

The Hanford Cold Test Facility (CTF), operated by Washington River Protection Solutions, is the test site for technologies that will be used in the safe management and cleanup of radioactive and chemical waste stored in underground storage tanks and to overcome Hanford's unique challenges to removing this waste from these tanks so the waste is no longer a threat to the environment. Challenges include:

- Tanks were designed to put waste in, not take it out
- Tanks contain multiple waste forms requiring specialized tools to remove each type
- Tanks have a number of obstructions inside, such as old equipment, instrumentation, etc.
- Tanks are buried under ten feet of soil and access is limited
- All work inside the tanks must be performed remotely

Constructed to replicate the majority of the older single-shell tanks found near the center of the 586 square-mile site, CTF is 75 feet in diameter, 27 feet high and can hold approximately 660,000 gallons of material, though it is not intended to ever be filled.

To overcome the issues inherent in waste removal we use the CTF to test hardware and train personnel who will operate the technologies. It is a non-radioactive environment where we can simulate tank waste conditions to determine whether a particular piece of hardware will function as intended without compromising the safety of our workers or the environment. The floor of the tank allows complete flexibility to simulate the tank waste environment. It can be partitioned into segments, allowing us to test equipment on the full range of liquids, sludges and even the concrete-like material that is found in the tanks.

The newest hardware to be tested at CTF is the innovative Mobile Arm Retrieval System, or MARS. This unique device is a telescoping, robotic arm with a pump on a central mast. Built for use at Hanford, it includes a system of high-pressure water nozzles at the end of the arm that can hydraulically "rake" the waste to the pump. It can reach all parts of the tank and is expected to be able to remove all of the various waste forms found in Hanford's tanks without the need for additional technologies and is expected to successfully replace a number of other waste removal technologies that have been used in the past.

Adjoining the CTF is the Joint Briefing Center where the Office of River Protection and WRPS can provide detailed information about tank waste management and retrieval operations to Hanford Site visitors. Technological advances and innovations made possible by the CTF are leading the way in nuclear cleanup operations.



Hanford Site Cold Test Facility went into service 6/15/2002. This full-scale mockup of a single-shell tank provides a test platform for new and innovative technologies in a non-radioactive environment such as the examples pictured below.



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