HANFORD
TANK WASTE
RECOVERY ACT REPORT
July 2010

Recovery Act Improves Tank Waste Monitoring at Hanford

Workers have successfully installed a new corrosion probe in one of Hanford's double-shell tanks, significantly improving the control of waste chemistry and thereby reducing the cost for treating tank waste. The new probe for tank AN-107 was built, assembled and installed with funds provided by the Recovery Act (RA).

A corrosion probe is a 50-foot long piece of monitoring equipment installed into the tank that provides a real-time measurement of waste chemistry. Sensors installed at various points along the probe help measure chemical makeup of the waste and corrosion rate of the tank wall. This monitoring system helps ensure that Hanford's double-shell tanks can safely store high-level radioactive waste for decades to come while it is waiting to be processed for disposal.

Before installing the new probe, workers had to remove an older unit from the tank that was covered by 33 feet of waste. Crews used two cranes to hoist the upper portion of the probe out of the tank and safely lower it to the ground. Then it was shielded, put into a protective bag, and cut into manageable pieces for disposal.

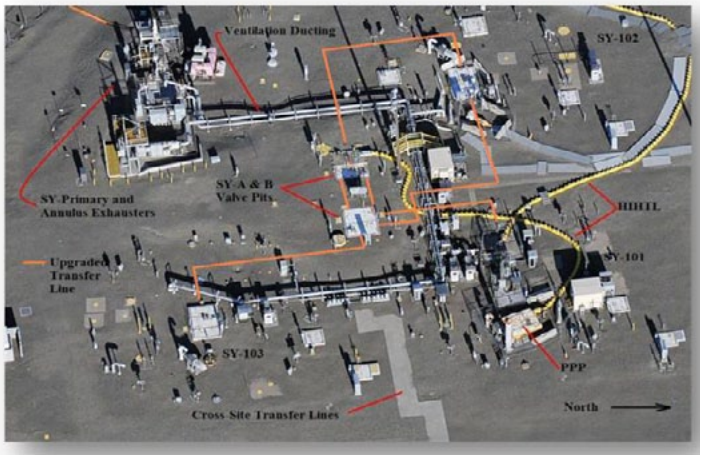
Managers say ingenuity, participation of employees in the planning process, and a push for continuous improvement were all key factors in the success of the project.

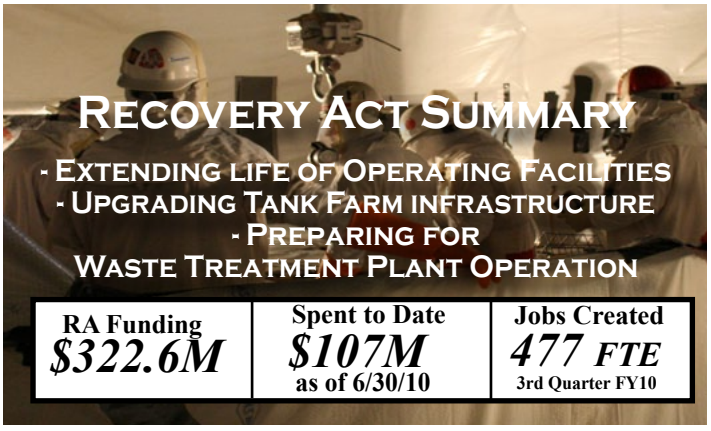
RA Funds Important Transfer Line Upgrade

Crews at Hanford are using RA funds to replace eight pipe-in-pipe transfer lines that no longer meet regulatory requirements. The lines will be used to carry waste from underground tanks where the waste is being stored to the new Waste Treatment Plant currently under construction.

In June, workers began digging in the farms to identify the potential contamination risk from the old transfer lines and to determine if waste still needed to be flushed out. In the coming weeks, crews will excavate roughly 1,000 cubic yards of soil to extract more than 700 linear feet of pipe. The lines being removed will be cut using hydraulic shears and sent to the Environmental Restoration Disposal Facility for burial. The old transfer lines will then be replaced with new or refurbished lines.

The new transfer lines are necessary to safely transfer waste during retrieval, blending, and delivery operations. The RA-funded project supports the long-term mission of the tank farms by accelerating essential upgrades needed to prepare the farms for delivery of waste to the vitrification plant.





RA Helps Hanford Workers Beat the Heat

Long before summer weather arrived at Hanford, employees were basking in the warmth of 87 degree temperatures. Unfortunately, it was happening in their offices. A 30-year-old cooling tower at 2750E—an office building with more than 400 occupants—was on its last leg, making the office space nearly uninhabitable. Thanks to RA funding, work crews recently installed a new, state-of-the art cooling tower at the 2750E building, bringing relief to the hundreds of employees who work there.

The problem with the old unit was first recognized several months ago when outside temperatures began to increase. Without an effective cooling system, the building temperature began to soar. Fans were set up around the building but they simply couldn't keep up with the heat.

The replacement cooling tower is a new generation of the older unit and is much more efficient, providing both energy and cost savings benefits. It has also likely provided a boost in worker efficiency and productivity by providing a much safer and more comfortable work environment.

Construction of Interim Moisture Barrier Begins at Hanford

Work is now under way at Hanford to build an RA-funded interim moisture barrier over the top of one of the tank farms. The barrier is designed to act as a protective shield and prevent rain water from seeping into the soil and pushing leaked radioactive and chemical waste deeper into the ground.

Hanford is home to more than 53 million gallons of radioactive and chemical waste stored in 177 underground tanks, up to a third of which are suspected "leakers." Barriers, however, have proven to effectively keep leaked waste from migrating toward the water table. These barriers are a temporary measure, but are expected to be in place for up to 25 years until decisions are made as to how to deal with the contamination in the soil around the tanks.

The barrier now being built at TY Farm will be the second such barrier constructed over a single-shell tank farm at Hanford with at least four more barriers planned. TY Farm, constructed in 1951, contains six underground storage tanks. Five of the six tanks are assumed to have leaked waste into the soil in the past.

Precipitation collected on the asphalt barrier will flow to an evaporation basin just outside the farm, which will be lined with material to prevent it from leaking. Then the basin will be covered with soil and planted with native grasses to soak up the moisture.

Improving Waste Transfer

Crews at Hanford are using RA funding to remove 20-year-old jumpers from tank farm valve pits. The valve pits are an important part of waste transfers, retrievals, and delivery to the Waste Treatment Plant. The jumpers allow workers to reconfigure the waste stream and direct it to where it needs to go. Replacing the aging jumpers will improve the reliability of waste transfers and cut down on the amount of time it takes to transfer waste.

Increasing Tank Space

Hanford crews have started work on a RA-funded project to modify instruments that will allow a rise in the maximum operating level of six double-shell tanks (DST). The modification will increase level measurement from 422 inches to 454 inches, resulting in a ~88,000-gallon increase in space for each of the six tanks. DST space is an essential asset for retrieval of single-shell tank waste and staging of feed for the Waste Treatment Plant now under construction at Hanford.