



Department of Energy

Washington, DC 20585

OCT 16 1991

Mr. John J. Linehan, Acting Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Linehan:

A peer review of the Yucca Mountain Site Characterization Project unsaturated zone hydrology program was conducted between March 1990 and May 1991, by consultants from outside the program. The peer review process followed the requirements of project Quality Management Procedure-03-01.

The panel was composed of seven internationally known hydrologists who have not been involved in the program. They were: R. Allan Freeze, Chairman, Lorne G. Everett, Gerald E. Grisak, James W. Mercer, R. William Nelson, Stavros S. Papadopoulos, and M.T. (Rein) van Genuchten. The peer review scope was limited to flow in the unsaturated zone. Consequently, the review only addressed in a limited fashion the issues of saturated zone travel time and transport processes.

After reviewing a limited amount of information on the hydrogeologic setting of Yucca Mountain, the team was asked to spend four days at Las Vegas, Nevada; first discussing the mechanisms of flow which might operate at the site, then developing a set of questions for the project Principle Investigators (PIs) which could be used to evaluate the unsaturated zone program against the team's concepts of what such a program should encompass. Following the development of this list of questions and topics, the team was given a large volume of literature describing the work that had been done or was planned at Yucca Mountain. That material formed the basis for a later meeting with the project PIs, where the PIs were questioned directly on their work. Finally, the team produced a report (the Peer Review Record Memorandum) outlining their evaluation of the unsaturated zone program. The U.S. Department of Energy, in turn, responded to the team's recommendations and proposed a number of follow-on actions. The team evaluated those responses and gave their final acceptance in June of this year.

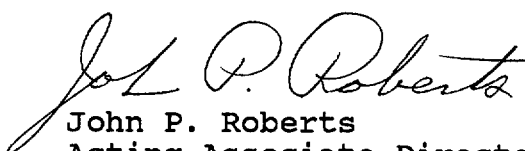
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In general, the team was very complimentary of the project program. In fact, most of their comments reflected a concern that the PIs have not been able to do enough work at the site, that the program should be more aggressive in pursuing permits, and that there should be additional testing at the level of the Paintbrush Tuff.

Enclosed are fifteen copies of the final report of the unsaturated zone hydrology peer review team, ten copies are also being provided to the Advisory Committee on Nuclear Waste.

Any questions you may have on the peer review process should be directed to Corinne Macaluso at (202) 586-2837 or FTS 896-2837.



John P. Roberts
Acting Associate Director
Office of Systems and Compliance
Office of Civilian Radioactive
Waste Management

Enclosure:

Unsaturated Zone Hydrology Peer
Review Record Memorandum,
June 24, 1991 (15)

cc w/enclosure:
ACNW

see enclosure on shelf

cc: w/o enclosure:

C. Gertz, YMPO
R. Loux, State of Nevada
K. Whipple, Lincoln County, NV
M. Baughman, Lincoln County, NV
J. Bingham, Clark County, NV
D. Bechtel, Clark County, NV
S. Bradhurst, Nye County, NV
B. Raper, Nye County, NV
P. Niedzielski-Eichner, Nye County, NV
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