JAN 30 1989

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MEMORANDUM FOR: Richard Weller, Section Leader
Engineering Section
Engineering Branch, HLWM

FROM: Donald L. Chery, Jr., Section Leader
Hydrologic Transport Section
Geosciences and Systems Performance Branch, HLWM

SUBJECT: EVALUATION OF DOE'S RESPONSE TO CDSCP OBJECTION 4 RELATED TO EXPLORATORY SHAFT LOCATION

This memorandum constitutes the Hydrologic Transport Section's response to your January 19, 1989 request for review in support of the Engineering Section's evaluation of DOE's response to CDSCP Objection 4. CDSCP Objection 4 concerns the susceptibility of shaft locations to surface water flooding and infiltration, and its subsequent effect on long-term waste isolation. As you noted, DOE's response is provided in material presented in SCP sections 8.4.2 (Description and Location of Characterization Operation) and 8.4.3 (Potential Impacts of Site Characterization on Postclosure Performance Objectives).

The principal reference to SCP Section 8.4.3 is technical report SAND85-0805 by J. A. Fernandez and others entitled: "Selected Analysis to Evaluate the Effect of the Exploratory Shafts on Repository Performance at Yucca Mountain." This report is a revised version of a report previously reviewed by the Center (April 29, 1988 letter to Dr. Philip Justus from Dr. John Russell). Based on that review, the Hydrology Transport Section concluded that DOE's flooding estimates of the volume of water infiltrating the ES shafts from a single PMF event represent conservative upper bound values (May 26, 1988 note to R. L. Ballard from D. L. Chery). However, because DOE attempted a more realistic estimate of flood infiltration at the relocated ES-1, final SAND85-0805 contains significant technical revisions. Therefore, the Hydrologic Transport Section is arranging for the Center to review the revised analysis and related conclusions. Because the Center's initial review concluded that SAND85-0805 contained insufficient topographic information (cross sections of Coyote Wash) to evaluate thoroughly the estimated PMF elevation and because a more detailed and precise evaluation of the PMF elevation appears to be important to assessing the adequacy of the revised flood analysis for the new ES-1 location (out of the alluvium and above the PMF), the Hydrologic Transport Section will request DOE to submit additional topographic cross sections and flood elevation data for review.

Based on our review of applicable portions of SCP Sections 8.4.2 and 8.4.3, the Center's review of draft SAND85-0805, and our preliminary review of final

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SAND85-0805, it continues to be the assessment of the Hydrologic Transport Section that DOE's estimate of flooding and water infiltration in the ESF is conservative. The Hydrologic Transport Section will advise you further at the conclusion of the Center's final review of SAND85-0805.

Donald L. Chery, Jr., Section Leader
Hydrologic Transport Section
Geosciences & Systems Performance Branch, HLWM

cc: J. Pohle, HLGP
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