



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555

October 18, 1989

The Honorable Kenneth M. Carr
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: RECOMMENDATIONS DEALING WITH INVESTIGATION OF POTENTIAL VOLCANISM
AT THE YUCCA MOUNTAIN HIGH-LEVEL WASTE REPOSITORY SITE

This letter is a follow-up to our letter to you of July 3, 1989, regarding the NRC staff's analysis of DOE's Yucca Mountain Site Characterization Plan. In that letter we expressed our concern that early studies at Yucca Mountain should be focused on identifying and evaluating potential problems that may disqualify the site as a high-level waste repository. As a result of that concern and an increasing interest in volcanism as a potential "fatal flaw," an ACNW Working Group on Tectonic Models met on October 10, 1989 with Professor Bruce D. Marsh who is head of the Department of Earth and Planetary Sciences at The Johns Hopkins University and is a recognized expert on volcanic processes. Professor Marsh presented an overview of the state-of-knowledge with regard to volcanogenesis. He made several observations pertaining to the prediction of volcanic hazards in general, and specifically to the work that has been done to date in the southern Basin and Range Province which includes the Yucca Mountain site.

First, he urged that volcanogenesis studies be undertaken in the context of a systems approach that includes integration of geochemical, geologic, tectonic, and geophysical studies of the immediate vicinity of Yucca Mountain aimed specifically at the volcanogenesis problem, as well as more regional studies conducted as part of the general site characterization. This supports our point of view as well as the view of the NRC staff that integration of multidisciplinary data is essential to studying potential geologic processes and events at Yucca Mountain.

Secondly, he suggested that consideration should be given to the establishment of a small, "blue-ribbon" peer panel to examine the state-of-knowledge of volcanogenesis as it pertains to southern Nevada and Yucca Mountain in particular and, based on requirements such as 10 CFR Part 60, to provide guidelines on the appropriate studies to fulfill a systems approach to the investigation of volcanism. This panel, consisting of recognized experts in the germane disciplines, and working under the aegis of the National Research Council or a similar impartial body, could, in a limited period of time, provide a fresh, comprehensive, unbiased approach to the issue of volcanism. The report from this panel could provide the Department of

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Energy with invaluable guidance on one aspect of their future site characterization activities at Yucca Mountain and would make available to all interested organizations basic information for review and assessment of volcanism at the site. The Committee believes that there is merit to Dr. Marsh's proposal. We recommend that efforts be initiated to follow through on his recommendations. We, of course, are prepared to assist in further developing this suggestion and bringing it to fruition.

Sincerely,

A handwritten signature in cursive script that reads "Dade W. Moeller". The signature is written in black ink and is positioned above the typed name and title.

Dade W. Moeller
Chairman