MAY 8 1 1990

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THRU: Ronald L. Ballard, Branch Chief
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SUBJECT: ACCEPTANCE AND START-WORK REVIEW OF STUDY PLAN FOR ACTIVITY 8.3.1.4.2.2.1 GEOLOGIC MAPPING OF ZONAL FEATURES IN THE PAINTBRUSH TUFF AT A SCALE OF 1:12,000 AND ACTIVITY 8.3.1.4.2.2.2 SURFACE FRACTURE-NETWORK STUDIES FROM STUDY PLAN 8.3.1.4.2.2 CHARACTERIZATION OF STRUCTURAL FEATURES IN THE SITE AREA.

In response to your note dated May 8, 1990, I have performed a Phase I review of the above named activities. Under verbal guidance from the Repository Licensing and Quality Assurance Project Directorate (HLPD), the Phase I review consists of a combined acceptance and start-work review. The Phase I review was conducted in accordance with the criteria specified for Acceptance Reviews and Start-Work Reviews in Sections 4.0 and 5.0 of the draft Review Plan for NRC Staff Review of DOE Study Plans and Procedures dated December 22, 1987.

Prior to discussing the results of the Phase I review, some information on the limited scope of review with respect to the study plan under consideration needs to be presented. Specifically, as outlined in our informal discussions only two activities from Study Plan 8.3.1.4.2.2 are included in our review effort. This limited scope for the review is the result of two factors:

1) two of the five activities for Study Plan 8.3.1.4.2.2 (8.3.1.4.2.2.3 and 8.3.1.4.2.2.5) were not included in the controlled version sent to the NRC and are unavailable for review; and

2) the request by DOE that the staff review non-surface disturbing activities suggests that Activity 8.3.1.4.2.2.4 on the Geologic Mapping of the Exploratory Shaft should be deferred.

Acceptance Review

My review of the two activities (8.3.1.4.2.2.1 and 8.3.1.4.2.2.2) indicates that they do not strictly adher to the level-of-detail agreement (LODA).

Specifically, the LODA requires that Section V of the study plan contain the schedule and milestones related to the activities included, particularly the timing of the study relative to other studies and program activities. On p. 2.2-3 of the study plan, DOE states that the schedule for future studies related to Activity 8.3.1.4.2.2.2 is dictated by the need to provide information to other activities, especially those involved in exporatory shafts and drift tests. In Section V of the study plan, little information is presented on schedules and milestones, in fact, the schedules for four of the activities have apparently not been determined. Since there has been a significant delay in the start of the Exploratory Shaft, there may be an impact on the activity schedule based on the statement made on p. 2.2-3 of the study plan and referred to above. From a technical standpoint, I do not believe that the absence of the LODA information specified above is sufficient reason for recommending the rejection of the activities for review. However, I point this concern out to you so that HLPD may decide from a programmatic standpoint whether the absence of this information is sufficient reason for not accepting the activities for review.

With respect to our having the references for the activities under review, you may remember that the staff had previously requested and received some references used in the study plan that were deemed as not being readily available.

Overall, I recommend that Activities 8.3.1.4.2.2.1 and 8.3.1.4.2.2.2 be accepted for review.

Start-Work Review

I have completed this part of the Phase I review and present the following discussion of the results.

In my review of Activity 8.3.1.4.2.2.2 Surface Fracture-Network Studies a concern developed that water used to create pavement-type outcrops for fracture analysis might impact on waste isolation or might pose an interference hazard to future testing. To address this concern, I requested in a note dated May 17, 1990, to David Brooks (Attachment 1), with your concurrence, that the Hydraulic Transport Section (HT) review the plans for creating pavement-type outcrops. The HT Section responded in a note to us dated May 24, 1990 (Attachment 2), that "It is felt that the amount of water used in these tests will not compromise the repository and that there will be ample areas unaffected by these tests to conduct other experiments." Further clarification from HT Section was obtained to indicate that their reference to an "amount of water" related specifically to the section of the activity plan that indicated that the amount of water volume required for clearing of the two pavements within the repository conceptual boundary is small in comparison to the bounding analyses presented in sections 8.4.3.3 in the Site Characterization Plan, and in comparison to the volumes of water which will be introduced by natural precipitation and other site activities.

The HT response to the activity plan describing water use in connection with Activity 8.3.1.4.2.2.2 resolves the concern described in the preceding paragraph. However, I recommend, that our start-work approval be conditional

on the fact that not more than two pavements within the conceptual perimeter drift boundary be created in connection with this activity. This was one of the major bases for HT's analysis and changes to the number of pavements created within the perimeter drift boundary could change HT's analysis.

I see no other concerns in the two activities reviewed that could cause significant and irreparable adverse effects on the site, the site characterization program, or the eventual usability of the data for licensing. Therefore, I recommend that the two activities be approved for start-work. However, I also recommend that approval be conditional based on the limitation on the number of pavements created within the conceptual perimeter drift boundary (i.e., two).

Recommendations Regarding Detailed Review

I recommend that a detailed technical review of Activities 8.3.1.4.2.2.1 and 8.3.1.4.2.2.2 be carried out for two reasons. First, much of the effort related to these activities will be in the form of basic data collection for input into the development and use of conceptual and mechanistic models about the site. Therefore, these activities are central to the discussion regarding the need to justify the level-of-detail of data collection activities that has been taking place as a result of the continuing interactions on the topic of the most appropriate tunnelling method for construction of the exploratory shaft facility. I believe that these activities provide us with a framework in which we may be able to learn of and comment on DOE's position on the level-of-detail required in data collection activities.

The second reason for performing a detailed technical review of these activities is that a detailed review of the document may provide the staff with input to either help resolve or provide further support for SCA Question #1 on the issue of integration of mapping efforts at the site.

Since only two relatively short activity plans would be involved in this effort, I believe that the resource committment for the detailed technical review would be minor, on the order of three-four staff weeks including time for management review.

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