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Georgia Power

the southern electric system

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Vice President, Nuclear
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LCV-0335

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

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Georgia Power Company (GPC) 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 changes revise VEGP Technical Specification 3/4.7.1.1 and its Bases regarding the setpoint tolerance for the Main Steam Safety Valves (MSSVs).

The VEGP Technical Specifications currently specify a setpoint tolerance of $\pm 1\%$ for the MSSVs. Based on plant specific analyses performed by Westinghouse, GPC has determined that the setpoint tolerance can be increased to $+2\%$, -3% to accommodate MSSV setpoint drift. Normal surveillance testing of the MSSVs and any additional testing of the MSSVs if a setpoint tolerance is exceeded will be performed in accordance with the requirements of Section XI of the ASME Code. Following testing, the as-left lift setting of the MSSVs will be within $\pm 1\%$ of the specified set pressure.

In this regard, the Nuclear Regulatory Commission (NRC) had initially prepared staff positions pertaining to code safety valve drift during operation and the resetting of valve setpoints following calibration, which were provided to the Owners Groups by NRC letter dated December 29, 1992, to resolve Action Item #98 with respect to review of the Improved Standard Technical Specifications. Relative to VEGP, the final approved requirements were included in NUGEG-1431, "Standard Technical Specifications, Westinghouse Plants." Accordingly, the proposed changes to the VEGP Technical Specifications are consistent with the requirements found in NUREG-1431.

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The basis for the proposed changes to the VEGP Technical Specifications is provided in Enclosure 1. The supporting significant hazards evaluation pursuant to 10 CFR 50.91 is provided in Enclosure 2. Based upon the analysis provided, GPC has determined that the proposed changes to the VEGP Technical Specifications do not involve a significant hazards consideration as defined by 10 CFR 50.92. The hand-marked pages of the VEGP Technical Specifications are provided in Enclosure 3.

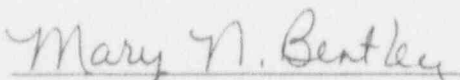
In accordance with 10 CFR 50.91, the designated state official will be sent a copy of this letter and all enclosures.

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 COMPANYBy: 

C. K. McCoy

Sworn to and subscribed before me this 16th day of August, 1994.


Notary Public

CKM/TMM

LCV-0335

Enclosures:

1. Basis for Proposed Change
2. 10 CFR 50.92 Evaluation
3. Proposed Technical Specification Changes

c(w): Georgia Power Company

Mr. J. B. Beasley, Jr.

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 MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

Proposed Change

The proposed changes to the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications revise the requirements of Technical Specification 3/4.7.1.1 and its associated Bases, by changing the Main Steam Safety Valve (MSSV) setpoint tolerance from $\pm 1\%$ to $+2\%$, -3% to accommodate setpoint drift. The proposed changes also require that normal surveillance testing of the MSSVs and any additional testing of the MSSVs if a setpoint tolerance is exceeded, be performed in accordance with the provisions of Section XI of the ASME Code. Additionally, following testing, the as-left lift setting of the MSSVs will be within $\pm 1\%$ of the specified set pressure.

Basis for Proposed Change

1.0 Introduction

Currently, the VEGP Unit 1 and Unit 2 Technical Specifications require that the MSSVs be verified to be operable with lift settings within a $\pm 1\%$ tolerance of the corresponding nominal lift set pressure. Based on operating experience with these valves, it has been difficult to ensure that this tolerance is met due to setpoint drift. The results of the evaluations presented below demonstrate that the MSSV setpoint tolerance can be increased to $+2\%$, -3% to accommodate setpoint drift without jeopardizing public health and safety.

2.0 Evaluations

2.1 Non-Loss of Coolant Accident (LOCA) Evaluation

The impact of increasing the MSSV setpoint tolerance was evaluated for non-LOCA type events. The following events either do not model the MSSVs, or the transient is such that the MSSVs are not challenged. Therefore, these events as evaluated in the Final Safety Analysis Report (FSAR) would be unaffected by the proposed change in setpoint tolerance.

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

<u>Event</u>	<u>VEGP FSAR Section</u>
• Steamline Break Mass and Energy Release - Outside Containment	3.11.B
• Steamline Break Mass and Energy Release - Inside Containment	6.2.1.4
• Increase in Heat Removal by the Secondary System	15.1
• Partial Loss of Forced Reactor Coolant Flow	15.3.1
• Complete Loss of Forced Reactor Coolant Flow	15.3.2
• Reactor Coolant Pump Shaft Seizure (Locked Rotor)	15.3.3
• Reactor Coolant Pump Shaft Break	15.3.4
• Uncontrolled Rod Cluster Control Assembly Bank Withdrawal from a Subcritical or Low-Power Startup Condition	15.4.1
• Startup of an Inactive Reactor Coolant Loop at an Incorrect Temperature	15.4.4
• Chemical and Volume Control System Malfunction That Results in a Decrease in the Boron Concentration in the Reactor Coolant	15.4.6
• Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position	15.4.7
• Spectrum of Rod Cluster Control Assembly Ejection Accidents	15.4.8
• Steamline Break with Coincident Rod Cluster Control Assembly Withdrawal at Power	15.4.9
• Inadvertent Opening of a Pressurizer Safety or Relief Valve	15.6.1

The next group of events have sufficient margin in the MSSV modeling such that the change in tolerance of the MSSV setpoint can be supported and the conclusions of the FSAR remain valid.

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

<u>Event</u>	<u>VEGP FSAR Section</u>
• Loss of Non-Emergency AC Power to the Plant Auxiliaries	15.2.6
• Loss of Normal Feedwater Flow	15.2.7
• Feedwater System Pipe Break	15.2.8
• Uncontrolled Rod Cluster Control Assembly Bank Withdrawal at Power	15.4.2
• Rod Cluster Control Assembly Misalignment (System Malfunction or Operator Error)	15.4.3
• Inadvertent Operation of the Emergency Core Cooling System During Power Operation	15.5.1

Additionally, the Loss of Load/Turbine Trip Event (FSAR section 15.2.3) was reanalyzed to support an increase in the MSSV setpoint tolerance to +2%,-3%. All four cases presented in FSAR Section 15.2.3.2.2 regarding transient responses for a turbine trip from nominal full power operation were reanalyzed, i.e., the minimum reactivity feedback cases with and without pressure control and the maximum reactivity feedback cases with and without pressure control. For the minimum feedback cases, a 0 pcm/°F moderator temperature coefficient (MTC) was assumed instead of the +7 pcm/°F MTC presented in the FSAR. This is justified since the event is analyzed at full power conditions and the plant must have a 0 pcm/°F (or negative) MTC at full power. The analysis with this combination bounds any combination of lower power level with a positive MTC (based on the Technical Specification MTC requirement which ramps from +7 pcm/°F at 70% rated thermal power to 0 pcm/°F at full power). The remainder of the analysis assumptions are consistent with those identified in the FSAR. Based on the analysis, a MSSV setpoint tolerance of +2%,-3% can be supported and the conclusions in the FSAR remain valid. It should also be noted that the analysis presented in FSAR Section 15.2.3 bounds the events discussed in FSAR Sections 15.2.2 (Loss of External Electrical Load), 15.2.4 (Inadvertent Closure of Main Steam Isolation Valves) and 15.2.5 (Loss of Condenser Vacuum and Other Events Resulting in Turbine Trip).

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

2.2 LOCA Related Analyses

2.2.1 Large Break LOCA

The large break LOCA analysis does not model the MSSVs since during the transient the Reactor Coolant System (RCS) is quickly depressurized below that of the steam generator secondary pressure. Thus, the large break analysis results are not dependent on the performance of the MSSVs. Therefore, the large break LOCA analysis results are not adversely affected by the revised MSSV setpoint tolerance.

2.2.2 Small Break LOCA

The small break LOCA results are dependent upon the heat transfer from the RCS primary to the steam generator secondary. A period exists during the transient when the RCS primary pressure hangs above the steam generator secondary pressure as decay heat is transferred to the steam generators. Since a loss of offsite power is assumed to occur coincident with the small break LOCA, the steam dump system and the steam generator atmospheric relief valves are assumed to be inactive. Thus, steam relief from the steam generators takes place through the MSSVs. The lowest set-pressure MSSV can provide sufficient steam relief to remove the existing decay heat, thus the secondary pressure remains slightly above the lowest MSSV set-pressure.

Higher MSSV setpoint tolerances limit steam generator heat removal from the primary side, to which the NOTRUMP evaluation model is highly sensitive. The licensing basis analysis of record applies a 5% setpoint tolerance which is conservative with respect to the proposed limits. Therefore, the proposed MSSV setpoint tolerance of +2%, -3% can be supported and the conclusions in the FSAR remain valid.

2.2.3 Hot Leg Switchover to Prevent Boron Precipitation

Post-LOCA hot leg recirculation switchover time is determined for inclusion in emergency procedures to ensure no boron precipitation in the reactor vessel following boiling in the

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

core. This time is dependent on power level, boron concentrations and water volumes of the RCS, Refueling Water Storage Tank (RWST), and accumulators. Since the MSSVs do not affect the maximum boron concentrations or volumes assumed for the RCS, RWST, and accumulators, the revised MSSV setpoint tolerance has no effect on the post-LOCA hot leg switchover time.

2.2.4 Blowdown Reactor Vessel and Loop Forces

The blowdown hydraulic loads resulting from a LOCA are evaluated in Chapter 3 of the FSAR. Because the maximum loads are generated very quickly, a change in the MSSV setpoint tolerance will have no effect on the analysis results. Thus, it can be concluded that the consequences of the blowdown reactor vessel and loop forces calculations will not be affected by the revised MSSV setpoint tolerance.

2.2.5 Post-LOCA Long Term Core Cooling

The licensing position for satisfying the requirements of 10 CFR 50.46(b)(5), "Long-Term Cooling," is defined in WCAP-8339, "Westinghouse Emergency Core Cooling System Evaluation Model - Summary." The Westinghouse Evaluation Model commitment is that the reactor will remain shutdown indefinitely by borated Emergency Core Cooling System (ECCS) water residing in the sump following the postulated LOCA and when safety injection switchover is accomplished. Since credit for the control rods is not taken for a large break LOCA, the borated ECCS water provided by the accumulators and the RWST must have a boron concentration that when mixed with other water sources will result in the reactor core remaining subcritical assuming all control rods out.

Sump boron concentration is determined by the accumulation of all potential water sources in the containment, based on each respective source boron concentration. The revised MSSV setpoint tolerance will not affect the post-LOCA sump boron concentration. Thus, it is concluded there would be no change to the long-term cooling capability of the ECCS system as a result of the revised MSSV setpoint tolerance.

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

2.3 Steam Generator Tube Rupture (SGTR)

The SGTR event discussed in FSAR Section 15.6.3 includes an analysis to demonstrate margin to steam generator overfill and an analysis to demonstrate the calculated offsite radiation doses are well within the allowable guideline values specified in Standard Review Plan Section 15.6.3 and 10 CFR 100. The analysis used the LOFTTTR2 computer code and applied the methodology documented in WCAP-10698-P-A, "SGTR Analysis Methodology to Determine the Margin to Steam Generator Overfill," and Supplement 1 to WCAP-10698-P-A, "Evaluation of the Radiation Doses for a Steam Generator Tube Rupture Accident."

The MSSVs are not explicitly modeled in the LOFTTTR2 analysis since the steam generator power operated relief valves (PORVs) are credited in the analysis. The PORVs are utilized for automatic pressure relief following reactor trip and also for manual operation to perform the RCS cooldown. Since the PORV set pressure is lower than the MSSV setpoints, this results in a conservative calculation of the primary to secondary break flow and steam releases to the atmosphere. The capacity of the MSSVs is, however, included with the PORV capacity to ensure adequate pressure relief capability following reactor trip.

Increasing the MSSV setpoint tolerance to -3% would reduce the opening pressure of the MSSV, but the lowest MSSV setpressure of 1185 psig would still remain above the PORV setpressure used in the SGTR analysis (1120 psig). Therefore, the increase in the MSSV setpoint tolerance has no impact on the SGTR analysis, and the conclusions discussed in FSAR Section 15.6.3 remain bounding.

2.4 Mechanical Evaluation

The MSSVs will be tested in accordance with the requirements of Section XI of the ASME Code. The proposed change to the setpoint tolerance value from $\pm 1\%$ to $+2\%$, -3% is consistent with the assumptions contained in the safety analyses and is needed to accommodate MSSV setpoint drift that may occur during plant operation. In

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

BASIS FOR PROPOSED CHANGE

the event a MSSV lifts outside the setpoint tolerance values, the Section XI provisions for adjusting the setpoint and testing additional valves will apply. The as-left settings following MSSV testing will continue to be within $\pm 1\%$ of the specified set pressure. These operating conditions are included in the proposed changes to the Technical Specifications.

ENCLOSURE 2

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

10 CFR 50.92 EVALUATION

Georgia Power Company has reviewed the requirements of 10 CFR 50.92 as they relate to the proposed changes to the Vogtle Electric Generating Plant (VEGP) Technical Specifications and has made the following determination:

1. The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated. The setpoint tolerance change for the MSSVs from $\pm 1\%$ to $+2\%$, -3% is intended to accommodate setpoint drift that may occur with these valves during plant operation. However, this change will not adversely affect the pressure boundary integrity or safety function of the valves. The increase in MSSV setpoint tolerance was also reviewed with respect to the accident analyses presented in the VEGP Final Safety Analysis Report (FSAR). The evaluation demonstrated that the acceptance criteria of the accident analyses continued to be met. Additionally, the radiological consequences associated with the accident analysis are unaffected by the proposed changes. Accordingly, since the performance and capability of the MSSVs will be maintained as a result of the proposed changes with no increase in radiological consequences, there will be no significant increase in the probability or consequences of an accident previously evaluated.
2. The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes do not involve any change to the configuration or method of operation of any plant equipment, and no new failure modes have been defined for any plant system or component. The design basis requirement for the MSSVs will continue to be met and the structural integrity of the valves will not be challenged. Also, the setpoint tolerance change will not adversely affect the capability of the MSSVs to perform their pressure relief function to ensure the secondary side steam design pressure is not exceeded. Additionally, the as-left lift setpoints following testing of the MSSVs will continue to be within $\pm 1\%$ of their lift settings, further ensuring their safety function capability. Therefore, since the function of the MSSVs is unaffected by the proposed changes, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

ENCLOSURE 2 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

10 CFR 50.92 EVALUATION

3. The proposed changes do not involve a significant reduction in a margin of safety. All applicable acceptance criteria associated with increasing the MSSV setpoint tolerance will continue to be met. This includes the structural integrity of the valves and the effect of the setpoint change on the accident analyses presented in the VEGP FSAR. Therefore, since the MSSVs remain in compliance with the appropriate codes and standards and all applicable acceptance criteria continue to be met, there will not be a significant reduction in a margin of safety.

Conclusion

Based on the preceding analysis, Georgia Power Company has determined that the proposed changes to the VEGP 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 than any previously evaluated, or involve a significant reduction in a margin of safety. Therefore, the proposed changes meet the requirements of 10 CFR 50.92(c) and do not involve a significant hazards consideration.

ENCLOSURE 3

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATIONS MAIN STEAM SAFETY VALVE SETPOINT TOLERANCE

INSTRUCTIONS FOR INCORPORATION OF PROPOSED CHANGES TO THE TECHNICAL SPECIFICATIONS

The proposed changes to the Vogtle Electric Generating Plant Technical Specifications would be incorporated as follows:

<u>Remove Page</u>	<u>Insert Page</u>
3/4 7-1 and 3/4 7-2*	3/4 7-1 and 3/4 7-2*
3/4 7-3 and 3/4 7-4*	3/4 7-3 and 3/4 7-4*
B 3/4 7-1 and B 3/4 7-2*	B 3/4 7-1 and B 3.4 7-2*

* Overleaf page containing no change