

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

DOCKETED 8/22/08  
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Dale E. Klein, Chairman  
Gregory B. Jaczko  
Peter B. Lyons  
Kristine L. Svinicki

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In the Matter of )

U.S. DEPARTMENT OF ENERGY )

(High Level Waste Repository: )  
Pre-Application Matters) )

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Docket No. PAPO-00

ASLBP No. 04-829-01-PAPO

CLI-08-20

**MEMORANDUM AND ORDER**

On June 3, 2008, the U.S. Department of Energy (DOE) tendered a license application seeking authorization to construct a geologic repository at Yucca Mountain, Nevada.<sup>1</sup> The next day, the State of Nevada filed a petition requesting that the Commission reject that application.<sup>2</sup> On June 18, 2008, Dr. Jacob Paz filed a petition requesting the same relief.<sup>3</sup>

Nevada raises issues involving DOE's authority to file the application under the Nuclear Waste Policy Act, access to classified information, and various substantive deficiencies in the

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<sup>1</sup> Yucca Mountain; Notice of Receipt and Availability of Application, 73 Fed. Reg. 34,348 (June 17, 2008).

<sup>2</sup> *State of Nevada's Petition to Reject DOE's Yucca Mountain License Application as Unauthorized and Substantially Incomplete* (June 4, 2008). By letter, the Nevada Congressional delegation has similarly urged that the Commission refuse to docket the application and return it to DOE. Letter to Chairman Klein and Commissioners from Senators Harry Reid and John Ensign, and Representatives Shelley Berkley, Jon Porter, and Dean Heller (June 5, 2008).

<sup>3</sup> Dr. Jacob Paz Petition to Reject DOE's Yucca Mountain License [Application] as an [Incomplete] and [Potential] Non Compliance with Federal Acts and [Regulations] (June 18, 2008).

application itself (for example, issues pertaining to radiation protection standards for a proposed facility, final repository design, drip shields, an above-ground “aging facility” for high-level waste, and NRC standards addressing security and material control and accounting).<sup>4</sup> On July 21, 2008, Nevada filed a supplement to the petition, in which it provides additional information to support its claims regarding the final repository design and drip shields, and further argues that certain information was improperly excluded from the license application.<sup>5</sup> Dr. Paz argues that DOE’s application should be rejected for its asserted failure to appropriately consider the risks associated with the release of certain heavy metals, in combination with radionuclides, which would be present at the repository.<sup>6</sup> These issues, which raise legal or factual challenges related to the application, are appropriately considered as proposed contentions in the context of a merits hearing on the application.<sup>7</sup>

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<sup>4</sup> Both DOE and the NRC Staff filed responses to Nevada’s petition. DOE would have the Commission address each of the issues raised in the petition on the merits, and provides substantive arguments in response to the petition. *U.S. Department of Energy Response to the State of Nevada’s Petition to Reject the Yucca Mountain License Application* (June 16, 2008). The Staff also provides substantive comments, but recommends that the Commission decline to consider the petition. *NRC Staff Response Opposing Nevada’s June 4, 2008 Petition* (June 16, 2008). The Nuclear Energy Institute also filed a response opposing Nevada’s petition. *Response of the Nuclear Energy Institute Opposing the State of Nevada’s Petition to Reject DOE’s Yucca Mountain License Application* (June 16, 2008).

<sup>5</sup> State of Nevada’s Supplement to its June 4, 2008 Petition Asking the NRC to Reject DOE’s Yucca Mountain License Application as Unauthorized and Substantially Incomplete (July 21, 2008) (Nevada Supplement). DOE filed an opposition to the Nevada Supplement shortly thereafter. *U.S. Department of Energy Response to the State of Nevada’s Supplemental Pre-Docketing Petition to Reject the Yucca Mountain License Application* (July 31, 2008).

<sup>6</sup> Dr. Paz filed a supplement to his petition, to which he attached a paper entitled, “A Review of Health Risks Due to Complex Mixtures in a Geologic Nuclear Waste Repository.” The paper provides additional discussion of asserted toxicological interactions between radionuclides and other agents, including heavy metals. Letter, Dr. Jacob Paz to Commissioners (July 28, 2008).

<sup>7</sup> See generally 10 C.F.R. § 2.309(f).

“Indeed, the very purpose of NRC adjudicatory hearings is to consider claims of deficiencies in a license application; such contentions are commonplace at the outset of NRC adjudications.”<sup>8</sup> When, as here, the hearing process has not even commenced, and the NRC Staff is still considering whether even to accept a pending application for further review, it is not a sensible use of Commission resources to evaluate the petitioners’ legal and factual challenges to the application now. These challenges are premature.

As the NRC Staff points out, our regulations direct how an application for construction authorization for a high-level waste repository will be processed.<sup>9</sup> DOE has tendered its high-level waste repository construction authorization application, but the NRC Staff has not yet accepted it for review and has not yet docketed it in accordance with 10 C.F.R. § 2.101(e)(3). The Director of the Office of Nuclear Material Safety and Safeguards (NMSS Director) will determine whether the tendered application is complete and acceptable for docketing. In conducting this “acceptance review,” the Staff does not consider the technical or legal merits of the application; rather, the Staff’s preliminary review is simply a screening process – a determination whether the license application contains sufficient information for the NRC to begin its safety review.<sup>10</sup>

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<sup>8</sup> *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-08-15, 68 NRC \_\_ (slip op. July 23, 2008), citing *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), LBP-06-7, 63 NRC 188 (2006) (deciding two petitions to intervene and requests for hearing); *Connecticut Yankee Atomic Power Co.* (Haddam Neck Plant), LBP-01-21, 54 NRC 33, *pet. for review denied*, CLI-01-25, 54 NRC 368 (2001)(deciding two petitions to intervene and requests for hearing); *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142 (1998), *aff’d in part*, CLI-98-13, 48 NRC 126 (1998) (deciding five petitions to intervene and requests for hearing).

<sup>9</sup> 10 C.F.R. § 2.101(e)(3); (e)(8).

<sup>10</sup> See *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-12, 59 NRC 237, 241-42 (2004). Additional detail on the Staff’s acceptance review of the application is available on the NRC’s Web site: <http://www.nrc.gov/waste/hlw-disposal/licensing/acceptance-safety/acceptance-review.html> (last revised June 12, 2008).

The acceptance review is currently under way.<sup>11</sup> Under our rules cited above, the Staff is given the duty to perform the acceptance review of DOE's application, and we see no reason to disturb those ongoing efforts. Should the NMSS Director reject the application, DOE will be informed of this determination, and of the respects in which the application is deficient.<sup>12</sup> In such a case, the Commission will have no application before it for consideration, and the filings by Nevada and Dr. Paz will be moot. Should the application be accepted for review, then the NMSS Director will issue a Notice of Docketing for publication in the *Federal Register*, after which the Staff will begin its detailed technical review. The Commission will also then publish a Notice of Hearing in the *Federal Register*, which will provide an opportunity for interested persons to participate in an adjudicatory proceeding on the application. The matters raised in Nevada's and Dr. Paz's filings would be appropriately raised for consideration in response to such a Notice of Hearing.

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<sup>11</sup> Commissioner Jaczko, in his dissent, expresses concern that this Memorandum and Order presumes that DOE's application could be docketed in the absence of the post-10,000 year EPA dose standard. The Commission majority disagrees with Commissioner Jaczko's dissent and emphasizes that this decision should not be read as making a judgment or providing direction as to the overall suitability of the DOE application for docketing. As noted above, the Staff has been provided sufficient discretion to determine whether the application is suitable for docketing.

<sup>12</sup> 10 C.F.R. § 2.101(e)(3).

For these reasons, both petitions and supplements are dismissed without prejudice to the petitioners' right to pursue identical claims, but in the form of proposed adjudicatory "contentions," when and if the application is docketed and a Notice of Hearing issues.<sup>13</sup> IT IS SO ORDERED.<sup>14</sup>

For the Commission



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Annette L. Vietti-Cook  
Secretary of the Commission

Dated at Rockville, Maryland  
this 22<sup>nd</sup> day of August 2008.

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<sup>13</sup> In its Supplemental Petition, Nevada requests that the Petition and Supplement be referred to the NRC Staff for its consideration in deciding whether to docket the license application. Nevada Supplement at 1. In view of the Staff's response to the Petition, we are satisfied that it has been made aware of the particular issues raised in that filing. By virtue of this Memorandum and Order, we trust that the Staff is aware of the supplement, as well.

<sup>14</sup> Pursuant to 10 C.F.R. § 2.101(e)(3), a docket number will be assigned to DOE's application if and when the Staff determines that the application is acceptable for docketing. As an administrative convenience, this Memorandum and Order will be served on the service lists for the PAPO-00 and PAPO-001 dockets.

**Commissioner Jaczko Respectfully Dissenting, In Part**

I concur in the portion of this Memorandum and Order that rejects the Petitions of the State of Nevada and Dr. Jacob Paz as premature. The Environmental Protection Agency (EPA), however, has not yet promulgated final radiation protection standards for the proposed facility. Because I believe the Department of Energy's (DOE) application for a high-level waste repository at Yucca Mountain should not be docketed in the absence of such EPA final radiation protection standards, I dissent from that portion of this Memorandum and Order which discusses docketing of the application.

Upon receipt of the application, the NRC staff began a review to determine whether the DOE application is complete and acceptable for docketing, as required under the regulations. 10 C.F.R. § 2.101(e)(3). NRC regulations specify the required contents of an application for a high-level waste repository, including a wide variety of matters relevant to protection from radiation. 10 C.F.R. § 63.21. As set forth in § 63.21(c), the Safety Analysis Report included in the application must contain information pertaining to a variety of matters that appear to relate, in part, to evaluating potential exposures during the postclosure period beyond 10,000 years following disposal, for which no protection standard has been promulgated. *See Nuclear Energy Institute v. EPA*, 373 F.3d 1251, 1273 (D.C. Cir. 2004).

As described below, these matters will comprise a major focus of the NRC staff's review of the application, and I believe the application should not be docketed in the absence of a standard with which to measure the ultimate acceptability of the application. For example, the application must include a description of the site, with appropriate attention to matters that might affect the performance of the geological repository (§ 63.21(c)(1)), which is essential to evaluation of exposures in the period beyond 10,000 years after disposal.

The application must also contain information to allow the Staff to evaluate the postclosure performance objectives of 10 C.F.R. § 63.113, which references the limits in § 63.311, which in turn must be consistent with the EPA radiological protection standards that have yet to be promulgated. For example, the application must describe the engineered barrier system, including the design criteria used and their relationships to the postclosure performance objectives specified in § 63.113(b) (§ 63.21(c)(3)(ii)). Similarly, the application must include an assessment to determine the degree to which those features, events, and processes of the site that are expected to materially affect compliance with § 63.113 have been characterized, and the extent to which they affect waste isolation (investigations must determine principal pathways for radionuclide migration from the underground facility) (§ 63.21(c)(9)). The application must also include an assessment of the anticipated response of the geomechanical, hydrogeologic, and geochemical systems to the range of design thermal loadings under consideration (§ 63.21(c)(10)). Further, the application must include an assessment of the ability of the proposed geologic repository to limit radiological exposures to the reasonably maximally exposed individual (RMEI) for the period after permanent closure, as required by § 63.113(b) (§ 63.21(c)(11)). The application must also set forth an assessment of the ability of the proposed geologic repository to limit releases of radionuclides into the accessible environment as required by § 63.113(c) (§ 63.21(c)(12)), an assessment of the ability of the proposed geologic repository to limit radiological exposures to the RMEI for the period after permanent closure in the event of human intrusion into the engineered barrier system as required by § 63.113(c) (§ 63.21(c)(13)), and an evaluation of the natural features of the geologic setting and design features of the engineered barrier system that are considered barriers important to waste isolation as required by § 63.115 (§ 63.21(c)(14)). Finally, the application must provide an explanation of measures used to support the models used to provide the information required in §§ 63.21(c)(9)-(14) (§ 63.21(c)(15)). All of these requirements appear to be focused,

to some extent, on radiation protection during the postclosure period beyond 10,000 years after disposal.

The above requirements show that a major focus of the NRC staff review is the capability of the proposed geologic repository to limit radiological exposures in the postclosure period, which includes the period beyond 10,000 years after disposal. The information that must be included in the application, as required above, includes information to address repository performance objectives for this period, which are set forth in § 63.113, and which, in turn, references the limits in § 63.311. The limits in § 63.311, however, must be consistent with the final EPA radiation protection standards, pursuant to the Energy Policy Act of 1992, which requires the NRC to modify its technical requirements and criteria, as necessary, to be consistent with final EPA standards. Energy Policy Act of 1992, § 801(b)(1).

The Memorandum and Order presumes that the NRC staff could docket the application, and, for the reasons explained above, I believe such a course unwise. In short, we do not know what legally-binding radiation protection standard for 10,000 years after disposal will govern the application since such a standard has not been finally promulgated. To review the application based on such uncertainty might well be ineffective and waste resources. This is not to say that the Staff should be precluded from reviewing the significant portions of the application that may be found to be complete and acceptable for docketing; rather, I believe the Staff should proceed with those portions of the review that can be conducted to verify compliance with validly promulgated standards. In light of the foregoing, I believe the most effective and efficient course is for the Staff to defer docketing the DOE application (but continue the review) until EPA has promulgated final radiation protection standards for a high level waste repository at Yucca Mountain. Accordingly, I respectfully dissent from the portion of the Memorandum and Order discussing docketing.