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SUBJECT: Forwards response to request for addl info re proposed amend to plant Tech Specs to address newly installed main steam line break protection circuitry.

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W. R. McCollum, Jr.
Vice President

March 3, 1998

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Proposed Revision to Technical Specifications
Technical Specification Change # 95-03
Response to Request for Additional Information

In a letter dated July 15, 1997, Duke submitted a proposed amendment to the ONS Technical Specifications to address the newly installed main steam line break protection circuitry. In a letter dated February 9, 1998, the NRC staff requested additional information regarding the single failure design of the main steam line break protection circuitry. Please find the response to this request for additional information attached.

If there are any additional questions, please call David Nix at (864) 885-3634, or Ed Burchfield at (864) 885-3191.

Very truly yours,

W. R. McCollum, Jr.
Vice President
Oconee Nuclear Site

DAN

Attachment

A001

cc: Mr. L. A. Reyes
Regional Administrator, Region II

Mr. M. A. Scott
Senior Resident Inspector

Mr. D. E. LaBarge
ONRR, Project Manager

Mr. M. Batavia
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ATTACHMENT
REQUEST FOR ADDITIONAL INFORMATION

QUESTION:

In your July 15, 1997 proposed technical specification (TS) change to add TSs for the main steam line break (MSLB) and main feedwater (MFW) isolation circuitry, you propose to only include TSs for the MFW and MFW startup control valves and the MFW pump trip functions associated with MFW isolation. You further stated that no credit is taken for the MFW isolation function of the MFW block and startup feedwater block valves.

It is not clear to the staff that taking credit only for the control valves (main and startup) and the MFW pump trip meets the single failure criterion. If the either the MFW control valve or the MFW startup control valve failed to close following a MSLB, tripping the MFW pump appears to allow the condensate and condensate booster pumps to continue to feed the depressurized (affected) steam generator through the idle MFW pumps. Bulletin 80-04 specifically identified that condensate flow should be considered as a potential energy source for continued feedwater addition following a MSLB.

Please identify how your system design addresses this concern without taking credit for the associated block valves. At a number of plants, an MFW pump trip results in closure signals to the MFW pump isolation valves that would prevent continued condensate flow to the affected steam generator. If a similar feature exists in your MFW pump design, please describe that associated feature.

If your MFW pump trip design does not include any associated pump isolation valve closure features, provide additional justification as to why the isolation function for the MFW block and startup block valves should not be included in the TSs in lieu of the MFW pump trip.

RESPONSE:

The MSLB modification installs new QA-1, single-failure proof, seismically designed circuitry and instrumentation to perform the feedwater isolation function. However, the existing equipment which is actuated by this new circuitry is not fully QA-1 or single-failure proof. For example, the main FDW control valve operators and associated power supplies, as well as the startup FDW control valve operators and associated power supplies, are non QA-1, have no backup air supply path, and are subject to a single failure. In addition, FDW pump trip circuitry and the FDW pumps are not QA-1 or single-failure proof. This information is summarized in a letter to the NRC dated June 14, 1995, and has been discussed with your staff via phone conversations and onsite inspections. The FDW pump trip design does not include any associated pump isolation valve closure features.

The FDW block valves were not credited for MSLB mitigation because; 1) the stroke times are insufficient to assure containment protection, 2) the valves are not designed to stroke at the high differential pressures associated with the most severe MSLBs, and 3) the valve motor operators do not have safety-related power supplies. The cost of modifying these valves to resolve the above issues would not be commensurate with the increase in level of safety. Although the complete MSLB detection and feedwater isolation function described above is not fully single failure proof or safety-related (QA-1) due to use of existing equipment, it is Duke's position that this approach is acceptable to satisfy the intent of IEB 80-04 because:

1) From a core protection perspective, the consequences of a FDW control valve failure during a MSLB inside containment are bounded by the existing ONS UFSAR Chapter 15 analysis. This analysis already assumes a failure of the ICS/operator to function and assumes full FDW flow to the affected steam generator during the accident. This analysis concludes that no core damage will occur.

2) The existing components used by this modification, while not safety-related or single-failure proof, must demonstrate a high reliability for the plant to

operate under normal conditions. The main FDW control valves are under constant use above 20% full power. The main and startup FDW control valves are in a preventive maintenance program. In addition, the main and startup FDW control valves and the FDW pump trip circuitry will be functionally tested each refueling outage under Item # 12 of Technical Specification Table 4.1-2. Therefore, there is a high level of confidence that these components will perform their intended functions.

3) A MSLB inside containment, concurrent with the assumption that a FDW control valve sticks open, is evaluated to have a probability of occurrence of less than 1.0E-6 per reactor year. Therefore, the probability of this event is extremely low.

4) In the highly unlikely event that a FDW control valve failure and a MSLB inside containment did occur concurrently, there is a high probability that the containment would not fail even if the building design pressure was exceeded. The likely failure pressure of containment is significantly above the reactor building design pressure.

5) Should the containment fail, public health and safety would not be adversely affected because the remaining fission product barriers are still intact. Dose consequences to the public would be less than a small fraction of the 10CFR100 limits.