

the case for recommendations suggested in guidance documents, the NRC did not mean to imply that it viewed an applicant's ability to make the necessary safety case for a higher MAPE as being a likely prospect. To avoid any such implication, that sentence has been removed from the final guidance.

Comment 22: One commenter stated that a DE at a MAPE of $5E-4$ (2,000 year return period) is not defensible. The commenter said that there are numerous standards that already use a DE at a MAPE of $4E-4$ (2,500 year return period), including DOE Standard 1020-2000. The commenter noted that DOE's standard is inextricably tied to meeting performance and risk goals. Further, the commenter indicated that certain buildings, such as hospitals, must meet a DE at a MAPE of $4E-4$ (2,500 year return period), as must interstate bridges in the State of Utah. The commenter stated that, at a minimum, a standard lower than these cannot be adopted.

Response: The NRC disagrees with the commenter that the proposed standard for the DE at a MAPE of $5E-4$ (2,000 year return period) is lower than the DOE Standard DOE-STD-1020-2002, or the other standards, such as the International Building Code (IBC-2000 Code).

According to the DOE Standard DOE-STD-1020-2002, ISFSIs can be classified as Performance Category 3 (PC-3) facilities. For PC-3 facilities, the seismic design forces for the DE are initially determined at 90 percent of the DE at a MAPE of $4E-4$ (2,500 years return period). This brings the DE levels to approximately a MAPE of $5E-4$ (2,000 year return period), specified in the earlier DOE 1020 standard, DOE-STD-1020-94. The Foreword of the DOE-STD-1020-2002 explains the change in the return period as follows:

"It is not the intent of this revision to alter the methodology for evaluating PC-3 facilities, nor to increase the performance goal of PC-3 facilities, by increasing return period for the PC-3 from a 2,000-year earthquake to a 2,500-year earthquake. Rather, the intention is more for convenience to provide a linkage from the NEHRP maps and DOE Standards."

Therefore, use of the reference probability of $5E-4$ /yr (2,000 year return period), for the ISFSI or MRS facility DE, would be consistent with that used in the DOE Standard DOE-STD-1020, for similar type facilities.

For the IBC-2000 Code, the commenter is incorrectly comparing the ISFSI or MRS DE at a MAPE of $5E-4$ (2,000 year return period), with the Maximum Considered Earthquake (MCE) at a MAPE of $4E-4$ (2,500 year

return period). The DE, according to the IBC-2000 Code, is two-thirds of the MCE, which is equivalent to a DE at a MAPE of $1.1E-3$ (909 year return period) earthquake in the western United States, and a DE at a MAPE of $7E-4$ (1,430 year return period) in the eastern United States. Thus, the DE for the ISFSI or MRS facility included in DG-3021 at a MAPE of $5E-4$ is greater than the IBC Code DE design level.

The NRC agrees that hospital building structures and bridges having critical national defense functions are designed for the DE at a MAPE of $4E-4$ (2,500 year return period). These structures are generally occupied by a significant number of people. Therefore, these structures are designed for loads greater than those for traditional buildings to limit building deformations, and to minimize human losses due to an earthquake. The ISFSI or MRS facility, on the other hand, has a relatively small number of people occupying the Canister Transfer Building at any one time.

Comment 23: A commenter requested that the regulatory guide specify a DE at a MAPE of $1E-4$ (10,000 year return period), consistent with the requirement for NPPs. This commenter believes that meeting NPP standards would be easier at an ISFSI or MRS due to the relative simplicity of construction and robust character of the structures as compared to an NPP.

Response: The NRC disagrees with the commenter and believes that the proposed DE at a MAPE of $5E-4$ (2,000 year return period) for an ISFSI or MRS facility is adequate for protecting public health and safety. The seismically induced risk from the operation of an ISFSI or MRS is less than from the operation of an NPP, and based on the review of the current seismic design practice, the proposed DE design level is reasonable and consistent with the NRC's policy of risk-informed, performance-based regulations. Details of the NRC's review for the proposed DE level are provided in the report, "Selection of Design Earthquake Ground Motion Reference Probability". This report may be accessed through the NRC's Public Electronic Reading Room on the Internet at <http://www.nrc.gov/reading-rm/adams.html>. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by email to pdr@nrc.gov.

The NRC agrees with the commenter that the cask structure is simple in construction and robust in character resulting from the design considerations

other than earthquake effects. Earthquake loads and the DE level would not govern the cask design. However, this is not the case in the design and stability evaluation of other ISFSI or MRS facility structures, systems, and components, such as the concrete pad, foundation, and the canister transfer building. Designs of these structures, systems, and components depend on the DE level. Further, because of the inherent safety margins in the design criteria in NUREG-1536 and NUREG-1567, the structures, systems, and components designed for a DE at a MAPE of $5E-4$ (2,000 year return period) would be able to withstand a DE at a MAPE of $1E-4$ (10,000 year return period consistent with the NPP requirements) without impairing the ability to meet the Part 72 dose limits for protecting public health and safety. Therefore, it is an unnecessary burden on the applicant to require the ISFSI or MRS facility to design for a DE at a level consistent with NPP requirements.

Comment 24: Two commenters stated that the seismic design standard (MAPE of $5E-4$ (2,000 year return period)) is less protective than the seismic standard for municipal solid waste landfills in California (maximum credible earthquake (MCE) of $4E-4$ (2,500 year return period)), and the International Building Code (MCE of $4E-4$ (2,500 year return period)), both of which are more stringent than the proposed rule. One commenter is concerned that a DE at a MAPE of $5E-4$ (2,000 year return period) may not provide an adequate margin of safety to protect the public.

However, two other commenters stated that the rigor of the seismic evaluation criteria and the conservatism of the seismic design requirements significantly exceed those in modern conventional building codes. One of the commenters stated that the annual probability of unacceptable seismic performance for a dry cask ISFSI designed to a DE at a MAPE of $5E-4$ (2,000 year return period) will be substantially less than that of an essential or hazardous facility designed to the modern conventional building code for which the DE was established at 67 percent of the MCE of $4E-4$. Another commenter stated that the level of safety for a dry cask storage facility designed to a DE at a MAPE of $5E-4$ (2,000 year return period) provides at least twice the level of safety attained by facilities designed under the International Building Code.

Response: The NRC disagrees with the commenters that the seismic design standard (MAPE of $5E-4$) is less protective than the seismic standard for