Explosive Destruction System Overview

The Pueblo Chemical Agent-Destruction Pilot Plant, or PCAPP, has been built to safely and efficiently destroy a stockpile of chemical weapons stored at the U.S. Army Pueblo Chemical Depot. The systemization phase is under way, which encompasses the planning, technical work, training and testing activities required to ensure that once destruction operations start, they run safely and smoothly. The pilot plant will use neutralization followed by biotreatment as the technology to destroy the majority of the munitions, containing 2,611 tons of mustard agent.

A small number of weapons will pose a problem for the main plant's automated processing equipment. The Explosive Destruction System, or EDS, will augment the pilot plant to destroy these problematic chemical munitions.

What are Problematic Munitions?

The Explosive Destruction System will augment the Pueblo pilot plant.

Problematic munitions include those that have leaked in the past and are now overpacked, as well as rejects, whose deteriorated physical condition does not easily allow for automated processing. "Overpack" refers to chemical munitions that have leaked or were sampled in the past to determine the condition of the mustard agent. In both instances, operators placed these munitions, or overpacked them, in air-tight sealed canisters for continued safe storage. Approximately 550 overpacks are stored at the depot. In addition, "reject" chemical munitions having conditions that pose difficulties for automated processing, are expected during plant operations that will require elimination by an alternate method. In the Pueblo stockpile of more than 780,000 munitions, approximately 800 such rejects are anticipated. The EDS will safely process these problematic munitions.

How Does EDS Work?

EDS is housed inside an Environmental Enclosure with an air filtration system. The system's stainless steel vessel has 3.655 inch thick walls that not only contain all the blast, vapor and fragments from the process, but also reduce the noise levels such that they don't carry beyond the enclosure. During each process, experienced EDS operators attach cutting charges to each munition. Once the munitions, up to six at a time, are sealed inside the chamber, the charges are detonated, opening each munition so the agent can be neutralized, while also eliminating the explosive components in the munitions.

Operators confirm treatment is complete by sampling liquid and air from the vessel prior to reopening the sealed chamber. After processing, all metal waste is placed in drums and disposed of as hazardous waste. Liquid waste, such as neutralent and rinsewater, is packaged and disposed of as hazardous waste. All hazardous waste products will be disposed of at permitted Treatment, Storage and Disposal Facilities.

EDS has successfully destroyed nearly 2,000 items during testing and at missions at Aberdeen Proving Ground (APG), Maryland; Spring Valley, Washington, D.C.; Dover Air Force Base, Delaware; Former Camp Sibert, Alabama; Dugway Proving Ground, Utah; Pine Bluff Arsenal, Arkansas.; Rocky Mountain Arsenal, Colorado; and Redstone Arsenal, Alabama. EDS testing was conducted in the United Kingdom and at APG.

Pueblo Chemical Agent-Destruction Pilot Plant

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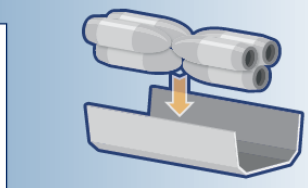
A Partnership for Safe Chemical Weapons Destruction

www.peoacwa.army.mil

How Does EDS Work?

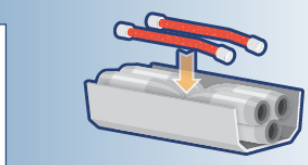
STEP 1

Operators bring the overpacked munitions into the environmental enclosure, unpack the munitions and place them in the munition holder, which can hold up to six munitions.



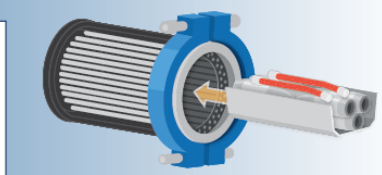
STEP 2

Operators attach linear shaped charges along the munition bodies.



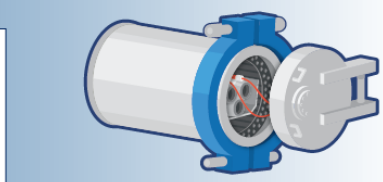
STEP 3

Operators slide the items into the EDS vessel where the Advanced Fragment Suppression System (AFSS) surrounds them, protecting the chamber of the EDS during operations. The AFSS efficiently allows operators to replace the individual damaged rods instead of the entire system.



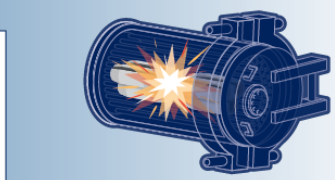
STEP 4

Operators attach electrical components, then close and seal the door and validate the seal.



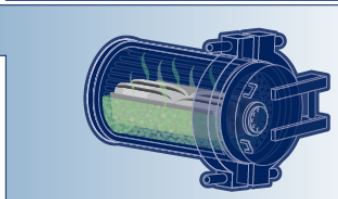
STEP 5

Operators remotely detonate the linear shaped charges to access the munition bodies and their chemical fill, while eliminating their explosive capacity.



STEP 6

Operators add neutralization chemicals and heat the vessel, if needed, using steam heating technology that injects live steam directly into the EDS, heating the vessel on the inside only.



STEP 7

Operators rotate the unit to mix the contents and neutralize the chemical fill. They confirm treatment by sampling residual liquid and air from the vessel prior to reopening the EDS. Finally, operators remove the contents and transport them to an approved facility for treatment as hazardous waste.