SEP 18 1989

MEMORANDUM FOR: Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

FROM: Thomas Novak, Director
Division of Safety Programs
Office for Analysis and Evaluation
of Operational Data

SUBJECT: DIVERSION OF SEAL COOLER FLOW FOR RHR PUMPS

Enclosed is an Engineering Evaluation Report on the diversion of seal cooler flow for RHR pumps. The diversion occurred because the service water system at Haddam Neck was not hydraulically balanced so that one branch (part of a train) could feed two RHR seal coolers and two RHR heat exchangers simultaneously. Sufficient flow was diverted to the second RHR heat exchanger (given the inoperability of the redundant service water branch) that there was a significant flow reduction in the RHR pump seal cooler flow. Loss of seal cooler flow would eventually cause failure of both RHR pumps which are required for long term heat removal following a LOCA.

A survey of other PWRs indicates that the Haddam Neck piping arrangement may be unique because it switches piping configuration for long term cooling following a LOCA to use service water rather than component cooling water to cool the RHR heat exchangers and seal coolers. However, it is not obvious from our survey that a similar diversion could not occur following the single failure of a component cooling water train or a service water train in those plants where ECCS pump cooling and RHR heat exchanger cooling are provided by the same auxiliary water system.

This design deficiency is similar to others reported in information notices on inadequate NPSH in ECCS when one pump services two trains of components. Consequently, we believe it is prudent to alert other licensees to the design flaw discovered at Haddam Neck. We have enclosed a draft information notice to help disseminate this information. If you have any questions, please contact S. Israel (X24437) for additional information.

/s/

Thomas Novak, Director
Division of Safety Programs
Office for Analysis and Evaluation
of Operational Data

Enclosure: As stated

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