



# FACTS

ABOUT THE SAVANNAH RIVER SITE

---

## SRS 'Ship to WIPP' and Transuranic Waste Program

Past and present operations at the Savannah River Site (SRS) produce a variety of types of waste streams. One of these waste streams is called transuranic or "TRU" waste. TRU waste is waste contaminated with transuranic radioisotopes that have a half-life of greater than 20 years and a concentration level equal to or above 100 nanocuries per gram. At SRS, TRU waste is mainly solid waste—consisting of clothing, tools, rags, residues, debris and other items—that is contaminated with trace amounts of plutonium.

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

When the SRS TRU Ship-to-WIPP program began, there were over 30,000 containers of TRU waste in storage at SRS. SRS made its first shipment in May 2001 and has made over 800 shipments through 2007. By optimizing existing SRS facilities and implementing more efficient operations, SRS has been able to accelerate shipments in recent years. At the end of 2007, over 24,000 55-gallon drums, or 5,000 cubic meters, of the original TRU waste inventory has been shipped. SRS's current projections have the site scheduled to ship all of the SRS TRU drummed waste to WIPP by 2010, 24 years ahead of the original baseline.

Non-drummed TRU waste accounts for approximately 3600 cubic meters. This waste is stored in large steel boxes, concrete culverts, and other miscellaneous containers. Current projections have this waste repackaged and shipped by 2014.

### Preparing TRU Waste for Shipment

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 the retrieval project in 1997 and completed it in 1999, two years ahead of schedule.

A crucial step in preparing the waste for shipment is venting and purging the drums of hydrogen and other gases that may have accumulated during storage. In the vent and purge process, a venting system provides a spark-free puncture of the drum lid. The machine samples and analyzes the drum's headspace gases. If an explosive concentration is detected, the machine purges the drum with nitrogen to eliminate the hazard. A filter vent is installed in the drum lid to allow for venting and to prevent the future buildup of gases. The project to vent all of the TRU waste storage containers containing low-activity waste was completed in 1999. The project to vent the high-activity TRU waste drums began in 2003 and is expected to be completed in 2008.

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

---

WASHINGTON SAVANNAH RIVER COMPANY

---

**The WSRC Team:** Washington Savannah River Company LLC • Bechtel Savannah River, Inc. • BNG America Savannah River Corporation • BWXT Savannah River Company • CH2 Savannah River Company

- Assay of all TRU drums to determine the amount of radioactivity.
- X-ray of all drums to verify the physical contents meet WIPP WAC.
- Sampling of all drums to detect hydrogen, methane and other volatile organic compounds.
- Repackaging drums with prohibited items.

Since the majority of SRS drums were filled prior to the issuance of WIPP WAC, as many as 30 percent of the drums will require repackaging to remove prohibited items.

In order to meet an ambitious shipping schedule, SRS teamed with the National TRU Waste Program to host the first deployment of a mobile characterization system. Three mobile characterization systems were transferred to SRS, making it possible to perform the required characterization to meet the accelerated schedule.

## **Packaging the TRU Waste for Shipment**

After completing the characterization and certification requirements, drums are placed in Transuranic Package Transporter Model 2 (TRUPACT II) shipping containers. The TRUPACT II containers are Nuclear Regulatory Commission (NRC) licensed transportation Type-B casks specifically for the transportation of TRU waste. They have undergone extensive testing in order to demonstrate the ability to provide safe shipment of TRU waste.

## **Ensuring Safe Shipments**

A specifically designed transport truck carries three TRUPACT II containers and travels along approved routes to WIPP. The routes are designated by the U.S Department of Transportation (DOT) and the impacted states. The routes are in compliance with DOT and NRC requirements. Drivers must pass strict traffic safety and emergency exams, maintain excellent driving records and renew their certifications annually.

As part of the preparation for these shipments, the WIPP States and Tribal Education Program (STEP) initiated training for more than 17,000 emergency response professionals in eighteen states along the approved transportation routes. This DOE training began in 1988 and focused on the response to potential incidents involving waste shipments. Classes addressed the caring for incident victims, guarding the public welfare, protecting the environment and ensuring the safety of responders.

Each year, a shipment schedule is provided to the affected states. Georgia and South Carolina state transportation agents perform extensive vehicle and container inspections before each shipment leaves SRS. Other states along the routes perform similar inspections at their respective borders.

Each truck is tracked by emergency response and law enforcement officials along the route via the satellite Transportation Tracking and Communications System. The system makes the appropriate notifications to officials prior to crossing a state's border.

For more information on WIPP:

WIPP Information Center

4021 National Parks Highway Carlsbad, NM 88220

Phone: 1-800-336-WIPP (9477); E-mail: [Infocntr@wipp.ws](mailto:Infocntr@wipp.ws); Internet: <http://www.wipp.energy.gov/>

*December 2007*

---

## **WASHINGTON SAVANNAH RIVER COMPANY**

**The WSRC Team:** Washington Savannah River Company LLC • Bechtel Savannah River, Inc. • BNG America Savannah River Corporation • BWXT Savannah River Company • CH2 Savannah River Company