

Principles of, and Lessons from, the WIPP

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Applying the lessons of geology and its affiliated sciences, as well as those of long-lived feats of engineering, we can confidently design, build, operate, close, and decommission repositories deep in the earth's crust that permanently contain dangerous materials. Geologically old, bedded salt is a particularly suitable host medium. Its continued presence is evidence of long-term regional stability. Salt is easy and safe to mine. Deep excavations in salt close gradually by viscoplastic deformation (creep), encapsulating and isolating anything placed within them.

But the one indispensable corollary to all those favorable technical and scientific aspects is the well-informed and voluntary consent of the people that are most affected by a frequently controversial repository. The people of Carlsbad, New Mexico (NM), and the Waste Isolation Pilot Plant (WIPP) have forged such a relationship, resulting in the world's first operating deep geologic repository for transuranic (TRU) and TRU mixed waste.

The project continues to prove to regulators, scientific and technical oversight groups, critics, and neighbors that it effectively protects people and the environment from some deleterious byproducts of nuclear activities. Functioning as a genuine pilot project, yet at a fully operational scale, the WIPP offers a model for future efforts to safely isolate other dangerous wastes deep in the earth's crust. Emulating the best the WIPP has to offer will therefore benefit the environment as well as sustainable development around the world.