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DENTON,H.R. Office of Nuclear Reactor Regulation, Director
STOLZ,J.F. Operating Reactors Branch 4

SUBJECT: Suppls 831104 response to Generic Ltr 83-28 "Required Actions Based on Generic Implications of Salem ATWS Events." Automatic shunt trip mods will be installed during next refueling outages.Design description encl.

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December 30, 1983

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
Operating Reactors Branch No. 4

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. Item 4.3 of Generic Letter 83-28 requested that a design description and schedule be provided for installation of an automatic shunt trip attachment. As previously committed, Duke provides herein the response for Oconee.

Attachment 1 provides a brief description of the proposed shunt trip design. Attachment 2 provides schematic sketches of the circuit design for each of the AC and DC reactor trip breakers. Attachment 3 provides responses to the NRC request for information contained in NRC letter dated September 12, 1983.

Duke Power intends to install this shunt trip modification following NRC approval of the design on a reasonable schedule consistent with availability of manpower and planned outages of the three Oconee units. To this end, Duke will install this modification during the next refueling outage of Unit 1, currently anticipated to be shutdown in the 3rd quarter of 1984; the next refueling outage of Unit 2, currently anticipated to be shutdown in the 1st quarter of 1985; and the 1985 refueling outage of Unit 3. In view of the extended schedule for installation, Duke is reviewing the capability to install the modification during outages prior to the above refueling outages. At the time of this submittal, earlier installation dates had not been identified as being feasible.

As the Staff is aware, a recent incident occurred at Oconee relative to reactor trip breakers. Details of this event, as well as planned corrective actions including installation of this shunt trip modification, are discussed in the Licensee Event Report RO-269/83-17, to be submitted by December 30, 1983.

Very truly yours,

Hal B. Tucker

Hal B. Tucker

RLG:dyh

Attachments

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PDR ADOCK 05000269
P PDR

cc: Mr. James P. O'Reilly, Regional Administrator
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Mr. J. C. Bryant
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Oconee Nuclear Station

Mr. John F. Suermann
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OCONEE NUCLEAR STATION

Automatic Actuation of Shunt Trip for Reactor Trip Breakers

Modifications to provide for the automatic actuation of the shunt trip attachments upon Reactor Protection System or Manual Trip actuation will be performed to each of the two AC Reactor Trip Breakers (RTBs) and the four DC RTBs using the currently existing shunt trip devices.

The design to be utilized for this function is based on the AP&L shunt trip design approach for ANO Unit 1 which has been endorsed by the B&W owners group. A safety evaluation report has been completed and was provided to Duke Power by John F. Stolz's September 12, 1983 letter to H. B. Tucker. This SER endorsed the generic aspect of the design and requested plant specific design information be provided as identified in Enclosure 1 of that report.

For the RTB's in each channel, a relay will be installed with its operating coil in parallel with the existing undervoltage device(s). The output contacts of these relays control the power to the shunt trip devices. Thus when power is removed from the breaker undervoltage trip attachment on either a manual or automatic trip command, the shunt trip attachment will be energized to provide an additional means to assure that the breaker is tripped. Schematic sketches of the circuits for each of the AC and DC RTB's are attached.

Test switches will be installed to permit independent testing of the shunt and undervoltage trip devices. Loss of shunt trip control power alarms are also provided.

ENCLOSURE 1

INFORMATION REQUIRED ON A PLANT SPECIFIC BASIS
FOR REVIEW AND STAFF APPROVAL OF MODIFICATIONS
TO PROVIDE AUTOMATIC ACTUATION OF REACTOR TRIP BREAKER
SHUNT TRIP ATTACHMENTS

1. A statement confirming that the UV sensor (high speed undervoltage relay) Model ITE-27H-211R, is environmentally and seismically qualified for its service conditions.

   RESPONSE

   The Oconee plant specific design utilizes four channels of DC shunt trip power which were chosen to match the four channels of the undervoltage trip attachment circuits. This approach eliminates the need to interface between different protection channels. Thus for the Duke application, an electromechanical control relay was chosen to interface between the undervoltage device circuits and the shunt trip circuits. This relay, utilized in many safety related applications throughout the plant, will be located in a mild environment and seismically qualified for the installed location.

2. A statement confirming that all other additional components involved in the shunt trip circuits are environmentally and seismically qualified for their service conditions.

   RESPONSE

   All additional components added by this modification will be located in a mild environment and seismically qualified for the installed locations.

3. A statement confirming that the shunt trip attachment is or will be environmentally and seismically qualified for its service conditions.

   RESPONSE

   The shunt trip attachments for the Oconee breakers are located in a mild environment and are suitably qualified. The shunt trip attachments have not yet been confirmed to be seismically qualified. Duke will continue to pursue this matter.

4. Identify the classification (safety related or not) and separation (train or channel identification) for the reactor trip shunt and UV trip circuits, power supplies, and any interface isolation devices.

RESPONSE

The subject modification will be installed as safety related. As discussed in 1 above, undervoltage device circuit to shunt trip circuit separation is not required due to proper matching of channels. Non-safety source interruption device circuits have been isolated from the safety related shunt trip circuits by use of isolation relays. Separation of safety channels will be maintained in accordance with the criteria in Section 8 of the Oconee FSAR.

5. If the wiring to the UV sensor involves different separation groups (train or channel) identify the minimum separation (distance) between wiring of the different groups. Provide an analysis of the consequences of short circuits between wiring in different separation groups to confirm that the consequences do not adversely impact redundant safety related systems.

RESPONSE

The UV and shunt trip circuits will be the same safety channel therefore separation is not required.

6. Provide an outline of the test procedures to independently verify the operability of the shunt and UV trip circuits and components. Identify the sequence of actions to be performed. Address your intent regarding periodic surveillance to confirm the operability of the power failure alarms.

RESPONSE

The shunt and undervoltage trip test will be performed on a monthly basis. The following is the proposed test sequence.

1. Close Trip Breaker.
2. Actuate and Hold the UV test switch.
3. Trip two RPS channels or actuate the manual Reactor Trip switch.
4. Verify the Trip Breaker opens.
5. Return UV Test Switch to Normal.
6. Clear RPS Trip Signals/Release Manual Reactor Trip Switch.
7. Reclose Trip Breaker.
8. Actuate the Shunt Trip Test Switch.
9. Verify the Trip Breaker Opens.
10. Return the Shunt Trip Test Switch to Normal.

Periodic surveillance of the power failure alarms will be conducted on a six month interval along with the normal preventive maintenance checks.

7. Provide a draft of any proposed technical specification changes as a result of this modification.

RESPONSE

Existing Oconee Technical Specifications governing operability and surveillance of the Reactor Protective System and Control Rod Drive Trip Breakers

envelop operability and surveillance requirements for the shunt trip. As such, no changes to the existing Technical Specifications are deemed necessary. Appropriate plant procedures will be changed to reflect installation of the shunt trip modification.

8. Provide the electric schematics for the shunt and UV trip circuits.

RESPONSE

Electrical schematics for the Shunt and UV Trip circuits are attached for both the AC and DC breakers.