

### *The Primacy of Geologic Criteria for HLW Isolation*

Petitioner asserts that 10 CFR Part 63 must be revised such that it assures that the repository will isolate HLW primarily by geologic means both as a matter of law and as a matter of sound science. To support its "law" position, petitioner argues that the plain language of sections 112(a) and 113(b)(1) of NWPA, together with the legislative history of these sections, requires that geologic isolation be the primary form of containment for waste at the YM repository. Petition at 11–18. Section 112(a) requires DOE to issue guidelines for the recommendation of sites for repositories which, *inter alia*, must "specify detailed geologic considerations that shall be primary criteria for the selection of sites in various geologic media" and which "shall specify factors that qualify or disqualify any site from development as a repository, including factors pertaining to \* \* \* hydrology, geophysics [and] seismic activity \* \* \*." Petitioner claims that this section obligates the NRC to set the same requirements for the YM repository. Petition at 11–12.

To support its "sound science" position, petitioner provides a detailed history of scientific studies that petitioner says underlie "the requirement of Section 112(a) of the NWPA that any repository in this nation must isolate radioactive waste primarily by geologic means." Petition at 6; see Petition at 6–11. Petitioner also points to the Affidavit of Dr. John W. Bartlett, a former Director of DOE's HLW program at YM. Petition, Attachment 1. Dr. Bartlett questions DOE's finding that YM is a site suitable for a repository. He does not comment on NRC's regulations except to observe the different functions of the two agencies in Congress' scheme for a repository: "Congress made it clear that DOE was to determine the *suitability* of the *site*, while the NRC was to determine the *licenseability* of the *repository system* (i.e., the site plus its engineered features)." *Id.* at 9 (emphasis in original).

Petitioner states that, initially, NRC, DOE and EPA each published rules which "individually and collectively conformed generally to the requirements of NWPA Section 112," i.e., 10 CFR Part 60, 10 CFR Part 960 and 40 CFR Part 191, respectively. Petition at 18. Petitioner notes that, with respect to Part 60, the Commission decided to set subsystem performance requirements that serve the function of qualifying and disqualifying criteria for site variables, such as groundwater travel time,

radionuclide travel times and margin of safety (assuming failure of the engineered barriers) but that the Commission "abandoned" these requirements in Part 63. Petition at 21–22. Petitioner believes that this abandonment not only violates NWPA but also violates "NRC's legal obligation [under section 161b. of the Atomic Energy Act] to apply these basic scientific prerequisites in providing for reasonable assurance of the safety of the repository \* \* \*." *Id.*

### *The Need for an Affirmative Safety Case*

Petitioner also contends that 10 CFR Part 63 must be revised so that it requires DOE, as the applicant for a license, to present "an affirmative safety case" for the repository. Petitioner admits that "[a]s written, Part 63 arguably provides the regulatory framework to establish whether the Yucca Mountain repository will satisfy the radiological release criteria set by [EPA]," Petition at 4, but believes that this is insufficient to demonstrate that the repository is safe. According to petitioner, to demonstrate that the repository is safe, NRC must require demonstration of an understanding of repository performance, including that the geologic setting of the repository will, in fact, protect the public from the danger of radioactive releases whenever such releases might occur. Petition at 33–34. At present, petitioner asserts, the repository will become most dangerous to humans and the environment after the 10,000 year regulatory time period, a "blatantly unsafe condition" which should prevent the licensing of the repository. Petition at 33; see Attachment 2. Petitioner supports its view that an affirmative safety case is needed by incorporating criticisms of DOE's Total System Performance Assessment for the site recommendation process (TSPA–SR) made in a report by an international peer review, *An International Peer Review of the Yucca Mountain Project TSPA–SR*, March 2002 (*Peer Review*).<sup>1</sup> Petition at 34–38. Petitioner also cites criticisms of DOE's scientific work in preparation for a site recommendation made by the Nuclear Waste Technical Review Board and NRC's Advisory Committee on Nuclear Waste. Petition, Attachment 3.

### **Reasons for Denial**

NRC is denying the petition because:

<sup>1</sup> DOE issued its TSPA–SR in December 2000. DOE subsequently requested a peer review which was carried out by a review team selected by the Nuclear Energy Agency of the Organization for Economic Co-Operation and Development and the International Atomic Energy Agency.

(1) Petitioner's assertion that 10 CFR part 63 is not in full compliance with NWPA or AEA is without substance.

(2) The Commission promulgated 10 CFR part 63 little over a year ago after an extensive rulemaking process that provided an enhanced level of stakeholder participation. The petition does not appear to present any significant new factual information or policy recommendations that the Commission has not already considered and it would be an unwise expenditure of resources to reconsider issues already resolved in the part 63 rulemaking.

### *1. 10 CFR part 63 Is in Full Compliance With Statutory Requirements*

Petitioner asserts that current part 63 regulations are not in full compliance with NWPA. Petition at 3. This is because, in petitioner's view, the current rule does not "provide the regulatory framework to assure that the repository isolates high-level radioactive waste over the long term primarily by geologic means." Petition at 4. Petitioner further asserts that the rule is deficient, under section 161b. of the Atomic Energy Act of 1954, as amended (AEA), 42 U.S.C. 2201(b), because the rule does not require the applicant to provide "an affirmative safety case" for the repository. Petition at 4, 22. Petitioner misreads the Commission's duty under both of these statutes. As explained below, the Commission finds no legal infirmity in the current Part 63 regulations and thus there is no reason to amend Part 63 to cure any supposed lack of conformity with NWPA or AEA.

### *a. 10 CFR Part 63 Is in Accord With NWPA Requirements*

Congress first spelled out directions for rulemakings to be undertaken to set requirements for a repository in section 121 of NWPA as enacted in 1982, 42 U.S.C. 10141. The Environmental Protection Agency (EPA) was to "promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive material in repositories" (sec. 121(a)), and NRC, "pursuant to authority under other provisions of law," was "by rule, [to] promulgate technical requirements and criteria that it will apply \* \* \* in approving or disapproving \* \* \* applications for authorization to construct repositories [and] applications for licenses to receive and possess spent nuclear fuel and [HLW] in such repositories \* \* \*" (sec. 121(b)(1)(A)). Congress placed only three restrictions on the substance of the regulations NRC was to promulgate:

(1) NRC's criteria "shall provide for the use of a system of multiple barriers