



## FACT SHEET

# Salt Processing

The Savannah River Site's (SRS) radioactive liquid waste operations involves the management of space in the remaining 43 underground waste tanks, including the removal of waste materials. Once water is removed from the waste tanks, two materials remain: salt and sludge waste.

Removing salt waste, which fills approximately 93 percent of the tank space in the SRS tank farms, is a major step toward emptying the Site's waste tanks that currently contain approximately 35 million gallons of waste. Additionally, salt waste must be dispositioned to ensure sufficient tank space to prepare sludge for vitrification.

### Salt Processing

Several processes are being used at SRS to disposition the salt waste. A salt waste processing program has been developed that integrates, and continues to optimize, a set of salt-decontamination facilities designed to eliminate nearly all of the radioactive isotopes at a rate of more than one million gallons of salt solution per year. Future plans to provide increased salt processing capability include the completion of the Salt Waste Processing Facility project.

The Actinide Removal Process (ARP) and Modular Caustic Side Solvent Extraction Unit (MCU) work together as an integrated system to remove nearly all of the radioactive isotopes from salt waste solutions prior to its transfer to the Saltstone facilities.

The goal is to immobilize all of the waste into one of two final forms for safe, long-term storage: borosilicate glass, which will contain greater than 99 percent of the radioactivity, or cement-like grout, for disposal of low-activity salt waste.



Savannah River Remediation LLC manages the Savannah River Site's Liquid Waste contract for the U.S. Department of Energy. SRR is dedicated to the reduction of risks through safe stabilization treatment, and disposition of legacy radioactive waste.

**WE DO THE  
RIGHT THING**



## Actinide Removal Process

As needed, ARP removes radioactive contaminants, such as plutonium and strontium, by adding monosodium titanate (MST) to radioactive salt solutions stored at SRS and then filtering out the MST that has absorbed the radioactive contaminants.

The MST-radionuclide particles are transferred to the Site's Defense Waste Processing Facility (DWPF) where it is mixed with molten glass and poured into 10-foot-tall stainless steel canisters. The canisters are then welded shut and temporarily stored on-site awaiting final disposition at an off-site federal repository. The remaining filtered salt solution is then sent to the MCU for further processing.

## Modular Caustic Side Solvent Extraction Unit

Using principles involving centrifugal force and a special engineered solvent, MCU equipment takes the high-activity salt solution and divides it into two waste streams. The cesium is removed and sent to DWPF. The remaining decontaminated salt solution is transferred to the Saltstone Production Facility to be mixed with dry cement-like materials to form a cement like grout for safe, permanent on-site disposal in engineered vaults.

Since SRR implemented its use in 2014, "Next Generation Solvent" has provided increased decontamination performance for future extended salt processing.



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.