

July 07, 2006

MEMORANDUM TO: Jared S. Wermiel, Deputy Director
Division of Safety Systems

FROM: Michael L. Scott, Chief */RA/*
Safety Issues Resolution Branch
Division of Safety Systems

SUBJECT: RELAP5 CALCULATION OF POST-LOCA CONTAINMENT PRESSURE
AND SUMP WATER TEMPERATURE TO SUPPORT THE
CALCULATION OF NET POSITIVE SUCTION HEAD MARGIN AND
RESIDENCE TIME FOR A SAMPLE PLANT, REVISION 1

On March 28, 2006, the NRC staff issued a report developed primarily by Information Systems Laboratory (ISL) that describes a sample post-LOCA calculation of sump pool temperature and containment pressure using the RELAP5 code. The containment pressure and temperature results were used as inputs to a net positive suction head (NPSH) margin calculation and a residence time calculation for the post-accident sump fluid.

Although limited in scope, the calculation and accompanying report provide insight into the amount of actual NPSH margin (i.e., including containment overpressure) that some plants may have to assist in defraying the long-term head loss effects of chemical precipitation or other debris. Further, the residence time calculation provides insight into the temperature conditions that post-accident sump fluid will be exposed to, which assists in understanding the types of chemical reactions that may occur in the post-accident sump fluid.

Following its initial issuance, comments were received on the report via a note from E. Throm to J. Wermiel dated April 5, 2006. The enclosed report has been revised in response to these comments.

Enclosure: Calculation of Sump Fluid Temperature During Loss of Coolant Accidents at a
Sample Nuclear Power Plant, Revision 1

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