U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

Hanford Demonstrates Improved Methods to Remove Pumps From Waste Tanks

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Workers at the Hanford Site recently used cameras to operate a robotic arm during a proof-of-concept demonstration of removing a hydraulic pump from Tank AP-102.

RICHLAND, Wash. — Workers with U.S. Department of Energy (DOE) **Office of Environmental Management** contractor Washington River Protection Solutions (WRPS) recently demonstrated two improved methods they intend to use for removing an old hydraulic pump from a large, underground tank storing radioactive and chemical waste at the **Hanford Site**.

This proof-of-concept simulation was done in a nonradioactive environment, which supports safe progress on complex cleanup projects in the field. It also showcased worker proficiency, equipment reliability and adherence to safety procedures needed for a planned removal of a pump from **Tank AP-102**. Engineers adapted a **previously used** robotic arm to assist on this job and employed an improved bag system which encloses the pump as it's pulled out of the tank to protect workers from contaminants.

“The work DOE and WRPS do to manage Hanford’s underground tanks is highly specialized,” said Harold Stafford, **Office of River Protection** Tank Waste Operations project engineer. “By using methods that have been successful at other sites and modifying them to fit our specific needs, we help ensure that crews continue to complete projects safely and efficiently.”

Crews with U.S. Department of Energy Office of Environmental Management contractor Washington River Protection Solutions demonstrate bagging and retrieving a hydraulic pump from a tank in a simulated, nonradioactive environment, then packaging it for disposal after its pipes are drained of fluid.

Workers will use cameras to guide the robotic arm to drain oil from hydraulic lines before fully extracting the pump from the tank. This method enhances safety and efficiency by reducing potential radiation exposure and keeping excess waste in the tank. Previously, operators drained fluids only after removing the contaminated pump from the tank.

Crews will then remove the pump using a large, flexible bag. The disposable bag works as a protective sleeve to block contaminants that might be on the pump while protecting the workers handling it.

EMTV: Watch this video to learn more about a recent demonstration for safely removing a hydraulic pump from Tank AP-102 at the Hanford Site.

“We routinely remove equipment, and before disposal it needs to be drained of any liquids,” said Peter Griffin, a WRPS Tank Farm Projects engineer. “This robot further advances our journey of optimizing and deploying robotic technology effectively. We’re leveraging a blend of existing products and our own custom builds to meet Hanford’s specific needs and applications.”

Crews plan to use the equipment early this summer, supporting a pump replacement project that will enable future waste transfers in and out of the tank.