

# SRS Facts

SAVANNAH RIVER SITE • AIKEN • SC

## Waste Management at SRS

### Liquid Waste

Liquid radioactive waste is generated at the Savannah River Site (SRS) as by-products from the processing of nuclear materials for national defense, research and medical programs. The waste, totaling about 36 million gallons, is stored in 44 underground carbon-steel waste tanks grouped into two “tank farms” at SRS.

The liquid waste in tank storage exists in essentially two forms: sludge and salt. The Defense Waste Processing Facility (DWPF) is designed to treat the high-activity radionuclides from both forms of this waste.

- The sludge form, while comprising only about 10 percent of the volume in the tanks, contains about half of the radioactivity. All of it goes to DWPF.
- The salt form comprises about 90 percent of the volume and contains the balance of the radioactivity. The salt waste is treated at the Modular Caustic Side Solvent Extraction Unit (MCU) and the Actinide Removal Process (ARP). The higher activity portion of the salt waste—a very small stream—is sent to DWPF. The rest is a decontaminated salt solution sent to the Saltstone facilities.

#### What's the difference between high-level waste and low-level waste?

##### ■ High-level Waste

The highly radioactive waste material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material in that waste that contains fission products in sufficient concentrations; and other highly radioactive material that is determined, by law, to require permanent isolation. Liquid high-level waste at SRS is stored in large, underground waste tanks, and is treated at DWPF, where it is converted into a glass form for safe, permanent storage.

##### ■ Low-Level Waste

Low-level waste (LLW) is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material [as defined in section 11e.(2), (3), and (4) of the Atomic Energy Act of 1954, as amended], or naturally occurring radioactive material. The salt radioactive waste stored in large, underground tanks at SRS is treated at the salt processing facilities (ARP/MCU), where the salt is separated into a very small, concentrated high-level waste stream that goes to DWPF for disposition. The large waste stream of the decontaminated salt solution or LLW is sent to the SRS Saltstone facilities, where it is mixed with a cement-like grout and poured into Saltstone Disposal Units. These above-ground units, which hold approximately 3 million gallons of grout each, are designed to keep the waste immobilized until long after the residual radiation decays away.



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## Waste Management: Liquid Waste *(continued)*

The DWPF, the only radioactive waste glassification plant in the nation, converts the liquid nuclear waste currently stored at SRS into a solid glass form suitable for long-term storage and disposal.

The Saltstone Production Facility receives the decontaminated salt stream from ARP/MCU, then treats and permanently disposes of the decontaminated salt solution by stabilizing it in a solid, cement-based waste form. The grout is poured into Saltstone Disposal Units. These above-ground units, which hold 3 million gallons each, are designed to keep the waste immobilized until the residual low-level radiation decays away.

This mission is undertaken with safety woven into all phases of the work.

Ultimately, the waste in the tanks will be removed and the tanks operationally closed. The U.S. Department of Energy, S.C. Department of Health and Environmental Control, U.S. Environmental Protection Agency, Nuclear Regulatory Commission, SRS workers and the public are working closely together to implement strict closure requirements that support all state and federal regulations for tank closure.



*The Defense Waste Processing Facility*

