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DEC 4 1985

MEMORANDUM FOR: William T. Russell, Director
 Division of Human Factors Technology
 Office of Nuclear Reactor Regulation

FROM: Edward L. Jordan, Director
 Division of Emergency Preparedness
 and Engineering Response
 Office of Inspection and Enforcement

SUBJECT: RECOMMENDED TECHNICAL SPECIFICATION CHANGE CONCERNING
 THE LOSS OF CONTROL ROOM COOLING

Region II recently advised IE of a problem of the loss of all control room cooling and the subsequent erratic instrumentation output resulting from overheating of Westinghouse PCS 7300 cabinets and associated solid state protection system at McGuire Station on June 4, 1984. IE Information Notice 85-89, "Potential Loss of Solid-State Instrumentation Following Failure of Control Room Cooling," was prepared based on a draft provided by Region II and was issued on November 19, 1985. Based on our review, we believe this is a significant safety concern that warrants consideration for technical specification changes in addition to the information notice. AEOD is also reviewing this event and will issue their recommendations, if any, separately.

The McGuire incident demonstrated that the solid state protection system will provide spurious signals shortly after the loss of HVAC allows ambient temperature to rise. We believe that unless action is taken, as it was at McGuire to provide alternate cooling to the solid state equipment, the loss of instrumentation likely would be significant during the 7 hour period allowed by current technical specification to achieve hot standby. McGuire had reduced power to 97 percent 2 1/2 hours after the loss of all control room cooling. They had numerous spurious alarms 45 minutes after the HVAC failure and before plant shutdown was initiated. The alternate cooling action and the recovery of one of the HVAC units prevented further problems at McGuire. Because the overheating problem is common to many systems within the solid state cabinets, there could also be a reactor trip or other unexpected control system actuations at the same time that instrumentation is unavailable or is providing erratic information. McGuire has taken action to reduce the susceptibility of solid state cabinets to overheating during normal operation, but we believe that the total failure of control room HVAC would still result in significant loss of instrumentation before the plant achieves hot standby.

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Based on the above information we recommend that consideration be given to revising technical specifications limiting conditions for operation following failure of control room cooling for all plants with solid state reactor protection systems subject to high temperature malfunctions. We believe that more stringent requirements to require a fast shutdown to hot standby or demonstrate the availability of enough alternate cooling to maintain acceptable operating temperature would serve two purposes. First, it would provide greater inducement for utilities to correct known unreliable HVAC units. Secondly, it would help to ensure that the plant is stable prior to the expected loss of instrumentation.

For your use in evaluating this suggested technical specification change, we note that, in addition to the loss of coolers at McGuire, there has been recent identification of possible HVAC common failure modes at Browns Ferry and Limerick which could indicate that the potential failure of redundant HVAC units is greater than previously expected.

Original Signed By:
E. L. Jordan

Edward L. Jordan, Director
Division of Emergency Preparedness
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Office of Inspection and Enforcement

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*See previous concurrences

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