisting of no residential use, annual inspections and no groundwater use will continue. These costs are carried at RVAAP-01. Installation-wide five year review costs are carried at RVAAP-01. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-06_C BLOCK QUARRY

HQAES ID: 39747.1006

Alias: RVAAP-06

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 4/28/2022

RC Date: 4/28/2022

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| RI/FS | 8/31/2004 | 2/15/2021 |
| RD | 2/15/2021 | 8/27/2021 |
| IRA | -- | -- |
| RA(C) | 8/27/2020 | 4/28/2022 |
| RA(O) | -- | -- |
| LTM | 4/28/2022 | 4/27/2052 |

Site Narrative

RVAAP-06 (C Block Quarry) is an abandoned quarry, approximately 0.3 acres. It was used as a disposal area for annealing process wastes (chromic acid) for a short time during the 1950s. Liquid wastes were reported to have been dumped in the pit bottom. The site is now heavily forested. The COCs are chromium and asbestos. This site is currently in the RI/FS phase.

Cleanup Strategy

The anticipated exit strategy for this site includes completion of the RI/FS followed by removal of surficial asbestos and implementation of LUCs. Anticipated LUCs will include access restrictions and personnel briefings on potential hazards and safety precautions (related to asbestos). LTM will include inspections and annual reporting. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Five-year reviews will be required.

RVAAP-08_LOAD LINE 1

HQAES ID: 39747.1008

Alias: RVAAP-08

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 9/15/2021

RC Date: 9/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| R/FS | 10/31/1994 | 5/6/2020 |
| RD | 9/30/2019 | 7/28/2020 |
| IRA | 9/30/2003 | 7/31/2008 |
| RA(C) | 9/30/2019 | 9/15/2021 |
| RA(O) | -- | -- |
| LTM | 9/15/2021 | 9/15/2050 |

Site Narrative

From 1941 through 1945, Load Line 1 was used to melt and load 2,4,6-trinitrotoluene (TNT) and Composition B into large-caliber shells and bombs. From 1947 to 1949, demilitarization projects occurred at Load Line 1. In 1949, the TNT washout plant and debanding equipment were moved from Load Line 1 to Load Line 12. From 1950 to 1952, Load Line 1 reclaimed cartridge bases for reuse. Sulfuric acid, sodium orthosilicate, chromic acid, and alkali were used in the annealing process. From 1961 to 1967, Load Line 1 was the site of munitions rehabilitation activities and the demilitarization of 90mm projectiles; activities included dismantling, replacing components, and repainting mines. In 1965 and 1966, Load Line 1 was used for demilitarizing propellant charges and cartridges. In 1973 and 1974, demilitarization operations on 90mm cartridges occurred at the load line. Load Line 1 was rehabilitated in 1951 to remove and replace soil contaminated with accumulated explosives and to remove and replace wastewater lines. All buildings and structures at Load Line 1 have been demolished. In 2007, in accordance with the Load Lines 1-4 Interim ROD (to attain mounted training, no digging use), a total of 539 tons of PCB-contaminated soil and 3,126 tons of non-hazardous soil were removed from 51 areas within Load Line 1. In May 2009, building slabs at Load Line 1 were removed. Excavation of 359 cy of contaminated soils that were located beneath building slabs was conducted in September 2010. In order to attain Commercial/Industrial use, which would allow more flexibility for military training, additional sampling was conducted and the AOC was re-evaluated in a Feasibility Study Addendum in June 2017. A Proposed Plan was completed in October 2018.

Cleanup Strategy

The anticipated exit strategy for this site includes soil excavation to achieve commercial/industrial use of the property. A ROD amendment will be completed prior to any additional remediation. LTM will include no residential use, inspections and annual reporting. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Installation-wide five year review requirements are carried at RVAAP-01.

RVAAP-09_LOAD LINE 2

HQAES ID: 39747.1009

Alias: RVAAP-09

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 9/15/2021

RC Date: 9/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| R/FS | 10/31/1994 | 5/6/2020 |
| RD | 9/30/2019 | 7/28/2020 |
| IRA | 9/30/2003 | 7/31/2008 |
| RA(C) | 9/30/2019 | 9/15/2021 |
| RA(O) | -- | -- |
| LTM | 9/15/2021 | 9/15/2050 |

Site Narrative

From 1941 through 1945, Load Line 2 was used to melt and load TNT and Composition B into large-caliber shells and bombs. Demilitarization projects also occurred at Load Line 2 from 1947 through 1949 when a washout plant was installed. From 1950 to 1952, Load Line 2 reclaimed cartridge bases using an annealing process for reuse. During the entirety of its operational history, Load Line 2 produced about 10 million munitions, and approximately 4 million pounds of TNT were salvaged during demilitarization activities. In 1951, Load Line 2 was rehabilitated, including the removal of explosive accumulations. All buildings and structures at Load Line 2 have been demolished. In 2007, in accordance with the Load Lines 1-4 Interim ROD (to attain mounted training, no digging use), a total of 320 tons of PCB-contaminated soil and 2,617 tons of non-hazardous soil were removed from a total of 24 locations within Load Line 2. In 2008, building slabs at Load Line 2 were removed. Excavation of 885cy of contaminated soils located beneath building slabs was conducted in June 2010. In order to attain Commercial/Industrial use, which would allow more flexibility for military training, additional sampling was conducted and the AOC was re-evaluated in a Feasibility Study Addendum in June 2017. A Proposed Plan was completed in October 2018.

Cleanup Strategy

The anticipated exit strategy for this site includes soil excavation to achieve commercial/industrial use of the property. A ROD amendment will be completed prior to any additional remediation. LTM will include no residential use, inspections and annual reporting. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Installation-wide five year review requirements are carried at RVAAP-01.

RVAAP-10_LOAD LINE 3

HQAES ID: 39747.1010

Alias: RVAAP-10

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/15/2021

RC Date: 9/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| RI/FS | 10/31/1994 | 5/6/2020 |
| RD | 9/30/2019 | 7/28/2020 |
| IRA | 9/30/2003 | 7/31/2008 |
| RA(C) | 9/30/2019 | 9/15/2021 |
| RA(O) | -- | -- |
| LTM | 9/15/2021 | 9/15/2050 |

Site Narrative

Load Line 3 was primarily used to melt bulk explosives and load Composition B into large-caliber shells and bombs. During its operational history from 1941 to 1945, Load Line 3 produced approximately 6.5 million munitions. Demilitarization activities were conducted between 1951 and 1957, during which time approximately 228,000 munitions were processed at the load line. During the operation of Load Line 3, bulk TNT and HMX were offloaded at Buildings EA-6 and EA-6A for screening and preparation before being transported to melt pour Buildings EA-4 and EA-4A for processing and loading into shells. Bulk explosive carrier washout activities were conducted at Building EB-25. All buildings and structures at Load Line 3 have been demolished. In 2007, in accordance with the Load Lines 1-4 Interim ROD (to attain mounted training, no digging), a total of 893 tons of PCB-contaminated soil and 2,538 tons of non-hazardous soil were removed from 35 locations within Load Line 3. In 2008, building slabs at Load Line 3 were removed. Excavation of 1,602 cy of contaminated soils located beneath building slabs was conducted in June 2010. In order to attain Commercial/Industrial use which would allow more flexibility for military training, additional sampling was conducted and the AOC was re-evaluated in a Feasibility Study Addendum in June 2017. A Proposed Plan was completed in October 2018.

Cleanup Strategy

The anticipated exit strategy for this site includes soil excavation to achieve commercial/industrial use. A ROD amendment will be completed prior to any additional remediation. LTM will include no residential use, inspections and annual reporting. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Installation-wide five year review requirements are carried at RVAAP-01.

RVAAP-11_LOAD LINE 4

HQAES ID: 39747.1011

Alias: RVAAP-11

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 9/15/2021

RC Date: 9/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| R/FS | 10/31/1994 | 5/6/2020 |
| RD | 9/30/2019 | 7/28/2020 |
| IRA | 9/30/2003 | 7/31/2008 |
| RA(C) | 9/30/2019 | 9/15/2021 |
| RA(O) | -- | -- |
| LTM | 9/15/2021 | 9/15/2050 |

Site Narrative

Load Line 4 operated from 1941 to 1945 to produce 91,970 projectiles and bombs and again from 1951 to 1957 to produce 1,269,262 mines. Load Line 4 was used to melt and load TNT into large-caliber shells, bombs, and antitank mines. During its operational history, Load Line 4 produced about 1.2 million munitions. All buildings and structures at Load Line 4 have been demolished. In 2007, in accordance with the Load Lines 1-4 Interim ROD, a total of 1,208 tons of non-hazardous soil were removed from nine locations within Load Line 4. In 2008, building slabs at Load Line 4 were removed. No additional soil beneath slabs required removal. In order to attain Commercial/Industrial use which would allow more flexibility for military training, additional sampling was conducted and the AOC was re-evaluated in a Feasibility Study Addendum in June 2017. A Proposed Plan was completed in October 2018.

Cleanup Strategy

The anticipated exit strategy for this site includes soil excavation to achieve commercial/industrial use. A ROD amendment will be completed prior to any additional remediation. LTM will include no residential use, inspections and annual reporting. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Installation-wide five year review requirements are carried at RVAAP-01.

RVAAP-12_LOAD LINE 12

HQAES ID: 39747.1012

Alias: RVAAP-12

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 9/15/2021

RC Date: 9/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| R/FS | 10/31/1999 | 5/6/2020 |
| RD | 9/30/2019 | 7/28/2020 |
| IRA | 9/15/2003 | 7/15/2008 |
| RA(C) | 9/30/2019 | 9/15/2021 |
| RA(O) | -- | -- |
| LTM | 9/15/2021 | 9/15/2050 |

Site Narrative

Load Line 12 is a former ammonium nitrate manufacturing facility that was operational from 1941 to 1946. From 1941 to 1943, explosive-grade ammonium nitrate was manufactured. Munitions renovation and demilitarization operations were performed after 1943. Load Line 12 was leased by the Silas Mason Company from 1946 to 1950 to manufacture fertilizer-grade ammonium nitrate. To improve the quality of TNT recovered from demilitarization operations, washout operations were converted to a steam melt-out process in the late 1950s. A pinkwater treatment plant located near Building 904 was operational from 1981 to 2000. From 1965 to 1967, Hercules Alcor, Inc. leased Building FF-19 to produce aluminum chloride. From 1969 to 1971, Load Line 12 produced M54 primers in support of the Southeast Asian conflict. Demolition of buildings occurred between 1973 and 2000. In 1999, approximately 1,500 cubic feet of soil were removed as part of an explosives composting pilot study. In 2010, in accordance with the Record of Decision for Soil and Dry Sediment for the RVAAP-12 Load Line 12, 1,181 tons of contaminated sediment were removed from the Main Ditch. To address surface water and wet sediment, a Phase III RI was completed in February 2017. A No Further Action Proposed Plan for Surface Water and Wet Sediment was completed in November 2017. A No Further Action Record of Decision for Surface Water and Wet Sediment was finalized in June 2019. In order to attain Commercial/Industrial use which would allow more flexibility for military training, additional sampling was conducted and the AOC was re-evaluated in a Feasibility Study Addendum in June 2017. A Proposed Plan was completed in October 2018.

Cleanup Strategy

The anticipated exit strategy for this site includes soil excavation to achieve commercial/industrial use. A ROD amendment will be completed prior to any additional remediation. LTM will include no residential use, inspections and annual reporting. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Installation-wide five year review requirements are carried at RVAAP-01.

RVAAP-19_LANDFILL NORTH OF WINKLEPECK BURNING GROUNDS

HQAES ID: 39747.1019

Alias: RVAAP-19

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 10/15/2020

RC Date: 10/15/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 6/30/1989 | 6/30/1989 |
| RI/FS | 8/31/2004 | 10/15/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

RVAAP-19 is a 2.5-acre unlined and unpermitted landfill (a non-regulated solid waste disposal unit), which operated from 1969 to 1976 and is located upgradient of a wetland. The general appearance of the site suggests that a trench and fill method type of operation was used for waste disposal. Waste types possibly associated with this landfill include booster cups, aluminum liners, municipal waste, explosive and munitions waste and ash, and scrap metal from the Winklepeck Burning Grounds (RVAAP-05). The landfill was covered with soil in 1978. The RI was completed in 2018. A PP was completed in April 2019.

Cleanup Strategy

A NFA ROD will be completed. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-34_SAND CREEK DISPOSAL ROAD LANDFILL

HQAES ID: 39747.1034

Alias: RVAAP-34

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 7/15/2023

RC Date: 7/15/2023

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 7/31/1994 | 2/29/1996 |
| SI | 7/31/1994 | 6/30/1999 |
| R/FS | 9/30/2004 | 7/15/2023 |
| RD | -- | -- |
| IRA | 9/15/2002 | 6/15/2022 |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

RVAAP-34 was reported by former workers at RVAAP to have been an open dump for materials including, but not limited to, concrete, wood, asbestos debris, lab bottles, 55-gallon drums and fluorescent light tubes. Debris was disposed at the surface, but became covered by vegetation. The site is approximately 1 acre and located adjacent to Sand Creek. The dates of operation of this site are unknown, but believed to be between 1950 and 1960. A surface soil and debris removal (IRA) was completed in 2003. A DQO study, geophysical magnetometer study and soil sampling were completed in 2009. An RI was completed in 2017. An EE/CA was completed in 2019.

Cleanup Strategy

An Action Memorandum and Non Time Critical Removal Action will be completed followed by a NFA PP and ROD. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-38_NACA TEST AREA

HQAES ID: 39747.1038

Alias: RVAAP-38

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 6/15/2022

RC Date: 6/15/2022

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 8/31/1995 | 2/29/1996 |
| SI | 8/31/1995 | 12/31/1998 |
| RI/FS | 9/30/1999 | 4/13/2020 |
| RD | 9/15/2017 | 5/15/2021 |
| IRA | -- | -- |
| RA(C) | 9/15/2017 | 6/15/2022 |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

NACA Test Area is located west of Greenleaf Road at the southern end of Demolition Road in the southwestern portion of the facility. The AOC is approximately 47 acres. This AOC was designed and used by NACA from 1947 to 1953. The site was used to conduct experimental crash tests of excess military aircraft in order to develop explosion-proof fuel tanks and fuel for aircraft. Excess airplanes were flown to the former RVAAP under their own power, taxied along installation roads, and staged at NACA Test Area. Seventeen excess aircraft were used during NACA Test Area operations. The planes were fueled and then propelled under their own power on a guide monorail. The planes were crashed into a concrete barrier at speeds from 80 to 105 miles per hour. During the tests, high-speed films were made to study fuel spillage, generation of ignition sources, flame front progression, and toxic gas generation, among other parameters. Combustible liquids involved in testing activities included 100/130 octane aviation fuels, low-volatility fuel, flame retardants, lubricating oil, coolant compounds, hydraulic fluids, alcohol, and brake fluid. Estimates of aviation fuel consumed are approximately 17,850 gal. However, the amounts of other liquids potentially released are not known. Fluids from the burning airplanes were generally found in a fan-shaped area beginning at the crash barrier and extending out in front of the airplane up to 400 ft. Some aircraft were completely consumed by fire. Aircraft that were significantly damaged during testing were stripped of instrumentation and salvageable parts and all of the aircraft were removed from the site. Site features associated with NACA Test Area include an east-west trending runway or crash strip approximately 1,625 ft long. The crash area was located at the east end of the strip. The total crash area is approximately 12 acres. The bulldozed plane area is located east of the crash area. An unpaved access road circles the AOC. Many of the AOC features, including the crash barrier, utilities, and buildings (i.e., observation towers, fuel shack, storage sheds) have been removed. Remaining AOC features include the concrete crash strip and pad, a small man-made reservoir southeast of the former crash barrier, and an out-of-service water well and associated concrete well pit northeast of the reservoir. Currently, the AOC is forested around the perimeter. The interior of the AOC, which includes the crash strip, is relatively open and occasionally mowed. Hinkley Creek is located south/southwest of the AOC. The RI/FS was completed in 2018. The PP was completed in April 2019.

Cleanup Strategy

The anticipated exit strategy for this site includes completion of a ROD followed by soil treatment to achieve unrestricted use. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-42_LOAD LINE 9

HQAES ID: 39747.1042

Alias: RVAAP-42

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 6/15/2022

RC Date: 6/15/2022

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/28/1998 | 6/30/1998 |
| SI | 7/31/1998 | 7/31/1998 |
| RI/FS | 8/31/2002 | 6/7/2019 |
| RD | 9/15/2017 | 9/15/2020 |
| IRA | -- | -- |
| RA(C) | 9/15/2017 | 6/15/2022 |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

Load Line 9 (RVAAP-42) was used to produce fuze components for artillery projectiles from 1941 to 1945. The buildings and foundations were demolished in 2003. Basements for several buildings were demolished in place to three feet below grade. Contaminants of concern include PAHs and mercury. The RI/FS was completed in 2017. The PP was completed in 2018. The ROD was completed in 2019.

Cleanup Strategy

The exit strategy for this site includes soil treatment/removal to achieve unrestricted use. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-45_WET STORAGE AREA

HQAES ID: 39747.1045

Alias: RVAAP-45

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 6/15/2022

RC Date: 6/15/2022

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/28/1998 | 6/30/1998 |
| SI | 7/31/1998 | 7/31/1998 |
| RI/FS | 9/30/2004 | 6/5/2019 |
| RD | 9/15/2017 | 5/15/2021 |
| IRA | -- | -- |
| RA(C) | 9/15/2017 | 6/15/2022 |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

Wet Storage Area is a 36-acre fenced AOC located directly northwest of the intersection of George Road and Newton Falls Road. From 1941 through 1945, Wet Storage Area was used to store highly explosive primary explosives, including lead azide, mercury fulminate, and tetryl. During storage activities, explosive material was containerized, covered with water within drums, and stored separately in six igloos at the AOC. WS-1 and WS-1A were used to store lead azide, WS-2 and WS-2A were used to store mercury fulminate, and WS-3 and WS-3A were used to store tetryl. Since the Wet Storage Area igloos were used for storage of primary explosives, four igloos (WS-1, 13 WS-1A, WS-2, and WS-2A) were remediated for explosives contamination through thermal decomposition prior to demolition. Thermal decomposition activities occurred in February 2002, demolition of the igloos was initiated in November 2003, and activities were complete in July 2004. Prior to demolition, the lead floor liners within the igloos were removed and recycled off-site. All above-grade concrete structures and floor slabs were removed from the four igloos, and any foundations were removed to 1 foot bgs. All concrete from the demolition of the four igloos was transported to the clean hard-fill area in Load Line 1. The two remaining igloos (WS-3 and WS-3A) were refurbished. Remnant infrastructure within the eastern part of Wet Storage Area consists of refurbished igloos WS-3 and WS-3A. At the western portion of the AOC, the earthen mounds that backed the four demolished igloos are still visible. With the exception of those areas within the AOC consisting of access roads and the former and extant igloos, Wet Storage Area is forested. The RI/FS was completed in March 2017. The PP was completed in February 2018. The ROD was completed in June 2019.

Cleanup Strategy

The exit strategy for this site includes soil treatment/removal to achieve unrestricted use. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-46_BUILDING F-15 AND F-16

HQAES ID: 39747.1046

Alias: RVAAP-46

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 6/30/2020

RC Date: 6/30/2020

RC Reason: Study Completed, No Cleanup Required

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/28/1998 | 6/30/1998 |
| SI | 7/31/1998 | 7/31/1998 |
| RI/FS | 12/31/2003 | 6/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

Former buildings F-15 and F-16 were located west of Block D and east of Slagle Road in the west central portion of the facility. Railroad tracks oriented in a 12 north-south direction are located east of the buildings. The AOC, which is the combined operational areas for both Buildings F-15 and F-16, is approximately 5.4 acres. The AOC area does not include the forested area between the two buildings. The former Buildings F-15 and F-16 were used for surveillance testing during World War II, the Korean War, and the Vietnam War. The number of tests conducted on miscellaneous explosives and propellants, the quantities of material tested, and the exact dates of testing are unknown. From 1951 to 1957, the AOC was also used for a proving ground as well as for the demilitarization of ammunition and components. No additional information exists to indicate the AOC was used for any other processes. Historical facilities at the AOC included five process and support buildings. All buildings, slabs and foundations were demolished, except Building U-17, in 2009. The RI/FS was completed in August 2018. A NFA PP was completed in April 2019.

Cleanup Strategy

A NFA ROD will be completed. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

RVAAP-50_ATLAS SCRAP YARD

HQAES ID: 39747.1050

Alias: RVAAP-50

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 2/15/2023

RC Date: 2/14/2023

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/28/1998 | 6/30/1998 |
| SI | 7/31/1998 | 7/31/1998 |
| R/FS | 8/31/2004 | 11/15/2021 |
| RD | 11/16/2021 | 6/15/2022 |
| IRA | -- | -- |
| RA(C) | 6/15/2022 | 2/15/2023 |
| RA(O) | -- | -- |
| LTM | 2/15/2023 | 2/14/2053 |

Site Narrative

In the 1940s, RVAAP-50 (Atlas Scrap Yard) contained a complex of buildings, including barracks type housing that supported the principal construction and engineering company staff and included barracks type housing. After WWII, a majority of the Atlas building complex was demolished leaving the remaining portion of structures to support the installation roads and grounds maintenance staff and equipment, as well as, a large contingent of railroad maintenance personnel. The post WWII structures stood until after the Vietnam War at which point all remaining buildings were demolished. The site became a storage/stockpile yard for various types of bulk materials used in the day-to-day installation operations such as gravel, railroad ballast, sand, culvert pipe, railroad ties, and telephone poles. In the mid to late-1980s, the southeastern portion of the old Atlas area became a staging area for salvaged ammunition boxes from the demilitarization of defunct Vietnam War era munitions. The RI was completed in August 2017. The FS was completed in October 2019.

Cleanup Strategy

The anticipated exit strategy for this site includes completion of the PP and ROD followed by a removal action involving soil treatment/excavation with LUCs. Annual inspections and reporting, no residential use and five year reviews will be completed. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. Installation-wide five year review requirements are carried at RVAAP-01.

RVAAP-51_DUMP ALONG PARIS-WINDHAM ROAD

HQAES ID: 39747.1051

Alias: RVAAP-51

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 11/26/2019

RC Date: 11/26/2019

RC Reason: All Required Cleanup(s) Completed

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/28/1998 | 6/30/1998 |
| SI | 7/31/1998 | 7/31/1998 |
| R/FS | 9/30/2001 | 5/24/2018 |
| RD | 5/24/2018 | 4/15/2019 |
| IRA | 9/30/2002 | 9/30/2004 |
| RA(C) | 4/15/2019 | 11/26/2019 |
| RA(O) | -- | -- |
| LTM | 11/26/2019 | 11/25/2050 |

Site Narrative

RVAAP-51 (Dump Along Paris-Windham Road) is adjacent to the Sand Creek flood plain and was used as an open dump for miscellaneous materials, including transite siding. The dates of operation for the dump are unknown. Debris removal was completed in January 2004. Confirmation sampling detected PAHs and asbestos close to the road within the embankment. No attempt was made to remove remaining debris within the roadbed embankment as it would have compromised the stability of Paris-Windham Road. The Final Site Characterization Focused Feasibility Study was approved in December 2015. The PP was finalized in October 2016. The ROD was finalized in May 2018. Signs were installed in 2019.

Cleanup Strategy

Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater. LUC inspections, sign and siebert stake maintenance, restricted access, and reporting will continue. Installation-wide five year review requirements are carried at RVAAP-01. LUC requirements are carried at RVAAP-01.

RVAAP-66_FACILITY-WIDE GROUNDWATER

HQAES ID: 39747.1072

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 8/15/2024

RC Date: 8/15/2054

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 5/31/1988 | 6/30/1989 |
| RI/FS | 10/31/1999 | 8/15/2022 |
| RD | 8/15/2022 | 8/15/2023 |
| IRA | 10/31/2011 | 3/15/2016 |
| RA(C) | 8/15/2023 | 8/15/2024 |
| RA(O) | 8/15/2024 | 8/14/2053 |
| LTM | -- | -- |

Site Narrative

Groundwater is managed through a facility-wide approach called the FWGWMP under RVAAP-66. The FWGWMP is a component of the DFFOs dated June 2004. There are 312 wells facility wide. Both shallow aquifers and deeper regional aquifers are being monitored.. Some of the source areas are known and contamination has been identified but nature and extent is still being determined. Site-related constituents have been identified at low concentration and are still being evaluated in the deeper aquifers. Three wells were installed in 2013 along the facility boundary. Fifteen wells were installed in 2016. The RI work plan was finalized in March 2017.

Cleanup Strategy

The anticipated exit strategy for this site includes completion of the RI/FS. Facility-wide groundwater monitoring will continue until the RI/FS is completed. Monitored Natural Attenuation is the assumed remedial action.

RVAAP-67_FACILITY-WIDE SEWERS

HQAES ID: 39747.1073

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 6/15/2021

RC Date: 6/15/2023

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 2/29/1988 | 4/30/1988 |
| SI | 5/31/1988 | 6/30/1989 |
| R/FS | 10/31/1999 | 6/15/2023 |
| RD | -- | -- |
| IRA | 5/15/2016 | 9/15/2020 |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The RVAAP started operations in 1941 and continued intermittently until the late-1970s, either loading or demilitarizing ammunition. Plant operations required processing large quantities of secondary explosives and lesser quantities of primary explosives. Periodic cleaning of the process areas resulted in explosive residues in the sanitary and storm sewers and settling ponds. Facility-wide sewers are addressed by RVAAP-67. Sewers thought to have transported explosive residues during plant operations are believed to be limited to the 12 process areas and Buildings 1037 (laundry) and 1039 (laboratory) in the administrative area of the plant. The sanitary sewers (approximately 28,500-feet) are assembled from either vitreous clay tile that has been lined with resin or cast iron. Storm sewers (estimated at 30,000-feet) are fabricated from either vitreous clay or corrugated galvanized steel. Sewers were installed in trenches lined with washed gravel then covered by about six-inches of gravel and backfilled with the removed soil, generally heavy clay. If the sewers leaked contaminants they should be in the gravel fill, trapped by the clay backfill. The main sources of explosives in sanitary sewers are change houses within the various load lines where coveralls were removed and people showered prior to leaving the facility. In addition, the laundry where the clothes were washed and the laboratory where small quantities of explosives were tested. Storm sewers within the load lines were subject to contamination by virtue of wash-down procedures where explosive residue and dusts were scrubbed from the floors and washed through doorways onto the surrounding grounds and which could then migrate to the storm water drain system. Explosives could also enter the storm system from explosive filter effluent traveling to settling ponds. A contract was awarded to determine if there were explosive residues in sewers and make recommendations as recorded in its report, Explosive Evaluation of Sewers, dated November 2007. The study was done under safety qualification parameters; not to quantify the presence of any explosive deposits. The Corps of Engineers Research Laboratory performed a similar investigation of explosive contamination in the sewer system in a letter report dated 15 June 2007, which has been included in the contractor report as an appendix. Following an Ohio EPA approved work plan, Tier I (sediment and liquids) surveys/investigation were completed in the second quarter of FY10 with Tier II video analyses of critical area LAP production area sewers completed in September FY11. A Draft R/FS report was

submitted to Ohio EPA in 2012. An EE/CA was completed in March 2017. An Action Memorandum was completed in February 2018.

Cleanup Strategy

The anticipated exit strategy for this site includes soil removal. The RI will recommend NFA. A NFA PP and ROD will be completed. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

CC RVAAP-69_BUILDING 1048 - FIRE STATION

HQAES ID: 39747.1077

Alias: RVAAP-69

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 5/15/2023

RC Date: 5/15/2023

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/30/2008 | 4/30/2009 |
| SI | 5/31/2009 | 2/28/2010 |
| RI/FS | 3/31/2010 | 5/15/2023 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Building 1048 Fire Station (CC RVAAP-69) AOC was located in the former plant administration area in the northwest quadrant of the intersection of George Road and South Service Road. In 1968, the fire station was referred to as the Fire and Guard Building, and consisted of 12,130 square feet. The fire station building was demolished in late 2008, and the site currently remains undeveloped. The AOC consists of the ground area located west/northwest of the former building as well as a portion of the former building footprint. The area is currently marked with Siebert stakes. Carbon tetrachloride was used at this site. An HRR was completed in December 2011. This site is currently undergoing an RI. Groundwater monitoring wells were installed as part of the RI.

Cleanup Strategy

Additional groundwater monitoring wells will be installed as part of the RI and sampled for four initial quarters. The anticipated exit strategy for the site includes completion of the RI/FS. Once the RI is completed, future actions will be evaluated.

CC RVAAP-70_EAST CLASSIFICATION YARD

HQAES ID: 39747.1078

Alias: RVAAP-70

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 10/15/2021

RC Date: 10/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/30/2008 | 4/30/2009 |
| SI | 5/31/2009 | 10/31/2018 |
| R/FS | 10/15/2017 | 10/15/2021 |
| RD | -- | -- |
| IRA | 3/15/2020 | 10/15/2021 |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The RVAAP was originally equipped with east and west classification yards during its early operational years. The classification yards were used for the switching and maintenance of railroad cars. The East Classification Yard (CC RVAAP-70) is located east of Load Line 1 in close proximity to the intersection of Ramsdell Road and Irons Road. The rail-yard reportedly consisted of 18 tracks with a 750 car capacity, and 3 Hi-X tracks with a 120 car capacity, which also included the washrack south of the main track area. This yard was equipped with a locomotive repair building (Round House), an herbicide storage shed, several outbuildings, a washrack area, and a storage tank area. The herbicide shed contained a mobile herbicide tank. The AOC area consists of the following areas within the East Classification Yard: storage tank area, herbicide shed, Round House building, and former washrack area. An HRR was completed in December 2011. According to the HRR, a heating oil fuel spill occurred in 1986 within the vicinity of the storage tank area. The area was reportedly cleaned up; however, no final cleanup report was found. This area is now overgrown with vegetation. Staining from past operations was found within the Round House building. No visible evidence of impacts (stained soil, stressed vegetation) was noted in the vicinity of the herbicide shed or washrack. The HRR recommended further investigation for all four areas within the East Classification Yard. The SI was completed in November 2018.

Cleanup Strategy

The anticipated exit strategy for the site includes completion of an EE/CA followed by an Action Memorandum and soil removal. It is assumed a RI will be completed followed by a NFA PP and NFA ROD. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

CC RVAAP-74_BLDG 1034 MOTOR POOL HYDRAULIC LIFT

HQAES ID: 39747.1081

Alias: RVAAP-74

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 5/15/2021

RC Date: 5/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/30/2008 | 4/30/2009 |
| SI | 5/31/2009 | 12/15/2011 |
| R/FS | 3/31/2010 | 5/15/2021 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

An in-ground hydraulic floor lift system located at Building 1034 has been identified and included in CC RVAAP-74. The hydraulic floor lift system is depicted in a 1969 drawing as a twin-post lift system constructed of metal. The below-grade system consists of a cast in concrete L- shaped pit measuring approximately 12 feet in length and four feet in length, three feet in width, and four feet in height. The pit is reportedly buried at depths ranging from four feet bgs to approximately eight feet bgs. The twin-post lift reportedly has a clearance of six feet between the floor surface and the bottom of the lift (height in the air). The floor lift system remains in place, and reportedly exhibited a slow leak of hydraulic fluids for an extended period of time. A HRR was completed in December 2011. The report recommended further investigation for the hydraulic lift. The RI recommending No Further Action was completed in October 2019.

Cleanup Strategy

A NFA PP and ROD will be completed.

CC RVAAP-76_DEPOT AREA

HQAES ID: 39747.1083

Alias: RVAAP-76

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 6/15/2022

RC Date: 6/15/2022

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/30/2008 | 4/30/2009 |
| SI | 5/31/2009 | 2/28/2010 |
| RI/FS | 3/31/2010 | 4/24/2019 |
| RD | 9/15/2017 | 4/15/2021 |
| IRA | -- | -- |
| RA(C) | 9/15/2017 | 6/15/2022 |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Depot Area (CC RVAAP-76) consisted of multiple historical support buildings used for former operations including: fueling stations, locomotive repair shop, motor repair shop, petroleum storage building, solid waste incinerator, demilitarization activities at Building U-10, service station and an aboveground storage tank (AST) associated with Building U-5. A HRR was completed in December 2011. The RI/FS was finalized in January 2017. The PP was completed in March 2018. The ROD was finalized in April 2019.

Cleanup Strategy

Soil removal at former Buildings U4 and U5 will be completed. The AOC will achieve unrestricted use. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

CC RVAAP-78_QUARRY POND SURFACE DUMP

HQAES ID: 39747.1086

Alias: RVAAP 78

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 12/15/2021

RC Date: 12/15/2021

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 4/30/2009 | 6/30/2009 |
| SI | 7/31/2009 | 11/14/2018 |
| RI/FS | 4/30/2010 | 12/15/2021 |
| RD | -- | -- |
| IRA | 12/27/2018 | 12/15/2021 |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Quarry Pond Surface Dump (CC RVAAP-78) consists of an area of former dumping along a small topographic ridge located north and northeast of the northern quarry pond within the Fuze and Booster Quarry. The potentially impacted area consists of approximately 8,750 (250 feet by 35 feet) square feet. The debris pile appears to have an average thickness of about five feet (where present). Contents of the debris pile appear to consist of potential ACM, construction debris, scrap metal, and other unknown materials. The Quarry Pond Surface Dump appears to be a possible northern extension of the existing Fuze and Booster Quarry AOC (RVAAP-16), which operated from 1945 through 1993. Asbestos is the only constituent of concern. The SI was completed in August 2016. An SI addendum was completed in November 2018. The RI is currently underway.

Cleanup Strategy

The anticipated exit strategy for the site includes completion of an Action Memorandum and NTCRA followed by a NFA PP and ROD. Groundwater monitoring requirements are carried in RVAAP-66, Facility-wide Groundwater.

CC RVAAP-79_DLA ORE STORAGE SITES

HQAES ID: 39747.1087

Alias: RVAAP 79

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 2/15/2023

RC Date: 2/15/2023

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: IR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 4/30/2009 | 6/30/2009 |
| SI | 7/31/2009 | 9/30/2009 |
| R/FS | 10/31/2010 | 2/15/2023 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

Various ores were historically stored (stock-piled) at this facility for the General Services Administration (GSA). The Defense Logistics Agency (DLA), Defense National Stockpile Center leased space at RVAAP for the storage of the ore materials on the ground and in ASTs, which are addressed by CC RVAAP-79. The ASTs were referred to as strategic material tanks. Many of the ASTs were constructed without floors; therefore, the ores were allowed to make direct contact with the underlying soils. The following GSA materials were stock-piled on the ground surface: brass ingots, chemical chrome ore, copper ingots, ferrochrome ore, ferro manganese ore, and metallurgical manganese ore. The following GSA materials were stored in Strategic Material Tanks: magnesium, kyanite, antimony sulfide, asbestos (raw), cobalt rutile sand, cobalt zircon sand, monazite sand, nickel cathodes, rutile sand, silicon carbide, talc, and zircon sand ore. The monazite sand contained radioactive element Thorium 232. Ore storage occurred at the following primary locations at RVAAP: DLA Load Line 3 Tank Storage and Building 803, DLA Route 80 Tank Farm, DLA Main Ore Pile Storage Area, DLA Area 8 Inert Storage, Building 841, and DLA Area 2 Ammunition Storage Area. The total area of concern consists of approximately 68.92 acres. This site also includes the former Ore Pile Retention Pond (RVAAP-31) constructed in the mid 1950s. The pond was constructed to control potentially contaminated surface water runoff from the adjacent manganese and chrome stock piles from entering a receiving stream. Available aerial photographs and site observations indicate that ores still remain on the ground surface at several locations. As such, the surface soils may be impacted by these materials. The RI is currently underway.

Cleanup Strategy

The anticipated exit strategy for the site includes completion of the RI. An FS, PP and ROD will be completed. At this time there isn't sufficient documentation to plan for future actions.

RAVENNA ARMY AMMUNITION PLANT

MILITARY MUNITIONS RESPONSE PROGRAM SITES

RVAAP-063-R-01_GROUP 8 MRS

HQAES ID: 39747.1057

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 4/15/2026

RC Date: 4/15/2026

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| R/FS | 4/30/2010 | 3/15/2021 |
| RD | 6/30/2020 | 10/15/2022 |
| IRA | -- | -- |
| RA(C) | 4/15/2021 | 4/15/2026 |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Group 8 (RVAAP-063-R-01) MRS consists of most of the area between Buildings 846 and 849 and may have been used for debris and rubbish burning. An SI was completed for the site in 2008. The SI recommended 2.65 acres be evaluated for MEC and MC. The RI was completed in 2015. The RI Report concluded that a release of MEC had not occurred at the site. However, MC was detected at the site at concentrations that posed an unacceptable risk to potential receptors. In addition, significant amounts of MPPEH were observed during the RI. The FS was completed in August 2019. The PP was completed in 2020.

Cleanup Strategy

The exit strategy for this site includes completion of a ROD. A soil removal action for MC will be completed to achieve unrestricted use/unlimited exposure (UU/UE) at this site. The site is NFA for MEC, therefore a NFA ESS will be prepared.

RVAAP-061-R-01_BLOCK D IGLOO -TD

HQAES ID: 39747.1058

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 4/30/2010 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Block D Igloo - Transferred (TD) (RVAAP-061-R-01) MRS is the offsite portion of the Block D site. This site was the result of an explosion that occurred at Igloo 7-D-15 ("D" Block) on March 24, 1943 where debris was found off the installation. A munitions response was conducted by Explosives Ordnance Disposal Team and a follow-on site assessment was later conducted by Huntsville District to assess the type of munitions stored in the bunker, as well as the size of the debris field created by the explosion. The site assessment identified a 3,000-foot blast radius around the former storage bunker. Part of the blast radius extended beyond the installation boundary. This 19.25 acre site was recommended for further evaluation for potential release of MEC and MC. A SI was completed for the Block D Igloo - TD site in 2008. The Final SI Report concluded that a release of MEC and MC had not occurred at the site, and the 19.25 acre MRS was recommended for NFA. However, the SI Report recommended that 14.13 dis-contiguous acres located outside the installation boundary be evaluated for MEC and MC. The RI determined that a release of MEC and MC did not occur beyond the installation boundary. This determination was based on information/research contained in a technical memorandum demonstrating that the 1943 explosion could not have ejected MEC/MPPEH beyond the installation boundary. Fieldwork conducted in the adjacent Block D Igloo MRS corroborated that MEC/MPPEH had not been released at the site. The technical memorandum was approved by the Ohio EPA on 15 February 2011. A discussion of the findings for the Block D Igloo - TD (RVAAP-061-R-01) MRS were reported in the Final RI Report for the Block D Igloo (RVAAP-060-R-01) MRS. A separate RI report was not prepared for the Block D Igloo - TD (RVAAP-061-R-01) MRS. The NFA ROD was completed in January 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

RVAAP-016-R-01_FUZE AND BOOSTER QUARRY

HQAES ID: 39747.1059

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| R/FS | 4/30/2010 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Fuze and Booster Quarry (RVAAP-016-R-01) site consists of three elongated ponds separated by berms which were constructed within an abandoned rock quarry. The ponds were used for open burning of various types of munitions from 1945 to 1975. The site is collocated with an IRP AOC (RVAAP-16). A SI was completed for the Fuze and Booster Quarry site in 2008. The SI recommended 4.9 acres be evaluated for MEC and MC. IJ The RI was completed in 2015. The RI Report concluded that a release of MEC and MC had not occurred at the site. However MPPEH (confirmed to be munitions debris/MDAS) was identified at the site. The RI Report recommended retaining the MRS acreage as 4.9 acres and recommended remedial alternatives be evaluated in a feasibility study for the site. The Feasibility Study recommending No Further Action was completed in January 2018. The PP was completed in October 2018. The ROD was completed in October 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

RVAAP-002-R-01_ERIE BURNING GROUNDS

HQAES ID: 39747.1060

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 4/30/2010 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Erie Burning Grounds (RVAAP-002-R-01) MRS was used from 1941 to 1951 to thermally treat bulk, obsolete, off-spec propellants, conventional explosives, rags, and large explosive contaminated items (such as railcars) through open burning on the ground surface. The MRS is co-located with an IRP AOC (RVAAP-02 Erie Burning Grounds). A SI was completed for the Erie Burning Grounds site in 2008. The SI recommended 33.93 acres be evaluated for MEC and MC. The Final RI Report was completed in August 2014. The RI Report concluded that a release of MEC and MC had not occurred at the site. However MPPEH (munitions debris) was identified at the site. The RI Report recommended retaining the MRS acreage as 33.9 acres and recommended remedial alternatives be evaluated in a feasibility study for the site. The FS recommended NFA and was completed in August 2018. The PP was completed in February 2019. A NFA ROD was completed in November 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed following ROD finalization.

RVAAP-004-R-01_OPEN DEMOLITION AREA #2

HQAES ID: 39747.1061

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 3/15/2036

RC Date: 3/15/2036

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 10/31/2008 | 3/15/2036 |
| RD | -- | -- |
| IRA | 3/15/2015 | 1/13/2020 |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Open Demolition Area #2 (RVAAP-004-R-01) MRS is a former open burn / open detonation area that was used between 1948 and 1991 for munitions and explosives disposal. The MRS is co-located with an IRP AOC (RVAAP-04). A SI was completed in 2008. The Final SI Report identified the MRS as being 35.4 acres and recommended the site for further evaluation for MEC and MC. Two Time-Critical Response Actions (TCRAs) have been conducted at ODA #2. In 2008, a TCRA was conducted to address the potential for migration of munitions offsite in Sand Creek. In 2009-2011, a second TCRA was conducted at Rocket Ridge to address MEC and MPPEH contamination along the leading slope of the creek. In July 2009, PBA09 was awarded to characterize the nature and extent of MEC and MC contamination at the ODA #2 (RVAAP- 004-R-01) MRS. A partial RI was completed in 2015. The RI Report concluded that the MRS was much larger due to the presence of a significant kickout area. Some MC was detected, but not at levels that presented an unacceptable risk to potential receptors. MEC and MPPEH was confirmed at the site. The MRS was increased to 317.4 acres. A Final Memorandum of Record and an Action Memorandum recommending a TCRA was completed in 2015. A Probability Assessment investigating the munitions risk at the site was completed in May 2015. A TCRA was conducted from May 2015 through January 2020 to reduce explosive safety hazards and better assess MEC and potential MC contamination at the site.

Cleanup Strategy

The exit strategy for this site includes completion of an RI to determine nature and extent of contamination. An FS to evaluate remedial alternatives will be followed by a PP and ROD. At this time there is insufficient documentation to plan for further actions. IMPORTANT NOTE: Portions of the ODA2 MRS overlap operational range (MK19 Range). The installation will need to evaluate this overlap and adjust the MRS boundary to remove the operational acreage from the MRS. Any additional work at ODA2 will be evaluated in accordance with DERP eligibility criteria.

RVAAP-060-R-01_BLOCK D IGLOO

HQAES ID: 39747.1062

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 4/15/2027

RC Date: 4/15/2027

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 10/15/2008 | 11/7/2019 |
| RD | 4/1/2020 | 10/15/2022 |
| IRA | -- | -- |
| RA(C) | 4/15/2021 | 4/15/2027 |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Block D Igloo MRS (RVAAP-060-R-01) was the result of an explosion that occurred at Igloo 7-D-15 ("D" Block) on March 24, 1943. A munitions response was conducted by Explosives Ordnance Disposal team and a follow-on site assessment was later conducted by Huntsville District to assess the type of munitions stored in the bunker, as well as the size of the debris field created by the explosion. The site assessment identified a 3,000-foot blast radius around the former storage bunker. A SI was completed for the Block D Igloo site in 2008. The SI recommended 340.20 acres be evaluated for MEC and MC. In July 2009, PBA09 was awarded to characterize the nature and extent of MEC and MC contamination at the Block D Igloo MRS (RVAAP-060-R-01). The RI was completed in 2015. The RI Report concluded that a release of MEC had occurred, but the extent of the release was much less than suspected in the SI. Some MC was detected, but not at levels that presented an unacceptable risk to potential receptors. The MRS acreage was reduced to 101.6 acres. The RI Report recommended evaluation of remedial alternatives for MEC in a FS. MPPEH was confirmed at the site. The FS was completed in June 2018. The PP was completed in January 2019. The ROD was completed in November 2019.

Cleanup Strategy

The exit strategy for this site includes a MEC removal action to achieve UU/UE at this site. Following the completion of the removal action, a NFA Explosives Safety Submittal will be completed.

RVAAP-050-R-01_ATLAS SCRAP YARD

HQAES ID: 39747.1063

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSPP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 7/15/2009 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Atlas Scrap Yard (RVAAP-050-R-01) was used as metal scrap yard and construction camp. The site is co-located with IRP AOC RVAAP-50. A SI was completed for the Atlas Scrap Yard site in 2008. The SI recommended 66 acres be evaluated for MEC and MC. The RI Report was finalized in August 2014. The RI Report concluded that a release of MEC and MC had not occurred at the site. The RI Report recommended NFA for MEC and MC. The PP was completed in December 2017. The ROD was completed in December 2018.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

RVAAP-032-R-01_40MM FIRING RANGE

HQAES ID: 39747.1065

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 4/30/2010 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The 40mm Firing Range (RVAAP-032-R-01) is a former test range for the 40mm cartridge that was used for testing between 1969 and 1971. The site is collocated with an IRP site (RVAAP-32). A SI was completed for the 40mm Firing Range site in 2008. The SI recommended 1.27 acres be evaluated for MEC and MC. The RI was completed in 2015. The RI Report concluded that a release of MEC and MC had not occurred at the site. However MPPEH (confirmed munitions debris/MDAS) was identified at the site. The RI Report recommended increasing the size of the MRS to 8.55 acres and recommended remedial alternatives be evaluated in a Feasibility Study for the site. The FS was completed in February 2018. The PP was completed in October 2018. A NFA ROD was completed in September 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

RVAAP-019-R-01_LANDFILL NORTH OF WINKLEPECK

HQAES ID: 39747.1067

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 10/31/2008 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Landfill North of Winklepeck MRS (RVAAP-019-R-01) is a former dump area suspected of containing flare canisters and booster cups. RVAAP-19 addresses IRP concerns at this location. A SI was completed for the MRS in 2008. The SI recommended 2.3 acres be evaluated for MEC and MC. The RI was completed in 2015. The RI Report concluded that a release of MEC and MC had not occurred at the site. The RI Report recommended NFA for MEC and MC. The PP was completed in October 2018. The ROD was completed in 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

RVAAP-001-R-01_RAMSDELL QUARRY AREA 2 (SOUTH)

HQAES ID: 39747.1070

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/18/2002 | 12/21/2003 |
| SI | 9/30/2005 | 5/31/2008 |
| RI/FS | 10/31/2008 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Ramsdell Quarry MRS is a former OB/OD area used to thermally treat waste explosives and napalm bombs between 1946 and 1950. A portion of the site was used as a nonhazardous solid waste landfill. The landfill acreage is not part of the MRS. A SI was completed for the Ramsdell Quarry site in 2008. The SI recommended 13.4 acres be evaluated for MEC and MC. Following the RI, the site was divided into two separate sites RVAAP-001-R-01 (6.93 acres) and RVAAP-001-R-02 (6.47 acres). It was suspected that the south location may have been used as a disposal area for DoD military munitions that were treated at the Ramsdell Quarry Landfill MRS Area 1 (North). The RI Report was finalized in January 2015. The RI Report concluded that a release of MEC had not occurred at the site. Some MC was detected, but not at levels that presented an unacceptable risk to potential receptors. The RI Report recommended remedial alternatives be evaluated in a Feasibility Study for the site. The FS was completed in January 2018. The PP was completed in January 2019. The NFA ROD was completed in August 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

RVAAP-001-R-02_RAMSDELL QUARRY AREA 1 (NORTH)

HQAES ID: 39747.1074

Alias: None

Regulatory Driver: CERCLA

RRSE: Not assigned

MRSP: Not assigned

RIP Date: 9/30/2020

RC Date: 9/30/2020

RC Reason: Not assigned

Program: ENV Restoration, Army

Subprogram: MR

| <i>Phases</i> | <i>Start</i> | <i>End</i> |
|---------------|--------------|------------|
| PA | 9/15/2002 | 12/15/2003 |
| SI | 9/15/2005 | 5/15/2008 |
| RI/FS | 10/15/2008 | 9/30/2020 |
| RD | -- | -- |
| IRA | -- | -- |
| RA(C) | -- | -- |
| RA(O) | -- | -- |
| LTM | -- | -- |

Site Narrative

The Ramsdell Quarry (RVAAP-001-R-02) MRS is a former OB/OD area used to thermally treat waste explosives and napalm bombs between 1946 and 1950. A portion of the site was used as a nonhazardous solid waste landfill. The landfill acreage is not part of the MRS. A SI was completed for the Ramsdell Quarry MRS in 2008. The SI recommended 13.4 acres be evaluated for MEC and MC. Following the SI the site was divided into two separate sites RVAAP-001-R-01 (6.93 areas) and RVAAP-001-R-02 (6.47 acres). The RI Report was finalized in January 2015. The RI Report concluded that since there was no evidence of MEC/Munitions Debris or MC, No Further Action was recommended. The PP was completed in August 2017. The ROD was completed in 2019.

Cleanup Strategy

A NFA Explosives Safety Submittal will be completed.

SITE CLOSEOUT SUMMARY

| HQAES ID | Site Name | Site Closeout Date |
|------------|--|--------------------|
| 39747.1002 | RVAAP-02_ERIE BURNING GROUNDS | 1/31/2008 |
| 39747.1004 | RVAAP-04_OPEN DEMOLITION AREA #2 | 1/31/2008 |
| 39747.1007 | RVAAP-07_BLD 1601 HAZ WST STG | 6/30/1989 |
| 39747.1013 | RVAAP-13_BLDG 1200-DILUTION\SETTLING PON | 5/15/2015 |
| 39747.1014 | RVAAP-14_LOAD LINE 6 EVAPORATION UNIT | 6/30/1989 |
| 39747.1015 | RVAAP-15_LOAD LINE 6 TREATMENT PLANT | 1/31/2000 |
| 39747.1016 | RVAAP-16_FUZE&BOOSTER QUARRY LANDFILL/PO | 9/30/2010 |
| 39747.1017 | RVAAP-17_DEACTIVATION FURNACE | 6/30/1989 |
| 39747.1018 | RVAAP-18_LOAD LINE 12 WWT PLANT | 3/31/1997 |
| 39747.1020 | RVAAP-20_SAND CREEK STP | 6/30/1989 |
| 39747.1021 | RVAAP-21_DEPOT STP | 6/30/1989 |
| 39747.1022 | RVAAP-22_GEORGE RD STP | 6/30/1989 |
| 39747.1023 | RVAAP-23_UNIT TRAINING EQUIPMENT SITE US | 11/30/1989 |
| 39747.1024 | RVAAP-24_DEPOT AREA | 6/30/1989 |
| 39747.1025 | RVAAP-25_BLD 1034 MOTOR POOL AST | 6/30/1989 |
| 39747.1026 | RVAAP-26_FUZE BOOSTER AREA SETTLING TANK | 1/31/2000 |
| 39747.1027 | RVAAP-27_BUILDING 854 PCB STORAGE | 6/30/1989 |
| 39747.1028 | RVAAP-28_MUSTARD AGENT BURIAL SITE | 7/27/2017 |
| 39747.1029 | RVAAP-29_UPPER AND LOWER COBBS PONDS | 6/7/2019 |
| 39747.1030 | RVAAP-30_LL 7 TREATMENT PLANT | 1/31/2000 |
| 39747.1031 | RVAAP-31_ORE PILE RETENTION POND | 1/31/2000 |
| 39747.1032 | RVAAP-32_40 MM FIRING RANGE | 9/30/2007 |
| 39747.1033 | RVAAP-33_LOAD LINE 6 | 5/12/2018 |
| 39747.1035 | RVAAP-35_1037 BUILDING-LAUNDRY WASTEWATE | 9/30/1998 |
| 39747.1036 | RVAAP-36_PISTOL RANGE | 9/30/2005 |
| 39747.1037 | RVAAP-37_PESTICIDE BUILDING S-4452 | 2/29/1996 |

| HQAES ID | Site Name | Site Closeout Date |
|------------|--|--------------------|
| 39747.1039 | RVAAP-39_LOAD LINE 5 | 3/16/2018 |
| 39747.1040 | RVAAP-40_LOAD LINE 7 | 6/30/2019 |
| 39747.1041 | RVAAP-41_LOAD LINE 8 | 6/16/2018 |
| 39747.1043 | RVAAP-43_LOAD LINE 10 | 5/11/2017 |
| 39747.1044 | RVAAP-44_LOAD LINE 11 | 5/12/2018 |
| 39747.1046 | RVAAP-46_BUILDING F-15 AND F-16 | 6/30/2020 |
| 39747.1047 | RVAAP-47_BUILDING T-5301 | 12/31/2000 |
| 39747.1048 | RVAAP-48_ANCHOR TEST AREA | 4/15/2015 |
| 39747.1049 | RVAAP-49_CENTRAL BURN PITS | 7/31/2009 |
| 39747.1052 | PBC at Ravenna_PBA 2008 | 7/15/2015 |
| 39747.1053 | RVAAP-034-R-01_SAND CREEK DUMP | 3/15/2016 |
| 39747.1054 | RVAAP-012-R-01_LOAD LINE #12 | 5/31/2008 |
| 39747.1055 | RVAAP-064-R-01_Old Hay Field MRS | 5/31/2008 |
| 39747.1056 | RVAAP-046-R-01_BUILDING #F-15 AND F-16 | 5/31/2008 |
| 39747.1064 | RVAAP-048-R-01_ANCHOR TEST AREA | 5/31/2008 |
| 39747.1066 | RVAAP-008-R-01_LOAD LINE #1 | 3/15/2016 |
| 39747.1068 | RVAAP-005-R-01_WINKLEPECK BURNING GROUND | 3/31/2006 |
| 39747.1069 | RVAAP-062-R-01_WATER WORKS #4 DUMP | 3/15/2016 |
| 39747.1071 | RVAAP-033-R-01_FIRESTONE TEST FACILITY | 3/15/2016 |
| 39747.1076 | CC RVAAP-68_ELECTRIC SUBSTATIONS (E&W NO | 5/31/2017 |
| 39747.1079 | CC RVAAP-72_FACILITY-WIDE USTs | 7/15/2015 |
| 39747.1080 | CC RVAAP-73_FACILITY-WIDE COAL STORAGE | 4/24/2019 |
| 39747.1082 | CC RVAAP-75_GEORGE ROAD STP MERCURY SPIL | 3/15/2016 |
| 39747.1084 | CC RVAAP-77_BLDG 1037 LAUNDRY WASTEWATER | 2/15/2015 |
| 39747.1085 | PBA@MR RAVENNA_MR PBA 2009 | 9/30/2015 |
| 39747.1088 | CC RVAAP-80_GROUP 2 PROPELLANT CAN TOPS | 5/31/2017 |
| 39747.1091 | CC RVAAP-83_FORMER BUILDINGS 1031 AND 10 | 8/15/2015 |
| 39747.1092 | CC RVAAP-71_BARN NO. 5 PETROLEUM RELEASE | 2/15/2015 |

COMMUNITY INVOLVEMENT

| | |
|---|---|
| Technical Review Committee (TRC) Establishment Date: | N/A |
| Community Involvement Plan (Date Published): | 2/27/2020 |
| Restoration Advisory Board (RAB) Establishment Date: | 10/31/1996 |
| RAB Adjournment Date: | N/A |
| RAB Adjournment Reason: | N/A |
| Additional Community Involvement: | <p>The RVAAP RAB was established in 1996 and has 25 members consisting of 23 community members and two noncommunity members. The community members include an appointee from each of the surrounding six townships, one representative appointed by the Trumbull County Commissioners, a representative appointed by the Portage County Commissioners, and 15 members chosen from the general public. One of the community members is elected as a community co-chair by majority vote. The two non-community members include a representative of the Ohio EPA and an Army installation co-chair appointed by the installation. A RAB operating procedure was adopted by all members on Feb. 19, 1997. A copy can be found on the RVAAP web site www.RVAAP.org, as well as in two public repositories (The Reed Memorial Library in Ravenna and the Newton Falls Public Library). The RVAAP RAB generally meets twice a year. All meetings are open to the public and are rotated among public places within the townships around the installation. Current topics are addressed at the meetings and a speaker is generally featured. The minutes of all RAB meetings are recorded. Meetings are announced in the local media. All restoration program records are made available to the RAB members and any other interested parties through the two public repositories. Documents are also available at www.RVAAP.org. The Community Relations Plan is updated regularly. The plan outlines the many ways that RVAAP involves the community in the restoration activities, including through the RAB, site tours, and the website.</p> |
| Administrative Record is located at: | CJAG Environmental Office 1438 State Route 534 SW, Newton Falls, OH 44444 |

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| Information Repository is located at: | Reed Memorial Library 167 E Main St., Ravenna, OH 44266; Newton Falls Public Library, 204 S Canal St, Newton Falls, OH 44444 |
| Current Technical Assistance for Public Participation (TAPP): | None |
| TAPP Title: | N/A |
| Potential TAPP: | N/A |

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Review Summary Table

| Status | Start Date | End Date | End FY |
|----------|------------|----------|--------|
| COMPLETE | 7/1/2011 | 8/1/2012 | 2012 |
| COMPLETE | 7/1/2016 | 8/1/2017 | 2017 |

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

| Associated ROD/DD Name | HQAES ID |
|--------------------------------|--|
| INTERIM ROD FOR LOAD LINE 1 -4 | 39747.1008, 39747.1009, 39747.1010, 39747.1011 |
| ROD LOAD LINE 12 | 39747.1012 |
| RAMSDELL QUARRY LANDFILL ROD | 39747.1011 |
| WINKLEPECK BURNING GROUNDS ESD | 39747.1005 |

Results, Actions & Plans

| Results | Actions | Plans |
|------------------------------|---|--|
| The remedies are protective. | Determine if unacceptable risk associated with remaining contaminated soils at Load Lines 1 - 4 exists and remediate in a manner consistent with the Interim ROD, if necessary to mitigate risk | Continue additional evaluation of COCs and complete a Final ROD and remedial action to achieve Commercial/Industrial Use |

LAND USE CONTROLS (LUC) SUMMARY

| ROD/DD | LUC Title | HQAES ID |
|----------------------------------|----------------------------------|------------|
| RAMSDELL QUARRY LAND | LUC RAMSDELL QUARRY | 39747.1001 |
| LOAD LINE 12 | LOAD LINE 12 | 39747.1012 |
| WINKLEPECK BURNING G | WINKLEPECK BRNG GROU | 39747.1005 |
| DUMP ALONG PARIS WINDHAM ROAD | DUMP ALONG PARIS WINDHAM ROAD | 39747.1051 |