



*We are applying our unique capabilities in actinide and repository science to help develop and manage salt repositories.*

## **Waste Isolation Pilot Plant (WIPP)**

During the 1950's, the National Academy of Sciences conducted a nationwide search for geologic formations stable enough to contain radioactive waste for thousands of years. They discovered that salt deposits were a prime candidate for waste repositories because they were found in areas of low earthquake activity, they lacked flowing water that could transport radionuclides, and they self-heal their own fractures to seal radioactive waste from the environment for the long periods of time required. A salt bed in the area of Carlsbad, New Mexico, which was left from the evaporation of an ancient ocean, was selected as the site for the Waste Isolation Pilot Plant (WIPP). WIPP received Environmental Protection Agency certification in 1998 and the first shipment of transuranic waste arrived for storage on March 26, 1999.

In 2000, Los Alamos National Laboratory established a program office in Carlsbad to provide scientific support and guidance for WIPP field operations. The Carlsbad team, which consists of 50 scientists and engineers from the Laboratory's Earth and Environmental Sciences Division, has expertise in actinide chemistry and repository science and extensive experience in managing and characterizing nuclear waste. It uses this expertise to support the Central Characterization Project, which determines the contents of the waste drums prior

*Workers at Los Alamos' Radioassay and Nondestructive Testing Facility load drums containing transuranic waste into a TRUPACT container. The TRUPACT is then bolted onto a flatbed. A TRUPACT container has a stainless steel skin over a 10-inch layer of polyurethane foam designed to absorb shock and resist fire. The containers are 10 feet tall and 8 feet in diameter. One TRUPACT can hold up to 14 waste drums, so a normal truckload of three containers can carry up to 42 waste drums.*

to storage. (The transuranic, or "TRU," waste stored at WIPP was generated during the research and production of nuclear weapons. Many of the waste drums are old and their contents were not properly recorded, so high-tech characterization techniques are needed to determine the contents). The Los Alamos team also helps manage the National TRU Program, which works to coordinate the varied disposal activities across the many DOE sites that must ship waste to WIPP.

Los Alamos is applying its experience with WIPP to investigate the feasibility of future salt repositories and is currently collaborating on a scoping study for a second repository. The study considers salt deposits for the disposal of low, intermediate, and high-level waste from a nuclear recycling facility. Such repositories could be crucial to the continued and growing use of nuclear energy as a sustainable option.



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**Waste Isolation Pilot Plant (WIPP) 8-08**