

## **RECOVERED CHEMICAL MATERIEL DIRECTORATE AT REDSTONE ARSENAL (RSA)**

The U.S. Army is conducting state-mandated environmental remediation of chemical weapons burial sites at Redstone Arsenal, Huntsville, Alabama. The U.S. Army Chemical Materials Activity Recovered Chemical Materiel Directorate (CMA RCMD) is a partner in the environmental remediation effort, providing centralized management and direction to the Department of Defense for the safe, environmentally compliant assessment and destruction of recovered chemical warfare materiel (RCWM).

### **History of chemical activity at RSA**

Due to its historical position as a center for chemical weapons production, storage, evaluation and demilitarization, there is the potential for a large amount of RCWM at RSA.

During the World War II era, three independent activities existed within the current boundaries of RSA: Huntsville Arsenal manufactured chemicals and filled munitions; the Redstone Ordnance Plant assembled and packaged Chemical Warfare Service ordnance; and the Gulf Chemical Warfare Depot stored, shipped, and received bulk chemicals, munitions, and CWS-related materials.

Following World War II, the United States brought up to one-million chemical munition items to RSA for evaluation, testing and demilitarization. These munitions from Germany and Great Britain

contained agents not produced in the United States, including British mustard, the German nerve agent Tabun, German mustard, thickened German mustard and nitrogen mustard.

In 1994, RSA was added to the National Priorities List for Uncontrolled Hazardous Waste Sites, requiring investigation and remediation, as needed. Since then, numerous investigations, studies and removal actions have occurred.

In a report dated April 2012, CMA RCMD documented an extensive review of historical records of chemical-related activities at RSA from the late 1930s through early 1960s. The review found that hundreds of thousands of lethal and non-lethal chemical munitions and containers could be encountered at RSA (*see map page 3*).



*The U.S. Army Chemical Materials Activity Recovered Chemical Materiel Directorate is an Army partner in the effort to remediate chemical weapons burial sites at Redstone Arsenal, Huntsville, Alabama. Redstone Arsenal was a center for chemical weapons production, storage, evaluation, and demilitarization during and after the World War II era.*

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## CMA RCMD AT RSA (CONTINUED)



### CMA and CWC Treaty Compliance

The CMA director is the Army Implementing Agent for executing the Chemical Weapons Convention Treaty. In accordance with the treaty, CMA carries out Army Regulation 525-92, which states that CMA's Center for Treaty Implementation and Compliance manages implementation and compliance activities.

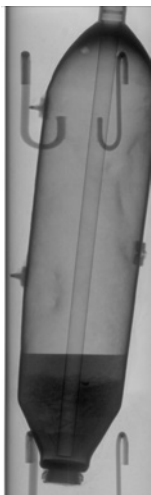
### Scope of Mission

During the mid-20th century, burial was an internationally accepted practice for chemical weapons disposal. The 1997 Chemical Weapons Convention Treaty prohibits the production, storage, and use of chemical weapons. The treaty also requires Nations with chemical weapons or chemical weapons production facilities to destroy them in an environmentally compliant manner. It forbids disposal by open-pit burning, land burial or dumping in any water body.

In September 2010, Alabama Department of Environmental Management issued a Resource Conservation and Recovery Act hazardous waste facility permit to RSA. The permit governs the storage, treatment, and disposal of hazardous waste, and corrective measures for multiple solid waste management units and areas of concern. The RCRA permit identified 17 sites requiring completion of interim measure (IM) response actions.

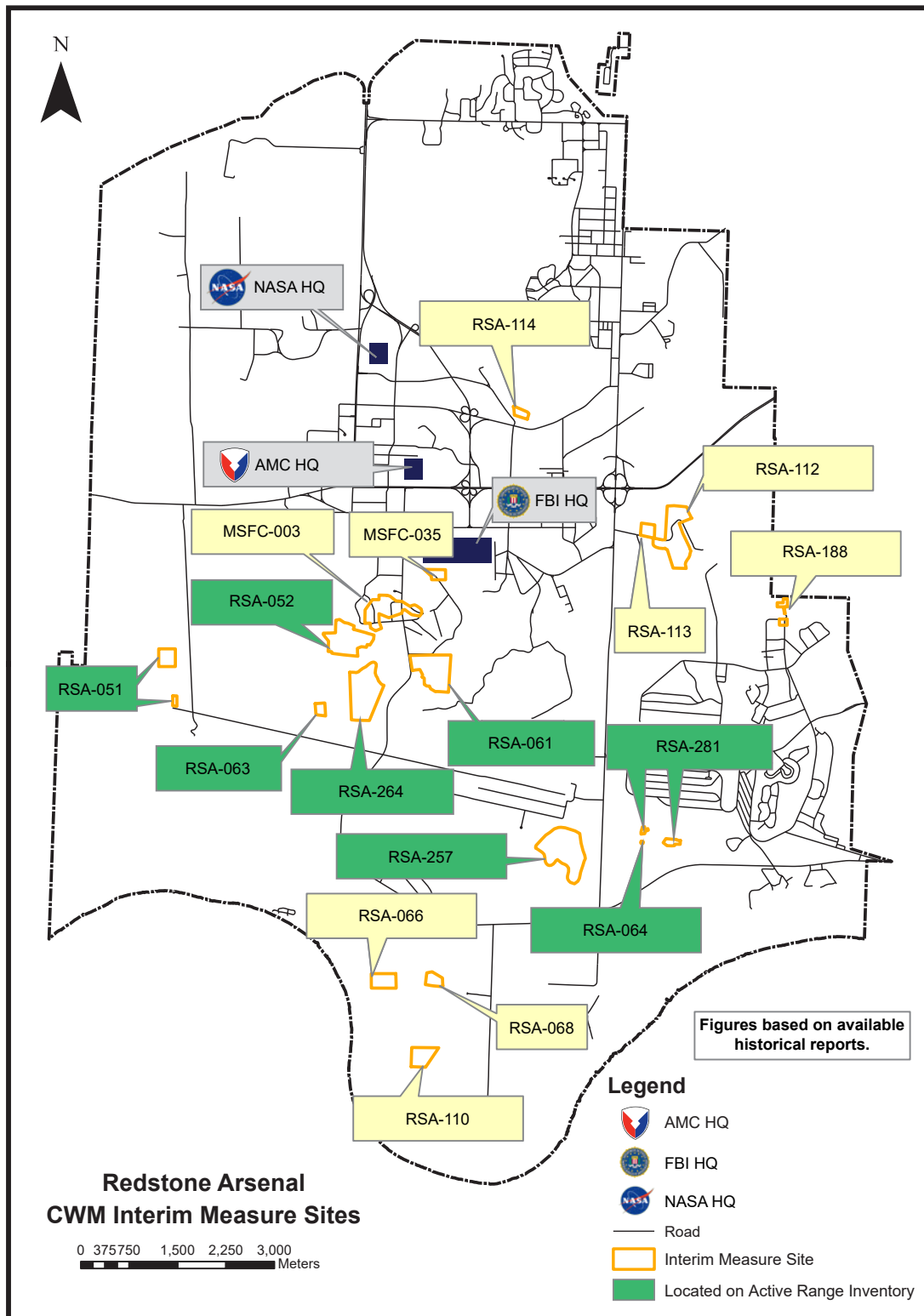
The IM program consists of two phases: intrusive field investigation and source removal as warranted. The goal of the first phase is to define the nature and extent of the problem at each of the IM sites to the degree necessary to design and implement response actions for source removal in the second phase.

CMA RCMD is supporting the Army in the 17-site IM effort at RSA which, according to the historical records, has approximately six miles of trenches where items were buried. The CMA RCMD mission as it relates to the ongoing RSA IM program is comprised of three elements: Assessment of munitions and certain materials of interest; destruction of RCWM from the IM program; and support to the CMA Center for Treaty Implementation and Compliance regarding the Chemical Weapons Convention.



*When Army investigation activities recover items of explosive or chemical interest at RSA, CMA RCMD deploys its non-intrusive assessment technologies to identify their contents and determine whether they are explosively configured without opening the items, protecting the workforce and the environment.*

# FACT SHEET



*CMA RCMD is supporting the Army effort to remediate 17 interim measure source removal sites at Redstone Arsenal, including some located on RSA's Active Range Inventory. According to historical records, RSA has approximately six miles of burial trenches.*





## CMA RCMD AT RSA (CONTINUED)

### Current Activity/Path Forward

#### Assessment and Storage

When response action investigation activities recover items of chemical interest at RSA, CMA RCMD deploys its non-intrusive assessment technologies to identify their contents and determine whether they are explosively configured without opening the items.

The CMA Stockpile Management Office stood up the Chemical Ammunition Surveillance Office/Redstone Chemical Activity to support the work at RSA. CASO/RCA was established at the request of the RSA Garrison in support of the investigative and remediation activities, providing storage, material management, security and technical expertise.

When items are assessed as chemical-filled, CMA RCMD's 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 RCWM, it is disposed of by the RSA Garrison.

#### RCWM Neutralization

CMA RCMD developed and owns the Explosive Destruction System, which is the centerpiece of its CWM destruction technologies.

The transportable EDS uses neutralization technology to provide environmentally compliant on-site treatment of RCWM, while the stainless-steel EDS vessel prevents the release of vapor, blast, and fragments from the process.

This total containment system uses cutting charges to explosively access chemical munitions, eliminating their explosive capacity before the chemical agent is neutralized. The success of the first EDS, known as EDS Phase 1, led to the development of a family of EDS units with mission-specific capabilities.

*The EDS P3 is designed to treat larger chemical-filled munitions. Its stainless-steel vessel has nearly twice the internal volume of the EDS P2 and has both front and rear doors, allowing operators to load, unload and clean the vessel from either end.*

*While treatment of chemical-filled bombs recovered at RSA is the primary goal of the EDS P3, the vessel will also double the throughput when treating the large number of munitions that could be recovered at RSA.*

