30 JUL 1986

Docket Nos.: 50-390
and 50-391

Mr. Steven A. White
Manager of Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

Dear Mr. White:

SUBJECT: EVALUATION OF THE SAFETY PARAMETER DISPLAY SYSTEM FOR THE WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2

The staff has reviewed TVA's submittals regarding the Safety Parameter Display System (SPDS) for the Watts Bar Nuclear Plant, Units 1 and 2, and has concluded that additional testing of the SPDS isolators is required to show the isolators are qualified to interface the SPDS with safety related systems. Attached is the staff's evaluation of this equipment.

We request you perform the necessary testing and provide appropriate analyses to demonstrate the SPDS isolators are qualified for interfacing with safety related systems, or provide additional justification for not doing so. You should assure that any safety-related employee concerns pertaining to this issue are appropriately addressed prior to implementation of the system. If you have any questions concerning this matter, contact the Project Manager, T.J. Kenyon, at FTS 492-7377.

Sincerely

B. J. Youngblood, Director
PWR Project Directorate #4
Division of PWR Licensing-A

Enclosure: As stated

cc: See next page

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REQUEST FOR ADDITIONAL INFORMATION
WATTS BAR NUCLEAR PLANT
SAFETY PARAMETER DISPLAY SYSTEM

I. BACKGROUND

Each operating reactor shall be provided with a Safety Parameter Display System (SPDS) in accordance with the Commission's approved requirements defined in NUREG-0737, Supplement 1. In the Regional workshops on Generic Letter 82-33 held in March 1983, the NRC discussed these requirements and the staff's review of the SPDS.

The Tennessee Valley Authority (TVA), the applicant for the Watts Bar Nuclear Plant (WBNP), submitted References 1 and 2 in response to staff concerns and requests for additional information. This evaluation addresses the applicant's submittals.

II. EVALUATION

Reference No. 1 forwarded Westinghouse Report EQTP (84)-019, Rev. 2. This report describes isolation tests on Westinghouse type AR relays. The report did not describe the test where the maximum credible fault (MCF) voltage and current was applied directly across the contact output (non-IE) of the relay while the coil (IE) was being monitored for signs of degradation. This test must be performed to demonstrate the AR relays are qualified isolation devices.

Reference No. 2 forwarded TVA Report No. 85-102-5961 describing fault testing on a Robertshaw isolation amplifier, a General Electric transmitter, and an International Rectifier Crydom solid state relay.

The test report contained a Figure No. 1 showing the test circuit for the Robertshaw and General Electric analog devices. The figure shows that the MCF voltage and current (V/C) was applied to the output side of resistors R2 and R3. This is not an acceptable MCF test procedure. The MCF V/C must be applied directly to the output terminals of the analog devices with the output circuitry fuses shorted out.

However, if the output terminals of the isolator, downstream of resistors R2 and R3, can be adequately protected from the application of the MCF such that the application of the MCF is no longer a single failure then the test as peformed may be acceptable.

III. CONCLUSION

In order to adequately demonstrate the acceptability of the isolators to interface the SPDS with safety related systems, the applicant must show that:

1) The Westinghouse AR relays have been tested with the MCF V/C applied to the output of the relays in the transverse mode, and;

2) The MCF is applied directly to the output of the Robertshaw and GE isolators, or the output terminals of the isolators are suitably protected from the MCF.

IV. REFERENCES

1. TVA submittal dated October 16, 1985, from J. A. Domer (TVA) to E. Adensam (NRC).

2. TVA submittal dated September 5, 1985, from J. A. Domer (TVA) to E. Adensam (NRC).