

October 24, 2001

Mr. Frank Perna  
4398 Fernbrook Road  
Las Vegas, Nevada 89103-4216

Dear Mr. Perna:

Thank you for taking the time to inform Chairman Meserve about your concerns regarding terrorism at Yucca Mountain and the U.S. Nuclear Regulatory Commission's (NRC) position on the U.S. Environmental Protection Agency's (EPA) groundwater standard for Yucca Mountain. I will respond to each in turn:

**Issue 1**

You had concerns about terrorism at Yucca Mountain, Nevada and during transportation of nuclear waste to Yucca Mountain.

**Response:**

NRC regulations for disposal of high-level radioactive waste at the potential Yucca Mountain, Nevada repository require the U.S. Department of Energy (DOE) to have plans to cope with radiological accidents (emergency planning) and provide for physical protection. These plans are required to address a number of criteria to ensure that DOE is prepared to respond, both on site and off site, to a variety of accidents, and that DOE has the capability to detect and respond to unauthorized access and activities that could threaten the physical protection of high-level radioactive waste.

The required emergency plan includes: (1) identification of each type of accident, (2) description of the means of mitigating the consequences of each type of accident; (3) prompt notification of offsite response organizations; and (4) adequate methods, systems, and equipment for assessing and monitoring actual or potential consequences of a radiological emergency condition. If particular types of accidents require evacuation procedures to ensure the protection of public health and safety, they will be included in the emergency plan. It is expected that the potential release of radionuclides due to fires and explosions would be among the accident scenarios evaluated.

The requirements for physical protection include: (1) capabilities to detect and assess unauthorized access or activities and protect against loss of control of the facility; (2) limiting access to high-level radioactive waste by means of two physical barriers; (3) providing continual surveillance of the protected area in addition to protection by an active intrusion alarm; and (4) providing a primary alarm station located within the protected area and have bullet-resisting walls, doors, ceiling, and floor. These requirements provide high assurance that physical protection of the repository includes appropriate measures to prevent and respond to unauthorized access and activities, including the potential for armed intruders (e.g., terrorist activity).

Additionally, NRC regulations for the potential Yucca Mountain repository require DOE to perform a safety analysis of the surface facilities that considers hazards during the operational period of the repository (i.e., receipt and emplacement of waste into the repository). One of the hazards to be considered is an aircraft crash as an initiating event. DOE is currently evaluating an aircraft crash scenario. NRC regulations provide that accident scenarios with less than one chance in 1,000,000 need not be considered in the design of the surface facilities. DOE is required to design the surface facilities (e.g., waste handling building, which could include a cooling pool) to mitigate the consequences of credible events.

DOE's emergency plan, physical protection plan, and safety analyses are subject to NRC review. In light of the terrorist attacks of September 11, 2001, the Commission has directed the staff to conduct a comprehensive review of NRC's physical security requirements. If this effort indicates NRC regulations, including regulations pertinent to transportation of high-level radioactive waste, warrant revision, such revisions would occur through a public rule making.

## **Issue 2**

You questioned why NRC opposes the EPA's groundwater standard for the potential Yucca Mountain high-level radioactive waste repository.

## **Response:**

The Commission has commented previously that an individual, all-pathway dose limit of either 0.15 mSv (15 mrem) or 0.25 mSv (25 mrem) total effective dose equivalent ensures that the risks from all radionuclides and all exposure pathways, including the ground-water pathway, are acceptable and protective. The EPA itself acknowledged, in publishing final standards for Yucca Mountain, that an "...Individual Protection Standard is adequate in itself to protect public health and safety." However, ultimately, the EPA had to make the decision whether to include separate requirements for groundwater protection and the final EPA standards for Yucca Mountain include such requirements for the purpose of protecting groundwater. Therefore, as required by law, final Part 63 requirements incorporate final EPA standards for Yucca Mountain at 40 CFR 197, including separate ground-water protection requirements.

In closing, I want to thank you again for bringing your concerns to the attention of the Commission. If you have any further questions or comments, please feel free to contact Dr. Bret Leslie of the NRC staff. Dr. Leslie can be reached toll-free, via the NRC operator, at 1-800-368-5642 or via e-mail, at [bwl@nrc.gov](mailto:bwl@nrc.gov).

Sincerely,

*/RA/*

C. William Reamer, Chief  
High-Level Waste Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

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Sincerely,  
**/RA/**  
 C. William Reamer, Chief  
 High-Level Waste Branch  
 Division of Waste Management  
 Office of Nuclear Material Safety  
 and Safeguards

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