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Secretary
U.S. Nuclear Regulatory Commission
ATTN: Rulemaking and Adjudications Staff
Washington DC 20555-0001

RE: Proposed Rule: *Geological and Seismological Characteristics for Siting and Design of Dry Cask Independent Spent Fuel Storage Installations and Monitored Retrievable Storage Installations*. FR67, No. 140, July 22, 2002, pp. 47745-47755; and Draft *Environmental Assessment of Geological and Seismological Characteristics for Siting and Design of Dry Cask Independent Spent Fuel Storage Installations and Monitored Retrievable Storage Installations*. U.S. Nuclear Regulatory Commission, Office of Nuclear Materials Safety and Safeguards, July 2002.

Dear Sir or Madam:

These comments on the subject Proposed Rule and Environmental Assessment are being submitted on behalf of the State of Nevada by the Nevada Agency for Nuclear Projects. This Agency is responsible for carrying out the State's duties in overseeing the federal high-level nuclear waste management and disposal program. Review and comment on this Proposed Rule is within the purview of the Agency's statutory mandate.

The purpose of the proposed changes to Part 72, according to the draft Environmental Assessment (EA) that accompanies the proposal is to "(1) provide benefit from the experience gained in applying the existing regulation and from research, (2) incorporate state-of-the-art improvements in the geosciences and earthquake engineering, and (3) make the siting and design criteria risk-informed." While the Proposed Rule (Option 4 in the EA) may meet these, and possibly other purposes of its authors, it represents an unnecessarily complicated approach to meeting the primary public goal of improving the assurance of safety at spent fuel storage installations regulated under 10 CFR Part 72.

Aside from making Part 72 risk-informed, which we will discuss later, there are two safety objectives that appear to underlie the Proposed Rule. The first is to require that a new site specific license applicant for a dry cask storage facility address uncertainties in the seismic hazard analysis by using appropriate analyses, such as probabilistic seismic hazard analysis (PSHA), or other suitable sensitivity analyses, for determining the design earthquake ground motion (DE). The second is to require that general licensees adequately account for dynamic loads, in addition to static loads, in the design of the cask storage pads and areas.

The second objective is met in a clear and straightforward manner in Section 72.212(b)(2)(i)(B) of the Proposed Rule under Conditions of General License issued under Section 72.210. It states: “cask storage pads and areas have been designed to adequately support the static and dynamic loads of the stored casks, considering potential amplification of earthquakes through soil-structure interaction, and soil liquefaction potential or other soil instability due to vibratory ground motion.” Requiring this evaluation clearly improves the assurance of safety by including dynamic load in the analysis of the storage pad or area.

The first objective could have been met in the same manner accomplished by the Commission in 1996 for siting nuclear power plants. New geologic and seismic siting criteria were adopted that required uncertainties in evaluating the DE be addressed through appropriate analysis, such as PSHA, of suitable sensitivity analyses. These new criteria, in 10 CFR Part 100.23, superceded the requirements of Part 100, Appendix A, that prescribe a deterministic seismic analysis but do not include incorporation of uncertainty in the analysis.

Part 72 directs specific license applicants for dry cask storage installations to use Part 100, Appendix A for seismic analysis. This Proposed Rule could simply have directed the applicants to use Part 100.23 or, for current reactor sites, other options compatible with existing regulations, and accomplished the purpose of incorporating state-of-the-art improvements in the geosciences and earthquake engineering. The EA describes this approach as Option 2, but concludes that “while improving the technical requirements for site seismic analysis, this option is still not risk-informed, in that the same DEs [design earthquake ground motion] are defined for the much less hazardous ISFSIs [independent spent fuel storage facilities] as for NPPs [nuclear power plants].” This option was apparently rejected, since the Proposed Rule is based on Option 4.

The EA states that Option 2 is not risk-informed because the DE for a dry cask spent fuel storage installation would be the same as the safe shutdown earthquake ground motion for a nuclear power plant, despite the recognition that the consequences (dose to workers and the public) of seismic disturbance of a nuclear power plant is greater than that associated with an equivalent seismic disturbance of a dry cask storage facility. The Proposed Rule seeks to level the risks (probability times consequence) by shifting the probability element of the equation to a higher probability seismic event threshold for analysis of the dry cask storage installation. The Commission is considering increasing the mean annual probability of exceeding the design basis earthquake ground motion from 1.0E-4 (one chance in ten thousand/year), which applies to nuclear power plants, to 5.0E-4 (one chance in two thousand/year) for dry cask spent fuel storage installations.

The documents accompanying the Proposed Rule do not provide a quantitative technical or safety basis for increasing the probability threshold for exceeding the design basis earthquake ground motion, and the range of 1.0E-4 to 5.0E-4 is under consideration. The EA cites 10 years of experience by the NRC staff in reviewing dry cask storage installation applications as a reasonable basis for allowing an exceedance probability greater than that applied to nuclear power plants, but it must be noted that this is 10 years of analytical, not practical experience. In view of this lack of practical experience, and the fact that a probabilistic analysis is, by its very nature, risk-informed with respect to uncertainty, there does not seem to be a quantifiable safety basis for any exceedance margin other than that now applied to seismic analysis for nuclear power plant proposals. It is noteworthy that the suggested threshold of 5.0E-4 is less protective than the International Building Code, which uses ground motions with a probability of 2% in 50 years, which translates to about one chance in 2,500/year, or 4.0E-4

While a dry cask storage installation is relatively passive compared to an operating nuclear power plant, it nevertheless is a hazardous facility because of its highly radioactive inventory. A facility such as that now being reviewed for a license at Skull Valley, Utah, would store 40,000 MTU of spent nuclear fuel. This would amount to billion of curies of radioactivity on a 100 acre tract, an unprecedented concentration of radioactive material. Absent any definitive experience, the seismic design criteria for such a facility should be no less protective than that of a nuclear power plant, and certainly should not be considered for reduction below that generally accepted for a benign structure.

We recommend that Option 2 of the EA be adopted and, following withdrawal of the subject Proposed Rule, a new rule be proposed that implements the substance of Option 2, directing new applicants for specific licenses for dry cask storage installations to comply with 10 CFR Part 100.23 in its entirety, including conforming the DE to the safe shutdown ground motion criteria. In doing so, there would be no need to make distinctions, as in the Proposed Rule, between eastern US and western US sites or those co-located with nuclear power plants.

We also recommend that any such Proposed Rule include the section from the current Proposed Rule regarding the analysis of both static and dynamic loads for general licensees' storage pads or areas.

We appreciate the opportunity to comment on this Proposed Rule and Environmental Assessment. If you have any questions regarding these comments, please contact me at (775) 687-3744.

Sincerely,

[Signed]

Robert R. Loux
Executive Director