

June 1, 2009

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of:	)	Docket No. 63-001
	)	
U.S. DEPARTMENT OF ENERGY	)	ASLBP Nos. 09-876-HLW-CAB01
	)	09-877-HLW-CAB02
(High-Level Waste Repository)	)	09-878-HLW-CAB03
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THE NUCLEAR ENERGY INSTITUTE BRIEF IN OPPOSITION TO  
NRC STAFF'S APPEAL OF LBP-09-06

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THE NUCLEAR ENERGY INSTITUTE BRIEF IN OPPOSITION TO  
NRC STAFF’S APPEAL OF LBP-09-06

I. INTRODUCTION

In accordance with 10 C.F.R § 2.1015(b), the Nuclear Energy Institute (“NEI”) hereby responds to and opposes relevant portions of the appeal noticed by the Nuclear Regulatory Commission (“NRC” or “Commission”) Staff on May 21, 2009.<sup>1</sup> In its appeal, the NRC Staff seeks to reverse certain aspects of the ruling on admission of parties and contentions issued by the Construction Authorization Licensing Boards, dated May 11, 2009.<sup>2</sup> Specifically, in that decision the Licensing Boards found that NEI has legal standing as of right and discretion to participate in this proceeding. The Licensing Boards also admitted for hearing seven of NEI’s nine proposed contentions. The appeal by the NRC Staff does not dispute NEI’s standing, but challenges the admissibility of six of the seven admitted contentions. For the reasons discussed below, the NRC Staff’s appeal does not identify any clear error of law in admitting NEI’s

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<sup>1</sup> “NRC Staff Notice of Appeal of LBP-09-06 and Brief in Support of Appeal from LBP-09-06” (May 21, 2009)(“NRC Staff Brief”).

<sup>2</sup> “Memorandum and Order (Identifying Participants and Admitted Contentions)” LBP-09-06, 69 NRC \_\_\_\_, dated May 11, 2009 (“Board Order”).

contentions, and would unduly and unnecessarily limit the participation of NEI in this important matter. Accordingly, the NRC Staff's appeal with respect to NEI's contentions should be denied.

## II. BACKGROUND

### A. NEI's Participation in this Matter

As explained in NEI's petition to intervene in this matter<sup>3</sup> — and reiterated in its subsequent reply to the oppositions to NEI's participation filed by the NRC Staff, the Department of Energy ("DOE"), and the State of Nevada<sup>4</sup> — NEI is a non-profit policy organization that represents its diverse members from the nuclear industry in this matter. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear power plant designers, major architect/engineer firms, nuclear fuel fabrication facilities, nuclear materials licensees, unions, and other organizations and entities involved in the nuclear industry or likely to be involved in construction and operation of the Yucca Mountain repository. As such, among NEI's members are the former and present NRC operating licensees that have generated used nuclear fuel from commercial power operations and that presently store used fuel at the sites of both currently operating and shutdown power reactors. In accordance with the Nuclear Waste Policy Act ("NWPA"), used nuclear fuel from nuclear power plants operated by these companies is to be accepted by DOE and will be disposed of by DOE at Yucca Mountain if the site is licensed by the NRC pursuant to the regulations in 10 C.F.R. Part 63.<sup>5</sup> As

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<sup>3</sup> "The Nuclear Energy Institute's Petition to Intervene," dated December 19, 2008, at pages 1-8 ("NEI Petition").

<sup>4</sup> "Reply of the Nuclear Energy Institute to the Answers to its Petition to Intervene by the Department of Energy, the NRC Staff, and the State of Nevada," dated February 24, 2009, at pages 2-20 ("NEI Reply").

<sup>5</sup> *See, e.g.*, 42 U.S.C. § 10131(b)(2).

recognized by the Licensing Boards in their decision admitting NEI as a party, NEI's members are "not only within the zone of interest of the NWPA but also are the intended beneficiaries of that Act. Indeed they can claim to be the real parties in interest in the success of DOE's application . . . ." Board Order at 74.

NEI clearly supports issuance of a license for the proposed Yucca Mountain repository, with modifications to the design and/or licensing basis only to the extent suggested in specific contentions. Accordingly, as a project supporter, NEI has sought and will seek to participate in this proceeding through contentions that seek to protect its members' interests in the proceeding and that call for improvements to the repository. NEI will also participate, as appropriate, on contentions of other parties that either oppose the project or aspects of the project. Mindful of the Commission's regulations on the need for basis and specificity for proposed contentions, but conceding nothing regarding the unique considerations that apply to supportive petitioners, NEI proposed nine specific contentions with detailed technical and factual bases.<sup>6</sup> Some of these contentions reflect the unique interests of NEI's members (quite separate from the interests of DOE), and assert the need for changes in the proposed design, operation, or the licensing basis of the facility. Many of the contentions also demonstrate conservatism in the proposed design or operation of the facility. This conservatism establishes licensing margin that will support compliance with the NRC's requirements. Several of NEI's contentions, therefore, identify specific areas where NEI intends to bolster DOE's case in order to reduce uncertainty in the licensing decision-making.

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<sup>6</sup> *C.f. Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 172, 237-38 (1998) (participation by project supporter was allowed based on no more than one contention stating that the application was meritorious and should be granted).

As discussed below, the NRC Staff appeals the admissibility of six of the seven NEI contentions admitted by the Licensing Boards.<sup>7</sup> NEI asserts that the contentions are all admissible, that the NRC Staff has not identified any clear errors of law, and that the appeal should be denied.

B. Legal Standards For Admission of Contentions

Admissibility of contentions in NRC licensing proceeding is governed by 10 C.F.R. § 2.309(f)(1)(i)-(vi).<sup>8</sup> A proposed contention must contain:

- (i) A specific statement of the issue of law or fact raised;*
- (ii) A brief explanation of the basis for the contention;*
- (iii) A demonstration that the issue is within the scope of the proceeding;*
- (iv) A demonstration that the issue is material to the findings that the NRC must make regarding the action which is the subject of the proceeding;*
- (v) A concise statement of the alleged facts or expert opinions supporting the contention; and*
- (vi) Sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact.*

In all cases the NRC Staff's appeal with respect to the admissibility of the six NEI contentions is grounded in either 10 C.F.R. § 2.309(f)(1)(iii) or 10 C.F.R. § 2.309(f)(1)(iv), or both. On appeal the NRC Staff does not challenge any of NEI's contentions under any of the other criteria.

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<sup>7</sup> The NRC Staff does not appeal the admission of NEI-NEPA-01, which relates to the analysis in the Yucca Mountain Final Supplemental Environmental Impact Statement. NEI contends that DOE has failed to analyze the environmental impact that will result from DOE's proposal to receive up to 90% of spent nuclear fuel at Yucca Mountain in Transport, Aging, and Disposal canisters.

<sup>8</sup> A seventh contention admissibility requirement — 10 C.F.R. § 2.309(f)(1)(vii) — is only applicable in proceedings arising under 10 C.F.R. § 52.103(b), and therefore has no bearing on this proceeding.

A petitioner must demonstrate “that the issue raised in the contention is within the scope of the proceeding.” 10 C.F.R. § 2.309(f)(1)(iii). Any contention that falls outside the specified scope of the proceeding must be rejected. *See Portland Gen. Elec. Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979). A petitioner must also demonstrate “that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding.” 10 C.F.R. § 2.309(f)(1)(iv). As the Commission has observed, “[t]he dispute at issue is ‘material’ if its resolution would ‘make a difference in the outcome of the licensing proceeding.’” *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 333-334 (1999). In this regard, each contention must be one that, if proven, would entitle the petitioner to relief. *See Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2), CLI-02-26, 56 NRC 358, 363 n.10 (2002).

C. Legal Standard of Review for Admissibility Decisions

It is longstanding Commission practice to “give ‘substantial deference’ to [Board] determinations on threshold issues such as standing and contention admissibility.” *Amgen Energy Co., L.L.C.* (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 121 (2006) (*citing Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC 318, 324 (1999)); *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-855, 24 NRC 792, 795 (1986).

The Commission will defer to Board rulings on contention admissibility “in the absence of clear error or abuse of discretion.” *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 & 3), CLI-09-08, 69 NRC \_\_\_\_ (May 18, 2009) (slip op. at 7) (*citing Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 3), CLI-08-17, 68 NRC 231, 234 (2008); *PPL Susquehanna LLC* (Susquehanna Steam Electric Station, Units 1 and 2), CLI-07-25, 66 NRC 101, 104 (2007)). The Commission’s standard of “clear

error” for overturning a Board’s factual finding is quite high. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-08, 58 NRC 11, 25-26 (2003). The Commission has described “a ‘clearly erroneous’ finding [as] one that is not even ‘plausible in light of the record viewed in its entirety.’” *See Tennessee Valley Authority* (Watts Bar Nuclear Plant, Unit 1; Sequoyah Plant, Units 1 & 2; Browns Ferry Nuclear Plant, Units 1, 2 & 3), CLI-04-24, 60 NRC 160, 189 (2004) (citing *Kenneth G. Pierce* (Shorewood, II), CLI-95-6, 41 NRC 381, 382 (1995), quoting *Anderson v. Bessemer City*, 470 U.S. 564, 573-76 (1985)).

The Commission will not overturn a Board’s findings simply because the Commission might have reached a different result or because the record could support a view different from that of the Board. *See Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), CLI-01-11, 53 NRC 370, 382 (2001)(“[the Commission] has repeatedly declined to second guess plausible Board decisions”); *Tennessee Valley Authority*, 60 NRC at 189; *General Pub. Util. Nuclear Corp.* (Three Mile Island Nuclear Station, Unit 1), ALAB-881, 26 NRC 465, 473 (1987). The Commission will reverse a Board’s legal conclusions “if they are ‘a departure from or contrary to established law.’” *Tennessee Valley Authority*, 60 NRC at 190 (citing *Pacific Gas & Elec. Co.* (Diablo Canyon Power Plant ISFSI), CLI-03-12, 58 NRC 185, 191 (2003)).

### III. DISCUSSION

#### A. The NRC Staff’s Appeal is Based on an Improper Application of the Scope of the Proceeding and the Materiality Criteria of 10 C.F.R. § 2.309

The two admissibility criteria relied upon by the NRC Staff require that a contention be within the scope of the proceeding and be material to the findings that the Commission must make. The two criteria are closely related. Three themes run throughout the NRC Staff’s brief in support of its appeal under these criteria. First, the NRC Staff argues that

NEI's contentions, to the extent that the contentions seek to apply the NRC's regulations establishing the As Low As Reasonably Achievable ("ALARA") principle for occupational dose consequences, do not raise a material issue. Second, to the extent that the contentions address occupational dose consequences outside the immediate project area, the NRC Staff argues that the contentions raise issues outside the scope of the proceeding. Third, the NRC Staff asserts that, to the extent NEI's contentions assert conservatism in the license application, and do not plead a *non-compliance* with NRC regulations, the contentions are not within the scope of the proceeding. NEI addresses each of these bases for the appeal at the threshold, below.

1. *ALARA and Dose Consequence Contentions*

The NRC Staff challenges the admission of NEI-SAFETY-01, -02, -03, -05 and -06 in whole or in part because, in the NRC Staff's view, those contentions present issues related to the application of ALARA principles that are not material to the findings that the NRC must make with respect to the DOE application. These assertions were fully briefed before the Licensing Board, which subsequently admitted each contention. In short, NEI proposes in these contentions specific actions which would reduce radiological doses, consistent with ALARA principles, *during the operational phase* of the Yucca Mountain repository. As such, NEI's contentions would make a difference in the licensing decision in this matter and would entitle NEI to relief.

As discussed below, the Commission has explicitly required the consideration of ALARA principles in the operational phase of the Yucca Mountain project, but would preclude the application of ALARA principles to the repository in the postclosure phase. NEI's contentions focus on certain repository design or operational parameters and assumptions which are unnecessary, in order to reduce preclosure occupational dose impacts on workers, consistent with ALARA principles. The contentions do not seek to apply ALARA principles to the

repository for the postclosure phase. The NRC Staff, however, would improperly construe the Commission's directives with respect to ALARA to preclude consideration of operational phase ALARA considerations if those considerations could *in any way* alter the repository design assumptions.

The Commission's intent that ALARA principles are to be applied to the licensing of the Yucca Mountain repository under Part 63 with respect to the operational and decommissioning phases of the repository is addressed in the Final Rule, "Disposal of High Level Radioactive Wastes in a Proposed Geologic Repository at Yucca Mountain, Nevada," 66 Fed. Reg. 55,732, 55,751 (November 2, 2001). The Commission stated that:

it is appropriate to explicitly require the application of the ALARA principle to the operational and decommissioning phases of the repository . . . .

At the same time the Commission noted that:

. . . the application of ALARA to achievement of the long-term performance objective is not appropriate.

*Id.* In other words,

. . . although the Commission will require ALARA considerations for the operational phase and decommissioning of the surface facilities, NRC will not explicitly require an ALARA analysis as part of the postclosure performance assessment.

*Id.*

The Commission expanded on its rationale for distinguishing between considering ALARA in the context of the operational phase and in the context of the postclosure phase, as follows:

Application of ALARA during operations compels the consideration of the benefits of further reduction in potential doses to present-day populations and workers relative to impacts to present-day populations (*e.g.*, increased cost to reduce potential doses further). The application of ALARA to the achievement of the postclosure performance objective

would involve considerations far more complicated than those evaluated for operations. The reasonableness of further reduction of potential doses would need to evaluate benefits and impacts that span many generations (*e.g.*, costs incurred today versus a reduction of potential doses thousands of years in the future; repository designs that reduce potential doses in the future but increase doses to present-day workers during fabrication of the design such as installing a special backfill)....

*Id.*

In challenging NEI's admitted contentions, the NRC Staff misapplies the Commission's rationale to limit the scope of ALARA considerations under Part 63. The NRC Staff apparently agrees that the Commission intended to require consideration of ALARA principles during the operational phase. *See, e.g.*, NRC Staff Brief, at 12. Moreover, NEI does not dispute that the Commission did not intend, nor believe it necessary, to consider the application of ALARA to postclosure performance. Consideration of future postclosure ALARA benefits was deemed by the Commission to be unnecessary in light of the conservative public dose limits adopted for licensing by the Environmental Protection Agency which will "ensure that public health and safety and the environment are protected" in the long term. 66 Fed. Reg. at 55,751. This conclusion was further confirmed by the National Academy of Sciences finding that "deep geologic disposal, by its very nature, was ALARA...." *Id.*

Here, however, the NRC Staff in its appeal diverges from the plain meaning of the Commission's statement of consideration. The NRC Staff eschews any consideration of preclosure ALARA implications if it might involve a balance against postclosure performance. The NRC Staff contends that, simply because a proposed design change could alter one or more repository design assumptions (which would be evaluated to confirm that performance objectives are still met), a contention proposing such a change necessarily involves the type of speculative postclosure ALARA evaluations the Commission intended to preclude. This proposition is

simply not apparent on the face of the Commission statement of consideration on which the Staff relies.<sup>9</sup> Moreover, NEI's contentions do *not* involve postclosure ALARA considerations, nor do they require any more evaluation than has already been done to confirm continued repository design conformance with the *existing* postclosure performance objectives.

NEI's contentions that implicate the operational phase ALARA neither create burdens in additional preclosure ALARA, nor seek to gain ALARA benefits in the postclosure period. NEI's proposals are aimed strictly at foregoing certain overly conservative and unnecessary design assumptions that impact current operational activities, which will avoid significant preclosure occupational doses as well as significant current costs. These contentions are clearly consistent with ALARA. No postclosure ALARA requirements, benefits, or costs are claimed. In fact, both examples that the Commission used to exclude postclosure ALARA considerations from Part 63 are premised on the assumption that postclosure ALARA proposals would create preclosure impacts (either cost or dose impacts) that would need to be balanced against speculative postclosure benefits far in the future. *See* 66 Fed. Reg. at 55,751. However, NEI's contentions present no issues for which there is a need to conduct a balancing of preclosure ALARA impacts against speculation with respect to dose benefits in the distant future because *the contentions do not involve postclosure dose benefits or ALARA*.

Under the NRC Staff's interpretation, no matter how readily preclosure ALARA considerations could be applied to significantly reduce *operational* radiological exposures and costs, a contention that could have *any* impact on the physical design of the repository (*i.e.*, would entail a "change to a design parameter chosen by DOE" (NRC Staff Brief, at 13)) would not raise an issue material to this proceeding, irrespective of whether postclosure performance

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<sup>9</sup> The statement of considerations actually addresses the opposite scenario from the NRC Staff's proposition.

objectives would continue to be met. At bottom, the NRC Staff's approach would preclude virtually all contentions with preclosure operational ALARA implications.

2. *ALARA Outside the Repository Operations Area*

In challenging the Licensing Boards' admission of NEI-SAFETY-01, -02, and -05, the NRC Staff further asserts that, to the extent DOE design assumptions or specifications cause 10 C.F.R. Part 50 *reactor licensees* to undertake activities which would cause unnecessary radiological exposures to Part 50 facility workers, consideration of those consequences is outside the scope of this proceeding. In other words, by the NRC Staff's reading the applicability of the ALARA principle is limited to the geologic repository operations area ("GROA"). Thus, the NRC Staff argues, NEI's contentions that identify unnecessary design elements or assumptions, where such reductions also implicate ALARA considerations at reactor sites, are outside the scope of the proceeding. The NRC Staff claims that reactor licensees' compliance with Part 20 is not an issue in this proceeding. *See* NRC Staff Brief, at 14, 15-17, 20, and 22. Contrary to the NRC Staff's position, however, the consequences of repository design or operating parameters that directly cause reactor licensees to undertake unnecessary activities resulting in unnecessary occupational doses for plant employees are within the scope of this proceeding and the mandated consideration of ALARA principles in the preclosure operational phase.

The regulatory obligations concerning ALARA for power reactors and the Yucca Mountain repository, 10 C.F.R. § 50.40 and 10 C.F.R. § 63.111 provide, respectively, that (1) reactor licensees, and (2) the GROA, must meet the requirements of 10 C.F.R. Part 20. 10 C.F.R. § 20.1002 states that Part 20 applies to persons holding NRC licenses under 10 C.F.R. Part 50 and 10 C.F.R. Part 63. 10 C.F.R. § 20.1101(b) states that "licensee[s] shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are [ALARA],"

and 10 C.F.R. § 20.1003 defines “ALARA” as “making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed material in the public interest.”

The ALARA provisions require both Part 50 and Part 63 licensees to achieve doses (including doses to the “public”) ALARA “to the extent practical” and to make “every reasonable effort” to do so. There is no limit other than an implicit limit of each licensee’s ability to exercise reasonable control. The NRC Staff cites no authority that suggests that occupational doses caused by the repository design or operational requirements — whether at the GROA or elsewhere — are not subject to consideration in this proceeding. Avoiding such considerations would result in a whole class of activities, caused *only* because of the repository, escaping full ALARA consideration. If these occupational doses were excluded from the proceeding, DOE and the NRC could simply avoid consideration of direct impacts from the repository by shifting them away from the GROA to reactor (or other) locations.<sup>10</sup>

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<sup>10</sup> The NRC Staff offers a simplistic analogy that, were NEI to be correct in its interpretation, “then all licensees, including reactor licensees would be required to ensure their operational procedures do not cause workers at other nuclear facilities to receive unnecessary radioactive doses” (NRC Staff Brief, at 17, n. 13). The analogy is flatly inapt. The issue here is the need to consider direct radiological consequences of a single NRC licensing activity that will necessarily impact and require actions both at the geologic repository operations area and at reactor facilities, potentially resulting in occupational exposures in both locations. Those impacts would not occur *but for* the NRC’s single licensing decision at issue in this proceeding. NEI does not contend that this proceeding’s scope include ALARA considerations for the activities of Part 50 licensees that are not the direct result of actions controlled by DOE.

The Commission's statements made in connection with the promulgation of Part 63 again demonstrate that NEI's contentions raise exactly the type of ALARA considerations that the Commission would find appropriate. In the rulemaking, the Commission stated that:

The ALARA principle deals with optimizing the reduction of potential doses from radiation to members of the general public and workers. . . . Application of ALARA during operations *compels* the consideration of the benefits of further reduction in potential doses to present-day populations and workers relative to impacts to present-day populations (e.g., increased cost to reduce potential doses further).

66 Fed. Reg. at 55,751 (emphasis added).

Here, NEI's contentions seek to completely avoid or significantly reduce the radiological doses that would be incurred to certain "present-day populations and workers," which is wholly consistent with the Commission's own description of the scope of ALARA considerations in this proceeding (*see* the discussion above regarding ALARA scope). The plain meaning of the Commission's references to "the general public and workers" and "present-day populations and workers," 66 Fed. Reg. 55,751, includes all populations and workers, including those at reactor sites. Had the Commission wanted to limit its consideration only to populations near, and workers at, the repository, it could have and presumably would have so stated.

Finally, to the extent the NRC Staff argues that the NRC is not required to make findings regarding Part 50 licensees' conformance with Part 20, pursuant to 10 C.F.R. § 50.40 (*see, e.g.*, NRC Staff Brief, at 14), NEI does not claim that such findings are necessary to issue the repository construction authorization. Rather, the Commission will grant the construction authorization if it determines that the *proposed design* poses no "unreasonable risk to the health and safety of the public" when considering, among other things, the adequacy of "DOE's proposed operating procedures to protect health and to minimize danger to life or property." *See* 10 C.F.R. § 63.31. (ALARA issues caused by Part 50 licensees, and not by a DOE approach at

issue, are outside the scope of the proceeding.) Here, DOE's proposed repository design and operating procedures will inevitably cause activities and impacts at the repository and reactor sites that can be avoided if DOE changes certain design proposals without compromising postclosure performance objectives. That issue would affect the outcome and *is* within the scope of this proceeding.

3. *Excessive Conservatism and Licensing Margin*

In appealing the admission of NEI-SAFETY-03, -04, -05, AND -06, the NRC Staff in its supporting brief cites an axiom that is well-established in the NRC's case-law on admissibility of contentions, and that was previously set forth by the Licensing Board in connection with this Yucca Mountain matter: to meet the materiality requirement for admissibility, a contention must cite a statute or regulation that, explicitly or implicitly, has not been satisfied by reason of the issue raised in the contention. NRC Staff Brief, at 18-19 (*citing U.S. Dept. of Energy (High-Level Waste Repository), LBP-08-10, 67 NRC 450, 455 (2008)*). The NRC Staff argues that "NEI has not met this burden of demonstrating materiality because it has not pointed to any regulatory requirement that DOE fails to satisfy." NRC Staff Brief, at 19. Putting aside NEI's various contentions that in fact do assert specific violations of ALARA (and related) regulations, this rote recitation of principle has no historical, conceivable, or plausible application to a contention filed by a party such as NEI seeking to *support* a proposed action. Indeed, quite logically, the inverse proposition must apply to a supportive contention. NEI's contentions asserting conservatism in specific aspects of the proposed repository design or operations, apart from any other implications they may have, ultimately support *compliance*. NEI's contentions cite the relevant sections of the license application and the specific regulations at issue, and are therefore very material to the findings that the NRC must make.

Supportive petitioners have rarely appeared in NRC licensing cases — and there is not substantial precedent related to the admissibility of contentions from a project supporter. Clearly, for contentions grounded in disagreements with the applicant on specific issues (*see, e.g.,* ALARA implications, elements of the seismic design, aspects of the performance assessment), a petitioner may allege a specific regulatory non-compliance. NEI has in some respects (as further discussed below) done precisely that. However, a petitioner with vast technical expertise (such as NEI) in specific areas, may also choose to address in a contention a specific area of support. The NRC Staff points to no case law, or Licensing Board decree, that a project supporter in general, or NEI in particular, is precluded from asserting *compliance* based on conservatism, or even undue conservatism, in the design. NEI's intent is that, with respect to the areas identified in its contentions, proving excess conservatism (or licensing margin) will at a minimum advance the licensing case, and reduce uncertainty and delay related to licensing the project. A contention alleging compliance with a material regulation could affect the outcome of the proceeding, is necessarily material to the findings the NRC must make, and is within the scope of the proceeding.

To be sure, NEI believes that, if it can show excess conservatism, such a showing could have the effect of a Licensing Board decision that will reflect NEI's position and thereby alter the licensing basis for the project. Relief in the form of a change in the licensing basis would increase DOE's flexibility in the future in developing, constructing, and operating the facility. The NRC Staff's view that this is somehow outside the scope of the proceeding would unduly narrow the scope of the hearing and unduly restrict both NEI's and DOE's litigation approach. Applicants have long demonstrated compliance with licensing requirements in the hearing process by demonstrating margin in the supporting analyses. It is not clear why the NRC

Staff would hamstring the litigants and the Licensing Boards by precluding that approach here by NEI. It is also not clear why the Licensing Boards may not determine how far a design needs to go to establish minimum compliance.<sup>11</sup>

The NRC Staff merely offers simplistic arguments such as: “[I]icensing uncertainty and possible delay do not fall within the safety, security, and technical or environmental standards that the NRC considers.” NRC Staff Brief, at 19. However, in this argument the NRC Staff mischaracterizes the focus of the conservatism elements of NEI’s contentions. NEI asserts conservatism or licensing margin in order to demonstrate compliance with specific regulations referenced in the contentions — an issue squarely germane to the safety, security, and technical or environmental standards the NRC considers. NEI does so to support licensing, to eliminate licensing uncertainty, and possibly to prevent project delay. Given the timetable set by statute for this proceeding, the Commission, the Licensing Board, and the NRC Staff should all be interested in NEI’s directly relevant contentions, and the technical support for those contentions, that will demonstrate licensing margin and thereby eliminate uncertainty and delay. In this regard, NEI will participate in the forthcoming Licensing Board supervised process by which the parties will consolidate and group contentions for hearing.<sup>12</sup> In that context, NEI’s conservatism contentions will serve NEI’s unique objectives and also support DOE’s application with respect to the contentions of other parties.

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<sup>11</sup> In this regard, the Licensing Boards would not necessarily need to order a change to the design. Ultimately, the final design may be a matter of DOE prerogative, so long as it meets NRC’s regulations. However, the licensing basis should nonetheless be clear.

<sup>12</sup> *See* Board Order at 104.

B. The NRC Staff Has Not Demonstrated Any Error in the Admission of NEI's Contentions

1. NEI-SAFETY-01: Spent Nuclear Fuel Direct Disposal in Dual Purpose Canister

This contention states as follows:

*The License Application ("LA") fails to permit direct disposal of dual purpose canisters ("DPCs") containing commercial spent nuclear fuel and is therefore inconsistent with "as low as is reasonably achievable" ("ALARA") principles, unnecessarily generates additional low-level radioactive waste ("LLRW"), and wastes limited resources.*

In this contention NEI addresses one specific aspect of the proposed repository operations, as specifically addressed in the DOE license application. The application states that all commercial spent nuclear fuel will be loaded into Transportation, Aging, and Disposal ("TAD") canisters for disposal. This means that spent nuclear fuel previously loaded into DPCs will need to be unloaded and then reloaded into TAD canisters prior to disposal. This operation may occur either at the repository or at reactor sites. NEI specifically asserts that this aspect of the design would be contrary to the ALARA principle and would unnecessarily generate additional LLRW. NEI Petition, at 9-12.

On appeal, the NRC Staff first argues that "NEI seeks to apply ALARA principles to a design parameter important to postclosure performance," and therefore the contention does not raise an issue material to the findings the NRC must make. NRC Staff Brief, at 14. Secondly, the NRC Staff argues that Part 63 focuses only on activities at the geologic GROA — and therefore the contention related to activities of Part 50 reactor licenses is outside the scope of the proceeding. *Id.*, at 45. Both of these arguments have been addressed above; neither establishes any error by the Licensing Boards in admitting the contention for hearing.

First, the NRC's Part 63 regulations specifically provide that the "geologic repository operations area must meet the requirements of part 20 of this chapter." 10 C.F.R. § 63.111(a). Section 20.1101(b) provides that licensees use, to the extent practical, procedures

and engineering controls to achieve occupational doses that are ALARA. There is no question with respect to this contention that the doses at issue are preclosure doses. Nonetheless, the NRC Staff would equate the contention to one that would attempt to apply ALARA to the postclosure performance objective. The NRC Staff asserts, without technical basis or supporting explanation, that “NEI is necessarily proposing a change to a design parameter chosen by DOE to meet postclosure performance objectives.” NRC Staff Brief, at 13. Further, the NRC Staff asserts that “any benefit realized during preclosure from not repackaging waste into TADs would need to be counterbalanced by any performance reductions during the postclosure period.” *Id.* This, the NRC Staff maintains, involves a “balancing of present-day costs and benefits with future costs and benefits,” which was “precisely not to apply ALARA considerations to the postclosure period.” *Id.*

This argument, as discussed above, is based on a faulty and speculative reading of “what the Commission sought to avoid” in deciding not to apply ALARA to the *postclosure* performance objectives. *See* 66 Fed. Reg. at 55,751. In fact, as previously discussed, the Commission sought to avoid layering a postclosure ALARA consideration on top of a performance objective that is already sufficiently conservative. It does not follow that the statement of consideration can be extended to preclude contentions that address ALARA in the preclosure period, but *might* also affect a design parameter relevant to postclosure performance. Moreover, one of the factual issues in dispute in the contention is NEI’s assertion that the design assumptions are conservative and that receipt and direct disposal of DPCs *will not* affect performance against the existing performance standards. The NRC Staff would preclude this merits issue at the admissibility stage.

Finally, the NRC Staff argues that — assuming that (1) ALARA considerations do apply to the preclosure activities and (2) the occupational doses occur at reactor sites rather than the repository — ALARA considerations do not apply to activities outside the GROA. As discussed above, this argument arbitrarily and without support applies a geographic limit to the ALARA requirement. In fact, ALARA must apply to *all* inevitable consequences of the design and operational parameters specified in the license application. Causation is the operative standard; not location or geography. Otherwise, DOE could arbitrarily transfer occupational dose consequences to reactor licensees, merely by specifying that an activity must be conducted prior to receipt at the repository.

In total, the NRC Staff has not shown any error in the Licensing Boards' admission of this contention. The contention addresses a matter specified in the license application, is premised on preclosure ALARA implications, is directly material to the findings the NRC must make, and is within the scope of the proceeding.

2. NEI-SAFETY-02: Insufficient Number of Non-TAD Spent Nuclear Fuel Shipments to Yucca Mountain

This contention states as follows:

*Yucca Mountain's surface facility design capability to receive not less than 90% of commercial spent nuclear fuel ("SNF") in Transportation, Aging, and Disposal ("TAD") canisters is inconsistent with "as low as is reasonably achievable" ("ALARA") principles.*

In this contention NEI addresses a specific statement in the license application stating that the repository surface facilities are designed to receive at least 90% of commercial spent fuel at the repository in TAD canisters loaded at reactor sites. This will result in some commercial spent nuclear fuel already loaded into DPCs and transportable bare fuel casks ("BFCs") being unloaded and reloaded into TAD canisters at reactor sites instead of at the repository. This in turn will result in reactor site workers responsible for the unloading and

reloading being unnecessarily exposed to increased occupational doses, inconsistent with the ALARA principle. NEI Petition, at 13. Some of these doses can be avoided if DOE accepts up to 25% of commercial spent nuclear fuel in DPCs and transportable BFCs. DOE has already analyzed the environmental impacts of the alternative 25% non-TAD scenario and concluded that there would be little if any additional environmental impact at the repository. *Id.*

The NRC Staff's appeal of the admissibility of this contention is based solely on its misinterpretation of the scope of the ALARA requirement. NRC Staff Brief, at 16-17. As discussed above, the NRC Staff asserts that the ALARA principle does not apply to activities conducted outside the boundary of the GROA. The NRC Staff's reading of the regulation is too narrow and would vitiate the preclosure ALARA obligation by allowing DOE to shift occupational doses to offsite locations, such as reactor sites, simply as a matter of operational practice set forth in the license application. *See* NEI Reply, at 55-56.

Again, the NRC's Part 63 regulations specifically provide that the "geologic repository operations area must meet the requirements of part 20 of this chapter." 10 C.F.R. § 63.111(a). Section 20.1101(b) provides that licensees use, to the extent practical, procedures and engineering controls to achieve occupational doses that are ALARA. As explained in the NEI Reply on the issue of admissibility, and as discussed above, there is no basis for the NRC Staff's claim that activities or impacts that are outside the GROA are either immaterial to or outside the scope of this proceeding. *See* NEI Reply, at 49-56.

The NRC Staff in its appeal brief again takes issue with NEI's citation to the Commission's statement of consideration for Part 63, 66 Fed. Reg. at 55,751. NRC Staff Brief, at 16-17. The NRC Staff argues that, "[i]f the Commission had intended for DOE to consider activities at facilities other than the GROA, the Commission would clearly have said so." *Id.* at

17. However, this reflects a crabbed reading of 10 C.F.R. § 63.111(a), and ignores 10 C.F.R. § 63.31, which requires the Commission to consider the adequacy of “DOE’s proposed operating procedures to protect health and to minimize danger to life or property.” Where DOE’s proposed repository design and operational procedures will inextricably and inevitably cause dose consequences at reactor sites, those impacts are material to the NRC’s decisionmaking and within the scope of this proceeding.<sup>13</sup>

In total, the NRC Staff has not shown any error in the Licensing Boards’ admission of this contention. The contention addresses a matter specified in the license application, is premised upon preclosure ALARA implications of the proposed DOE specification, and is directly material to the findings the NRC must make. Notwithstanding that the occupational doses will be incurred at reactor sites in order to conform to the DOE specifications, the contention raises a matter that is within the scope of this proceeding.

3. NEI-SAFETY-03: Excessive Design of Aging Facility

This contention states as follows:

*The design requirement stated in Section 1.2.7.1.3.2.1 of the License Application (“LA”) Safety Analysis Report (“SAR”) specifying that the vertical aging overpack system “must withstand a seismic event characterized by horizontal and vertical peak ground accelerations of 96.52 ft/s<sub>2</sub> (3g) without tipover and without exceeding canister leakage rates” is excessively conservative, goes beyond the necessary safety margin, and is not consistent with ALARA principles.*

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<sup>13</sup> Even the NRC Staff in its appeal brief concedes that activities at the repository “must be consistent with ALARA principles such that potential doses to members of the public and workers are reduced.” NRC Staff Brief, at 17. In this context, the relevant activities at the repository are the proposed receipt of spent nuclear fuel in TADs. The workers at reactor sites who will be responsible for meeting the receipt requirement — rather than workers at the repository, if DOE had simply planned to repackage the spent nuclear fuel itself — are effectively members of the offsite “public” injured by the proposed activities. Accordingly, the ALARA principles should extend to those offsite individuals.

In this contention NEI addresses one specific aspect of the license application — the seismic design of the fuel aging facility. In the contention and the supporting bases, NEI’s experts demonstrate the existence of a genuine dispute (with both the Applicant and prospective challengers) with respect to the extremely conservative design of the facility. In particular, the 3g design requirement proposed by DOE for the aging facility and storage canisters would exceed any requirement that could be derived from the technical record and a reasonable probabilistic seismic hazard analysis. The contention and supporting bases establish a genuine dispute that the 3g design requirement is unreasonable and will lead to massively over-engineered storage facilities. The contention and supporting bases also demonstrate a dispute based on ALARA requirements related to the impacts of the over-design on the nuclear workers at the Yucca Mountain aging facility.

The NRC Staff’s appeal does not dispute the technical bases for NEI’s contention or the existence of a genuine dispute. Instead, the appeal focuses on only one aspect of the NEI Reply — that is, NEI’s argument (as now characterized by the NRC Staff) that DOE’s design “must advance the goal of the NWPA of constructing a repository and assuring sufficient revenue to cover the cost.” NRC Staff Brief, at 18. From this one argument — ignoring all the other bases articulated in NEI’s contention and all the other arguments made in the NEI Reply — the NRC Staff leaps to the conclusion that the contention fails to raise a material issue and that its admission “was an error of law and should be reversed.” *Id.* This overbroad appeal must be rejected.

NEI’s contention clearly focuses on a specific aspect of the license application and proposed design. The NRC Staff does not respond to or dispute NEI’s position that the contention is directly material to the safety analysis required by 10 C.F.R. § 63.112, and to the

performance objectives of 10 C.F.R. § 63.111. The NRC Staff also does not dispute that the contention is material to the finding ultimately required by 10 C.F.R. § 63.31 — that is, that there is reasonable assurance that the types and amounts of radioactive materials described in the application can be received and positioned in a geologic operations area of the design proposed without unreasonable risk to the health and safety of the public. 10 C.F.R. § 63.31(a)(1). The regulation further specifies that, in arriving at this determination, the Commission also will consider whether DOE’s proposed operating procedures to protect health and minimize danger to life or property are adequate. NEI’s contention is that the proposed design is excessive with respect to the analysis of seismic hazards (a conservatism contention), to the point of creating unnecessary dose consequence for repository workers.

With respect to the ALARA implications of the contention, 10 C.F.R. § 63.111(a) specifically provides that the geologic operations area must meet the requirements of 10 C.F.R. Part 20. Section 20.1002 provides that Part 20 applies to persons holding NRC licenses under 10 C.F.R. Part 50 and 10 C.F.R. Part 63. Section 20.1101(b) requires that licensees use, to the extent practical, procedures and engineering controls to achieve occupational doses ALARA. NEI’s contention asserts that the 3g design criterion is not consistent with ALARA principles — and the NRC Staff’s appeal does not argue (much less establish) otherwise.

Apart from the ALARA implications, the contention is also material to the required findings based on its assertions of conservatism in the DOE analysis. This conservatism would rebut any contrary issues raised by other parties with respect to the seismic design of the aging facility.<sup>14</sup> In addition, the contention presses NEI’s unique position that the design and licensing bases need not be so stringent. The NRC Staff points to no regulation that would

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<sup>14</sup> NEV-SAFETY-08 is one proposed contention that specifically addresses ALARA and the aging facility. This contention has been admitted for hearing.

preclude the Licensing Boards from determining that the design *exceeds* that which is required to meet the NRC's regulations. As discussed above, such a decision would modify the licensing basis and would provide DOE with design and operational flexibility in the future.

In replying to the opposition of the NRC Staff and others with respect to the admissibility of this contention, NEI further pointed out the unique considerations that apply under the NWPA. In particular, excess conservatism in the design or application could threaten the goal of Congress to assure construction of a repository and to assure sufficient revenue to cover cost. NEI Reply, at 64. NEI did not argue, as now suggested by the NRC Staff, that this added factor is the sole basis for the materiality of the contention. Rather, this factor simply buttresses NEI's rationale that the NRC and its Licensing Boards have the authority to consider licensing margin and conservatism in the licensing process, to clearly articulate a licensing basis for the proposed repository that does not impose unnecessary burdens. This proceeding arises under the NWPA, and the goals and policies of the NWPA should not be ignored.

In sum, the NRC Staff has not shown any error in the Licensing Boards' admission of this contention. The contention addresses matters described in the license application, is premised on both preclosure ALARA implications and the conservatism of the proposed design, and is directly material to the regulatory findings that the NRC must make.

4. NEI-SAFETY-04: Low Igneous Event Impact on TSPA

This contention states as follows:

*The Department of Energy ("DOE") in the License Application ("LA") has modeled the scenario of a volcano at the Yucca Mountain site in the Total System Performance Assessment ("TSPA"). Based on an unreasonable set of assumptions that postulate the complete failure of every waste package in the repository, DOE conservatively concludes that intrusive igneous events that intersect the repository account for approximately 40% of the total dose over a 10,000 year period. Based on an analysis and calculation by the Electric Power Research Institute ("EPRI"), DOE has been excessively conservative in its treatment in the LA TSPA of the consequences of a potential igneous event. NEI*

*contends that in fact substantial additional safety margin exists in this area. NEI contends that if DOE considered a reasonably expected intrusive igneous scenario, the related consequences would show no significant release of radionuclides. DOE's conservative treatment and results could contribute to licensing uncertainty and could delay the development of the repository.*

As explained in the NEI petition, this contention focuses on one specific aspect of the license application — the TSPA described in the LA Safety Analysis Report at Sections 2.3 and 2.4. The TSPA is used by DOE for the postclosure performance assessment required by 10 C.F.R. § 63.114, to demonstrate compliance with the performance objectives specified by 10 C.F.R. §§ 63.113, 63.311, and 63.342(c) (*see, e.g.*, 10 C.F.R. § 63.113(b) (“the engineered barrier system must be designed so that, working in combination with natural barriers, radiological exposures to the reasonably maximally exposed individual are within the limits specified at 63.311 of subpart L of this part”)). As documented in the ample support for the contention provided in the petition, NEI’s experts assert that DOE’s assumptions are overly simplified and overly conservative. NEI Petition, at 26-29. As explained in the NEI Reply on the issue of admissibility, adopting more reasonable assumptions and analyses would be more consistent with the “reasonable expectation” framework for the postclosure safety analysis established by 10 C.F.R. § 63.304. NEI Reply, at 73-74. Moreover, adopting more reasonable expectations and assumptions in the analysis would allow a more informed licensing decision; would *refute* claims of other parties that there will be a failure to comply with regulatory requirements related to igneous activity; and would increase flexibility and available margin for addressing *other issues* raised by other parties related more generally to the TSPA/postclosure safety analysis. *Id.*, at 76.

The NRC Staff’s appeal asserts that the contention does not raise a material issue. Further, the NRC Staff argues that — “insofar as the contention alleges DOE’s conservatism could lead to licensing uncertainty and delay” — the contention is outside the scope of the

proceeding. NRC Staff Brief, at 18. With respect to the materiality argument, the NRC Staff cites only the axiom that NEI has failed to assert a non-compliance. *Id.* at 18-19. With respect to the scope of the proceeding, the NRC Staff reduces the contention to one of “licensing uncertainty and delay,” and asserts that these matters “do not fall within the safety, security, and technical standards that the NRC considers.” *Id.*, at 19. These NRC Staff arguments have already been addressed above and should be rejected.

First, this contention directly addresses the TSPA and the postclosure performance of the repository. The NRC Staff argues that this contention does not raise a material issue. But any argument that a contention on the TSPA and postclosure performance is not material to this proceeding — or not within the scope of the safety and technical matters the NRC must consider — would be absurd on its face. NEI has cited in its contention and supporting rationale a number of directly relevant regulations and findings that the NRC must make related to the postclosure safety analysis. NEI’s contention addressing the TSPA, and referencing technical bases that include an independent performance assessment model (*i.e.*, prepared by the Electric Power Research Institute), is material and relevant to the regulations and findings cited in the contention. The NRC Staff has not even acknowledged, much less refuted, NEI’s references on this point.

Second, the NRC Staff’s materiality argument on this contention is nothing more than the argument addressed above that NEI has not identified a non-compliance with NRC regulations. NRC Staff Brief, at 18-19. No basis is offered for the implicit proposition that materiality of an issue hinges upon the litigating posture of the proponent. On this issue NEI would rely upon its experts, and the independent performance assessment model referenced in the contention, to establish margin in the analysis of an igneous event. This will support a

finding of compliance with respect to the issue of igneous activity, and also with respect to other aspects of the postclosure analysis challenged by other parties.<sup>15</sup> The contention does not become “immaterial” because NEI contends that the Licensing Board can make a finding in favor of DOE.

Finally, the NRC Staff in its argument on the scope of the proceeding, again takes an overly narrow — indeed, a reductionist view — of the contention, asserting that the issue in the contention is somehow nothing more than “licensing uncertainty and possible delay.” NRC Staff Brief, at 19. NEI certainly intends to eliminate uncertainty and reduce delay in the licensing process. However, NEI would do so by demonstrating that, with respect to the specific issue referenced in this contention, there is no sound basis to challenge the license application with respect to the postclosure performance. The contention raises matters that the NRC not only considers, but *must* consider, in determining whether to grant the requested license. The contention therefore is clearly within the scope of this proceeding.

In total, the NRC Staff has not shown any error in the Licensing Boards’ admission of this contention. The contention is directly material to issues addressed in the license application and the regulatory findings that the NRC must make. Similarly, the contention raises matters clearly within the scope of the proceeding and the NRC’s authority to consider.

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<sup>15</sup> There are a number of admitted contentions directly related to igneous events. *See, e.g.*, NEV-SAFETY-150 through 158 and NEV-SAFETY-166 to 167. Other contentions address postclosure safety and the TSPA more broadly. *See, e.g.*, NEV-SAFETY-09 through 173 (all admitted, except NEV-SAFETY-135), CLK-SAFETY-03 through 11 (all admitted), INY-SAFETY-03 (admitted). NEI will participate in the process of grouping related contentions, as directed by the Licensing Boards.

5. NEI-SAFETY-05: Excessive Conservatism in the Postclosure Criticality Analysis

This contention states as follows:

*The postclosure criticality analysis described in Section 2.2.1.4.1.1 of the License Application (“LA”) Safety Analysis Report (“SAR”) provides a substantial safety margin, is excessively conservative, and will unnecessarily lead to the expectation that disposal control rod assemblies be inserted in some fuel assemblies at nuclear power plants prior to shipment to disposal.*

This contention raises the specific issue of excessive conservatisms in the postclosure criticality analysis that is addressed in Section 2.2.1.4.1.1 of the license application Safety Analysis Report. The contention asserts that the postclosure criticality analysis is also inconsistent with common industry practice. As described in the NEI Petition, five separate elements of the postclosure criticality analysis are either unrealistic, fail to consider specific evidence of expected conditions, or are otherwise inconsistent with normal industry practice. As a result, the analysis would dictate that in certain cases special disposal control rod assemblies be inserted into casks prior to transportation of the spent fuel to the repository. NEI Petition, at 31 – 34. That consequence, whether or not intended, is shown by NEI’s expert to be overly conservative and unnecessary for providing adequate safety and for conformance to the performance objectives in 10 C.F.R. § 63.113. In addition to adding costs, the proposed installation of control rod assemblies will cause unnecessary occupational doses to workers and will cause unnecessary environmental impacts. NEI Petition, at 31.

In the NEI Reply, NEI responded to objections that the contention addresses matters that are not material to findings the NRC must make and is outside the scope of this proceeding — specifically, the arguments that the contention does not identify a noncompliance with NRC regulations and that consideration of excess conservatism, safety margin, licensing delays, and ALARA impacts outside the GROA are all matters outside the scope of this

proceeding. *See* NEI Reply, at 80 - 92. The Licensing Boards rejected the oppositions and admitted the contention.

In its appeal, the NRC Staff reiterates its objections based on materiality and scope of the proceeding, setting forth a recap of its earlier arguments in its answer to NEI's Petition. In particular, the NRC Staff states that it objected to the admissibility of the contention because no violation of 10 C.F.R. Part 63 is involved. This obviously discounts that the contention directly addresses the requirements in Parts 63 and 20, related to assuring that occupational doses during the preclosure phase are maintained ALARA. The NRC Staff rejects ALARA to the extent occupational doses are incurred outside the GROA. The NRC Staff also again argues that the contention addressing a preclosure operational activity — that is, the unnecessary installation of disposal control rod assemblies prior to shipment from a Part 50 facility to the repository — is a challenge to a postclosure analysis that is beyond the scope of ALARA and this proceeding. NRC Staff Brief, at 19-21. All told, the NRC Staff's appeal on this contention rests exclusively on a reiteration of the Staff's narrow views of NEI's role in this proceeding and of the ALARA requirements that apply to the repository project.

The NRC Staff's arguments are addressed above and in connection with other contentions. In particular, this contention asserts that the specific DOE analysis involved has no less than five elements of over-conservatism, none of which have been shown to be necessary (individually or collectively) to meet applicable performance objectives. Yet the overly conservative analysis necessitates actions at reactor sites prior to shipment of the spent fuel which will result in unnecessary preclosure radiological dose to plant workers. The contention does not suggest any changes to the repository design or any relaxation in the postclosure performance objectives.

At bottom, the NRC has failed to demonstrate reversible error in the Licensing Boards' admission of this contention. The contention and supporting bases relate directly to matters addressed in the license application, demonstrate conservatism (and licensing margin) in the DOE criticality analysis, and address issues on which the NRC must make findings (including consideration of ALARA during the preclosure operational phase). The appeal should be denied.

6. NEI-SAFETY-06: Drip Shields Are Not Necessary

This contention states as follows:

*The drip shields that the Department of Energy (“DOE”) proposes as part of the Engineered Barrier System (“EBS”) are not necessary because the repository is capable of meeting regulatory requirements with significant performance margin and defense in depth without drip shields. Installation of the drip shields will result in significant and unnecessary radiation exposures, resource use, and costs, and is therefore inconsistent with “as low as is reasonably achievable” (“ALARA”) principles.*

This contention specifically addresses an aspect of the proposed repository design described in the license application Safety Analysis Report, Section 2.3.6.2. DOE's design includes drip shields to prevent seepage waters from contacting waste packages and to protect the waste packages from rock fall. In the contention and supporting bases, NEI's experts assert that DOE's analysis of postclosure performance includes several overly conservative assumptions that have led DOE to unnecessarily include drip shields in the repository design. NEI Petition, at 35. NEI asserts that “[w]ithout the drip shields, the repository will comply with regulatory requirements with significant performance margin, and little additional margin is gained by this installation.” *Id.* Moreover, *as an additional point*, the contention asserts that “installation of the drip shields will result in significant and unnecessary radiation exposures, and is therefore inconsistent with ALARA principles.” *Id.* at 35-36.

The NRC Staff, in its appeal of the admission of this contention, focuses only on the ALARA implications of this contention, arguing that the contention is not material to a finding that the NRC must make. NRC Staff Brief, at 22. The NRC Staff's position is premised on its recurring argument that ALARA may not be applied "as a tool to reduce short term exposures at the expense of potential long-term exposures." *Id.* The NRC Staff concludes that, "[b]ecause NEI seeks to apply ALARA principles to a design parameter important to postclosure performance, NEI-SAFETY-06 does not raise an issue material to the findings the NRC must make." *Id.* at 23. However, contrary to these arguments, the NRC Staff has failed to look at the contention fully, and failed to demonstrate a clear error of law.

First, this contention clearly addresses far more than the preclosure ALARA implications of the installation of drip shields. As is apparent from even a cursory reading of the contention and supporting bases, this contention addresses the need for drip shields as part of the design. As such, it addresses the postclosure safety analysis and the related performance standards and objectives. The contention by its terms asserts that drip shields are not necessary to meet regulatory requirements and that there is "significant performance margin and defense in depth without drip shields." NEI Petition, at 35. NEI's experts would establish the conservatism in the proposed design. Whether this contention would ultimately lead to changes in the design or changes in the licensing basis, or simply support licensing of the facility, the contention is material to findings the NRC must make. The NRC Staff's materiality argument again takes a far too narrow view of the contention as written and the issues in the hearing.

As with other NEI contentions, this contention at its heart asserts conservatism in the design. Again, materiality does not flow from the litigating posture of a party or the relief that a party seeks. The materiality of NEI's drip shield contention flows first and foremost from

the findings the NRC must make on the postclosure safety analysis. NEI's experts, at a minimum, will establish licensing margin with respect to these findings, which will refute the claims of other parties regarding the drip shields. NEI's and other parties' contentions on drip shields are essentially two sides of a coin; if one is material, so must be the other.<sup>16</sup>

With respect to the ALARA implications of this contention, NEI's bases on this point are by no means necessary to establish the materiality and admissibility of the contention. Nonetheless, NEI maintains that the preclosure ALARA implications may be considered in context with the postclosure assessment that is directly an issue in the contention (*i.e.*, the issue of whether drip shields are necessary). The NRC Staff argues that the Commission has prohibited "using ALARA as a tool to reduce short term exposures at the expense of potential long-term exposures." NRC Staff Brief, at 22. However, the NRC Staff overstates what the Commission has said regarding ALARA, and misapplies the Commission's statement of consideration to the contention at hand.

As discussed above, in promulgating Part 63, and as cited by the NRC Staff, the Commission clearly concluded that it will require the application of the ALARA principle to the operational and decommissioning phases of the repository, but not to the issue of achievement of the long term performance objective. 66 Fed. Reg. at 55,751. NEI's contention would *not* apply the ALARA principle to the long term performance objective. NEI is arguing that, due to other conservatisms and oversimplifications in the analysis, drip shields are not necessary to meet the *established* performance standards. The ALARA implications of drip shields referenced by NEI

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<sup>16</sup> Nevada has multiple contentions concerning drip shields. *See, e.g.*, NEV-SAFETY-130, (which argues that DOE may not rely on drip shields because it cannot be assumed that they will be installed). NEI's contention could moot some of these contentions.

all relate to preclosure installation of the drip shields. Long term repository performance is not a consideration, other than to show that all such requirements will be met without drip shields.

The NRC Staff in its appeal brief takes some of the Commission's rationale for its position on ALARA for Part 63 licensees, and expands on that position. Rather than taking (and limiting) the Commission's statement based on its plain meaning, the NRC Staff argues that the Commission more broadly intended to preclude *any* consideration of preclosure ALARA that might affect postclosure performance. NRC Staff Brief, at 23. However, the words of the statement of consideration simply do not support that conclusion. Moreover, NEI's contention relates directly to the dose limit for long-term performance and does not suggest that any other dose limit or performance objective should apply. NEI's contention asserts that, without drip shields, the repository would meet the dose limits set by the Environmental Protection Agency and adopted by the NRC. The drip shields, therefore, are unnecessary. And, if any further reason is required to reach a conclusion that the design or the licensing basis should be revised to eliminate the need for drip shields, the preclosure ALARA implications should be considered.

In total, the NRC Staff has not shown any error in the Licensing Boards' admission of this contention. The contention is directly material to issues addressed in the application and to the regulatory findings that the NRC must make regarding postclosure performance. NEI's reference to the preclosure ALARA implications is not immaterial, and in any event does not make the central thrust of the contention immaterial or beyond the scope of the proceeding.

#### IV. CONCLUSION

For the foregoing reasons, the Commission should deny the NRC Staff's appeal of LBP-09-06 as it relates to NEI's contentions. Contentions NEI-SAFETY-01, NEI-SAFETY-02, NEI-SAFETY-03, NEI-SAFETY-04, NEI-SAFETY-05, and NEI-SAFETY-06 should be admitted for hearing.

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**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

In the Matter of )  
 ) Docket No. 63-001-HLW  
U.S. DEPARTMENT OF ENERGY )  
(High-Level Waste Repository) )

**CERTIFICATE OF SERVICE**

I hereby certify that copies of the foregoing “Nuclear Energy Institute Brief in Opposition to NRC Staff’s Appeal of LBP-09-06” have been served upon the following persons on this 1<sup>st</sup> day of June, 2009 by Electronic Information Exchange.

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