



# The Remote-Handled Transuranic Waste Program

After seven years and more than 5,000 safe shipments of contact-handled (CH) transuranic (TRU) waste, the Waste Isolation Pilot Plant is now also receiving remote-handled (RH) TRU waste.

In October 2006, the New Mexico Environment Department (NMED) approved the U.S. Department of Energy's plans for disposal of RH-TRU waste at WIPP. The Environmental Protection Agency (EPA) gave its approval in 2004.

Located in the remote desert of southeastern New Mexico, WIPP permanently isolates barrels and boxes of TRU waste from the nation's nuclear weapons program 2,150 feet underground in an ancient salt bed.

WIPP was designed to dispose of both CH- and RH-TRU waste, as addressed in WIPP's first environmental impact statement in 1980 and the 1992 federal WIPP Land Withdrawal Act.

Only about 4 percent – or 7,080 cubic meters – of the total volume of waste received at WIPP is expected to be RH-TRU, according to a 1981 Department of Energy record of decision and a 1988 agreement with the state of New Mexico. The total

volume of waste anticipated at WIPP is 175,570 cubic meters, as stipulated by the Land Withdrawal Act.

While RH-TRU waste will be a small percentage of the total amount of waste at WIPP, its disposal is essential to addressing the environmental legacy of the Cold War.

Just like the CH-TRU waste now being received, RH-TRU waste disposed of at WIPP will consist of tools, rags, protective clothing, sludges, soil and other materials contaminated with radioactive elements that have atomic numbers greater than uranium (transuranic).

RH-TRU waste produces a higher dose rate than CH-TRU waste at the surface of the disposal container, but when transported RH- and CH-TRU waste have the same dose rate limit on the outside of the shipping casks due to lead shielding.

Before any waste generator site ships RH-TRU waste to WIPP, the EPA and NMED must approve the site's procedures for characterization, determining the physical and chemical characteristics of the waste, to ensure it is suitable for disposal at WIPP.

### Transportation

The shipping casks that will be used to transport RH-TRU waste to WIPP are the RH-72B and the CNS 10-160B. The RH-72B is expected to be used for more WIPP shipments than the 10-160B. Both casks have been used to safely ship RH-TRU waste between generator sites.



A truck hauling an empty RH-72B cask approaches WIPP. The specially-designed shipping container is shielded by lead and protected by sturdy impact limiters at both ends.

### Did you know ...

Remote-handled TRU waste will account for only about four percent of the waste to be disposed at WIPP.

The Nuclear Regulatory Commission has certified both casks, following rigorous safety testing to ensure they would remain leak tight, even in a severe accident.

Both casks are constructed of steel and capped with impact limiters, which are designed to act as shock absorbers. The RH-72B holds up to three 55-gallon drums or a single cylindrical canister of waste, while the 10-160B holds up to ten 55-gallon drums. Because of the weight of the lead shielding, only one RH cask is loaded per trailer, compared to up to three TRUPACT-IIs and HalfPACTs used for CH-TRU waste.



RH-TRU waste is disposed in the walls of the disposal rooms using shielded horizontal emplacement equipment.

Transportation routes to WIPP for RH- and CH-TRU waste are the same. Routes are designated in cooperation with states and tribal nations. Shipments are tracked by satellite from a secure, around-the-clock control center.

As with CH-TRU waste, all RH-TRU shipments undergo a Commercial Vehicle Safety Alliance Level VI inspection, the most rigorous in the shipping industry, and drivers must also stop and perform an inspection every three hours or 150 miles. Truck drivers must meet stringent requirements to be qualified to transport waste to WIPP.

Since 1998, more than 25,000 emergency responders along WIPP routes have received free training.

#### **At WIPP**

RH-TRU waste at WIPP is handled with adequate shielding to protect workers. In addition, RH-TRU waste canisters are placed in boreholes drilled into the walls of WIPP's underground disposal rooms. CH-TRU waste barrels and boxes are then stacked in rows on the floor of the same rooms.

In an RH-72B, waste or drums of waste are inside of a cylindrical canister, which is loaded into a facility cask at WIPP. Drums inside of a 10-160B must first be transferred into a canister and then into a facility cask. Once underground, a forklift moves the facility cask to horizontal emplacement equipment, which pushes the canister out of the facility cask and into a borehole, and then inserts a concrete shield plug.



The CNS 10-160B is a Nuclear Regulatory Commission-certified shipping cask that is capable of transporting up to ten 55-gallon drums of waste in a single shipment. The rugged cask is heavily shielded with steel and lead and protected by impact limiters on both ends.

#### **For more information**

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Updated: February 5, 2007