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DUKE POWER

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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station
Docket Nos. 50-369, -370
Inspection Report No. 50-369, -370/91-20
Reply to a Notice of Violation

Gentlemen:

Pursuant to 10 CFR 2.201, please find attached Duke Power Company's response to Violation 50-369, -370/91-20-01 for McGuire Nuclear Station.

Should there be any questions concerning this matter, contact L.J. Rudy at (704) 373-3413.

Very truly yours,

M S Tuckman

M.S. Tuckman

LJR/s

Attachment

xc (W/Attachment):
S.D. Ebneter
Regional Administrator, Region II

T.A. Reed, ONRR

P.K. VanDoorn
Senior Resident Inspector

IE01
1/1

MCGUIRE NUCLEAR STATION
RESPONSE TO NOTICE OF VIOLATION

Violation 369/370/91-20-01

Technical Specification 3.3.1 requires that at least three channels of Overtemperature Delta-Temperature trip circuitry be operable in Modes 1 and 2. With the number of operable channels one less than the total number of channels, startup and/or power operation may continue provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 6 hours, and

b. The minimum channels operable requirement is met; however, the inoperable channel may be bypassed for up to four hours for surveillance testing of other channels per Specification 4.3.1.1 and Specification 4.3.2.1.

Contrary to the above, for a period from approximately 1984 to July 18, 1991, all four Reactor Protection System (RPS) channels of Overtemperature Delta-Temperature were inoperable. This resulted from the gain factors provided on the trip setpoint for the optimized fuel producing a saturation for the reactor coolant system average temperature (Tavg) input at 597 degrees F. The accident analysis assumes a maximum Tavg in excess of this. Since the trip setpoint varies inversely with an increasing Tavg, a nonconservative setpoint arises from the saturation. The gain adjustments resulted in an inoperable condition and a state where the RPS system would not have functioned, as designed, under certain conditions, such as a control rod withdrawal accident.

This is a Severity Level IV violation (Supplement I).

Response

1. The reason for the violation.

   Maintenance Engineering Services (MES) personnel were performing scaling calculations in preparation for the upcoming Unit 1 EOC 7 refueling outage. The calculations included determining the Westinghouse 7300 Process Control equipment gain settings for the Overtemperature Delta Temperature (OTDT) setpoint. The circuit cards are calibrated from 0 - 10 VDC. This is equivalent to a temperature range of 530 - 630 degrees Fahrenheit at the input to the Tave Lead/lag (NLL) card. On July 12, 1991, MES personnel discovered that the hardware limit on the Tave NLL card would be reached at a lower temperature with the new gain setting required for cycle 8 operation prior to reaching the maximum temperature input value. This prompted MES personnel to check the maximum temperature output on the Tave NLL card with the existing gain setting. The 10 VDC equivalent was found to 597 degrees F. The 100% average Reactor Coolant temperature is 588.2 degrees F. The Scaling Manual, Revision 2, Vol. I, was followed explicitly by MES personnel for guidance during the scaling process. The manual states in part that the gain on the OT setpoint summing amplifier is chosen to be unity. Maintaining unity on the summing amplifier requires that the gain settings upstream

of the summing amplifier must be adjusted. By using this scaling methodology, MES personnel scaled the OTDT hardware such that it became saturated.

2. The corrective steps that have been taken and the results achieved:

   a. MES and IAE personnel changed resistors in the summing amplifiers to allow the Tave NLL cards to be de-gained. This brought the cards within the hardware limits.

   b. This event was covered with all involved personnel.

   c. MES personnel checked the Reactor Trip and Engineered Safety Features Actuation Systems functions within the 7300 process control equipment to ensure no hardware limits were exceeded.

3. The corrective steps that will be taken to avoid further violations:

   a. The Process Control Systems Scaling Manual and the Precautions, Limitations, and Setpoints (PLS) Manual will be kept "as built".

   b. MES personnel will evaluate a means to further enhance proper scaling practices.

4. The date when full compliance will be achieved:

   McGuire is in full compliance.