

# SRS Facts

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## Waste Management at SRS Transuranic Waste

Past and present operations at the Savannah River Site (SRS) produce a variety of waste streams. These waste streams include radioactive and hazardous waste of varying concentrations. Transuranic (TRU) waste is defined as waste contaminated with alpha-emitting radioisotopes with an atomic number greater than that of uranium (92), a half-life greater than 20 years, and a concentration level above 100 nanocuries per gram. At SRS, TRU waste is solid waste, consisting of clothing, tools, rags, residues, debris and other items contaminated with trace amounts of plutonium.

In 1999, the U.S. Department of Energy opened the Waste Isolation Pilot Plant (WIPP), a geologic repository near Carlsbad, N.M., specifically constructed for the permanent disposal of TRU waste from DOE sites across the nation.

When the SRS TRU Ship-to-WIPP program began, over 30,000 containers of TRU waste were in storage at SRS. SRS made its first shipment in May 2001 and has made over 1,650 shipments through 2014.

Preparations for the initial shipments to WIPP included the safe retrieval of almost 9,000 buried drums. These drums were stored in the late 1970s and early 1980s on concrete pads and covered with soil for protection from the environment. SRS began retrieval in 1997 and completed in 1999, two years ahead of schedule.

Since the majority of SRS waste containers were filled prior to the issuance of the WIPP Waste Acceptance Criteria (WAC), nearly 30 percent of the drums and all of the miscellaneous waste containers required repackaging and the removal of prohibited items.

In order to ship the TRU waste to WIPP, SRS must meet stringent WIPP WAC and Resource Conservation and Recovery Act permit requirements as issued by the State of New Mexico. TRU is characterized by:

- Assay of TRU containers to determine the amount of radioactivity
- X-ray of containers to verify that the physical contents meet WIPP WAC
- Head space gas sampling of containers to detect hydrogen, methane and other volatile organic compounds

After completing the characterization and certification requirements, one of three Nuclear Regulatory Commission licensed Type-B casks is used to transport the TRU waste to the WIPP facility. These casks have undergone extensive testing to demonstrate the ability to provide safe containment of the TRU wastes. The Transuranic Package Transporter



### What is SRS transuranic waste?

Solid waste consisting of clothing, tools, rags, residues, debris and other items contaminated with trace amounts of plutonium.



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

Model 2 (TRUPACT-II) is designed to transport up to 14 55-gallon drums, two Standard Waste Boxes or one Ten Drum Overpack. The shipping trailers normally carry three TRUPACT-IIs at one time.

When waste is too large to fit into the TRUPACT-II and size reduction is not reasonable due to levels of contamination, personnel exposure or waste makeup, a Standard Large Box (SLB) may be utilized. A SLB can hold approximately seven cubic meters of waste. SLBs are then transported in a Transuranic Package Transporter Model 3 (TRUPACT-III). In August 2011, SRS made its first shipment using the TRUPACT-III, which was also a first for the DOE complex.

The third Type-B cask used to transport TRU wastes is known as the 72-B. This dumbbell-shaped container holds up to three 55-gallon drums of TRU waste and offers more protection from higher radiation levels emanating from the waste than the other casks. The TRUPACT-III and 72-B are large, each occupying an entire trailer for shipment.



*Trucks carrying three types of transuranic waste containers leave SRS on their way to the Waste Isolation Pilot Plant in New Mexico.*

