

TWIN CITIES ARMY AMMUNITION PLANT

Army Cleanup Program

Installation Action Plan Final

June 2024

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STATEMENT OF PURPOSE

The Installation Action Plan (IAP) provides evidence that the Army is firmly committed to expeditious identification and cleanup of environmental contamination, and that the installation has a credible, organized program to carry out that commitment. The IAP provides an outline of the total multi-year environmental cleanup program for each site with ongoing or future planned restoration activity and includes the (1) environmental restoration requirements, (2) the rationale for the selected technical approach, and (3) foundation to develop corresponding financial needs for each cleanup site.

INSTALLATION OVERVIEW

Installation Name: TWIN CITIES ARMY AMMUNITION PLANT

Installation City: ARDEN HILLS

Installation County: RAMSEY

Installation State: MN

Regulatory Participation - Federal: US EPA, REGION V

Regulatory Participation - State: MINNESOTA POLLUTION CONTROL AGENCY

ACRONYMS

Acronym	Definition
BGRS	Boundary Groundwater Recovery System
CC	Compliance-Related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CRL	Cleanup Restoration & Liabilities
CY	Cubic Yard
EBS	Environmental Baseline Survey
EE/CA	Engineering Estimate/Cost Analysis
ENV	Environmental
ESA	Environmental Site Assessment
ESD	Explanation of Significant Difference
FRA	Final Remedial Action
FS	Feasibility Study
FYR	Five-Year Review
GAC	Granular Activated Carbon
IAP	Installation Action Plan
ID	Identification
IR	Installation Restoration
IRA	Interim Remedial Action
LTM	Long-Term Management
LUC	Land Use Control
MNA	Monitored Natural Attenuation
MPCA	Minnesota Pollution Control Agency
MR	Munitions Response
MRSPP	Munitions Response Site Prioritization Protocol
NFA	No Further Action
NPL	National Priorities List
OU	Operable Unit
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PGRS	Plume Groundwater Recovery System
PR	Periodic Review
PTA	Primer/Tracer Area
RA	Remedial Action
RAB	Restoration Advisory Board

Acronym	Definition
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
SC	Site Closeout
SGRS	Source Groundwater Recovery System
SI	Site Inspection
SVE	Soil Vapor Extraction
TAPP	Technical Assistance for Public Participation
TCAPP	Twin Cities Army Ammunition Plant
TGRS	TCAPP Groundwater Recovery System
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Services
USGS	US Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

PHASE TRANSLATION TABLE

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

PROGRAM SUMMARY

Number of Open Sites with Response Complete/Total Open IR Sites: 16/21

Number of Open Sites with Response Complete/Total Open MR Sites: 0/0

Number of Open Sites with Response Complete/Total Open CC Sites: 0/0

SITE-LEVEL INFORMATION

27650.1001_TCAAP-01_Burial/Burn Area (Site A)

Env Site ID: TCAAP-01

Cleanup Site: Burial/Burn Area (Site A)

Alias: SITE A

Regulatory Driver: CERCLA

RIP Date: 11/15/2013

RC Date: 10/15/2019

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	12/31/1997	3/15/2013
IRA:	9/15/1988	12/31/1997
RA(C):	12/31/1997	11/15/2013
RA(O):	11/15/2013	10/15/2019
LTM:	10/15/2019	9/30/2054

Site Narrative: TCAAP-01 referred to as the Burial/Burn Area (Site A) consists of 12.3 acres used between the early 1940s and 1966 for burial and/or burning of wastes such as sewage sludge solvents explosive-containing wastes and mercury crack cases. The contaminants of concern are metals and volatile organic compounds (VOC) in the soil and groundwater. Groundwater is part of operable unit (OU) 2 Deep Groundwater (TCAAP-19 -27650.1015). Since levels of hazardous substances will remain above levels that are protective for unrestricted use/unrestricted exposure land use controls (LUC) and five-year reviews (FYR) are conducted to ensure long-term protectiveness. Soil - in 1997 site characterization was performed with respect to the source area for VOC-contaminated groundwater. A disposal trench was identified as the source of VOC contamination. The OU2 record of decision (ROD) specified excavation stabilization and off-site disposal of the metals-contaminated soil to site-specific industrial levels. Following approval of an engineering estimate/cost analysis (EE/CA) a removal action was conducted. In 2003, the closeout report for this work received regulatory approval. In 2009, the Explanation of Significant Difference (ESD) No. 1 documented this work as part of the final remedy for Site A; ESD No. 2 added LUC requirements for the metals-contaminated soil. In 2010, the OU2 LUC RD was approved, and the closeout report received final consistency approval. Environmental baseline survey (EBS) work discovered metals contamination in soil just south of previous excavation work. An EE/CA and action memorandum were completed in 2012. In 2013, subsurface soil vapor sampling along County Road and found nothing. The remedial design (RD) work plan was approved in 2013. The soil removal and disposal was completed in 2013 and the removal action completion report was completed in 2013. As published in the US Environmental Protection Agency (USEPA) News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the National Priorities List (NPL) because all appropriate response actions under Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) other than maintenance monitoring and FYRs have been completed. In 2009, the OU2 ROD was modified by the ESD No. 1 to clarify LUC requirements for groundwater. In 2017, OU2 ROD Amendment #6 formally changed the groundwater extraction remedy to MNA. Three

new wells were installed in 2021 at Site A to support MNA. A vapor intrusion study was performed in 2021. The study confirmed there is no vapor intrusion occurring.

Cleanup/Exit Strategy - Long-term management (LTM) will continue which includes maintenance LUCs and FYR.

27650.1003_TCAAP-05_Open Burn/Disposal Area (Site C)

Env Site ID: TCAAP-05

Cleanup Site: Open Burn/Disposal Area (Site C)

Alias: SITE C

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 10/15/2019

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 59.6

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	8/31/1997	4/30/1998
IRA:	7/31/2002	10/31/2007
RA(C):	1/31/2000	9/30/2008
RA(O):	12/31/1997	10/15/2019
LTM:	10/15/2019	9/30/2054

Site Narrative: Site C is approximately 6.4 acres. From 1947 through 1957, it was used for burning scrap wooden boxes solvents oils and production materials. It was also used for land disposal and open storage. Site C is a shallow soil and groundwater impact site, its primary contaminants of concern are metals and VOCs (soil) and lead (groundwater). Completed soil cleanup actions include characterization excavation sorting treatment disposal site restoration site access restrictions and groundwater. One cleanup action implementation of LUCs is ongoing. Groundwater containment and discharge of extracted water have been completed for Site C while groundwater/surface water monitoring and LUCs are ongoing. Groundwater is part of OU2 Deep Groundwater (TCAAP-19 -27650.1015). In 1997, the US Army Environmental Command sponsored a field demonstration project to phytoremediate lead-contaminated soil at Site C. The project had the unintended consequence of contaminating groundwater and surface water with lead. In 2000, the state took enforcement action. In 2002, the Army began operating a groundwater pump-and-treat system as an IRA (under a separate site designation TCAAP-29). In 2004, a stipulation agreement was signed thereby resolving the enforcement action and directing that response actions be conducted under the authority of the federal facilities agreement. With this development the alternatives analysis and OU2 ROD Amendment No. 1 discussed above in regard to soil and sediment were expanded to include groundwater and surface water. With this change TCAAP-29 has been closed out and the activities have been incorporated into TCAAP-05. In November 2002, additional characterization work was completed to assess the amount of contamination which may be left in place below the water table. During review of the results and an alternatives analysis, the regulators requested additional sampling of sediments in ditches at the site; this was performed in 2003. In 2006, an alternatives analysis was approved which recommended a combination of excavation and/or placement of fill to provide a 4-foot soil cover to serve as a protective barrier between the ground surface and any contamination remaining in place. In 2007, OU2 ROD Amendment No. 1 documented this change for Site C-2 and added LUC requirements for the soil and cover. The fieldwork was completed in 2008, which represents the remedial action (construction) RA(C) end date and remedy-in-place (RIP) date. In 2009,

OU2 ESD No. 2 clarified that LUCs are also required for soil at Site C-1. The closeout report for Sites C-1 and C2 was approved in 2009. The 2007 OU2 ROD Amendment No. 1 made the existing IRA groundwater extraction system a final remedy with an effective date of October 2007 and added LUCs for groundwater. With declining contaminant concentrations an evaluation report was approved in 2008 whereby operation of the extraction system was suspended. LUCs, cover maintenance, and FYRs will continue.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1004_TCAAP-06_Leach/Burn Pits (Site D)

Env Site ID: TCAAP-06

Cleanup Site: Leach/Burn Pits (Site D)

Alias: SITE D

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	2/29/1996	10/31/2002
IRA:	10/31/1985	12/31/1997
RA(C):	12/31/1997	9/30/2008
RA(O):	12/31/1997	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site D is approximately 1.8 acres. From 1949 or 1950 to 1968 in addition to receiving neutralized cyanide wastes the pits at this site were used to burn sump wastes scrap propellants solvents paint thinners oils rags and chemicals. The contaminants of concern are explosives metals polychlorinated biphenyl (PCB) and VOC in soils. IRAs included excavation of PCB-contaminated soil in 1985, with subsequent on-site incineration in 1989. A clay cover was installed at the site in 1985. In 1986, a SVE system was implemented as an IRA to address VOC-contaminated soil. The SVE system was declared part of the FRA in the 1997 OU2 ROD. From 1986 to 1998, the SVE system removed 116,199 pounds of chlorinated solvents. It was then shut down and later dismantled. In 2001, based on a separate ROD requirement additional shallow soils characterization was performed to assess metals and explosives contamination remaining at the site. In 2002, the regulators approved a work plan for soil excavation stabilization and disposal off-site. In November, approximately 1381 cubic yards were removed which cleaned up the soil to site-specific industrial levels. In 2002, a closeout report for VOC-contaminated soil received partial approval from the regulators pending resolution of LUC issues (see below). In 2004, the closeout report for this work received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the soil removal as part of the final remedy and added LUCs. In 2010, the OU2 LUC ROD was approved, and the two closeout reports received final consistency approval. The OU2 ROD also required five years of groundwater monitoring (which have been completed) to verify that there have been no impacts from metals and nitroglycerine. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1005_TCAAP-07_Dump and Burning Area (Site E)

Env Site ID: TCAAP-07

Cleanup Site: Dump and Burning Area (Site E)

Alias: SITE E

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	8/31/1997	4/30/1998
IRA:	--	--
RA(C):	10/31/1998	9/30/2008
RA(O):	12/31/1998	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site E is approximately 8.8 acres. Use of the site began in the early-1940s as a dump for both construction debris and trash and as a burning ground for ammunition boxes and other materials including large quantities of unknown chemicals. Both the dump and the burning area were closed in 1949. The contaminants of concern are metals in the soil. The 1997 OU2 ROD required excavation stabilization and off-site disposal of the contaminated soil. The site was cleaned up to site-specific industrial levels. From 1999 to 2001, approximately 21,097 cubic yards of contaminated soil were removed. Also, a soil cover was constructed over approximately 1.6 acres of the site where asbestos-containing material remains in place. In 2002, a closeout report received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the soil cover as part of the final remedy and added LUCs. In 2010, the OU2 LUC ROD amendment was approved, and the closeout report received final consistency approval. The OU2 ROD also required five years of groundwater monitoring (which have been completed) to verify that there have been no metals impacts from this site. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1007_TCAAP-09_Dump (Site G)

Env Site ID: TCAAP-09

Cleanup Site: Dump (Site G)

Alias: SITE G

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	2/29/1996	12/31/2003
IRA:	9/30/1985	12/31/1997
RA(C):	12/31/1997	9/30/2008
RA(O):	12/31/1997	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site G is approximately 4.6 acres. Operations at the site appear to have begun during WW II and continued through 1976. It was used as a general dump area for the disposal of rubble asphalt pavement barrels oil filters rocket propellant research materials floor-absorbent sweepings metal dusts and grindings burning operation ashes and scrap roofing debris. The contaminants of concern are VOCs in the soil and groundwater. In 1985, a clay cover was installed at the site. In 1986, an SVE system was implemented as an IRA to address VOC-contaminated soil. The SVE system was declared part of the FRA in the 1997 OU2 ROD. The RA and remedial action operation (RA(O)) start dates were triggered by the ROD. From 1986-1998, the SVE system removed 104,418 pounds of chlorinated solvents at which time it was shut down and later dismantled. In 2002, the regulators approved revised remediation goals based on the existing cover minimizing the potential for leaching to groundwater. Beyond maintenance of the cover no further action (NFA) is required for VOC contaminated soil. The OU2 ROD also required additional characterization to determine the appropriate course of action for the general dump. In 2003, the regulators approved a report discussing these matters along with a work plan for improving the cover system. In 2003, construction of the approximately 4.4-acre cover was also completed. The remedy meets industrial solid waste rules. In 2004, the closeout report for the VOC-contaminated soil and dump received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the revised cleanup level and the soil cover as part of the final remedy and added LUCs. In 2010, the OU2 LUC ROD Amendment was approved, and the closeout report received final consistency approval. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1008_TCAAP-10_Burn/Burial Area (Site H)

Env Site ID: TCAAP-10

Cleanup Site: Burn/Burial Area (Site H)

Alias: SITE H

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	8/31/1997	4/30/1998
IRA:	--	--
RA(C):	10/31/1998	9/30/2008
RA(O):	12/31/1998	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site H is approximately 11.7 acres. From the early-1940s until the late-1960s it was a burning site with a burning cage located in the center. Burning (primarily wood paper cardboard and combustible trash) took place here. In addition to waste burning, portions of the site may have been used to bury and dump industrial sludge paint residue incineration ash and solvents. The contaminants of concern are metals in the soil. The 1997 OU2 ROD required excavation stabilization and off-site disposal of the contaminated soil. The site was cleaned up to site-specific industrial levels. Also, a soil cover was constructed over approximately 2.9 acres of the site where asbestos-containing material remains in place. In 2002, a closeout report received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the soil cover as part of the final remedy and added LUCs. In 2010, the OU2 LUC ROD Amendment was approved, and the closeout report received final consistency approval. Groundwater- The OU2 ROD required five years of groundwater monitoring to verify there were no impacts from metals; the five years have been completed. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1009_TCAAP-11_Leaching Pits (Site 129-3)

Env Site ID: TCAAP-11

Cleanup Site: Leaching Pits (Site 129-3)

Alias: SITE 129-3

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	8/31/1997	4/30/1998
IRA:	--	--
RA(C):	10/31/1998	9/30/2008
RA(O):	12/31/1998	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site 129-3 is approximately two acres. The site had three leaching pits which were used for the disposal and flashing of contaminated wastewater which primarily came from the lead styphnate primer mix facility that began operation in 1971 and ended about 1972. Disposal activity at the site may also have included burning scrap powder and lead styphnate wastes. The contaminants of concern are explosives metals and VOCs in the soil. The 1997 OU2 ROD required excavation stabilization and off-site disposal of the contaminated soil. The site was cleaned up to site -specific industrial levels and a soil cap was installed over the remaining contamination. In 2002, a closeout report received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ESD No. 2 added LUCs. In 2010, the OU2 LUC ESD was approved, and the closeout report received final consistency approval. The OU2 ROD required five years of groundwater monitoring to verify there were no impacts from metals; the five years have been completed. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1010_TCAAP-12_Burn/Disposal Area (Site 129-5)

Env Site ID: TCAAP-12

Cleanup Site: Burn/Disposal Area (Site 129-5)

Alias: SITE 129-5

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	8/31/1997	4/30/1998
IRA:	--	--
RA(C):	10/31/1998	9/30/2008
RA(O):	12/31/1998	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site 129-5 is approximately 7.2 acres. From about 1945 or 1946 through the late-1950s, it was used for the open burning of scrap explosives bullets spent solvents and disposal of primer/tracer sludge. In 1995, areas of this site with observed surface debris were fenced. The contaminants of concern are metals in the soil. The 1997 OU2 ROD required excavation stabilization and off-site disposal of the contaminated soil. The site was cleaned up to site -specific industrial levels. In 2001, a closeout report received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ESD No. 2 added LUCs. In 2010, the OU2 LUCRD was approved, and the closeout report received final consistency approval. The OU2 ROD required five years of groundwater monitoring to verify there were no impacts from metals; the five years have been completed. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1011_TCAAP-13_Dump (Site 129-15)

Env Site ID: TCAAP-13

Cleanup Site: Dump (Site 129-15)

Alias: SITE129-15

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	6/30/1998	8/31/2001
IRA:	--	--
RA(C):	8/31/2001	9/30/2008
RA(O):	12/31/2001	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: Site 129-15 is approximately two acres. From 1970 through 1978, it was used as a landfill for construction debris. In 1994, polycyclic aromatic hydrocarbons (PAH) were discovered during preliminary characterization of the dump material. The contaminants of concern are metals, lead, and PAHs in the soil. The 1997, OU2 ROD required characterization to determine the appropriate course of action for the dump. This action was performed in 1998 and lead was also identified as a contaminant of concern. The regulators approved a soil cover as the remedy for the dump. Construction of the approximately 1.6-acre cover was completed in 2001 and the site was remediated to site-specific industrial levels. In 2002, a closeout report received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the soil cover as part of the final remedy and added LUCs. In 2010, the OU2 LUC ROD was approved, and the closeout report received final consistency approval. No groundwater monitoring was required. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1012_TCAAP-15_Bldg. 502 and Area (Site I)

Env Site ID: TCAAP-15

Cleanup Site: Bldg. 502 and Area (Site I)

Alias: SITE I

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 10/15/2019

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	7/31/1997	3/31/2001
IRA:	8/31/1985	8/31/1986
RA(C):	3/31/2001	9/30/2008
RA(O):	12/31/2001	10/15/2019
LTM:	10/15/2019	9/30/2054

Site Narrative: Site I is approximately 43 acres. Site I is a shallow and deep groundwater impact site its primary contaminants of concern are VOCs. Ongoing shallow groundwater remedial actions include groundwater monitoring and LUCs. Ongoing deep groundwater cleanup actions include hydraulic containment and contaminant removal from the source area groundwater treatment treated water discharge institutional controls review of new technologies to help address affected groundwater and groundwater monitoring. Groundwater is part of OU2 Deep Groundwater (TCAAP-19 -27650.1015). It consists of Building 502 and its associated structures and facilities. Building 502 was constructed in 1942 and was used until 2004 to produce various ammunition projectiles and artillery ammunition components. In 1958, Honeywell Defense Systems (now ATK) assumed responsibility for general manufacturing activities in the building. TCAAP-15 is funded by ATK with oversight by the Army. As an IRA in the mid-1980s, ATK excavated PCB-contaminated soil and concrete from around the building; it was stored on-site with regulatory agency concurrence and in 1998 it was disposed of at an off-site facility. The 1997 OU2 ROD required additional characterization of Unit 1 and Unit 2 soil and groundwater which helped define the geologic conditions and extent of contamination for the purpose of designing a remedy pilot study. An engineering study completed in 2001, indicated that the ROD requirement for extraction of shallow groundwater is not feasible at this site due to the low permeability soils. In 2009, OU2 ROD Amendment No. 3 deleted the groundwater extraction requirement and added LUCs. For the purposes of tracking, the amended final remedy is called 'other'. The RA(C) end date and RIP date represent when the Army signed the amendment. The RA(O) start date reflects the 1997 ROD date which triggered these activities. With respect to shallow soils ATK took the position that soil remediation was not feasible because the soils were beneath an occupied manufacturing facility (Building 502); hence shallow soil remediation was not a requirement of the 1997 OU2 ROD. ATK has discontinued operations in the building but will be responsible for the shallow soil remediation so there are no Army costs. In 2016, Ramsey County remediated the shallow soils as part of their purchase agreement. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water

and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue in the form of LUCs and FYRs.

27650.1013_TCAAP-16_Bldg. 103 (Site K)

Env Site ID: TCAAP-16

Cleanup Site: Bldg. 103 (Site K)

Alias: SITE K

Regulatory Driver: CERCLA

RIP Date: 11/30/2009

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 59.6

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	7/31/1997	4/30/2009
IRA:	8/31/1985	12/31/1997
RA(C):	12/31/1997	11/30/2009
RA(O):	12/31/1997	9/30/2054
LTM:	--	--

Site Narrative: Site K is approximately 21 acres. It consists primarily of former Building 103, a two-story structure built in 1943. The building was used for munitions manufacturing and assembly operations and various solvents were used to clean machines parts and floors. In 1961, the operations were reactivated to produce fuses, mines, and weapon systems by Honeywell (subsequently Orbital ATK). In 2006, Building 103 was demolished; however, the concrete slab remains in place. Contaminants of concern are VOCs in the soil and groundwater. Groundwater is part of OU2 Deep Groundwater (TCAAP-19 - 27650.1015). In 1985, a containment pump-and-treat system was initiated as an IRA to remove chlorinated solvents from the shallow groundwater. The 1997 OU2 ROD designated this system as part of the final remedial action. The groundwater system is expected to operate for 30 years concurrent with the best estimate for cleanup of the deep groundwater. In 2009, ESD No. 1 added LUCs related to groundwater. The ROD also required further investigation of the shallow soils which act as the source for groundwater contamination which was finalized in 2001. Orbital ATK took the position that soil remediation was not feasible because the soils were beneath an existing building (Bldg 103); hence soil remediation was not a requirement of the 1997 OU2 ROD. The building was removed in 2006. In 2008, an EE/CA was approved, and an action memorandum was signed for removal of contaminated soil beneath the floor slab. Approximately 69 tons of contaminated soil and rubble were removed. The soil closeout report was approved in 2009, which is the RA(C) end date and RIP date. The soil removal achieved unrestricted use levels so there are no LUC requirements for soil. Amendment No. 4 to the OU2 ROD was signed in 2012, which declared the removal action as the final remedy with NFA required for the soil area. The land has been transferred and will be developed. The US Geological Survey (USGS) is performing a 3-year treatability study starting in 2021 to determine if the attenuation can be increased. Based on favorable results, the study is being extended.

Cleanup/Exit Strategy- RA(O) will continue which includes groundwater monitoring and treatment followed by natural attenuation until maximum contaminant levels are met. LUCs are in place and FYRs are conducted.

27650.1014_TCAAP-17_OU1 Deep Groundwater

Env Site ID: TCAAP-17

Cleanup Site: OU1 Deep Groundwater

Alias: OU1 GW

Regulatory Driver: CERCLA

RIP Date: 5/31/2000

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 59.6

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	2/28/1987	6/30/1990
SI:	2/28/1987	6/30/1990
RI/FS:	2/28/1987	7/31/1993
RD:	2/28/1990	5/31/1997
IRA:	9/30/1993	3/31/1998
RA(C):	9/30/1993	5/31/2000
RA(O):	3/31/1998	9/30/2054
LTM:	--	--

Site Narrative: Past industrial activities have resulted in VOC contamination of deep aquifers (OUs 3 and 4). Off-post the VOC plumes diverge into two plumes termed the north plume (TCAAP-17) and south plume (TCAAP-27). OU1 addresses the north plume. OU3 addresses the south plume. The contaminants of concern are VOCs in the groundwater RA(O) will continue into the foreseeable future. RA(O) is executed by the city of New Brighton, MN. RA(O) includes monitoring and treatment of the ex post facto 1,4-dioxane followed by natural attenuation until maximum contaminant levels are met. In June 1990, a permanent GAC treatment facility with a capacity of 3,900 gallons per minute was installed in New Brighton to treat contaminated municipal wells. As an integral part of New Brighton's municipal water supply system, the treatment plant supplies drinking water to area residents and aids in the remediation of the TCAAP-related contaminated groundwater plume. The 1993, OU1 ROD required additional extraction wells for containment of the plume. Construction was completed in 1998. RA(O) is executed by New Brighton with reimbursement from a settlement agreement operating fund. Other ROD requirements include alternate water supply/well abandonment well advisory monitoring and reporting. In May 2006, a ROD amendment was executed which replaces the requirement for containment with a requirement to demonstrate aquifer restoration through statistical evaluation of monitoring results. In 2015, an emerging chemical of concern 1,4-dioxane resulted in the need for the City of New Brighton to suspend remedy pumping to evaluate treatment options and modify their treatment facility. The addition of ultraviolet and peroxide treatment of the 1,4-dioxane was addressed through an ESD. The Army has optimized OU1 to increase the mass collection.

Cleanup/Exit Strategy- RA(O) executed by the city of New Brighton will continue which includes groundwater monitoring and treatment followed by natural attenuation until maximum contaminant levels are met. FYRs will continue to be conducted.

27650.1015_TCAAP-19_OU2 Deep Groundwater

Env Site ID: TCAAP-19

Cleanup Site: OU2 Deep Groundwater

Alias: OU2 GW

Regulatory Driver: CERCLA

RIP Date: 6/30/2003

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 59.6

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	3/31/1997
RD:	12/31/1997	6/30/2003
IRA:	6/30/1986	12/31/1997
RA(C):	12/31/1997	6/30/2003
RA(O):	12/31/1997	9/30/2054
LTM:	--	--

Site Narrative: Past industrial activities resulted in groundwater contamination of deep aquifers. This site addresses deep groundwater contamination in lithological Units 3 and 4 within the original Twin Cities Army Ammunition Plant (TCAAP) boundary. This site includes groundwater activities from all OU2 sites. RA(O) will continue into the foreseeable future. RA(O) includes continued operation of the TCAAP Groundwater Recovery System (TGRS) annual performance monitoring and reporting delisting of OU2 LUC implementation and FYRs. An additional system (source groundwater containment system) is currently being installed to address 1,4-dioxane. In 1986, TGRS (formerly the boundary groundwater recovery system) began operation as an IRA. The system included 12 extraction wells along the southwest boundary to capture contamination migrating off-post and five source control wells near known contamination sources. Discharge water from the wells is treated through air strippers and recharged via a gravel pit. The 1997 OU2 ROD made the TGRS part of the final remedial action. The RA(O) including operation and maintenance monitoring reporting and FYRs is cost-sharing apportionment agreement with the Army. Funding requested reflects the Army's 80% share of the costs. The OU2 ROD also required a reconfiguration analysis to optimize mass removal. In 2003, the resulting TGRS operating strategy was approved by the regulators (and subsequent modifications adjusting flow rates have also been approved). In 2009, the OU2 ROD was modified by an ESD No. 1 to clarify LUC requirements for groundwater. Three additional well clusters were installed on the sites of D, G, and I in the highest concentration of the plume and are part of the source groundwater recovery system (SGRS). In February 2023, the SGRS became fully operational increasing the treatment capacity of TGRS by 500 gallons per minute resulting in less demand on the boundary groundwater recovery system (BGRS). Cleanup/Exit Strategy- RA(O) will continue which includes groundwater treatment and monitoring. LUCs are in place and FYRs are conducted. Groundwater MNA activities at TCAAP-01 are captured under OU2.

27650.1016_TCAAP-20_GRENADE RANGE

Env Site ID: TCAAP-20

Cleanup Site: GRENADE RANGE

Alias: GRENADE RN

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	7/31/1993	10/31/1993
SI:	10/31/1993	1/31/1995
RI/FS:	11/30/1994	3/31/1998
RD:	1/31/1999	3/31/1999
IRA:	--	--
RA(C):	3/31/1999	9/30/2008
RA(O):	10/31/2000	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: The M550 Grenade Range is approximately 19 acres. From March 1967 until July 1975, the range consisted of two launching structures and three landing pads. The contaminants of concern are metals in the soil. Based on a 1999 EE/CA and action memorandum a removal action was implemented consisting of excavation stabilization and off-site disposal of contaminated soil. The site was cleaned up to site-specific industrial levels. In 1999, approximately 2,179 cubic yards of contaminated soil were removed. In 2002, a closeout report received partial approval from the regulators pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the soil removal as the final remedy and added LUCs (Note- the (C) end date and response complete (RC) date represent when the Army signed the amendment). In 2010, the OU2 LUC RD was approved, and the closeout report received final consistency approval. Per the action memorandum, four years of groundwater monitoring were conducted to verify that there were no impacts from metals. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1017_TCAAP-21_Outdoor Firing Range

Env Site ID: TCAAP-21

Cleanup Site: Outdoor Firing Range

Alias: OFR

Regulatory Driver: CERCLA

RIP Date: 9/30/2008

RC Date: 9/30/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	10/31/1993	8/31/1994
SI:	4/30/1994	12/31/1996
RI/FS:	8/31/1996	3/31/1998
RD:	6/30/1998	3/31/1999
IRA:	--	--
RA(C):	4/30/1999	9/30/2008
RA(O):	9/30/2002	9/30/2008
LTM:	9/30/2008	9/30/2054

Site Narrative: The Outdoor Firing Range is approximately 150 acres. From the 1950s through the 1970s, it consisted of three bullet catchers that were used to test ammunition. The contaminants of concern are metals and PAHs in the soil. Based on a 1999 EE/CA and action memorandum, a removal was implemented consisting of excavation stabilization and off-site disposal of contaminated soil. The site was cleaned up to site-specific industrial levels. In 1999, approximately 990 cubic yards of contaminated soil were removed. Near one of the range backstops (the 1900-yard range) soil was found to be contaminated with PAHs. In 2003, the regulators approved a work plan for placing a soil cover over roughly a one-half acre area. The cover was initially constructed in 2003, with additional cover material placed in 2004. In 2006, an addendum to the closeout report received partial approval pending resolution of LUC issues. In 2009, OU2 ROD Amendment No. 3 documented the soil removal and soil cover as the final remedy and added LUCs (Note- the remedial action construction (RA(C)) end date and RC date represent when the Army signed the Amendment.) In 2010, the OU2 LUC RD was approved, and the closeout report and addendum received final consistency approval. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1019_TCAAP-23_Bldg. 135 Primer/Tracer Area

Env Site ID: TCAAP-23

Cleanup Site: Bldg. 135 Primer/Tracer Area

Alias: 135 PTA

Regulatory Driver: CERCLA

RIP Date: 3/15/2014

RC Date: 3/15/2014

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	9/30/1995	9/30/1996
RI/FS:	1/31/2000	9/30/2012
RD:	3/31/2011	9/30/2013
IRA:	--	--
RA(C):	3/31/2011	3/15/2014
RA(O):	--	--
LTM:	3/15/2014	9/30/2054

Site Narrative: This area is approximately 65 acres. It consists of Building 135 and associated structures and utilities dedicated to the manufacture of small caliber ammunition primer and tracer mixtures. The manufacturing period included all TCAAP production. In 1988, a site-wide PA was performed for TCAAP; however, the primer/tracer areas (PTA) were part of an Army mobilization mission at that time so they were not investigated. Likewise, this area was not included during the sitewide RI completed in 1991. Limited soil sampling was performed in 1996 to obtain a relative risk site evaluation (RRSE) score which was considered the site inspection (SI) phase. In 2001, a PA was approved which recommended that an SI be performed (both were considered to be under the RI/FS phase). The SI report recommended that an EE/CA be performed to better delineate the extent and magnitude of contamination and to evaluate the appropriate response action. A storm water outfall from the PTA resulted in contamination of ditch sediments with PAHs. This contamination was on a parcel of land (Rice Creek Area) that was transferred to Ramsey County and action at this area was expedited to facilitate the transfer. In 2005, approximately 1,256 tons of contaminated sediments were excavated and landfilled off-site achieving unrestricted use cleanup levels. In 2006, the closeout report was approved. In 2009, OU2 ROD Amendment No. 3 documented the sediment removal as a final remedy with NFA required. Building 135 PTA is on the parcel of property being transferred out of federal ownership. The EE/CA and action memorandum were completed in 2012, completing the RI/FS phase (the end date shown is the signature date of the action memorandum.) The selected remedy was soil removal. The RD work plan was approved in 2013, completing the remedial design phase (the end date shown is the approval date for the work plan). The soil removal and disposal (50 cy) were completed in 2013, (The RA(C) end date is the approval date for the removal action completion report). RC for soils was achieved in FY14 (signature of ROD Amendment). The LUCs and FYRs will continue beyond RC. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed this site (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance monitoring and FYRs have been completed. GSA has sold the property to a private buyer in December 2023.

Cleanup/Exit Strategy - LTM will continue which includes maintenance LUCs and FYRs.

27650.1023_TCAAP-27_OU3 Deep Groundwater

Env Site ID: TCAAP-27

Cleanup Site: OU3 Deep Groundwater

Alias: OU3 GW

Regulatory Driver: CERCLA

RIP Date: 8/31/2006

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 59.6

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	12/31/1987	4/30/1988
SI:	12/31/1987	4/30/1988
RI/FS:	4/30/1988	7/31/1992
RD:	7/31/1992	5/31/1993
IRA:	--	--
RA(C):	5/31/1993	8/31/2006
RA(O):	4/30/1994	9/30/2054
LTM:	--	--

Site Narrative: Past industrial activities at TCAAP resulted in VOC contamination of deep aquifers (OUs 3 and 4). Off-post the VOC plumes diverge into two plumes termed the north plume (TCAAP-17) and south plume (TCAAP-27). OU3 addresses the south plume. OU1 addresses the north plume. Contaminants of concern are VOCs in the groundwater. RA(O) will continue into the foreseeable future. RA(O) includes continued MNA, LUCs, and FYRs. The 1992 OU3 ROD required construction of an extraction well to hydraulically contain the south plume. The water was treated by GAC in a facility operated by the city of New Brighton and was discharged to the New Brighton municipal water system. The system was known as the plume groundwater recovery system (PGRS). The RA(O) started in 1994 (original RIP date). Levels of contamination were below action levels beginning in late-1998, at the containment boundary; however, there are still areas above site-specific levels upgradient. Received regulatory approval in 2001, to temporarily stop pumping for remediation purposes. The regulators required the system to remain in standby until December 2004. In FY06, a ROD amendment was signed documenting that the PGRS is no longer needed and replacing this remedial action with MNA and adding LUCs. This changed the RIP date to 2006, reflecting implementation of the amended remedy.

Cleanup/Exit Strategy - RA(O) will continue which includes MNA for groundwater, LUCs, and FYRs.

27650.1024_TCAAP-28_Bldg. 535 Primer/Tracer Area

Env Site ID: TCAAP-28

Cleanup Site: Bldg. 535 Primer/Tracer Area

Alias: 535 PTA

Regulatory Driver: CERCLA

RIP Date: 1/31/2010

RC Date: 1/31/2010

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	10/31/1996	10/31/1996
RI/FS:	1/31/2000	4/30/2009
RD:	12/31/2008	5/31/2009
IRA:	--	--
RA(C):	3/31/2009	1/31/2010
RA(O):	--	--
LTM:	1/31/2010	9/30/2054

Site Narrative: This area is approximately 75 acres. It refers to Building 535 and an array of associated production building foundations and grounds used to produce primer tracer and incendiary mixtures from 1941 through the early-1960s. Approximately 50 of the structures were burned down during the 1960s. Contaminants of concern include PAHs and lead in soil and groundwater. The site is now on property controlled by the National Guard; however, restoration program activities are being conducted by TCAAP. In 1988, a site-wide preliminary assessment (PA) was performed for TCAAP; however, the Primer/Tracer Areas (PTA) were not investigated, and this area was not included during the site-wide remedial investigation (RI) completed in 1991. In 1996, limited soil sampling was performed to obtain a relative risk site evaluation score for this site; this was considered the site inspection (SI) phase. In FY02, a PA was approved which recommended that an SI be performed; both were conducted under the remedial investigation/feasibility study (RI/FS) phase. In 2003, the SI fieldwork was completed and in 2005 the report was approved. The SI report recommended that an EE/CA be performed to better delineate the extent and magnitude of contamination and to evaluate the appropriate response action. In 2009, an EE/CA was approved, an action memorandum was signed the work plan was approved (RD phase) and approximately 882 tons of contaminated soil was removed. The closeout report was approved in 2010, which represents the RA(C) end date and RC date. The cleanup was to state industrial use levels, so the action memorandum also made LUCs part of the remedy. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy - LTM will continue which includes maintenance, LUCs, and FYRs.

27650.1026_TCAAP-30_Bldg. 102 Degreasing Operations

Env Site ID: TCAAP-30

Cleanup Site: Bldg. 102 Degreasing Operations

Alias: BLDG 102

Regulatory Driver: CERCLA

RIP Date: 12/31/2008

RC Date: 12/31/2008

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	3/31/2002	1/31/2003
SI:	1/31/2003	1/31/2006
RI/FS:	1/31/2006	10/31/2008
RD:	10/31/2008	12/31/2008
IRA:	--	--
RA(C):	12/31/2008	12/31/2008
RA(O):	--	--
LTM:	12/31/2008	9/30/2054

Site Narrative: Building 102 is located near the center of the west edge of the original TCAAP property. The former Building 102 was constructed in 1942 and used periodically until the mid-1970s to produce small caliber ammunition and various other munitions components. Historical records indicate that portable degreasing machines were used in Building 102 during the early-1950s. The contaminants of concern are VOCs in the groundwater and soil. Contamination was discovered emanating from beneath Building 102 (which has been demolished) during the phase I and phase II environmental site assessment (ESA) which was conducted between March 2002 and February 2004, in support of land transfer. Additional groundwater investigation work including the installation of monitoring wells was performed and documented in a January 2006 groundwater investigation report. The ESA-related work served as the preliminary and site inspection phases. The remedial investigation began in January 2006 when the groundwater investigation report recommended that an engineering estimate/cost analysis (EE/CA) be performed to better delineate the extent and magnitude of contamination and to evaluate the appropriate response action. The EE/CA was approved in July 2008 and the action memorandum was signed in October 2008, selecting MNA as the remedy and the groundwater is covered under OU2. The remedial design consisted of preparing the quality assurance project plan for MNA which was approved in December 2008. This same date was used as the RA(C) start and end date since there was no construction for MNA. Amendment No. 4 to the OU2 ROD was signed in 2012, which declared the RA (MNA) as the final remedy. Amendment #4 also states until groundwater cleanup levels are attained the contamination levels existing will not allow for unlimited use and unrestricted exposure to groundwater. The US Geological Survey (USGS) is conducting a groundwater and soil treatability study. Regulatory agency required additional plume footprint characterization was conducted in 2013, resulting in no changes to the remedy. As published in the USEPA News Release Sept. 23, 2019, USEPA has removed (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed.

Cleanup/Exit Strategy – Groundwater as MNA is covered under OU2. LTM for soil will continue which includes maintenance, LUCs, and FYRs that will be captured under this site.

27650.1027_TCAAP-31_Round Lake

Env Site ID: TCAAP-31

Cleanup Site: Round Lake

Alias: ROUND LAKE

Regulatory Driver: CERCLA

RIP Date: 9/30/2027

RC Date: 9/30/2027

RC Reason: Not assigned

SC Date: 9/30/2027

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Yes

Hazardous Ranking Score: 59.6

RRSE: Medium

MRSPP: N/A

Phase	Start	End
PA:	1/31/1978	2/29/1988
SI:	1/31/1978	2/29/1988
RI/FS:	2/28/1987	9/20/2022
RD:	9/21/2022	9/30/2026
IRA:	--	--
RA(C):	10/1/2026	9/30/2027
RA(O):	--	--
LTM:	--	--

Site Narrative: Round Lake is located southwest of TCAAP. The lake and surrounding shoreline were controlled by the Army from the early-1940s until 1974 when control was transferred to the US Fish and Wildlife Service (USFWS). As part of its watershed the lake accepts storm water runoff from a portion of TCAAP. There was also periodic discharge of industrial waste from TCAAP until circa 1969. Round Lake is currently designated a unit of the Minnesota Valley National Wildlife Refuge. The USFWS does not allow any public activity on Round Lake. Contaminants of concern are metals in the sediment. The preferred remedy from the Final Supplemental RI/FS Report January 2021 Alternative 4a dredging and off-site disposal. Limited investigations of contamination began in the early-1980s. The first relatively extensive investigation of surface water and sediment was conducted in 1992. Using this data as the foundation the US Army Center for Health Promotion and Preventive Medicine performed additional phased investigation work in support of an ecological risk assessment. The Tier I Screening Risk Assessment was approved in 1997. The Tier II Ecological Risk Assessment Work Plan was approved in 1999. The Tier II Ecological Risk Assessment Report was approved in 2004. Metals in sediment were identified as the primary risk concern. In September 2003, the Army regulators and USFWS agreed to conduct a feasibility study (FS) for Round Lake. Draft versions of the FS have undergone regulatory and USFWS review in 2005, 2009, 2010, and 2012. There has been disagreement between the parties regarding ecological risk human health risk and an appropriate RA decision. The situation was further complicated when the state initiated a Natural Resource Damage Assessment in 2004 that required coordination with the FS. In 2010, the USEPA and Minnesota Pollution Control Agency (MPCA) requested that additional sediment testing be performed in support of the FS. (Note: at that time, the Army decided to separate Round Lake from four other water bodies that were part of the ecological risk assessment and FS. Accordingly Round Lake was separated from TCAAP-25 and TCAAP-31 was created). The additional sediment testing was completed in 2011. A supplemental Ecological Risk Assessment was completed in 2013 by Oak Ridge National Laboratory. The ROD was signed Sept. 2, 2022.

Cleanup/Exit strategy - Remedial Design is underway and dredging is anticipated to begin in FY26 to remove contaminate sediments to unlimited use/unrestricted exposure.

27650.1028_CCTCAAP-32_Environmental Baseline Survey

Env Site ID: CCTCAAP-32

Cleanup Site: Environmental Baseline Survey

Alias: EBS AOCS

Regulatory Driver: CERCLA

RIP Date: 11/15/2013

RC Date: 11/15/2013

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: Delisted

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	6/30/1996	12/31/2009
SI:	6/30/1996	12/31/2009
RI/FS:	3/31/2011	3/30/2013
RD:	3/31/1997	3/30/2013
IRA:	--	--
RA(C):	5/30/2013	11/15/2013
RA(O):	--	--
LTM:	11/16/2013	9/30/2054

Site Narrative: Between 1996 and 2005, EBS work was conducted by in anticipation of the transfer of federal property control from TCAAP to the National Guard Bureau. Initial field sampling activities conducted identified two soil areas of concern having metals contamination. One area (AOC #1) was part of an open storage area that had been selected for investigation based on review of aerial photographs that noted storage (or possible storage) of such items as debris piles lumber coal and drums. The second area (AOC #2) was a possible burning area located on a concrete pad/loading dock. Soil sampling indicated metals and PAH contamination. The EBS investigation is considered as the PA and SI phases. The EE/CA and action memorandum were completed in 2012 completing the RI/FS phase (the end date shown is the signature date of the action memorandum). The selected remedy was soil removal. The RD work plan was approved in 2013, completing the RD phase (the end date shown is the approval date for the work plan). The soil removal and disposal (1,120 cy) were completed in 2013 (the RA(C) end date is the approval date for the removal action completion report). RC was achieved in fiscal year 2014 (signature of ROD amendment). As published in the USEPA News Release Sept. 23, 2019, USEPA has removed (all soil surface water and sediment sites under OU2) from the NPL because all appropriate response actions under CERCLA other than maintenance, monitoring, and FYRs have been completed. Cleanup/Exit Strategy - LTM will continue which includes LUCs and FYRs.

SITE SUMMARY

SITE CLOSEOUT SUMMARY

CRL ID	Site Name	Site Closeout Date
27650.1002	TCAAP-02_Sewage Sludge Disposal (Site B)	4/30/2001
27650.1006	TCAAP-08_Open Burn/Burial Area (Site F)	9/30/2000
27650.1018	TCAAP-22_Water Tower Area	8/31/1996
27650.1020	TCAAP-24_Recreational Trap-Shooting Range	9/30/2000
27650.1021	TCAAP-25_OU2 Waterbodies	9/30/2014
27650.1022	TCAAP-26_All Uncharacterized Areas	4/30/1996
27650.1025	TCAAP-29_AEC Phytoremediation Demo Areas	10/31/2004

COMMUNITY INVOLVEMENT

Community Involvement Plan (Date Last Reviewed):	8/15/2019
Technical Review Committee Establishment Date:	12/31/1987
Restoration Advisory Board (RAB) Establishment Date:	1/31/1996
RAB Adjournment Date:	N/A
RAB Adjournment Reason:	N/A
Reasons for Not Establishing RAB:	N/A
RAB Date of Solicitation from Community:	2/1/2022 (public re-solicited to increase participation)
RAB Results of Solicitation:	Active RAB
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A
Administrative Record Location:	TWIN CITIES AAP OFFICE, Room 183, 184, 4761 Hamline Av N, Arden Hills MN 55112
Information Repository Location:	TWIN CITIES AAP OFFICE, Room 183, 184, 4761 Hamline Av N, Arden Hills MN 55112

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Status	Review Type	Start Date	End Date	Plans Narrative	Actions Narrative	Results Narrative
Planned	FYR	10/25/2023	8/19/2024	TBD	TBD	TBD
Completed	FYR	10/25/2018	8/19/2019	N/A	N/A	Remedies are protective of human health and the environment.