



U.S. ARMY CHEMICAL MATERIALS AGENCY

FACT SHEET

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Deseret Chemical Depot

Destruction of Overpacked Mustard Munitions

The last campaign at the Tooele Chemical Agent Disposal Facility (TOCDF), the destruction of 333 overpacked mustard rounds, proved to be one of the most challenging. The stockpile was made up of 135 4.2-inch mortars and 198 155 millimeter projectiles. Most of the 4.2-inch mortars were placed into overpacks, which are tightly sealed containers, during agent sampling operations. However, the majority of the 155mm projectiles were overpacked because they had either leaked or they were so badly deteriorated they were very likely to leak.

Because these munitions could not be destroyed using TOCDF's normal disposal process, the facility's process was fine-tuned and adjusted to include modified work procedures and enhanced equipment to allow for processing of the overpacked munitions. The work was done inside the facility's two Explosive Containment Rooms (ECRs), which are fortified with 28-inch thick reinforced concrete walls, by both manual and remote-controlled operations. Workers were not inside the ECRs during the most hazardous tasks; those operations were done remotely.

The Overpacked Destruction Process

Workers, dressed in personal protective equipment, transported the munitions into the ECR, removed them from their overpack containers, and positioned them for cutting. Workers then left the ECR and the cuts were completed by a remote-controlled rotary cutter similar to those used in past agent disposal campaigns. Once

the cuts were complete, workers re-entered the room and removed the explosive, also known as the burster, from the munition. The burster was then destroyed in the facility's deactivation furnace system, while the munition's metal casing and its chemical agent fill were processed through the metal parts furnace.

While the overpacked 4.2 inch mortars were destroyed in less than three weeks, the 155mm projectiles were much more laborious. Inside many of the 155s, the mustard agent had hardened, binding the burster in place. A new torque adapter tool was added to the cutter equipment to help loosen the burster for removal, but sometimes the burster would break during attempts to remove it from the munition. In that case, a new washout system featuring a warm-water, high-powered spray was used to soften the chemical agent so the rest of the burster could be removed.

"The overpacked campaign was labor-intensive and took more time than was first expected, but it proved to be a success," said TOCDF Site Project Manager Ted Ryba.

A detonation chamber was constructed in the depot's storage yard to help destroy the depot's stockpile of overpacked munitions. However, construction and systemization activities suffered unexpected delays and were not completed in time.

The last overpacked munitions were destroyed at the TOCDF on Jan. 18, 2012, ahead of the international treaty deadline.

For more information, contact the

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Dressed in protective equipment, entrants Frankie Griffith and Richard Curtis make the first entry into the Explosive Containment Room (ECR) to officially begin the cutter machine operations. (Clockwise) Griffith shows one of the 4.2-inch mustard mortars inside its overpack container before placing it in the specially designed cutter equipment, where a single cut is made around the top of the mortar. Griffith and Curtis re-enter the ECR after the cut is complete to remove the explosive components, also known as bursters, from the mortar. Entrants will utilize new features such as the torque adapter tool and projectile washout system on the problematic 155mm projectiles that have stuck bursters.