



Seismic Questions

SEISMIC CONCERNS

Waste disposal facilities are designed to consider the effects of potential seismic activities in the region. This is true of a facility no matter where it is constructed. With Paducah located near a major fault system, several questions are often asked:

- **What potential earthquake magnitude must be considered?**

A new waste disposal facility must be able to withstand the energy created by an earthquake of the approximate magnitude of the 1811-1812 New Madrid quakes, plus an added safety factor. The energy from this size quake is estimated to have a return period of 2,500 years.

- **How does the design address earthquakes?**

A new facility would be engineered to have stable geometry, constructed with seismically-qualified materials, and monitored to prevent release of waste. The design would be based on regulator approved disposal policies that would allow only compacted, stable, solid materials be placed there (No free liquids).

- **Could a larger earthquake happen? What would happen?**

Yes, a larger earthquake is possible, but its likelihood is less than the potential earthquake considered in preliminary designs. If a larger quake occurred, there could be cracks in the cover or liner system. With DOE maintaining the site, these would be identified and repaired, preventing water from entering the waste and minimizing the potential for environmental impacts. The waste, since it is stable and free of liquids, would be contained by an earthen berm.

COULD THERE BE A CELL BREACH?

Yes, an unanticipated event could result in the cell liner or slopes cracking. In this event, because the waste inside is compacted and dry, there would be no significant release of contamination in the area around the facility. There could be, however, a breach that would allow rainwater to flow through the waste. If unchecked, this could lead to contamination of the groundwater aquifer. In the event that such a breach occurs, DOE would be able to identify and repair the damage in order to minimize the potential for environmental impacts. Most of the effects of a breach would be readily visible. A monitoring system is built underneath the facility and this system would detect leaks.