



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NPF-68
AND AMENDMENT NO. 29 TO FACILITY OPERATING LICENSE NPF-81
GEORGIA POWER COMPANY, ET. AL
VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2
DOCKET NOS. 50-424 AND 50-425

1.0 INTRODUCTION

By letter dated November 20, 1991, as supplemented February 7, 1992, Georgia Power Company (the licensee) proposed licensing amendments to change the Technical Specifications (TS) for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2. The proposed changes would delete the autoclosure interlock (ACI) for the isolation valve in the suction piping of the residual heat removal (RHR) system, revise the setpoint of the associated open permissive interlock (OPI) from 377 psig to 365 psig, and increase the surveillance interval from 12 to 72 hours for verifying operability of the RHR suction relief valves which provide cold overpressurization protection. The February 7, 1992, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

The design of Vogtle's RHR suction line includes two motor-operated gate valves that are normally closed unless the RHR system is in operation. These valves isolate the low pressure RHR system (design pressure of 600 psig) from the high pressure (normally 2235 psig) of the reactor coolant system (RCS). Currently, each isolation valve is provided with two automatic interlocks, namely OPI and ACI. The OPI prevents inadvertent opening of the valves when the RCS pressure is above the design pressure of the RHR system. The ACI ensures that the isolation valves are fully closed when the RCS pressure is above the RHR system design pressure.

In October 1988, by Generic Letter (GL) 88-17, "Loss of Decay Heat Removal," the NRC addressed the increasing generic concern regarding loss of RHR during nonpower operation, requested certain actions, and provided several recommendations to reduce such potential losses. One of the recommendations was that licensees should identify TS that restrict or limit the safety benefit of the action identified in GL 88-17 and submit appropriate changes. Among the TS identified in GL 88-17 were TS that control the autoclosure interlock. The licensee's proposal to delete the ACI is in response to the generic concern as addressed in GL 88-17.

2.0 EVALUATION

The licensee proposes to change TS 4.5.2.d to reflect deletion of the ACI for the isolation valves in the suction piping of the RHR system and to revise the setpoint of the associated OPI from 377 psig to 365 psig. Additionally, the surveillance interval in TS 4.4.9.3.2 would be revised from 12 to 72 hours for verifying operability of the RHR system suction relief valves which provide cold overpressurization protection.

The NRC staff has previously reviewed a Westinghouse Owners Group study, WCAP-11736, "Residual Heat Removal System Autoclosure Interlock Removal Report for the Westinghouse Owners Group," dated February 1988. The NRC staff approved WCAP-11736 for generic use by its Safety Evaluation Report (SER) of August 8, 1989. In its SER, the NRC staff concluded that the removal of the ACI for Westinghouse plants can produce a net safety benefit provided five specific improvements accompany such removal:

- (1) Add an alarm to each RHR suction valve which will actuate if the valve is open and the pressure is greater than the OPI setpoint and less than the RHR system design pressure minus the RHR pump head pressure,
- (2) Provide valve position indication to the alarm from the stem mounted limit switches in a manner such that power would not be affected by power lockout of the valve,
- (3) Implement plant-specific procedures in accordance with the improvements described in WCAP-11736,
- (4) Where feasible, remove power from the RHR suction valves prior to their being leak-checked, and
- (5) Size the valve operators such that the valves cannot be opened against the full system pressure.

In support of its request, the licensee has submitted Vogtle-specific safety analyses, WCAP-12927, "Residual Heat Removal System Autoclosure Interlock Removal Report for Vogtle Electric Generating Plant Units 1 and 2." These analyses are based on WCAP-11736, and use Callaway Unit 1 as the reference plant.

The NRC staff has reviewed the licensee's submittals and our previous evaluation of WCAP-11736. We find that the licensee has adequately identified and accounted for differences in RHR system configuration, design and operating characteristics that exist between Vogtle Units 1 and 2 and the reference plant. Those differences that impact the reference probabilistic risk analyses were remodelled to ensure that the Vogtle analyses do not show results that would invalidate the conclusions of WCAP-11736.

In its evaluations, the licensee has adequately addressed each of the accompanying improvements stated in the NRC's SER and has identified proposed

actions that provide at least an equivalent level of safety. Specifically, the licensee states that:

- (1) An alarm, both audible and visual, to alert the operators that an RHR suction isolation valve is open coincident with high RCS pressure, is being added as part of the modification to remove the RHR ACI. The setpoint is consistent with WCAP-11736 guidance. Also, in accordance with WCAP-11736, the OPI for each of the RHR system suction valves will remain intact and unchanged.
- (2) The contacts on the existing limit switches utilized for position indication to the new alarms are different from the limit switch contacts which presently provide valve position to the main control board. Thus, diversity in valve position indication is achieved. In addition, the alarm circuit is powered by a supply which is separate from the power supply for the valve control and position indication circuits.
- (3) The licensee has reviewed the Vogtle operating procedures to determine the effect of ACI removal and has committed to make appropriate revisions. Under these procedures, if an alarm is received, the operators will be directed to terminate the overpressure condition or close the open RHR suction valves. If the open valves cannot be closed, RCS pressurization will be stopped and the plant returned to the shutdown cooling mode. To further ensure alarm operability, instrument loop calibration procedures will be revised.
- (4) There is no plan to remove power from the RHR system suction/isolation valves prior to leak testing. All RHR isolation valve leak testing is conducted in Modes 3 or 4 with the RCS pressure less than 500 psig. Assurance of proper valve position indication prior to startup is accomplished by the use of valve position indication and administrative controls.
- (5) While the suction valve operators were not sized so that the valves cannot be opened against the full system pressure, it is unlikely that they could be opened because the valve motor size is inadequate to open the valve against the high differential pressure. The licensee's analyses did not take credit for this inability to open the valve against full pressure. Additionally, the licensee states that power is normally removed from these valves in Modes 1, 2, and 3, and the OPI will continue to function to prevent opening of these valves when RCS pressure is greater than 365 psig.

The proposed change to TS 4.4.9.3.2 modifies the surveillance requirement to verify that the RHR suction relief valves are in the correct (open) position from once every 12 hours to once every 72 hours. This change is consistent with the surveillance interval specified for the reference plant in the previously approved WCAP-11736 and is, therefore, acceptable.

The proposed change to TS 4.5.2d (to delete the requirement for verifying ACI operability) is consistent with the licensee's plan to remove the ACI feature from the RHR system suction valves. This change is, therefore, acceptable.

On the basis of these conclusions, we find the proposed TS changes, and the proposed plan for RHR system ACI removal, to be 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 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 (57 FR 2595). 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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AMENDMENT NO. 50 TO VOGTLE ELECTRIC GENERATING PLANT, UNIT 1
AMENDMENT NO. 29 TO VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

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