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HL-1634
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May 15, 1991

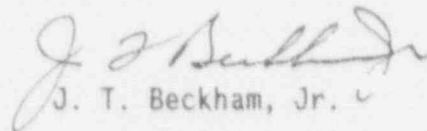
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

PLANT HATCH - UNIT 2
NRC DOCKET 50-366
OPERATING LICENSE NPF-5
LICENSEE EVENT REPORT
COMPONENT FAILURE RESULTS IN UNPLANNED
ACTUATION OF ENGINEERED SAFETY FEATURE

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 a component failure which resulted in an unplanned actuation of an engineered safety feature. This event occurred at Plant Hatch - Units 1 and 2.

Sincerely,


J. T. Beckham, Jr.

OCV/cr

Enclosure: LER 50-366/1991-011

cc: (See next page.)

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U.S. Nuclear Regulatory Commission

May 15, 1991

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cc: 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. 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 4

TITLE (4)
COMPONENT FAILURE RESULTS IN ENGINEERED SAFETY FEATURE ACTUATION

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)	
04	20	91	91	011	00	05	15	91	PLANT HATCH, UNIT 1	05000321	
										05000	

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)									
POWER LEVEL	000	20.402(b)	20.405(c)	X	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	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'S	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO NRC'S
X	JE	FU	B569	N					

SUPPLEMENTAL REPORT EXPECTED (14)

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

ABSTRACT (16)

On 4/20/91, at approximately 1442 CDT, Unit 2 was undergoing a refueling outage with all fuel unloaded from the vessel and Unit 1 was in the Run mode maintaining 100% rated thermal power. At that time, the Main Control Room Environmental Control (MCREC, EIIIS Code VI) system automatically transferred to the Pressurization mode. It was determined that the transfer was caused by a fuse blowing in the "A" channel of a Pressurization mode initiation circuit. The system transferred to the Pressurization mode and operated per design. A four-hour notification was made per 10 CFR 50.72(b)(2)(ii) at approximately 1603 CDT. The fuse was subsequently replaced and the MCREC system was returned to its normal mode of operation by approximately 2116 CDT.

The cause of the event was component failure in that fuse 2A71-F07A opened in the absence of a short-circuit condition. It is noted that electricians were performing corrective maintenance on the initiation circuit at the time of the event. However, based on an inspection of the circuit panels, interviews with the electricians, and testing on a mock-up of the initiation circuit, it was concluded that the electricians' work activity did not result in the fuse opening.

Corrective actions for this event included replacing the fuse and returning the MCREC system to its normal mode of operation.

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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 (EIIIS Code XX).

DESCRIPTION OF EVENT

On 4/20/91, at approximately 1442 CDT, Unit 2 was undergoing a refueling outage with all fuel having been unloaded from the reactor vessel. Unit 1 was in the Run mode at a power level of 2436 CMWT (100 percent of rated thermal power). At approximately 1442 CDT, the Main Control Room Environmental Control system (MCPEC, EIIIS Code VI) automatically transferred from its normal mode of operation to the Pressurization mode. Licensed personnel verified that the system transferred and operated per design. No other automatic Engineered Safety Feature (ESF) actuations occurred in conjunction with the initiation of the MCPEC Pressurization mode.

At the time of the event, plant electricians were performing corrective maintenance in Main Control Room panels 2H11-P609 and 2H11-P611. The work, performed under Maintenance Work Order (MWO) 2-90-3648, involved replacing four circuit terminal links in two MCPEC Pressurization mode initiation circuits. The links had been damaged as a result of repeated opening and closing during frequent surveillance testing. In conjunction with the corrective maintenance, jumpers were installed per Temporary Modification Sheet (TM) 2-91-84 to ensure that the link replacement would not cause an initiation of the MCPEC system Pressurization mode. Following the ESF actuation, the electricians were directed to stop their work until the cause of the event was determined.

Subsequent investigations revealed that fuse 2A71-F07A had blown (i.e., opened) causing the ESF actuation. Fuse 2A71-F07A provides protection to the logic circuit that initiates a transfer of the MCPEC system to the Pressurization mode on a Unit 2 Main Steam Line (EIIIS Code SB) high radiation and/or high flow condition. The circuit, being of a fail-safe design, received an initiation signal when the fuse blew. This particular circuit contained two of the terminal links being replaced. The electricians were working on this circuit at the time of the event.

At approximately 1603 CDT, a four-hour notification was made to the NRC pursuant to 10 CFR 50.72(b)(2)(ii) because an unplanned automatic ESF actuation had occurred. The fuse was replaced under MWO 2-91-1849 and, by approximately 2116 CDT, on 4/20/91, the MCPEC system had been returned to its normal mode of operation.

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TEXT

CAUSE OF THE EVENT

The cause of the event is component failure. Specifically, fuse 2A71-F07A failed open in the absence of a short-circuit condition resulting in the ESF actuation. Though plant electricians were replacing links in the circuit associated with fuse 2A71-F07A, no evidence could be found indicating that an overcurrent condition occurred in the circuit at the time of the event. Testing on a mock-up of the circuit, including simulation of the work in progress at the time of the event, showed that a type FNRQ5 fuse (the fuse type used in the 2A71-F07A application) would actuate only when the circuit was shorted to ground. However, interviews with the electricians and an inspection of the circuit panel did not indicate that a short-circuit to ground had occurred during the work. Consequently, it was concluded that the fuse had failed randomly.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv) because an unplanned automatic actuation of an ESF occurred. Specifically, the MCREC system automatically transferred to the Pressurization mode as a result of fuse 2A71-F07A failing.

The MCREC system is designed to ensure habitability of the Main Control Room following a Design Basis Accident. Specifically, the MCREC system enters the Pressurization mode of operation in response to a Loss of Coolant Accident signal from Unit 1 or 2, a Refueling Floor high radiation signal from Unit 1 or 2, a Main Steam Line high flow signal from Unit 1 or 2, a Main Steam Line high radiation signal from Unit 1 or 2, or a MCREC system air intake high radiation signal. In the Pressurization mode, the Main Control Room is maintained at a positive pressure thereby preventing inleakage of airborne radioactive material, and the supply air to the Main Control Room is filtered through carbon adsorbers and high efficiency particulate air (HEPA) filters keeping doses to Main Control Room personnel to within 10 CFR 50, Appendix A, Criterion 19 limits.

In this event, the failure of fuse 2A71-F07A resulted in a loss of power to a MCREC system Pressurization mode initiation logic circuit associated with a Main Steam Line high radiation/high steam flow signal. Since the circuit was fail-safe in design, the fuse failure resulted in a Pressurization mode initiation signal being transmitted to the MCREC system control logic. The MCREC system subsequently transferred to the Pressurization mode as designed. At the time of the event, Unit 2 was undergoing a refueling outage with all fuel unloaded from the vessel and the vessel flooded-up. Consequently, a high radiation/high steam flow condition could not have existed in the Main Steam Lines at that time. Also, no other plant condition existed on either unit requiring operation of the Pressurization mode. Had such a condition existed, based on the performance of the MCREC system during this event, it is concluded that the system would have performed its safety function, transferring to the Pressurization mode per design.

Based on the above information, it is concluded that this event had no adverse affect on nuclear safety.

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TEXT

CORRECTIVE ACTION

By approximately 2116 CDT, on 4/20/91, fuse 2A71-F07A had been replaced and the MCREC system had been returned to its normal mode of operation.

ADDITIONAL INFORMATION

No systems other than the MCREC system were affected by this event.

Two similar events occurred in the past two years in which a failed fuse resulted in an automatic actuation of an ESF. These two events were reported in LERs 50-321/91-003, dated 3/8/91 and 50-366/91-003, dated 3/8/91. In those two separate events, a fuse to a Refueling Floor Area Radiation Monitor power supply (a Unit 1 power supply in the first event and a Unit 2 power supply in the second event) failed resulting in the MCREC system transferring to the Pressurization mode. Corrective actions for the events included replacing the fuse. These actions would not have prevented this event since they involved fuses in circuits different from that involved in this event. It is also noted that the fuses involved in the previous similar events are of a different type than the fuse involved in this event and, thus, there is no evidence to suggest a generic concern.

Failed Component Identification:

MPL (Plant Index Identifier): 2A71-F07A
Manufacturer: Bussman
Component Type: Fuse
Model Number: FNQR5
EIS Code: FU