

66 FR 55739—40. The Commission stated that “irrespective of the term used, the Commission will consider the full record before it [and] [t]hat record will include many factors in addition to whether the site and design comply with the performance objectives (both preclosure and postclosure performance standards) contained in Subparts E, K and L.”<sup>9</sup> (66 FR 55740). Petitioner has not raised any objection to this standard that was not already fully considered. Thus, we decline to amend part 63 to reverse the decision made in the rulemaking for part 63.

#### Primacy of the Geologic Barrier

Petitioner requests that part 63 be revised to require that the geologic setting of the YM site be the primary barrier against release of radionuclides to the biosphere and a separate criterion be specified for the geologic setting (pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible environment of at least 1,000 years). The role of the geologic setting, including the imposition of separate criteria for individual barriers (or sub-system requirements) was an important consideration during the development of part 63. NRC’s generic regulations for HLW disposal at 10 CFR part 60 prescribe criteria for individual barriers. Petitioner’s request would serve to continue the part 60 sub-system approach. *See* 10 CFR 60.113(a)(2).

The Commission carefully considered the merits of including these types of barrier criteria when it proposed part 63, but decided against doing so:

Upon review \* \* \* the Commission is persuaded that much of the basis for NRC’s initial development of the specific numerical values for the subsystem criteria was generic judgment with regard to what was (and was not) feasible with regard to the quantitative assessment of long-term repository performance. Because the stated goal was to compensate for uncertainty, there was never any attempt to derive the subsystem performance criteria from a specified dose or risk level or from some projected dose or risk reduction expected to be achieved by their application. Furthermore, after 15 years of experience in working with the requirements of part 60, the Commission is concerned that, for the Yucca Mountain site, the application of the subsystem performance criteria at § 60.113 may impose significant additional expenditure of resources on the nation’s HLW program, without producing any

commensurate increase in the protection of public health and safety.

(64 FR 8649; February 22, 1999). Nevertheless, the Commission acknowledged the importance of the geologic setting:

[D]espite its reconsideration of the merits of establishing quantitative criteria for the performance of repository subsystems, the Commission continues to believe that multiple barriers, as required by NWPA, must each make a definite contribution to the isolation of waste at Yucca Mountain, so that the Commission may find, with reasonable assurance, that the repository system will be able to achieve the overall safety objective over timeframes of thousands of years. Geologic disposal of HLW is predicated on the expectation that a portion of the geologic setting will act as a barrier, both to water reaching the waste, and to dissolved radionuclides migrating away from the repository, and thus, contribute to the isolation of radioactive waste.

*Id.* The proposed rule required DOE to provide an analysis that (1) identifies those design features of the engineered barrier system, and natural features of the geologic setting, that are considered barriers important to waste isolation; (2) describes the capability of these barriers to isolate waste, taking into account uncertainties in characterizing and modeling the barriers; and (3) provides the technical basis for the description of the capability of these barriers. The Commission stated that this approach would “provide for a system of multiple barriers and an understanding of the resiliency of the geologic repository provided by the barriers important to waste isolation to ensure defense in depth and increase confidence that the postclosure performance objective will be achieved.”

(64 FR 8650; February 22, 1999).

NRC received comments both supporting and opposing its proposed approach for evaluating individual barriers, including a comment from petitioner requesting that the part 60 approach be retained. After careful consideration of these comments, the Commission decided to retain the proposed approach because:

1. It provides the Commission with information to be considered in its decisions without constraining its considerations to a specific limit for a particular barrier, which could result in less favorable overall system performance.

2. It gives the Commission the flexibility to consider the nature and extent of conservatism in the evaluations used for compliance demonstration, and to decide whether there is a need to require DOE to reduce uncertainties in its assessment (*e.g.*, collecting more site data) or to include further mitigative measures.

3. Quantitative evidence of the capability of individual barriers to contribute to waste

isolation is an integral part of the performance assessment. Therefore, an additional quantitative limit is not necessary to show that overall performance reflects a system of multiple barriers.

The Commission understands that establishment of explicit, quantitative limits for individual barriers might be considered a desirable and more easily explained approach. That being said, however, the Commission knows of no scientific basis for setting such limits for particular barriers at Yucca Mountain, or at any other site, independent of the complex repository system in which they must perform. The Commission is confident that evidence for the resilience, or lack of resilience, of a multiple-barrier system will be found by examining a comprehensive and properly documented performance assessment of the behavior of the overall repository system. Such an assessment must consider credible and supportable ranges of individual parameters and modeling assumptions, and must include multiple evaluations of a wide range of combinations of resulting barrier performance.

(66 FR 55759; November 2, 2001).

In sum, the Commission devoted considerable attention in its rulemaking proceeding to the question whether it should retain the subsystem requirements of part 60 which would establish quantitative performance criteria for the geologic barriers but decided against this approach. Petitioner is dissatisfied with this outcome and essentially seeks reconsideration of this decision. However, petitioner has presented no significant new information to support this request and it would be an unwise expenditure of resources to cover this same ground again in a new rulemaking.<sup>10</sup>

#### Potentially Disqualifying Conditions

NRC’s generic Part 60 regulations contain siting criteria which include “potentially adverse conditions” which must be shown not to compromise the ability of the repository to meet the performance objectives for isolation of the wastes. *See* 10 CFR 60.122. Petitioner seeks to amend part 63 to include many of these potentially adverse conditions as “potentially disqualifying conditions” and to require the applicant to show that they do not exist or, if they do exist, “that they are

<sup>10</sup> Petitioner cites a 1999 DOE analysis of the independent capabilities of the multiple waste isolation barriers which indicated that the engineered barriers contribute over 99.7 percent of the waste isolation capabilities of the repository system, implying that NRC will not really apply a “multiple barrier” approach because the geologic contributions of YM are minuscule. Petition at 27, n.16. But our rules on their face unequivocally require “multiple barriers,” as called for by NWPA. *See discussion, supra.* Our consideration of the nature of DOE’s proposed facility must await a DOE license application.

<sup>9</sup> The Commission noted that it “could consider the QA program, personnel training program, emergency plan and operating procedures, among others, in order to determine whether it has confidence that there is no unreasonable risk to the health and safety of the public.” (66 FR 55740; November 2, 2001).