

CALIFORNIA COASTAL COMMISSION

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Secretary, U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Commissioners,

This letter is to express the concerns of the California Coastal Commission staff with respect to the proposed rule change regarding geologic and seismologic characteristics for siting and design of dry cask independent spent fuel storage installations (ISFSI) and monitored retrievable storage (MRS) installations, described in the Federal Register (v. 67, n. 140, pg 47745-47755). As detailed in the Federal Register, the proposed changes to 10 CFR Part 72 would have three functions:

1. Require a new specific license applicant for a dry cask storage facility located in either the western U.S. or in areas of known seismic activity in the eastern U.S., and not co-located with a nuclear power plant, to address uncertainties in seismic hazard analysis by using appropriate analyses, such as a probabilistic seismic hazard analysis (PSHA) or suitable sensitivity analyses, for determining the design earthquake ground motion (DE). All other new specific license applicants for dry cask storage facilities would have the option of complying with the proposed requirement to use a PSHA or suitable sensitivity analyses to address uncertainties in seismic hazard analysis, or other options compatible with the existing regulation. (§ 72.103)
2. Allow new ISFSI or MRS applicants to use a DE appropriate for and commensurate with the risk associated with an ISFSI or MRS (§ 72.103); and
3. Require general licensees to evaluate that the designs of cask storage pads and areas adequately account for dynamic loads, in addition to static loads. (§ 72.212)

These comments principally regard function (2), which would be achieved through Regulatory Guide DG-3021, "Site evaluations and determination of design earthquake ground motion for seismic design of independent spent fuel storage installations and monitored retrievable storage installations." As outlined in the Environmental Assessment, the proposed rule change, in conjunction with Regulatory Guide DG-3021, would have the effect of lowering the design standard for ISFSI and MRS installations from a DE with a mean annual probability of exceedance of 1.0×10^{-4} (i.e., a DE with a return interval of 10,000 years) to a DE with a mean annual probability of exceedance of 5.0×10^{-4} (i.e., a DE with a return interval of 2,000 years). Three ISFSI's are currently proposed for the coast of California. Coastal Commission staff are very concerned that they be built to appropriate seismic design standards.

The California Coastal Commission was established in 1976 by the California Coastal Act (California Public Resource Code § 30000 et seq.) to provide long-term protection of California's 1,100-mile coastline for the benefit of current and future generations. A prime responsibility of the Commission is the review of proposed development projects located within areas of the Commission's jurisdiction, and the evaluation of local government decisions that have been appealed to the Commission. One component of this review is to assure that proposed development will minimize risks to life and property in areas of high geologic hazard, and assure stability and structural integrity of the proposed development (California Public Resource Code § 30253). An important tool in achieving this assurance is the application of appropriate seismic design standards. In an area as populated, economically important, and environmentally sensitive as the coast of California, the capacity for any development to release hazardous material during a major earthquake must be reduced to the lowest possible level. Ideally, this can be achieved by siting such development away from environmentally sensitive resources or populated areas. Where this is complicated by logistic or, as in the case of an ISFSI, regulatory constraints, the only recourse to assure the safety of the environment is adherence to appropriate design standards. In the case of high-level nuclear waste, located adjacent to the sea in populated regions, the highest possible seismic design standards must be applied.

The Coastal Commission staff has no objection to those portions of the proposed rule change that would require a PSHA for an ISFSI not co-located with a nuclear power plant. Nor does staff object to the provisions that allow an ISFSI co-located with a nuclear power plant to apply either a PSHA or adhere to the currently existing regulation. In addition, we raise no objection to the proposed requirement that the designs of cask storage pads and areas adequately account for dynamic loads.

Commission staff does object, however, to the proposed reduction in seismic design standards as manifested by the reduction from a DE with a mean annual probability of exceedance of 1.0×10^{-4} to one with a mean annual probability of exceedance of 5.0×10^{-4} . The Environmental Assessment lists a number of factors that may lead to a lower radiological risk at an ISFSI or MRS as compared to a nuclear power plant. Without debating the merits of these arguments, we note that no basis is provided for lowering the DE to any particular value. In the absence of quantitative evidence justifying a particular value, we feel that the conservative, precautionary approach of requiring ISFSI and MRS installations to meet the same design standard as a nuclear power plant is most appropriate. We note that meeting those standards would be far easier at an ISFSI or MRS than at a nuclear power plant, due to the relative simplicity of construction and robust character of these structures as compared to a nuclear power plant. Accordingly, we request that Regulatory Guide DG-3021 specify a DE with a mean annual probability of exceedance of 1.0×10^{-4} , consistent with the requirement for nuclear power plants.

If the Nuclear Regulatory Commission desires to change the required DE for ISFSI and MRS installations, then the NRC must provide a sound quantitative basis for choosing any particular DE. Part of the difficulty in justifying a particular DE is that there are no clearly articulated performance standards behind the proposed rule change. What, exactly, are the seismic design standards intended to achieve? Are they intended to prevent the release of radiation beyond a certain level? What level? Are they intended to assure the structural integrity of the facility following a major earthquake? To what extent? Are they intended to allow continued operation

of the facility? In short, what level of damage is to be tolerated?—Only after the identification of definite performance goals will it be possible to justify any particular seismic design standard to meet those goals. Accordingly, we request that the NRC identify such performance goals before further consideration of any change in seismic design standards for ISFSI and MRS installations.

We are particularly concerned that a lowering of the DE might be construed as allowing for a concomitant lowering of the design-basis tsunami for locally sourced tsunamis. It is especially important that an appropriate standard for a locally sourced tsunamis be applied because perhaps the most likely scenario for release of radiation to the environment is damage to an ISFSI or MRS during a major earthquake, immediately followed by inundation of the damaged facility by a tsunami.

Further, Coastal Commission staff feels that it is inappropriate to write the proposed new section, 10 CFR § 72.103, in such a way as to remove from the regulation the detailed guidance found in Appendix A of 10 CFR Part 100. As proposed, the new section contains only general reference to non-seismic factors affecting geologic stability of the site, including slope stability, tsunamis, and secondary seismic effects such as ground lurching, liquefaction, and dynamic compaction. Removing detailed guidance on how to analyze for such issues places the entire responsibility of review at the discretion of the NRC. Not only does this inappropriately remove the statutory requirements for specific types of evaluation, it removes the certainty for both the license applicant and the interested public as to what is expected during such a review. Accordingly, we request that the NRC retain the guidance found in Appendix A of Part 100 as statutory requirements for licensing ISFSI and MRS installations.

We question the assertion that the NRC now has considerable experience in the licensing of dry cask storage systems and in analyses demonstrating the robust behavior of dry cask storage systems, as stated in the Environmental Assessment. The NRC has licensed only four ISFSI's in the western United States, the most seismically active part of the country, and none of these are as close to major plate-boundary faults as the three ISFSI's planned for coastal California. Further, we submit that experience in licensing does not equate with "real world" experience that will only be achieved when an ISFSI experiences strong ground motions as a result of a nearby major earthquake. As such, the provisions in neither the specific nor the general licenses have been tested.

Finally, we note that under the California Coastal Act, either the State of California or a local government with a certified Local Coastal Plan will be required to issue a coastal development permit authorizing the construction of any ISFSI to be located within the Coastal Zone of California. Permits granted by local governments may be appealable to the Coastal Commission. In order to issue a coastal development permit, a finding must be made that the proposed ISFSI will minimize risks to life and property in areas of high geologic hazard, and assure stability and structural integrity of the proposed development. When the Coastal Commission issued a coastal development permit for the ISFSI at the San Onofre Nuclear Generating Station (SONGS) in San Diego County, making such a finding was difficult given uncertainty regarding the seismic environment at the site. During permit review, the applicant relied on the seismic evaluation undertaken for licensing of the nuclear power plant. However, new information that became available in the years following the licensing of SONGS cast some doubt on the suitability of the

Safe Shutdown Earthquake (SSE) ground motion. It was only because the applicant proposed a seismic design standard far in *excess* of the SSE that the Coastal Commission was able to make the required finding (attached). Such a finding may not be possible at future sites if, as a result of the proposed rule change, applicants design future ISFSI's to lower seismic design standards than those required for nuclear power plants. The proposed rule change makes the approval of coastal development permits for future ISFSI's difficult, at best.

Please contact me or Dr. Mark Johnsson of my staff at 415-904-5200 if you have any additional questions or comments. The Coastal Commission staff looks forward to continuing to work with the NRC on these issues and respectfully requests a response that addresses our concerns.

Sincerely,

Peter Douglas
Executive Director

Attachment: SONGS Coastal Development Permit staff report

cc: Coastal Commissioners
Mark Johnsson, Staff Geologist, California Coastal Commission
James Boyd, Commissioner, California Energy Commission
Richard McCarthy, Executive Director, Seismic Safety Commission
James Davis, State Geologist
Mary Nichols, Secretary of Resources
Gray Davis, Governor