



U.S. ARMY CHEMICAL MATERIALS AGENCY

MONTHLY UPDATE

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TOCDF operations began on Aug. 22, 1996, with the destruction of the first GB agent-filled M55 rocket. Since then, more than 1.1 million munitions and more than 13,600 tons of chemical agent has been destroyed. Towards the end of operations, a new facility, the Area 10 Liquid Incinerator, helped bring the destruction mission to an end.

DCD stockpile eliminated

Workers bring the storage and destruction missions to an end

A historic day was reached on Jan. 21 as workers at Deseret Chemical Depot (DCD) safely completed destruction of the nation's single-largest chemical weapons stockpile—more than 1.1 million munitions containing more than 13,600 tons of chemical agent.

"The destruction of chemical agents at Deseret Chemical Depot has made the world a safer place, and most definitely a safer place for those in the surrounding community," said DCD Commander Col. Mark Pomeroy. "Reaching this milestone is truly a credit to five generations of exceptional depot workers, the support of this community and the resolve of our nation to destroy these terrible weapons."

Storage of the DCD stockpile began in 1942 and accounted for 44 percent of the U.S. stockpile. Not only was the DCD stockpile the nation's largest, it was also the most diverse—consisting of five different chemical agents contained in more than 10 types of munitions. In 1996 the Tooele Chemical Agent Disposal Facility (TOCDF) took on the vital mission to safely destroy these weapons.

"Over the 15-year period that TOCDF has been operating, there have been a variety of challenges to overcome associated with the aging stockpile," said TOCDF Site Project Manager Ted Ryba. "Our workers have been up to the challenge. Equipment modifications and process changes have ensured continued safe processing at TOCDF."

As the chemical weapons destruction mission approached the home stretch, two separate projects brought operations to a close. With the success of these combined projects, cutter operations at the TOCDF and the Area 10 Liquid Incinerator (ATLIC), workers safely
(See DESTRUCTION MISSION COMPLETE on page 2)



On Jan. 11, using an overhead crane, TOCDF workers guide the last overpacked 155mm mustard projectiles as they place them on the facility's conveyor system to make their way through the disposal process. These projectiles represent the last of the mustard chemical weapons stored at DCD.

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Destruction mission complete

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completed operations ahead of the April 29, 2012 international treaty deadline.

TOCDF cutter operations

The final stage of the TOCDF mustard agent munitions campaign involved 333 overpacked 4.2-inch mortars and 155 millimeter projectiles. While most of the mortars were overpacked during agent sampling operations, the majority of the projectiles were overpacked because they had either leaked in the past or were so badly deteriorated and could not be destroyed using TOCDF's normal disposal process.

The TOCDF disposal process was fine-tuned and modified with reconfigured equipment such as specially-designed cutting equipment to assist with the removal of explosive components. This new campaign began on Sept. 29, 2011 and in less than three weeks, workers destroyed what was left of the 4.2-inch mortars.

However, the projectiles presented an additional challenge because some of the projectiles' agent fill had become so hardened that the burster and burster well were stuck in place. With creative problem-solving and careful planning, the projectile campaign was successfully completed on Jan. 18, 2012, bringing TOCDF operations to a close.

Area 10 Liquid Incinerator

The ATLIC was designed to destroy DCD's small stockpile of GA nerve and lewisite blister agents—the only stockpile in the United States. ATLIC operations began on Oct. 31, 2011 as the first GA nerve agent-filled ton con-



The ATLIC facility was specifically designed to destroy DCD's small stockpile of GA nerve and lewisite blister agents. Located in DCD's storage area, also referred to as Area 10, the facility was similar in design to the liquid incinerators at the TOCDF, but smaller in scale.

tainer was drained. Now running parallel in with the TOCDF, both facilities worked to destroy DCD's remaining stockpile of chemical weapons.

In less than two weeks, workers safely completed destruction of the four GA nerve agent-filled ton containers—the last of the nerve agent stored at DCD. Workers then focused on the final ATLIC campaign and on Dec. 19, 2011 destruction of the 10 lewisite ton containers began.

Lewisite operations successfully concluded on Jan. 21, signifying the end of chemical agent operations at DCD.

"I'm proud of our workers for all their efforts over the years to reach this point—mission completion," said Gary McCloskey, TOCDF general manager. "And we reached this milestone safely, working more than 13.5 million manhours without a lost workday injury. As we move into closure, we will continue to emphasize safety for our workers and the environment."



Click the above photos to view (left) destruction of the 155mm mustard projectiles and (right) delivery and processing of one of the last lewisite ton containers.

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Team Deseret FACTS

- The DCD stockpile was the largest and most diverse U.S. stockpile with 1,138,773 items containing 13,616 tons of chemical agent.

798,703	GB 105mm projectiles
5,709	GB Ton Containers
4,463	GB MC-1 Bombs
30,001	GB M55 rockets and M56 rocket warheads
89,142	GB 155mm projectiles
888	GB Weteye Bombs
7,822	VX M55 rockets and M56 rocket warheads
640	VX Ton Containers
53,216	VX 155mm projectiles
1	VX 8-inch projectiles
862	VX spray Tanks
22,690	VX landmines
54,663	H 155mm projectiles
63,560	Mustard 4.2 inch mortars
6,399	Mustard Ton Containers
4	GA Ton Containers (only U.S. stockpile)
10	Lewisite Ton Containers (only U.S. stockpile)

- On-Site Containers.** Team Deseret was the only site to use on-site containers (ONCs) to transport their chemical weapons. Used in more than 24,000 safe deliveries, the ONCs were built to resist impact and fire. Unlike the Enhanced-ONCs used at other chem demil sites, the bolts that secured each ONC door had to be tightened and untightened by hand.
- CAMDS.** The Chemical Agent Munitions Disposal System was the testing ground for the safe elimination of our nation's chemical stockpile. Located within DCD, CAMDS developed and tested many of the processes and technologies used at the U.S. Army's chem demil facilities. Demolition of the CAMDS facility will start this spring.
- Safety in Record Numbers.** Team Deseret set new records when it came to working safely. By the end of operations, TOCDF workers had reached more than 13.5 million man-hours worked without a

lost workday injury, while DCD employees had reached more than 1 million man-hours. Both totals are not only new records for Team Deseret, but also for the U.S. Army's Chemical Materials Agency.

Innovative Solutions:

- Mustard Ton Container Sampling.** The task: sample nearly 6,400 mustard Ton Containers (TCs) based on their levels of mercury and amount of heel (solid or semi-solid sludgy residue). The work was completed more than a year ahead of schedule inside two specially equipped storage igloos with controlled ventilation and filtration. TOCDF-designed glove boxes allowed workers to safely release any built-up hydrogen gas pressure inside the TCs, draw agent samples and measure the heel. The sampling project provided much needed information and led to the addition of two new projects: the heel transfer system and a carbon filtration system for the pollution abatement system.
- Heel Transfer System (HTS).** This TOCDF-designed and built system was used on approximately 3,000 mustard TCs with large, heavy heels. The HTS used a warm-water, high-pressure spray to break down the heel, which was then transferred to an empty ton container. Both TCs would then be processed through the metal parts furnace, destroying the chemical agent. The HTS was utilized at two other chem demil facilities.
- Pollution Abatement System (PAS) Filtration System (PFS).** These massive new filters were added to the facility's original PAS to effectively capture elevated amounts of mercury found in some of the mustard agent-filled munitions.
- Problematic Projectile Tools.** Several tools were utilized during the destruction of DCD's overpacked mustard projectiles, the last agent campaign at the TOCDF. Both the overpacked 4.2 inch mustard mortars and the 155mm projectiles required the use of a rotary cutter (similar to the one used in past agent disposal campaigns). Additional tools were needed for the 155s, which were even trickier because their mustard agent fill had hardened, binding the explosive components in place. In that case, when necessary, workers used a torque adapter tool to pull free the stuck explosive components and, when necessary, a washout system to soften the hardened chemical agent.