



U.S. ARMY

PINE BLUFF EXPLOSIVE DESTRUCTION SYSTEM

The Explosive Destruction System (EDS) provides on-site treatment of recovered chemical warfare materiel (RCWM) in a safe, environmentally compliant manner. The U.S. Army Chemical Materials Activity Recovered Chemical Materiel Directorate (CMA RCMD) has deployed the EDS for two missions at Pine Bluff Arsenal (PBA), Arkansas. The operations site is known as Pine Bluff Explosive Destruction System, or PBEDS.

How does the EDS work?

The EDS uses cutting charges to access chemical munitions, eliminating their explosive capacity before neutralizing the chemical agent. The system's main component, a sealed, stainless-steel vessel, contains all the blast, vapor and fragments from the process, keeping the workforce, community and environment safe.



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PBEDS Mission 2006 – 2010

Historically, burial was an accepted disposal method for chemical warfare materiel (CWM). As the U.S. Army Corps of Engineers (USACE) carries out environmental remediation efforts at military installations, workers are recovering CWM from these burial sites.

June 2006 marked the beginning of the first PBEDS campaign, during which the facility destroyed approximately 1,200 recovered chemical munitions, the largest inventory to date. The inventory included German Traktor Rockets, captured during World War II and sent to PBA for analysis, and 4.2-inch mortars.

The completion of the mission in April 2010 was a milestone, marking the elimination of all non-stockpile materiel declared upon the United States' entry into force of the Chemical Weapons Convention, an international treaty mandating the destruction of CWM.



The U.S. Army periodically recovers buried chemical warfare materiel at military installations where chemical manufacture, storage and testing took place.

PBEDS Mission 2018 – Present

In December 2018, RCMD returned to PBEDS to destroy chemical warfare materiel recovered during ongoing USACE environmental remediation efforts at PBA. During this campaign, operators destroyed five mustard agent-filled German Traktor Rockets, a 4.2-inch mortar containing mustard agent and 7,101 Chemical Agent Identification Set (CAIS) K-941 bottles containing a small amount of undiluted mustard agent. These bottles were once used to train Soldiers in the safe identification, handling and destruction of chemical agents.

USACE continues to recover chemical munitions and K-941 bottles at PBA. RCMD will resume destruction operations at PBEDS periodically during these ongoing environmental remediation efforts.

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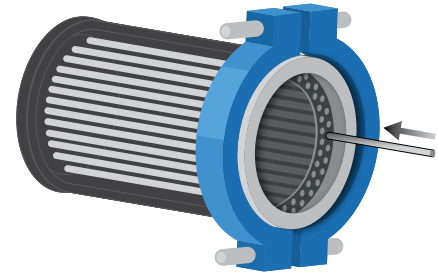
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RCMD INNOVATIONS AT PBEDS

The unique inventory of recovered munitions at PBA motivated RCMD's research and development team to initiate significant EDS enhancements.

In preparation for the first PBEDS campaign, RCMD developed the Advanced Fragment Suppression System (AFSS). The AFSS was designed to more efficiently protect the interior of the EDS vessel during munition destruction.

The original Fragment Suppression Shield (FSS), a solid steel piece, is replaced after each treatment. In contrast, the AFSS consists of steel rods, each weighing 17 pounds, held in a cradle. Individual damaged rods can be replaced at a much lower cost than FSS replacement, allowing the system to be reused indefinitely. The AFSS also reduced up to 80% of solid waste per treatment.



The Advanced Fragment Suppression System utilizes individual steel rods that can be replaced as needed, allowing the system to be reused indefinitely.

The second PBEDS campaign marked the first time the EDS was used for the destruction of a large quantity of CAIS K-941 bottles.



The second PBEDS campaign provided another opportunity for RCMD innovation, marking the first time the EDS was used for the destruction of a large quantity of CAIS K-941 bottles. Typically, these bottles are found in small quantities and destroyed one at a time, using the Single CAIS Access and Neutralization System (SCANS). Destruction of 7,101 K-941 bottles would have taken years using SCANS.

Months before the second PBEDS campaign began, RCMD's research and development team began testing the CAIS bottle holder for the EDS, which allowed for the neutralization of up to 178 K-941 bottles in a single operation. This innovation reduced the operations time for the second PBEDS campaign from years to weeks. Additionally, because SCANS is a single-use technology, the reusable CAIS bottle holder resulted in significant cost and waste savings.

USACE workers uncovered more than 7,000 CAIS K-941 bottles during ongoing environmental remediation at Pine Bluff Arsenal (1). These bottles, once used for training soldiers, contain a small amount of undiluted mustard agent (2).



K-941 bottles are typically recovered in small quantities and destroyed one at a time, using the SCANS (3). RCMD developed the CAIS bottle holder for the EDS (4), which can destroy up to 178 bottles in a single operation (5).

