

Edgewood

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Safety remains top priority at ABCDF

Challenges slow progress

When officials at the Aberdeen Chemical Agent Disposal Facility (ABCDF) marked the construction completion of the Army's mustard agent neutralization facility just over a year ago, the goal was to bring the project to a safe and successful conclusion two years ahead of its original schedule.

"Our commitment to safety remains the top priority at the ABCDF, and we will not sacrifice safety for schedule," said Edgewood Chemical Activity and ABCDF Commander Lt. Col. Gerald L. Gladney during a recent presentation to members of the Bel Air Rotary Club. Gladney, who is responsible for both the stockpile storage and disposal missions at APG, added, "The challenges we've encountered during the ABCDF's start-up have slowed our progress, but we're learning from those challenges and are taking the steps needed to ensure that our disposal mission is completed without compromising safety."

The ramp-up of the ABCDF has been slower than anticipated due to the difficulty of decontaminating the exterior end of each ton container after the mustard agent has been drained. Decades of paint build-up on the containers, coupled with background contamination from the drain stations and the extremely low levels of agent to which the monitors are set to detect, have led to delays in clearing the containers after draining.



Photo by Nancy Hofmann

Lt. Col. Gerald L. Gladney, commander of the Edgewood Chemical Activity and Aberdeen Chemical Agent Disposal Facility, describes the challenges encountered at the mustard agent disposal facility to members of the Bel Air Rotary Club.

"First of all," said Bechtel Aberdeen Deputy Project Manager Rick Holmes, "we must ensure that the drained containers are safe to remove from the drain stations and can be stored temporarily until they go through final processing. Once the containers have been drained and decontaminated, we've had difficulty confirming the cleanliness of the containers because they tend to pick up traces of contamination from the glove box itself."

"To remedy this," Holmes explained, "we have designed a monitoring chamber into which the entire

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The end of the beginning

The year 2003 has had a series of firsts for the U.S. Army's chemical weapons disposal program. Notable among those firsts is the closure of the U.S. Army's first full-scale chemical weapons disposal facility, the Johnston Atoll Chemical Agent Disposal System (JACADS).

The Army began its mission of disposing of the entire U.S. stockpile of chemical weapons with those located on a small island in the middle of the Pacific Ocean. Though tiny, Johnston Island is the site of great moments

and historic firsts in the history of U.S. chemical weapons stockpile destruction.

From the time JACADS was built in 1986, thousands of men and women have lived and worked less than a mile from the chemical weapons stockpile.



File photograph

JACADS during chemical weapons disposal operations

Thanks to these dedicated men and women, on Nov. 29, 2000, JACADS completed disposal of the Johnston Island chemical weapons stockpile, and in early 2001, JACADS became the first U.S. facility to officially enter closure.

This was accomplished while protecting the workers and

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Safety guides path forward at disposal facility

Continued from cover

drained container can be placed. It is essentially a 9-foot extension of the drain station room, but separate from it so that it can be sealed off. This permits us to isolate and monitor the full length of the drained container without inadvertently picking up readings from contamination that isn't on the container, but back in the drain station."

Construction of the monitoring chambers has been completed on two drain stations and is nearing completion on the third.

A second challenge slowing the ramp-up of the ABCDF presented itself Aug. 16, when a carbon filter drum venting the rinse water storage tank inside the neutralization bay overheated and began emitting smoke, triggering smoke alarms. Workers masked and evacuated the building. The facility's ventilation system automatically shut down, as designed, to prevent oxygen from feeding any fire present. Monitors indicated agent vapor remained confined to the neutralization bay and adjacent rooms. The drum was cooled by remotely feeding it with nitrogen and subsequently has been removed from the neutralization bay.

Officials investigating the incident have determined that the smoke in the neutralization bay of the ABCDF apparently was caused by a reaction in a carbon drum attached to a vent line. Initial findings are that the smoking began when the carbon interacted with a caustic material in the lines. The caustic solution was used to rinse out dithiane crystals that were forming in and clogging pipes for the vent condenser. Bechtel, the systems contractor at the ABCDF, is working with industry experts in the use of carbon to develop a plan to prevent this from happening again. In addition to ensuring the caustic solution doesn't interact with the carbon, the system has been modified to enable early detection of heat in the carbon drums, and includes a nitrogen purge capability that can be added to extinguish and cool the drum if there is a recurrence. The formation of the crystals will be remedied by changing pumps on the reactors and rinse water tank from air-sealed to double mechanical sealed pumps.

On Aug. 16, 2003, officials at the ABCDF elected to pause operations at the facility to address these challenges.

"The work 'outage' will give us the time needed to thoroughly evaluate and address the challenges we've encountered," Gladney told Rotary Club members. "We will not restart operations at the ABCDF until each of these challenges is resolved."

Following a period of extensive testing, limited draining



The existing drain station gloveboxes at the ABCDF, as depicted above, are being modified in order to ensure accurate agent monitoring.

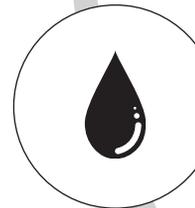
and neutralization operations resumed in early November, with the goal of returning the ABCDF to full operating status by the end of November. Once the facility is fully operational, disposal efforts are expected to be complete by early spring 2004, still more than 18 months ahead of the original schedule. As of October 17, more than 55 tons of mustard agent have been neutralized at the ABCDF. (Editor's note: Neutralization operations at the ABCDF resumed Nov. 3, 2003. Progress made since press time will be updated in future publications.)

At a glance – ABCDF stats (as of October 17, 2003)



Total Drained

90 containers of mustard agent have been drained.



Total Neutralized

Of the drained mustard agent, **more than 55 tons** have been neutralized.



Hydrolysate Transport

Approximately **435,600 gallons** of the neutralization byproduct, called hydrolysate, have been shipped to DuPont Secure Environmental Treatment at Chambers Works in Deepwater, N.J., for biotreatment.

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—Lt. Col. Gerald L. Gladney, commander of the U.S. Army Edgewood Chemical Activity and Aberdeen Chemical Agent Disposal Facility



Storage yard, ABCDF weather Hurricane Isabel

By all accounts, it appeared that Hurricane Isabel would pass slightly to the west of Harford County, Md., bringing with it high winds and heavy rain that had the potential to have some damaging effects on the Edgewood Chemical Activity's (ECA) mustard agent storage yard.

It also appeared as though these same concerns would hold for the Aberdeen Chemical Agent Disposal Facility (ABCDF), where the disposal of Aberdeen Proving Ground's share of the nation's chemical stockpile began in April 2003.

But appearances are just that – appearances. And what officials at ECA and ABCDF had anticipated and diligently prepared for never occurred.

"We prepared for the worst-case scenario, as we do in all of our planning activities," said Lt. Col. Gerald L. Gladney, ECA/ABCDF commander. "If you're prepared for the worst-case scenario, then you're prepared for anything less that comes along."

Officials at the ABCDF closely followed the projected path of Hurricane Isabel days before she arrived and made repeated sweeps of the project site to remove, tie down or secure objects that might be damaged or cause damage during periods of high winds and rain.

"We involved the workforce in all of our planning and preparation activities to be sure we didn't overlook anything, and they didn't let us down," said Gladney.

"We also worked closely with regulators at the Maryland Department of the Environment in order to obtain the approvals necessary to neutralize approximately 900 gallons of mustard agent stored in the facility's Agent Holding Tank and move 12 filled mustard agent containers from the Process Neutralization Building, where they were

awaiting disposal, back to the storage yard for more secure storage."

"The state granted those approvals," Gladney stated. "The remaining 900 gallons of agent were neutralized and the 12 containers were safely taken back into storage while Isabel was still out at sea."

While Hurricane Isabel was making its way to the East Coast, mustard agent draining operations were on hold as part of a self-imposed work "outage," instituted to provide the time needed to evaluate and correct challenges involving container decontamination and an overheating carbon filter drum.

"Safety is our top priority here," Gladney said. "That philosophy applies to our everyday operations, not just when Mother Nature decides to make an appearance." He added, "In view of the risk Isabel posed, we wanted to ensure that we left nothing to chance. We reviewed all of our contingency plans and took the additional steps needed to ensure our workforce, the community and environment were as safe as possible."

Gladney reported that officials at ECA and ABCDF conducted a damage assessment once the storm moved out of the area. The assessment team determined that the facility and storage yard suffered no major damage from Isabel. Minor flooding of the roads surrounding the storage yard receded, leaving no evidence of any damage to the site.

As for the work "outage," Gladney said, "We hope to be partially operational in October 2003, processing agent using two reactors with new pumps and one upgraded drain station, but we will not compromise the safety of the workforce, the environment or community for schedule."

Once the facility is fully operational, disposal efforts are expected to be complete by early spring 2004, still more than 18 months ahead of the original schedule.

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—Lt. Col Gerald L. Gladney, commander of the U.S. Army Edgewood Chemical Activity and Aberdeen Chemical Agent Disposal Facility

Bechtel Aberdeen welcomes new project manager



File Photograph

Joseph Nemeč, Bechtel Aberdeen Project Manager

On Aug. 4, Bechtel Aberdeen, systems contractor for the ABCDF, welcomed Joseph Nemeč as project manager. As a 21-year veteran with Bechtel, Nemeč brings impressive and valuable experience to the team. He understands the dynamics of operating plants and, having handled several complex projects with very tough safety and environmental

challenges, recognizes the paramount importance of safety and environmental protection. Lee Smith, the departing project manager, served on the project for more than 20 months and oversaw the major change in project direction following the terrorist attacks of 9/11. Having been tasked by the Army to find ways to accelerate the destruction of the mustard agent, he led the Bechtel Aberdeen team through a highly compressed redesign and construction effort, saw to the hiring and training of a plant operations team, certified the neutralization facility as operationally ready, and initiated the processing of live mustard agent on April 23, 2003.

New Faces

JACADS closing

Continued from cover

the environment. In fact, according to independent surveys and studies, the fish and bird populations are prospering. The coral reef that is Johnston Atoll is one of the few thriving reef systems in the world.

JACADS closure activities on Johnston Atoll will end in late 2003. (*Editor's note: as of Aug. 22, 2003, JACADS closure was four weeks ahead of schedule.*)

Because each of the eight disposal sites in the continental U.S. eventually will go through closure, program personnel are paying close attention to JACADS to ensure that valuable experience and insight from that site is shared.

The year 2003 is also a year of firsts for several other U.S. stockpile sites. The Aberdeen Chemical Agent Disposal Facility in Maryland and the Anniston Chemical Agent Disposal Facility in Alabama both started agent disposal operations, and the Tooele Chemical Agent Disposal Facility, which has recently celebrated seven years of operations, completed its agent changeover and started its disposal campaign for nerve agent VX.

Also in 2003, the Army completed construction of a neutralization facility for bulk agent stored at the Newport Chemical Depot in Indiana while responsibility for full-scale pilot testing of neutralization technologies to destroy the assembled chemical weapons stockpiles at Pueblo Chemical Depot in Colorado and Blue Grass Army Depot in Kentucky was designated to the Department of Defense's Assembled Chemical Weapons Alternatives Program.



Photo courtesy of H. Ward Maynard

An unidentified JACADS worker supervises demolition of the explosion containment rooms at the JACADS facility.

The experiences at JACADS, the Aberdeen Chemical Agent Disposal Facility and the Tooele Chemical Agent Disposal Facility are being used to improve the processes and facilities at the other sites as they prepare to come on-line. The Army constantly strives to update their proven safe disposal methods through research, new technology and the experiences of each disposal site. Working with agencies such as the EPA and the National Research Council, the Army ensures that the community and the environment are protected.

This year, 2003, has been a banner year for the Army's chemical weapons disposal program. The firsts have been many, and with JACADS completing closure, the beginning of U.S. chemical weapons disposal is truly coming to an end.

WELL DONE!