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Vogtle Project



November 20, 1991

ELV-03150  
1143

Docket Nos. 50-424  
50-425

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT  
REQUEST TO REVISE TECHNICAL SPECIFICATIONS  
4.5.2.d AND 4.4.9.3.2 TO ALLOW REMOVAL  
OF RESIDUAL HEAT REMOVAL SYSTEM SUCTION VALVE AUTOCLOSURE INTERLOCK

In accordance with the provisions of 10 CFR 50.90 and 10 CFR 50.59, Georgia Power Company (GPC) hereby proposes to amend the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications, Appendix A to Operating Licenses NPF-68 and NPF-81. The proposed amendment would allow deletion of the residual heat removal system (RHRS) suction valve autoclosure interlock and revise the opening pressure interlock setpoint. The proposed change and its basis are summarized in Enclosure 1 and described in detail in WCAP-12927, also enclosed. Ten copies of WCAP-12927, "Residual Heat Removal System Autoclosure Interlock Removal Report for Vogtle Electric Generating Plant Units 1 and 2," are enclosed for your use in reviewing the proposed amendment. Our evaluation pursuant to 10 CFR 50.92 showing that the proposed change does not involve significant hazards considerations is provided as Enclosure 2. Instructions for incorporation of the proposed change into the Technical Specifications and revised pages are provided as Enclosure 3.

Georgia Power Company requests approval of the proposed amendment by February 1, 1992, so that the removal of the autoclosure interlock can be incorporated in the outage schedule for the March 1992 Unit 2 refueling outage. In accordance with 10 CFR 50.91, the designated state official will be sent a copy of this letter and all enclosures.

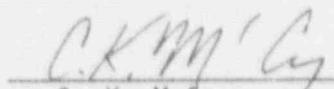
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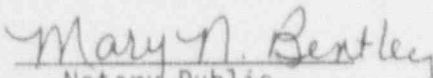
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Mr. C. K. McCoy states that he is a Vice President of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company and that, to the best of his knowledge and belief, the facts set forth in this letter and enclosures are true.

GEORGIA POWER COMPANY

By:   
C. K. McCoy

Sworn to and subscribed before me this 20<sup>th</sup> day of November, 1991.

  
Notary Public

MY COMMISSION EXPIRES MAY 8, 1993

CKM/NJS/gmb

Enclosures:

1. Basis for Proposed Change, WCAP-12927 (10 copies)
2. 10 CFR 50.92 Evaluation
3. Instructions for Incorporation

xc: Georgia Power Company  
Mr. W. B. Shipman  
Mr. M. Sheibani  
NORMS

U. S. Nuclear Regulatory Commission  
Mr. S. D. Ebnetter, Regional Administrator  
Mr. D. S. Hood, Licensing Project Manager, NRR  
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

State of Georgia  
Mr. J. D. Tanner, Commissioner, Department of Natural Resources

## ENCLOSURE 1

### VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS 4.5.2.d AND 4.4.9.3.2 TO ALLOW REMOVAL OF RHRS SUCTION VALVE AUTOCLOSURE INTERLOCK

#### BASIS FOR PROPOSED CHANGE

##### Proposed Change

The Vogtle Unit 1 and Unit 2 Technical Specifications (TS 4.5.2.d and 4.4.9.3.2) are proposed to be revised as follows:

1. Surveillance requirement 4.5.2.d would be revised to delete all reference to the autoclosure interlock (ACI), and the opening pressure interlock (OPI) would be revised to 365 psig from 377 psig.
2. Surveillance requirement 4.4.9.3.2 would be revised to reflect a surveillance interval of once per 72 hours as opposed to once per 12 hours for verifying that the RHRS suction isolation valves are open when the RHRS suction relief valves are being used for cold overpressure protection.

##### Basis

A review and analysis has been performed for VEGP Units 1 and 2 which justifies the removal of the autoclosure interlock associated with the RHRS suction isolation valves. This review and analysis is documented in the enclosed WCAP-12927, "Residual Heat Removal System Autoclosure Interlock Removal Report for Vogtle Electric Generating Plant Units 1 and 2." The methodology utilized in the analysis was based on the Westinghouse Owners Group (WOG) funded generic WCAP-11736, "Residual Heat Removal System Autoclosure Interlock Removal Report for the Westinghouse Owners Group," which was reviewed and approved by the NRC as documented by letter dated August 8, 1989, from Mr. Ashok Thadani (NRC) to Mr. Roger Newton (WOG). The WOG plants participating in this program were categorized into four groups based on RHRS configuration and design characteristics that were similar to one of the four reference plants: Salem Unit 1 (Group 1), Callaway Unit 1 (Group 2), North Anna Unit 1 (Group 3), and Shearon Harris Unit 1 (Group 4). Plant Vogtle was placed in Group 2 with Callaway as its reference plant. The enclosed WCAP contains a discussion of the differences between VEGP and the reference plant.

In the Safety Evaluation Report accompanying the approval of WCAP-11736, the NRC staff noted five specific concerns. These items are addressed in the following paragraphs.

NRC Position: An alarm will be added to each RHR suction valve which will actuate if the valve is open and the pressure is greater than the open permissive setpoint and less than the RHRS design pressure minus the RHRS pump head pressure.

ENCLOSURE 1 (CONTINUED)

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BASIS FOR PROPOSED CHANGE

VEGP Response: A control room alarm will be added which will alert operators if an RHRS suction isolation valve is open and the RCS pressure exceeds the alarm setpoint. This setpoint will be greater than the open permissive setpoint and less than the RHRS design pressure minus the RHRS pump head pressure.

NRC Position: Valve position indication to the alarm must be provided from the stem-mounted limit switches (SMLSs) and power to the SMLSs must not be affected by power lockout of the valve.

VEGP Position: The four RHRS suction isolation valves for each unit utilize existing limit switches located in the valve operator for valve position indication to the new alarm. These limit switches are actuated by a gear arrangement off the motor actuator rotor shaft. 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. As a result, diversity in valve position indication is achieved. In addition, the alarm circuit is powered by a supply which is separate from the supply that powers the valve control and position indication circuits. Thus, the alarm will remain operational during power lockout of the valve.

It should also be noted that the use of limit switches located in the valve actuator has no impact on the probabilistic risk analyses (PRA) results presented in WCAP-11736 and WCAP-12927 as the failure probability utilized is not specific to a particular type of limit switch design.

NRC Position: The procedural improvements described in WCAP 11736 should be implemented. Procedures themselves are plant specific.

VEGP Position: Plant procedures will be reviewed and revised as appropriate to reflect the deletion of the RHRS ACI. Procedures will also be revised to address appropriate operator response to the control room alarm which is being added as part of this modification.

NRC Position: Where feasible, power should be removed from the RHRS suction valves prior to their being leak checked.

VEGP Position: Technical Specification 3/4.4.6.2 contains the requirements for leakage testing for the RHRS suction isolation valves. This specification allows leakage testing of the valves when RCS pressure is above 350 psig. The measured leakage is then adjusted to account for the difference between the test pressure and reactor coolant system (RCS) normal operating pressure. At VEGP, the current practice

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is to perform leak testing in Mode 4 or 3 with RCS pressure less than 500 psig. This is typically done during startup following a refueling outage. However, further restrictions on this testing (i.e., requiring power to be removed prior to leak testing) are not desirable. Assurance of proper valve position prior to startup is accomplished by use of valve position indication and administrative controls.

NRC Position: The RHRS suction valve operators should be sized so that the valves cannot be opened against full system pressure.

VEGP Position: While the suction valve operators were not deliberately sized so that the valves cannot be opened against full system pressure, it is highly unlikely that they could be opened against such a high differential pressure because the valve motor size is inadequate to open the valve against the high differential pressure. No credit was taken for this inability to open the valve against full system pressure in either the generic analysis of WCAP-11736 or the VEGP specific analysis of WCAP-12927. Furthermore, 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.

Also, the OPI setpoint should be modified from 377 psig to 365 psig to address available margins in instrumentation and piping elevation considerations. The modified setpoint further minimizes the potential of opening the RHRS suction isolation valves while RCS pressure is above the design pressure of the RHRS.

Finally, with the removal of the ACI, the surveillance interval of surveillance 4.4.9.3.2 should be revised from 12 hours to 72 hours. Since the potential for spurious closure of the suction isolation valves has been significantly reduced by removal of the ACI, this surveillance will be the equivalent of 4.4.9.3.1 which requires verification that the power-operated relief valve (PORV) isolation valves are open at least once per 72 hours when the PORVs are being used for cold overpressure protection.

## ENCLOSURE 2

### VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS 4.5.2.d AND 4.4.9.3.2 TO ALLOW REMOVAL OF RHRS SUCTION VALVE AUTOCLOSURE INTERLOCK

#### 10 CFR 50.92 EVALUATION

Pursuant to 10 CFR 50.92, GPC has evaluated the proposed amendment and has determined that operation of the facility in accordance with the proposed amendment would not involve a significant hazards consideration. The basis for this determination is as follows:

1. The proposed amendment does not involve a significant increase in the probability or consequences of any accident previously evaluated. The two motor-operated gate valves located in each RHRS suction line are normally closed to keep the low pressure RHRS (design pressure of 600 psig) isolated from the high pressure RCS (normal operating pressure of 2235 psig). An ACI was provided to isolate the low pressure RHRS from the RCS when the pressure increases above the ACI setpoint. However, spurious ACI actuation has resulted in RHRS isolation and subsequent loss of decay heat removal capability. The removal of the ACI feature will preclude this inadvertent isolation. The addition of a control room alarm to alert the operator that a suction isolation valve(s) is not fully closed when the RCS pressure is above the alarm setpoint in conjunction with administrative procedures will ensure that the RHRS will be isolated from the RCS, if the RCS pressure increases above the alarm setpoint. The modified OPI setpoint further minimizes the potential of opening the RHRS suction isolation valves while the RCS pressure is above the design pressure of the RHRS. Therefore, the performance of the RHRS would not be adversely affected by the RHRS ACI deletion and OPI setpoint modification.

Note, the interlock provided an automatic closure to the RHRS suction valves on high RCS pressure; however, rapid overpressure protection of the RHRS is provided by the RHRS relief valves and not by the slow acting suction isolation valves. This overpressure protection will remain available following the removal of the ACI feature. Thus, the RHRS integrity will not be affected by the removal of the ACI feature. In addition, the removal of the ACI feature does not adversely affect any fission barrier, alter any assumptions made in the radiological consequences evaluations, or affect the mitigation of radiological consequences.

The probabilistic and overpressurization analyses addressed the effect of removing the RHRS ACI on the potential for an interfacing system LOCA, RHRS availability, and low temperature overpressurization. The results indicate that the frequency of an interfacing system LOCA is reduced by 35 percent, and the short-term and long-term cooling phase failure probabilities are reduced by 25.5 and 39.8 percent, respectively. The failure probability for RHRS initiation and the consequences of low temperature overpressure events are not significantly affected by removal of the RHRS ACI. With the

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10 CFR 50.92 EVALUATION

deletion of the ACI, the potential for spurious automatic closure of a RHRS suction isolation valve resulting in inadvertent RHRS isolation has been significantly reduced.

Finally, with the deletion of the ACI, there is no need for a 12-hour surveillance interval for verifying that the RHRS suction isolation valves are open when the RHRS relief valves are being used for cold overpressure protection. Therefore, increasing the interval of surveillance requirement 4.4.9.3.2 from 12 hours to 72 hours (equivalent to that required for the PORV block valves) will have no effect on the probability or consequences of any accident previously evaluated.

Thus, operation of VEGP in accordance with the proposed amendments does not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated. The removal of the RHRS ACI and the OPI setpoint change will not result in the initiation of any accident nor create any new credible limiting single failure. The removal of the RHRS ACI significantly reduces the potential for spurious actuation causing isolation of the RHRS. The RHRS relief valves will remain available to protect the RHRS from overpressure transients. Since an alarm is being added to the logic of each valve, the operators are alerted if the RCS pressure exceeds a conservative preset value and a suction isolation valve is not fully closed. The modified OPI setpoint further minimizes the potential of opening the RHRS suction isolation valves while the RCS pressure is above the design pressure of the RHRS. The modified OPI setpoint will continue to prevent the RHRS suction isolation valves from being opened while the RCS pressure is above the RHRS design pressure. The removal of the ACI, the change in the interval of surveillance requirement 4.4.9.3.2, and the OPI setpoint modification do not result in any event previously deemed incredible being made credible.

Thus, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed amendment does not involve a significant reduction in a margin of safety. The analyses presented in WCAP-12927 indicate a significant reduction in the frequency of an interfacing system LOCA and in the failure probabilities for the RHRS in the short-term and long-term cooling phases associated with the removal of the ACI. The modified OPI setpoint of 365 psig further minimizes the potential of opening the RHRS suction isolation valves while the RCS pressure is above the design pressure of the RHRS. The

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removal of the ACI will have a positive impact on the availability of the RHRS relief valves for mitigating cold overpressure events. Consequently, the change in the interval of surveillance requirement 4.4.9.3.2 does not involve a significant reduction in a margin of safety.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Conclusion

Based on the preceding analysis, GPC has determined that the proposed change to the Technical Specifications will not significantly increase the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in a margin of safety. Georgia Power Company therefore concludes that the proposed change meets the requirements of 10 CFR 50.92 (c) and does not involve a significant hazards consideration.



ENCLOSURE 3

VOGTLE ELECTRIC GENERATING PLANT  
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INSTRUCTIONS FOR INCORPORATION

The proposed change to the Vogtle Unit 1 and Unit 2 Technical Specifications would be incorporated as follows:

Remove Page

3/4 4-35a\*  
3/4 4-36  
3/4 5-3\*  
3/4 5-4

Insert Page

3/4 4-35a\*  
3/4 4-36  
3/4 5-3\*  
3/4 5-4

\* Overleaf page. No change.