



PUEBLO CHEMICAL AGENT-DESTRUCTION PILOT PLANT **EDUCATIONAL OUTREACH PROGRAM**



Pueblo Chemical Agent-Destruction Pilot Plant

What You Should Know

The Pueblo Chemical Agent-Destruction Pilot Plant is currently under construction at the U.S. Army Pueblo Chemical Depot, located east of Pueblo. This facility will safely destroy the depot's stockpile of chemical weapons.

What Are Chemical Weapons?

The chemical weapons stored at the Pueblo Chemical Depot are artillery and mortar shells filled with a chemical called mustard agent. The artillery and mortar shells are stored in earth-covered bunkers called igloos.

Mustard agent:

- Is a liquid
- Is colorless and odorless in its pure state
- Causes blisters
- Was first used for chemical warfare in World War I
- Smelled like mustard in its earliest forms, thus the name



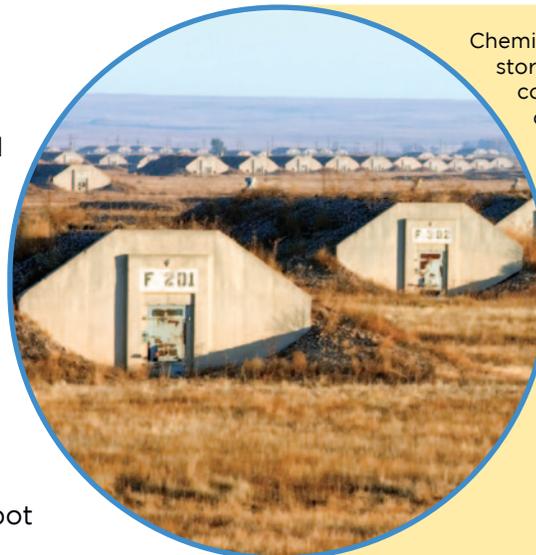
Artillery and mortar shells filled with chemicals are safely stored at the Pueblo Chemical Depot.

Why Does the United States Have Chemical Weapons?

Chemical weapons were first produced in the United States during World War I. During World War II and the Cold War, they were produced to deter the use of such weapons by other countries. Chemical weapons were stored at nine sites, and three sites have completed their stockpile destruction.

How Long Has the Pueblo Chemical Depot Stored Chemical Weapons?

Built in 1942, the Pueblo Chemical Depot stored and maintained ammunition and other supplies for the Army during World War II. During the 1950s, the depot began storing chemical weapons.



Chemical weapons are stored in earth-covered bunkers called "igloos," located at the Pueblo Chemical Depot. The igloos are regularly checked to ensure safety and security.



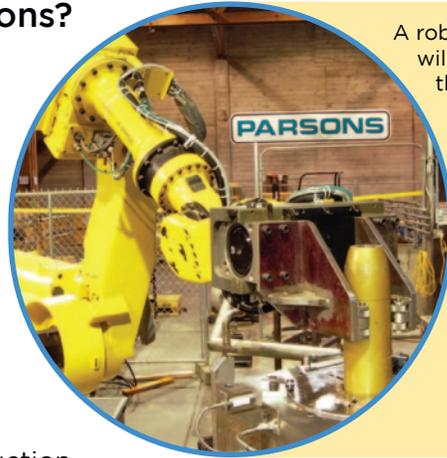
WHAT YOU SHOULD KNOW...

Why Are We Destroying the Chemical Weapons?

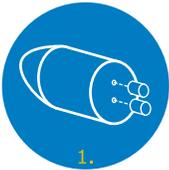
During the 1980s, the U.S. government directed the Army to destroy its stockpile of chemical weapons. In 1997, the United States formally agreed to destroy its stockpile by ratifying the Chemical Weapons Convention Treaty. This international treaty directs all member nations to destroy their chemical weapon stockpiles and production facilities.

How Will the Chemical Weapons Be Destroyed?

The safety of the community and protection of the environment are the most important considerations in destroying the weapons. Pueblo's selected weapons destruction technology is neutralization followed by biotreatment.



A robot like this one will be used to take the weapons apart. The first step is to remove the energetics (explosives and propellants). This makes it safer to handle the weapons.



1.

1. Removing the Energetics

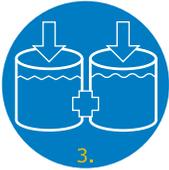
Robotic equipment removes the energetics (explosives) from the weapon.



2.

2. Removing the Mustard Agent

The inside of the weapon is remotely accessed, and mustard agent is washed out.



3.

3. Neutralizing of Mustard Agent

Hot water is mixed with the mustard agent, deactivating the agent. This step is called neutralization. Mixing in hot water destroys the mustard agent molecules. The leftover mixture from this process is called agent hydrolysate (pronounced high-DRAWL-ih-sate).



4.

4. Biotreatment

Sewage treatment bacteria is mixed with the hydrolysate to digest and break down the hydrolysate into a salty brine similar to that of a large body of salt water like the ocean. The water is removed by evaporation, leaving salt cakes, which are disposed of in a permitted waste facility.



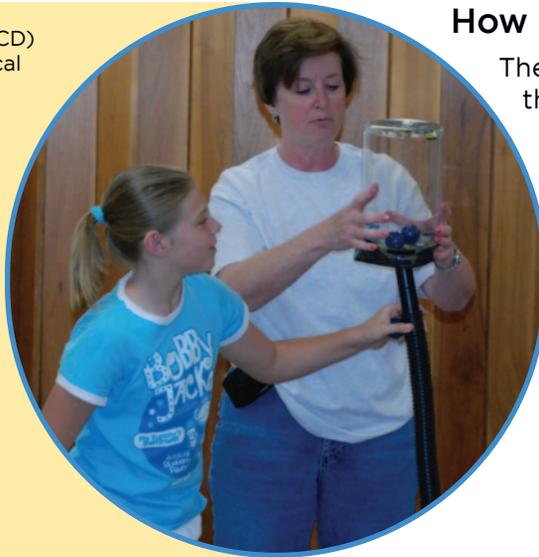
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5. Disposing of Metal Parts

Metal parts are heated to 1,000 degrees Fahrenheit for 15 minutes and are then considered to be free of contamination and can be recycled.



The Pueblo Chemical Depot (PCD) staff, along with Pueblo Chemical Agent-Destruction Pilot Plant outreach personnel, work to educate the community about the safe destruction of chemical weapons stored at PCD and about environmental remediation programs at the depot. A student at the annual Discovering Water in Pueblo festival, learns about PCD's ongoing soil and groundwater clean up efforts from a member of PCD's environmental staff.



How Is the Community Involved?

The outreach office provides opportunities throughout the year for community members to be involved in the project. One of the most visible forums is the Colorado Chemical Demilitarization Citizens' Advisory Commission (CAC), which serves as a vital link between the local communities and the Department of Defense regarding destruction of the chemical weapons stockpile in Colorado. Learn about the CAC at <http://www.cdphe.state.co.us/hm/PCDCAC.htm>.

What Is Required to Work at the Pueblo Chemical Agent-Destruction Pilot Plant?

A skilled local workforce will be needed to operate the pilot plant and ensure the safe disposal of the Pueblo stockpile. The project has adopted the Army's Personnel Reliability Program to ensure that every employee who performs duties involving chemical agents meets and maintains the highest possible standards of reliability.

The Army uses the following standards and requirements to determine if an individual is suitable for the program:

- Physical competence
- Evidence of dependability
- Flexibility
- Positive attitude
- Drug free

Chemical weapons workers must demonstrate the highest levels of personnel reliability. Special protective clothing is worn when workers could be exposed to chemical agent.



Control room operators are responsible for safe operation of the plant and for monitoring personnel who work in hazardous areas. They must meet the high standards of the Army's Personnel Reliability Program.



For Teachers and Parents

Students from fifth grade through high school have the opportunity to learn about the project through presentations given by the Pueblo Chemical Stockpile Outreach Office. In the classroom, they will hear about a variety of topics, including history of the Pueblo Chemical Depot, the Pueblo chemical stockpile destruction project and the people and organizations involved.

Presentations have learning objectives that correlate with the Colorado Model Content Standards for Social Studies in the areas of civics, economics, history and geography. Currently two presentations are offered:

PRESENTATION 1 – PUEBLO CHEMICAL AGENT-DESTRUCTION PILOT PLANT PROGRAM AND THE HISTORY OF CHEMICAL WARFARE

Students learn about the project and will receive a history lesson that brings to life chemical warfare and its effects on the lives of soldiers. Students can actually try on helmets and gas masks and are able to see and hold actual artifacts of that era.

PRESENTATION 2 – SUSTAINABLE DEVELOPMENT AND FOOD FOR THOUGHT

Because sustainability is a topic of local and global interest, students will learn how the pilot plant project is part of ongoing sustainable development efforts under way in Pueblo. The Pueblo Chemical Agent-Destruction Pilot Plant's Green Team is a group of employees, which focuses on various ways to make the project more sustainable. Students will participate in a simulation activity that illustrates the distribution of population and resources in the world.



About 2,500 students each year attend presentations by the Pueblo Chemical Stockpile Outreach Office.



Education Outreach Specialist Cindy Elm-Sinn shows students a display of chemical warfare artifacts.

For More Information:

Pueblo Chemical Stockpile Outreach Office

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Pueblo Chemical Agent-Destruction Pilot Plant

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