CMA MILESTONES IN U.S. CHEMICAL WEAPONS HISTORY

The U.S. Army Chemical Materials Activity (CMA) leads the world in chemical weapons destruction with a demonstrated history of safely storing, recovering, assessing and disposing of U.S. chemical warfare materiel, and meeting U.S. treaty obligations.

1960s and before

The United States developed chemical weapons in response to Germany's use of them against Allied soldiers during World War I. The military securely stores these weapons at U.S. military installations at home and abroad.

Edgewood Arsenal, Maryland, produces mustard and phosgene, but the arsenal is not large enough to store the agent. New installations are constructed in Huntsville, Alabama; Denver, Colorado; Pine Bluff, Arkansas; and Tooele, Utah.

After World War II ends, the United States produces nerve agents GB (sarin) at Rocky Mountain Arsenal, Colorado, and VX in Newport, Indiana.

During the 1960s, the U.S. Army destroys chemical weapons using sea disposal, open-pit burning and land burial. In 1969, the National Academy of Sciences recommends sea disposal of chemical weapons be avoided; in November, President Richard Nixon halts U.S. production of chemical weapons.

1971

The United States completes transferring chemical munitions from Japan to Johnston Island, located about 800 miles from Hawaii, in September.

1972

Stored chemical weapons

The U.S. Army forms the U.S. Army Materiel Command (AMC) Program Manager for Demilitarization of Chemical Materiel, headquartered at Picatinny Arsenal, New Jersey.

As part of Project Eagle, U.S. Army incinerates six million pounds of mustard agent and neutralizes eight million pounds of nerve agent GB at Rocky Mountain Arsenal, Colorado, through 1976.

1973

Program Manager for Demilitarization of Chemical Materiel relocates to Edgewood Arsenal, Maryland (now Aberdeen Proving Ground-South).

1975

Organizational name changed to Department of the Army, Project Manager for Chemical Demilitarization and Installation Restoration.

1978

Organizational name changed to U.S. Army Toxic and Hazardous Materials Agency (USATHAMA).

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1979

Pilot incineration facility in Utah

U.S. Army constructs and begins operating the Chemical Agent Munitions Disposal System (CAMDS), a pilot incineration facility at Deseret Chemical Depot (DCD), Utah (now Tooele Army Depot-South). CAMDS tests disposal equipment and processes, and safely destroys more than 91 tons of chemical agent through 1990.

1982

U.S. Army starts construction of the Integrated Binary Production Facility at Pine Bluff Arsenal (PBA), Arkansas. Binary chemical weapons were designed to mix two non-lethal chemicals

Pine Bluff Integrated Binary Production Facility

in flight to a target to form nerve agent. The binary weapons program led to successful chemical weapon elimination talks between the United States and the Soviet Union.

1985

Construction of the Army's prototype full-scale disposal facility, Johnston Atoll Chemical Agent Disposal System (JACADS), begins on Johnston Island.

1986

Public Law 99-145 requires safe destruction of the U.S. unitary chemical weapons stockpile, and requires disposal facilities to be cleaned, dismantled and disposed of according to applicable laws and regulations. The stockpile is stored at Johnston Island, and at eight military installations within the continental United States — Aberdeen Proving Ground (APG), Maryland; Pine Bluff Arsenal (PBA), Arkansas; Deseret Chemical Depot (DCD), Utah; Umatilla Chemical Depot (UMCD), Oregon; Newport Chemical Depot (NECD), Indiana; Anniston Army Depot (ANAD), Alabama; Blue Grass Army Depot (BGAD), Kentucky; and Pueblo Chemical Depot (PCD), Colorado.

USATHAMA's chemical weapons management functions become the Program Manager for Chemical Munitions (Demilitarization and Binary); other functions become the U.S. Army Environmental Center.

1987

Construction of JACADS completed on Johnston Island.

1988

U.S. Army and the Federal Emergency Management Agency establish the Chemical Stockpile Emergency Preparedness Program (CSEPP) in response to Public Law 99-145, which requires

CSEPP training exercise

added public protection for communities around the chemical stockpiles.

U.S. Army destroys the incapacitating agent BZ at PBA.

1989

Organizational name changed to Program Executive Officer-Program Manager for Chemical Demilitarization.

Construction begins in Utah on Tooele Chemical Agent Disposal Facility (TOCDF) at DCD.

United States and Soviet Union sign a Memorandum of Understanding (MOU) on chemical weapons, calling for cooperation and information exchange between the two countries concerning chemical weapons capabilities. The two countries then sign an agreement to destroy much of their stockpiles, spurring international talks culminating in the international treaty known as the Chemical Weapons Convention (CWC).

1990

JACADS begins destruction of the stockpile on Johnston Island, representing 6% of the original U.S. chemical stockpile.

Johnston Atoll Chemical Agent Disposal System begins destruction in 1990.

Chemical weapons from West Germany and a small number of recovered World War II-era chemical weapons from the Solomon Islands are shipped to Johnston Island.

Organizational name changed to Program Manager for Chemical Demilitarization (PMCD).

United States halts all binary weapons programs in accordance with the American-Soviet agreement.

1991

Congress expands its chemical weapons destruction directive to include disposal of non-stockpile materiel — items that are not part of the unitary chemical weapons stockpile.

1992

U.S. Army Chemical Materiel Destruction Agency (CMDA) established to consolidate responsibility for destruction of chemical materials into one office.

Public Law 102-484 establishes Citizens' Advisory Commissions at each continental U.S. chemical stockpile location. Each state governor appoints seven members, with two more members from state government agencies, responsible for chemical disposal program oversight.

Citizens' Advisory Commission

In compliance with Public Law 102-484, U.S. Army creates the Non-Stockpile Chemical Materiel Project (NSCMP) to develop systems to safely assess, treat and destroy five categories of chemical warfare materiel (CWM) that was not part of the declared stockpile: binary chemical warfare

materiel, former chemical weapons production facilities, miscellaneous chemical warfare materiel, buried chemical warfare materiel and recovered chemical warfare materiel (RCWM).

Recovered 4.2-inch mortar

1994

CMDA renamed U.S. Army Chemical Demilitarization and Remediation Activity (CDRA) and placed under the U.S. Army Chemical and Biological Defense Command (CBDCOM).

U.S. Army establishes the Alternative Technologies and Approaches Project to investigate alternatives to incineration technology for the safe disposal of bulk chemical agent stockpiles at APG and NECD.

1995

CDRA is separated from CBDCOM and renamed Program Manager for Chemical Demilitarization (PMCD).

CSEPP is restructured to streamline procedures and enhance operational responsiveness.

1996

TOCDF begins destroying the nerve and blister agents stored at DCD, representing 44% of the original U.S. chemical stockpile.

Safe storage and maintenance of the U.S. stockpile continues.

1997

The United States ratifies the CWC, agreeing to dispose of its unitary chemical weapons stockpile, binary chemical weapons, RCWM and former chemical weapons production facilities.

Public Law 104-208 funds a new, separately managed pilot program to identify and demonstrate alternatives to incineration technology for the disposal of assembled chemical weapons. Program Manager Assembled Chemical Weapons Assessment is created to provide alternative disposal technology for the stockpiles in Kentucky and Colorado.

Construction begins in Alabama for the Anniston Chemical Agent Disposal Facility (ANCDF) at ANAD.

Construction begins in Oregon for the Umatilla Chemical Agent Disposal Facility (UMCDF) at UMCD.

1999

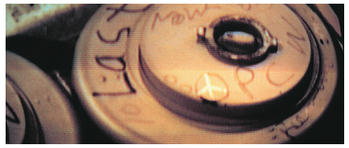
Construction begins in Maryland for the Aberdeen Chemical Agent Disposal Facility (ABCDF) at APG.

Construction begins in Arkansas for the Pine Bluff Chemical Agent Disposal Facility (PBCDF) at PBA.

NSCMP Core Group forms to gain public input on the assessment and treatment of RCWM.

United States meets CWC requirement when NSCMP completes destruction of two categories of binary weapons components known as “excess other components” and “parity other components.”

2000



Last mine destroyed at JACADS

JACADS completes destruction of its chemical weapons stockpile, destroying more than 412,000 chemical weapons, 6% of the original U.S. chemical stockpile, making it the first U.S. chemical stockpile destruction facility to complete its mission.

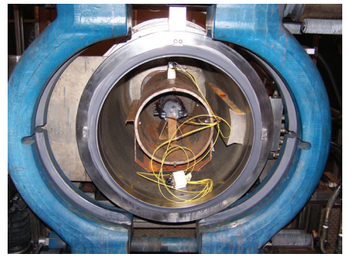
Construction begins on the Newport Chemical Agent Disposal Facility (NECDF) at NECD.

2001

NSCMP deploys the transportable Rapid Response System to treat approximately 700 Chemical Agent Identification Set (CAIS) items stored at DCD.

U.S. Army begins studies to accelerate disposal operations in response to the terrorist attacks of September 11, 2001.

NSCMP deploys Explosive Destruction System (EDS) for the first time to treat 10 sarin-filled bomblets recovered at Rocky Mountain Arsenal, Colorado. The EDS is a transportable system designed to provide safe and environmentally responsible on-site treatment of recovered chemical warfare materiel.



EDS treating round

United States meets the CWC treaty requirement to destroy 20% of the U.S. chemical weapons stockpile.

2002

TOCDF completes destruction of all GB nerve agent stored at DCD.

ANCDF completes disposal facility testing.

U.S. Army announces plans to accelerate destruction of chemical agent stockpiles at APG and NECD through redesign and construction of facilities.

Public Law 107-248 directs management of chemical demilitarization activities in Colorado and Kentucky to the Program Manager Assembled Chemical Weapons Alternatives.

NSCMP deploys EDS to formerly used defense site at Camp Sibert, Alabama, and disposes of one armed and fuzed phosgene-filled 4.2-inch mortar.

2003

PMCD merges with the stockpile storage mission in the U.S. Army Soldier and Biological Chemical Command to form the U.S. Army Chemical Materials Agency (CMA) to store, assess and dispose of chemical materials.

CMA is tasked to work with state and local emergency response agencies for emergency preparedness activities in communities near stockpile sites for CSEPP.

ANCDF begins disposing of chemical weapons stored at ANAD, representing 7% of the original U.S. chemical stockpile.

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ABCDF begins disposing of mustard agent stored in large steel bulk containers at APG, representing 5% of the original U.S. chemical stockpile.

NSCMP deploys Single CAIS Access and Neutralization System (SCANS) for the first time to treat CAIS item at Fort McClellan, Alabama.

NSCMP completes RRS operations at Fort Richardson, Alaska, treating seven CAIS items and decontaminating 14 containers.

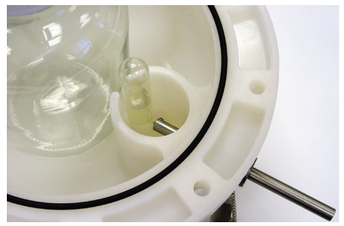
NSCMP begins cleaning obsolete steel bulk containers at the Pine Bluff Ton Container Decontamination Facility (PBTCDF) at PBA.

World War I-era chemical munitions are recovered during the U.S. Army Corps of Engineers investigation and cleanup of the Spring Valley neighborhood in Washington, D.C.

United States meets the CWC treaty milestone to destroy 80% of its former chemical weapons production facilities as NSCMP continues destruction mission.

2004

NSCMP deploys SCANS to treat eight CAIS items at Holloman Air Force Base, New Mexico.



Single CAIS Access and Neutralization System (SCANS)

UMCDF begins disposing of chemical weapons stored at UMCD, representing 12% of the original U.S. chemical stockpile.

TOCDF reaches 50% destruction milestone for munitions.

ABCDF reaches 50% destruction milestones for bulk mustard agent.

NSCMP begins testing its Munitions Assessment and Processing System at APG.

NSCMP deploys EDS to destroy one mustard-filled projectile first at Dover Air Force Base (DAFB), Delaware, recovered from the ocean during commercial fishing operations.

2005

ABCDF completes destruction of all mustard agent in the APG stockpile, 5% of the original U.S. chemical stockpile.

Last ton container at ABCDF

TOCDF destroys its millionth chemical munition, the only facility that can accomplish this as only DCD stored more than a million chemical munitions.

NECDF begins disposal operations of nerve agent VX stored in large steel bulk containers, representing 4% of the original U.S. chemical stockpile.

Positioning a weapons transport container at PBCDF.

PBCDF begins stockpile disposal operations, representing 12% of the original U.S. chemical stockpile.

NSCMP opens the Binary Destruction Facility at PBA to destroy the nation's remaining inventory of binary precursor chemicals methylphosphonic difluoride, DF, and isopropyl aminoethylmethyl phosphonite, QL.

NSCMP deploys the EDS to destroy a second mustard-filled munition recovered from a sea disposal site, at Dover Air Force Base, Delaware.

2006

NSCMP deploys SCANS to treat 38 recovered CAIS bottles at Fort Benning, Georgia.

Treaty inspectors with the Organisation for the Prohibition of Chemical Weapons (OPCW) verify destruction of ABCDF's wastewater from mustard agent neutralization at DuPont Secure Environmental Treatment Plant in New Jersey, marking 100% destruction of the APG stockpile. Demolition of all ABCDF buildings not held for other uses is completed.

Treaty inspectors verify the former chemical warfare production facility at NECD has been destroyed following completion of NSCMP mission.

Building 143 at NECD, the site of the final step in the VX production process, was demolished in March 2006.

U.S. Army destroys 50% — more than 1.7 million — of the munitions in the original U.S. chemical stockpile.

TOCDF begins destroying mustard agent, the last agent stockpiled at DCD.

NSCMP finishes chemically neutralizing the entire United States supply of precursor chemical agents DF and QL.

NSCMP Pine Bluff Explosive Destruction System (PBEDS) begins operations to treat more than 1,200 recovered munitions at PBA.

NSCMP deploys EDS to destroy six projectiles in February and seven in August at Dover Air Force Base, Delaware.

United States meets the CWC treaty requirement to destroy 100% of its former chemical weapons production facilities as NSCMP completes its mission.

2007

NECD begins safe shipment of NECDF caustic wastewater to Veolia Environmental Services in Port Arthur, Texas, for treatment and disposal.

NSCMP deploys SCANS to destroy 24 CAIS ampoules at Fort Bragg, North Carolina.

ABCDF at Aberdeen Proving Ground, Maryland, completes Resource Conservation and Recovery Act (RCRA) closure, becoming the first U.S. chemical demilitarization site to achieve permitted closure.

CMA commemorates 500,000 miles safely driven to transport wastewater from Newport Chemical Depot, Indiana, to the Port Arthur, Texas, Veolia waste treatment plant.

United States achieves CWC 45% destruction milestone for U.S. chemical agent stockpile, and by the end of the year

reaches 50% chemical agent stockpile destruction.

United States meets 100% CWC destruction deadline as NSCMP completes destruction of more than 57,000 containers of binary chemical warfare materiel.

2008

Last M55 rocket in CMA disposal mission destroyed, reducing cumulative storage risk to public by 94%.

PBCDF destroys the final VX-filled M23 landmine, the last nerve agent-filled munition in the PBA stockpile.

NECDF completes its bulk nerve agent VX disposal mission and shipment of the resulting wastewater for final treatment and disposal, destruction of 4% of the original U.S. chemical stockpile.

The last ton container of the Newport Chemical Depot stockpile is ready for delivery to the NECDF.

UMCDF destroys the final VX-filled M23 landmine, the last nerve agent-filled munition in the UMCD stockpile.

CMA completes its VX disposal mission when ANCDF destroys its final VX-filled landmine.

A munitions handler guides the last M23 VX landmine in the Anniston Army Depot stockpile as it heads down the conveyor.

NSCMP deploys EDS to destroy one recovered munition at Dover Air Force Base, Delaware.

2009

NSCMP destroys 71 RCWM items at Schofield Barracks, Hawaii, using the Transportable Detonation Chamber.

NSCMP destroys 71 recovered chemical items at Schofield Barracks, Hawaii, using the Transportable Detonation Chamber.

NSCMP deploys SCANS to Redstone Arsenal, Alabama, to safely treat more than 20 CAIS K941 bottles filled with mustard agent.

Veolia Environmental Services in Port Arthur, Texas, celebrates destruction of more than one million gallons of caustic wastewater from NECDF.

U.S. Army reaches 60% destruction, more than 1.9 million munitions in the original U.S. chemical stockpile.

CAMDS celebrates 30 years as the primary research, test and development facility for the U.S. chemical weapons disposal program.

CMA celebrates the safe destruction of its two millionth munition since entry into force of the CWC in October.

NSCMP deploys EDS to destroy one munition at Dover Air Force Base, Delaware.

2010

Newport Chemical Depot receives a letter from the Indiana Department of Environmental Management confirming closure completion as required by RCRA.

(From left to right) NECD Commander Lt. Col. William D. Hibner, Sergeant Major Ricardo Soto-Acevedo and CMA Director Conrad Whyne are shown casing the colors at the Newport Deactivation ceremony.

NSCMP completes its mission at PBEDS, destroying more than 1,200 munitions, marking destruction of all recovered non-stockpile materiel declared prior to the U.S. entry into force of the CWC.

Workers safely destroy the last explosively configured mustard agent-filled munition at TOCDF.

NSCMP deploys the EDS to Redstone Arsenal, Alabama, to destroy munitions recovered through remediation activities.

NSCMP deploys EDS to destroy 23 items in Spring Valley, Washington, D.C.

NSCMP deploys its Portable Isotopic Neutron Spectroscopy System and the Digital Radiography and Computed Tomography System to assess 144 munitions recovered in Columboola, Australia.

PBCDF safely completes disposal of the last mustard agent-filled ton container, marking the successful completion of chemical weapons disposal operations at Pine Bluff Arsenal, destruction of 12% of the original U.S. chemical stockpile.

A ceremony was held June 15 at PBA, Arkansas, to celebrate the completion of the PBEDS mission.

NSCMP completes a successful EDS mission at Camp Sibert, Alabama.

CMA achieves destruction of 80% of the United States chemical stockpile since entry into force.

2011

TOCDF reaches a significant milestone, 11,111,111 consecutive man hours without a lost workday injury, on January 11, 2011 – 1/11/11. The milestone marked more than five years without a lost workday due to an injury on the job.

ANCDF is inducted into the State of Alabama Engineering Hall of Fame.

CAMDS operators perform its final Demilitarization Protective Ensemble entry.

CMA commemorates the end of operations at PBCDF with a ceremony.

CMA achieves destruction of 85% of the U.S. chemical agent stockpile since entry into force of the CWC.

DCD completes the last of more than 20,000 safe container deliveries to TOCDF, and the facility destroys the last of 6,399 mustard agent-filled bulk ton containers.

Disposal operations for the 108 bulk containers filled with mustard agent conclude at ANCDF.

Pine Bluff Ton Container Decontamination Facility (PBTCDF) completion of 4,307 ton containers results in 6.5 million pounds of steel being recycled rather than landfilled as hazardous waste.

Ton containers (TC) await decontamination at PBTCDF at Pine Bluff Arsenal,Arkansas. Operators used magnetic induction heating to decontaminate 4,307 TCs, making them suitable for recycling.

National Safety Council awards TOCDF the 2011 Industry Leader Award, recognizing outstanding safety performance.

ANCDF completes disposal of the chemical weapons stockpile at ANAD, destruction of 7% of the original U.S. chemical stockpile.

UMCDF completes disposal of the chemical weapons stockpile at UMCD, destruction of 12% of the original U.S. chemical stockpile.

NSCMP conducts EDS operations at APG.

2012

NSCMP deploys EDS to destroy three mustard-filled projectiles at Dover Air Force Base, Delaware.

TOCDF completes disposal of the chemical weapons stockpile at DCD, destruction of 44% of the original U.S. chemical stockpile.

CMA completes its Chemical Stockpile Elimination mission, destroying 89.75% (27,000 U.S. tons) of the nation's chemical weapons stockpile stored at seven sites.

Dover Air Force Base

CMA continues its storage mission at BGCA and PCD.

U.S. Army Chemical Materials Agency reorganizes to become the U.S. Army Chemical Materials Activity, retaining the designation of CMA.

NSCMP reorganized as the Recovered Chemical Materiel Directorate (RCMD) under CMA.

2013

RCMD deploys EDS to destroy 11 recovered munitions at Pine Bluff Arsenal, Arkansas.

Loading munitions into EDS at Pine Bluff.

2014

RCMD deploys EDS to destroy two mustard-filled projectiles at Dover Air Force Base, Delaware.

2015

RCMD deploys EDS to destroy 10 recovered munitions at Schofield Barracks, Hawaii.

Pueblo Chemical Agent-Destruction Pilot Plant Explosive Destruction System (PCAPP EDS) starts operations at Pueblo Chemical Depot, Colorado.

Three recovered munitions are transported to APG from Dover Air Force Base, Delaware, for assessment as part of a treatability study.

2016

RCMD completes the first phase of PCAPP EDS destruction mission, destroying 536 munitions that were unsuitable for processing in the PCAPP main plant.

2017

PCD celebrates its 75th anniversary, one of two remaining U.S. Army installations responsible for the safe and secure storage of the nation's chemical weapons stockpile.

RCMD deploys EDS to treat a World War II-era mustard agent-filled munition at Savanna Army Depot Activity, Illinois.

2018

OPCW inspectors conduct routine stockpile verification at Blue Grass Chemical Activity, accounting for every chemical weapon in storage to verify U.S. compliance with the CWC.

PCAPP EDS completes its second campaign Dec. 5, eliminating 391 problematic 105mm and 155mm projectiles, 4.2-inch mortars and M70 bombs.

RCMD returns to Pine Bluff Arsenal, Arkansas, for a second mission at the Pine Bluff Explosive Destruction System (PBEDS) to destroy RCWM.

2019

RCMD completes destruction of 7,101 Chemical Agent Identification Set (CAIS) bottles at PBEDS in the first use of the EDS CAIS bottle holder. This innovation reduces the mission timeline from years to weeks and results in significant cost and waste savings over traditional technology.

RCMD developed the CAIS bottle holder for the EDS, which can destroy up to 188 bottles in a single operation.

2020

Blue Grass Chemical Activity (BGCA) delivers the final GB-filled projectiles to the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP), the last GB munitions in the chemical weapons stockpile. BGCAPP completed destruction projectiles May 11, marking destruction of an entire type of chemical weapon.

BGCA toxic materials handlers guide the last of the GB projectiles into an enhanced on-site container for delivery to the Blue Grass Chemical Agent-Destruction Pilot Plant for destruction.

RCMD deploys EDS to destroy a mustard-filled munition at Dover Air Force Base, Delaware.

2021

RCMD deploys EDS to destroy two mustard-filled munitions at Dover Air Force Base, Delaware.

2022

CMA stands up the Chemical Ammunition Surveillance Office/Redstone Chemical Activity (CASO/RCA) at Redstone Arsenal in Huntsville, Alabama, in support of the Army's investigative and remediation activities at Redstone. Due to its historical position as a center for chemical weapons production, storage, evaluation, and demilitarization, the Arsenal has the potential for a large amount of RCWM. CASO/RCA's four primary areas of responsibility are storage, commodity management, security, and technical expertise.

2023

PCAPP destroys the last 4.2-inch shell in Colorado on June 22, and BGCAPP destroys the last stockpiled chemical

weapon in Kentucky on July 7, completing CMA storage operations and marking the destruction of the entire U.S. chemical weapons stockpile. BGCA supports delivery of agent-contaminated secondary waste – including drained, containerized rocket warheads – to BGCAPP for destruction.

2024

The Chemical Stockpile Emergency Preparedness Program in Colorado completes closeout in February.

RCMD destroys two mustard-filled, one CNS-filled and one CN-filled munitions at Dover Air Force Base, Delaware, in July.

Pueblo Chemical Depot is deactivated on September 12, 2024. CMA-West created to continue support to the demolition of Pueblo Chemical Agent-Destruction Pilot Plant.

2025

Redstone Chemical Activity celebrates its official stand-up at Redstone Arsenal, Alabama, in January.

In July, RCMD destroys two HD-filled munitions and four HD residue-filled munitions at Redstone Chemical Activity, Redstone Arsenal.