

Georgia Power Company
333 Piedmont Avenue
Atlanta, Georgia 30308
Telephone 404 526-3195

Mailing Address
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Telephone 205 868-5581

the southern electric system

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

HL-1338
001200

October 18, 1990

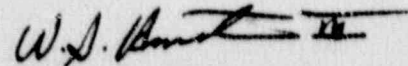
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

PLANT HATCH - UNIT 2
NRC DOCKET 50-366
OPERATING LICENSE NPF-5
LICENSEE EVENT REPORT
COMPONENT FAILURE CAUSES UNPLANNED ESF ACTUATIONS

Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning the unanticipated actuation of some Engineered Safety Features (ESFs). This event occurred at Plant Hatch - Units 1 and 2.

Sincerely,



W. G. Hairston, III

JJP/ct

Enclosure: LER 50-366/1990-008

c: (See next page.)

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U.S. Nuclear Regulatory Commission

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c: Georgia Power Company

Mr. H. L. Sumner, General Manager - Nuclear Plant

Mr. J. D. Heidt, Manager Engineering and Licensing - Hatch
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.

Mr. F. Rinaldi, Acting Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II

Mr. S. D. Ebner, Regional Administrator

Mr. L. D. Wert, Senior Resident Inspector - Hatch

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PLANT HATCH UNIT 2	DOCKET NUMBER (2) 05000366	PAGE (3) 1 OF 5
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TITLE (4)
COMPONENT FAILURE CAUSES UNPLANNED ESF ACTUATIONS

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ NUM	REV	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
09	28	90	90	008	00	10	18	90	PLANT HATCH, UNIT 1	05000321
										05000

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)									
POWER LEVEL 100	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.405(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)					
	20.405(a)(1)(ii)	50.36(c)(2)		50.73(a)(2)(vii)	OTHER (Specify in Abstract below)					
	20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)						
20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(x)							

LICENSEE CONTACT FOR THIS LER (12)

NAME STEVEN B. TIPPS, MANAGER NUCLEAR SAFETY AND COMPLIANCE, HATCH	TELEPHONE NUMBER 912 367-7851
AREA CODE	

COMPLETE ONE LINE FOR EACH FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NRPDS
X	BH	RLY	G080	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (16)

On 9/28/90 at approximately 2025 CDT, Unit 2 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% of rated thermal power) and Unit 1 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% of rated thermal power). At that time, the "A" trains of both units' Standby Gas Treatment (SBGT) systems automatically started, both units' Refueling Floor and Reactor Building ventilation systems (secondary containments) isolated, and the Unit 2 Hydrogen and Oxygen Analyzer and Fission Products Monitoring systems isolated. Additionally, a Group 2 Primary Containment Isolation System (PCIS) isolation signal to some other Unit 2 inboard, Group 2 Primary Containment Isolation Valves (PCIVs) was generated. All systems functioned per design and unit operation was unaffected.

The cause of this event was component failure. The insulation on the coil in relay 2C61-K60 failed and exposed the windings. The windings shorted causing a current surge which blew fuse 2C61-F19. This fuse is in the power supply to the initiation/isolation logic for the above systems. When the fuse failed, these logic systems lost power and their associated systems initiated/isolated per design.

Corrective actions for this event included replacing the failed relay and the blown fuse.

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TEXT

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor
Energy Industry Identification System codes are identified in the text as (EIIS Code XX).

SUMMARY OF EVENT

On 9/28/90 at approximately 2025 CDT, Unit 2 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% of rated thermal power) and Unit 1 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% of rated thermal power). At that time, the "A" trains of both units' Standby Gas Treatment (SBGT, EIIS Code BH) systems automatically started, both units' Refueling Floor and Reactor Building ventilation systems (secondary containments) isolated, and the Unit 2 Hydrogen and Oxygen Analyzer (EIIS Code IK) and Fission Products Monitoring (EIIS Code IK) systems isolated. Additionally, a Group 2 Primary Containment Isolation System (PCIS, EIIS Code JM) isolation signal to some other Unit 2 inboard, Group 2 Primary Containment Isolation Valves (PCIVs) was generated. All systems functioned per design and unit operation was unaffected.

The cause of this event was component failure. The insulation on the coil in relay 2C61-K60 failed and exposed the windings. The windings shorted causing a current surge which blew fuse 2C61-F19. This fuse is in the power supply to the initiation/isolation logic for the above systems. When the fuse failed, these logic systems lost power and their associated systems initiated/isolated per design.

Corrective actions for this event included replacing the failed relay and the blown fuse.

DESCRIPTION OF EVENT

On 9/28/90 at approximately 2025 CDT, the "A" trains of both units' SBGT systems automatically started and both units' Refueling Floor and Reactor Building ventilation systems (secondary containment isolation systems) automatically isolated. Additionally, the Unit 2 Hydrogen and Oxygen Analyzer and Fission Products Monitoring systems isolated and a Group 2 PCIS isolation signal to selected Unit 2 inboard Group 2 PCIVs was generated. No activities were in progress which might have resulted in these actions nor were any system logic actuation signals (e.g., Refueling Floor high radiation, Reactor Building high radiation, Drywell high pressure, Reactor water low level) present.

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TEXT

Investigation by plant Operations and Maintenance personnel revealed the coil in relay 2C61-K60 had failed and fuse 2C61-F19 had blown. The blown fuse resulted in a loss of power to the logic systems for the SBT and normal building ventilation systems. Per design, the loss of power actuated the start logic for the "A" trains of the Unit 1 and Unit 2 SBT systems and the isolation logic for the Unit 1 and Unit 2 Refueling Floor and Reactor Building ventilation systems. (The logic power for the "B" SBT trains is supplied through fuse 2C61-F20 and was unaffected by this event.) All systems functioned per design.

Also, the loss of power actuated the isolation logic to the inboard Group 2 PCIVs in the Unit 2 Primary Containment Purge and Inerting (EIS Code BB), Post Accident Sampling (EIS Code IP), Nuclear Boiler, Hydrogen and Oxygen Analyzer, and Fission Products Monitoring systems. (The isolation logic power for other Group 2 isolation valves is supplied power through other fuses and was unaffected by this event.) Most of the affected valves are normally closed; however, the isolation logic actuation did result in the closure of normally open inboard PCIVs to the Hydrogen and Oxygen Analyzer and Fission Products Monitoring systems. Upon isolation of these systems, Operations personnel initiated Limiting Conditions for Operation (LCOs) 2-90-301 for the Fission Products Monitoring system and 2-90-302 for the Hydrogen and Oxygen Analyzer system per Unit 2 Technical Specifications requirements.

Maintenance personnel proceeded to replace the failed relay and blown fuse per Maintenance Work Order (MWO) 2-90-2780. At approximately 2345 CDT, Maintenance personnel completed replacement of the fuse and relay. Operations personnel returned the Fission Products Monitoring and the Hydrogen and Oxygen Analyzer systems to service and restored the "A" SBT system trains to the standby condition. The Unit 1 and Unit 2 Refueling Floor and Reactor Building ventilation systems were returned to normal operation and the Group 2 isolation signal reset. LCOs 2-90-301 and 2-90-302 were terminated.

CAUSE OF THE EVENT

The cause of this event was component failure. The insulation on the coil in relay 2C61-K60 failed and exposed the windings. The windings shorted causing a current surge which blew fuse 2C61-F19. This fuse is in the power supply to the initiation/isolation logic for the previously referenced systems. When the fuse failed, these logic systems lost power and their associated systems initiated/isolated per design.

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TEXT

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable per 10 CFR 50.73(a)(2)(iv) because unplanned actuations of Engineered Safety Features (ESFs) occurred. Specifically, the "A" trains of the Unit 1 and Unit 2 SGBT systems automatically started, the Unit 1 and Unit 2 secondary containments (i.e., Refueling Floor and Reactor Building ventilation systems) isolated, and a Unit 2, Group 2 PCIS isolation signal was generated to selected inboard PCIVs resulting in the isolation of the Hydrogen and Oxygen Analyzer and Fission Products Monitoring systems.

The SGBT systems are designed to limit the release of radioactivity to the environment following leakage of radioactivity into the secondary containment. The SGBT systems automatically filter the air from the secondary containment following an accident and discharge it via the Main Stack. Each unit's SGBT system consists of two identical, redundant, parallel air filtration trains containing the necessary heaters, filter, and exhaust fans. Normal secondary containment ventilation systems isolate to allow the SGBT system to maintain a negative pressure in the Reactor Building, including the Refueling Floor, and prevent leakage of the unfiltered building atmosphere to the environment.

The PCIS is designed to limit the release of radioactive materials from the Primary Containment in the event of an accident. PCIVs automatically isolate lines penetrating the Primary Containment upon receipt of signals (e.g., low reactor water level, high drywell pressure) indicating an abnormal condition may exist.

In the event described in this report, the "A" trains of the SGBT systems started, the secondary containments isolated, and a partial Group 2 PCIS isolation signal was generated resulting in selected open inboard PCIVs closing per design. These actions occurred when a relay coil grounded and blew a fuse. This caused a loss of power to the affected logic systems. Per IEEE Standard 279-1971, item 4.2, any single failure (including a loss of power) within the protection system shall not prevent proper system operation. Therefore, these logic systems are designed to actuate on loss of power. This is a "fail-safe" condition. The logic systems actuate on loss of power thereby ensuring proper system operation upon a single failure.

All logic systems functioned per design based on the given failure. As a result of the fail-safe logic design, the "A" SGBT trains were available should they have been needed in the unlikely event of an accident because they already were in the actuated condition with the secondary containments isolated. Similarly, the affected Group 2 PCIVs would have isolated Primary Containment should the need have arisen because they already were in the isolated position with a seal-in isolation signal present. In addition, proper and immediate actions were taken when the Hydrogen and Oxygen Analyzer and Fission Products Monitoring systems isolated to ensure continued compliance with the applicable Technical Specifications requirements.

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TEXT

Based on the above, it is concluded these events had no adverse impact on nuclear safety. This analysis is applicable to all power levels.

CORRECTIVE ACTION

Relay 2C61-K60 and fuse 2C61-F19 were replaced per MW0 2-90-2780. The Fission Products Monitoring and Hydrogen and Oxygen Analyzer systems were returned to service and LCOs 2-90-301 and 2-90-302 were terminated. The affected ventilation systems were returned to service, the Group 2 isolation signal was reset, and the "A" SBT system trains were restored to the standby condition.

ADDITIONAL INFORMATION

1. Other Affected Plant Systems:

No plant systems other than those listed in the previous section were affected by this event.

2. Previous Similar Events:

There has been one previously reported similar event in the last two years in which a failed relay or blown fuse resulted in an actuation of an ESF. This event was reported in LER 50-321/1990-016, dated 9/13/90. Corrective actions for that event would not have prevented this event because different components were involved in each event. It was noted a failure of a CR120A model relay was a cause of each event; however, a review of the Nuclear Plant Reliability Data System (NPRDS) data base for Plant Hatch and other plants indicated a low failure rate for these relays. The failure rate at Plant Hatch compares well with the rates at other plants; therefore, no additional corrective actions are deemed necessary.

3. Failed Component Information:

Master Parts List Number: 2C61-K60
 Manufacturer: General Electric
 Type: Relay
 Model Number: CR120A06002AA
 Manufacturer Code: G080
 EIIS System Code: BH
 EIIS Component Code: RLY
 Root Cause Code: X
 Reportable to NPRDS: Yes