WHY YUCCA MOUNTAIN WILL FAIL AS A NUCLEAR WASTE REPOSITORY

OPPOSE S. 1287 – SUSTAIN THE PRESIDENT'S VETO

Since 1987 only one site has been under study as the final, permanent burial site for the nation's high-level nuclear waste. This material contains more than 95% of the radioactivity (not volume) in the dregs of the Nuclear Age. The vast majority of this material is from energy production at commercial nuclear power reactors. The repository program also includes high-level wastes from nuclear weapons production and the nuclear navy. Today there is no known solution for isolating this material for as long as it is hazardous – more than 250,000 years -- except for one year at a time.

It's Gonna Leak --- so they change the rules!
It has been known since the early analysis of this site that fractures in the rock of Yucca Mountain will allow the release of radioactive gases over time as nuclear waste decays. The primary gas will be carbon-14. It is estimated that the release of this radioactive gas will have a global impact over time that will result in 25,000 additional cancers. This fact would have prevented the site from being licensed under EPA's nuclear waste repository standards coming into effect at that time. In 1992 Congress exempted Yucca Mountain from the EPA standard, telling them to write a special standard just for Yucca Mountain.

OOOOOPs! It's Gonna Leak MORE!!! SO change the rules AGAIN!
The Department of Energy's (DOE) own data as presented in the 1998 "Viability Assessment" shows that water moves quite rapidly through the rocks at Yucca Mountain. As soon as the containers begin to fail, radioactivity will also move rapidly – in centuries or less – to contaminate the ground water in the region. This is due to the same fractures in the rock that will allow the carbon-14 to escape.

Fingerprints demonstrating this fast flow pathway were left by fallout from the very industries that created the waste that would be sent to the site. Traces of chlorine-36 were found by DOE researchers deep in Yucca Mountain at the level where the waste would be dumped. This radionuclide is not found at these concentrations in nature.

In fact, there is only one bulk source of chlorine-36: atmospheric nuclear weapons tests conducted in the Pacific. Salt in the seawater was activated, forming the radioactive chlorine isotope. This "fell out" all over the Northern Hemisphere; it is not unique to Yucca Mountain. But its presence at repository depth proves that water has traveled there within the past 50 years, and proves a "fast flow" path for ground water travel.

Current DOE Site Suitability Guidelines state:

> A site shall be disqualified if the pre-waste-emplacement ground-water travel time from the disturbed zone to the accessible environment is expected to be less than 1000 years along any pathway of likely and significant radionuclide travel.

(960.4-2-1 Post-Closure Disqualifying Condition for Hydrology)

In November 1998, more than 200 environmental and public interest organizations sent a petition to the Secretary of Energy to disqualify Yucca Mountain as a nuclear waste dump since it clearly will fail to meet the Guidelines, and it will fail to isolate nuclear waste. Instead of acting on this petition, the DOE is in the process of trying to change the Site Suitability Guidelines.

A Whole Lot of Shaking Going On
Why will Yucca Mountain fail to isolate nuclear waste? Why is it fractured? The answer is very simple. This area is as seismically active as the California Bay Area. There have been more than 600 earthquakes within a 50-mile radius of the site within the last 20 years. A major jolt knocked windows out of a DOE facility in the early 1990's. In 1998 and 1999 there have been a spate of tremblers, at greater frequencies than previously observed. A recent quake derailed a train on a rail route that would be used to transport high-level nuclear waste casks to Yucca Mountain.

All this shaking has fractured the relatively soft rock (tuff) that forms this low snaking ridge. There are 35 active fault lines in the area, including two that traverse the repository site itself, but the entire mass of Yucca is a sieve with tiny fractures that allow water and gas to flow.

Serpent Swimming West Among the Lava Cones
A striking feature of the Yucca landscape is a line of lava cones that extends to the west of the Mountain. The youngest cone is closest to Yucca Mountain. This is clear evidence of the possibility of a magma pocket which the earth's crust is moving slowly across. Like the formation of the Hawaiian Islands, these lava cones are like the squirts from a subterranean pastry bag.

Further evidence supporting the presence of a magma pocket comes from research published in *Science* magazine under contract with the US Nuclear Regulatory Commission. The use of global positioning satellites allows tracking of the movement of Earth's crust. The crust at Yucca is expanding. It is also moving westward at an accelerating rate. The authors conclude that this evidence is "consistent with" the presence of a magma pocket under Yucca Mountain.

The Western Shoshone People, who have rightful claim to the land at Yucca Mountain, have a different name for this site. It translates: "Serpent Swimming West." If we would listen to ancient wisdom, and pay attention to the earthquakes, we might be able to avert a major environmental catastrophe of burying nuclear waste where it will almost certainly leak.

More Evidence: HOT WATER….BOOOMMMM!?!
Analysis of gas in crystals that are abundant inside Yucca Mountain shows that these crystals were formed by hot water welling up into the mountain from below. This is more evidence of geothermal activity. If the nuclear waste dump were to flood with hot water from below, there is a distinct possibility of explosion – either caused by steam, chemical interaction or nuclear chain reaction.

IT IS OUR JOB TO INSURE THIS CATASTROPHIC MISTAKE IS NOT MADE!!!!!

S. 1287 TAKES US AWAY FROM RESPONSIBLE WASTE POLICY, NOT TOWARDS IT.

PROTECT OUR FUTURE: *OPPOSE S. 1287 – SUSTAIN THE PRESIDENT'S VETO!*

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