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Dr. Jane Summerson
U.S. Department of Energy
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Dear Dr. Summerson:

Thank you for the opportunity to respond to your invitation to offer comments.

Most of the comments you will receive will have already been hashed and
rehashed. I've seen the same in my discussions with CoRWM (British Energy).

However, there is one concern that I don't believe has been considered:

1. Yucca Mountain has a layer of non-tufted rock above the tunnels that absorbs
    large quantities of water during the rainy season.
2. The tunnels, after loading, will be at about 200°C.
3. Two earthquake faults cut through both the non-tufted layer and the tunnels
    (Bow Ridge and Ghost Dance). They are considered inactive, but no fault is
    truly inactive in the presence of external forces such as nearby earthquakes.

Non-tufted rock is structurally weak. The layer above it has considerably more
mass. If either an earthquake on the above faults or a significant event on a
nearby fault occurs, the shock wave could (a) shift the rock above the non-tufted
layer sufficient to partially crush the non-tufted layer, pressurizing the water
contained within, and (b) open one of the faults, providing a pathway into the
tunnels to a large volume of water.

If water in quantity finds a path into the tunnels, it will flash to steam and
overpressure the tunnels. If it were only a trickle, it would just pressurize the
tunnels slightly and vent through flaws in the seals. But, in a major earthquake, a
large quantity of water could be forced into the tunnels and result in a steam
explosion. Mt. St. Helens was a steam explosion.

The earthquake doesn't have to be on either of the two faults at Yucca Mountain.
Two earthquakes in our near future are capable of releasing the Ghost Dance
and/or Bow Ridge faults: the Mojave Section of the San Andreas or the San
Bernardino Section of the same fault. Both of these earthquakes have the
potential of knocking down large buildings in Las Vegas (per Dr. Tom Heaton –
Cal Tech Seismologist at a 1996 lecture). These earthquakes occur every 150 –
250 years. During the 10,000 years you are committed to securing Yucca

Mountain and the containers, there would be about 100 chances that a major earthquake could cause a major radiation release. (The earliest just as soon as the tunnels are loaded and sealed -- both earthquakes are overdue.) Such a release, depending upon the winds, could be deadly for anyone not in a fallout shelter within a few hundred miles and a cause for health concerns throughout the nation and beyond. This is predicated on the rupture of only 25% of the containers.
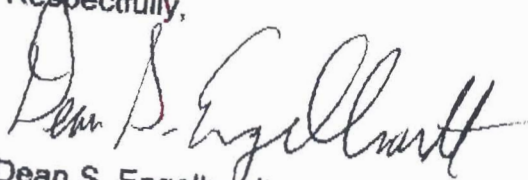
This could be the world's largest radiation bomb and largest man-made disaster.

When the Chernobyl disaster occurred in 1986, I tracked the radiation clouds as they repeatedly passed over the Southland, using the dosimeter I used when I was studying nuclear physics at UCLA. I was surprised at how many orbits the clouds made over the next few weeks. The amount released from a Yucca Mountain incident could probably be monitored in West Africa by a survey meter.

I bring this to your attention because I often find organizations, including government agencies, making assumptions that prove to be incorrect. One example is that, during my work with FEMA, I found many welds in Los Angeles buildings had failed in the Northridge Earthquake, including in primary structure. One year later, Dr. Michael Engelhardt, of the University of Texas – Abilene, found that the welding flux required on all steel-reinforced buildings in California was less than 25% of its design strength. Another example is California's insistence on continuing to promote "Duck, Cover and Hold" for earthquake drill, when it has been shown that that position (by another name) was used as a method of execution in England from 1630 to the late 18th century and my concern has been validated by medical doctors. In both of these cases, politics appears to have trumped science and logic. Please don't let the DOE make the same mistake.

Again, thank you for this opportunity.

Respectfully,

Dean S. Engelhardt