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 STOLZ, J.F. Operating Reactors Branch 4

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SUBJECT: Forwards augmented response to Generic Ltr 83-28 Items 4.1 & 4.2 re reactor trip sys reliability vendor related mods & preventive maint. & surveillance program for reactor trip breakers, respectively, per 831104 & 1230 ltrs.

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August 10, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. John F. Stolz, Chief
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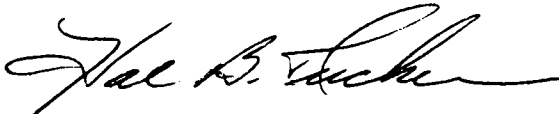
Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, 287

Dear Sir:

By letter dated July 8, 1983, the NRC issued Generic Letter 83-28 entitled "Required Actions Based on Generic Implications of Salem ATWS Events". Our response to this letter for Oconee Nuclear Station was submitted on November 4, 1983 and December 30, 1983.

Since our response to Generic Letter 83-28 on November 4, 1984 additional information has become available and new programs implemented which warrant an amendment to that original response. Therefore, Attachment 1 is an augmented response to Generic Letter Items 4.1 and 4.2.

Very truly yours,



Hal B. Tucker

MAH:slb

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
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Mr. Harold R. Denton, Director
August 10, 1984
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Duke Power Company
Oconee Nuclear Station
Attachment 1
Amended Response to Generic Letter 83-28
Items 4.1 adn 4.2

4.1 Reactor Trip System Reliability (Vendor Related Modifications)

To date, no vendor recommendations for modification of the General Electric type AK-2 Reactor Trip Breakers (RTB's) at Oconee have been issued. However, Duke is participating in the B&W Owners Group (BWOG) effort to arrive at a long term solution to the RTB problem. The goal of the BWOG RTB Long Term Improvement Program is to arrive at the best solution to the RTB problems, taking reliability and economic factors into consideration. Phase I of this program has been completed and indicates modification of the existing GE AK RTB's is superior to replacement alternatives. A final recommendation on the type of modification to be performed on the GE AK breakers is expected to be presented to the BWOG in September, 1984. Upon Duke's approval of the modification, implementation schedules for the Oconee units will be developed and presented to the NRC.

4.2 REACTOR TRIP SYSTEM RELIABILITY (PREVENTIVE MAINTENANCE AND SURVEILLANCE PROGRAM FOR REACTOR TRIP BREAKERS)

The two AC and four DC Reactor Trip Breakers on each Oconee unit are maintained in accordance with standard practices for items designated as nuclear safety-related. Since the spring of 1979 the maintenance program for these breakers has required that preventive maintenance be performed at six month intervals.

On-line performance of preventive maintenance requires the use of spare breakers as replacements. The spare breakers utilized for this temporary service have also had preventive maintenance performed at six month intervals.

The Oconee AK-2 breakers did experience a period of less-than-desirable trip reliability during late 1978 and early 1979, as documented in LERs describing on-line RPS surveillance failures. A timely on-site review of the failures was conducted utilizing a manufacturer's senior engineer. Station procedures were revised immediately and thereby complied in advance with General Electric (GE) Service Advice 175 (CPDD) 9.3 dated April 2, 1979. Thus, critical dimensional and trip torque valves have been periodically checked, with appropriate periodic lubrication performed. The adequacy of the 1979 maintenance revisions and pick-up voltage setpoint change on the undervoltage trip device has been demonstrated by the numerous successful surveillance trip tests since that time. The handling of that issue demonstrates Duke Power's commitment to identify and promptly resolve adverse equipment performance trends, utilizing the manufacturer when appropriate.

General Electric issued a supplement to the 1979 Service Advice on April 15, 1983 (Service Advice 175-9.3.S). The recommendations of this supplement have been incorporated into Oconee's RTB preventive maintenance procedure, with the following clarifications:

- 1) The six month maintenance interval has been decreased to a three month interval (see next paragraph for explanation). As noted in Duke's original response to item 4.2 of GL 83-28, dated November 4, 1983 the number of breaker operations will not be tracked since the RTB's are typically cycled annually less than one tenth the number of cycles that require preventive maintenance to be performed.
- 2) The supplement recommends removal of the undervoltage device to check a factory clearance between a rivet and armature, a check which cannot be performed with the undervoltage device in place. This removal/replacement activity could create an additional physical interference through improper reinstallation of the device, in our opinion. The Oconee procedure will continue to require a check to ensure no drag exists between the rivet and armature, a technique which has been very effective since early 1979.

Recently, Oconee experienced four delayed trips of the AK-2 breakers in November and December, 1983, and July, 1984. These failures of the breakers to trip in the required amount of time were again the result of hardened lubricant in the trip shaft and latch roller bearings. Although the breakers had received the normal preventive maintenance within the previous six months (3 months for the July, 1984 incident), which included revitalization of the bearing grease as specified by GE, the bearing grease had hardened to the point of preventing the trip shaft from rotating freely. As a result of the November and December, 1983 incidents, Duke committed to increasing the frequency of preventive maintenance to once per quarter until new bearings are installed or the shunt trip modification is implemented, at which time the frequency will revert to six months.

In a meeting in February, 1984, General Electric told the BWOOG that test results indicated the grease rejuvenating agent (WD-40 or similar) was accelerating the lubrication hardening process. General Electric did further testing which confirmed their suspicions and then issued GE Service Advice 175-9.20. This Service Advice recommended revitalization agents be used on existing bearings with Lubriko grease only when the required trip torque exceeded 20 in-ounces. It also recommended that AK circuit breakers installed as RTB's containing Lubriko packed bearings that are over eight years old be scheduled for upgrading with new bearings containing a new lubricant - Mobil 28. This upgrading is currently underway at Oconee, with a total of seven new front frames installed to date. The service advice stated that revitalization agents should not be used on bearings containing Mobil 28 grease. Oconee's preventive maintenance procedure for the RTB's will be changed by August 10, 1984, to incorporate this instruction.

RTB trip time operability and screening criteria have been incorporated into the Oconee RTB preventive maintenance procedure to determine operability and/or the need for maintenance of the RTB. Oconee's monthly procedure for on-line testing of the RTB's has also been revised to include recording of the breaker trip time and a determination of operability and/or the need for maintenance. The need for any additional RTB performance trending will be determined as part of the long term fix for the RTB's.

