



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

89000983

FEB 02 1990

Mr. Alan Whiting, Director
Systems Engineering and Integration
Center for Nuclear Waste Regulatory Analysis
P. O. Box 28510
6220 Culebra Road
San Antonio, Texas 78284

Dear Mr. Whiting:

SUBJECT: NRC Staff Comments on Draft Report CNWRA 90-003

NRC staff have previously provided and discussed comments on the CNWRA 90-003 report (see CNWRA Meeting Reports for January 11, 1990, and January 18, 1990). Additional comments are attached from the geoscience, performance assessment, engineering and legal staff for your information (these were informally provided at the January 29, 1990 meeting). Please note that the comments or regulatory analysis provided do not represent an agency position but are the individual views or analysis of the commentators. The intent is to provide the CNWRA with the knowledge and experience gained by a number of the NRC staff by providing input as if it were a contribution to one of the CNWRA technical working groups. The CNWRA still has the responsibility for final analysis and preparation of the report. It is expected that the CNWRA will consider the NRC input in their analysis but it is not expected that a response will be required for each NRC comment. Records of the disposition of each comment should be handled the same manner as that presently used for working groups and maintained at the CNWRA. Where an important consideration is identified, it is expected that it would be incorporated in the rationale statement. No further comments are to be expected from the NRC, however, please feel free to contact me or the specific staff person if clarification is needed.

In our meeting of January 29, 1990, you informed me that the CNWRA will deliver the final report CNWRA 90-003 on February 28, 1990. Accordingly, I will inform our contracts office, by copy of this letter, to proceed to establish that date as the contract deliverable date (reference the Mary Mace letter to John Latz of January 10, 1990).

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The action taken by this Technical Direction is considered to be within the scope of the current contract NRC-02-88-005. No changes to cost or delivery of contracted services and products are authorized. Please notify me immediately if you believe that this Direction would result in changes to cost or delivery of contracted services or products.

Sincerely,

A handwritten signature in cursive script, appearing to read "Philip Altomare".

Philip Altomare, WSE&I
Program Element Manager

Enclosure:
As stated

cc: Mary Mace, ADM/CAB

UNCERTAINTY REPORT COMMENTS

- 2 -

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Sincerely,



Philip Altomare, WSE&I
Program Element Manager

Enclosure:
As stated

cc: Mary Mace, ADM/CAB

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D. FARRINGTON

COMMENTS ON CNWRA 90-003,

"IDENTIFICATION AND EVALUATION OF REGULATORY
AND INSTITUTIONAL UNCERTAINTIES IN 10 CFR PART 60"

Three categories of comments have been identified: (1) incomplete explanations of uncertainties, (2) "uncertainties" that appear to actually be recommendations for substantive changes to regulatory requirements, and (3) uncertainties not identified in the report.

Inadequate explanations.

1. Page B-5 states that section 60.21 "needs to provide more detail so DOE can prepare a complete application." However, the explanation then goes on to discuss the NRC's on-going preparation of a format and content guide which will contain additional detail beyond that currently present in 60.21. This discussion should (a) identify specific deficiencies in the current content of 60.21, and (b) demonstrate that an amendment to 60.21 rather than the format and content guide is the most appropriate means for fixing these deficiencies.
2. Page B-6 alleges that the Commission's regulations do not contain criteria for acceptance of a license application. However, the discussion does not mention section 2.101 of Title 10 which refers to completeness as the sole criterion for acceptance (see 10 CFR 2.101(f)(3)). A better explanation of the perceived deficiency is needed.
3. Page B-7 alleges that paragraph (d) of section 60.22 requires DOE to be responsible for certain actions at an NRC Public Document Room. However, the structure of 60.22 makes this allegation questionable. Other paragraphs in 60.22 specifically use the term "DOE" when an action by that organization is required. In contrast, paragraph (d) is silent regarding which party (DOE or NRC) is to carry out the specified action, implying that either party, or both acting jointly, could satisfy the regulatory requirement. The explanation of page B-7 should elaborate on the basis for interpreting a requirement limited to DOE.
4. Page B-8 recommends addition of a reference to Subpart F (criteria for performance confirmation) in the list of conditions for authorizing construction of a repository (section 60.31). The discussion needs to explain why section 60.137 (contained in Subpart E) does not accomplish the goal sought in the discussion of this recommendation.
5. Pages B-15, B-16, B-35, B-36, and B-37 present an analysis of the Part 60 requirements for waste retrievability. Two separate issues are perceived here. The first involves the degree to which a repository must be designed to "facilitate" versus "not preclude" waste retrieval. The analysis of this issue fails to refer to paragraphs (b)(1) and (b)(3) of section 60.111 which specify the degree to which the design must "facilitate" waste retrieval. The discussion needs to explain what uncertainty, if any, would remain if the analysis included paragraphs (b)(1) and (b)(3).

The second perceived issue involves the requirement in section 60.46 for a license amendment for any action which would substantially increase the

difficulty of retrieval of emplaced waste. This requirement seems to be perceived as inconsistent with the retrievability requirement of section 60.111, although the basis for such a perception is unclear. The discussion does not note the possibility that DOE might include retrievability provisions in its design that exceed the minimum requirements of Part 60. If this were the case, it would be possible to later make changes that would substantially increase the difficulty of waste retrieval, as anticipated by section 60.46, without violating the criteria of 60.111. The discussion needs to provide a clearer articulation of the basis for the perceived conflict between 60.46 and 60.111.

6. Pages B-33 and B-34 allege that Part 60 includes extraneous regulatory requirements by overly broad references to regulations other than Part 60. Examples cited stem from the section 60.111 reference to Part 20. However, the discussion does not note that only a limited portion of Part 20 is referenced in 60.111 -- specifically the limits for radiation exposures and radiation levels, and for releases of radioactive materials to unrestricted areas. The discussion should be revised to take into account the limited nature of the Part 20 reference.

7. Page B-38 presents a discussion that appears to have no correlation with the regulatory text citations. If the discussion refers to paragraph (i) of 60.133, it should be noted that the CFR text contains a typographical error. The final phrase of that paragraph should read ". . . thermomechanical response of the host rock, surrounding strata, and groundwater system."

8. Pages B-52, B-53, B-63 and B-64 allege circular logic in the definition of the term "disturbed zone." However, the only explanation given is a citation from an NRC staff paper. That citation seems more concerned with the technical difficulty involved in determining the extent of the disturbed zone than with any circularity of logic in the definition of the term. The discussion needs to clearly identify the alleged uncertainties in the definition of the term.

9. Pages B-80 and B-81 allege that there is "an inconsistency in the treatment of combinations of potentially adverse conditions between 10 CFR 60.21(c)(1)(ii)(C) and 10 CFR 60.122." However, the analysis does not note that the two sections of the regulation serve different purposes. Specifically, 60.21 asks for an evaluation of overall system performance to determine compliance with the EPA HLW standards while 60.122 seeks an analysis to determine whether potentially adverse conditions are truly adverse. The uncertainty alleged to be present should be explained in light of the different purposes of the two sections of the regulation.

Recommended Policy Changes.

10. Page B-10 recommends revising paragraph (c) of section 60.31 because of a perceived conflict with other statements made by the Commission regarding the Commission's responsibility and authority for oversight of environmental impacts associated with repository development. This analysis does not seem to include the most fundamental factor in evaluating the Commission's environmental responsibilities -- identification of the action at issue. Paragraph (c) of section 60.31 refers to an action by the Commission, i.e., authorization of construction of a repository. Because the action is the

Commission's, the Commission must comply with the environmental constraints imposed on it by the National Environmental Policy Act (NEPA), as must DOE for its action -- actual construction of the repository. However, the other activity referred to in this analysis is a unilateral action by DOE. Since this activity does not involve licensing or any similar action by the Commission, there is no basis for the Commission to exert any oversight of potential environmental impacts associated with DOE's activities.

11. Page B-58 perceives a deficiency in section 121 of Part 60 because it does not require DOE to have ownership or control of a site during site characterization. As a practical matter, it may be in DOE's interest to obtain the recommended control of a site. However, the discussion does not identify the Commission's interest in requiring such control prior to submittal of a license application. Since site characterization is not a licensed activity, enforcement of the recommended regulatory requirement also appears problematical. The discussion should identify the public health or environmental protection benefit that would result from the recommended regulatory change.

12. Pages B-125 and B-126 appear to be encouraging the Commission to extend its regulatory "reach" to include non-radiological occupational safety. The discussion should be expanded to include an explanation of the statutory basis for NRC regulation of non-radiological safety and an explanation of the presumed source of expertise which the NRC would draw on for such regulation.

Uncertainties not identified.

13. Pages B-39, B-40 and B-41 discuss the phrase "relevant time frame" used in NUREG-0804 as a source of uncertainty, but do not note that the term is defined in Part 60 as "the period the intended performance objective must be achieved." A real uncertainty is whether a single time period (and thus a single classification of APES and UPES) is to be used for both engineered barrier performance objectives. Arguably, phenomena that are reasonably likely during 10,000 years would be "anticipated" for purposes of 60.113(a)(1)(ii)(B), but might be unlikely during the first 300 years after repository closure and therefore be "unanticipated" for purposes of 60.113(a)(1)(ii)(A).

14. The definition of the term "important to safety" has been interpreted by the NRC staff and others as containing several uncertainties. These include: (a) Is the definition a disguised accident dose limit constraining off-site doses to 0.5 rem, or are higher doses permissible? (b) Is the "boundary of the unrestricted area" the same as the site boundary? (c) Can the phrase "essential to" be interpreted to mean that only one of several redundant components would need to be classified as "important to safety?" (d) If no accident sequence with consequences greater than 0.5 rem can be identified, is nothing "important to safety?" And, is no quality assurance program needed?

15. Section 114(a)(1)(E) of the Nuclear Waste Policy Act anticipates that the Commission will provide DOE with a pronouncement "concerning the extent to which the at-depth site characterization analysis and the waste form proposal" are appropriate for inclusion in a license application. Similarly, section 115(g) of the Act anticipates that Congress may solicit the comments of the Commission regarding a state veto of a site. Neither of these is addressed in

the Commission's regulations, leaving uncertainties regarding the criteria to be used by the Commission in formulating its views on these subjects.

16. Section 60.21(c)(1)(ii)(D) requires submittal of "a comparative evaluation of alternatives to the major design features that are important to waste isolation . . ." This section has the potential to be a major factor in reviewing a license application because it can be interpreted to require a search for "the best" engineered barriers and because compliance with this requirement will not be evaluated until after completion of the design of the engineered barriers. However, Part 60 contains no criteria for judging the acceptability of the comparative evaluation or the selection of the preferred alternative from those evaluated. There is therefore uncertainty regarding both the substance of the requirement and its application.

17. Part 60 anticipates that wastes other than spent nuclear fuel and high-level wastes may be disposed of in a HLW repository, and paragraph (d) of section 60.135 specifies that packaging criteria for waste types other than HLW will be addressed on an individual basis "if and when they are proposed for disposal in a geologic repository." However, the lack of such criteria within Part 60 causes uncertainties regarding what types of wastes might be suitable for disposal in a repository and what packaging would be required for those wastes.