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Georgia Power
the southern electric system

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Docket Nos. 50-321
50-366

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005912

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

Edwin I. Hatch Nuclear Plant
Request to Revise Technical Specifications:
Time Delay for Reactor Protection System
Electric Power Monitoring System Trips

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, Appendix A to Operating Licenses DPR-57 and NPF-5. Specifically, GPC requests a revision to Unit 1 Technical Specification 3.9.D and Unit 2 Technical Specification 3/4.8.2 to add time delays to the reactor protection system electric power monitoring trips.

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

Enclosure 2 details the basis for GPC's determination the proposed changes do not involve a significant hazards consideration.

Enclosure 3 provides page change instructions for incorporating the proposed changes. Following Enclosure 3 are the proposed Technical Specifications pages and the associated markups of the existing pages.

To allow time for procedure revisions and orderly incorporation into copies of the Technical Specifications, 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.

In accordance with the requirements of 10 CFR 50.91, a copy of this letter and all applicable enclosures will be sent to the designated State official of the Environmental Protection Division of the Georgia Department of Natural Resources.

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Mr. J. T. Beckham, Jr. states he is duly authorized to execute this oath on behalf of Georgia Power Company, and to the best of his knowledge and belief, the facts set forth in this letter are true.

GEORGIA POWER COMPANY

By: J. T. Beckham, Jr.

Sworn to and subscribed before me

this 19th day of October 1993

Elaine E. Bolton
Notary Public

My Commission Expires: Aug. 8, 1995

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

cc: Georgia Power Company
Mr. H. L. Sumner, General Manager - Nuclear Plant
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. L. D. Wert, Senior Resident Inspector - Hatch

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

Enclosure 1

Edwin I. Hatch Nuclear Plant
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Basis for Change Request

PROPOSED CHANGE:

Plant Hatch Unit 1 Technical Specification 3.9.D and Unit 2 Technical Specification 3/4.8.2 contain operability and surveillance requirements for the reactor protection system (RPS) electric power monitoring system. The surveillance requirements specify periodic verification of the setpoints for the over-voltage, under-voltage, and under-frequency trips of the RPS buses. In addition, verification of a zero-second time delay is required for the under-voltage trip for both Units 1 and 2 and the under-frequency trip for Unit 1. No time delay is specified for the Unit 2 under-frequency trip or either unit's over-voltage trip. This proposed change revises the surveillance requirements to allow a maximum 4-second time delay for the over-voltage, under-voltage, and under-frequency trips on both units.

BASIS FOR PROPOSED CHANGE:

The Plant Hatch RPS buses supply power to the logic for several engineered safeguard feature (ESF) systems. Occasionally, unplanned events result in brief perturbations in the electric power supply to the RPS. Since electric power monitoring system trips have no time delays, brief changes in voltage or frequency can result in a trip of the RPS bus and unnecessary ESF actuations due to the loss of power to the ESF logic.

An event of this type occurred on Hatch Unit 1 on May 17, 1992, and was reported by LER 50-321/1992-012 dated June 11, 1992. The corrective actions for this LER included a commitment to evaluate the possibility of installing time delays in the RPS electric power monitoring system. This evaluation, which was performed for Plant Hatch by General Electric Company (GE), concluded that a 4-second maximum time delay could be safely included for the over-voltage, under-voltage, and under-frequency trips of the RPS bus power supply. This modification would minimize the chances for unnecessary safety system challenges caused by brief RPS power supply transients.

A maximum time delay of 4 seconds for the RPS electric power monitoring system trips is included in the design of the majority of plants similar to Plant Hatch, as well as the BWR 5s and 6s. Normally, this feature is a part of system design and is not controlled by plant Technical Specifications.

Enclosure 1
Basis for Change Request

Following is a discussion of the potential effects of providing a maximum 4-second time delay for each of the RPS electric power monitoring system trips. For each parameter, the causes of expected transients are discussed for the cases of the buses being tied to their normal and alternate supplies. A discussion of the potential effects on components powered by the RPS buses is also included.

The occurrence of an event which could result in an over-voltage condition of sufficient magnitude to cause component damage in less than 4 seconds is extremely unlikely. An over-voltage condition on a bus can be caused by switching loads on the bus(es) which ultimately power it.

When an RPS bus is being supplied by its motor-generator (MG) set, only loads switched on the RPS bus itself will affect the bus voltage. Since RPS buses only supply small loads, switching loads cannot cause a significant over-voltage condition. When an RPS bus is being supplied by its alternate supply, it is tied to the onsite Class 1E electrical system. Large over-voltage transients may occur due to switching loads on higher voltage buses which ultimately power the RPS buses. However, due to the capacity of the overall bus structure, large over-voltage transients are expected to be of very short duration.

When the RPS bus is being supplied by the MG set, the only expected over-voltage transient of significant duration is a failure of the MG set voltage regulator. This type event would not be expected to damage any components within 4 seconds. The RPS electric power monitoring system is not designed to provide protection against extremely fast, high-voltage transients which could be caused by events such as lightning strikes.

The prime concern of over-voltage on electromechanical components, such as the RPS MG sets, is additional heating. Due to the mass of components associated with the MG set, the over-voltage transient caused by a voltage regulator failure would not result in a significant temperature rise within 4 seconds. An over-voltage transient on the RPS bus alternate power supply would cause increased stress on the series and shunt regulating components and on the filter capacitors of the transformer secondary. However, no component limits would be exceeded in 4 seconds.

Over-voltage is the only condition which could affect current-carrying contacts. An increase in voltage results in an increase in current through the contacts. Even if the current exceeds the continuous current rating of the contacts for a short period of time, no contact damage will occur unless the contacts are called upon to open during the period of excessive current. This is very unlikely since the time period will be limited to 4 seconds. Therefore, the addition of a 4-second time delay to the RPS electric power monitoring system over-voltage trip is not expected to increase the probability of damaging components powered by the RPS buses.

The situations described above involving load switching apply to under-voltage transients as well as over-voltage transients. When an RPS bus is being supplied by its MG set, the small loads switched on the bus cannot cause a significant under-voltage condition. When an RPS bus is being supplied by its alternate supply, the size of the system will cause any under-voltage transients to be very short in duration. The only expected under-voltage transient of significant duration is a failure of the MG set voltage regulator.

An under-voltage condition can only damage relays and solenoid valves if the voltage remains at the precise value required to cause the component to chatter for a long period of time. This type occurrence is very unlikely, and could only continue for a maximum of 4 seconds. An under-voltage transient could cause the internal regulating circuitry of the alternate power supply transformer to malfunction, resulting in a decrease in output voltage. However, the transformer would not incur damage. Therefore, the addition of a 4-second time delay to the RPS electric power monitoring system under-voltage trip is not expected to increase the probability of damaging components powered by the RPS buses.

When an RPS bus is being powered by its alternate supply, the occurrence of an under-frequency transient is extremely unlikely. The alternate supply is from the onsite Class 1E electrical system that is ultimately tied to the system grid which maintains an essentially constant frequency.

A significant under-frequency transient would only be expected when the RPS bus is being powered by its MG set, and power to the MG set is lost. The large inertia of the MG set flywheel would cause frequency to decrease gradually. Under-frequency on the RPS bus would cause a decrease in reactive impedance, thus resulting in an increase in current to components powered by the bus. The current increase would increase the heating of the components. However, since the transient would be slow due to the gradual coastdown of the MG set, the temperature of the components would increase only a small amount during the 4-second time delay. Therefore, the addition of a 4-second time delay to the RPS electric power monitoring system over-voltage trip is not expected to increase the probability of damaging components powered by the RPS buses.

Enclosure 2

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10 CFR 50.92 Evaluation

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license does not involve a significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or

3. Involve a significant reduction in a margin of safety.

Georgia Power Company has reviewed the proposed amendment and has determined its adoption would not involve a significant hazards consideration. The basis for this determination is given below.

Basis for Proposed No Significant Hazards Consideration Determination:

Evaluation of Proposed Change:

This change does not involve a significant hazards consideration for the following reasons:

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The purpose of the RPS electric power monitoring system is to isolate the RPS buses from their power supplies in the event of an over-voltage, under-voltage, or under-frequency condition. This isolation protects the safety-related equipment powered by the RPS buses from damage due to unacceptable voltage or frequency conditions. Adding a 4-second time delay to the monitoring instrumentation will not prevent the system from performing its intended function. Any credible events which could affect the voltage or frequency of the RPS buses would not be of sufficient magnitude to cause damage to equipment powered by the RPS buses within the 4-second time period. The system will continue to ensure the safety-related components powered by the RPS buses will remain

operable and fully capable of performing their intended mitigation functions. Therefore, this proposed change does not involve a significant increase in the probability or consequences of an 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 RPS electric power monitoring system is designed to protect the safety-related equipment powered by the RPS buses from damage due to an unacceptable voltage or frequency condition. This equipment is designed to mitigate the consequences of analyzed transients and accidents. Adding a 4-second time delay to the monitoring instrumentation will not change the mode of operation of the system or prevent the system from performing its intended function. Therefore, 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 the margin of safety.

   The RPS electric power monitoring system is designed to protect the safety-related equipment powered by the RPS buses from damage due to an unacceptable voltage or frequency condition This equipment is designed to mitigate the consequences of analyzed transients and accidents. As long as the safety-related equipment continues to perform its intended function, the margin of safety associated with the various analyzed events will be maintained. Since adding a 4-second time delay to the monitoring instrumentation will not prevent the system from performing its intended function, no safety margins will be affected. Therefore, the proposed amendment does not involve a significant reduction in the margin of safety.