

Position Statement #81

The EPA Radiation Standard for Spent-Fuel Storage in a Geological Repository

In August 2005, the U.S. Environmental Protection Agency (EPA) proposed a revised radiation standard for a geological repository that establishes one annual dose limit for the initial 10,000 years and another for the period between 10,000 and 1 million years in the future. The American Nuclear Society (ANS) opposes the 1-million-year regulatory period.

The proposed Yucca Mountain repository has yet to undergo licensing review by the U.S. Nuclear Regulatory Commission. Licensing review includes assessing the performance of the repository during the regulatory time period. The regulation requires that such an assessment provide “reasonable assurance” that the standard can be met.

The ANS believes that extrapolating beyond 10,000 years is not scientifically sensible and that while radioactivity and toxic hazard can be estimated for as many years as necessary, prediction of geological and climatological conditions is substantially less accurate for longer times into the future.

The ANS does not oppose the 10,000-year regulatory period because there is some basis for it. Human recorded history is not quite 10,000 years old, and one can conceive of 10,000 more years of human existence; however, longer periods are beyond understanding. Moreover, a 10,000-year period is consistent with the management of similar hazardous waste (for example, the Waste Isolation Pilot Plant has a 10,000-year regulatory period for some of the same, long lived radioisotopes), and 90 percent of the used fuel's radioactivity will be gone within 10,000 years.