



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

*Contains NMSS OK*

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MEMORANDUM FOR: Robert E. Browning, Director  
Division of Waste Management, NMSS

FROM: Karl R. Goller, Director  
Division of Radiation Programs  
and Earth Sciences, RES

SUBJECT: DRAFT RECOMMENDATIONS TO EDO CONCERNING WHETHER AND HOW TO  
CONTINUE WITH ONGOING RULEMAKING SPONSORED BY RES--FINAL  
AMENDMENTS TO 10 CFR PART 60 RELATED TO THE UNSATURATED ZONE

Enclosed for your concurrence are draft recommendations supported by a draft office review concerning whether and how to continue with an ongoing rulemaking sponsored by RES for which your office is identified as the user office. The rulemaking package was forwarded to the EDO on January 15, 1985, and has been returned to RES pending the submittal of a completed regulatory review. A copy of the rulemaking package was provided to your office on January 16, 1985.

This memorandum constitutes my concurrence in the enclosed draft recommendations. I plan to dispatch this memorandum with the enclosed draft recommendations to the Director, RES, within two weeks from the above date.

Please provide your concurrence by returning this memorandum along with the enclosed form.

*Karl R. Goller*

Karl R. Goller, Director  
Division of Radiation Programs  
and Earth Sciences, RES

Enclosure: As stated

WM Record #  
105.3

WM Project \_\_\_\_\_  
Docket No. \_\_\_\_\_  
FOR \_\_\_\_\_  
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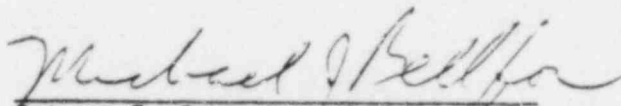
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☐ Receipt acknowledged. No Comment.

☒ Receipt acknowledged. Comment as follows:

1. This rulemaking is needed by the licensing office to provide definitive guidance to DOE in its consideration of the Yucca Mountain, Nevada, site as a potential high-level waste repository.
2. This rulemaking was initiated in response to extensive public comment on the existing Part 60 rule and has been committed to by the Commission.
3. The bulk of the staff and contractor resources have already been expended.
4. The staff paper contains a determination that the final post siting guidelines are not in conflict with the draft final amendments to Part 60 with regard to disposal in the unsaturated zone.

  
Robert E. Browning, Director  
Division of Waste Management  
Office of Nuclear Materials Safety  
and Safeguards

REGULATORY REVIEW  
10 CFR PART 60  
FINAL AMENDMENTS RELATED TO HLW DISPOSAL WITHIN THE UNSATURATED ZONE

1. Screening Process:

a) Issue to be addressed:

10 CFR Part 60 -- "Disposal of High-Level Radioactive Wastes in Geologic Repositories" as currently written (48 FR 28194) was primarily developed for disposal of high-level radioactive wastes (HLW) within the hydrogeologic region termed the saturated zone. The provisions of 10 CFR Part 60 were originally directed towards the saturated zone because at the time they were being developed the licensee -- the U.S. Department of Energy (DOE) -- was only considering potential repository sites at sufficient depths to be contained within the saturated zone. Existing provisions of 10 CFR Part 60 are generally applicable to disposal within either the saturated or unsaturated zone. However, minor modifications are still needed to ensure that the rule applies equally to sites in both hydrogeologic zones.

b) Necessity and Urgency for addressing the issue:

Modifications to 10 CFR Part 60 are contained in the recommended final amendments. These recommended amendments will assure that NRC regulations address considerations relevant to all geologic repositories whether sited in the saturated or unsaturated zone. These amendments were developed in response to a statement made by the Commission in June 1983 that technical criteria which apply specifically to the unsaturated zone would be issued shortly for public comment (48 FR 28203).

On February 16, 1984, NRC published for comment proposed amendments to 10 CFR Part 60 related to the unsaturated zone (49 FR 5934). In conjunction with the proposed amendments NRC published draft NUREG-1046--Disposal of High-Level Radioactive Wastes in the Unsaturated Zone: Technical Considerations for public comment. In response to its solicitation of public input on the proposed amendments and draft NUREG-1046 NRC received a total of 14 comment letters. These letters represented the views of other Federal agencies, States, representatives of industry and public interest groups. In general, these commenters were supportive of both NRC's decision to consider the licensing of HLW disposal in the unsaturated zone and of the provisions set forth in the proposed amendments. The NRC staff considered all comments received on the proposed amendments when developing the recommended final amendments.

With respect to the question of urgency the RES task leader notes that one of the nine potentially acceptable sites for the first repository formally identified by DOE is Yucca Mountain, Nevada. In the Draft Environmental Assessment for the Yucca Mountain site (DOE/RW-0012; December, 1984) DOE stated that the proposed repository horizon at the Yucca Mountain site is

hydrologically distinct from the other eight sites because it is in the dry, unsaturated zone above the water table (DOE/RW-0012, p5). Further, DOE named the Yucca Mountain site as one of three sites that are preferred for characterization (DOE/RW-0012, p7). Therefore, the RES task leader suggests that the amendments be forwarded for Commission consideration in a timely manner to ensure that NRC has regulations in place that are equally applicable to all sites named by DOE.

c. Alternatives to Rulemaking

In the Regulatory Analysis prepared in support of the recommended amendments, three alternative actions to rulemaking were identified:

- (1) Leave the final provisions of 10 CFR Part 60 intact.
- (2) Develop an entirely separate rule to apply specifically to the unsaturated zone.
- (3) Publish additional guidelines for HLW disposal in the unsaturated zone as a regulatory guide.

Alternative 1: Leave the provisions of the final rule - 10 CFR Part 60 intact.

Potentially, this alternative would have few associated impacts since it would not represent any change in the status quo. DOE could still file a license application for a geologic repository within the unsaturated zone under the existing provisions of 10 CFR Part 60. In considering such an application NRC would need to determine if the proposed site conformed with the provisions of the technical criteria set forth in Part 60. However, certain of these existing provisions may be technically inappropriate for an unsaturated zone site and could result in inappropriate analyses of the site-specific data. Therefore, this alternative could result in a certain degree of technical ambiguity which could complicate and delay the license review process.

Alternative 2: Develop a completely new regulation specifically limited to disposal of HLW within the unsaturated zone.

It would be possible for NRC to develop a parallel regulation to 10 CFR Part 60 which would set forth provisions specifically limited to disposal of HLW within the unsaturated zone. This alternative would offer no preferred benefits to the proposed action, and would drastically increase the amount of time and money associated with this type of action.

Reviews of 10 CFR Part 60 by both the public commenters and the NRC staff indicated that only minor changes to the final technical criteria were necessary to assure that the rule is equally applicable to HLW disposal in either the saturated or unsaturated zone. Therefore, the RES task leader considers that there would be no obvious benefit to pursuing this alternative.

Alternative 3: Publish additional criteria for HLW disposal in the unsaturated zone as a regulatory guide.

If this alternative were adopted, disposal within the saturated zone would still be comprehensively governed by the regulations of 10 CFR Part 60, while disposal in the unsaturated zone would be governed both by the provisions of Part 60 and by additional guidance provided in a regulatory guide. Providing additional technical criteria in a regulatory guide would not achieve the NRC objective of establishing equally applicable provisions for HLW disposal within both the saturated and the unsaturated zones.

d) How the issue will be addressed through rulemaking:

The recommended final amendments would provide NRC with the maximum flexibility with respect to reviewing license applications for HLW disposal in geologic repositories whether sited in the saturated or unsaturated zone. The amendments were originally developed after consideration of the public comments received on the proposed 10 CFR Part 60 technical criteria (46 FR 35280). Many of the points raised by commenters with respect to modifying 10 CFR Part 60 to apply to both the saturated and the unsaturated zones were accommodated in the final technical criteria (48 FR 28194) in response to comments received on other issues. The final technical criteria were reviewed in light of these comments and the NRC staff considered the minor modifications presented as proposed amendments to 10 CFR Part 60 (49 FR 5934) sufficient to make the rule equally applicable to reviewing license applications submitted for HLW disposal in either hydrogeologic zone. This view generally was supported by the public commenters on the proposed amendments.

e) Cost/Benefits

The impacts associated with this action (i.e., promulgating the final amendments) are expected to be minimal. The impacts associated with disposal of HLW in geologic repositories within the unsaturated zone should be comparable with saturated zone repositories since the general performance objectives for the natural and engineered barriers apply to each hydrogeologic zone. The addition of the final amendments to 10 CFR Part 60 should result in no changes to the radiological safety consequences or to the impacts relating to safeguards, operations, economics, environment or general information collection associated with HLW disposal in the saturated zone.

f) NRC Resources and Scheduling:

The cost of the final rulemaking action to NRC would be approximately 1.0 man year. This time estimate primarily accounts for staff time spent on rulemaking activities including preparation of supporting documentation, analysis of public comment on the proposed amendments and development of the final amendments as well as future expenditures of staff time associated with the initiation of the formal, final rulemaking process and the publication of the final amendments. Since resource needs to implement 10 CFR Part 60 have been reflected in programmatic budget requests, no significant new resource expenditures are expected to be associated with issuance of these amendments.



If scheduled on the Commission agenda, the RES task leader recommends that this paper be considered at an open meeting. While no specific circumstances require Commission action by a particular date, the Commission should be aware that DOE is currently considering Yucca Mountain, Nevada (an unsaturated zone site) as a potential repository site.

2. Quality Control Evaluation:

a) Review against existing NRC procedures and guidelines:

The attached staff paper has been reviewed for compliance with the EDO Procedures Manual (October 1984 rev.).

The final recommended rulemaking action is consistent with the Commission policy on managing nuclear waste provided on pp 15-16 of the NRC Policy and Planning Guidance for 1984 (NUREG-0885).

ADM has reviewed the draft FRN for compliance with Federal Register publication standards (see attached 11-5-84 and 12-14-84 memos from J. M. Felton to C. Ostrowski).

The regulatory analysis which accompanied the proposed amendments has been updated as Enclosure E to the staff paper.

The CRGR Requirements have not been applied to this rulemaking action since 10 CFR Part 60 applies only to disposal of HLW in geologic repositories by DOE and does not impose any regulatory requirements upon "one or more classes of power reactors".

A draft FRN was submitted to the Office of Public Affairs in September, 1984. OPA determined that a public affairs announcement was not necessary for these amendments.

b) Adequacy of technical data to support the rule:

Attached is a copy of the 11-2-83 memo from S. Trubatch, OGC to C. Ostrowski, RES concerning the technical support for the proposed amendments on the unsaturated zone forwarded to the Commission as SECY-83-444. (The RES task leader notes that the technical data prepared in support of the proposed amendments remains as part of the public record for the rulemaking action). Further, the principal technical support document for the amendments was published for public comment as draft NUREG-1046 specifically to obtain public feedback on the adequacy of the technical bases for the amendments. Copies of this document were sent to the U.S. Geological Survey as well as to other interested parties. The public comments submitted to NRC on draft NUREG-1046 are contained in Enclosure D (p. 39-41) of the staff paper. RES staff are currently revising draft NUREG-1046 in light of these comments and as a result of recently available information derived both from RES sponsored research and the scientific literature. A hydrogeologic consultant is assisting RES staff in revising the technical background sections of this NUREG report.

c) Consistency of the rule with applicable policies and planning guidance:

The RES task leader has concluded that the recommended final amendments are consistent with the Commission's intent stated at 48 FR 28203. No indications that the recommended final amendments are not consistent with Commission policies or Waste Management program plans were voiced either during the proposed rulemaking process or during the concurrence process for final rulemaking.

d) Importance of rule relative to accomplishing NRC's mandate:

The recommended final amendments are of a minor policy nature. They have been developed to facilitate the licensing review process for a geologic repository that may be located in unsaturated geologic media.

3. Recommendations:

The RES task leader recommends that the rulemaking action on the final amendments be continued and that the staff paper be forwarded to the Commission in a timely manner. This recommendation is based upon the following items of information:

a) In June 1983, the Commission stated its intent to publish specific technical criteria for HLW disposal in the unsaturated zone.

b) The proposed rulemaking package developed in response to this Commission directive was unanimously accepted (without any suggested changes) by the Commissioners in January 1984 and was published for comment in February 1984. Additionally, the technical support document-- NUREG-1046 was published for public comment during the same month. NRC received a total of 14 comment letters on these two documents, which generally supported the NRC position.

c) The amendments were revised in light of the public comments received. Generally, these revisions consisted of minor word changes for the sake of technical clarity and internal consistency. New amended wording for provisions containing design criteria were also adopted in response to points raised by the commenters.

d) The amendments were reviewed against the DOE Siting Guidelines to determine whether any inconsistencies existed between the NRC and DOE documents.

e) Close interaction between RES and NMSS technical staff existed during the review of public comments and the development of the final amendments to assure that the amendments and supporting documents were responsive to the concerns of the licensing office.

f) A draft version of the final rulemaking package was reviewed by the ACRS during July and August, 1984. A copy of the ACRS comments on the rulemaking is provided as Enclosure F in the staff paper.

g) DOE has stated its intention to consider HLW disposal in sites within the unsaturated zone as well as the saturated zone. The final rulemaking package would ensure that the provisions of 10 CFR Part 60 can be equally applied to all potential geologic repository sites, regardless of the hydrogeologic zone in which they are located.

h) NMSS has already concurred in the rulemaking package (see 11-23-84 memo from J. G. Davis to R. B. Minogue) and ELD has no legal objection.