

NOV 06 1985

Dr. Zack T. Pate, President
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

Dear Dr. Pate:

Subject: Preliminary Case Study Report -- Effects of Ambient Temperature on
Electronic Equipment in Safety Related Instrumentation and Control
Systems

The Office for Analysis and Evaluation of Operational Data has conducted a study of operational events involving failures of solid state electronic components in safety related instrumentation and control (I&C) systems due to high ambient temperature. The study was initiated by an event that occurred at the McGuire Station on June 4, 1984, which involved the total loss of the control area ventilation system while Unit 1 and Unit 2 were operating at full power.

The enclosed preliminary report documents the review and evaluation of the event at McGuire and of other events involving similar failures at operating Westinghouse pressurized water reactor (PWR) units. Based on the review of these events and on the similarity of electronic components used in other types of operating reactor units, the study concludes that the problem of high ambient temperatures affecting electronic components in safety related I&C systems is potentially generic to all operating nuclear units that use heat sensitive electronic components. The study also finds that, in general, plant technical specifications regarding control room/instrument room ventilation systems and instrument system operability are inadequate. The study also finds that certain assumptions in the staff's evaluation of USI-A44, Station Blackout, regarding environmental effects on I&C system equipment could be incorrect. Our preliminary report contains several specific recommendations aimed at addressing the concerns raised by the study's findings and conclusions.

The purpose of this letter is to provide you with the opportunity to review the report, particularly with regard to its completeness and accuracy, prior to the issuance of the AEOD final report. Changes to the findings, conclusions, and recommendations will be considered only if the underlying information concerning the details of the plant design, systems operation or sequence of events is in error. Therefore, comments are being solicited on the technical accuracy of the report. The findings, conclusions, and recommendations are provided for your information in order that you understand the significance AEOD places on this issue and therefore obtain a more complete picture of the total report.

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Dr. Zack T. Pate

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We would welcome your comments either informally by phone or formally by letter. Since we wish to finalize and issue the report shortly, we ask that any comments you may wish to make be brought to our attention within 30 days from receipt of this letter.

As you may know, AEOD reports do not represent an official NRC position or the position of the responsible NRC program office. Our reports are one input to an ongoing review and evaluation process, and any recommendation contained in our final report will be considered and perhaps modified or eliminated by the responsible NRC office.

A copy of the preliminary report and this letter are being placed in the Public Document Room at 1717 H Street, N.W., Washington, D.C. 20555.

If you have any questions regarding this matter, please feel free to contact Matthew Chiramal of my staff. Mr. Chiramal can be reached at 301/492-4441.

Sincerely,

Original signed by:
C. J. Heltemes, Jr.

C. J. Heltemes, Jr., Director
Office for Analysis and Evaluation
of Operational Data

Enclosure:
As stated

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