



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 WASHINGTON, D.C. 20555-0001

April 29, 1994

**MEMORANDUM FOR:** Martin J. Steindler, Chairman  
 Advisory Committee on Nuclear Waste

**FROM:** James M. Taylor  
 Executive Director for Operations

**SUBJECT:** ADVISORY COMMITTEE ON NUCLEAR WASTE COMMENTS ON RECENTLY  
 DISCOVERED FAULTING AT YUCCA MOUNTAIN AND ITS IMPLICATION  
 FOR THE U.S. NUCLEAR REGULATORY COMMISSION ON-SITE  
 REPRESENTATION

I am responding to your letter dated April 8, 1994, which submitted a number of comments on new findings of faulting at Yucca Mountain, Nevada. While I note your concerns and recommendations, I think it is premature to reach conclusions regarding the impact of these new findings. We all have an interest in obtaining important information early; however, the U.S. Department of Energy (DOE) is responsible for characterizing the site, and the U.S. Nuclear Regulatory Commission (NRC) should not intrude unduly on DOE's management of the program. Contrary to the point raised in your letter, the NRC on-site representative has provided timely information to Headquarters on new data concerning faulting. He provided initial information by phone in mid-December and followed up with written material in early January. The Director of the Office of Nuclear Material Safety and Safeguards (NMSS) has been fully aware of this new information since early January; in fact, he advised you when you met with him on January 28, that a major technical exchange on this matter was scheduled for May and that he felt your trip would be premature. DOE and the staff agreed early this year to meet on this topic in May to allow time for adequate development of the issues. This schedule also allows for participation by the State of Nevada and other interested parties.

The staff has reviewed both the Advisory Committee on Nuclear Waste's (ACNW's) comments and programmatic recommendations regarding the implications of faulting at Yucca Mountain and believes that existing and planned activities within the Division of Waste Management (DWM) adequately address the concerns and recommendations made in the April 8th letter. Each comment and recommendation made in the April 8th letter is specifically addressed in the enclosure.

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In short, the staff believes that any further actions, beyond those already in place and described above and in the enclosure, regarding the Sundance fault in particular or monitoring site characterization activities in general, would be premature and not cost-effective, based on current knowledge of DOE activities. As would be expected, the staff will monitor activities through its on-site representative, technical exchanges and meetings, site visits, and informal telephone communication with DOE counterparts. In this way, the staff will maintain the flexibility to adequately respond to developments in site characterization. The staff will also be in readiness to support future review activities that presumably will be better coordinated between ACNW and the program office.

**Original signed by**  
**James M. Taylor**  
 James M. Taylor  
 Executive Director  
 for Operations

Enclosure:  
 As stated

cc: The Chairman  
 Commissioner Rogers  
 Commissioner Remick  
 Commissioner de Planque  
 SECY

TICKET: (EDO # 0009962) J  
 CNWRA NMSS R/F HLPD R/F LSS  
 LPDR PDR Central File MKnapp, DWM  
 JGreeves, DWM MBell, ENGB MFederline, PAHB JHolonich, HLUR  
 JSurmeier, DWM On-Site Reps KMcConnell, ENGB NMSS D/O r/f  
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 DATE: 04/18/94 : 04/18/94 : 4/18/94

Revised per Commissioners' comments.

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NAME	JGEEVES		GARLOTTO		RBERNERO		RTHOMPSON		JTAYLOR	
DATE	4/21/94		/ /94		/ /94		/ /94		/ /94	

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**ACNW Specific Comment 1:**

The ACNW notes the presence and characteristics of the Sundance fault and indicates that its presence could adversely impact the areal extent of the repository if the fault zone extends to the depth of the repository. The committee further notes that this and other potential faults in the repository block "strongly point to a need for an increased commitment of staff resources to ensure that the NRC has a timely and comprehensive picture of the configuration of the proposed repository site."

**Staff Response:**

The staff is aware of the Sundance fault, its potential adverse impact on the repository, and the potential for additional faults to be found during site characterization. However, the true significance of the Sundance fault cannot be determined at this time and must await further characterization and analysis by DOE. Moreover, the staff has in place guidance (i.e., staff technical positions on investigations of faults, NUREG-1451, and an approach to considering them in repository design, NUREG-1494) that recognizes that faults will be found in the repository block and describes what the staff expects from DOE, should this occur. Having this guidance in place and having an on-site representative with geotechnical expertise in Nevada ensures that the staff will be aware of, and be in a position to act on, if necessary, the identification of fault-related concerns, during site characterization activities. In addition, the staff has available to it the technical expertise at the Center for Nuclear Waste Regulatory Analyses (CNWRA). Therefore, we believe that staff resources are sufficient to address faulting issues at Yucca Mountain.

**ACNW Specific Comment 2:**

The ACNW notes that maintenance of the present DOE tunnel boring schedule may overtax the NRC on-site geologist and NMSS staff and recommends that more geologists be part of staff at the NRC Office of the On-Site Representative. The comment further recommends that the on-site staff have adequate expertise to recognize the potential significance of features uncovered in characterization studies.

**Staff Response:**

The staff believes that making judgments regarding the size and makeup of the NRC On-Site Representative's Office is premature, until underground activities are sufficiently underway. The staff has, and will continue to have, an On-Site Representative's Office, with the appropriate technical expertise to recognize the

potential significance of features uncovered in characterization studies. However, it must be recognized that the intent of the On-Site Representative's Office is not to have expertise to evaluate the significance of all types of site characterization information, but to have in place a mechanism for reporting that information back to Headquarters staff. If significant site characterization information is developed that requires a larger staff presence, then Headquarters staff can be deployed to supplement the On-Site Representative's Office. The on-site representative and NMSS staff, supported by the CNWRA as discussed above, have ample capability to review the geologic characterization being performed at Yucca Mountain.

**ACNW Specific Comment 3:**

The ACNW identifies an apparent problem relating to the interaction between the NRC staff and the DOE. Specifically, that the staff, had it not been for the ACNW field trip, would not have received a formal briefing on this feature until May. The Committee recommends that the staff study and propose for further discussion a means to expedite interactions between the NRC and DOE staffs.

**Staff Response:**

DWM staff was present at the ACNW site visit on December 15, 1993, when the ACNW was first informed about the Sundance fault. Headquarters staff was subsequently notified by the on-site representative on December 17, 1993, 2 days after the ACNW meeting. Shortly thereafter, the staff took steps to attend the January 31, 1994, field trip, during which the Sundance fault was visited and described by U.S. Geological Survey geologists. After that visit, the staff requested, and received agreement from DOE, that the staff be briefed in detail on the Sundance fault at the planned NRC/DOE Site Visit on tectonics scheduled in May 1994. The May NRC/DOE Site Visit is a 4-day interaction designed to update Headquarters staff on all aspects of faulting at Yucca Mountain, including repository design to accommodate faulting. Moreover, the staff has, over the last year, been planning to initiate a program, in FY95, of in-field verification of site characterization activities that will further enhance the staff's ability to monitor activities at Yucca Mountain. All the above activities support the conclusion that there are mechanisms in place to sufficiently monitor site characterization activities.