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MEMORANDUM FOR: Joseph J. Holonich, Director
Repository Licensing & Quality Assurance
Project Directorate
Division of High-Level Waste Management

FROM: Margaret V. Federline, Chief
Hydrology and Systems Performance Branch
Division of High-Level Waste Management

SUBJECT: PHASE II REVIEW OF STUDY PLAN FOR
CHARACTERIZATION OF REGIONAL HYDROLOGIC
SYNTHESIS AND MODELING (SP 8.3.1.2.1.4 R0)
[411422, L60251]

As requested, we have completed the Phase II review of the Study Plan for Regional Hydrologic Synthesis and Modeling (see enclosure). The review was performed using the review plan for NRC Staff Review of DOE Study Plans, Rev. 1 (December 6, 1990).

The study plan has four activities: (1) conceptualization of regional flow systems; (2) subregional 2-D areal hydrologic models; (3) subregional 2-D cross-sectional modeling; and (4) regional 3-D hydrologic modeling. According to its current schedule, work under this study will be completed in 1999.

This study is related to key performance issues of groundwater travel time and radionuclide transport in the saturated zone. The regional models developed under this study will be used to evaluate the effects of future events such as climatic changes, tectonic events, and large-scale groundwater withdrawals. Results of regional models will also be used to establish boundary conditions for site-scale models of flow in the saturated zone.

The DOE has already achieved progress under activities 1, 2, and 4. Since the early 1980s, USGS staff have performed regional and subregional 2-D areal modeling of hydrogeology in southern Nevada. As described in the study plan, a preliminary 3-D model has also been produced.

The main issues identified in this review include: (1) the need for better documentation of well data used to calibrate regional models; (2) the need to adequately describe an approach for modifying existing models based on new hydrologic data; and (3) concerns about the adequacy of data needed to construct and reasonably calibrate regional models. Questions also have been identified about regional evaluation of evapotranspiration and the use of parameter estimation techniques.

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