



Program Executive Office  
Assembled Chemical Weapons Alternatives

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**A Partnership for Safe Chemical Weapons Destruction**

[www.peoacwa.army.mil](http://www.peoacwa.army.mil)



# Explosive Destruction Technologies

The Program Executive Office, Assembled Chemical Weapons Alternatives, or PEO ACWA, program is responsible for the safe destruction of the chemical weapons stockpiles at the Pueblo Chemical Depot in Colorado and the Blue Grass Army Depot in Kentucky. Currently, the program is building state-of-the-art pilot plants that will safely and efficiently destroy these chemical weapons stockpiles.

The Pueblo Chemical Depot stores 2,611 tons of mustard agent in projectiles and cartridges, and the Pueblo Chemical Agent-Destruction Pilot Plant, or PCAPP, will utilize neutralization followed by biotreatment to destroy the stockpile. The final design for the PCAPP facility requires the use of an explosive destruction technology.

In Kentucky, the Blue Grass Chemical Agent-Destruction Pilot Plant, or BGCAPP, is being built to destroy the 523 tons of nerve and blister agents stored in rockets and projectiles in storage at the Blue Grass Army Depot by utilizing neutralization followed by supercritical water oxidation. The use of an explosive destruction technology is currently under consideration at BGCAPP.

Explosive destruction technologies use explosive charges or heat to destroy chemical weapons. They do not require disassembly of the munitions, nor are they considered incineration. There are three general types of explosive destruction technologies that can destroy chemical weapons.

*Detonation Technology* – destroys the majority of the agent and explosive in the munition by detonating donor explosives wrapped around the munition. The resulting off-gasses are processed through secondary treatment to ensure agent destruction. Examples of detonation technology include the Transportable Detonation Chamber, or TDC, and the DAVINCH (Detonation of Ammunition in a Vacuum-Integrated Chamber).

*Neutralization Technology* – uses small explosive shaped charges to open the munition and consume the explosive in the burster and fuze. The agent is destroyed by subsequent neutralization. The U.S. Army's Explosive Destruction System, or EDS, is an example.

*Thermal Destruction* – uses the heat of the electrically heated containment vessel to burn or detonate the munition and destroy the agent and energetics. The resulting gases are treated in an off-gas treatment system. The Static Detonation Chamber, or SDC, is an example of thermal destruction technology.

The current PCAPP design calls for the use of an explosive destruction technology to destroy overpacked munitions, which are munitions that have leaked or were damaged, as well as any reject munitions identified during operations. The different explosive destruction technologies will be carefully evaluated to determine which one is most appropriate for this mission.

At BGCAPP, to follow up on past technical evaluations that recommended an explosive destruction technology as an option for the destruction of non-contaminated rocket motors, and as part of an option currently under review by the Department of Defense to accelerate the program, PEO ACWA may consider the use of an explosive destruction technology for processing non-contaminated rocket motors and H (mustard agent) projectiles.

At ACWA's request, the National Research Council (NRC) conducted an assessment to analyze explosive destruction technologies for use at both PCAPP and BGCAPP. In its report, which is available at [www.nap.edu](http://www.nap.edu), the NRC discusses its evaluation of five technologies: the TDC, the DAVINCH (DV65), the SDC, the Army's EDS and the Non-transportable Detonation Chamber. For more information, visit [www.peoacwa.army.mil](http://www.peoacwa.army.mil).