



## U.S. ARMY CHEMICAL MATERIALS AGENCY

# 45 Percent Chemical Weapons Convention Milestone

### Reaching 45 percent

The United States met a major Chemical Weapons Convention (CWC) milestone in June 2007 by safely destroying 45 percent of its total stockpile of chemical warfare agents. The United States previously met its 1 percent and 20 percent milestones under the CWC treaty. Reaching the third CWC-designated milestone is another major accomplishment for the U.S. Army Chemical Materials Agency (CMA), which is charged with safely storing and destroying the nation's chemical weapons.

More than 13,000 U.S. tons (12,496 metric tons) of chemical agent was destroyed to bring the United States to this milestone. The destruction took place at CMA's five currently operating stockpile disposal facilities, two now-closed disposal facilities, and its non-stockpile facility at Pine Bluff, Ark.

The currently operating stockpile facilities consist of incineration facilities located at Anniston, Ala.; Pine Bluff, Ark.; Tooele, Utah; and Umatilla, Ore., plus a neutralization facility in Newport, Ind. The incineration facility at Johnston Island in the South Pacific ended its operations in 2000, and the neutralization facility at Aberdeen, Md., completed operations in 2006, as did the Pine Bluff Binary Destruction Facility, which destroyed non-stockpile materiel. The Department of Defense is currently building neutralization facilities near Richmond, Ky., and Pueblo, Colo.



*Aging munitions stored in the nation's stockpiles prompted the U.S. Army to begin developing modern, factory-style chemical agent disposal facilities in 1970.*



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### History of United States Chemical Demilitarization

The United States produced unitary chemical weapons from 1917 to 1969. Between 1918 and 1942, the stockpile sites around the nation contained both blister agent chemical munitions and bulk blister agent containers. Nerve agents were added to these stockpiles between 1952 and 1969. Over time, many of the older chemical munitions and bulk agent containers showed signs of aging. A 1969 study by the National Academy of Sciences recommended developing modern, factory-style demilitarization facilities as the best way to dispose of aging chemical weapons.



## 45 Percent Chemical Weapons Convention Milestone *(continued)*

The Army promptly adopted this recommendation. Over the next 12 years, the Army developed first generation demilitarization facilities to dispose of chemical warfare materiel stored at the Rocky Mountain Arsenal in Commerce City near Denver, Colo. This is where the United States established its technical leadership in designing for safety, use of robotics, neutralization and incineration of agents, pollution abatement equipment, air monitoring equipment and protective clothing.

Anticipating a nation-wide stockpile disposal program, the Army established a pilot plant in 1979 to develop the next generation of equipment at the Tooele Army Depot, now called the Deseret Chemical Depot. Equipment developed there became the basis for the next generation of chemical demilitarization facilities.



*The United States and 181 nations thus far, signed the Chemical Weapons Convention to help rid the world of the scourge of chemical weapons.*

### The Chemical Weapons Convention

The United States chemical weapons destruction operations came under the provisions of the CWC in April 1997. As of April 2007, 182 nations have signed the treaty. The CWC is an international arms control treaty which outlaws the production, stockpiling and use of chemical weapons. It includes a destruction milestone schedule for chemical weapons stockpiles and a system of regular inspections. It also provides for active support between signatory nations including equipment exchanges, conferences, internship programs, an information service, a laboratory assistance program, and joint research projects.

Each signatory nation automatically becomes a member of the Organisation for the Prohibition of Chemical Weapons (OPCW) which administers and enforces the treaty. Each signatory nation possessing chemical weapons material has an independent destruction program, but is subject to the same treaty provisions. Three nations with relatively small stockpiles have already reached the 45 percent milestone. The United States will be the first nation with a major stockpile to reach it.

In 1983, the U.S. Army began the design of the Johnston Atoll Chemical Agent Disposal System (JACADS). It became the full-scale prototype facility for the current generation of incineration stockpile demilitarization plants. JACADS began operations in 1990, and beginning in April 1997, when the CWC treaty provisions came into force, the weapons it destroyed were counted toward the 45 percent milestone. The chemical demilitarization facility at Tooele began operations in 1996, and also began contributing to the milestone in 1997. The Aberdeen, Md., and Anniston, Ala., facilities began operations in 2003, and the Umatilla, Ore., and Pine Bluff, Ark., facilities came online in 2004 and 2005, respectively. The Newport, Ind., facility began operations in 2005.



*Operating from 1990 to 2000, the Johnston Atoll Chemical Agent Disposal System, 800 miles southwest of Hawaii, was the U.S. Army Chemical Materials Agency's first full-scale chemical demilitarization facility.*

## 45 Percent Chemical Weapons Convention Milestone (continued)

### Reaching 100 percent

The fourth and final milestone is 100 percent destruction of the nation's chemical weapons material. The United States successfully requested to have its original deadline of April 2007 extended to April 2012. Five other States' Parties have also requested extensions to their 100 percent milestones. Reaching 45 percent brings the Army closer to its final chemical demilitarization goal. Ultimately, chemical weapons stockpiles will only exist in the world's history books.



*Deseret Chemical Depot was established as one of the nation's nine chemical weapons material stockpile sites in 1942 and held 44 percent of the nation's chemical agent material when the Tooele Chemical Agent Disposal Facility began operations in 1996.*



*The control room at the Pine Bluff Chemical Agent Disposal Facility in Pine Bluff, Ark., represents the state of the art in chemical demilitarization technology.*



*Through the 1970s and early 1980s, the Rocky Mountain Arsenal in Commerce City, Colo., was used to develop the first generation of chemical demilitarization technology.*

### United States Chemical Weapons Destruction Timeline

**1917 – 1960's** - Obsolete or unserviceable chemical warfare agents and munitions are disposed of by open pit burning, land burial, and ocean dumping.

**1969** - The National Academy of Sciences recommends that ocean dumping be avoided and that public health and environmental protection be emphasized. It suggests two alternatives to ocean disposal: chemical neutralization of nerve agents and incineration of mustard agents.

**1971 – 1973** - The Army tests and develops an incineration process and disposes of several thousand tons of mustard agent stored in ton containers at Rocky Mountain Arsenal.

**1971** - The United States transfers chemical munitions from Okinawa, Japan to Johnston Island, located about 800 miles from Hawaii.

**1973 – 1976** - The Army disposes of nearly 4,200 U.S. tons of nerve agent by chemical neutralization at Tooele Army Depot and Rocky Mountain Arsenal. The process is problematic and not easily reproduced, making automation difficult.

**1979** - The Army constructs and begins operating the Chemical Agent Munitions Disposal System (CAMDS), a pilot incineration facility located at what is now the Deseret Chemical Depot (DCD), Utah.

**1981** - The United States constructs binary chemical weapons production facilities at Pine Bluff Arsenal (PBA), Ark. The binary weapons program leads to chemical weapons elimination talks between the United States and the Soviet Union later in the decade.



## 45 Percent Chemical Weapons Convention Milestone (continued)

### United States Chemical Weapons Destruction Timeline (continued)

- 1981 – 1986** - The Army uses the CAMDS to test and evaluate incineration of chemical agents and energetic material, and decontamination of metal parts and ton containers.
- 1985** - Army begins construction of its prototype full-scale disposal facility, Johnston Atoll Chemical Agent Disposal System (JACADS).
- 1986** - Public Law 99-145 is enacted, requiring the safe destruction of the U.S. unitary chemical weapons stockpile.
- 1988** - The Army issues the Final Programmatic Environmental Impact Statement for the Chemical Stockpile Disposal Program. The Army selects on-site disposal of the chemical stockpile because it poses fewer potential risks than transportation and off-site disposal.
- 1989** - U.S. Secretary of State James Baker and former Soviet Union Foreign Minister Eduard Shevardnadze sign a Memorandum of Understanding on chemical weapons in Jackson Hole, Wyo. That agreement spurs international talks that culminate in the international treaty known as the Chemical Weapons Convention (CWC).
- 1989** - Construction begins on Tooele Chemical Agent Disposal Facility (TOCDF) at DCD, Utah.
- 1990** - JACADS begins destruction of the stockpile on Johnston Island.
- 1996** - TOCDF at DCD in Utah, with about 44 percent of the nation's original stockpile of nerve and blister agents, begins destroying chemical weapons.
- 1997** - The United States ratifies the CWC, agreeing to dispose of its unitary chemical weapons stockpile, binary chemical weapons, recovered chemical weapons and former chemical weapons production facilities.
- 1997** - The United States meets the CWC treaty requirement to destroy 1 percent of the U.S. chemical weapons stockpile.
- 1997** - Construction began on the Anniston Chemical Agent Disposal Facility (ANCDF) at Anniston Army Depot (ANAD), Ala., and on the Umatilla Chemical Agent Disposal Facility (UMCDF) at Umatilla Chemical Depot (UMCD), Ore.
- 1999** - Construction began at Aberdeen Chemical Agent Disposal Facility (ABCDF) at Aberdeen Proving Ground (APG), Md.
- 1999** - Construction began at Pine Bluff Chemical Agent Disposal Facility (PBCDF) at PBA, Ark.
- 2000** - JACADS completed destruction of its chemical weapons stockpile, making it the first stockpile facility to complete its mission.
- 2000** - Construction began on the Newport Chemical Agent Disposal Facility (NECDF) at Newport Chemical Depot, Ind.
- 2001** - The United States meets CWC treaty requirement to destroy 20 percent of the U.S. chemical weapons stockpile.
- 2003** - ANCDF began disposing of chemical weapons stored at ANAD.
- 2003** - ABCDF began disposing of mustard agent stored in large steel bulk containers at APG, Md.
- 2004** - UMCDF began disposing of chemical weapons stored at UMCD.
- 2005** - PBCDF began disposal operations.
- 2005** - NECDF began disposing of chemical nerve agent stored at Newport Chemical Depot.
- 2005** - Non-Stockpile Chemical Materiel Project (NSCMP) opened the Binary Destruction Facility at PBA, Ark., to destroy the nation's remaining inventory of binary precursor chemicals DF and QL.
- 2006** - CWC's Organisation for the Prohibition of Chemical Weapons (OPCW) inspectors verified the complete destruction of ABCDF's hydrolysate at DuPont making it the second CMA facility to complete its mission and the first in the continental United States.
- 2006** - The Binary Destruction Facility at PBA, Ark., completed destruction of binary precursor chemicals.
- 2007** - The United States met the CWC treaty requirement to destroy 45 percent of the U.S. chemical weapons stockpile.