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Georgia Power

the southern electric system

C. K. McCoy
Vice President, Nuclear
Vogtle Project

February 6, 1997

LCV-0969

Docket Nos. 50-424

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

Ladies and Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
LICENSEE EVENT REPORT 1-97-01
THERMAL OVERLOAD BYPASS JUMPER
CONNECTION RENDERS ECCS VALVE INOPERABLE

In accordance with the requirements of 10 CFR 50.73, Georgia Power Company (GPC) hereby submits a Vogtle Electric Generating Plant licensee event report concerning an event which was discovered on January 9, 1997.

Sincerely,

C.K. McCoy
C. K. McCoy

CKM/NJS

Enclosure: LER 1-97-01

xc: Georgia Power Company
Mr. J. B. Beasley, Jr.
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. L. L. Wheeler, Licensing Project Manager, NRR
Mr. C. R. Ogle, Senior Resident Inspector, Vogtle

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REQUIRED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Vogtle Electric Generating Plant - Unit 1

DOCKET NUMBER (2)

5000424

PAGE (3)

1 OF 4

TITLE (4)

THERMAL OVERLOAD BYPASS JUMPER CONNECTION RENDERES ECCS VALVE INOPERABLE

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 NAME	DOCKET NUMBER(S)
01	09	97	97	001	00	02	06	97		05000
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)							
POWER LEVEL (10)										
100										
			20.2201(b) <input checked="" type="checkbox"/> 50.73(a)(2)(i) 50.73(a)(2)(vii)							
			20.2203(a)(1) 50.73(a)(2)(ii) 50.73(a)(2)(x)							
			20.2203(a)(2)(i) 50.73(a)(2)(iii) 73.71							
			20.2203(a)(2)(ii) 20.2033(c)(1) 50.73(a)(2)(iv) OTHER							
			20.2203(a)(2)(iii) 50.36(c)(1) 50.73(a)(2)(v) Specify in Abstract below							
			20.2203(a)(2)(iv) 50.36(c)(2) 50.73(a)(2)(vi) or in NRC Form 366A							

LICENSEE CONTACT FOR THIS LER (12)

NAME

Mehdi Sheibani, Nuclear Safety and Compliance

TELEPHONE NUMBER (include area code)

AREA CODE

706 826-3209

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

MONTH DAY YEAR

SUBMISSION

DATE (15)

YES (if yes, complete EXPECTED SUBMISSION DATE)

X

NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-space typewritten lines) (16)

Walkdowns performed by NRC resident inspectors found the thermal overload bypass jumper for valve 1HV-8802A improperly connected. This valve is normally closed, but must be opened post-LOCA to initiate hot-leg recirculation. Technical Specification 3.8.4.2 requires the thermal overload protection to be bypassed for this valve. Within 3 hours of this discovery on January 9, 1997, the jumper was connected to the correct location.

An investigation found that the last time work had been performed affecting this jumper was during the refueling outage in March 1996. The jumper had been removed and subsequently reinstalled during valve testing at that time. Due to a lack of evidence to the contrary, it was determined that the jumper must have been incorrectly installed following this valve testing. Therefore, the cause of this event was cognitive personnel error on the part of the electricians involved. The electricians were counseled regarding attention to detail, proper installation of lifted leads, and the value of independent verification. Also, this event will be addressed for maintenance personnel in 1997 continuing training.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1) Vogtle Electric Generating Plant - Unit 1	DOCKET NUMBER (2) 05000424	LER NUMBER (6)			PAGE (3)		
		YEAR 97	SEQUENTIAL YEAR 00	REVISION NUMBER 01		2	OF 4

TEXT (If more space is required, use additional copies of NRC Form 386A)(17)

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(i) because the unit operated in a condition prohibited by the Technical Specifications (TS) when a thermal overload circuit was not bypassed as required by TS 3.8.4.2. In addition, since the thermal overload circuit could have prevented valve 1HV-8802A from fulfilling its safety function, the failure to bypass the circuit rendered the valve inoperable. Therefore, the Train A ECCS subsystem was inoperable for the time that the circuit was not bypassed, and the unit operated in a condition prohibited by TS 3.5.2.

B. UNIT STATUS AT TIME OF EVENT

At the time of the discovery of this event on January 9, 1997, Unit 1 was operating in Mode 1 (power operation) at 100 percent of rated thermal power. Other than that described herein, there was no inoperable equipment that contributed to the occurrence of this event.

C. DESCRIPTION OF EVENT

On January 8, 1997, NRC resident inspectors performed a walkdown of selected motor control center (MCC) cubicles. This walkdown included checking the termination points of the orange thermal overload bypass jumpers. On January 9, 1997, an inspector began matching the as-found termination points for the thermal overload bypass jumpers with design drawings. Personnel observed that the MCC for the Train A safety injection (SI) pump discharge header valve, 1HV-8802A, had a thermal overload bypass jumper connected to terminal 14 instead of terminal 15, as shown on the drawing. The inspector and the system engineer again went to the cubicle, verified the as-found configuration and notified the control room. This valve is normally closed, but it must be capable of opening following a LOCA to initiate hot-leg recirculation. Since the thermal overload circuit, which is required to be bypassed per TS 3.8.4.2, could prevent the valve from fulfilling its safety function, valve 1HV-8802A was rendered inoperable by this condition. A limiting condition for operation (LCO) was entered at 1429 EST to remove the valve from service per the requirements of TS 3.8.4.2 and TS 3.5.2. The bypass jumper was re-installed to terminal 15, the LCO was exited at 1655 EST, and 1HV-8802A was returned to service.

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TEXT (If more space is required, use additional copies of NRC Form 306A)(17)

D. CAUSE OF EVENT

An investigation found that the last time work had been performed in the cubicle was during the refueling outage in March 1996. The jumper had been removed and subsequently reinstalled during valve testing at that time. Due to a lack of evidence to the contrary, it was determined that the jumper must have been incorrectly installed to terminal 14 instead of terminal 15 in March 1996. The cause of this event was cognitive personnel error on the part of the Georgia Power Company electricians involved. There were no unusual characteristics of the work location that contributed to the occurrence of this error.

E. ANALYSIS OF EVENT

Valve 1HV-8802A is normally closed to support safety injection to the reactor coolant system cold legs immediately following an accident. Some time into the accident, it would be necessary to open this valve to establish hot-leg recirculation. Therefore, this condition would not have affected the initial phase of accident mitigation. Later in the accident, had a thermal overload condition existed, 1HV-8802A may not have opened when required to initiate the hot leg recirculation phase of ECCS cooling. So, a single failure consisting of a loss of Train B emergency power in conjunction with a condition resulting in a thermal overload of 1HV-8802A could prevent initiation of hot-leg recirculation via the safety injection pumps (valves 1HV-8802A or B).

Hot-leg recirculation is intended to address the concern of boron precipitation during post-LOCA cooling following an RCS cold leg break. If the boron were to precipitate on the fuel cladding surface, it could result in additional thermal resistance to heat removal, and the boron could block cooling passages needed to maintain long-term core cooling. As a result, operating three and four loop pressurized water reactors of the Westinghouse design have in place emergency operating procedures to realign the ECCS to the RCS hot legs. However, in WCAP-14486, "ECCS Hot Leg Recirculation Elimination for Westinghouse 3 and 4 Loop Design NSSS," Westinghouse has demonstrated analytically that there is enough flow through the gap between the core barrel and the reactor vessel at the hot leg nozzles so that realignment of the ECCS for hot-leg recirculation is not necessary. This gap provides a flowpath directly from the upper plenum into the reactor vessel down comer, permitting highly borated water to be recirculated back to the containment sump via the break which is located downstream of the down comer. The forward flushing of the core through this gap is adequate to limit boron precipitation, thereby eliminating the need for hot-leg recirculation and assuring that the reactor core would remain subcritical.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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Vogtle Electric Generating Plant - Unit 1	05000424	YEAR	SEQUENTIAL YEAR	REVISION NUMBER			
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TEXT (If more space is required, use additional copies of NRC Form 366A)(17)

Finally, no event requiring a safety injection has occurred since this condition was instituted following the March 1996 refueling outage. Based on these considerations, there has been no adverse affect on plant safety or on the health and safety of the public as a result of this event.

F. CORRECTIVE ACTION

- 1) The electricians involved were counseled regarding attention to detail, proper installation of lifted leads, and the value of independent verification.
- 2) In response to this event, the other TS related valves in both Unit 1 and Unit 2 were checked to ensure their thermal overload bypass jumpers were properly installed.
- 3) Other electricians have been advised of this event and the potential consequences of improperly connected jumpers.
- 4) This event will be addressed in the next segment of maintenance department personnel's 1997 continuing training, to be completed by April 25, 1997.

G. ADDITIONAL INFORMATION

- 1) Failed Components:
None
- 2) Previous Similar Events:
None
- 3) Energy Industry Identification System Code:
Safety Injection System - BQ