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First chemical agent destruction neutralization plant close to completion

By Debra Valine

In the desert near Pueblo, Colo., a chemical agent destruction plant that will destroy more than 2,600 tons of stockpiled chemical munitions is nearly complete.

Construction of the \$1.2 billion facility on the Pueblo Chemical Depot started in 2004 and is expected to be complete in 2012.

The destruction of the chemical munitions was mandated by Public Law 99-145 and an international treaty by the Chemical Weapons Convention on the prohibition of the development, production, stockpiling and use of chemical weapons and their destruction.

The Pueblo Chemical Agent-Destruction Pilot Plant is the eighth of nine chemical demilitarization facilities designed and built by the U.S. Army Engineering and Support Center, Huntsville. The ninth facility is under construction in Richmond, Ky.

The first seven plants were designed and constructed and the stockpiled chemical weapons at each location were safely destroyed using incineration as the means for destroying the weapons.

In response to the public's concern about safe destruction of chemical weapons during operation of the incineration plants, the Assembled Chemical Weapons Alternatives program asked Huntsville Center to design and build a chemical weapons destruction facility using a neutralization followed by bio-treatment process, rather than incineration.

Once construction is complete, the plant will go into the next phase that will be managed by ACWA for systemization and ultimately operation, destruction of chemical weapons and closure. The Pueblo Chemical Depot stores 2,611 tons of mustard agent, about 8 percent of the U.S. chemical weapons stockpile, in projectiles and cartridges.

One of the reasons the project has been successful is that all the partners are located in the same building: ACWA is the government program assigned to destroy the stockpile; Huntsville Center is the Corps of Engineers' agent for design and construction of chemical demilitarization facilities; Rock Island Contracting Center, Rock Island, Ill., is the contracting agency; and Bechtel is the system contractor.

According to resident engineer Lee Seeba, being collocated allows for frequent open and transparent communication on all aspects of the project. He said when issues arise, they can be resolved quickly and efficiently, and that having all the partners in one place is unique for the Corps.

"The customer gets the Corps of Engineers' expertise and what we do well: assisting others in getting the construction accomplished," Seeba said. "We are embedded into this program in a very unique way for the Corps. We will leave after construction and allow ACWA to operate the facility. It gives the government the best bang for the buck."

The PCAPP is a first-of-its-kind facility to destroy chemical weapons using neutralization followed by bio-treatment processes. The facility incorporates a special cascade ventilation system to ensure clean air flow and detection in the unlikely event of a leak, specially designed robots for handling and transporting the munitions throughout the process to avoid human exposure to agent, a special self-consolidating concrete used in the explosive containment rooms, and unique facility control systems with security monitoring to control the complex.

The facility design incorporates lessons learned from the previous plants, design, construction, processes and closure.

“We have been able to use lessons learned when designing this facility,” said Steve Light, the program manager for the Huntsville Center. “For instance, rebar in the explosive containment rooms required us to come up with a new way to use concrete. Concrete could not flow well around the rebar because of the design, so we learned to use self-consolidating concrete.

“Power reliability and redundancy requires that we have three individual power supplies that would allow us to safely shut down the plant if necessary,” Light said. “Lastly, we have very secure, controlled access with state-of-the art monitoring systems to ensure people have the right clearances and are supposed to be there.”

With special permission from the Office of the Secretary of Defense, the timeline for completion was expedited by a year. Even so, the project is meeting milestones and managing the funds.

“When I came on board six months ago, I realized I was walking into an extremely ambitious schedule with cost constraints through MILCON (military construction) authorizations,” said Bruce Huenefeld, PCAPP site project manager. “Those two had to be balanced to make the project successful.

“The Corps resident office has done a great job of meeting with the contractor to ensure we are meeting deadlines and not busting the budget,” Huenefeld said. “I am very pleased with what I have seen in the six months I have been here. Probably the reason this project is so successful is the open communication that comes from having integrated working space. This is a new way of working with the Corps that has been very good. Through my day-to-day interactions with the Corps of Engineers, the project has more than exceeded my expectations.”

Seeba sums up the importance of the project by saying, “We have 780,000 rounds of mustard munitions that will never be used. Think of how many lives that is. It makes you feel pretty good about it. There is also the expense. We are saving the country a lot of money in continuing to store the munitions and saving the world a lot of lives.”

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