

## Waste dump requires a warning for the ages

*Our arrogance assumes that future people are no brighter than ourselves – I suspect instead that any nuclear waste we bury will be a mother load for future populations.*

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You might think one of the easier tasks in building a nuclear-waste dump would be labeling it off-limits to digging and drilling. Oh, if only.

The markers planned for a New Mexico repository, where plutonium and other waste from weapons production will be entombed, are meant to be effective for at least 10,000 years – meaning, to an audience we can't really anticipate. Will they be advanced versions of ourselves? Pre-literate survivors of a global holocaust? Cyborgs?

Such possibilities and more were officially considered, according to a fascinating recent account in the Los Angeles Times, in brainstorming for off-limits messaging at the Weapons Isolation Pilot Plant (WIPP) near Carlsbad. Radioactive waste is being piled underground, beneath a salt dome that geologists figure will collapse in about 1,000 years, sealing the crud forever – or until some unfortunates drill through the dome, perhaps for oil and gas deposits underneath.

Since plutonium can be lethal for hundreds of thousands of years, this is what planners call a "forever problem," and their solution rests on elaborate redundancy. A two-mile-long stone berm, 33 feet high and five times the mass of Egypt's Great Pyramid, will surround the site. Four dozen huge stone markers will warn away visitors in English, Spanish, Russian, French, Chinese, Arabic and Navajo – and with drawings of a human face in a Munch-like shriek. Similar iconography will be buried, as will magnets and radar-reflecting objects intended for high-tech sensors. Finally, three information vaults – one on the site, one in the berm, one at a remote location – will hold diagrams and technical data about the horrors underground.

But the contemporary message of all this signboarding is that it can still fail. And it calls to mind examples of our ancestors' unsuccessful efforts to send messages into the future – in other words, to us.

The builders of Stonehenge no doubt believed they were speaking clearly. So did the creators of pictographs and petroglyphs (the animal-spearing images make sense, OK, but what's up with all the handprints?).

Besides, warnings can backfire. Curses inscribed on the pyramids not only failed to deter wave upon wave of grave robbers, both ancient and modern, they may have incited them: One man's warning X is another's treasure marker.

Ultimately, ambiguity may be unavoidable. Not long ago, illiterate miners in South Africa were given comic-strip instructions on clearing debris from underground railroad tracks. But they read the panels right to left, took the message to heart, and started piling rocks on the rails.