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Georgia Power
the southern electric system

HL-1580
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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
UNKNOWN INADEQUACY IN JUMPER CONNECTION RESULTS IN
SCRAM DURING SURVEILLANCE IN COLD SHUTDOWN

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 an Engineered Safety Feature (ESF). This event occurred at Plant Hatch - Unit 2.

Sincerely,

J. T. Beckham, Jr.

SWR/ct

Enclosure: LER 50-366/1991-007

cc: (See next page.)

IE22
1/1

Georgia Power

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

NRC Form 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
PLANT HATCH, UNIT 2	0 5 0 0 0 3 6 6	1 OF 4

TITLE (4)
UNKNOWN INADEQUACY IN JUMPER CONNECTION RESULTS IN SCRAM SIGNAL DURING SURVEILLANCE IN COLD SHUTDOWN

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)
										0 5 0 0 0
0 3	2 6	9 1	9 1	0 0 7	0 0	0 4	2 5	9 1		0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)			
POWER LEVEL	0 0 0	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
	AREA CODE
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	MANUFAC-TURER	REPORT TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORT TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (16)

On 3/26/91, at approximately 1155 CST, Unit 2 was in Cold Shutdown with reactor coolant temperature at approximately 100 degrees Fahrenheit, reactor pressure at atmospheric, and all control rods fully inserted. At that time, licensed plant operators observed indications that a full scram signal had been received. In accordance with Technical Specifications requirements prior to entering Refuel mode, surveillance procedure 34SV-C51-001-2S was being performed to test the Neutron Monitoring System (NMS, EIIS Code IG) noncoincident scram logic. This required the placement of electrical jumpers in the Reactor Protection System (RPS, EIIS Code JE) logic to ensure a full scram was not generated while testing NMS trip functions. In this event, it appears that at least one jumper failed to maintain contact resulting in a full scram signal when NMS signals were induced per the surveillance procedure.

The cause of this event could not be conclusively determined. However, it appears to be an isolated event resulting from an unknown inadequacy in a jumper connection.

Corrective actions for this event include completing the functional test which verified operability of the NMS noncoincident scram logic and revising the surveillance procedure to reduce the probability of recurrence.

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 THE EVENT

On 3/26/91, at approximately 1155 CST, licensed plant operators were performing a functional test of the Startup Range Neutron Monitors (SRMs) in accordance with procedure 34SV-C51-001-2S, "SRM FUNCTIONAL TEST." This procedure is routinely performed to verify the operability of the SRMs and to test the Neutron Monitoring System (NMS, EIIS Code IG) noncoincident scram logic, in accordance with Technical Specifications requirements, prior to the plant entering the Refuel mode. The noncoincident scram logic is required when in the Refuel mode during core alterations and shutdown margin demonstrations and is made effective via removal of the 'shorting links' from the Reactor Protection System (RPS, EIIS Code JE) logic. With the RPS shorting links removed, a trip of any single NMS instrument, specifically any one of the SRMs, Intermediate Range Monitors (IRMs), and Average Power Range Monitors (APRMs), will initiate a full scram by actuating both channels of RPS logic.

The procedure requires one of the RPS shorting links to be removed so that noncoincident NMS scram logic can be tested. Then electrical jumpers are installed in the RPS logic so that test signals emanating from the NMS will affect only one channel of RPS logic (half scram) at a time. This allows for all the noncoincident NMS scram logic to be tested without generation of a full scram signal. NMS test signals are then generated by opening various links in the logic to simulate the various NMS instrument trips. Annunciators and lights are used to verify that the RPS channel actuates as expected.

On 3/26/91, licensed Operations personnel installed the jumpers on the correct relay terminals as required by the procedure. However, when a link was opened to simulate an NMS trip, both channels of RPS actuated, resulting in a full scram signal rather than a half scram as expected.

Although all the control rods were already fully inserted, actuation of the control rod drive accumulators due to the full scram signal was indicated by the momentary overtravel of the control rods and corresponding illumination of drift lights. The scram was reset by approximately 1157 CST.

CAUSE OF THE EVENT

The cause of this event could not be conclusively determined. Electrical jumpers designed to prevent an NMS signal from actuating both channels of RPS logic were installed between the correct connection points but apparently failed to maintain good electrical contact. Therefore, when an NMS trip signal was induced in accordance with the procedure, the trip signal was sensed in two channels of RPS logic rather than one, resulting in a full scram signal.

The investigation into the cause of the event yielded the following information:

1. Immediately after the event, at least one licensed operator inspected the jumper installation and determined the jumpers were connected across the correct pairs.

2. The suspect jumpers were electrically tested by Instrumentation and Control technicians and were found to be in good condition with no electrical discontinuities or loose connections.

3. The applicable portion of procedure 34SV-C51-001-2S was subjected to a detailed review. It was determined to be correct in that there were no anomalies in step order, technical detail or equipment identification which could have contributed to the event.

4. The panel in which the jumpers were located was inspected and was found to be in good condition with respect to physical condition, lighting, accessibility and labeling.

5. The Nuclear Plant Reliability Data System (NPRDS) was queried for information concerning failed electrical jumpers. No events similar to this event were identified.

6. A review of industry experience was performed. No events similar to this event were identified.

Therefore, it was concluded that this was apparently an isolated event resulting from an unknown inadequacy in a jumper connection.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable per 10 CFR 50.73(a)(2)(iv) because an Engineered Safety Feature, specifically the Reactor Protection System, experienced an unplanned, automatic actuation.

The Reactor Protection System automatically initiates a reactor scram to ensure the radioactive materials barriers, such as fuel cladding and pressure system boundary, are maintained, and to mitigate the consequences of transients and accidents. The NMS inputs into the RPS are designed to monitor neutron flux levels and to initiate a rod withdrawal block or an RPS actuation if neutron flux exceeds preset levels. In the event described in this report, the RPS actuated per design given the NMS signals which were induced in the system during a required surveillance.

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

CORRECTIVE ACTIONS

Corrective actions for this event include:

1. Completing the SRM functional test. This action is completed.

2. Revising procedure 34SV-C51-001-2S to require fewer jumpers to be installed. It is believed this will reduce the probability that the event could recur. This action will be completed prior to returning the unit to operation, currently scheduled for 5/24/91.

3. Revieving the feasibility of using a different kind of jumper for this procedure, such as a "banana plug" jumper. This review will be completed prior to returning the unit to operation, currently scheduled for 5/24/91.

ADDITIONAL INFORMATION

1. Other Systems Affected: No other systems were affected by this event.

2. Previous Similar Events: No events were identified in which a jumper installed in the correct location apparently failed to maintain electrical continuity resulting in the actuation of an Engineered Safety Feature (ESF).

3. Failed Components Identification: No failed components contributed to this event.