



# Static Detonation Chamber

The [Pueblo Chemical Agent-Destruction Pilot Plant](#) safely destroyed the chemical weapons stockpile formerly stored at the U.S. Army Pueblo Chemical Depot, now known as the U.S. Army Chemical Materials Activity-West. Technology known as [neutralization followed by biotreatment](#) was used to destroy most of the projectiles containing mustard agent. Three Static Detonation Chamber (SDC) units, each consisting of a detonation chamber and an off-gas treatment system, augmented the main plant by destroying a portion of the 4.2-inch mortar rounds and overpacked 105mm and 155mm projectiles deemed unsuitable for processing in the main plant.

The Department of Defense’s [Program Executive Office, Assembled Chemical Weapons Alternatives](#) (PEO ACWA) was responsible for completing stockpile destruction operations by the [Chemical Weapons Convention](#) treaty commitment of Sept. 30, 2023. The last munition in the chemical weapons stockpile in Colorado was destroyed June 22, 2023. PEO ACWA is now focused on the safe and environmentally protective closure of the plant.

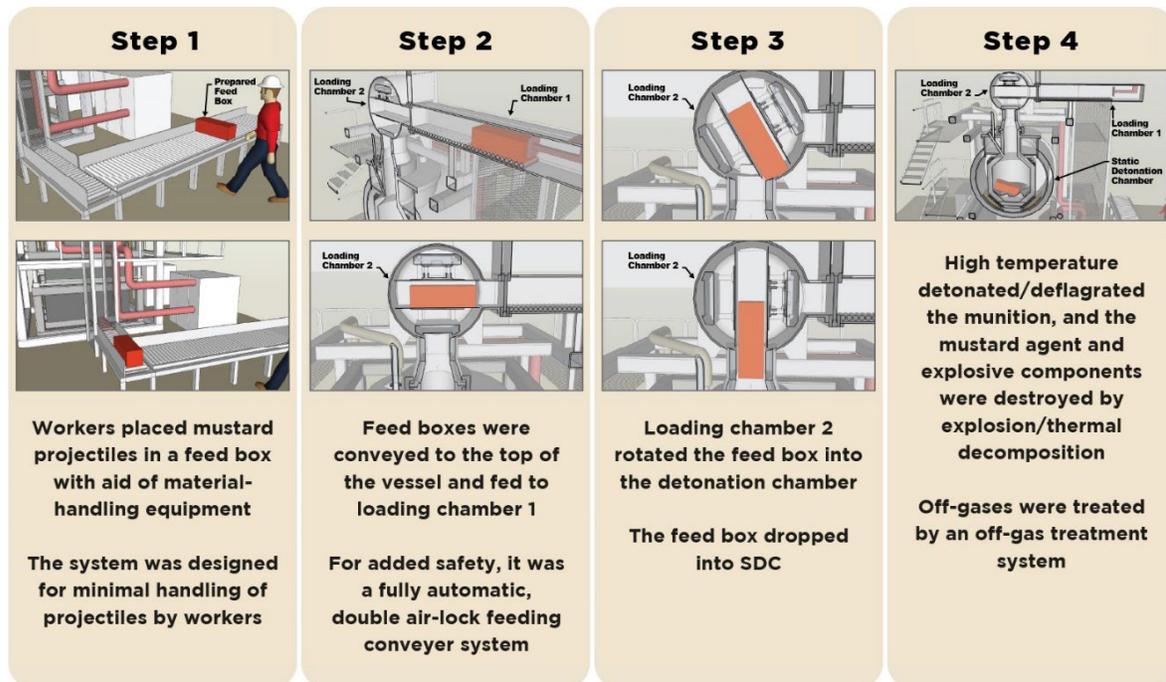
## What is the Static Detonation Chamber?

The SDC units used thermal destruction methods to destroy chemical munitions. An SDC is a nearly spherical, armored, high-alloy stainless steel vessel. The electrically heated containment vessel detonated munitions to destroy the chemical agent, energetics and munitions components.

## How did it work?

Chemical agent-filled munitions were placed in a carrier box, conveyed to the top of the SDC vessel and fed via airlocks into the heated detonation chamber. High temperature (approximately 1,100 degrees Fahrenheit or 600 degrees Celsius) detonated or deflagrated the munitions, and the chemical agent was destroyed by thermal decomposition.

Gases generated from the detonation or deflagration were treated by an off-gas treatment system that included a thermal oxidizer that converted carbon monoxide and hydrogen to carbon dioxide and water and the acid gases (hydrochloric and sulfuric) to salts. Gases from the thermal oxidizer were cooled and filtered to remove contaminants. The SDC produced minimal liquid waste. Scrap metal removed from the vessel was deposited in a permitted hazardous waste landfill. Salts from the off-gas treatment system were treated and disposed of in accordance with state and federal law. The units will be closed in accordance with permits and transferred to other U.S. Army units.



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