

April 15, 2003

MEMORANDUM TO: John A. Zwolinski, 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 NUREG/CR-6808, "KNOWLEDGE BASE
FOR THE EFFECT OF DEBRIS ON PRESSURIZED WATER
REACTOR EMERGENCY CORE COOLING SUMP
PERFORMANCE "

The Division of Engineering Technology is forwarding the following NUREG/CR report to NRR for information and use in support of resolution of Generic Safety Issue (GSI)-191. This report was prepared by our contractor, Los Alamos National Laboratory.

NUREG/CR-6808 "Knowledge Base for the Effect of Debris on Pressurized Water Reactor
Emergency Core Cooling Sump Performance"

(Responsible RES Staff: B.P. Jain, 415-6778)

This report is in support of Task 1 in the User Need Request NRR-2002-030, to prepare a NUREG/CR summarizing the current state of knowledge about the sump clogging issue. This report includes a summary of domestic and foreign test programs, and analytical work done by government and commercial organizations. The report describes the substantial base of knowledge that has been amassed as a result of the research on boiling-water reactor (BWR) suction strainer and pressurized-water reactor (PWR) sump screen clogging issues. Previous research on BWR suction strainer has been documented in numerous reports (e.g., NUREG/CR-6224, "Parametric Study of the Potential for BWR ECCS Strainer Blockage Due to LOCA Generated Debris"). This report has been reviewed by an international peer review panel of experts and provides added confidence that uncertainties in the assessment of debris impact on long term cooling in light water reactors have been adequately addressed.

The present research provides knowledge of issues dealing with the debris generation, its transport to and accumulation on the sump screen, and resulting head loss that could potentially challenge the plant's capability to provide adequate long-term cooling water to the emergency core cooling system and the containment spray system pumps. This knowledge base supports the agency's performance goal of maintaining safety. The report is a useful reference and it provides insights which could be useful to industry in the development of its own evaluation guidance and methodologies for performing plant-specific evaluations. The report could also be used by NRR to aid in conducting regulatory reviews.

Attachment: As stated

Distribution: G. Holahan, M. Fields, J. Hannon, ERAB r/f,

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