

## RECOVERED CHEMICAL MATERIEL DIRECTORATE OVERVIEW

The U.S. Army Chemical Materials Activity Recovered Chemical Materiel Directorate (CMA RCMD) provides centralized management and direction to the Department of Defense for the assessment and disposal of recovered chemical warfare materiel (RCWM) in a safe and environmentally compliant manner.

CMA RCMD leads the nation in the development and utilization of advanced technology to destroy RCWM. In 1997, the United States entered into force of the Chemical Weapons Convention, an international treaty requiring the destruction of chemical weapons.

In support of U.S. treaty obligations, CMA RCMD maintains the technology and personnel expertise to continue to destroy chemical warfare materiel around the country.

### CMA RCMD personnel and equipment provide:

Tools, tactics and technologies to strengthen the Soldier's knowledge base in the assessment and treatment of chemical warfare materiel;

Proven, transportable assessment technologies to quickly respond to planned and unplanned recoveries on site, most often in response to items unearthed during range-clearing operations and from relic burial sites;

On-site destruction of RCWM using proven technologies that safely and effectively neutralize chemical warfare materiel while protecting operators, the community and the environment.

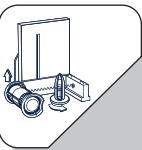


*Pictured from top, the Mobile Munition Assessment System, the Portable Isotopic Neutron Spectroscopy System and the Explosive Destruction System – essential tools and technologies in the response to RCWM.*

## RCWM ASSESSMENT AND TREATMENT

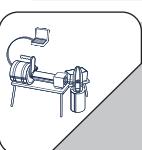
When an item of chemical and explosive concern is recovered, CMA RCMD deploys its proven assessment technologies to the site to determine whether a munition is explosively configured or contains chemical agent. When items are identified as containing chemical agent, CMA RCMD treatment technologies safely and effectively destroy munitions of all shapes and sizes, providing complete containment of the neutralization process while protecting operators, the community and the environment. Not all assessments result in a finding of recovered chemical warfare materiel. If the item does not contain chemical warfare materiel, it is disposed of locally.

### ASSESSMENT TECHNOLOGIES



#### Digital Radiography and Computed Tomography System (DRCT)

DRCT uses X-ray technology to vertically scan recovered munitions on a rotating platform, reproducing a high-quality digital image of their interiors to determine whether a liquid fill is present, as well as the explosive potential of the item.



#### Portable Isotopic Neutron Spectroscopy System (PINS)

PINS accurately detects the presence of chemical elements by using neutron particles to produce a unique energy spectrum emitted by chemicals inside the munition.



#### Raman Spectrometer

Raman Spectrometer identifies the contents of glass bottles from Chemical Agent Identification Sets, used for training soldiers decades ago. This technology uses a fiber optic probe and laser.

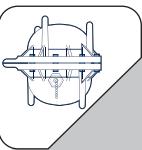


### TREATMENT TECHNOLOGIES



#### Explosive Destruction System (EDS)

EDS is a total containment system that uses cutting charges to explosively access chemical munitions, eliminating their explosive capacity before the chemical agent is neutralized. The system's main component—a sealed, stainless-steel vessel—contains all the blast, vapor and fragments from the process. Treatment is confirmed by sampling residual liquid and air from the vessel prior to reopening the EDS. CMA RCMD maintains five transportable EDS units to support both planned and quick-response operations.



#### Single CAIS Access and Neutralization System (SCANS)

SCANS treats small quantities of chemical agent found in CAIS items.

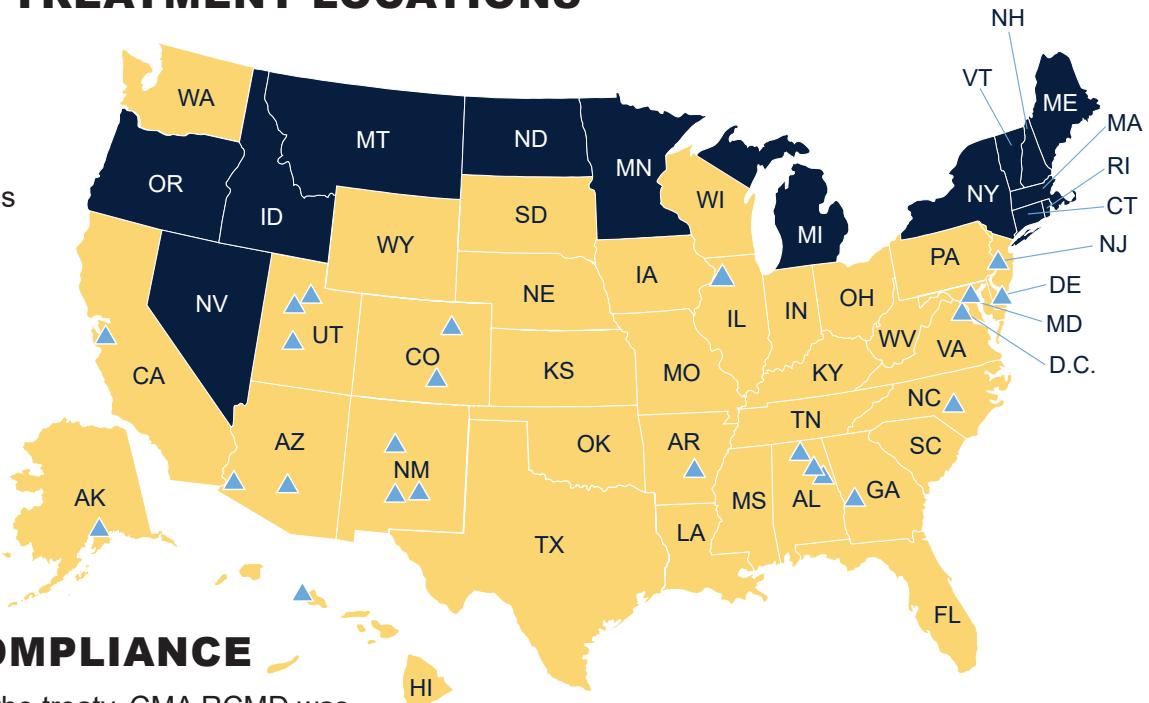


# U.S. ARMY CHEMICAL MATERIALS ACTIVITY

# FACT SHEET

# CMA RCMD TREATMENT LOCATIONS

CMA RCMD leads the Nation in the development and use of advanced technology to assess and treat RCWM. In 1997, the United States entered into force of the Chemical Weapons Convention, an international treaty requiring the destruction of chemical weapons.



## **TREATY COMPLIANCE**

In compliance with the treaty, CMA RCMD was tasked with destroying all non-stockpile chemical weapons and former chemical warfare production facilities. CMA RCMD safely completed all major treaty destruction missions ahead of schedule. CMA RCMD continues to assess and destroy RCWM as it is recovered, reporting all declared items to the Organisation for the Prohibition of Chemical Weapons, the international organization that verifies treaty compliance.

# CMA RCMD BY THE NUMBERS

PERFORMED MORE THAN <b>3,500</b>	DESTROYED MORE THAN <b>13,000</b>	DESTROYED MORE THAN <b>258,000</b>	DESTROYED MORE THAN <b>57,000</b>	DECONTAMINATED AND DESTROYED OR RECYCLED <b>7,824</b>	DESTROYED <b>10</b>	DESTROYED MORE THAN <b>3,800</b>
ASSESSMENTS IN THE UNITED STATES	CAIS ITEMS USING EDS AND SCANS	155MM BINARY PROJECTILE BODIES AT HAWTHORNE ARMY DEPOT, NV	CANISTERS / DRUMS OF BINARY CHEMICALS IN PINE BLUFF, AR	TON CONTAINERS IN MD, AR AND UT	CHEMICAL WEAPONS PRODUCTION FACILITIES IN FIVE STATES AL, AR, CO, MD, IN	ITEMS USING EDS AS OF APRIL 2023



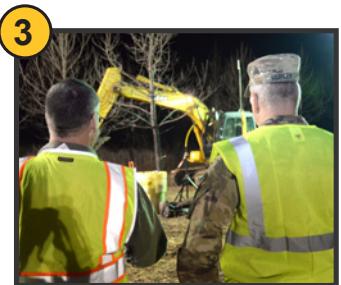
**RCWM PROGRAM**
**U.S. ARMY CORPS OF ENGINEERS**

**History**

During the early part of the 20th century, chemical agents and munitions were tested and later disposed of on active military installations. Until the 1970s, burial was an internationally accepted means of disposal.


**Discovery**

The U.S. Army Corps of Engineers locates chemical warfare materiel based on historical records and investigations by government authorities, land inventories, surveys or incidental discoveries.


**Investigation**

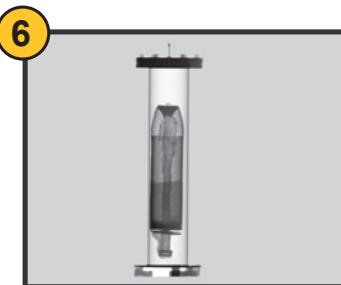
The objective of the investigation phase is to determine the nature and extent of contamination and evaluate the potential risk to human health and environment.


**Remediation**

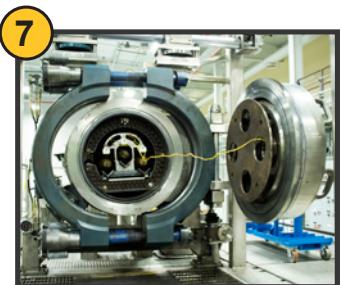
During the remediation phase, the selected remedial action is implemented, e.g., source removal, land-use controls, long-term management.

**RECOVERED CHEMICAL MATERIEL DIRECTORATE**


**Packaging and Storage**  
 Operators package a suspect item in a Multiple Round Container for safe transport to the nearest military installation. Items are stored in an interim holding facility or igloo, if available, pending assessment and destruction.


**Assessment**

Recovered items with unknown fills are assessed by CMA RCMD using Digital Radiography and Computed Tomography, Portable Isotopic Neutron Spectroscopy or Raman Spectrometry aboard the Mobile Munitions Assessment System.


**Destruction**

Systems such as the Explosive Destruction System destroy recovered chemical munitions; Single CAIS Access and Neutralization System destroys Chemical Agent Identification Set bottles.


**Waste Disposal and Site Closure**

Waste from destruction operations is shipped to a permitted treatment, storage and disposal facility. The site is then closed in accordance with all local, state and federal regulations, permit requirements and international treaty standards.