

VX destruction facility moves toward a re-start

Officials at the Newport Chemical Agent Disposal Facility (NECDF) say they are making steady progress toward restarting agent disposal operations.

Jeffrey Brubaker, the Army's site project manager for the NECDF, expects the facility to be back online within the next few weeks. Meanwhile, he said, engineers and other workers have been putting in long hours resolving a valve issue and an unexpected challenge with wastewater flammability.

"Our primary goal is safety for the workforce, the public and the environment," Brubaker said. "We will restart operations when we are absolutely certain it is safe to do so, and will move forward slowly and

deliberately to ensure continued safety."

Operations to destroy the Chemical Agent VX stockpile here began May 5. The stockpile is being destroyed using a neutralization process where VX is mixed in a reactor tank with hot sodium hydroxide and water.

Chemical neutralization operations stopped June 10, three days prior to a planned pause in operations, when about 30 gallons of liquid containing chemical agent VX and caustic wastewater from the process leaked onto the floor in a sealed, contained area of the facility. The system detected the leak and automatically cut off the flow. "There was no danger to the work-

ers, the community, or the environment," Brubaker said. Once the liquid was cleaned up, workers set about determining the cause of the leak and a course of action for preventing future leaks.

"Our engineers determined the leak was caused by a polymer valve diaphragm that had been deteriorated by the caustic mixture and failed, allowing the liquid to flow through to the sealed concrete floor," Brubaker said. "The valve diaphragms on the two reactors were replaced with a Teflon product, which will stand up to the corrosive liquid generated by the process. Workers also inspected other seals, gaskets and diaphragms in the system, checking for signs of

deterioration and found none," he said. Brubaker added that new valves of a different type were ordered several weeks ago to completely replace the existing valves on the reactors. "The new valves are balltype and made of stainless steel," he said. "These valves do not have any type of diaphragm to corrode or degrade." He said valve replacement will be scheduled once the new parts are on site.

On June 27, project officials learned that analysis of the caustic wastewater, called hydrolysate, showed the flash point to be lower than previous laboratory tests had shown. "This meant we were deal-

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ing with material that is more flammable than expected," Brubaker said. He explained that the original tests on wastewater produced in a laboratory had indicated the flash point to be above 200 degrees Fahrenheit. Analysis of the wastewater produced in the Newport full-scale reactors resulted in a flashpoint of 65-85 degrees. "The facility was designed and built to handle flammable materials," Brubaker said, "so the issue is not one of storage danger," he said. "It's a matter of determining the cause and a path forward." Brubaker added that although the wastewater is ignitable and flammable according to environmental and transportation standards, the liquid would not likely sustain a fire because water makes up 70-80 percent of the solution.

Engineers believe the cause of the increased flammability is a chemical known as diisopropylamine, called DIPA. The DIPA, Brubaker said, has been trapped in the reactor, resulting in a higher flammability factor in the wastewater.

He said the plan is to alter the neutralization phase of the operation, making adjustments to reduce or eliminate the flammability factor. "If we're not successful with these adjustments, we'll look at other options," Brubaker said.

While working out the technical challenges in the neutralization process, facility managers have been preparing for restart. Last week, the facility underwent a hazard analysis, taking into consideration the production and storage of flammable hydrolysate. No significant findings resulted from the analysis. A demonstration of safe operations is planned in coming weeks, after which workers will prepare for a gradual, deliberate resumption of VX destruction operations.

"The first couple of batches will eliminate agent that was left in holding tanks when we paused operations in June," Brubaker said. "After these batch runs, we will pause again and extensively test the wastewater. We will use the analysis of those runs to determine whether our adjustments are effective and to confirm that the wastewater is nondetect for VX before we resume draining ton containers of agent. We anticipate there will be further operational pauses as we move forward," Brubaker said.

The U.S. Army Chemical Materials Agency is responsible for safely storing and eliminating the United States' aging chemical weapons and agent stockpiles and for the safe elimination of recovered chemical material.