

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

**ATOMIC SAFETY AND LICENSING BOARD
Before Administrative Judges:**

**09-892-HLW-CAB04
Thomas S. Moore, Chairman
Paul S. Ryerson
Richard E. Wardwell**

In the Matter of:)	December 7, 2009
)	
U.S. Department of Energy)	
(High Level Waste Repository)	Docket No. 63-001
Construction Authorization Application))	
)	

**U.S. DEPARTMENT OF ENERGY BRIEF ON
NEI-SAFETY CONTENTION 05**

I. Introduction

In their May 11, 2009 “Memorandum and Order (Identifying Participants and Admitted Contentions),” Construction Authorization Boards (CABs) 01, 02 and 03 admitted for hearing NEI-Safety Contention 05.¹ The NRC Staff appealed the CABs’ decision, and on June 30, 2009, the Commission affirmed the CABs’ decision and explained that the “Board should consider whether ALARA considerations at individual plant sites are appropriately part of this proceeding.”²

In response to the September 30, 2009 Case Management Order #2 (issued by CAB 04), DOE and the NEI agreed that this contention involves the following legal issues:

¹ See *U.S. Dep’t of Energy* (High Level Waste Repository), LBP-09-06, 69 NRC __ (slip op. at Attachment 1) (May 11, 2009).

² See *U.S. Dep’t of Energy* (High Level Waste Repository), CLI-09-14, 69 NRC __ (slip. op at 20, 26-27) (June 30, 2009).

- (1) whether the above regulations [*i.e.*, 10 C.F.R. §§ 20.1002, 20.1003, 20.1101, 50.40 and 63.111] require ALARA considerations at individual nuclear plant sites remote from the [Geologic Repository Operations Area] GROA to be addressed in DOE's LA; and
- (2) whether DOE must demonstrate that the repository not only meets applicable safety and environmental regulatory standards, but also must show that it does so without any alleged unnecessary expenditures of resources.³

On October 23, 2009, CAB 04 issued its "Order (Identifying Phase 1 Legal Issues for Briefing)," approving this formulation of the legal issue to be briefed.⁴

The regulations do not require DOE to address in its LA ALARA considerations at nuclear power plant sites remote from the Geologic Repository Operations Area (GROA). Furthermore, neither the Nuclear Waste Policy Act (NWPA) nor the Atomic Energy Act require NRC to make a regulatory finding based upon a demonstration by DOE that the repository meets applicable NRC regulatory requirements without incurring "unnecessary expenditures."

II. Argument

A. **DOE is not required to address ALARA considerations at nuclear power plant sites remote from the GROA.**

The regulations require DOE to comply with the ALARA principle with regard to preclosure operations at the GROA.⁵ The regulations, however, do not require DOE to address ALARA considerations at nuclear power plant sites remote from the GROA.

³ See U.S. Department of Energy, State of Nevada and Nuclear Energy Institute Joint Proposal Identifying Phase 1 Legal Issues for Briefing, Attachment 1 at 1 (Oct. 6, 2009).

⁴ See CAB 04, Order (Identifying Phase 1 Legal Issues for Briefing) (Oct. 23, 2009) (unpublished).

⁵ See 10 C.F.R. § 63.111.

I. Nuclear plant licensees are responsible for compliance with ALARA requirements at their own plants.

10 C.F.R. Part 20 contains the general requirement that 10 C.F.R. Part 50⁶ and Part 63 licensees must comply with the ALARA principle. Specifically, 10 C.F.R. § 20.1002 states, among other things, that:

The regulations in this part apply to persons licensed by the Commission to receive, possess, use, transfer, or dispose of byproduct, source, or special nuclear material or to operate a production or utilization facility under parts . . . 50. . . [and] 63 . . .

Section 20.1002, itself, does not provide any specifics as to what a licensee must do to comply with applicable ALARA requirements.

Section 20.1101(b) requires that:

The licensee 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 as low as reasonably achievable (ALARA).

This section requires licensees to apply the ALARA principle in their procedures and engineering controls to ensure that occupational doses and doses to members of the public are ALARA.

Finally, 10 C.F.R. § 20.1003 is the definition of ALARA. This definition does not, however, require DOE to consider how its operations could affect ALARA compliance at other nuclear power plants remote from the GROA. DOE's ALARA responsibility for the LA arises out of Part 63, which is addressed below.

⁶ DOE includes Part 50 in this explanation because 10 C.F.R. § 50.40 is cited in the agreed-upon legal issue. The reason why that regulation does not require DOE to consider the ALARA principle for nuclear power plant sites beyond the boundary of the repository site is explained herein.

Nuclear power plant licensees are obligated to comply with ALARA in designing and operating their own facilities.⁷ In relevant part, Section 50.40(a) states that:

In determining that a construction permit or operating license in this part, or early site permit, combined license, or manufacturing license in part 52 of this chapter will be issued to an applicant, the Commission will be guided by the following considerations:

Except for an early site permit or manufacturing license, the processes to be performed, the operating procedures, the facility and equipment, the use of the facility, and other technical specifications, or the proposals, in regard to any of the foregoing collectively provide reasonable assurance that the applicant will comply with the regulations in this chapter, including the regulations in part 20 of this chapter

This regulation obligates licensees to comply with ALARA principles in designing and operating their own facilities. It clearly does not require, however, that a licensee address ALARA considerations at facilities other than its own facility.

Holding DOE responsible for ALARA compliance at nuclear power plants remote from the GROA would be analogous to holding nuclear power plant licensees responsible for ALARA compliance at uranium mills or fuel fabrication facilities. Each NRC licensee retains the responsibility for ensuring that the doses due to its own operations are ALARA. This has been the case throughout years of nuclear industry experience.

⁷ See 10 C.F.R. § 50.40.

2. Under Section 63.111, DOE is required to address ALARA requirements for operations in the GROA.

a. The plain language of Section 63.111 only requires DOE to address ALARA considerations arising from the GROA.

Section 63.111(a)(1) states:

The geologic repository operations area must meet the requirements of part 20 of this chapter.

Pursuant to § 63.2, GROA is defined as “a high-level radioactive waste facility that is part of a geologic repository, including both surface and subsurface areas, where waste handling activities are conducted.” Furthermore, the same section defines a geologic repository as “a system that is intended to be used for, or may be used for, the disposal of radioactive wastes in evacuated geologic media.”⁸ This Section requires activities in *the GROA* to meet the requirements of Part 20, which includes the requirement, as discussed above, to apply the ALARA principle.

Section 63.111(a)(2) provides that:

During normal operations, and for Category 1 event sequences, the annual TEDE (hereafter referred to as “dose”) to any real member of the public located beyond the boundary of the site may not exceed the preclosure standard specified at § 63.204.

For purposes of § 63.111(a)(2), the maximum dose allowed to a member of the public is contained in the preclosure standard specified at § 63.204 which provides:

DOE must ensure that no member of the public in the general environment receives more than an annual dose of 0.15 mSv (15 mrem) from the combination of:

(a) Management and storage . . . of radioactive material that:

(1) Is subject to 40 C.F.R. § 191.3(a); and

⁸ *Id.* § 63.2.

(2) *Occurs outside of the Yucca Mountain repository but within the Yucca Mountain site; and*

(b) Storage . . . of radioactive material inside the Yucca Mountain repository.⁹

For purposes of this subsection, the annual dose received by a member of the public is calculated from radioactivity that emanates from waste that is stored “within the Yucca Mountain site.”¹⁰

The dose is not calculated by considering the dose that is received from the waste while it is not at the Yucca Mountain site, including when it is at the nuclear power plant.¹¹ Because the ALARA principle applies only to doses for waste stored at the Yucca Mountain site, DOE does not have an ALARA obligation with regard to doses received at nuclear power plants.

***b.* The Yucca Mountain Review Plan (YMRP) further confirms that DOE is only required to address ALARA considerations with regard to doses originating from waste at the GROA.**

The YMRP provides four categories of acceptance criteria regarding DOE’s ALARA obligations under “10 C.F.R. § 63.311(a)(1) and (c)(1), relating to meeting the 10 C.F.R. Part 20 as low as is reasonably achievable requirements for normal operations.”¹² The four categories of acceptance criteria have the following titles:

(1) An Adequate Statement of Management Commitment to Maintain Exposures to Workers and the Public as Low as is Reasonably Achievable;

(2) As Low as Is Reasonably Achievable Principles Are Adequately Considered *in Geologic Repository Operations Area Design*; and

⁹ Emphasis added.

¹⁰ 10 C.F.R. § 63.204.

¹¹ *See id.* § 63.204(a)(2).

¹² *See* YMRP, NUREG-1804, Rev. 2 at 2.1-79 to -81 (July 31, 2003), *available at* ADAMS Accession No. ML032030389 (as amended by HLWRS-ISG-03 Preclosure Safety Analysis – Dose Performance Objectives and Radiation Protection Program, *available at* ADAMS Accession No. ML071240112 (HLWRS-ISG-03)).

(3) *Proposed Operations at the Geologic Repository Operations Area Adequately Incorporate as Low as Is Reasonably Achievable Principles.*

(4) Description of Radiation Protection Program.¹³

With regard to operations, the YMRP contains the following acceptance criteria:

- (2) Geologic repository operations area operational procedures will ensure that doses to workers and members of the public will be as low as is reasonably achievable, including the consideration of such items as:
 - (a) An operations program designed to control radiation exposure will be implemented, to ensure both individual and collective doses are as low as reasonably achievable;
 - (b) Tradeoffs between requirements for increased monitoring or maintenance activities (and the increased exposures that would result) and the potential hazards associated with reduced frequency of these activities;
 - (c) Dry runs to develop proficiency in procedures involving radiation exposures, to determine exposures likely to be associated with specific procedures, and to consider alternative procedures to minimize exposures;
 - (d) Development of a comprehensive plan, listing major types of Category 1 event sequences that may necessitate a recovery action. The plan should provide for adequate access to vital areas and protection of safety equipment, basic steps taken to exposure levels during recovery. The recovery actions area not precluded by the GROA design, and do not compromise the ability of the GROA to comply with its performance objectives; and
 - (e) As low as is reasonably achievable operational alternatives.¹⁴

¹³ *Id.* at 2.1-79 to -81 (emphasis added).

¹⁴ *Id.* at 2.1-80 to -81 (as amended by HLWRS-ISG-03 at 9).

None of the criteria listed in the YMRP for operations require DOE to consider how its operations will impact ALARA efforts at nuclear power plants remote from the GROA.¹⁵ Furthermore, none of the criteria under either the management commitment or design acceptance criteria headings require DOE to consider whether ALARA principles are being met for nuclear power plant workers remote from the GROA, or whether DOE's operations and procedures will impact ALARA efforts at those sites.¹⁶ Finally, the NRC's recommended evaluation findings in the YMRP in the area of DOE's ALARA program refer only to operations at the GROA.¹⁷

The fact that the YMRP does not specify that DOE should consider ALARA principles at nuclear power plants remote from the GROA is significant because compliance with relevant guidance documents such as the YMRP "constitutes reasonable assurance" of compliance with applicable regulatory requirements.¹⁸

In short, the regulations cited in the agreed-upon legal issue do not require ALARA considerations at nuclear plant sites remote from the GROA to be addressed in DOE's LA.

B. DOE is not required to demonstrate that the repository meets the applicable safety and environmental regulatory standards without any alleged unnecessary expenses.

The NWPA sets out the types of requirements for the standards that the Environmental Protection Agency (EPA) and the NRC were required to promulgate with regard to repositories.¹⁹ With regard to environmental standards, Section 121(a) of the NWPA states that the EPA:

¹⁵ See *id.* at 2.1-79 to -81.

¹⁶ See *id.*

¹⁷ See *id.* at 2.1-81.

¹⁸ See *AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station)*, CLI-08-23, 68 NRC 461, 468 (2008); see also *Petition for Emergency & Remedial Action*, CLI-78-6, 7 NRC 400, 407 (1978) ("If there is conformance with regulatory guides, there is likely to be compliance with" the regulations).

¹⁹ See 42 U.S.C. § 10141.

shall, by rule, promulgate generally applicable standards for protection of the general environment from offsite releases from radioactive materials in repositories.²⁰

With regard to technical standards, Section 121(b) of the NWPA provides that:

[T]he Commission, pursuant to authority under other provisions of law, shall, by rule promulgate *technical requirements and criteria* that will apply, under the Atomic Energy Act of 1954 . . . and the Energy Reorganization Act of 1974, in approving or disapproving . . . applications for authorization to construct repositories.

The AEA, by itself, provides no authority for the NRC to consider DOE's costs. NEI has conceded this point in its Reply to DOE's Answer to NEI-05.²¹

Furthermore, the mere fact that the NWPA has as one of its goals facilitating the licensing of the repository does not transform this goal into a directive to the NRC to include in its licensing process economic or budget considerations for the repository. Each of the governmental agencies, DOE, EPA and NRC, is assigned responsibilities by the NWPA in furtherance of one or more of the Act's goals. For example, decisions about the repository design and the cost of that design fall within DOE's scope. In contrast, NRC's role under the NWPA is the nuclear licensing process under the Atomic Energy Act.²² In short, while DOE must demonstrate to NRC that it meets applicable safety and environmental standards, there is no statutory or regulatory requirement that DOE demonstrate that it meets these standards without unnecessary expenditures of resources.

²⁰ *Id.* § 10141(a).

²¹ *See* NEI Reply at 85.

²² 42 U.S.C. § 10141(b).

III. Conclusion

In short, DOE is not required to address ALARA considerations with respect to activities outside the Yucca Mountain site. Furthermore, NRC is not required or authorized to consider the unnecessary expenditure of resources in determining whether the repository meets applicable safety and environmental regulatory standards. For the reasons discussed above, NEI-Safety Contention 05 must be dismissed on legal grounds.

Respectfully submitted,

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