



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 48 AND 49 TO FACILITY OPERATING LICENSE NPF-68

AND AMENDMENT NOS. 27 AND 28 TO FACILITY OPERATING LICENSE NPF-R1

GEORGIA POWER COMPANY, ET AL.

DOCKET NOS. 50-424 AND 50-425

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

1.0 INTRODUCTION

By letter dated August 14, 1990, Georgia Power Company, et al. (GPC or the licensee), proposed licensing amendments to change the Technical Specifications (TS) for Vogtle Electric Generating Plant (Vogtle or the facility), Units 1 and 2. The proposed changes would delete the Negative Flux Rate Trip (NFRT) function from the Reactor Trip System instrumentation requirements specified in TS Tables 2.2.1, 2.2.1a, 3.3.1, and 4.3.1, and TS Bases 2.2.1.

2.0 EVALUATION

The current design of the Reactor Protection System for Vogtle Units 1 and 2 includes an NFRT function. The purpose of the NFRT function, when first incorporated into the trip system design, was to prevent unconservative local departure from nucleate boiling (DNB) due to local flux peaking in the event of a single or multiple Rod Cluster Control Assembly (RCCA) drop. The licensee now proposes to delete the NFRT function on the basis of analyses performed with the Westinghouse Owners Group Topical Report, "Methodology for the Analysis of the Dropped Rod Event," WCAP-11394-P-A (proprietary) and WCAP-11395-P-A (non-proprietary). These reports provided generic justification for NFRT removal by demonstrating that the DNB design basis is met during the dropped RCCA transient without taking credit for a power reduction due to dropped rods or actuation of any automatic trip features. These WCAP documents have been previously reviewed and found to be acceptable by the NRC for plant-specific applications. The licensee indicated that the deletion of the NFRT function would provide a benefit to plant safety by eliminating unnecessary automatic reactor trips and resulting challenges to safety systems.

To justify deletion of the NFRT function for Vogtle Units 1 and 2, the licensee applied the WCAP-11394-P-A methodology and performed plant-specific evaluations to demonstrate that the DNB design basis is met during the dropped RCCA transient. The licensee evaluated Vogtle FSAR (Final Safety Analysis Report) Loss-of-Coolant Accidents (LOCA) and non-LOCA transients/accidents, including steam generator tube rupture, and LOCA-related conditions; fluid systems; containment integrity; and systems interaction. The licensee's analyses did not assume any actuation of power reduction features due to dropped RCCAs. The licensee determined that only one non-LOCA transient would be affected by the NFRT function and therefore, would require evaluation. This was the "RCCA Misalignment (System Malfunction or Operator Error)," which involved two scenarios: (1) one or more dropped RCCAs within the same group, and (2) a dropped RCCA bank. All other LOCA and non-LOCA events are not associated with the NFRT protective function, and therefore, would not be affected by deletion of the NFRT function.

The licensee applied the WCAP-11394-P-A methodology to analyze the "RCCA Misalignment" transient for the case of one or more dropped RCCAs within the same group. The analyses demonstrated that the DNB design limits are met without the NFRT function. The licensee's analyses also showed that the power overshoot which may occur in the automatic rod control mode of operation and the asymmetric power change assumptions made for the one or more dropped RCCAs within the same group would bound the case of a dropped RCCA bank.

The NRC staff has reviewed the proposed changes and concludes that the licensee's analyses are based on input and assumptions appropriate for Vogtle, and upon approved methodologies. The results demonstrate that DNB design basis continues to be met in the absence of the NFRT function. Further, the licensee has committed to perform similar analyses in advance of each fuel reload to verify that DNB design limits are not exceeded during the respective cycles of operation. Therefore, the proposed TS changes, which reflect the NFRT function removal, are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (56 FR 20035). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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