



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

AUG 6 1997

OFFICE OF  
AIR AND RADIATION

Dade W. Moeller, Chairman  
Advisory Committee on Nuclear Waste  
Nuclear Regulatory Commission  
Washington, DC 20555

Dear Dr. Moeller:

We have reviewed the critique of the Advisory Committee on Nuclear Waste regarding the Environmental Protection Agency's (EPA) standard for disposal of high-level waste provided for the Nuclear Regulatory Commission (NRC) in your May 1, 1990 letter to Chairman Carr. We have comments and questions about your critique of 40 CFR Part 191. Our comments correspond to the same numbers as the five key problems listed in your letter.

1. Your letter states that all standards should be organized in a hierarchical structure. Do you believe that the EPA standard does not have such a structure and that this is a problem, or do you believe that the EPA standard does have such a structure, but with lower levels of the hierarchy more stringent than higher levels? We would appreciate some more specific, explicit comments, with examples.

2. (a) It is unclear how to use "annual risk limits from a disposal facility in a disturbed state," with a probabilistic standard. The disturbance can occur any time during the 10,000-year period. How would annual limits apply? Since our containment requirements are limits on releases, not individual risk, it does not make any difference whether the entire release occurs in a single year or is spread out over time. This also avoids the difficult predictive modeling that would be involved with individual dose which would have to include time, location, and pathway of release. For undisturbed performance, we already use annual risk limits

(b) The critical population group (CPG) in the case of individual dose limits is left for definition by the agency responsible for implementation, i.e., NRC for a HLW repository. This is appropriate since site specific circumstances should be considered.

3. We believe that we have addressed the disposal facility as a system. Examples of any instances where we have not done this would be appreciated.

4. (a) The thrust of this comment appears to be that it is important to make reasonable assumptions when conducting assessments to determine compliance with the standard. We agree. However, this comment does not logically lead to your call for separating the evaluation of anticipated performance into three parts. What would this accomplish? In particular, it is unclear why the analysis of human intrusion scenarios would benefit from the requirements for human intrusion being written in a separate section of the rule. Indeed, such a separation might needlessly complicate the regulation because what is really important is the total anticipated impact of repository performance.

(b) The responsible regulator is free to allow any probability mitigating assumption on borehole sealing or other engineering assumptions that can be adequately justified either by the regulator or by the facility developers. It was EPA's intent in the guidance to state a maximum value as a worst case that may have to be considered. Based on uncertainties about the long-term performance of borehole seals, as well as the chance of undetected boreholes, the assumption about the borehole permeability was intended as a conservative assumption, based on past and current borehole practice. If this is troublesome, we will consider removing it and rely entirely on the developers' and regulators' justifications, without any guidance for the worst case that may need to be considered.

(c) We need clarification as to your statement "We also believe that more realistic assessments should be made of the potential impacts of human intrusions..." At this point, EPA has not made any performance assessments that fail due to intrusion. In the licensing case, NRC will make the determination as to the appropriate realism for assessments.

(d) Passive controls, such as markers and records, can be given credit by the implementing agency to reduce the likelihood of human intrusion. The degree to which these factors can be considered to control human intrusion are to be determined by the implementing agency.

5. We agree that compliance with EPA standards is only one of several inputs to the decision of whether to use a particular site as a repository. However, this comment is very unclear as to what you are suggesting EPA do. Are you suggesting that EPA should not include probabilistic requirements in its standards?

If so, we disagree. Are you suggesting that we should also have non-quantitative requirements? We have our qualitative assurance requirements, however, these are not applicable to NRC facilities. What specifically does ACNW have in mind?

We would appreciate your clarifying comments and responses to the above remarks as soon as possible. Please call Floyd Galpin at (202) 475-9633 if you have any questions.

Sincerely yours,

Original signed by  
Richard J. Guimond

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