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QA: N/A

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September 30, 1996

Stephan J. Brocoum, Assistant Manager
Suitability and Licensing
U.S. Department of Energy
Yucca Mountain Site Characterization
Office, M/S 523
P.O. Box 98608
Las Vegas, Nevada 89193-8608

Dear Dr. Brocoum:

Subject: Status/Summary Report for Fiscal Year 1996 Activities Within the Performance Assessment Overview Study on the Consequences of Cementitious Materials (SCPB: N/A)

This letter transmits the Status/Summary Report for Fiscal Year 1996 Activities Within the Performance Assessment Overview Study on the Consequences of Cementitious Materials. This status/summary provides an update on the fiscal year 1996 (FY96) activities designed to address the postclosure performance impacts associated with lining the potential repository drifts with concrete. The priority for FY96 was on performing performance assessment (PA) sensitivity studies to analyze the consequences of pH perturbations (Activity 1) and on evaluating the importance of cement composition to the generation of geochemical effects.

The preliminary conclusions of the PA sensitivity studies indicate that alkaline pH perturbations could increase peak doses, particularly at longer time frames. In addition, based on the preliminary PA results and the recommendations of outside experts, our preliminary recommendation is to pursue cement mix compositions that would have pH values lower than 10.

In addition to the summary of the activities, this status report includes six attachments containing the details of this effort. These are: 1) the *Performance Assessment Plan to Address Potential Post-Closure Performance Impacts from Cementitious Materials used in Potential Repository Drifts*, 2) a PA report entitled RIP Simulations to Investigate the Possible Consequences

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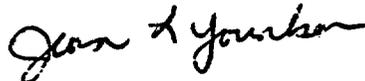
September 30, 1996

Page 2

*of Cement Placement within the Potential Yucca Mountain Repository; 3) a meeting report entitled **Performance Assessment Consequences of Cementitious Materials Scoping Study: Cement Expert Consultation Meeting Report**, which contains detailed meeting notes and associated meeting presentation materials; 4) Expert Report by Professor Della Roy entitled **Potential Geochemical Effects of Evolving Cementitious Materials**; 5) Expert Report by Professor Hamlin Jennings entitled **Report on Potential Geological Effects of Evolving Cementitious Materials Used in the Yucca Mountain Waste Disposal Project**; and 6) Expert Report by Dr. Maria Onofrei entitled **Independent Analysis of Issues Related to Repository Performance**.*

Please contact David C. Sassani at 702-295-4635 if you have any questions concerning this report.

Sincerely,



Jean L. Younker, Manager
Regulatory Operations
Management and Operating Contractor

Enclosure:

Status/Summary Report for
Fiscal Year 1996 Activities
Within the Performance Assessment
Overview Study on the Consequences
of Cementitious Materials

LV.PA.DCS.09/96-038

September 30, 1996

Page 3

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