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OFFICE OF SECRETARY
DOCKETING & SERVICE
Secretary Nuclear Regulatory Commission
Attention: Docketing and Service Branch
Washington, D. C. 20555

DOCKET NUMBER
PROPOSED RULE PR-60
(46 FR 35280)

Subject: 10 CFR Part 60, "Disposal of High-Level Radioactive Wastes in Geologic Repositories", Federal Register, July 8, 1981.

I am offering comments on the technical criteria which NRC proposes to incorporate into the subject rule. My comments are based on my experience as a past member of the NRC's High-Level Waste staff and my experiences as a privately employed engineer who has performed work for both government and industry in the area of radioactive waste management.

GENERAL COMMENTS

The amendments as proposed are adequate and should be adopted without any major changes. The provisions of the technical criteria, if achieved, will adequately protect the public safety and the environment, both now and in the future. At the same time, the criteria are realistic and can likely be satisfied. The criteria are also reasonably complete. However, I do have observations to make and suggestions to offer.

My first observation concerns the application of ALARA to a HLW repository. (The Commission also asked for comments on the application of ALARA to performance objectives.) The traditional application of ALARA requires the quantitative definition of the relationship between incremental costs and incremental benefits. For a HLW repository, such a definition may not be possible.

If the proposed performance objectives are satisfied, the impacts of a HLW repository will be small as measured by any reasonable standard. The real question is not whether the performance objectives are sufficiently restrictive but how much confidence exists that the performance objectives will be met. That is, the question is the degree of confidence not the level of performance. Rather than applying ALARA in the usual sense, the Commission ought to prefer those features which provide higher confidence in the performance of the repository to those which provide higher levels of performance without an increase in confidence. Likewise, DOE seeking approval of its

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license application should provide repository features in which the Commission can have a high level of confidence. As an example, the Commission should prefer a waste package design which will provide containment for an adequate period of time under a wide range of conditions to a waste package which promises containment for a longer period of time, but under a more narrow range of conditions.

I am also concerned about the imposition of two distinct sets of performance objectives; those of NRC and those of EPA. I understand the rationale for using the two sets of performance objects, but I also believe that doing so places an unnecessary burden on the design and analyses processes. In a sense, it also places the application for a repository in double jeopardy. I believe that the NRC staff should go one step further and incorporate the EPA performance objectives into their own performance objectives. That is, the NRC performance objective should reflect NRC's understanding of what is required to satisfy the EPA's performance objectives and to also achieve the level of confidence that the NRC desires. Specifically, the NRC performance objectives for containment, isolation and groundwater travel time should be at least those which the NRC believes to be necessary to achieve the EPA performance objectives. This may require that the performance objectives be nuclide specific.

SPECIFIC COMMENTS

§60.2 Definitions.

The proposed amendments provide a definition for transuranic wastes. It would be more appropriate to have a definition of "Other than HLW." As now stated, there is an implication that TRU (as currently defined) will be disposed of in a HLW repository and that non-HLW, non-TRU will not be. There may be other wastes which are neither HLW nor TRU which may (or should) be disposed of in a HLW repository. The distinction should be made between HLW wastes and other wastes, not between HLW and TRU.

The definition of container as included as part of the definition of waste package is not the same as that given in §60.102(e)(2). The latter definition is the better of the two.

§60.10 (c) Site Characterization.

DOE may have to characterize several sites in order to find one site which is licensable. It is also possible that DOE may be able to find a site which is likely to be suitable without using at depth, in-situ investigations. It is reasonable to require full characterization of the site once it

has been selected as the subject of a license application. Given the cost of at depth testing and the difficulty of drawing quantitative conclusions about the relative merits of alternative sites, the requirement that DOE also characterize alternative sites using in-situ testing at depth is excessive. That DOE has identified one site which can satisfy NRC and EPA performance objectives and prescriptive criteria should suffice.

§60.102(e)(3) Concepts.

The last sentence of the definition of overpacks should read; "It encloses and protects the container and waste form so as ..."

§60.122 Favorable Conditions.

Given the other provisions of §60.122(f) the requirement of a low water groundwater content appears unnecessary and may rule out some otherwise highly desirable sites.

The following favorable condition should be added:

"(k) A uniform and massive, in both depth and extent, geologic unit at repository depth."

The response of a uniform massive formation is easier to model with confidence than a formation which is either not massive or non-uniform. All else being the same, greater confidence can be placed in the predictions of the behavior of massive, uniform formations.

§60.123(a)(8) Potentially adverse conditions.

Since the extent and nature of climatic changes, particularly those caused by man, can not be predicted over the long-term, this paragraph should read: "Geologic, geochemical, or hydrologic characteristics which could be adversely effected by climatic changes."

§60.124(b) Assessment of potentially adverse conditions.

This paragraph should be changed to read:

"...evaluated using realistic analyses and assumptions,..."

The use of conservative analyses and assumptions in analyzing potential events can result in a lack of balance in the evaluation of a site and the rejection of, what is in fact, a good site.

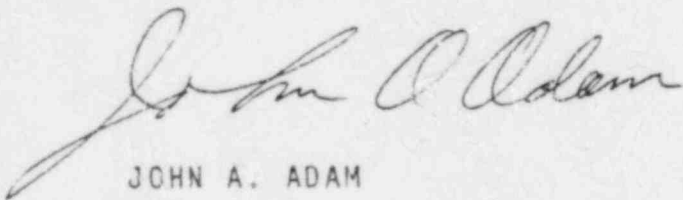
§60.135 Requirements for the waste package and its components.

This section should begin with the following statement:

"The following requirements shall apply to all HLW waste packages. It also applies to all other waste packages unless it is clearly shown that the relaxing of one or more of these requirements will result in better waste package performance or a net decrease in environmental impacts."

There may be some wastes for which the application of the requirements of this section may be impractical or may result in a net increase in environmental impacts. For example, there may be high activity low-level wastes which have already been captured and packaged in a manner which does not satisfy the requirements of this section, but for which the impacts of repackaging the waste may be greater than the benefits to be gained.

Sincerely,

A handwritten signature in cursive script, appearing to read "John A. Adam".

JOHN A. ADAM