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the southern electric system

W. G. Hairston, III
Senior Vice President
Nuclear Operations

HL-911
000115

January 26, 1990

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

PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
REQUEST TO REVISE TECHNICAL SPECIFICATIONS:
SUPPRESSION POOL TEMPERATURE MONITORING

Gentlemen:

In accordance with the provisions of 10 CFR 50.90, as required by 10 CFR 50.59(c)(1), Georgia Power Company (GPC) hereby proposes a change to the Plant Hatch - Units 1 and 2 Technical Specifications (TS), Appendix A to Operating Licenses DPR-57 and NPF-5.

Georgia Power Company (GPC) received a Notice of Deviation from the NRC in Inspection Report 88-38 for failure to use all of the temperature sensors in the suppression pool to establish average (or bulk) pool temperature. In response to the deviation, GPC has revised plant procedures to use a representative average of all suppression pool temperature sensors to determine average pool temperatures and, on November 29, 1989 submitted a revision to the Unit 1 and Unit 2 Mark I Containment Plant Unique Analysis Reports. This revised method is now used to show compliance with Technical Specifications (TS) limits on suppression pool temperature. This proposed TS change clarifies the revised method of suppression pool average temperature determination.

Enclosure 1 provides a detailed description of the proposed change and the circumstances necessitating the change request.

Enclosure 2 details the basis for our determination that the proposed change does not involve significant hazards considerations.

Enclosure 3 provides page change instructions for incorporating the proposed change into the TS. The proposed changed pages for Unit 1 and Unit 2 follow Enclosure 3.

To allow time for orderly incorporation into copies of the TS, GPC requests the proposed amendment, once approved by the NRC, be issued with an effective date to be no later than 60 days from the date of issuance of the amendment.

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Georgia Power

In accordance to the requirements of 10 CFR 50.91, a copy of this letter and all applicable enclosures will be sent to Mr. J. L. Ledbetter of the Environmental Protection Division of the Georgia Department of Natural Resources.

Mr. W. G. Hairston, III states that he is a Senior 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 are true.

GEORGIA POWER COMPANY

BY: RG McDonald
for W. G. Hairston, III

Sworn to and subscribed before me this 26 day of January 1990.

Ginger Carter
NOTARY PUBLIC

MY COMMISSION EXPIRES JANUARY 12, 1993

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Enclosures:
1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Page Change Instructions

c: Georgia Power Company
Mr. H. C. Nix, General Manager - Nuclear Plant
Mr. J. D. Heidt, Manager Engineering and Licensing - Hatch
GO-NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. P. Crocker, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. J. E. Menning, Senior Resident Inspector - Hatch

State of Georgia
Mr. J. L. Ledbetter, Commissioner - Department of Natural Resources

ENCLOSURE 1

PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
REQUEST TO REVISE TECHNICAL SPECIFICATIONS:
SUPPRESSION POOL TEMPERATURE MONITORING

BASIS FOR CHANGE REQUEST

PROPOSED CHANGE:

The proposed change will modify the Technical Specification (TS) to require an average (bulk) temperature to be used to show compliance to the TS limits on suppression pool temperature. Specifically, limiting conditions for operation (LCO) and surveillance requirements (SR) in Unit 1 TS 3.7.A.1, and 4.7.A.1, and Unit 2 TS 3.6.2.1.b (and corresponding Action and SRs) will specify average suppression chamber water temperature. The surveillance requirements for both units will specify that the average pool temperature shall be determined using a weighted average of the suppression pool temperature sensors as described in the TS Bases. The Bases of both unit's TS have been revised to describe the method(s) used to determine average suppression pool temperature.

BASIS FOR PROPOSED CHANGE:

Temperature limits on the suppression pool for BWRs with Mark I containments have been implemented to minimize the potential for high amplitude loads during transient and accident events. Because of the importance of the suppression pool as an intermediate heat sink, the pool temperature must be monitored during normal operation as well as during transient/accident conditions.

The original design of the Hatch containment had four temperature sensors, T48-N009A-D (referred to as the N009 series) installed in the suppression pool lower elevation. These sensors were used to monitor pool temperatures to ensure conformance to TS limits.

Subsequent to the initial containment design, concerns were raised about unstable steam condensation and associated high loads on the containment structure at high pool temperatures. This resulted in the local pool temperature limits specified in NUREG-0783, and the need to have enhanced suppression pool monitoring capability. Eleven temperature elements, T48-N301 through N311 (referred to as the N300 series) were installed at higher elevations in the pool. During normal plant operation, when the suppression pool water is not being circulated, thermal stratification may cause slight differences in the temperature in the upper and lower regions of the pool. Placing the residual heat removal (RHR) system in the suppression pool cooling mode during normal operation produces a well mixed suppression pool.

REQUEST TO REVISE TECHNICAL SPECIFICATIONS: SUPPRESSION POOL TEMPERATURE MONITORING

BASIS FOR CHANGE REQUEST

Although concerns over local pool temperature limits have been alleviated for BWRs with quencher devices on the safety relief valve (SRV) discharge lines, determination of the average of bulk pool temperature is important. The bulk pool temperature is an assumed initial condition for many safety analyses. It is also an important plant parameter which must be monitored during normal, abnormal, and emergency operations.

Procedural changes have been implemented at Plant Hatch requiring a representative average of the eleven N300 series sensors and the four N009 series sensors be used to determine bulk pool temperature. The four N009 series sensors are averaged to determine the lower pool temperature, and the eleven N300 series sensors are averaged to determine the upper temperature. The bulk temperature is the numerical average of the average upper and average lower temperatures. Previously, the method of determining TS conformance was to use the average of the N009 series sensors, which is less restrictive. The proposed change to TS will delineate that average temperature must be used to show conformance to TS limits and that under normal conditions all fifteen temperature sensors must be used. The proposed TS allow for use of a "pre-planned alternate method" in situations where one or more temperature sensors are inoperable. [illegible] methods are discussed in the revised Unit 1 and Unit 2 TS Bases, and the Plant Unique Analysis Reports, Section 7.5 (Reference 1), as summarized below.

[illegible] Mark I suppression chamber is a toroidal (doughnut-shaped) structure about half filled with water. It lies below and encircles the drywell. Sixteen cylinder-shaped bays are connected to form the "doughnut", and a quadrant is defined as a 90 degree sector of the torus (equivalent to four bays). The quadrants are selected such that each has one N009 series sensor and from 2-4 N300 series sensors. One alternate method, in the case where one or more temperature elements are inoperable, is to average the remaining operable elements. The operable N009 series sensors (lower pool elevation) would be used to determine the average lower elevation temperature; the average of the operable N300 series sensors would determine the upper pool temperature, and the two values would be averaged to calculate the bulk pool temperature. This alternate method requires at least one operable N300 series sensor in each quadrant of the suppression pool. If each quadrant does not have at least one N300 sensor operable, another alternate method may be used. This method averages the operable N009 series sensors and adds 5°F. The 5°F adder is equivalent to a situation where the average of the N300 series sensors is reading 10°F higher than the N009 series sensors. This is because the bulk pool temperature is normally represented by the numerical average of the upper

pool temperature readings (N300 series) and the lower pool temperature readings (N009 series). Therefore if the N300 series sensors were reading 10 degrees higher than the N009 series sensors, it would be equivalent to a bulk pool temperature 5 degrees higher than the N009 series sensors were indicating.

In order to determine the 5°F adder, operational data on suppression pool temperature was reviewed for both Unit 1 and Unit 2. A special purpose procedure was written to record detailed temperature data during late spring and summer of 1989. Several hundred surveillance data packages were reviewed which represented periods of normal operation without suppression pool cooling (SPC), normal operation with SPC, and testing of the high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) systems.

The conclusion of this review is that a 5°F adder on the average of the operable N009 series sensors is sufficiently conservative to account for potential thermal stratification in the suppression pool during normal operation without pool cooling. The largest temperature differential observed in either unit during normal operation without pool cooling was approximately 3.5°F, with the average being approximately 2 degrees.

The review also indicates that this 5°F adder is not necessary when at least one RHR pump is in the suppression pool cooling mode and testing which adds heat to the suppression pool is not being performed. Thermal mixing is effective in this case, resulting in little, if any stratification. Data for both units during this operational condition indicates the temperature differential between the average of the N009 sensors and the average of all fifteen sensors (i.e., bulk temperature) to be on the order of 1°F or less.

When large amounts of steam are discharged into the pool (i.e., HPCI, RCIC, or SRV operation), thermal stratification may be increased. In most cases both upper and lower sensors will be available to determine bulk temperature during heat additions to the pool. However, in the unlikely event that less than one N300 per quadrant is available, the 5°F adder would be applied even if RHR was operating in the SPC mode during the heat addition. The SPC mode acts to reduce any stratification between the upper and lower elevations and reduce pool bulk temperature once the heat addition to the pool has stopped.

REQUEST TO REVISE TECHNICAL SPECIFICATIONS:
SUPPRESSION POOL TEMPERATURE MONITORING

BASIS FOR CHANGE REQUEST

REFERENCES

1. Letter HL-801, W. G. Hairston, III to NRC, "PUAR Revision for Torus Rock Bolt Evaluations and Suppression Pool Temperature Monitors, dated November 21, 1989.

2. Letter HL-738, W. G. Hairston, III to NRC, "Technical Specifications Improvement Program, Request to Revise Technical Specifications" dated December 21, 1989.

ENCLOSURE 2

PLANT HATCH - UNITS 1, 2
NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
REQUEST TO REVISE TECHNICAL SPECIFICATIONS:
SUPPRESSION POOL TEMPERATURE MONITORING

10 CFR 50.92 EVALUATION

PROPOSED CHANGE:

The proposed change will modify the Technical Specifications (TS) to require an average (bulk) temperature to be used to show compliance to the TS limits on suppression pool temperature. Specifically, limiting conditions for operation (LCO) and surveillance requirements (SR) in Unit 1 TS 3.7.A.1 and 4.7.A.1, and Unit 2 TS 3.6.2.1.b (and corresponding Action and SRs) will specify average suppression chamber water temperature. The Bases of both units TS have been revised to describe the method(s) used to determine average suppression pool temperature.

BASIS FOR PROPOSED CHANGE:

Georgia Power Company (GPC) has reviewed this proposed change and has determined it does not involve a significant hazards consideration.

The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. The heat capacity of the suppression pool, the existing suppression pool temperature limits, and the heat additions to the suppression pool assumed in accident/transient analyses are not impacted by this change. The TS have been modified to require a more stringent method of monitoring temperature, consistent with current Plant Hatch procedural requirements.

The proposed change does not create the possibility of a new or different type of accident from any previously analyzed, because the new TS requirement simply increases the amount of instrumentation required to monitor average (bulk) suppression pool temperature. No new modes of operation are introduced by this change, and the pool temperature sensors provide monitoring and alarm functions only. Also, no physical changes are being made to the pool temperature monitoring system.

REQUEST TO REVISE TECHNICAL SPECIFICATIONS: SUPPRESSION POOL TEMPERATURE MONITORING

10 CFR 50.92 EVALUATION

The proposed change does not involve a significant decrease in the margin of safety. Monitoring of the suppression pool temperature will be at least as accurate as before and reflects a better method of determining conformance to TS temperature limits. This method (using all of the available pool temperature sensors) is currently being utilized in plant procedures.