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Georgia Power

the southern electric system

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April 2, 1984

U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Region II - Suite 2900  
101 Marietta Street, NW  
Atlanta, Georgia 30303

REFERENCE:  
RII: JPO  
50-321/50-366  
I&E Bulletin  
83-08

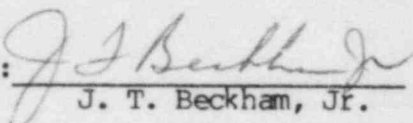
ATTENTION: Mr. James P. O'Reilly

GENTLEMEN:

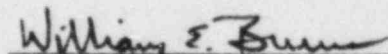
Georgia Power Company submits the attached report in response to I&E Bulletin 83-08, "Electrical Circuit Breakers with an Undervoltage Trip Feature in Use in Safety-Related Applications Other than the Reactor Trip System." Section 2.a of the bulletin requests information related to breaker design which is available only from the manufacturer. The required information has been requested from the appropriate vendors, but a response was not received in time to include in this response. Within 90 days from the date of this letter, we will forward the requested information or provide an explanation for why it was not made available to us.

J. T. Beckham, Jr. states that he is 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:   
J. T. Beckham, Jr.

Sworn to and subscribed before me this 2nd day of April, 1984.



Notary Public, Georgia, State at Large  
My Commission Expires Aug. 26, 1986

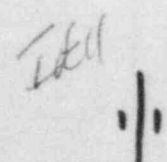
Enclosure

xc: H. C. Nix, Jr.

Senior Resident Inspector

J. P. O'Reilly, (NRC-Region II)

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Georgia Power Company

Plant Edwin I. Hatch Units 1 & 2

Response to IE Bulletin 83-08:

Electrical Circuit Breakers with an Undervoltage  
Trip Feature in Use in Safety Related Applications  
Other than the Reactor Trip System

April 2, 1984

## INTRODUCTION

In response to I&E Bulletin 83-08, Georgia Power Company provides this report on a review of the application of circuit breakers with undervoltage trip attachments (UVTAs) in Plant Hatch safety systems.

The review was conducted in accordance with recommendations given in the bulletin: (1) identify the safety related applications of the circuit breakers with UVTAs and the systems in which they are used; (2) review the adequacy of the design, testing, and maintenance of the breakers in light of their operational experience and information conveyed in the bulletin; and (3) evaluate the need to take corrective measures to ensure proper operation of the breakers. A critical review of project drawings, documents, vendor information, maintenance procedures and records was done, using criteria established in the Bulletin.

This report is a partial response to IEB 83-08 due to lack of manufacturers' information. The final report will be submitted after our receipt of satisfactory design and maintenance information from the circuit breaker manufacturers.

## RESPONSE

Q: 1. Identify applications of W type DB, W type DS, or GE type AK-2 circuit breakers with UV trip feature as discussed in IEB 83-01 or 83-04 in safety-related applications at your facility(ies), other than as RTBs. CP holders and licensees should also identify similar applications of other types of breakers by other manufacturers that use a UV trip feature. If such circuit breakers are used or planned for use, identify the system(s) involved.

A: Hatch Nuclear Plant does not use UV trip devices on Westinghouse types DB and DS and General Electric type AK-2 circuit breakers.

Other types of breakers with an UV trip feature used in safety-related applications at Plant Hatch were identified as follows:

The Westinghouse Air Circuit Breakers are used in 4160 V BUS 1F (2F on Unit 2) power supply circuits for the following:

Plant Service Water Pump 1D (2D) - P41-C001D (2P41-C001D)

Plant Service Water Pump 1C (2C) - P41-C001C (2P41-C001C)

RHR Service Water Pump 1C (2C) - E11-C001C (2E11-C001C)

RHR Pump 1D (2D) - E11-C002D (2E11-C002D)

CRD Pump 1B (2B) - C11-C001B (2C11-C001B)

RHR Pump (2C) - E11-C002C (2E11-C002C)

UVTAs on Westinghouse Circuit Breakers are used to provide a back-up to the trip function provided by an undervoltage relay which actuates the shunt trip device. This guarantees that load shedding will occur on BUS 1F (2F) during a loss of off-site power even if battery voltage fails and the shunt trip devices could not operate.

The General Electric Molded Case Circuit Breakers are used in the power supply circuits from the Reactor Protection System Motor Generator (MG) Power Sources to Reactor Protection System Power Distribution panels C71-P001 (Unit 1) and 2C71-P001 (Unit 2).

UVTAs on GE Circuit Breakers are used in conjunction with undervoltage, overvoltage and underfrequency monitors to de-energize the RPS Power Distribution Panel when MG Set output is outside the limits of the RPS equipment.

Q: 2a. For each circuit breaker type identified in Item 1, do the following:

Review the design of the UVTA and the connecting linkage. Using input from the breaker manufacturer, determine the design margin available to open the breaker. Evaluate whether or not this design margin is adequate in view of safety applications, considering possible problems of alignment, lubrication, adjustment of spring tension, etc., discussed in the "Description of Circumstances."

A: Required design input has been requested from the manufacturers (Westinghouse & General Electric) but not received. We are actively pursuing this information but have no indication of when it will be received. We will provide the requested information in a supplemental response within 90 days or will provide an explanation for why the information is not available.

Q: 2b. Describe the current breaker surveillance program, including details of test frequency, methodology, and response time measurement of UVTA device.

A: Westinghouse Air Circuit Breakers Type 50DHP250

Circuit breakers have DC control power undervoltage trip release mechanisms. The UVTA provides a back-up to the DC powered trip device. Plant Hatch does not have a specific Circuit Breaker Surveillance Program for UVTAs. Circuit breakers are checked once every 5 years (20% each year) as a part of the Plant Breaker Preventive Maintenance Program. UVTAs are not addressed by that program.



### General Electric F225 Line Molded Case Circuit Breakers

The UVTA is tested every 16 months during the RPS MG Set overvoltage, underfrequency, and undervoltage trip functional test or every operating cycle during calibration of RPS MG Set Protection Relays. During the test, the UVTA trips the circuit breaker when its coil becomes de-energized through the action of the voltage and frequency monitors. The test procedure does not include any response time measurements.

Molded case circuit breakers are factory sealed and, according to available information, preventive maintenance is not required by the manufacturer. We are requesting that GE provide their latest position on this matter in light of this Bulletin.

Q: 2c. Review operating experience with the circuit breakers in your plant(s) identified in Item 1. Provide a list of all malfunctions (both failure to trip and failure to close on demand) associated with the UVTA, including the connecting linkages and latching mechanisms. The list should include the date of each malfunction, and the operating time prior to failure or date of installation, and the date(s) of major maintenance. In general, when the circuit breaker UVTA is actuated on undervoltage and the breaker contacts do not open within the design time response value, the NRC considers the breaker to have failed.

A: The investigation of the maintenance history file revealed that no malfunctions have occurred as a result of UVTA failures.

Q: 2d. Describe any preventive or corrective measures you have taken, or intend to take, based on the results of Items 2a, 2b, and 2c. Include any revisions to the surveillance test program and methodology. Specifically, address the inherent reliability of the UVTA trip feature in view of its apparent heavy dependence on intensive maintenance and surveillance and whether a basic design change is warranted to correct the problem, e.g., using a voltage sensitive relay to sense loss of voltage and energize the shunt trip coil from an independent dc power source.

A: Westinghouse breakers described in this report utilize the UVTA as a back-up to the primary means for tripping the breaker. We do not believe that a basic design change is needed for either the Westinghouse or GE breakers described in this report. Based on favorable operating experience with both Westinghouse Type 50DHP250 and G.E. F225 breakers, no preventive or corrective measures have been taken as a result of I.E. Bulletin 83-08. We shall evaluate the need for action after receiving the manufacturers' information for the UVTAs.