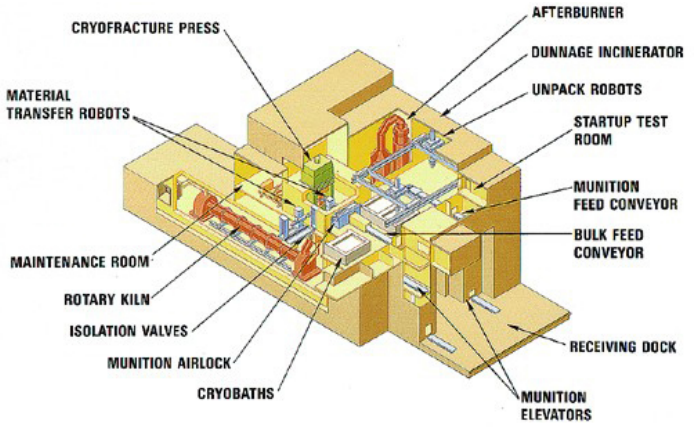
Chemical Demilitarization Program (CHEM DEMIL)

Executive Summary

- Army testing of stockpile and nonstockpile systems in the Chemical Demilitarization Program has been adequate to ensure the safe disposal of chemical warfare material.
- All operational testing (OT) was conducted in accordance with DOT&E-approved test plans.
- The Army conducted successful testing at Anniston, Alabama; Umatilla, Oregon; and Pine Bluff, Arkansas; stockpile facilities.
- The Army conducted successful testing of nonstockpile programs for two Explosive Destruction Systems as well as for the Large Item Transportable Access and Neutralization System, the Munitions Assessment and Processing System, and the Pine Bluff Ton Container Decontamination Facility.
- Binary agent precursor destruction operations were completed at the Pine Bluff Arsenal, Arkansas, facility.
- Based on the current program schedule, disposal operations of the U.S. chemical stockpile failed to meet the original Chemical Weapons Treaty deadline of April 2007 and will fail to meet the extension to April 2012.

System

- The Chemical Demilitarization Program involves the destruction of lethal chemical agents, chemical munitions, and nonstockpile chemical warfare material.
- Four stockpile disposal facilities are employing the baseline chemical weapons disassembly and incineration process:
  - Anniston, Alabama
  - Pine Bluff, Arkansas
  - Tooele, Utah
  - Umatilla, Oregon
  - Three stockpile disposal facilities are employing, or plan to employ, chemical neutralization of agents followed by post-treatment of the neutralized products:
  - Blue Grass, Kentucky
  - Newport, Indiana
  - Pueblo, Colorado
- There are two nonstockpile fixed facilities:
  - Ton Container Decontamination Facility at Pine Bluff Arsenal



NOTIONAL DESTRUCTION FACILITY

  - Munitions Assessment and Processing System Facility at Aberdeen Proving Ground, Maryland
- There are four nonstockpile transportable systems:
  - Explosive Destruction System – 1
  - Explosive Destruction System – 2
  - Large Item Transportable Access and Neutralization System
  - Transportable Detonation Chamber

Mission

- The United States is using the Chemical Demilitarization Program to comply with the Chemical Weapons Convention. This is an arms control and nonproliferation treaty that requires the destruction of the U.S. stockpile of lethal chemical agents, chemical munitions, and nonstockpile chemical warfare material.
- The Nonstockpile Chemical Material Project is responsible for the destruction of nonstockpile chemical warfare material, including the components of binary chemical weapons, miscellaneous chemical warfare material, recovered chemical weapons, former production facilities, and buried chemical warfare material.

Activity

- Chemical Demilitarization Programs are not traditional acquisition programs for DOT&E oversight. DOT&E oversight began in 1999 when Congress directed that DoD oversee these programs as major defense acquisition programs due to cost and schedule overruns.
- The test and evaluation program for each stockpile incineration disposal facility consists of several phases:
  - The developmental testing (DT) phase consists of subsystem component testing without agent.

- The DT/OT phase employs surrogate agents in all test events, culminating in trial burns of the furnaces and end-to-end operations of the facility.
- The OT phase consists of agent trial burns and initial operations with agent.

- OT supports a decision to proceed to full operational status for a specific agent/munition campaign. For example, one campaign would destroy 8-inch projectiles equipped with Sarin nerve agent, another would destroy M55 rockets with Sarin, and a third would destroy 1-ton containers of mustard blister agent. After completion of each campaign, the facility reverts to OT status for the next planned campaign. This process is repeated until destruction of all agent/munition configurations in the site's stockpile is complete. DOT&E monitors the test activity and independently analyzes test data for all stockpile facilities and nonstockpile systems.
- The Aberdeen stockpile destruction facility completed closure operations, where all of the destruction equipment and buildings were dismantled or destroyed, in December 2006. The Pine Bluff Binary Destruction Facility completed binary agent precursor destruction operations in November 2006, and the facility has been completely destroyed and the site cleared.
- As of July 29, 2007, approximately 46 percent of the total U.S. chemical weapons stockpile (originally 31,498 agent tons) had been destroyed. FY07 test activity for stockpile facilities and nonstockpile systems is summarized in the table below.

Assessment

- Army testing of stockpile and nonstockpile systems in the Chemical Demilitarization Program has been adequate to ensure the safe disposal of chemical warfare material. The U.S. Army Material Systems Analysis Activity is providing effective independent oversight of the testing of both stockpile and nonstockpile programs. Their expertise and vigilance resulted in early identification and resolution of problems as they occur. Fully integrated operational demonstrations that confirm all phases of operations (including preparation, destruction/neutralization, and disposal) remain critical prerequisites before transition to operations with live agents.
- Based on the current program schedule, disposal operations of the U.S. chemical stockpile failed to meet the original Chemical Weapons Treaty deadline of April 2007 and will fail to meet the extension to April 2012.

Recommendations

- Status of Previous Recommendations. There were no FY06 recommendations for the Chemical Demilitarization Program.
- FY07 Recommendations. None.

Chem Demil Test and Evaluation Activity

Facility/System	Technology	FY07 Activity	Agent Tested	Planned FY08 Activity
Anniston	Incineration	OT	VX 155 mm Projectiles	OT
Umatilla	Incineration	OT	VX (a.k.a. GB) M55 Rockets	OT
Pine Bluff	Incineration	OT	VX M55 Rockets	OT
Newport	Neutralization	Operations	VX Neutralization and Ton Container Processing	OT
Explosive Destruction System Version 1	Neutralization	OT	Mustard (a.k.a. HD) 4.2-inch Mortar	OT
Explosive Destruction System Version 2	Neutralization	OT	Mustard (a.k.a. HD) 4.2-inch Mortar; Arsenicals German Traktor Rockets	OT
Large Item Transportable Access and Neutralization System	Neutralization	OT	Phosgene (a.k.a. CG) M-78 500-pound bomb M-79 1,000-pound bomb (simulated munitions)	OT
Controlled Detonation Chamber	Thermal Decomposition	Test Plan Development	Phosgene (a.k.a. CG) 155 mm or 75 mm Projectiles (Recovered)	DT/OT
Munitions Assessment and Processing System	Neutralization	OT	Phosgene (a.k.a. CG) 75 mm Recovered Projectiles	None Program Suspended
Pine Bluff Binary Destruction Facility	Neutralization	Operations Facility Destruction	Binary Chemical Munition Precursors in Large Storage Drums	None Operations Completed
Pine Bluff Ton Container Decontamination Facility	Magnetic Induction Heating	DT/OT	Trace Agents during Ton Container Processing	OT, DT/OT