Facts from the Savannah River Site
ENVIRONMENTAL STEWARDSHIP • NATIONAL SECURITY • SCIENCE AND ENERGY

# Liquid Waste Tank Farms

Radioactive liquid waste generated by Savannah River Site (SRS) chemical separations processes is stored in the SRS Tank Farms in both solid and liquid forms. Over 165 million gallons of radioactive liquid waste have been generated and concentrated by evaporation to a present volume of approximately 34 million gallons.

SRS has a total of 51 waste tanks built in the Site's F and H Areas; eight of those tanks have been operationally closed. Several of the remaining 43 waste tanks are in various stages of the waste removal, cleaning, and operational closure process. Waste from all the tanks will be removed with priority given to the Type I, II, and IV tanks.

In waste tanks, the insoluble solids in the waste settle to the bottom, forming "sludge." Liquid above the sludge, referred to as salt waste, is concentrated by evaporation to reduce its volume. As the concentrated salt waste cools, a portion crystallizes forming a solid "saltcake." This concentration process not only reduces the volume, but also makes the waste less mobile.

### Types of Waste Tank Designs

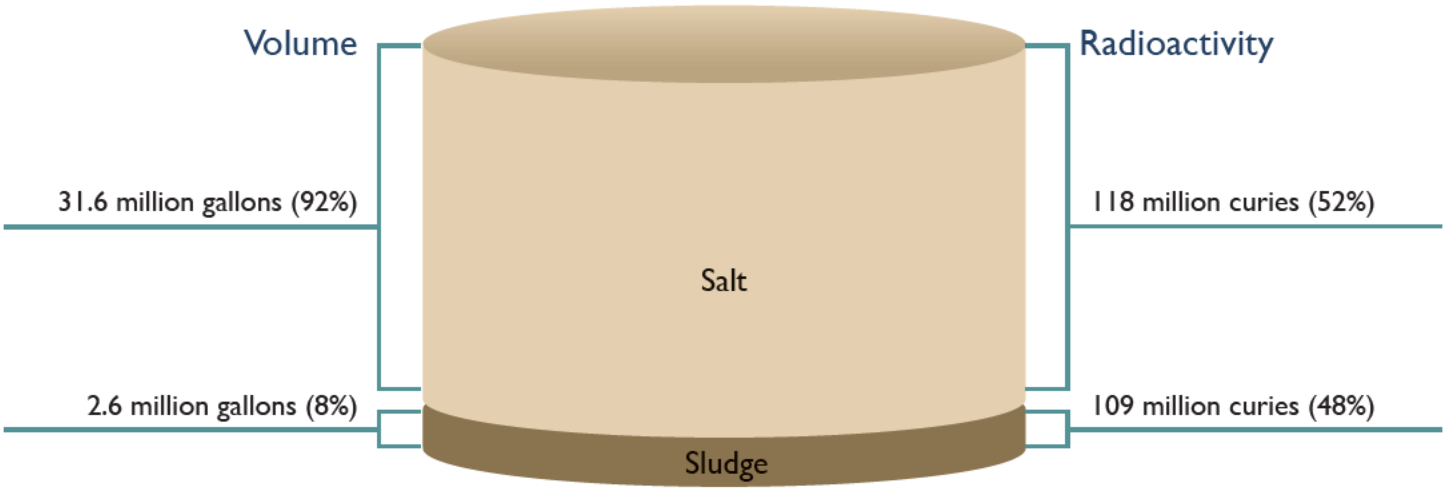
Since 1954, SRS waste tanks have provided safe and environmentally sound storage for nuclear waste. All of SRS's radioactive waste tanks are below ground with only the tank tops exposed for access. These tanks include four designs.

### Type I and II Tanks

The oldest tanks, Types I and II have partial height steel secondary containment pans within a concrete vault and forced cooling systems. Some of these tanks previously developed small hairline cracks that allowed leakage of small volumes of salt solution into secondary collection pans below the tanks. The cracks were induced by high nitrate concentration in the waste solutions and residual stresses near weld sites. Waste levels within those tanks have been lowered below known leak sites.

## Waste Tank Inventory

Total inventory in 43 waste tanks

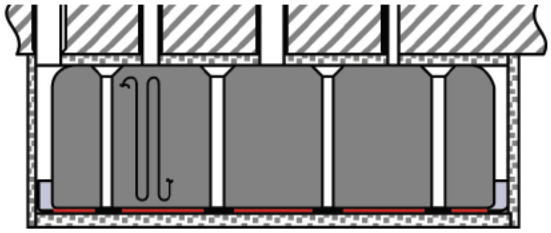



*Inventory values as March 31, 2022*

U.S. DEPARTMENT OF ENERGY

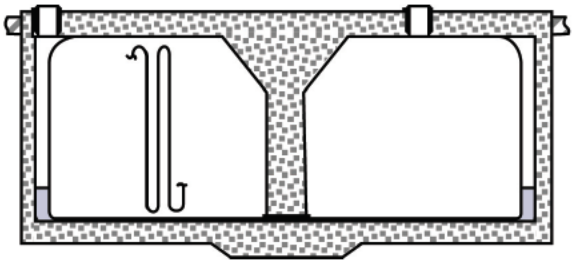
The Savannah River Site is owned by the U.S. Department of Energy. Savannah River Nuclear Solutions is the management and operations contractor at the Savannah River Site. Savannah River Mission Completion is the liquid waste contractor at the Savannah River Site.

SRS SAVANNAH RIVER SITE



**Type I**

- 12 tanks; built between 1951-1953
- Three Type I tanks are operationally closed and grouted
- 750,000-gallon capacity; 75 feet in diameter by 24.5 feet high
- Partial secondary containment with leak detection
- Nine tanks containing a total of about 3.6 million gallons of waste
- Five of these tanks have leaked into the annulus space; the amount of waste stored is kept below the known leak sites that have appeared over the decades of operation, and there are no active leak sites

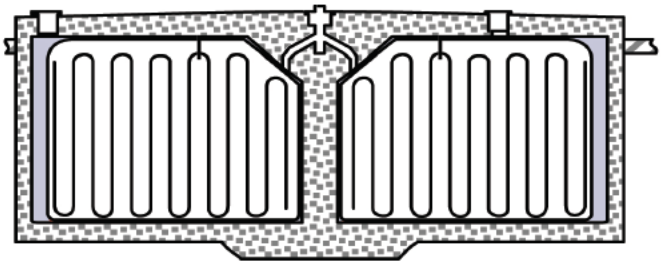


**Type II**

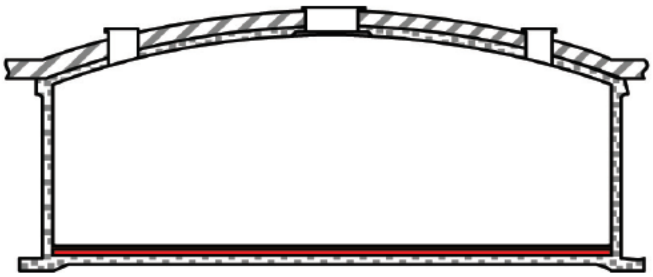
- Four tanks; built between 1955-1956
- One tank is operationally closed and grouted
- 1-million-gallon capacity; 85 feet in diameter by 27 feet high
- Partial secondary containment with leak detection
- Three tanks containing less than 1 million (920k) gallons of waste
- Tanks still storing waste have leaked waste into the annulus space
- Waste is stored below known leak sites, and there are no active leaks

**Type III/IIIA Tanks**

The type III/IIIA design has a maximum storage capacity of approximately 1.3 million gallons and is 33 feet high and 85 feet in diameter. Type III tanks have forced cooling systems inserted in risers while type IIIA tanks had cooling coils installed in the tanks during construction. Type III/IIIA tanks have full-height secondary containment, i.e., they are a tank within a tank. These tanks, mostly built in the late 1960s and 1970s, have been stress-relieved to prevent stress corrosion cracking. No cracks or leaks have occurred in any of the Type III/IIIA tanks.



- 27 tanks; built between 1969-1981
- 1.3-million-gallon capacity; 85 feet in diameter by 33 feet high
- Most modern tank design at SRS, including heat stress relief on the tank walls to prevent cracking
- Full height secondary containment with leak detection
- Contain about 25.7 million gallons of waste
- No tanks have leaked



**Type IV Tanks**

Type IV tanks have a single wall and do not have a forced cooling water system. Type IV tanks are designed for waste storage that does not require auxiliary cooling. This tank type has a steel liner encased in concrete and a domed roof. Each tank has a maximum capacity of approximately 1.3 million gallons and is 85 feet in diameter and 34.5 feet high.

- Eight tanks; built between 1953-1963
- 1.3-million-gallon capacity; 85 feet in diameter by 34.5 feet high
- Has leak detection but no secondary containment
- Four tanks are operationally closed and grouted
- Contain about 4 million gallons of waste
- None of the four tanks still storing waste have leaked

*SRS has a total of 51 waste tanks built in the Site's F and H Areas; eight of those tanks have been operationally closed.*

*Several of the remaining 43 waste tanks are in various stages of the waste removal, cleaning, and operational closure process.*

U.S. DEPARTMENT OF ENERGY

The Savannah River Site is owned by the U.S. Department of Energy. Savannah River Nuclear Solutions is the management and operations contractor at the Savannah River Site. Savannah River Mission Completion is the liquid waste contractor at the Savannah River Site.

SRS™ SAVANNAH RIVER SITE

*May 2022*