8.3.1.17.4.6/A

MAY 0 8 1991

MEMORANDUM FOR: Joseph Holonich, Acting Project Director
Repository Licensing and Quality Assurance
Project Directorate, HLWM

FROM: Ronald L. Ballard, Branch Chief
Geology and Engineering Branch, HLWM

SUBJECT: PHASE I REVIEW OF STUDY PLAN 8.3.1.17.4.6, QUATERNARY FAULTING WITHIN THE SITE AREA

The Phase I review of Study Plan 8.3.1.17.4.6 was conducted by Keith I. McConnell under the supervision of Philip S. Justus. Dr. McConnell scanned the subject study plan and determined that there are no obvious major concerns that need to be called to the attention of DHLWM management. Further, he ascertained, based upon the amount, substance, and complexity of the material provided, that it will not be necessary to seek assistance from other Sections in DHLWM, other parts of the NRC, or from the Center for Nuclear Waste Regulatory Analyses to complete the Phase I Review.

Dr. McConnell reviewed the study plan relative to "DOE Content Requirements for Descriptions of Studies in Study Plans," Attachment B of "Summary of the [May 7-8, 1986] NRC/DOE Meeting on the Level of Detail for Site Characterization Plans and Study Plans." He found that the study plan is substantively consistent with the Agreement on content resulting from the Level of Detail Meeting.

The limited review indicates that: (1) All of the references cited in the study plan are either included in the Site Characterization Plan (SCP) or are readily available; and (2) there is no indication that the tests and analyses outlined in this study plan will cause significant and irreparable adverse effects on the site, the characterization program, or the eventual usability of the data for licensing.

He reviewed the study plan as a candidate for detailed review and found that, although he has significant concerns regarding the ability of the activities identified to collect the data necessary for licensing, a detailed review of the subject study plan would probably result only in a duplication of open items identified by the staff in the Site Characterization Analysis (SCA). Specifically, concerns related to this study plan were raised in SCA Comments #47, #48, #59, #60, #64, #68, #71, and Question #1. Generally, the aspects of the Site Characterization Plan (SCP) that generated staff concerns in the SCA are reiterated in the Study Plan. These same concerns form a large part of the basis for the staff technical position on the "Identification and Investigation of Fault Displacement and Seismic Hazards."

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The concern raised by SCA Question #1 (addresses the scale of geologic mapping to be done during site characterization) does need to be highlighted for consideration for possible special mention to DOE in the context of our review of this study plan. Specifically, the study plan indicates that the scale of the maps produced by this investigation will be at 1:24,000. The location of faults is a key component of this investigation and the plotting of faults at a scale of 1:24,000 is potentially inadequate (i.e., too small a scale). DOE's response to Question #1 (SCA Response Document, YMP/90-107) indicating that all maps will be stored in digital form to be reproduced at multiple scales does not resolve the concern because it is the scale of the map digitized into the database that is important to the accurate location of faults. Other geologic maps of the Yucca Mountain area such as the surficial deposits maps identified in the DOE response will be at a scale of 1:12,000. DOE should consider compiling the results of study 8.3.1.17.4.6 on maps at a scale of 1:12,000 or larger.

Ronald L. Ballard, Branch Chief
Geology and Engineering Branch, HLWM

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