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The southern electric system

HL-1489
001232

February 18, 1991

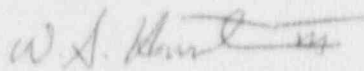
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

PLANT HATCH - UNIT 2
NRC DOCKETS 50-366
OPERATING LICENSES NPF-5
LICENSEE EVENT REPORT
COMPONENT FAILURE CAUSES UNPLANNED
ENGINEERED SAFETY FEATURE 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 50-366/1991-002

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
GO-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. Ebnetter, 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**

TITLE (4)
COMPONENT FAILURE CAUSES UNPLANNED ENGINEERED SAFETY FEATURE 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)
01	30	91	91	002	00	03	01	91	PLANT HATCH, UNIT 1		05000321
											05000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)

OPERATING MODE (9)	20.402(b)	20.405(c)	X	50.73(a)(2)(iv)	73.71(b)
1	20.405(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
POWER LEVEL 100	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	TELEPHONE NUMBER
STEVEN B. TIPPS, MANAGER NUCLEAR SAFETY AND COMPLIANCE, HATCH	912 367-7851

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO NRC/RS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO NRC/RS
X	BH	R LY	G080	YES					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (if yes, complete EXPECTED SUBMISSION DATE) NO X

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (16)

On 1/30/91 at approximately 0015 CST, Unit 2 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% rated thermal power) and Unit 1 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% 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 of the 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 coil in relay 2C61-K50A failed 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 1/30/91 at approximately 0015 CST, Unit 2 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% rated thermal power) and Unit 1 was in the Run mode at an approximate power level of 2436 CMWT (approximately 100% 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 of the 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 coil in relay 2C61-K50A failed 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 1/30/91 at approximately 0015 CST, 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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Investigation revealed the coil in relay 2C61-K50A had failed and fuse 2C61-F19 had blown. The blown fuse resulted in a loss of power to logic systems for the SGBT 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 SGBT 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" SGBT 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 PCIS PCIVs in the Unit 2 Primary Containment Purge and Inerting (EIIS Code BB), Post Accident Sampling (EIIS Code IP), Nuclear Boiler, Hydrogen and Oxygen Analyzer, and Fission Products Monitoring systems. The isolation logic 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) 2-91-47 for the Fission Products Monitoring system and 2-91-48 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) 2-91-387. Following replacement of the fuse and relay, Operations personnel, at approximately 0510 CST, returned the Fission Products Monitoring and the Hydrogen and Oxygen Analyzer systems to service and restored the "A" SGBT 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 2-91-47 and 2-91-48 were terminated.

CAUSE OF THE EVENT

The cause of this event was component failure. The coil in relay 2C61-K50A failed 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.

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 partial 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.

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The SBT systems are designed to limit the release of radioactivity to the environment following leakage of radioactivity into the secondary containment. The SBT systems automatically filter the air from the secondary containment following an accident and discharge it via the Main Stack. Each unit's SBT 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 SBT 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 SBT 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 failed 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" SBT 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.

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-K50A and fuse 2C61-F19 were replaced per MW0 2-91-387. The Fission Products Monitoring and Hydrogen and Oxygen Analyzer systems were returned to service and LCOs 2-91-47 and 2-91-48 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.

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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 have been two previously reported similar events in the last two years in which a failed relay or blown fuse resulted in an actuation of an ESF. These events were reported in LER 50-321/1990-016, dated 9/13/90, and LER 50-366/1990-008, dated 10/18/90. Corrective actions for these events 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. F-iled Component Information:

Master Parts List Number: 2C61-K50A
 Manufacturer: General Electric
 Type: Relay
 Model Number: CR120A04002AA
 Manufacturer Code: G080
 EIIS System Code: BH
 EIIS Component Code: RLY
 Root Cause Code: X
 Reportable to NPRDS: Yes