

May 18, 2004

MEMORANDUM TO: Ledyard B. Marsh, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM : Michael E. Mayfield, Director /RA/
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: TRANSMITTAL OF CONTRACTOR REPORT LA-UR-04-1227,
"GSI-191: EXPERIMENTAL STUDIES OF LOSS-OF-
COOLANT-ACCIDENT-GENERATED DEBRIS ACCUMULATION
AND HEAD LOSS WITH EMPHASIS ON THE EFFECTS OF
CALCIUM SILICATE INSULATION"

This memorandum is to formally transmit the attached report LA-UR-04-1227, "GSI-191: Experimental Studies of Loss-of Coolant-accident-generated Debris Accumulation and Head Loss with Emphasis on the Effects of Calcium Silicate Insulation," for NRR's information. This final report incorporates review comments from the NRR/DSSA staff.

Sponsored by the NRC, Los Alamos National Laboratory performed experiments to generate data on debris accumulation on PWR sump screens and head loss associated with calcium silicate (CalSil) insulation, and to determine the suitability of the NUREG/CR-6224 head loss correlation for CalSil head loss calculations. This report documents the results of the experiments. The study confirmed that CalSil could degenerate into fine particulates in post-LOCA containment environment, and could cause substantial head loss across the sump screen when combined with fibrous insulation on a sump screen. The study also demonstrated that the NUREG/CR 6224 head loss correlation performed reasonably well for CalSil insulation if the head loss parameters used in the correlation (e.g., specific surface area, particle density) are adequately determined by experiments. This research enhances the understanding of the important Generic Safety Issue (GSI) 191, "Assessment of Debris Accumulation on PWR Sump Performance."

If you have any questions on the report, please contact T.Y. Chang of my staff, at 415-6450.

Attachment: As stated

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