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PROPOSED RULE PR-60 ①
(45 FR 31393)



April 11, 1980

Chairman John F. Ahearne
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Chairman:

As the Commission has announced, the NRC Staff is preparing proposed technical criteria to be included in forthcoming regulations governing the geologic disposal of radioactive wastes (Subpart E - Technical Criteria of Proposed 10 CFR Part 60, Disposal of High-Level Radioactive Wastes in Geologic Repositories). In the course of this preparation, the NRC Staff has discussed the concepts it is incorporating into its proposals with interested agencies and organizations, including the Department of Energy, environmental groups and industry. We understand that the NRC Staff will be submitting a draft proposed regulation to the Commission for its approval and publication in the Federal Register relatively soon; perhaps next month.

We had an opportunity to discuss an early version of the draft technical criteria with the NRC Staff last October. We have been provided a more current version which still contains a number of concepts that we believe to be troublesome.

Although we realize that there will be an opportunity for public comment at such time as the proposed criteria may be approved by the Commission for publication in the Federal Register, we are writing this letter to you now because we believe that the Commission should be aware of certain basic problems before it makes a determination as to whether to issue a proposed regulation for formal comments.

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Some of the problems identified below are so basic that we would urge the Commission to direct the NRC Staff to review these areas further and to develop revised proposed regulations which would be more consistent with a sound regulatory approach. In some areas it may be possible that the proposed regulations could be redrafted so as to include alternative approaches for public comments. We are concerned that if the proposed regulation is issued in its present form it will imply that the Commission has decided - albeit only tentatively for purposes of public comments - that the proposal reflects the Commission's current view of the appropriate regulatory approaches. We believe that if the Commission reviews these matters carefully at this time it will wish to avoid creating such a public impression.

We have two basic concerns with the draft regulation and the accompanying document entitled "Approach and Rationale." First, in our view, the proposal is largely inconsistent with the widely accepted "systems approach" to nuclear waste management. We believe it is essential that the NRC regulations define standards and criteria for the acceptable performance of an overall disposal system so that sound programmatic and implementing decisions can be made that result in a conservative approach to meeting performance requirements through an appropriate combination of natural and engineered components of the system. Instead of focusing on performance of the overall system, the proposed regulation, in its present form, specifies minimum or absolute requirements for various aspects of components of the system. Whether or not any of these requirements are individually justifiable, we are concerned that when imposed as a group upon a proposed system they will result in a set of unrelated, unrealistic requirements that are not based upon potential risk to public health and safety or the environment, and that may not be attainable in any one, specific geologic medium or site. In essence, they may amount to an unrealistic collection of redundant requirements which may conceivably be less conservative than appropriate requirements based on system performance. We urge the Commission to direct the NRC Staff to develop criteria and standards tied to a reference methodology for projecting repository performance that is delineated in a manner that bears a logical relationship to known risks (both radiological and non-radiological) from natural events and common activities.

Our second basic concern is that the proposal, in its current form, contains little analysis or rationale in support of the quantitative requirements to be imposed on components of the system, or on processes or conditions that may have some

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potential impact on the system. Since the technical or other basis for the requirements is not set forth, it is difficult to evaluate the validity of the Staff's proposal. Moreover, in some instances, requirements are indiscriminately carried over from one area to another. For example, whatever may be the merits of a 2 km control zone for human activities, it is difficult to understand why the same area should be applied in order to preclude or avoid natural processes - a requirement which, in our view, would appear to be much more site dependent and, therefore, could vary under particular circumstances. Again, we urge the Commission to direct the NRC Staff to include in the proposed regulations only requirements for which the Staff can provide a meaningful analytical basis and rationale.

The Attachment to this letter contains a number of additional comments as examples of the types of problems we perceive in the Staff's current approach. We do not suggest that the Commission needs to review them in detail at this time; but they serve to buttress our view that the Commission should provide the NRC Staff with more explicit guidance as to both the objectives of the regulations, and the back-up that the NRC Staff should include for any proposal. For example, we believe that the NRC Staff's proposed lengthy retrievability requirement (see Item 4 of Attachment) not only has no appropriate basis, but will inevitably result in some compromise of containment-isolation integrity and, in addition, may also be misinterpreted as putting off disposal decisions to future generations.

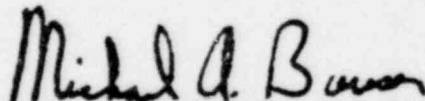
The safe disposal of high level radioactive waste on a timely basis is a matter of transcendent importance. We believe that, at each stage in the development of relevant regulations, the Commission will want to proceed in as careful, fully-considered manner as possible. It is in this spirit which we write you now.

We would be pleased, of course, to discuss our views on these subjects with the Commission or with the NRC Staff.

Sincerely,

EDISON ELECTRIC INSTITUTE

By


Michael A. Bauser

MAB:cfw
Attachment

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cc: Commissioner Joseph M. Hendrie
Commissioner Victor Gilinsky
Commissioner Richard T. Kennedy
Commissioner Peter A. Bradford
William J. Dircks, Executive
Director for Operations

Examples of Specific Comments

1. Some of the requirements can be construed as unjustifiably precluding salt and basalt formations as potentially suitable for a deep geologic repository. (See proposed sections 60.122(b)(1)(ii), 60.122(b)(3)(iii), 60.122(b)(4)(ii), 60.122(b)(5).) Clarification and/or revision is needed to relate these requirements to acceptable system performance.

2. The limitation on annual release rate of radioactive material as proposed in section 60.111(b)(3) needs to be clarified (in addition to providing the analytical basis for the quantitative value). Such a requirement must bear some logical relationship to the potential for producing hazard rather than as an arbitrary expression of total inventory (e.g., is a release from a larger capacity repository a priori more acceptable than one from a smaller capacity one?).

3. The proposed regulations appropriately do not require the design to accommodate the effects of meteorite or aircraft impacts. They should similarly exclude from consideration geologic events (e.g., vulcanism, active faulting) that obviously will be extremely improbable at a suitable repository location.

4. The unduly lengthy retrievability requirement in proposed section 60.111(d) will inevitably result in some compromise of containment/isolation integrity. Not only does it violate a systems approach to attainment of effective radiological protection, it also re-raises the issue of putting off disposal decisions to future generations. The retrievability requirement needs much more careful and rigorous analysis before specifying any arbitrary requirement. One basis that should be included in such an analysis is the time

frame in which useful performance or test data and information may be acquired following waste emplacement.

5. 60.121(b): The purpose of the Control Zone (CZ) as stated in this section differs from its application in 60.122. The requirements for controlling human activities differ from the need to avoid natural processes, and the same dimension may not be appropriate for both. Indeed, the dimensions for avoiding some hazards will be different than for others. The vertical distance specified for the CZ would appear to allow directional drilling or mining below the actual repository. If this is intended, it should be clear that such activities must be shown not to compromise containment.

6. 60.122(c)(3)(i): Permeability of 1×10^{-12} is below the resolution of most measuring equipment and likely would be difficult to demonstrate with confidence. Instead, there should be included a more reasonable limit that could be measured within the state-of-the-art. Furthermore, existing and anticipated hydraulic gradients are equally important to fluid movement and should also be addressed.

7. 60.122(d)(1): Investigations in the area extending 100 km or more from the site may be appropriate. However, it should be clear that the actual distance investigated would be determined by the location of conditions affecting the site. It may be necessary to investigate certain aspects of some sites at distances of more than 100 km while investigations of other factors or at other sites may be adequate at distances much less than 100 km.