FACT SHEET

Radioactive Liquid Waste: Operational Closure of Tanks

The Savannah River Site (SRS) is home to the first two liquid radioactive waste tank operational closures in the nation. Marking a major milestone in stabilizing another portion of the Cold War legacy materials for the site and the nation, these two tank operational closures have been followed with two more in 2012, two in 2013, one in 2015, and one in 2016.

Tank 20, the first closed, was certified closed by the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control (SCDHEC) and applicable U.S. Department of Energy (DOE) Orders in July 1997. EPA and SCDHEC certified closure of Tank 17 in December 1997. Both tanks were located in the site's F Area and were constructed in 1958 and first used in 1960.

The DOE, SCDHEC, the U.S. Environmental Protection Agency, SRS workers and the public work closely together to establish strict closure requirements that supported all State and Federal regulations, while ensuring long term protectiveness to the environment and public.

Years before the actual closing of the tanks can begin, the bulk of the radioactive waste must be removed for treatment and stabilization using the site's processing facilities. Following completion of bulk waste removal in a tank, the complex closure activities begin with removal of the remaining heel waste material using either mechanical or chemical cleaning methods to the extent practical in accordance with requirements and closure plans established with SCDHEC and EPA. The final closure activity begins with workers pouring specially formulated grouts (a cement-like substance) into the approximately one million-gallon tanks. This special grout stabilizes the tank and is used to impede the leaching and migration of the waste. Over the course of several weeks, the tanks are filled with grout and tank top penetrations are sealed.

This final waste tank closure process reduces risks to human health and the environment by securing any residual waste in the tanks, which minimizes the potential for groundwater contamination into the future.

To reach the tank closure goals, workers have had to build, test and deploy new technology and tools to remove waste from the tanks. In addition, special grout testing has helped determine how to best add the grout into the tanks to secure the remaining waste and protect the tank structure. These closed tanks are part of the 51 total underground tanks located in the Site's F and H Area Tank Farms to store liquid radioactive waste generated from weapons material production during the Cold War. This radioactive waste from the tank farms has been concentrated over the years to reduce its volume. Currently 36 million gallons of waste are stored in the remaining 43 underground carbon-steel waste tanks.

The radioactive waste sludge removed from tanks is sent to the Site's Defense Waste Processing Facility, where it is being immobilized in a glass form for safe storage and eventual long term disposal in a Federal repository. Most of the waste in the tanks is salt waste, which is also removed as part of the closure process. An interim salt waste processing program, the Actinide Removal Process (ARP) and Modular Caustic Side Solvent Extraction Unit (MCU), has been developed that integrates a set of salt-decontamination processes designed to eliminate most of the radioactive isotopes from about one million gallons of salt solution per year until the high-capacity Salt Waste Processing Facility (SWPF) becomes operational.

ARP & MCU work together as an integrated system to remove nearly all of the radioactive isotopes from salt waste solutions prior to transfer to the Saltstone facilities for treatment by mixing into cementitious grout and placement into Saltstone Disposal Units.

In 2012, Savannah River Remediation personnel achieved another historic milestone operationally closing F Area Tanks 18 and 19, and Tanks 5 and 6 in 2013. In September, 2015, another significant milestone was achieved with the closure of Tank 16; the first tank closed in the H Area.

SRS waste tanks have provided over 50 years of safe storage for radioactive liquid waste. The Site's mission is to eventually close all waste tanks.

Savannah River Remediation (SRR), SRS's liquid waste contractor, is continuing a broad range of efforts to close the old-style waste tanks per Federal Facility Agreement milestones. Currently, five additional waste tanks are in various stages of preparations for the bulk waste removal process, and H Area Tank 12 is undergoing final operational closure activities with grout additions completed in April, 2016.

For more information about tank closure at SRS, please visit:
https://www.youtube.com/watch?v=tfeqYt1KX_o
https://www.youtube.com/watch?v=vHoOu8MLsCc

SRR is the Liquid Waste contractor at SRS, which is owned by the U.S. Department of Energy. SRR is composed of a team of companies led by AECOM with partners Bechtel National, CH2M and BWX Technologies, Inc.