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Executive Vice President
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the southern electric system

HL-889
0498V

December 27, 1989

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
EQUIPMENT FAILURE RESULTS IN A
REACTOR PROTECTION 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 reactor protection system actuation due to equipment failure. This event occurred at Plant Hatch - Unit 2.

Sincerely,

W. G. Hairston, III

JKB/eb

Enclosure: LER 50-366/1989-09

c: (See next page.)

IE22
1/1

c: Georgia Power Company
Mr. H. C. Nix, General Manager - Nuclear Plant
Mr. J. D. Heidt, Manager Nuclear Engineering and Licensing - Hatch
GO-NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. P. Crocker, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. J. E. Menning, Senior Resident Inspector - Hatch

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

EQUIPMENT FAILURE RESULTS IN A REACTOR PROTECTION SYSTEM ACTUATION

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
1 1	2 9	8 9	8 9	— 0 0 9	— 0 0	1 2	2 7	8 9		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
	4	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 1 0	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 and in Text, NRC Form 366A)
		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	9 1 2 3 6 7 - 7 8 1 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 11/29/89, at approximately 1220 CST, Unit 2 was in Cold Shutdown. The Unit 2 Station Service Air Compressors (SSAC, EIIS LF) were being replaced with screw-type air compressors under Design Change Request (DCR) 86-356 to improve their reliability. SSAC "B" and "C" had been replaced with SSAC "C" in service. Modification activities were still in progress on SSAC "A" and "B". A temporary air compressor had been installed and maintained in a standby condition as a backup to SSAC "C". At approximately 1155 CST, SSAC "C" tripped on loss of system cooling. Delays were encountered in placing the temporary compressor in service and low system air pressure resulted. The low system air pressure allowed the scram valves to drift open resulting in a discharge of reactor water to the Scram Discharge Volume (SDV). At approximately 1220 CST a Reactor Protection System (RPS, EIIS Code JC) actuation occurred from an SDV high level condition. The temporary air compressor was successfully placed into service and SSAC "C" returned to service shortly thereafter.

The root cause of the event is equipment failure. SSAC "C" tripped due to a multimeter test lead which disengaged from the multimeter during troubleshooting activities and grounded the cooling water control circuit.

Corrective actions include placing the backup temporary air compressor into service, replacing a blown fuse in the SSAC cooling water system control circuitry and returning SSAC "C" to service.

NRC Form 366
(9-83)

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		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)	

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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 11/29/89, at approximately 1220 CST, Unit 2 was in Cold Shutdown. The Unit 2 Station Service Air Compressors (SSAC, EIIS LF) were being replaced with screw-type air compressors under Design Change Request (DCR) 86-356 to improve their reliability. SSAC "B" and "C" had been replaced with SSAC "C" in service. Modification activities were still in progress on SSAC "A" and "B". A temporary air compressor had been installed and maintained in a standby condition as a backup to SSAC "C". At approximately 1155 CST, SSAC "C" tripped on loss of system cooling. Delays were encountered in placing the temporary compressor in service and low system air pressure resulted. The low system air pressure allowed the scram valves to drift open resulting in a discharge of reactor water to the Scram Discharge Volume (SDV). At approximately 1220 CST a Reactor Protection System (RPS, EIIS Code JC) actuation occurred from an SDV high level condition. The temporary air compressor was successfully placed into service and SSAC "C" returned to service shortly thereafter.

The root cause of the event is equipment failure. SSAC "C" tripped due to a multimeter test lead which disengaged from the multimeter during troubleshooting activities and grounded the cooling water control circuit.

Corrective actions include placing the backup temporary air compressor into service, replacing a blown fuse in the SSAC cooling water system control circuitry and returning SSAC "C" to service.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

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 11/29/89, at approximately 1220 CST, Unit 2 was in Cold Shutdown. The Unit 2 Station Service Air Compressors (SSAC, EIIS LF) were being replaced with screw-type air compressors under Design Change Request (DCR) 86-356 to improve their reliability. SSAC "B" and "C" had been replaced with SSAC "C" in service. Modification activities were still in progress on SSAC "A" and "B". A temporary air compressor had been installed and maintained in a standby condition as a backup to SSAC "C". At approximately 1155 CST, SSAC "C" tripped on loss of system cooling. Delays were encountered in placing the temporary compressor in service and a low system air pressure resulted. The low system air pressure allowed the scram valves to drift open resulting in a discharge of reactor water to the Scram Discharge Volume (SDV). At approximately 1220 CST a Reactor Protection System (RPS, EIIS Code JC) actuation occurred from an SDV high level condition. The temporary air compressor was successfully placed into service and SSAC "C" returned to service shortly thereafter.

The root cause of the event is equipment failure. SSAC "C" tripped due to a multimeter test lead which disengaged from the multimeter during trouble shooting activities and grounded the cooling water control circuit.

Corrective actions include placing the backup temporary air compressor into service, replacing a blown fuse in the SSAC cooling water system control circuitry and returning SSAC "C" to service.

DESCRIPTION OF EVENT

On 11/29/89, at approximately 1220 CST, Unit 2 was nearing the end of a refueling outage and in the Cold Shutdown mode following a Reactor Pressure Vessel hydrostatic test. The Station Service Air system was undergoing modification per DCR 86-356. The SSACs were being replaced with screw-type air compressors to improve the reliability of the system. SSAC's "B" and "C" had been replaced, functionally tested, and SSAC "C" placed in operation. Modification activities were still in progress on SSAC "A" and "B". A temporary air compressor had been installed and maintained as a backup to the SSAC in service while modification activities were in progress on the other SSAC's. With SSAC "C" returned to service, the temporary air compressor was maintained in a standby condition.

At the time of the event, troubleshooting activities were in progress on a temperature switch in the closed cooling water system dedicated to the SSAC's. An I&C technician had installed a multimeter across the temperature switch. At approximately 1155 CST, one of the multimeter test leads became disengaged from the multimeter and contacted the system skid. This resulted in grounding the closed cooling water system control circuit, loss of cooling, and, subsequently, a trip of SSAC "C". Involved personnel notified the Unit 2 Shift Supervisor of the loss of SSAC "C". The Shift Supervisor dispatched a nonlicensed operator to start the temporary air compressor and restore air system pressure. At approximately 1205 CST, the temporary air compressor was started. Even though the temporary air compressor was running, system air pressure continued to decrease.

At approximately 1215 CST, a licensed operator was dispatched to the temporary air compressor to check for proper operation. The compressor was found to be operating properly. The operator then went to verify the position of the temporary compressor supply line discharge valve. The low system air pressure subsequently allowed the scram inlet and outlet valves to open resulting in a discharge of reactor water into the SDV. At approximately 1220 CST, the SDV had filled to the trip setpoint level initiating an RPS actuation. No rod movement resulted from the RPS actuation since the control rods were full-in at the time of the event. Shortly thereafter, the operator found the discharge valve closed and immediately opened it. When air pressure was restored, the RPS actuation was reset.

By approximately 1252 CST, a blown fuse in SSAC closed cooling water system control circuitry had been replaced and SSAC had been returned to service. The temporary compressor was then returned to standby.

CAUSE OF THE EVENT

The root cause of the event was equipment failure. A multimeter test lead became disengaged from the multimeter and contracted the system skid. This resulted in grounding the closed cooling water system control circuit, which caused a loss of cooling to, and subsequent trip of SSAC "C". This equipment failure appears to be an isolated event.

Operations personnel experienced delays in placing the temporary compressor into service due to a less than fully adequate procedure. Specifically, special purpose procedure 34SP-090889-QX-1-2N did not adequately address operation of the temporary compressor from the standby mode.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is required per 10 CFR 50.73(a)(2)(iv) because this event resulted in an unplanned RPS actuation. Specifically, loss of SSAC "C" resulted in an unplanned RPS actuation on SDV high level.

The RPS provides timely protection from the occurrence of conditions that could threaten the integrity of the fuel barriers and the nuclear system process barriers and mitigation of the consequences of the unlikely failure of the fuel barriers or the nuclear system process barriers. One of the initiating signals of an RPS actuation is SDV high water level. The SDV provides a controlled containment for reactor water discharged from the control rod mechanisms during a scram. An RPS actuation on SDV high water level is initiated prior to the volume filling to a level in which insufficient capacity would remain in the volume to accommodate a scram.

In the event, RPS functioned as designed. The scram inlet and outlet valves began drifting open as expected with station service air system low pressure. Since the control rods were full-in, no rods began drifting in as a result of this. However, the scram outlet valves drifting open resulted in reactor water being directed to the SDV. When the SDV water level reached 57 gallons (the high level trip setpoint), an RPS actuation was initiated. The actuation was a conservative action.

At the time of the event, all control rods were full-in. Thus, no control rod movement resulted from the actuation. Also, at the time of the event, the unit was in the Cold Shutdown mode and, per the Unit 2 Technical Specifications, the SDV High Level trip instrumentation is not required to be operable during the Cold Shutdown mode.

Based on the above information, it is concluded that this event had no adverse impact on nuclear plant safety. Since RPS functioned as designed, the event would have had no adverse impact on nuclear plant safety had the event occurred under other operating conditions.

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CORRECTIVE ACTIONS

The temporary air compressor was placed into service and the station service air pressure restored. A blown fuse in the SSAC cooling water system control circuitry was replaced and SSAC "C" was returned to service.

The RPS actuation was reset.

The temporary compressor was placed in an automatic mode of operation. In this mode, the compressor automatically provides air to the station service air system upon low system pressure and, thus, no manual actions are required by operating personnel. Procedure 34SP-090889-QX-1-2N has been revised to address the automatic mode of operation.

ADDITIONAL INFORMATION

No systems other than RPS and the Station Service Air System were affected by this event.

No previous events have occurred in which an unplanned engineered safety features actuation occurred as the result of an equipment failure of a multimeter during troubleshooting activities.

*U.S. GPO: 1988-520-589/00070