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 NUCLEAR REGULATORY COMMISSION
 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
 WASHINGTON, D. C. 20555

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Mr. W. Wade Ballard, Sr.
 Director of Waste Repository Deployment
 U. S. Department of Energy, NE-22
 Washington, D. C. 20545

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 (Return to WM, 623-SS) cc: HJM
 nb

Dear Mr. Ballard:

On September 8 and 9, 1983, the Waste Management Subcommittee of the Advisory Committee on Reactor Safeguards (ACRS) met in Richland, Washington, to continue its review of the DOE Site Characterization Report of the Basalt Waste Isolation Project at Hanford. Following these discussions, the Subcommittee summarized its comments.

During its 282nd meeting on October 14, 1983, the ACRS discussed the Subcommittee's comments and agreed that they should be forwarded to the DOE and NRC Staffs.

We appreciate the opportunity of continued interaction with your headquarters and Richland Operations Staffs and the Rockwell personnel, and we hope you will find the Subcommittee's comments informative and useful.

Sincerely,

J. J. Ray
 Chairman

Attachment:
 ACRS Waste Management Subcommittee Summary
 Comments, 9/9/83

- cc:
 M. Frei, DOE/Hq.
 L. Olson, DOE/Hanford
 D. Squires, DOE/Hanford
 ✓ R. Browning, NRC
 H. Miller, NRC

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Summary Comments
Waste Management Subcommittee
September 9, 1983

General Comments:

1. Subcommittee members were pleased with the progress made, since our meeting in April, 1983, in improving communications between the DOE and NRC Staffs relative to the Basalt Waste Isolation Project (BWIP). This progress is exemplified by issuance of the "Procedural Agreement" between the two agencies stipulating guiding principles for their interface during site investigation and characterization, and the assignment to BWIP of an NRC Site Representative. Even so, however, we believe the interchanges between the agencies, as well as among other involved organizations, continue to warrant review and evaluation. Although a written agreement is helpful, the manner and degree to which it is implemented will determine its efficacy. Until procedures for day-to-day interactions between the NRC Site Representative and the DOE and its contractors, and guidelines for handling preliminary data and reports are confirmed, communication problems may continue to exist.

2. The Subcommittee was pleased to receive written responses from both the DOE and NRC Staffs on the report prepared by the Subcommittee following its meeting of April 21-23, 1983. Although Subcommittee members have not had time to review the responses in detail, both agencies have indicated general agreement with the Subcommittee's suggestions and have formulated plans to follow through on these matters.

3. Confirmation of DOE's proposed "General Guidelines for Recommendation of Sites for Repositories" will require NRC concurrence, as well as interaction with and input from selected State agencies, affected Indian tribes, etc. The Subcommittee notes with favor the efforts of the DOE staff to make the proposed "Guidelines" compatible with related NRC and EPA regulations.

4. The Subcommittee was disappointed to learn of the delays in initiating drilling of the exploratory shaft at the proposed site. Although these delays are attributed to the institutional requirements imposed on DOE by the Nuclear Waste Policy Act of 1982, we would encourage DOE Headquarters officials to assign priority to resolution of this matter and proceed expeditiously with the drilling operations.

Special Comments:

1. The NRC Staff indicated that they were providing increased flexibility to DOE in making tradeoffs among the factors involved in repository performance. So long as the DOE Staff justifies those choices in the ongoing dialogue with the NRC Staff, this is a reasonable approach.
2. A basic decision is the approach for resolving the key issues, e.g., the solubility of waste canisters in the repository environment. One possibility would be to gather experimental data on each of the parameters in the systems and construct a model; another would involve a broad empirical assessment that groups the various parameters into subsystems. The first approach might require years of effort; the Subcommittee recommends the latter wherever possible. If the NRC Staff agrees, they should so inform the DOE and its contractor.
3. The NRC Staff is continuing to review the scale of tests required for resolving questions relating to the thermal hydrological effects on potential fracturing of the basalt. Since answers to these questions may be on the critical path for determining the acceptability of the proposed repository, the DOE is encouraged to address them directly. Since large scale tests could require years to complete, advantage should be taken of reported data that are applicable, and of the application of smaller scale tests, if they can be shown to be adequate.
4. Another area continuing to need attention is the range of uncertainty that the NRC Staff considers acceptable for the various parameters involved in determining the acceptability of the proposed repository. If the DOE and its contractors have comments and/or suggestions on this matter, they are encouraged to make them known to the NRC Staff along with supporting information and justifications.

5. Although the DOE and its contractors understandably desire to keep its options flexible in confirming the exact location and depth for BWIP, they should keep in mind that such flexibility adds delay to completion of the project.
6. The analysis of the proposed site involves geophysical measurements, determinations of physical properties, and, most importantly, quantitative modeling of the data to make geological interpretations. To the extent practical the DOE and its contractors should be encouraged to analyze and present their data in maps and cross-sections that illuminate the subsurface geological structures. At the moment, the geophysical data appear to lack synthesis and final interpretation.
7. The major difference in hydraulic head across the Nancy Lineament or the Yakima Barrier continues to need explanation. Factors to be included in the associated analysis include determination of the origin of the high head, the size of the reservoir feeding into it, and the probability for and consequences of a release of the associated water into the proposed repository. The data to be obtained by the DOE contractor from the planned pumping tests should assist in answering these questions. The Subcommittee endorses these tests.
8. Potential impacts of liquid releases to the accessible environment have thus far been analyzed primarily on the basis of compliance with applicable Federal regulations. People potentially affected by such releases, however, will desire to know the estimated time required for such waters to reach the accessible environment, the identities and concentration of the accompanying radionuclides, and their ultimate destination. In analyzing the potential impact of such releases, the DOE and its contractors are encouraged to go beyond regulatory requirements so that interested members of the public will be better able to understand the pathways and rates, and to assess the potential consequences.

9. The Subcommittee was told that the potential failure modes for the reference design of the waste canisters had not yet been confirmed. We urge that this be done.

10. The DOE contractor described the application of a Delphi technique in seeking to establish the range of probabilities and consequences of various events that may affect the key factors associated with the design of the proposed repository. The Subcommittee believes that if a survey of such a nature is to be conducted, great care is required in the choice of experts, knowledgeable in the various aspects of repository design, and the procedures followed in pursuing the study.

11. A basic question that remains is "How much data are enough?" Although the Subcommittee recognizes the need for NRC to require that all decisions and choices be scientifically justified, and for DOE to be in a position to defend its actions to potentially affected parties and public interest groups, the Subcommittee believes it is important to restrict testing and data acquisition requirements to a level consistent with sound scientific and fiscal management. Such matters should be the subject of continuing dialogue between the DOE and NRC Staffs. Such matters should also be made a part of the overall strategy for the research being conducted in support of BWIP. Such strategy should include an identification of the range of necessary conditions to be evaluated as well as the specific tests required to answer the associated questions. Early review of such proposed strategies by the NRC Staff appears highly desirable.