



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 nearly 600 shipments through 2005. By optimizing existing SRS facilities and implementing more efficient operations, SRS has been able to accelerate the shipments to WIPP in recent years. At the end of 2005, nearly 18,000 containers and 3,600 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 waste to WIPP by 2010, twenty-four years ahead of the original baseline.

In 2005, SRS began reducing the inventory of Non-drummed (or large boxed) and High Activity (HA) TRU waste. The 2005 Non-drummed and HA TRU waste inventory consisted of approximately 4,000 containers and 6,000 cubic meters. During 2005, the inventory was reduced by 94 containers and 883 cubic meters, primarily through characterization efforts. These characterization efforts resulted in the waste being identified and disposed as low-level waste. Much of the 2006 scope will consist of repackaging the waste in WIPP compliant containers with certification and remediation activities beginning and continuing through 2009. Shipments of HA waste to WIPP are scheduled to begin in late 2007.

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.

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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:

- 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.
- Opening and visually inspecting a sample of drums to verify the accuracy of the x-ray results.
- 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. Most of the large steel or concrete containers used for storing non-drummed cannot be transported in the existing TRUPACT II containers. Plans for this non-drummed waste include repackaging the waste into WIPP approved containers and shipping it in TRUPACT II or a future planned shipping container.

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.

A new TRUPACT III container will be required to ship approximately 60 percent of the HA TRU inventory. This container will have the capability to accommodate 5 feet x 5 feet x 8 feet waste boxes and could be in operation as early as fiscal year 2008. The TRUPACT III container has the potential to significantly reduce the amount of processing necessary to prepare bulk waste for shipment.

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.

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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:

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