

MCALESTER 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: MCALESTER ARMY AMMUNITION PLANT

Installation City: MCALESTER

Installation County: PITTSBURG

Installation State: OK

Regulatory Participation - Federal: US Environmental Protection Agency (EPA), Region VI

Regulatory Participation - State: OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)

ACRONYMS

Acronym	Definition
CC	Compliance-related Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CMI(C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operations)
CMIP	Corrective Measures Implementation Plan
CMS	Corrective Measures Study
COC	Contaminants of Concern
CRL	Cleanup Restoration & Liabilities
DD	Decision Document
DEQ	Oklahoma Department of Environmental Quality
DES	Design
DGM	Digital Geophysical Mapping
DRMO	Defense Reutilization and Marketing Office
DRO	Diesel Range Organic
ENV	Environmental
FS	Feasibility Study
ft	feet
FY	Fiscal Year
FYR	Five-Year Review
GRO	Gasoline Range Organic
HBX	Hexahydro-1,3,5-trinitro-8-triazine
HMX	High Melting Explosive
IAP	Installation Action Plan
IC	Institutional Control
ID	Identification
IM	Interim Measure
IR	Installation Restoration
IRA	Interim Remedial Action
kg	kilogram
LTM	Long-Term Management
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MEC	Munitions and Explosives of Concern
MC	Munitions Constituents
MCAAP	McAlester Army Ammunition Plant

Acronym	Definition
MCL	Maximum Contaminant Level
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
mg	milligram
mm	millimeters
MNA	Monitored Natural Attenuation
MPPEH	Material Potentially Presenting an Explosive Hazard
MR	Munitions Response
MRA	Munitions Response Area
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MSSL	Medium-Specific Screening Level
MWR	Morale Welfare and Recreation
NFA	No Further Action
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
PA	Preliminary Assessment
PETN	Pentaerythritol Tetranitrate
PCB	Polychlorinated Biphenyl
PCP	Pentachlorophenol
PFAS	Per- and Polyfluoroalkyl Substances
ppb	parts per billion
ppm	parts per million
PR	Periodic Review
PST	Powder Settling Tank
RAB	Restoration Advisory Board
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operations)
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Royal Demolition Explosive
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy-In-Place
ROD	Record of Decision

Acronym	Definition
RRSE	Relative Risk Site Evaluation
SC	Site Closeout
SI	Site Inspection
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TCE	Trichloroethylene
TNT	Trinitrotoluene
TPH	Total Petroleum Hydrocarbons
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
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: 6/9

Number of Open Sites with Response Complete/Total Open MR Sites: 7/7

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

SITE-LEVEL INFORMATION

40520.1002_MCAAP-002_LANDFILL, SOUTHWEST OF BROWN L

Env Site ID: MCAAP-002

Cleanup Site: LANDFILL, SOUTHWEST OF BROWN L

Alias: SWMU-002

Regulatory Driver: RCRA-C

RIP Date: 9/30/1994

RC Date: 9/30/1994

RC Reason: Study Completed, No Cleanup Required

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	6/30/1991	6/30/1992
CS:	6/30/1991	6/30/1992
RFI/CMS:	12/31/1992	9/30/1994
DES:	--	--
IRA:	--	--
CMI(C):	--	--
CMI(O):	--	--
LTM:	10/1/1994	9/30/2054

Site Narrative: This site of approximately 50-acres is located 1,000-feet (ft) south of the western end of Brown Lake in the central section of the installation. The site operated from 1967 until August 1990 as a general refuse landfill Oklahoma State Department of Health Permit Number 3561009. The site operated prior to environmental regulations from 1967 until 1978. Monitoring wells were installed at the site and sampling results from those wells indicated one well was above National Primary Drinking Water standards for chromium and lead. Then another well was above National Primary Drinking Water Requirement standards for trichloroethylene (TCE). The results of the December 1994 Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) and risk assessment demonstrate that chemical concentrations detected in solid waste management unit (SWMU) #2 are not associated with a threat to human health primarily because there are no identifiable complete exposure pathways in existence for the site. The RFI investigated water soil sediment seeps and groundwater to determine the presence of contaminants and to assess if a release has occurred from the SWMU. Seeps contained elevated inorganics exceeding both state and federal wildlife toxicity values. The human risk assessment was evaluated based on all chemicals above background levels. The ecological risk assessment demonstrated that surface water at SWMU #2 is not expected to provide high-quality year-round aquatic habitat so actual exposure to surface water seep water and sediment will likely be low and will not cause significant ecological risk. In sediment copper lead nickel and zinc exceeded the criteria of National Oceanic and Atmospheric Administration (NOAA) Screening Guidelines and State and Federal Ambient Water Quality Standards and were analyzed for further ecological risk. In seeps carbon disulfide, total xylene, aluminum, barium, beryllium, calcium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, potassium sodium, vanadium and zinc exceeded the criteria of NOAA Screening Guidelines, and State and Federal Ambient Water Quality Standards and were analyzed for further ecological risk. In surface water, aluminum, barium, iron, lead, vanadium, and nitrogen exceeded the criteria of NOAA Screening Guidelines and State and Federal Ambient Water Quality Standards and were analyzed for further ecological risk. In accordance with a US Environmental Protection Agency (USEPA) letter dated Sept. 15, 1994, long-term groundwater monitoring was continued in accordance with the DEQ directives.

In March 2000 the DEQ approved a groundwater assessment, which recommended terminating groundwater monitoring and abandoning the wells. In fiscal year (FY) 01 the wells were abandoned and in FY02 documentation of the abandonment was submitted to and accepted by the DEQ to complete closure requirements. Routine landfill cap maintenance will be conducted at MCAAP-002 indefinitely in accordance with the requirements and recommendations of the February 1990 Landfill Closure Plan. Periodic reviews (PR), completed in 2005, 2010, and 2015, are performed to ensure the remedy remains protective of human health and the environment. Annual reports are completed and maintained internal to the US Army only. Cleanup and Exit Strategy – Continue long-term management (LTM) via cap maintenance including mowing, inspections, and repairing areas of erosion. PRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1018_MCAAP-018_DEACTIVATION FURNACE/LAGOON

Env Site ID: MCAAP-018

Cleanup Site: DEACTIVATION FURNACE/LAGOON

Alias: SWMU-018

Regulatory Driver: RCRA-C

RIP Date: 3/27/2000

RC Date: 3/27/2000

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	6/30/1991	6/30/1992
CS:	12/31/1992	12/31/1994
RFI/CMS:	2/29/1996	12/31/1998
DES:	12/31/1998	2/15/1999
IRA:	6/30/1998	12/31/1998
CMI(C):	12/31/1998	3/27/2000
CMI(O):	--	--
LTM:	3/28/2000	9/30/2054

Site Narrative: The Deactivation Furnace Lagoon (McAlester Army Ammunition Plant [MCAAP]-018) was an earthen-bermed water-filled lagoon measuring approximately 35-ft by 75-ft. The lagoon was located about 150-ft north of the deactivation furnace. The deactivation furnace was used to demilitarize old conventional ammunition by burning it at high temperatures and the lagoon may have received wastewater from the deactivation furnace. The period the lagoon may have received wastewater from the furnace is not known. A corrective measures study (CMS) report was reviewed by the DEQ and an interim remedial action (IRA) was approved on Dec. 5, 1997 to remove lead-contaminated soil. DEQ approved the corrective measures implementation plan (CMIP) on Mar. 31, 1998, and the decision was recorded in the RCRA Part B permit modification approved on Dec. 15, 1998. The contaminated soil removal occurred in November-December 1998. The final corrective measures were documented in the March 2000 Corrective Measures Completion report and included the IRA activities. Cleanup and Exit Strategy - Continue LTM via institutional controls (IC). PRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1026_MCAAP-026_BURN AREA 2

Env Site ID: MCAAP-026

Cleanup Site: BURN AREA 2

Alias: SWMU-026

Regulatory Driver: RCRA-C

RIP Date: 1/15/2002

RC Date: 1/15/2002

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	6/30/1991	6/30/1992
CS:	12/31/1992	12/31/1994
RFI/CMS:	1/31/1996	12/31/1998
DES:	8/31/1998	1/16/2002
IRA:	--	--
CMI(C):	12/31/1999	1/15/2002
CMI(O):	--	--
LTM:	1/16/2002	9/30/2054

Site Narrative: This site is located south of C-Tree Road west of the entrance to the medium caliber area in the eastern portion of the installation. The site is a former burn area of approximately 23-acres that contained several burn cages with blast walls around the burn cages to contain any debris from the burn operations. The site was operated from the mid-1940s to the mid-1960s. The site borders the western edge of Brown Lake (MCAAP-44). The results of the RFI found lead levels associated with unacceptable predicted blood lead levels for occupational scenarios. A CMS report was submitted for regulatory review in FY97. The preferred alternative of soil removal with stabilization and off-site disposal was approved. The DEQ issued a part B permit modification on Dec. 15, 1998, accepting the CMS proposed plan as the approved remedial action. Fieldwork involving removal and disposal of lead-contaminated soils was completed to meet industrial standards in February 2000. A corrective measures completion report was submitted to and approved by the DEQ in FY02. LTM in the form of ICs was implemented to restrict residential use of the site and is documented in the base master plan. Cleanup and Exit Strategy - Continue LTM via ICs. PRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1032_MCAAP-032_BUILDING 209 PALLET DIPPING OP

Env Site ID: MCAAP-032

Cleanup Site: BUILDING 209 PALLET DIPPING OP

Alias: SWMU-032

Regulatory Driver: RCRA-C

RIP Date: 2/4/2001

RC Date: 2/4/2001

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	6/30/1991	6/30/1992
CS:	12/31/1992	12/31/1994
RFI/CMS:	1/31/1999	2/1/2001
DES:	2/1/2001	2/2/2001
IRA:	--	--
CMI(C):	2/3/2001	2/4/2001
CMI(O):	--	--
LTM:	2/5/2001	9/30/2054

Site Narrative: The site is located near the southwest corner of the Bomb Mine Area along Road 5 in the center section of the installation. The site is an open-sided steel-girder structure set on a concrete block foundation. It is approximately 30-ft by 150-ft. During the 1970s and 1980s wooden pallets were immersed into dipping vats containing a pentachlorophenol (PCP) solution. In the 1980s PCP was replaced with copper-8-hydroxyquinolate. Soil samples taken during the RFI did not find any PCP, but copper was detected above background levels and dioxins were detected in composite samples. The DEQ accepted a risk and cleanup level of five parts per billion (ppb) dioxins which is a value greater than the observed site concentrations. In February 2001, the CMS for this site was accepted by the DEQ. The CMS recommended ICs including non-residential land use the use of appropriate personal protective equipment when handling affected media and minimizing activities that would promote migration of the affected media. LTM in the form of ICs was implemented to restrict residential use of the site and is noted in the base master plan maps. Cleanup and Exit Strategy - Continue LTM via ICs. PRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1033_MCAAP-033_PALLET DIP OPERATION, BUILDING

Env Site ID: MCAAP-033

Cleanup Site: PALLET DIP OPERATION, BUILDING

Alias: SWMU-033

Regulatory Driver: RCRA-C

RIP Date: 2/24/2001

RC Date: 2/24/2001

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	6/30/1991	6/30/1992
CS:	6/30/1992	6/30/1994
RFI/CMS:	1/31/1999	2/20/2001
DES:	2/21/2001	2/22/2001
IRA:	--	--
CMI(C):	2/23/2001	2/24/2001
CMI(O):	--	--
LTM:	2/25/2001	9/30/2054

Site Narrative: This site is located due north of the medium caliber area in the northeast section of the installation. It was a covered craneway area approximately 15-ft by 30-ft. From 1972 to 1974 wooden pallets were dipped into a PCP solution and allowed to drip dry on the surrounding concrete. Soil samples during the RFI revealed no PCP or copper levels above background levels; however, the supplemental RFI detected dioxins in composite samples. The RFI recommended no remedial action based upon the low occupational exposure and the USEPA concurred. Increased activity in the area by Defense Ammunition Center personnel has increased the exposure potential beyond that used in the risk analysis estimated during the RFI. The CMS for this site which included a detailed risk assessment recommended no further action (NFA). The DEQ has accepted a risk and cleanup level of five-ppb for dioxins which is a value greater than observed site concentrations. In February 2001, the CMS for this site was accepted by the DEQ. The CMS recommended ICs including non-residential land use the use of appropriate personal protective equipment when handling affected media and minimizing activities that would promote migration of the affected media. LTM in the form of ICs was implemented to restrict residential use of the site and is documented in the base master plan. Cleanup and Exit Strategy - Continue LTM via ICs. PRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1043_MCAAP-043_MINOL BUILDING (BLDG 644)

Env Site ID: MCAAP-043

Cleanup Site: MINOL BUILDING (BLDG 644)

Alias: SWMU-043

Regulatory Driver: RCRA-C

RIP Date: 2/29/2000

RC Date: 2/29/2000

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	9/30/1987	9/30/1988
CS:	12/31/1992	12/31/1994
RFI/CMS:	1/31/1993	12/31/1994
DES:	5/31/1994	12/31/1994
IRA:	6/30/1994	11/30/1998
CMI(C):	12/31/1998	2/29/2000
CMI(O):	--	--
LTM:	3/1/2000	9/30/2054

Site Narrative: This site is located in the Bomb Mine Area in the center of the installation. The site was an abandoned one-story flat-topped cement block building approximately 15-ft by 25-ft. In 1988, installation personnel sampled and discovered polychlorinated biphenyl (PCB) contamination of the structure [less than 15-parts per million (ppm)] and the soil [as high as 1,600-milligrams (mg) per kilogram (kg)]. On Jan. 25, 1993, the installation notified the USEPA Region VI that this was a new SWMU. The RFI detected PCB 1242 PCB 1260 and total petroleum hydrocarbons (TPH) above acceptable USEPA human health risk standards in the soils around the Minol Building and PCB 1242/1260 inside the structure. The USEPA approved the removal of contaminated soils and structures to a level not to exceed 25-ppm. In June 1994, the Minol Building, its associated piping and the surrounding soil were removed; all were contaminated with PCBs. In March 1995 the fieldwork was completed, and the contamination was determined to have spread downstream into a drainage swale. In February 1996 the swale area was remediated. Final cleanup reports show the PCB cleanup was achieved well below the 25-ppm specified. The final corrective measures completion report for the Minol Building and Drainage Ditch South of Building 177 was submitted and accepted by the USEPA in 2000. PCB-contaminated soil was left in place at concentrations well below 25-ppm in accordance with 40 CFR 761.61. This complies with federal guidelines associated with self-implementing on-site cleanup and disposal efforts for low occupancy areas. LTM in the form of ICs was implemented to restrict residential use of the site and is documented in the base master plan. Cleanup and Exit Strategy - Continue LTM via ICs. PRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1046_MCAAP-046_FORMER SCRAP METAL BALER AREA

Env Site ID: MCAAP-046

Cleanup Site: FORMER SCRAP METAL BALER AREA

Alias: SWMU-046

Regulatory Driver: RCRA-C

RIP Date: 5/31/2010

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	12/31/1999	9/30/2000
CS:	--	--
RFI/CMS:	6/30/2001	2/15/2008
DES:	2/16/2008	1/15/2010
IRA:	5/31/2003	7/31/2004
CMI(C):	1/16/2010	5/31/2010
CMI(O):	5/31/2010	9/30/2054
LTM:	--	--

Site Narrative: The Baler site is located in the Defense Reutilization and Marketing Office (DRMO) yard. At this site a resource recovery recycling program baler was used to compact metal cans and other metal objects. The cans that were crushed here are suspected of having contained paints oils solvents and other liquids in varying amounts. Over the years of operation (from the 1950s to 1980s and especially during the 1950s and 1960s), some of the waste materials are believed to have leached into the soil. During rainy periods an oily layer was noted floating on puddles in the vicinity of the baler. The baler and the underlying sump were removed. The site presently consists of a gravel-covered area of about three-acres with an active rail line running through it. In December 1999, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) conducted sampling. PCBs metals and semi-volatile organic compounds (SVOC) above USEPA Region VI residential medium-specific screening levels (MSSL) were detected in the soil. In 2002, during the CMS, petroleum hydrocarbons in the soils and chlorinated organics above the maximum contaminant level (MCL) in groundwater were identified. The RFI was completed in May 2005 and the plume was fully delineated. Groundwater sampling to determine site acceptability of monitored natural attenuation (MNA) was initiated in June 2005. Petroleum hydrocarbon-contaminated soils removal was completed during the 2004 IRA. Multiple 105-millimeter (mm) rounds were encountered and removed during the IRA. In February 2008, the CMS was finalized with DEQ approval, and the selected final remedy was determined as groundwater monitoring and in-situ treatment with enhanced bioremediation and bioaugmentation. DEQ approved the CMIP in January 2010. In situ groundwater treatment began in 2010 and was completed in May 2010. The groundwater monitoring corrective measures implementation (operations) (CMI(O)) phase began in 2010 and will continue until sample results are less than USEPA MCLs as defined in the CMS. Due to stalled MNA recognized by DEQ and MCAAP in the Year 12 report, additional remediation is underway. PRs will be performed at the site to determine if the remedy is still protective of human health and the environment. Separately in 2014, during geophysical investigation of MCAAP-006-R-01 (co-located with MCAAP-046), a trench was excavated that uncovered four crushed 55-gallon drums. Four soil samples

were collected from the trench and analyzed for volatile organic compounds (VOC), SVOCs, and TPH gasoline range organics (GRO)/diesel range organics (DRO). All the sample results had high levels of GRO/DRO. As a result, this area of MCAAP-046 required further delineation and subsequently the contaminated soil was excavated. A final report documenting the excavation was submitted to DEQ in 2018. DEQ concurred with the report's findings and required additional groundwater investigation regarding PCP pesticides and PCBs. As a result, temporary wells were installed and sampled in 2020. The results presented in an RFI report concluded that PCP pesticides and PCBs were not present in the groundwater. Hence no further groundwater investigation was warranted. DEQ concurred with the final report in 2021 that no corrective action is necessary for the drum burial area. Cleanup/Exit Strategy - CMI(O) will continue until groundwater sample results are below MCLs for VOCs and SVOCs. PRs and land use controls (LUC) will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1048_MCAAP-048_MISCELLANEOUS TANKS

Env Site ID: MCAAP-048

Cleanup Site: MISCELLANEOUS TANKS

Alias: SWMU-048

Regulatory Driver: RCRA-C

RIP Date: 11/3/2007

RC Date: 9/30/2054

RC Reason: Not assigned

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
RFA:	10/31/2000	3/31/2001
CS:	--	--
RFI/CMS:	6/30/2001	11/30/2006
DES:	3/31/2007	10/31/2007
IRA:	6/30/2001	3/31/2005
CMI(C):	11/1/2007	11/2/2007
CMI(O):	11/3/2007	9/30/2054
LTM:	--	--

Site Narrative: SWMU-048 originally consisted of 10 powder settling tank (PST) locations. In 2000 the USACHPPM evaluated the PST sites as part of preliminary investigation and identified elevated concentrations of 1,1,1-trichloroethane, TCE, cis-1,2- dichloroethylene, lead, and chromium in sediment contained in at least one of the PSTs (PST 161). Water used to clean production facility walls and floors settled in the PSTs and was discharged through an overflow pipe. Concentrations of chlorinated organics above MCLs were discovered in the groundwater at four sites (103, 109A, 161, 163) in 2002. Several metals were identified above the USEPA drinking water screening levels at two of the sites (109A and 161). In 2003 the horizontal extent of four chlorinated organic plumes were delineated including the largest plume (161) located adjacent to the backwaters of Brown Lake- a sensitive water supply. The PSTs were removed in 2003 along with tank pit soil containing concentrations exceeding 10 times the USEPA MSSLS. During removal three sites (133, 161, 163) were determined to have emptied into the sanitary sewer and seven sites (103, 109, 109a, 110, 111, 126, 130) discharged into drainage ditches. In 2004 additional TCE-contaminated soil at PST Site 103 was removed. In 2005 the final PST RFI report concluded the following- natural attenuation was occurring at four sites, VOC concentrations and plume dimensions had not significantly changed from previous investigations, the installation of new plume centerline wells would enable long term monitoring of plume mass, and evaluation of natural attenuation groundwater flow was restricted at PST sites 103 and 109A and groundwater flow was not restricted at PST sites 161 and 163. The RFI report recommended further action at the four sites and was approved by DEQ in May 2005. The CMS reports for PSTs 103, 109A, 161, and 163 were finalized in 2006 and recommended MNA with periodic groundwater monitoring as the remedy for the four sites. DEQ approved the CMIP for the four PST sites in October 2007. Per the CMS reports MNA sampling events were performed quarterly in years one and two (July 2005 to March 2007) and semiannually in years three and four (Sept 2007 to April 2009). The two years of quarterly sampling and first semiannual sampling event occurred prior to approval of the CMIP and were used to evaluate effectiveness of an MNA remedy. Annual groundwater monitoring began in 2010 per the CMS reports. Due to stalled MNA

recognized by DEQ and MCAAP in the Year 16 report, additional remediation is being considered at this time. Cleanup/Exit Strategy - CMI(O) will continue until groundwater sample results are below MCLs for VOCs and SVOCs. PRs and LUCs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1065_MCAAP-PFAS_PFAS

Env Site ID: MCAAP-PFAS

Cleanup Site: PFAS

Alias: #

Regulatory Driver: CERCLA

RIP Date: 10/1/2029

RC Date: 10/1/2029

RC Reason: Not assigned

SC Date: 10/2/2029

Program: ENV Restoration, Army

Subprogram: IR

NPL Status: No

Hazardous Ranking Score: 0

RRSE:

MRSPP: N/A

Phase	Start	End
PA:	9/30/2017	9/27/2018
SI:	9/28/2018	11/30/2021
RI/FS:	12/1/2021	10/1/2029
RD:	--	--
IRA:	--	--
RA(C):	--	--
RA(O):	--	--
LTM:	--	--

Site Narrative: In 2019 a preliminary assessment (PA) performed at MCAAP determined that six areas required a site inspection (SI). The PA focused on aqueous film-forming foam and electroplating operations. In 2021 the SI identified four areas with per- and polyfluoroalkyl substances (PFAS) contamination in a sufficient amount to warrant a remedial investigation (RI)/feasibility study (FS). MCAAP-PFAS is located at areas surrounding buildings 6, 34 (demolished), 185 and 408. Building 34 was historically used as a solid waste incinerator but had been abandoned for many years. While building 34 was abandoned it was used as a fire training facility for the MCAAP Fire Department. Building 185 was the Fire Department for the Navy and later used as a satellite fire station for MCAAP until it was abandoned. Building 408 is the current Fire Department for MCAAP. Building 6 is the Former Fire Department. Cleanup/Exit Strategy - Complete the RI/FS which will determine the nature and extent of the PFAS contamination at all sites. Upon which the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) process will continue through completion.

40520.1049_MCAAP-001-R-01_SCRAP METAL DISPOSAL AREA

Env Site ID: MCAAP-001-R-01

Cleanup Site: SCRAP METAL DISPOSAL AREA

Alias: MCAAP-005

Regulatory Driver: CERCLA

RIP Date: 4/26/2018

RC Date: 4/26/2018

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: MR

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: 10

Phase	Start	End
PA:	12/3/2002	5/1/2003
SI:	4/30/2004	3/31/2006
RI/FS:	6/30/2009	11/30/2014
RD:	--	--
IRA:	5/31/2011	9/30/2012
RA(C):	11/30/2014	4/26/2018
RA(O):	--	--
LTM:	4/27/2018	9/30/2054

Site Narrative: Scrap Metal Disposal Area is located in the northeast portion of the installation. The site is approximately 10.2 acres in size including a landfill area that covers 9.37 acres and two lagoons totaling approximately 0.82 acres. From 1960 to 1970 this site was a scrap metal and munitions debris (MD) disposal area for refuse including cans buckets drums ZUNI rocket bodies and incinerator and electrical refuse. Similar debris was reported present in the lagoons. Currently ZUNI rocket bodies and scrap metal refuse are located on the surface of the landfill area mounded along the northern and western perimeter. The site remains undeveloped as open grassy areas with sparse trees. The SI recommended further characterization and on Mar. 17, 2006, the DEQ provided a letter accepting the recommendations stated in the SI report. This munitions response site (MRS) was recommended for further characterization based upon the potential for munitions and explosives of concern (MEC). This site also had elevated levels of metal primarily iron in the collected surface soil samples which are likely the result of the corrosion and deterioration of the MD and associated scrap items. An RI Report was completed in August 2011 that determined the nature and extent of MEC/munitions constituents (MC) has been adequately determined; no MEC items were found at the site. While the possibility of a single MEC item being present cannot be eliminated, the risk of human contact with MEC at these sites is low. However, if future site use is changed and intrusive activities are performed the use of unexploded ordnance (UXO) construction support would be a reasonable safety precaution. Fate and transport of MC is not a concern. The FS was finalized in FY13. The decision document (DD) was finalized in FY14 identifying LUCs as the remedy for the site. The Land Use Control Implementation Plan (LUCIP) was finalized in FY16. DEQ approved the implementation of LTM/LUCs at the site in April 2018. LTM consists of MEC ICs. ICs include restrictions on land use notations in master plan and dig permit requirements. Cleanup/Exit Strategy - LTM and five-year reviews (FYR) will continue to be performed at the site to determine if the remedy remains protective of human health and the environment. The LUCs in place are sufficient to protect the site, thus the site does not require a Munitions Response Site Prioritization Protocol (MRSPP) score.

40520.1050_MCAAP-002-R-01_WOOD SCRAP YARD

Env Site ID: MCAAP-002-R-01

Cleanup Site: WOOD SCRAP YARD

Alias: MCAAP-008

Regulatory Driver: CERCLA

RIP Date: 4/26/2018

RC Date: 4/26/2018

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: MR

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: 10

Phase	Start	End
PA:	12/3/2002	5/1/2003
SI:	4/30/2004	3/31/2006
RI/FS:	6/30/2009	11/15/2014
RD:	--	--
IRA:	3/31/2011	9/30/2012
RA(C):	11/15/2014	4/26/2018
RA(O):	--	--
LTM:	4/27/2018	9/30/2054

Site Narrative: This 8.71-acre MRS is located in the north central part of the installation northeast of the intersection of Road 4 and Road F. This site was used between 1970 to Feb. 3 2020, to store scrap wood and lumber for future reuse or sale at the installation. At one time the site was a landfill and a burn area for ordnance disposal and burning of secondary explosives. The exact locations of the landfill and burn area are unknown. A number of MEC items (previously referred to as ordnance and explosives) were reportedly burned at the site including trinitrotoluene (TNT), ammonium picrate, smokeless powder, pentaerythritol tetranitrate (PETN), Compositions ABC (CMP ABC), 2,4,6-trinitrophenylmethyl nitramine (tetryl), hexahydro-135-trinitro-135-triazine [royal demolition explosive (RDX) also known as cyclonite], octahydro-135 7-tetranitro-1357-tetrazocine [high melting explosive (HMX) also known as octogen], hexahydro-13 5-trinitro-8-triazine (HBX), and black powder. The undeveloped site is currently used to store scrap wood for sale to the public and reuse. As part of the Installation Restoration Program this site was identified as MCAAP-008 and NFA was approved by the DEQ due to low exposure potential and a lack of documented evidence of a release. UXO responses have not been conducted at this site. An SI was completed in 2006 which recommended further characterization. A remedial investigation report was completed in August 2011. The nature and extent of MEC/MC was adequately determined; no MEC items were found at the site. Fate and transport of MC was not determined to be a concern at the site. While the possibility of a single MEC item being present cannot be eliminated, the risk of human contact with MEC at these sites is low. If future site use is changed and intrusive activities are performed the use of UXO construction support would be a reasonable safety precaution. A human health and ecological risk assessment was performed as part of the RI. Arsenic and thallium were identified as constituents of potential concern for human health in soil. Vanadium was identified as a potential contaminant of concern for ecological exposure. The FS was finalized in FY13. The DD for MCAAP-002-R-01 was finalized in FY14. The selected remedies for the site are LUCs. The LUCIP was finalized in FY16. DEQ approved the

implementation of LTM/LUC at the site in April 2018. LTM consists of MEC ICs. ICs include restrictions on land use notations in master plan and dig permit requirements. LUCs include restrictions on land use notations in master plan and dig permits. Cleanup/Exit Strategy - LTM and FYRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment. The LUCs in place are sufficient to protect the site, thus the site does not require an MRSPP score.

40520.1051_MCAAP-003-R-01_ABANDONED LANDFILL

Env Site ID: MCAAP-003-R-01

Cleanup Site: ABANDONED LANDFILL

Alias: MCAAP-010

Regulatory Driver: CERCLA

RIP Date: 4/26/2018

RC Date: 4/26/2018

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: MR

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: 10

Phase	Start	End
PA:	12/3/2002	5/1/2003
SI:	4/30/2004	3/31/2006
RI/FS:	6/30/2009	11/15/2014
RD:	--	--
IRA:	3/31/2011	9/30/2012
RA(C):	11/15/2014	4/26/2018
RA(O):	--	--
LTM:	4/27/2018	9/30/2054

Site Narrative: This 15.66-acre MRS is located in the southeast part of the installation south of the Group 71-BT area and southwest of the 90-degree bend in Road F. Between 1950 and 1970 the landfill received unknown waste including rocket bodies metal boxes wire and concrete rubble. Currently Zuni rocket bodies are located on the surface of this area and the site remains undeveloped and is covered with heavy vegetation. The SI was completed in 2006 and the MRS was recommended for further characterization based upon the potential for MEC. The MRS contained large quantities of MD and the presence of MEC could not be determined. An RI was completed in FY11. The nature and extent of MEC/MC was adequately determined; no MEC items were found at the site. Two items (fuzes) of material potentially presenting an explosive hazard (MPPEH) were identified at the site that was believed to be kick out from the adjacent open detonation operation and not related to the site. The two MEC items were removed and destroyed. Fate and transport of MC is not a concern at the site. A human health and ecological risk assessment was performed as part of the RI. Thallium and RDX (explosive) were identified as potential contaminants of concern (COC) for human health in soil. Barium and zinc were identified as potential COCs for ecological exposure. An FS was finalized in FY13. The DD was finalized in FY14. The final DD identifies LUCs as the selected remedy for the site. The LUCIP was finalized in FY16 and the selected LUC remedy is implemented and underway for the site. DEQ approved the implementation of LTM/LUCs at the site in April 2018. LUCs consists of engineering and ICs. Engineering controls include signage and ICs include restrictions on land use notations in master plan and dig permit requirements. Cleanup/Exit Strategy - LTM and FYRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment. The LUCs in place are sufficient to protect the site.

40520.1052_MCAAP-004-R-01_GROUP 41 LC LAGOON & LAN

Env Site ID: MCAAP-004-R-01
Cleanup Site: GROUP 41 LC LAGOON & LAN
Alias: MCAAP-012
Regulatory Driver: CERCLA
RIP Date: 4/26/2018
RC Date: 4/26/2018
RC Reason: All Required Cleanup(s) Completed
SC Date: 9/30/2054
Program: ENV Restoration, Army
Subprogram: MR
NPL Status: No
Hazardous Ranking Score: 0
RRSE: N/A
MRSPP: 10

Phase	Start	End
PA:	12/3/2002	5/1/2003
SI:	4/30/2004	3/31/2006
RI/FS:	6/30/2009	11/15/2014
RD:	--	--
IRA:	3/31/2011	9/30/2012
RA(C):	11/15/2014	4/26/2018
RA(O):	--	--
LTM:	4/27/2018	9/30/2054

Site Narrative: This 23.91-acre MRS is located in the north central part of the installation south of the 41 LC bunker area and it includes two five-acre lagoons. From 1945 to 1960 this area was used to dump miscellaneous scrap metal including significant amounts of mortar casings and rocket bodies. MEC reportedly encountered at the site included 20 mm fused rounds and possible discarded military munitions. The SI was completed and DEQ accepted the recommendation for further characterization of MEC on Mar. 17, 2006. An RI was finalized in FY11. Although no MEC was found, the possibility of a single MEC item being present cannot be entirely eliminated. The risk of human contact with MEC at these sites is low. However, if future site use is changed and intrusive activities are performed the use of UXO construction support would be a reasonable safety precaution. The FS was finalized in FY13. The DD was finalized in FY14 for MCAAP-004-R-01 identifying LUCs as the remedy for the site. The LUCIP was finalized in FY16. DEQ approved the implementation of LTM/LUCs at the site in April 2018. LTM consists of MEC ICs. ICs include restrictions on land use notations in master plan and dig permit requirements. Cleanup/Exit Strategy - LTM and FYRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment. The LUCs in place are sufficient to protect the site.

40520.1054_MCAAP-005-R-02_Mortar Range Impact Area

Env Site ID: MCAAP-005-R-02

Cleanup Site: Mortar Range Impact Area

Alias: #

Regulatory Driver: CERCLA

RIP Date: 4/26/2018

RC Date: 4/26/2018

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: MR

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: 10

Phase	Start	End
PA:	12/31/2002	5/31/2003
SI:	4/30/2004	3/31/2006
RI/FS:	6/30/2009	11/15/2014
RD:	--	--
IRA:	3/31/2011	9/30/2012
RA(C):	8/15/2014	4/26/2018
RA(O):	--	--
LTM:	4/27/2018	9/30/2054

Site Narrative: This former range impact area is located at the east side of Brown Lake and was used from 1962 through 1977 by the US Marines during fire power shows in conjunction with Armed Forces Day celebrations. Mortars of various sizes large caliber munitions and machine gun and tracer rounds were fired across Brown Lake into the impact area and at targets on Brown Lake. The firing point or firing areas were located on a peninsula on the north side of the lake which is currently the southern tip of the administration area while the impact area included Brown Lake and the land located on the south side of the lake. The latter currently includes a recreational area called Camp Plea. The boundaries of the Mortar Range Impact Area were not well defined in documents reviewed during the HRR; therefore, boundaries arbitrarily set based upon the evidence available included the north peninsula or southern tip of the administration area Camp Plea and a portion of the wooded area east and west of Camp Plea. The closed range boundary is also truncated against operational range property just south of Camp Plea. The total area of this MRS is 74.54 acres- 46.49 acres for the Brown Lake area and 28.05 acres for the Camp Plea area of the impact MRS. According to the records reviewed the demonstrations of fire power assaults and beach landings included the use of M-1 rifles Browning automatic rifles flame throwers rifle grenades 3.5-inch rockets (bazooka) mortars (60 mm 81 mm) and recoilless rifles. The demonstrations also included the loading and firing of 105 mm 155 mm and eight-inch howitzers; M16 rifles; and M1818A-4 (.30 caliber) machine guns. DEQ accepted SI recommendations on Mar. 17, 2006. The impact area MRS includes Brown Lake which is likely to contain MEC and MD. Reportedly, when the lake water level is down white phosphorus canisters have been observed near the south shoreline; however, these items would be considered subsurface active whereas the subsurface items may be exposed during times of low water levels. SI field activities were not performed in Brown Lake. The impact area MRS also includes the south side of Brown Lake in the Camp Plea area which was the impact area for the Armed Services Day demonstrations. This area showed no evidence of MEC or MC during the SI fieldwork. Records reviewed indicate this area was thoroughly swept twice for MEC or MD prior to the current housing construction. Any items which were either on or near the surface were most likely removed at

that time. The magnetometer-assisted visual survey indicated no surface or near-surface MEC. Based upon the relatively shallow bedrock at MCAAP the probability of subsurface MEC is low. No metals above the human health MSSLs were reported within the munitions response area (MRA). Explosive compounds were not detected above reporting limits in any surface soil samples at this site. In 2006 hunters found 40-mm parts and debris from rocket fins. Joggers have also noted finding debris. A RI was completed in FY11. The nature and extent of MEC/MC has been determined; no MEC items were found at the site. At several magnetic anomaly locations on the lake bottom the items were buried too deeply in sediment for identification by the U.S. Navy tactile methods and thus there is potential for MEC to be present buried deep in the lake-bottom sediment in Brown Lake within the Mortar Range Impact Area. Fate and transport of MC is not a concern at the site. A human health and ecological risk assessment was performed as part of the RI. Thallium and arsenic were identified as potential COCs for human health in sediments. No potential COCs for ecological exposure were identified. An FS was finalized in FY13. The DD was finalized in FY14. The final DD identifies LUCs as the selected remedy for the site. MEC clearance alternatives were eliminated due to the potential for this site to receive kickouts from the active adjacent Demolition Range A. The LUCIP was finalized in FY16. DEQ approved the implementation of LTM/LUCs at the site in April 2018. LTM consists of MEC engineering and ICs. Engineering controls include signage and ICs include restrictions on land use notations in master plan and dig permit requirements. Cleanup/Exit Strategy - LTM and FYRs will continue to be performed at the site in order to determine if the remedy remains protective of human health and the environment. The LUCs in place are sufficient to protect the site.

40520.1058_MCAAP-006-R-01_SCRAP METAL DISPOSAL YARD

Env Site ID: MCAAP-006-R-01

Cleanup Site: SCRAP METAL DISPOSAL YARD

Alias: #

Regulatory Driver: CERCLA

RIP Date: 10/1/2021

RC Date: 10/1/2021

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: MR

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: 10

Phase	Start	End
PA:	12/15/2002	5/15/2003
SI:	4/15/2004	3/15/2006
RI/FS:	6/15/2012	3/30/2021
RD:	--	--
IRA:	--	--
RA(C):	4/1/2021	10/1/2021
RA(O):	--	--
LTM:	10/2/2021	9/30/2054

Site Narrative: MCAAP-006-R-01 (Scrap Metal Disposal Yard North) is located north of Brown Lake and C-Tree Road in the Old DRMO yard. The Scrap Metal Disposal Yard was in operation since the 1950s as a pre-disposal treatment area and is approximately 17-acres in size. MCAAP-006-R-01 North consists of 5.4 acres of the 17 acres. Currently the site is utilized for storage of roads and grounds equipment. The site is relatively flat with the surrounding area sloping very gently to the southeast. There is no vegetation on the site. Streams and a man-made lagoon occur in the immediate vicinity of the site. Brown Lake is located approximately 4,000-ft to the southeast. The US Army currently plans to relocate the DRMO operations and clear the site for future construction projects. The following occurred in 2004- two unspent munitions were discovered during excavation activities on Feb. 18, 2004, two 120-mm armor piercing rounds with ballistic windshields and tracers were discovered during excavation activities on Feb. 23, 2004, the rotating bands were determined to be uncut. Following examination by UXO personnel it was determined that the rounds were inert one 40-mm and one 75-mm inert projectiles discovered during excavation activities on Mar. 3, 2004, two 50-mm armor piercing rounds inert rounds of ammunition were discovered during excavation activities on Mar. 18, 2004, and one 5-inch (in) rocket warhead was discovered during excavation activities in backfill material near the railroad on Mar. 24, 2004. In 2014, investigations involving surface debris removal digital geophysical mapping (DGM) trenching and anomaly reacquisition/excavation found no MEC items at the Scrap Metal Disposal Yard. Because the use of the north portion of the Scrap Metal Disposal Yard and south portion of the Scrap Metal Disposal Yard was different there was less saturated response from DGM in the north portion of the site impacting characterization of the area and historical MEC was only found in the south portion of the site it was decided to split the Scrap Metal Disposal Yard into two sites- North (MCAAP-006-R-01) and South (MCAAP-006-R-02) for evaluating remedial actions. The northern portion of the site (MCAAP-006-R-01) was further investigated in 2015 and resulted in a 95% level of confidence to contain less than 0.1 MEC item per acre. The DD was concurred by DEQ in 2021 and documents LTM in the form of ICs for the final remedy. ICs include restrictions on land use to nonresidential notations in master plan and dig

permits. Note- MCAAP-006-R-01 and MCAAP-006-R-02 were subdivided from the same MRA to allow for differing LTM practices based on level of risk and hazard. Cleanup/Exit Strategy - FYRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

40520.1064_MCAAP-006-R-02_SCRAP METAL DISPOSAL YARD

Env Site ID: MCAAP-006-R-02

Cleanup Site: SCRAP METAL DISPOSAL YARD

Alias: #

Regulatory Driver: CERCLA

RIP Date: 10/1/2021

RC Date: 10/1/2021

RC Reason: All Required Cleanup(s) Completed

SC Date: 9/30/2054

Program: ENV Restoration, Army

Subprogram: MR

NPL Status: No

Hazardous Ranking Score: 0

RRSE: N/A

MRSPP: 10

Phase	Start	End
PA:	12/15/2002	5/15/2003
SI:	4/15/2004	3/15/2006
RI/FS:	6/12/2012	3/30/2021
RD:	--	--
IRA:	--	--
RA(C):	4/1/2021	10/1/2021
RA(O):	--	--
LTM:	10/2/2021	9/30/2054

Site Narrative: MCAAP-006-R-02 (Scrap Metal Disposal Yard South) is located north of Brown Lake and C-Tree Road in the old DRMO yard. The Scrap Metal Disposal Yard has been in operation since the 1950s as a pre-disposal treatment area and is approximately 17-acres in size. MCAAP-006-R-02 South consists of 11.6 acres of the 17-acres. Topographically the site is relatively flat. The surrounding topography slopes very gently to the southeast. Elevation of the site is approximately 750-ft above mean sea level. No vegetation exists on the surface of the site. Surface water bodies including streams and a man-made lagoon occur in the immediate vicinity of the site. Brown Lake is located approximately 4,000ft to the southeast. The site is currently utilized as storage for MCAAP carpenter shop materials, MCAAP office personnel, and Morale Welfare and Recreation (MWR) office personnel and storage for recyclable materials managed by MWR. Intrusive investigations and remedial efforts associated with MCAAP-046 (co-located with MCAAP-006-R-01 and MCAAP-006-R-02) have documented the discovery of various MEC within the southern portion of the old DRMO yard (MCAAP-006-R-02). During the soil removal IRA for MCAAP-046 MEC was found at the site in 2004 including two unspent munitions were discovered during excavation activities on Feb. 18, 2004, two 120-mm armor piercing rounds with ballistic windshields and tracers were discovered during excavation activities on Feb. 23, 2004. The rotating bands were determined to be uncut. Following examination by UXO personnel it was determined that the rounds were inert one 40-mm and one 75-mm inert projectiles discovered during excavation activities on Mar. 3, 2004, two 50-mm armor piercing rounds inert rounds of ammunition were discovered during excavation activities on Mar. 18, 2004, and one 5-in rocket warhead was discovered during excavation activities in backfill material near the railroad on Mar. 24, 2004. In 2014, investigations involving surface debris removal DGM trenching, and anomaly reacquisition/excavation found no MEC items at the Scrap Metal Disposal Yard. Because the use of the north portion of the Scrap Metal Disposal Yard and south portion of the Scrap Metal Disposal Yard was different there was less saturated response from DGM in the north portion of the site impacting characterization of the area and historical MEC was only found in the south portion of the site it was decided to split the Scrap Metal Disposal Yard into two

sites- North (MCAAP-006-R-01) and South (MCAAP-006-R-02) for evaluating remedial actions. The DD was approved by DEQ in 2021 and documents LTM in the form of ICs for the final remedy. ICs include restrictions on land use to nonresidential notations in master plan dig permits and signage. Note- MCAAP-006-R-01 was subdivided into MCAAP-006-R-01 North and MCAAP-006-R-02 South from the same MRA to allow for differing LTM practices based on level of risk and hazard. Cleanup/Exit Strategy - FYRs will continue to be performed at the site to determine if the remedy remains protective of human health and the environment.

SITE SUMMARY

SITE CLOSEOUT SUMMARY

CRL ID	Site Name	Site Closeout Date
40520.1001	MCAAP-001_LANDFILL, SOUTHEAST OF BROWN L	9/30/1994
40520.1003	MCAAP-003_ACTIVE LANDFILL	9/15/1994
40520.1004	MCAAP-004_LANDFILL, NW OF BLDG 52SH405	6/30/1992
40520.1005	MCAAP-005_SCRAP METAL DISPOSAL AREA	9/30/1994
40520.1006	MCAAP-006_LANDFILL NE OF 20 MM AREA	6/30/1992
40520.1007	MCAAP-007_DISPOSAL AREA NORTH OF DRMO	6/30/1992
40520.1008	MCAAP-008_WOOD SCRAP YARD	6/30/1992
40520.1009	MCAAP-009_LANDFILL, ROAD 4	6/30/1992
40520.1010	MCAAP-010_LANDFILL SOUTH OF 71-BT AREA	6/30/1992
40520.1011	MCAAP-011_LANDFILL, ROAD FOUR AND ROAD F	6/30/1992
40520.1012	MCAAP-012_GROUP 41LC LAGOON AND LANDFILL	9/30/1994
40520.1013	MCAAP-013_CONCRETE BOMB SETTLING PONDS,	6/30/1992
40520.1014	MCAAP-014_CONCRETE BOMB SETTLING PONDS,	6/30/1992
40520.1015	MCAAP-015_ROUNDHOUSE LAGOON	6/30/1992
40520.1016	MCAAP-016_SEWAGE RETENTION LAGOON	6/30/1992
40520.1017	MCAAP-017_BLDG 186 PONDS AND LAGOON	6/30/1992
40520.1019	MCAAP-019_ROCKET LAKE	9/30/1994
40520.1020	MCAAP-020_B PLANT WEST LAGOON	6/30/1992
40520.1021	MCAAP-021_B PLANT EAST LAGOON	6/30/1992
40520.1022	MCAAP-022_MEDIUM CALIBER LAGOON	6/30/1992
40520.1023	MCAAP-023_SPECIAL WEAPONS LAGOONS	6/30/1992
40520.1024	MCAAP-024_C-TREE LAGOON	6/30/1992
40520.1025	MCAAP-025_ACTIVE OPEN BURNING GROUND	6/30/1992
40520.1027	MCAAP-027_OLD DEMOLITION AREA	6/30/1992
40520.1028	MCAAP-028_NEW DEMOLITION AREA	6/30/1992
40520.1029	MCAAP-029_SEDIMENTATION RETENTION BASIN	6/30/1992
40520.1030	MCAAP-030_PINK WATER TREATMENT SYSTEM	6/30/1992
40520.1031	MCAAP-031_PINK WATER COLLECTION SYSTEM	6/30/1992
40520.1034	MCAAP-034_DEACTIVATION FURNACE	6/30/1992
40520.1035	MCAAP-035_SUSPECT ACID NEUTRALIZATION PI	6/30/1992
40520.1036	MCAAP-036_BURIAL SITE	6/30/1992
40520.1037	MCAAP-037_WASTE OIL STORAGE TANK, RR HO	1/31/1990
40520.1038	MCAAP-038_DRMO YARD	6/30/1992
40520.1039	MCAAP-039_HAZARDOUS WASTE STORAGE AREA,	6/30/1992
40520.1040	MCAAP-040_HAZ. WASTE STORAGE BUNKERS BLD	6/30/1992
40520.1041	MCAAP-041_SEWAGE TREATMENT PLANT	6/30/1992
40520.1042	MCAAP-042_WATER TREATMENT PLANT @ BROWN	6/30/1992
40520.1044	MCAAP-044_BROWN LAKE	6/30/1992
40520.1045	MCAAP-045_ROUNDHOUSE COMPLEX	9/30/1998
40520.1047	MCAAP-047_PCB CONTAMINATION DETENTION AR	1/31/2005
40520.1056	PBA@MCAAP_PBA@MCAAP	6/30/2014
40520.1061	CCMCAAP-049_SOILS AROUND CASE LOAD BLDG	10/1/2022

CRL ID	Site Name	Site Closeout Date
40520.1062	CCMCAAP-050_BALLAST MATERIAL AREA TTF	1/30/2017
40520.1063	CCMCAAP-051_PCP CONTAMINATION IND AREA	1/12/2022
40520.1053	MCAAP-005-R-01_MORTAR RANGE NORTH SHORE	3/31/2006
40520.1055	PBA@MR MCAAP_PBA@MR MCAAP	3/15/2012

COMMUNITY INVOLVEMENT

Community Involvement Plan (Date Last Reviewed):	4/15/2019
Technical Review Committee Establishment Date:	N/A
Restoration Advisory Board (RAB) Establishment Date:	N/A
RAB Adjournment Date:	N/A
RAB Adjournment Reason:	N/A
Reasons for Not Establishing RAB:	No sufficient, sustained community interest in a RAB has been expressed by the community
RAB Date of Solicitation from Community:	3/22/2023
RAB Results of Solicitation:	No community interest was expressed from the 2023 efforts to determine interest.
Current Technical Assistance for Public Participation (TAPP):	N/A
TAPP Title:	N/A
Potential TAPP:	N/A
Administrative Record Location:	McAlester Army Ammunition Plant, 1 C Tree Road, McAlester, OK 74501, 918-420-6271
Information Repository Location:	Oklahoma Department of Environmental Quality, 707 N Robinson Ave, Oklahoma City, OK 73102

FIVE-YEAR / PERIODIC REVIEW SUMMARY

Status	Review Type	Start Date	End Date	Plans Narrative	Actions Narrative	Results Narrative
Completed	FYR	3/17/2016	3/17/2017	N/A	N/A	Remedies are protective of human health and the environment
Planned	FYR	1/31/2023	03/31/2024	N/A	N/A	N/A
Completed	PR	3/17/2016	3/17/2017	N/A	N/A	Remedies are protective of human health and the environment
Planned	PR	1/31/2023	03/31/2024	N/A	N/A	N/A