



U.S. ARMY CHEMICAL MATERIALS AGENCY

FACT SHEET

WWW.CMA.ARMY.MIL

Deseret Chemical Depot

DAVINCH

Detonation of Ammunition in a Vacuum Integrated Chamber



A group from the Tooele Chemical Agent Disposal Facility went to Kobe, Japan, in September 2010 for demonstrations of the DAVINCH system. The chamber is designed to destroy chemical agent through the use of explosives; this photo (top right) shows an example of the metal fragments that will remain after a detonation.

The Deseret Chemical Depot will destroy its problematic munitions using a type of Explosive Detonation Technology (EDT) system known as the DAVINCH, or Detonation of Ammunition in a Vacuum Integrated Chamber.

The DAVINCH will destroy approximately 350 mustard-agent-filled munitions that are badly deteriorated or have leaked in the past and are now safely stored in overpack containers. The DAVINCH was chosen because these munitions cannot be processed using the existing demilitarization process at the Tooele Chemical Agent Disposal Facility (TOCDF) without increased risks to workers. In addition to the munitions, the DAVINCH will destroy approximately 50 mustard samples.

The DAVINCH is a proven EDT system. There are four DAVINCH systems currently in operation—one in Japan, another in Belgium and two in China—and they have successfully and safely destroyed more than 5,400 chemical weapons.

The DAVINCH at DCD will be located in the depot's secure storage yard, known as Area 10, and will be housed within its own environmental enclosure. It will also have its own laboratory module to support agent monitoring activities, a control room module from which operations are managed, two diesel-powered generators and other support trailers. The DAVINCH uses emulsion explosives and linear-shaped charges to destroy chemical munitions. The munitions can be destroyed in their overpack containers, eliminating the need for the munitions to be unpacked. Prior to destruction, the overpacked munitions were x-rayed to help operators determine where to best place the explosives. The munitions will be wrapped with explosives and placed in the DAVINCH's detonation chamber. The force of the detonation and the gases and particulates generated by the

explosion will be contained within the chamber. The off-gases will be processed through an off-gas treatment system that will clean, cool and neutralize the acidic gases. The off-gas treatment system also incorporates a hold, check and release design that allows for testing of the DAVINCH exhaust gases prior to release to the atmosphere. The remaining metal fragments will be removed from the detonation chamber, and safely stored and monitored before they are shipped off site to be disposed of as hazardous waste.

Versar teamed with Kobe Steel of Japan, the developer of the DAVINCH, for the EDT operations at DCD. Versar will provide project support, while the system will be operated by experienced professionals from the Edgewood Chemical Biological Center (ECBC).

The DAVINCH will start operations in mid-2011 and is expected to take less than two months to destroy DCD's stockpile of overpacked and deteriorated munitions.



Members of the visiting group, including TOCDF Site Project Manager Ted Ryba, signed the DAVINCH system after the demonstrations. This same DAVINCH system will be used at DCD to destroy the depot's small stockpile of problematic munitions.

For more information, contact the

Tooele Chemical Stockpile Outreach Office

54 S. Main St.
Tooele, UT 84074
Phone: (435) 882-3773
Toll Free: (800) 471-1617
Fax: (435) 882-7904

or contact the

Public Affairs Office

(435) 833-4295
(435) 833-4575

or the

CMA Public Affairs Office

(800) 488-0648