THE HANFORD SITE

For Immediate Release:
August 17, 2021

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Hanford Begins Retrieving Waste from Another Underground Storage Tank

Workers with Hanford Site tank operations contractor Washington River Protection Solutions install remotely operated, specialized equipment to retrieve waste from single-shell tank AX-103 at the Hanford Site.

RICHLAND, Wash. – The U.S. Department of Energy's Office of River Protection tank operations contractor Washington River Protection Solutions (WRPS) recently began retrieving radioactive and chemical waste from another massive underground storage tank at the Hanford Site.

Over the next several months, workers will retrieve approximately 104,000 gallons of solid and sludge-like material from Tank AX-103 and transfer it to a double-shell tank for safe storage until it is fed to the Waste Treatment and Immobilization Plant for vitrification, or immobilization in glass.

“Moving waste from older single-shell tanks to newer double-shell tanks is an important step in progressing our risk-reduction mission,” said Ricky Bang, Hanford Site Tank Farms Program division director. “It’s not easy to access the tanks or move this kind of waste, and it takes specialized tools and techniques that have been developed, tested, and proved successful to meet this challenge.”

During waste retrieval, workers operate retrieval equipment inserted through relatively small openings in the top of the tank from a nearby control trailer. They use pressurized water to dissolve the solid, or salt-cake, waste and flush it to the pump that transfers the waste to a double-shell tank.

“It takes a particular combination of water and pressure to create a slurry, which suspends the heavier solids in a liquid that can be pumped out and sent via transfer lines to another tank,” said Peggy
Hamilton, retrievals manager for WRPS. “We use lessons we learned and technologies developed during the successful retrieval of waste from other tanks to help us complete this challenging work.”

To prepare decades-old tanks for efficient and safe waste retrieval operations, workers remove old systems and equipment, like this thermocouple that was used to measure the temperature of waste. They install new retrieval and monitoring equipment, ventilation safety systems, and waste transfer lines.

Tank AX-103 is the third million-gallon tank to have its waste retrieved in a group of four called the AX Tank Farm. WRPS has already retrieved waste from tanks AX-102 and 104. Retrieval of the last tank, AX-101, is scheduled to begin next year.

Preparing a decades-old tank farm for safe waste retrieval takes years of retrofitting. Workers remove old, contaminated equipment from the tank to make space for the equipment needed for retrieval of the waste. Then they install modern retrieval equipment, ventilation safety and leak-detection systems, and transfer lines to move the waste to a double-shell tank. They also install utilities and cameras with lighting so operators can see inside the tanks while operating equipment remotely.

To date, workers have completed retrieving the waste from 17 of Hanford's 149 older single-shell tanks. Those tanks include the 16 tanks in the C Farm and a tank in the S Farm. Once tanks AX-102 and 104 go through a standard technical review for completion that can take several months, the list will grow to 19.

Hanford's single-shell tanks were constructed of carbon steel and reinforced concrete between 1943 and 1964 to store radioactive and chemical waste created during plutonium production operations in World War II and the Cold War era.

The Department of Energy (DOE) is engaged in one of the great public works of this century at the Hanford Site near Richland, Washington. Responsible for the federal government's cleanup of the legacy of more than 40 years of producing plutonium through the 1980s, DOE is transforming the site back into a 24/7 operations mode to treat tank waste from the production era. The DOE Office of River Protection (ORP) is responsible for the safe and efficient retrieval, treatment and disposal of the 56 million gallons of chemical and radioactive waste stored in Hanford's 177 underground tanks. The mission includes building and commissioning the world's largest radioactive waste treatment plant, which will immobilize the legacy tank waste through vitrification. The DOE Richland Operations Office is responsible for all remaining Hanford cleanup and is currently focused on stabilizing and demolishing former plutonium production structures, excavating and disposing of contaminated soil and waste, treating contaminated groundwater, and configuring Hanford Site infrastructure for the future, with an emphasis on supporting the tank waste mission. Hanford Site work is conducted by a federal and contractor workforce of approximately 11,000 personnel. Visit www.hanford.gov for more information about the Hanford Site.

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