



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

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Rec'd from
C. Pflum
4-13-83
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MEMORANDUM FOR: Michael J. Bell, Chief
WMHL, Division of Waste Management, NMSS

FROM: Patricia A. Comella, Deputy Director
Division of Health, Siting, and
Waste Management, RES

SUBJECT: DOE'S PROPOSED GENERAL GUIDELINES FOR RECOMMENDATION
OF SITES FOR NUCLEAR WASTE REPOSITORIES

I have reviewed the proposed guidelines as requested in your memorandum to me of February 14, 1983, and offer the following thoughts concerning them. As you know from our previous discussions, I believe the central issue upon which we should focus in dealing with the guidelines is how to preserve, without compromise, the Commission's ability to make its health and safety determinations beginning at the construction authorization stage.

Therefore, I have not addressed the three questions in the February 14 memo specifically, but they are covered in general below and an attachment provides detailed comments on some of the guidelines. I believe that the guidelines are generally acceptable for their intended purpose provided that our understanding of their purpose is conveyed to DOE and one basic change, which I discuss below in my third point, is made to the guidelines wherever necessary (the difficulty occurs in several places). The reasoning for the suggested change should also be made clear to DOE both formally and informally, as the occasions arise.

First of all, it is my understanding that the intended purpose of the guidelines is for DOE to apply them at several stages in the site screening and selection process in order to make site suitability determinations: in identifying the sites suitable for site characterization; in determining preliminarily that some number of the nominated sites is suitable for development as repositories consistent with the guidelines and hence, suitable for characterization as candidate sites; and in recommending to the President a suitable site for the repository, i.e., the site for which DOE will submit a license application to the NRC. However, although some mention is made in the Program guidelines, §960.4, of the factors that might be considered to identify potential repository sites, it is not clear how the guidelines apply, if at all, to the initial narrowing from a multitude of sites to the relatively few sites from which sites would be nominated, i.e., identified as suitable for site characterization.

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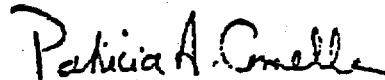
Second, in my view, suitability means merely that at each stage of the site screening and selection process, the sites that remain under consideration following application of, in this case, the siting guidelines have shown no fatal flaws which require their disqualification from further consideration, i.e., from proceeding to the next stage. Suitability is NOT a determination of acceptability, although unsuitability is a determination, in effect, of unacceptability. Acceptability (for geologic disposal) means that formal determination(s) has(have) been made by the Commission that there is reasonable assurance of no unreasonable risk to the public health and safety and the environment if wastes are disposed in the manner determined to be acceptable. Clearly, the authority and responsibility to make the acceptability determination lie only with the Commission and are exercised for the first time for a particular repository only under our licensing procedures at the construction authorization stage and not before. All comments to DOE, including the formal concurrence by the Commission on the final guidelines, should make very clear the distinction between suitability and acceptability, as well as that the Commission alone makes the acceptability determination.

My third point concerns the relationship between the EPA standard, 40 CFR 191, and the proposed guidelines. It is my central point. In the case of a geologic repository subject to licensing by the Commission (as opposed to some other kind of facility not subject to licensing by NRC but subject to compliance with the EPA standard), it is important to keep clearly in mind that NRC implements the EPA standard through requirements NRC establishes, and that in complying with NRC requirements, DOE is, in effect, complying with the EPA standard. This fact, in my opinion, has been overlooked or ignored by DOE in the proposed guidelines so that DOE's making a site suitability determination under these guidelines will not mean necessarily that it will have reflected adequately in what it has done that licensing is also necessary for disposal. The fix is quite simple: wherever the EPA standard is referenced in the guidelines, either explicitly or implicitly (e.g., use of the term "reasonably foreseeable" and the associated probabilities), that reference should be replaced by reference to §60.111(a), §60.112 and the NRC definitions and concepts, as appropriate. In this manner, the recognition of what is necessary for achieving disposal will be better reflected in the siting guidelines. The guidelines will then be of greater use to DOE, on the one hand, and less likely to compromise NRC's ability to make its site acceptability determinations in the licensing process, on the other hand.

I have one last point, which is not directly relevant here, but which will need to be considered as we deal with the impacts of the Nuclear Waste Policy Act on the HLW disposal regulations. I think there is merit to remaining sensitive to it even though the forum for resolving it is not comments or concurrence on DOE guidelines, but the revision of our HLW regulations. The provisions of the Nuclear Waste Policy Act change NRC's involvement in site screening and selection so that the issue now arises

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as to whether another standard than the one contemplated presently with respect to alternative disposal sites under NEPA (a slate of candidate sites among the best reasonably to be found) might be more appropriate. In this regard it would seem that given the elaborate site screening and selection process envisioned under the Act, it is likely that the sites resulting from application of the guidelines at each stage will be regarded as reasonable and that the scope of the NEPA review with respect alternative sites might be restricted to the question of whether DOE's preferred site--the one for which an application was submitted--was one for which there was no obviously superior site within the identified slate.



Patricia A. Comella, Deputy Director
Division of Health, Siting, and
Waste Management, RES

Attachments:

1. Specific Comments
2. LLB memo to PAC

cc: F. J. Arsenault
E. F. Conti
L. L. Beratan
W. R. Ott
J. R. Wolf
T. J. Schmitt

SPECIFIC COMMENTS

1. The definitions, §960.2-0, are incomplete. For example, "disturbed zone" refers to "controlled area" which is undefined. Also "controlled area" and "controlled zone" (see "site") are both used and the distinction between them is not clear.
2. The definition of "models" may be too narrow when viewed against the sorts of judgments the Commission will be making, as discussed in the Statement of Consideration for the draft final technical criteria.
3. The System guidelines, §960.3, does not reflect the NRC requirements adequately. References, to the EPA Standard and Part 20 should be replaced by references to §60.111(a) and §60.112, as appropriate.
4. In a similar vein, Tom Schmitt in a memo to me on the technical guidelines related to the tectonic environment (copy attached). He noted the problems associated with making the probability determination. These are derived from EPA definitions. If the EPA definitions are eliminated or replaced with Part 60 concepts Schmitt's concern will be addressed better, especially if the problem with the "modeling" definition is also addressed.
5. The siting guidelines which are based upon the 10 CFR Part 60 siting criteria are frequently more restrictive in their use than NRC's use of its siting criteria will be. This, in my view, does not pose problems necessarily: DOE is using its criteria to screen out (disqualify, determine unsuitable) certain sites or to keep certain sites in the running (determine them suitable for the next stage, through submittal of an application). DOE is not making any acceptability determinations. As long as distinctions between what DOE does and what NRC does are kept clear, the different usages are okay.

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NOTE FOR: Patricia Comella, Deputy Director
Division of Health, Siting and
Waste Management, RES

THRU: Leon L. Beratan, Chief ^{12B}
Earth Sciences branch, RES _{11/1/83}

FROM: Thomas J. Schmitt ^{12B}
Earth Sciences Branch, RES _{1/1/83}

SUBJECT: REVIEW OF THE TECTONIC ENVIRONMENT TECHNICAL GUIDELINES
OF THE DOE, PROPOSED GENERAL GUIDELINES FOR RECOMMENDATION
OF SITES FOR NUCLEAR WASTE REPOSITORIES

The technical guidelines for the Tectonic environment (960.5) in the draft guidelines are scientifically valid and desirable principles; however, the guidelines as written would be very difficult to apply rigorously in a licensing action. This is because some parts of the guidelines require calculations which can not be made with reasonable uncertainties given the present state of the art. Depending on the use of the guidelines, this may not be an important issue. Examples follow.

Draft 960. requires the use of rates of geologic processes. 960.5-5-9-2 states, "the nature and rate of faulting, if any, operating within the geologic setting during the past million years would, if continued into the future, have less than one chance in 10,000 over the next 10,000 years of leading to releases of radioactive waste to the accessible environment (proposed 40 CFR 191.13)." A similar statement is made concerning uplift, subsidence and folding in 960.5-5

The problem in application of this criteria is that it will be very difficult to establish the rates of the geologic process with sufficient certainty to input to the "risk" calculation. The problems are of two types: (1) geologic processes are sometimes not well understood and can be episodic rather than continuous, and (2) the evidence necessary for the determination of rates is oft lacking. This type of calculation is similar to "capable fault" determination, 10 CFR 100 Appendix A. There have been considerable licensing problems concerning that concept (SECY 79-300).

960.5-5-1-a.(4) is concerned with possible increases in either frequency of occurrence of the magnitude of earthquakes.

This may present some difficulties because, (1) seismicity is a cyclical process and consequently, the rate of seismicity at some time in the future is likely to be greater than it is at present, and (2) the maximum earthquake that can occur in an area is difficult to determine and is almost always greater than the historical maximum earthquake. Consequently, there could be some problems in the application of this principle.

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In my opinion, the overall concepts and principles are sound; the problems are with potential difficulties in application.

Tom Schmitt 3/11/53

Thomas J. Schmitt
Earth Sciences Branch, RES

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