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Georgia Power

the southern electric system

J. T. Beckham, Jr.
Vice President - Nuclear
Hatch Project

June 10, 1993

Docket No. 50-321

HL-3346
005624

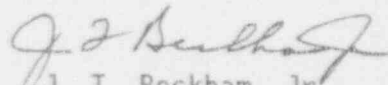
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Edwin I. Hatch Nuclear Plant - Unit 1
Licensee Event Report
Component Failure Results in Partial Group 1
Primary Containment Isolation System Actuation

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 a Partial Group 1 Primary Containment Isolation System Actuation. This event occurred at Plant Hatch Unit 1.

Sincerely,


J. T. Beckham, Jr.

JKB/cr

Enclosure: LER 50-321/1993-011

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. Ebnetter, Regional Administrator
Mr. L. D. Wert, Senior Resident Inspector - Hatch

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PLANT EDWIN I. HATCH, UNIT 1	DOCKET NUMBER (2) 05000321	PAGE (3) 1 OF 5
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TITLE (4)
COMPONENT FAILURE RESULTS IN PARTIAL GROUP 1 PRIMARY CONTAINMENT ISOLATION SYSTEM 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)																																									
05	21	93	93	011	00	06	10	93			05000																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">1</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)</td> </tr> <tr> <td rowspan="6">POWER LEVEL</td> <td rowspan="6">100</td> <td>20.402(b)</td> <td>20.405(c)</td> <td><input checked="" type="checkbox"/></td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>20.405(a)(1)(i)</td> <td>50.36(c)(1)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td>20.405(a)(1)(ii)</td> <td>50.36(c)(2)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vii)</td> <td rowspan="4">OTHER (Specify in Abstract below)</td> </tr> <tr> <td>20.405(a)(1)(iii)</td> <td>50.73(a)(2)(i)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.405(a)(1)(iv)</td> <td>50.73(a)(2)(ii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(viii)(B)</td> </tr> <tr> <td>20.405(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(x)</td> </tr> </table>												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)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)	20.405(a)(1)(ii)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract below)	20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)
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OPERATING MODE (9) 1

POWER LEVEL 100

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

LICENSEE CONTACT FOR THIS LER (12)

NAME STEVEN B. TIPPS, MANAGER NUCLEAR SAFETY AND COMPLIANCE, HATCH	TELEPHONE NUMBER 912 367-7851
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COMPLETE ONE LINE FOR EACH FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NPRDS
X	SB	ISV	A660	Yes					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (16)

On 5/21/93, at 1505 CDT, Unit 1 was in the Run mode at 2436 CMWT (100 percent of rated thermal power). At that time, the setpoints for the Main Steamline Radiation Monitors (MSLRMs) were being changed in preparation for placing the Hydrogen Injection System in service. This activity requires MSLRM 1D11-K603B to be removed from service which, in turn, deenergizes one of two electro-pneumatic control valves in Main Steamline Isolation Valve (MSIV) 1B21-F028C. Prior to this, the other electro-pneumatic control valve in the same MSIV had failed and deenergized. Consequently, when the MSLRM was removed from service, both control valves were deenergized simultaneously and the MSIV closed automatically as designed. Reactor power increased to 110 percent of rated thermal power and reactor pressure increased to 1035 psig (103 percent of normal pressure). Since both of these values are less than the trip setpoints for a reactor scram, no automatic actuations occurred or were expected. At the direction of licensed personnel, the MSLRM was returned to service and the MSIV was reopened. Reactor pressure and power then returned to normal levels.

The cause of this event was a failed component. Specifically, one of two electro-pneumatic control valves in an MSIV failed to the deenergized state such that when the other control valve was deenergized during performance of a procedure, the MSIV automatically closed.

Corrective actions for this event included reopening the affected MSIV, replacing the failed component, reviewing the Nuclear Plant Reliability Data System for similar failures, and installing a system to provide control room indication of the status of the electro-pneumatic control valves in the MSIVs.

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PLANT AND SYSTEM IDENTIFICATION

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

DESCRIPTION OF EVENT

On 5/21/93, at 1505 CDT, Unit 1 was in the Run mode at 2436 CMWT (100 percent of rated thermal power). At that time, the setpoints for the Main Steamline Radiation Monitors (MSLRM, EIIS Code IL) were being changed in preparation for placing the Hydrogen Injection System in service. Changing these setpoints within 24 hours of placing the Hydrogen Injection System in service is required by Technical Specifications Table 3.2-1, note e., and is performed per procedure 57SV-CAL-005-0S, "GE NUMAC LOGARITHMIC RADIATION MONITOR CALIBRATION." At 1505 CDT, MSLRM 1D11-K603B was removed from service by an Instrument and Controls technician per this procedure, causing, as expected, a partial Reactor Protection System (RPS, EIIS Code JC) trip signal and a partial Group 1 Primary Containment Isolation System (PCIS, EIIS Code JM) trip signal. By design, these signals do not affect sufficient logic to produce any system actuations. However, when the MSLRM was taken out of service, the Average Power Range Monitor (APRM, EIIS Code IG) upscale annunciator and the Reactor high pressure annunciator alarmed. The licensed operator responding to the alarming annunciators saw that steam line flow in one of the Main Steamlines was decreasing and that Main Steam Isolation Valve (MSIV) 1B21-F028C did not full open. The operator, realizing that the MSLRM provided input to the isolation logic for the MSIVs, instructed the Instrument and Controls technician to return the MSLRM to service. This was done immediately. The PCIS actuation logic was then reset and the MSIV reopened. Reactor pressure and power then returned to normal levels. There were no other equipment actuations associated with this event.

CAUSE OF EVENT

The cause of this event was a failed electro-pneumatic control valve in MSIV 1B21-F028C. The position of each MSIV is determined by two electro-pneumatic control valves. When both of the control valves are deenergized simultaneously, the MSIV closes. In this event, one of the control valves failed and was thus deenergized. The second control valve was deenergized as a result of MSLRM 1D11-K603B being taken out of service in accordance with the surveillance procedure in use at the time. When both electro-pneumatic control valves were deenergized simultaneously, the MSIV closed per design.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is required per 10 CFR 50.73(a)(2)(iv) because an unplanned actuation of an engineered safety feature (ESF) occurred. Specifically, a Main Steam Isolation Valve automatically closed in response to a signal generated by

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removing a Main Steamline Radiation Monitor from service when a component in the MSIV control logic had also failed. The Main Steam Isolation Valves are part of the Primary Containment Isolation System. The PCIS provides timely protection against the onset and consequences of events involving the potential release of radioactive materials from the fuel and nuclear system process barriers by isolating lines which penetrate Primary Containment. PCIS valves are divided by design into several groups. Group 1 PCIS valves are located in lines which communicate directly with the nuclear steam supply system and which do not provide an Emergency Core Cooling System. Automatic isolation of Group 1 lines occurs on any of several process conditions including Main Steamline high flow, Main Steamline low pressure, reactor water low level, Main Condenser low vacuum, high area temperature near the Main Steamlines, and Main Steamline high radiation. The Main Steamline Radiation Monitors are part of the control logic for the MSIVs and provide a trip signal to the portion of PCIS serving the MSIVs. The monitors are designed to fail safe such that a monitor will provide a trip signal should it become inoperable. The MSIV electro-pneumatic controls and the portion of PCIS serving the MSIVs are also of fail-safe design such that MSIV closure is initiated upon loss of signal or control power.

In this event, one of the two electro-pneumatic control valves in MSIV 1B21-F028C had failed to the deenergized state. When radiation monitor 1D11-K603B was taken out of service as part of a planned setpoint change, the other control valve in the same MSIV was deenergized. With both of these control valves deenergized simultaneously, the pneumatic control logic for an automatic isolation of the MSIV was satisfied, and the MSIV closed per design. Since the failed solenoid affected only MSIV 1B21-F028C, none of the other MSIVs closed, nor should they have closed. No other equipment actuations occurred in connection with this event.

When the MSIV closed, Reactor pressure increased as expected. The peak pressure reached in the event was 1035 psig which is below the RPS scram setpoint of 1042 psig. Thus, a scram did not occur nor was it required as a result of the pressure increase. The peak pressure reached during the event was well below the design pressure rating for the Reactor vessel of 1250 psig.

As expected with a Reactor vessel pressure increase, reactor power increased during the event. The highest reactor power level reached in the event was approximately 110 percent of rated thermal power. The RPS scram setpoint for Reactor power is 117 percent of rated thermal power. This setpoint limits Reactor power excursions such that fuel damage cannot occur. Since the maximum power level reached during the event was less than this setpoint, a scram did not occur (and was not expected) and fuel integrity was not jeopardized. When the operator reopened the MSIV, reactor pressure and reactor power returned to their normal levels.

Based on the above information, it was concluded that this event had no adverse impact on nuclear safety. This analysis applies to all power levels.

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CORRECTIVE ACTIONS

Corrective actions for this event included:

1. Returning the MSLRM to service, resetting the partial Group 1 PCIS signal, and reopening the MSIV. This action is complete.
2. Replacing the failed electro-pneumatic control valve on the affected MSIV. This action is complete.
3. Reviewing the Nuclear Plant Reliability Data System for evidence of similar failures indicative of an adverse trend. No such trend was identified. This action is complete.
4. Completing a design change which installed indicating lights on the solenoids for the electro-pneumatic control valves in the MSIVs. This action has now been completed. These lights are located in the Main Control Room and will be used to verify electrical continuity of both solenoids when activities such as surveillance testing result in one of the solenoids being deenergized.

ADDITIONAL INFORMATION

1. Other Affected Systems: No systems other than those mentioned in this report were affected by this event.
2. Previous Similar Events: Events reported in the past two years in which component failures other than fuse failures resulted in the unplanned automatic actuations of Engineered Safety Features are described in the following LERs:

50-321/1991-014, dated 09/09/91
 50-321/1991-015, dated 09/18/91
 50-321/1991-016, dated 09/30/91
 50-321/1991-023, dated 11/12/91
 50-321/1991-030, dated 12/23/91
 50-321/1992-001, dated 02/06/92
 50-321/1992-004, dated 02/26/92
 50-321/1992-010, dated 05/20/92
 50-321/1992-015, dated 07/09/92
 50-321/1993-001, dated 01/22/93
 50-366/1991-015, dated 06/24/91
 50-366/1992-005, dated 05/11/92
 50-366/1992-008, dated 07/17/92

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Corrective actions for these events included replacing failed components, conducting departmental training meetings, conducting a design review of a failed component, implementing a design change on Secondary Containment dampers, performing a failure analysis on a component, implementing a design change to RPS logic, and revising procedures. These corrective actions would not have prevented this event because they addressed the specific components and conditions involved in the various events and thus were not intended to be global in nature.

3. Failed Components Information:

Master Parts List Number: 1B21-F028C
 Type: Solenoid Operated Valve
 Manufacturer: AVCO
 Model Number: C51408H
 Manufacturer Code: A660
 EIIS System Code: SB
 EIIS Component Code: ISV
 Root Cause Code: X
 Reportable to NPRDS: Yes