

Fieldwork under way on first waste tank to be closed

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As Hanford celebrates 60 years of history, one of the site's oldest radioactive waste tanks is poised to up-stage the once-infamous SY-101 (Hanford's "burping tank") in the Hanford history books. Major fieldwork is under way to prepare for retrieving waste from single-shell Tank C-106, the first Hanford tank selected for closure. It was built in 1943, the year Hanford's wartime mission began.

Like SY-101, Tank C-106 was once on the congressional watch list of dangerous tanks. After a misrouted transfer of strontium waste from the B Plant processing facility in the 1970s, the waste inside C-106 became so hot it boiled.

In the late 1990s, most of the waste — about 186,000 gallons containing 4.4 million curies of radioactivity — was transferred to another tank to solve the high-heat problem. Today, the 530,000-gallon tank is nearly empty, except for about 30,000 gallons of waste that remain for retrieval before closure.

Hanford's single-shell Tank C-106 (right, under construction 60 years ago) was among the first of 177 large underground tanks built over the decades to store a total of 53 million gallons of radioactive and hazardous waste. Below, a 50-year old "heel jet" pump is removed from C-106 to make way for new waste-retrieval equipment. The 1940s-era tank is the first at Hanford to be selected for closure.



Pioneer in tank closure

Tank C-106 is a trailblazer in terms of determining the future of Hanford tank closures. Retrieving the waste and closing the tank will take place under an agreement with Hanford's regulators called an "accelerated closure demonstration." According to the Tri-Party Agreement, all of the waste in C-106 must be retrieved by the end of this coming November

The experience and information gained as waste is removed from C-106 will help guide the Department of Energy Office of River Protection, CH2M HILL and Hanford's regulatory agencies and stakeholders in deciding the appropriate regulatory and technical pathway for closing the rest of Hanford's tanks. The decisions will be captured in the form of an environmental impact statement, which would support a decision by DOE in April 2004. Accelerated cleanup plans call for closing up to 40 of the older single-shell tanks by October 2006.

"A key to moving forward with cleaning up and closing Hanford tanks is to go through the waste-retrieval experience on the first tank," said Ryan Dodd, CH2M HILL Hanford Group deputy vice president of Operations. "As we gain that experience, we can begin de-

livering on our commitment to close Hanford tanks and reduce the potential threat to our workers, the environment and the public."

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Preparations progress

Preparations for retrieving the waste from C-106 are in high gear. In order to make way for new retrieval equipment, crews pulled a 50-year-old pump from the tank, which was no easy task. Decades of heating and cooling cycles and the high humidity inside the tank had badly corroded the pump until it was literally stuck in place. Some eight different methods were used to try to remove the pump. The use of mechanical wedges, hydraulic jacks and a crane finally freed the stubborn pump from the tank opening.

“This is not just a job that went well. It is truly an example of how we are changing the way we do business to meet the accelerated cleanup goals,” said Dodd. “When the project team faced challenges, they found a way to work through them, and we did this job safely, quickly and for less money than expected.”

The entire evolution of work, from planning to actually removing the pump, was completed in a matter of months, significantly less time than similar jobs in the past. The high-hazard task was completed with no significant personnel safety problems, radiological-control or environmental difficulties, or chemical-exposure incidents.

Making way for new retrieval equipment in the tank’s central opening, called a riser, is a key step in the effort to remove the rest of the waste. The bottom of the tank has a dish-like shape, causing liquid waste to flow inward toward the middle of the tank.

“Getting the pump out was quite a challenge, but we used an enhanced work-planning process to come up with solutions as the challenge changed,” said Joel Eacker, CH2M HILL Hanford Group vice president of Projects. “Removing the old pump from the tank is a critical step to gaining access to the last of the waste inside and proceeding with accelerated tank cleanup.” ■