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July 31, 1987

Dr. D. Moeller
 Chairman, Subcommittee on Waste Management
 U. S. Nuclear Regulatory Commission
 Advisory Committee on Reactor Safeguards
 Washington, D. C. 20555

Dear Dr. Moeller:

This letter report on our trip to Arizona is provided at the request of O. S. Merrill. It briefly summarizes my perceptions of the ongoing NRC research program at this location.

Mission, Goals and Objectives: Because of my brief exposure to the NRC program, I have virtually no perspective on the management structure, breadth or depth of the program. My comments are therefore limited to the specific objectives documented in our pre-trip documentation and the presentations.

Overall research planning direction and structure are extremely important. I strongly recommend that a subcommittee of the newly proposed NRC committee be charged with the responsibility of working with NRC in defining the most cost-effective and technologically rewarding research objectives possible. I believe it is essential that critical problem areas, that is those that must be solved for the mission of NRC to be realized (such as the determination of site permeability), be identified and that research be focused on these areas. Certainly the activities we reviewed addressed important questions, but I am concerned that outstanding critical problems remain that require additional consideration. An interdisciplinary, highly competent oversight committee would be able to examine the overall research activity and provide guidance regarding not only areas of importance but also activities that may be either redundant or unlikely to contribute substantially to the Commission's goals.

Quality and Relevance of Research: Given my brief exposure to the Arizona activities, I believe they by and large constitute careful and relevant research. While one can criticize in retrospect some details of the various programs, they appear to be on a par with ongoing activities elsewhere in the United States and abroad. I am, however, concerned that certain high-risk,

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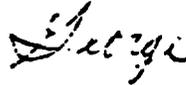
high-return research activities, such as those associated with the now inactive field site, may have been prematurely terminated. I believe that carefully designed field programs of this kind are needed, and should be supported.

Quality of Principal Investigators: Of the principal investigators we met, I know only Dr. Neuman by scholarly reputation. He is unquestionably an outstanding researcher in the field of groundwater hydrology. His published papers document carefully executed and insightful research. I believe the NRC is fortunate to have him as a contractor.

Quality of Facilities: Regrettably, we were unable to visit the inside laboratories, but the unsaturated flow experiment was interesting. I think this is a unique facility and I believe that with careful planning and support, additional useful and important information could be obtained. It is evident that some of the results from both field studies were perhaps unanticipated, for example, the heterogeneity of the fractures in the tuff, and revealed new areas of concern for the waste repository program.

I hope these comments are helpful. I have enjoyed my participation on the subcommittee and regret I cannot devote the time needed to continue as a member.

Sincerely yours,



George F. Pinder
Professor and Chairman

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