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December 20, 1990

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Nuclear Operations

ELV-02360
0762

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 SPECIFICATION 4.7.7.d.4

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) Units 1 and 2 Technical Specifications, Appendix A to Operating Licenses NPF-68 and NPF-81.

Technical Specification (TS) Surveillance Requirement 4.7.7.d.4 requires that the heaters in the Piping Penetration Area Filtration and Exhaust Systems dissipate 80 ± 4 KW when tested in accordance with Section 14 of ANSI N510-1980. This surveillance is to be performed at least once per 18 months. As a result of a recent audit of TS surveillances, it was determined that the heater output had not been properly corrected for voltage in accordance with ANSI N510-1980. When this was done, the heater output for one train on Unit 2 and both trains on Unit 1 were found to be less than the minimum value of 76 KW indicated by the specification.

Calculations have been performed that demonstrate that the actual heater output, (properly corrected for voltage), meets the required functional design requirements and that the TS limit is overly conservative.

In order to preclude the unnecessary shutdown of VEGP Unit 2 and to allow the startup of VEGP Unit 1, the NRC granted a temporary waiver of compliance with this surveillance requirement on December 13, 1990. The proposed Technical Specification revision contained in this request will remove the discrepancy between the surveillance requirement and the proposed method of demonstrating the operability of the heaters. This is done by amending the Technical Specification to provide a surveillance requirement that is consistent with the design functional requirements of the heaters and that requires a more direct verification that the heaters are meeting their functional requirements.

Georgia Power Company is considering additional plant modifications or evaluations that will result in increasing the margin between the actual heater

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power and the power required to fulfill the heater design function. It is anticipated that this will allow the use of the original or a similarly worded Technical Specification. Therefore, this change is being proposed as a footnote that will be applicable until the end of the second refueling outage for Unit 2 and the fourth refueling outage for Unit 1. The expected dates for startup following these outages are April 13, 1992 and April 19, 1993, respectively. Since the current method of demonstrating that the heaters are operable is different from surveillance requirement 4.7.7.d.4, GPC requests that this proposed change be processed as an emergency Technical Specification change in order to allow continued operation in compliance with Technical Specifications.

The proposed change and its basis are described in Enclosure 1. 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 a mark-up of the affected page is provided as Enclosure 3.

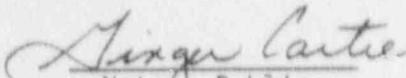
In accordance with 10 CFR 50.91, the designated state official will be sent a copy of this letter and all enclosures.

Mr. 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 and enclosures are true.

GEORGIA POWER COMPANY

By: 
W. G. Hairston, III

Sworn to and subscribed before me this 20 day of December, 1990.


Notary Public

MY COMMISSION EXPIRES JANUARY 12, 1993
WGH, III/HWM/gm

Enclosures:

1. Basis for Proposed Change
2. 10 CFR 50.92 Evaluation
3. Instructions for Incorporation and Revised Pages

xc (see next)



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c(w): Georgia Power Company

Mr. C. K. McCoy
Mr. W. B. Shipman
Mr. P. D. Rushton
Mr. R. M. Odom
NORMS

U. S. Nuclear Regulatory Commission

Mr. S. D. Ebner, Regional Administrator
Mr. D. S. Hood, Licensing Project Manager, NRR
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

State of Georgia

Mr. L. C. Barrett, Commissioner, Department of Natural Resources

ENCLOSURE 1

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATION 4.7.7.d.4

BASIS FOR PROPOSED CHANGE

Proposed Change

The proposed change will add the following footnote to the current wording of surveillance requirement 4.7.7.d.4, "Until restart following the fourth refueling outage of Unit 1 and until restart following the second refueling outage of Unit 2 this specification shall read as follows: The surveillance may be conducted by verifying that heater capacity is sufficient to maintain the relative humidity of the air stream through the filters at 70 percent or less under design basis accident conditions when tested in accordance with section 14 of ANSI N510-1980."

Basis

The current technical specification value of 80 ± 4 KW was derived from the purchase specification for the heaters. System confirmatory calculations that were originally prepared by the architect engineer determined a required capacity of 62kW and concluded that the vendor sized unit of 80 kW was acceptable. These calculations did not, however, address the effect of degraded voltage on the capacity of the heaters. The purpose of the heaters is to reduce the relative humidity of the air to 70% or less before it enters the filters. New calculations have been performed in an effort to account for degraded voltage conditions. These calculations demonstrate that actual heater output at the minimum expected voltage meets the functional design requirements. However, the revised calculations necessitate a change to the requirements of Technical Specification 4.7.7.d.4.

The revised analyses accounted for the minimum voltage expected at the heaters, the maximum design basis inlet air temperature and humidity and the actual measured flow through the heaters. The minimum voltage is based on the setpoint of the low voltage relays that are used to isolate the plant from the electrical grid and start the onsite diesel generators in the event of a loss of offsite power. The switchyard voltage is assumed to be 94.7% which is below our current FSAR commitment of 98% for normal operating switchyard voltage. This represents a significant conservatism in these calculations. The actual measured flow is a realistic value that is determined by the fixed configuration of the filter and ventilation system. The configuration of the filtration system is not expected to change. GPC is committed to reverification of the heater performance following any change to the system that could alter the flow through the filters. The initial room temperatures assumed in the analyses were calculated using conservative methods. The results of the analyses are presented in Table 1.

ENCLOSURE 1 (CONTINUED)

BASIS FOR PROPOSED CHANGE

Actual voltages experienced at the plant are consistently higher than expected. This represents an additional conservatism. GPC is conducting engineering evaluations in anticipation of reducing the actual plant voltages. In conjunction with these studies GPC expects to either perform additional engineering analysis or modifications that would allow the use of the original or a similarly worded Technical Specification surveillance requirement.

The revised specification reflects the requirement of the heaters to adequately control the relative humidity of the air flowing to the filter. Relative humidity is a function of several variables including the flowrate and heater power. The revised specification is more directly related to the functional requirement of the heaters. The proposed specification is an interim measure which will allow continued operation of the plant until our studies can be completed and a permanent solution can be implemented. This will be accomplished by the end of the fourth refueling outage for unit 1 and the end of the second refueling outage for unit 2. The details of the surveillance methodology will be added to the VEGP Final Safety Analysis Report. The proposed revision to the FSAR is enclosed as Appendix A to this enclosure.

ENCLOSURE 1 (CONTINUED)

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATION 4.7.7.d.4BASIS FOR PROPOSED CHANGE

TABLE 1

FILTER UNIT	[1] REQUIRED KW BASED ON LATEST SURVEILLANCE DATA	[2] REQUIRED KW BASED ON KW/1000 CFM NEW CRITERIA	[3] AVAILABLE KW BASED ON DEGRADED VOLTAGE	[4] % MARGIN $([3]/[1]) - 1$ $\times 100$
1-1561-N7-001	57.75	58.50	62.62	8.4
1-1561-N7-002	57.38	58.1	63.07	9.9
2-1561-N7-001	62.07	62.63	63.47	2.3
2-1561-N7-002	59.47	60.00	65.83	10.7

NOTES:

- [1] Calculated minimum kW requirement based on the measured air flows from the 1990 surveillance for each unit and worst case entering air conditions.
- [2] Calculated minimum kW requirements based on the measured air flows from the 1990 surveillance for each unit and the minimum kW/1000 CFM criteria calculated to envelop all four units based on degraded voltages.
- [3] Calculated kW available at degraded voltage less maximum cable voltage drop using measured voltage and current from the 1990 surveillance for each unit.
- [4] Available margin between the available kW [3] and the calculated kW requirement [1].

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APPENDIX A
PROPOSED FSAR CHANGES

content, impregnant leachout, and elemental iodine and methyl iodine removal efficiencies at postulated accident conditions. The charcoal adsorber is leak tested prior to operation to verify a minimum of 95.5-percent retention. In addition, a laboratory test of a representative sample of the impregnated, activated charcoal is performed to verify iodine removal efficiencies in accordance with Position C.6 and table 2 of Regulatory Guide 1.52, as discussed in section 1.9.

Air filtration units are acceptance tested in accordance with ANSI N510, as discussed in section 1.9.

Design and testing of ESF filtration systems are consistent with the recommendations of Regulatory Guide 1.52, as discussed in section 1.9.

Fans are factory tested in accordance with standards of the Air Moving and Conditioning Association Standard 210.⁽²⁾

Moisture separators are tested in accordance with ANSI N509, paragraph 5.4, as discussed in subsection 1.9.52, and are capable of removing at least 99 percent of the entrained moisture in an airstream.

The drain design and the accessibility of components and provisions for maintenance are in accordance with ANSI N509, as discussed in section 1.9.

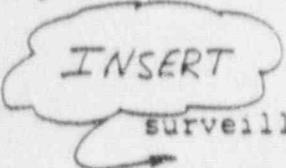
6.5.1.4.2 Inservice Testing

Inservice testing of the ESF filtration systems is conducted in accordance with the surveillance requirements given in the Technical Specifications.

INSERT

6.5.1.5 Instrumentation Requirements

Controls and instrumentation for the control room HVAC, piping penetration filter exhaust, and fuel handling building post-accident exhaust systems are discussed in section 7.3 and subsections 9.4.1, 9.4.2, and 9.4.3. Instrumentation is summarized in table 6.5.1-2. Each system is designed to function automatically upon receipt of an ESF actuation system signal. Fans can also be controlled from the control room. The status of the ESF filter systems equipment is displayed in the control room during both normal and accident operations. Instrumentation is consistent with the recommendations of Regulatory Guide 1.52, as discussed in section 1.9.



INSERT

surveillance requirements given in the Technical Specifications.

The ESF room coolers are performance tested by the manufacturer to ensure design heat removal capabilities.

Ductwork is leak tested, in accordance with SMACNA^(*) and ANSI N510, Section 6.^(*)

Major components are accessible during normal plant operation for inspection, maintenance, and periodic testing.

9.4.3.2.5 Instrumentation Applications

Thermostats, located at the various levels of the building and the HVAC ductwork, control space temperatures.

The amount of filter loading for all filters associated with both the air handlers and the filter adsorbers is available at the unit.

The following instrumentation for each train of the auxiliary building emergency ventilation system is provided in the control room:

- Alarm on high pressure differential across first HEPA filter.
- Alarm on high pressure differential across total filter unit.
- Alarm on high moisture content downstream of the moisture eliminator.
- Alarm on high temperature in charcoal filter.
- Alarm on high or low airflow at filter outlet.
- Alarm on high temperature in ESF equipment rooms.
- Position indication for isolation dampers.
- Indication of the operational status of the fans.
- Indication of the differential pressure across first HEPA filter.
- Indication of the differential pressure across total filter unit.

Insert to FSAR section 6.5.1.4.2

The surveillance requirements for the Piping Penetration Area Filtration and Exhaust System heater inservice testing verify that the heater's capacity is sufficient to maintain the relative humidity of the airstream entering the charcoal adsorber bank at 70 percent or less under design basis accident conditions. The heater shall be capable of dissipating a minimum of 4.44 KW per 1000 FT³/minute (CFM) airflow through the filter unit at 460 volts based on the following input parameters measured at the heater terminals:

$$\left[\begin{array}{l} 460 \text{ Volts} \\ \text{Average} \\ \text{Operating} \\ \text{Voltage} \end{array} \right]^2 \times \begin{array}{l} \text{Average} \\ \text{Operating} \\ \text{Voltage} \end{array} \times \begin{array}{l} \text{Average} \\ \text{Operating} \\ \text{Current} \end{array} \times \frac{1.73}{1000} = \text{KW @} \\ \text{460} \\ \text{volts}$$

$$\frac{\text{KW @ volts}}{\text{Measured CFM}} \times 1000 = \text{KW per 1000 CFM} \\ \text{(Minimum 4.44 KW per 1000 CFM)}$$

The above verification of the Piping Penetration Area Filtration and Exhaust System heater capacity is required at the intervals given in the Technical Specifications. This verification is also required following system modifications which affect airflow through the filter unit or any reduction of the minimum expected terminal voltage at the heater.

Insert to FSAR section 9.4.3.2.4

Testing of the filtration system heaters is also described in paragraph 6.5.1.4.2.

ENCLOSURE 2

VOGTLE ELECTRIC GENERATING PLANT REQUEST TO REVISE TECHNICAL SPECIFICATION 4.7.7.d.4

10 CFR 50.92 EVALUATION

Pursuant to 10 CFR 50.92 Georgia Power Company (GPC) has evaluated the attached proposed amendment and has determined that operation of the facility in accordance with the proposed amendment would not involve significant hazards considerations.

Background

The present Technical Specification surveillance for heater output was based on the purchase specification rated capacity for the heaters and not the minimum required value to maintain the relative humidity of the airstream through the filters under design basis conditions. Heaters rated at 80 KW at 480 volts were procured based on temperature, air flowrate and voltage. System confirmatory calculations were prepared by the Architect Engineer which determined a minimum required capacity of 62 KW and concluded that the vendor sized unit of 80 KW was acceptable. During preparation of the Technical Specification, a review of the system confirmatory calculations was conducted and the value of 80 ± 4 KW was inserted into the Technical Specifications. These calculations did not, however, address the effect of degraded voltage on the capacity of the heaters. Based on temperature survey data, a new calculation has been performed to determine the minimum required heater capacity. From this calculation a heater capacity requirement has been determined which will limit the relative humidity of the airstream through the filters to a value of 70 percent. Using as-built electrical distribution system documents, the capacity of the heaters installed in the Piping Penetration Area Filtration and Exhaust Systems for both units was determined to be greater than the minimum required.

The Technical Specification surveillance data for the heaters was evaluated for degraded voltage conditions. This evaluation indicated that the capacity of all four heaters, after adjustment for degraded voltage, exceeds the minimum required capacities. All other Technical Specification surveillance requirements for the Piping Penetration Area Filtration and Exhaust Systems for both units continue to be met. These calculations were based on actual measured air flows in each train and not on the Technical Specification limit of $15,500 \pm 10$ percent. This Technical Specification change addresses the relationship of air flow to heater output requirements.

The Technical Specification surveillance requirement is being revised to more accurately reflect the design basis for the heaters. The revised requirement is consistent with the design calculations discussed above.

ENCLOSURE 2 (CONTINUED)

REQUEST TO REVISE TECHNICAL SPECIFICATION 4.7.7.d.4

Analysis

The purpose of the surveillance requirement is to verify that the heaters are operable and capable of performing their intended safety function during anticipated operating conditions. The purpose of the heaters is to reduce the relative humidity of the incoming air to the level necessary to assure proper functioning of the filter. Analyses have been performed to demonstrate the required performance of the heaters in terms of the flow through the heater and the anticipated power supply for the heaters. The revised surveillance requirement is consistent with those analyses. The proposed surveillance will demonstrate that the heaters are operable and that they are capable of performing their intended safety function. The proposed surveillance requirement specifically addresses the design basis of the heaters. In order to avoid overly prescriptive surveillance requirements GPC will document the details of the testing procedure in the FSAR. The proposed FSAR revision is included as Appendix A of Enclosure 1 with this Technical Specification change request.

Conclusion

Based on the above considerations GPC has concluded the following concerning the requirements of 10 CFR 50.92.

1. The revised surveillance requirements do not increase the probability or consequences of accidents previously evaluated in the FSAR. Sufficient heater capacity exists such that the filter system will continue to perform its safety function as discussed in the FSAR. Since the surveillance requirements are consistent with the performance requirements of the heaters, and since the change does not involve any relaxation of filter system functional requirements it can be concluded that the filter system will continue to function as designed. Therefore, this revision to the surveillance requirement will not affect any of the radiological consequences of accidents.
2. The revision to the heater surveillance requirements will not create the possibility of a new or different kind of accident other than those already evaluated in the FSAR. No new accident scenarios, failure mechanisms or limiting single failures are introduced by the revised surveillance requirement. The revised requirements demonstrate that the heaters remain operable.
3. The margin of safety provided by the Technical Specifications relative to the ability of the filter heaters to perform this safety function is not significantly changed. This is because the revised surveillance requirements continue to show that the heaters will reduce the relative humidity of the incoming air to the values assumed in the previous accident analyses.

ENCLOSURE 2 (CONTINUED)

REQUEST TO REVISE TECHNICAL SPECIFICATION 4.7.7.d.4

Based upon the preceding information it has been determined that the proposed Technical Specification change does not involve a significant hazards consideration as defined by 10 CFR 50.92 (c).