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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

July 8, 1992

OFFICE OF THE
COMMISSIONER

MEMORANDUM FOR: James M. Taylor
Executive Director for Operations
FROM: James R. Curtiss *James R. Curtiss*
SUBJECT: QUESTIONS CONCERNING REGULATORY REQUIREMENTS
FOR HIGH-LEVEL WASTE REPOSITORY

I have several questions regarding the regulatory requirements for the high-level waste repository that I would appreciate the staff addressing. The questions follow:

- 1) EPA's high-level waste standard explicitly limits reliance on active institutional controls¹ to a period not to exceed 100 years. What is the rationale for this approach? How does this approach compare to the approach taken in other regulatory programs that address risks that extend over a long period of time (e.g., low-level waste, uranium mill tailings, hazardous waste)? Is there a similar assumption contained in NRC's 10 CFR 60?
- 2) How does the approach that EPA has taken to human intrusion in its high-level waste standard compare with the approach and/or assumptions employed in other regulatory programs where the potential for human intrusion is a consideration?
- 3) Please provide a comparative table setting forth the annual individual risks² associated with the following:

- NRC standards: ● 10 CFR Part 20 (public and occupational)

¹ "Active institutional control" is defined in the most recent version of the EPA standard as "any control dependent upon man's continuing presence and activity at the disposal site . . ."

² For purposes of calculating the annual individual risk, assume a 70-year lifetime. In addition, identify whether the risk calculations assume a maximally exposed individual or a critical group. Regardless of which assumption is used, it should be used uniformly throughout the calculations.

B/S

- 10 CFR 61 (low-level waste)
 - Reactor Safety Goal
- EPA standards:
- 40 CFR 190 (fuel cycle)
 - 40 CFR 191 (high-level waste)³
 - 40 CFR 192 (uranium mill tailings)
 - 40 CFR 61 (Clean Air Act NESHAPS)
 - Groundwater Protection Strategy (4 mrem)
 - 40 CFR 141 (drinking water regulations for radionuclides)
 - Applicable Relevant and Appropriate Requirements (ARARs) for Superfund sites
 - Guidance on indoor radon
- Miscellaneous:
- Background radiation (assume 300 mrem)

- 4) In commenting on EPA's Working Draft 3 high-level waste standard, the agency took the following position:

"The NRC staff is concerned about EPA's ability to develop a defensible basis of support for its cumulative release standards using technical achievability considerations. . . . For this reason, the NRC staff urges EPA to derive its standards from an evaluation of the acceptability of various risk levels, including those previously determined to be acceptable for uranium fuel cycle facilities, and to consider adding a

³ For purposes of calculating the annual individual risk associated with the Table 1 release limits in the EPA standard, assume that releases up to the limits allowed in Table 1 occur, the releases occur uniformly over a 10,000 year period, and the releases result in 1,000 health effects over 10,000 years.

dose-based alternative to the cumulative release limits of the standards."⁴

In analyzing the pending Energy legislation, the staff expressed the following view:

"While recent NRC comments on working drafts of EPA standards have expressed concerns about deriving standards based on what is technically achievable, the result appears to be a workable standard. The NRC will continue to urge EPA to provide comparisons with other standards and risks so that the stringency of the standards can be evaluated on an objective basis. However, the apparent achievability of the release limits argues for their reinstatement."⁵

On the surface, these two statements appear difficult to reconcile. Accordingly, I would appreciate further clarification from the staff. Specifically, is it the staff's view that the concerns that have been expressed over the apparent stringency of the EPA high-level waste standard would be addressed if EPA would simply provide us with a comparison of this standard to other environmental standards, or is the staff going beyond that and arguing that such a comparison would serve to demonstrate that EPA's high-level waste standard does not comport with these other standards and, accordingly, should be modified to bring it into line with such standards?

- 5) What is the technical basis for the subsystem performance criteria set forth in 10 CFR 60.113? Specifically, how do each of these criteria individually, as well as the criteria taken together, relate to protection of the public health and safety? Can these criteria be related to an annual individual risk objective?

I would appreciate the staff's responses by the end of this month.

cc: The Chairman

⁴ See Letter from Robert Bernero to Margo Oge (October 23, 1991) (emphasis added).

⁵ See Memorandum from William C. Parler to the Commission (May 14, 1992) (emphasis added).

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