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J. William Bennett, Acting Assoc. Dir., Office of Geologic Repository DOE/HQ (RW-20) GTN

REVIEW OF NRC STAFF TECHNICAL POSITION ON DESIGN INFORMATION REQUIREMENTS

I, my staff and members of the supporting laboratories and contractors have reviewed the document referenced above. The purpose of the document is to reiterate the point that the design information that is to be provided in the conceptual design should be of such a nature so that NRC can determine the completeness and relevancy of planned site characterization activities. It seems that NRC and DOE each use the term "conceptual design" and each organization has a different definition for this term.

NRC, in establishing their position, provides little information that would help discriminate as to what is important to deciding completeness and relevancy of site characterization. They state that it "includes field and laboratory work in all aspects of design..." This isn't much help in explaining what they really want to know.

NRC is somewhat sloppy in their wording as can be seen in Section 2.2.1 in specifying that we need to consider uncertainty in parameters that "will influence reliability and confidence in the performance of the repository." Our questions are: The performance of the repository with respect to what - 1 part in 100,000 in release rate? Reliability in what respect?

This document appears to be an interim document. Please note the last paragraph of Section 3: "A separate future Technical Position will cover the question of what kinds of information, and at what level of detail, will be needed at the License Application stage to support the licensing assessments." Basically, it says that another document will get to the real substance of the issue. If that document is to be of any value, it should take the discussion of the requirements for Chapter 8 in the SCP as specified in Reg. Guide 4.17 and expand on them. It appears from this that NRC is stating its policy clearly; however, it doesn't really know what it wants on a technical level.

Appendix A is a reasonable summary of the regulatory framework for repository design. Appendix B is supposedly a glossary of terms, but only one definition is provided. Are these terms those for which the applicant is supposed to supply a definition? Appendix C is a reasonable list of information required, but guidance and amplification are needed. Comments on some of the specific information requirements of Appendix C are given below.

"Performance Requirements and Criteria" should list the specific requirements; i.e., performance of what relative to what? and what level of performance is acceptable?

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"Shaft Stability Factors," if they are under the jurisdiction of NRC and not OSHA, should include an acceptable level of safety. References to mine safety standards would probably be appropriate.

"Preliminary Sensitivity Studies" should be accompanied by a list of those parameters for which NRC considers sensitivity studies necessary.

"Minimum Space Required for Emplacement of Waste" should include a statement of the criteria on which NRC feels this minimum should be based.

"General Ventilation Requirements" should be referenceable to an applicable mine safety standard.

"Preliminary Design Values used for the Mechanical Properties of the Rock Mass" should be accompanied by what NRC considers to be the bounds of acceptability.

These are given as examples of the type of information needed. In general, it is well to know the bounds on acceptability and perhaps on a range of methodologies considered adequate for demonstrating acceptability. It is not generally considered appropriate, however, to receive prescriptive direction regarding the analyses used to demonstrate that an acceptable limit or standard has been met.

Some additional specific points are:

- o The NRC should probably include the exploratory shaft in its design information requirements.
- o Figure 4.1 could be clarified (with more arrows showing direction of information flow, for example).
- o The wording on Figure 4.3 is incorrect; as it now reads, it indicates it is not all right for the waste package to achieve greater than a 1,000-year containment period.
- o In Figure 4.3 NRC addresses non-radiological safety issues. This should not be done.

Original signed by
Donald L. Vieth

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Waste Management Project Office

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cc:

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