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Vogtle Project



June 23, 1992

ELV-03860

Docket No. 50-424

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

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
LICENSEE EVENT REPORT
REACTOR SHUTDOWN DUE TO
EXCESSIVE UNIDENTIFIED LEAKAGE

In accordance with 10 CFR 50.73, Georgia Power Company (GPC) hereby submits the enclosed revised report related to an event which occurred on May 14, 1992. This revision reflects additional information obtained since the original report was submitted.

Sincerely,

CKM
C. K. McCoy

CKM/NJS

Enclosure: LER 50-424/1992-004, Revision 1

xc: Georgia Power Company
Mr. W. B. Shipman
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebnetter, Regional Administrator
Mr. D. S. Hood, Licensing Project Manager, NRR
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) VOGTLE ELECTRIC GENERATING PLANT - UNIT 1										DOCKET NUMBER (2) 05000424				PAGE (3) 1 OF 3		
TITLE (4) REACTOR SHUTDOWN DUE TO EXCESSIVE UNIDENTIFIED LEAKAGE																
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	14	92	92	004	01	06	23	92					05000			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)														
1		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)		
POWER LEVEL		100				20.405(a)(i)(i)				50.36(c)(1)				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)				X 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 MEHDI SHEIRANI, NUCLEAR SAFETY AND COMPLIANCE										TELEPHONE NUMBER AREA CODE 706 826-3209						
COMPLETE ONE LINE FOR EACH FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO PRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO PRDS						
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)												X NO				
ABSTRACT (16)																

On May 13, 1992 at 2248 EDT and at 2335 EDT, control room personnel received alarms indicating gradually increasing containment atmospheric radiation levels and initiated action to determine the cause. On May 14, 1992 at 0330 EDT, a team performing a reactor coolant system (RCS) leak inspection inside containment reported that RCS leakage was located inside the biological shield wall, but the precise source of the leak could not be determined while the reactor was at power. A calculation confirmed that the unidentified RCS leakage was above the Technical Specification allowable limit, and at 0337 EDT, a Notification of Unusual Event (NUE) was declared and a power reduction was initiated in preparation for a unit shutdown. At 0930 EDT, the reactor entered Mode 3 (hot standby). An inspection team entered the containment building and found water and steam leaking from a cracked weld on a 1-inch diameter weldolet which connected a double isolation drain valve assembly to 6-inch diameter safety injection piping, which connects directly to loop 1 of the RCS. At 1934 EDT, the unit entered Mode 5 (cold shutdown), and at 1945 EDT, the NUE was terminated.

Based on a preliminary observation by a metallurgist, the cause of this event appears to be fatigue failure. However, a preliminary design review did not reveal a design inadequacy related to vibration. A metallurgical analysis is underway to confirm the failure mechanism. The valve assembly was removed, and the weldolet was plugged.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQ NUM	REV			
VOYTLER ELECTRIC GENERATING PLANT - UNIT 1	05000424	92	004	01	2	OF	3

TEXT

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(i) because a unit shutdown was completed as required by the Technical Specifications (TS).

B. UNIT STATUS AT TIME OF EVENT

At the time of this event, 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 which contributed to the occurrence of this event.

C. DESCRIPTION OF EVENT

On May 13, 1992 at 2248 EDT and at 2335 EDT, control room personnel received alarms from radiation monitor LRE-2562A indicating gradually increasing containment atmospheric radiation levels and initiated action to determine the cause. Also, the containment air cooler leak detection system indicated a flow rate increase. On May 14, 1992 at 0008 EDT, personnel initiated action per Procedure 18004-C, "Reactor Coolant System Leakage," to identify and control the leak. At 0250 EDT, a preliminary reactor coolant system (RCS) leak rate calculation indicated unidentified leakage of 2.6 gpm. A team was sent into the containment building to perform a RCS leak inspection. At 0330 EDT, the team reported that RCS leakage was located inside the biological shield wall, but the precise source of the leak could not be determined while the reactor was at power. At 0337 EDT, a RCS leak rate determination confirmed the unidentified leakage rate calculated earlier, and a Notification of Unusual Event (NUE) was declared since the unidentified leakage was greater than the 1 gpm allowed by the Technical Specifications (TS). Personnel initiated a power reduction in preparation for a unit shutdown, and at 0930 EDT, the reactor entered Mode 3 (hot standby). After the RCS was partially cooled down and depressurized in Mode 4 (hot shutdown), an inspection team entered the containment building and found water and steam leaking from a cracked weld on a 1-inch diameter weldolet which connected a double isolation drain valve assembly to 6-inch diameter safety injection piping. Since the safety injection piping is connected directly to loop 1 of the RCS, this condition represented pressure boundary leakage, which is not allowed by the TS. At 1934 EDT the unit entered Mode 5 (cold shutdown), and at 1945 EDT, the NUE was terminated because the TS requirements for RCS leakage were no longer applicable.

D. CAUSE OF EVENT

Based on a preliminary observation by a metallurgist, the cause of this event appears to be fatigue failure. A preliminary design review did not reveal a design inadequacy related to vibration. However, as a precaution, two similar valve assemblies were modified by adding supports to limit vibration. Subsequent metallurgical examination is being undertaken to confirm the failure mechanism. If the results indicate a design inadequacy, the design will be reviewed and appropriate action will be taken.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)	
		YEAR	SEQ NUM	REV		
VOGTLE ELECTRIC GENERATING PLANT - UNIT 1	0 5 0 0 0 4 2 4	9 2	0 0 4	0 1	3	OF 3

TEXT

E. ANALYSIS OF EVENT

The radiation monitor and leakage detection systems provided early indication of the leakage at low levels, and the leakage for this event was well within the capability of normal RCS makeup. Water from this minor RCS leak was collected in the containment sump and pumped to the waste processing system. Furthermore, there was no leakage of fuel materials into the RCS, and the containment building prevented the release of RCS water into the outside atmosphere. Based on these considerations, there was no adverse effect on plant safety or to the health and safety of the public as a result of this event.

F. CORRECTIVE ACTION

1. The valve assembly was removed, and the weldolet was plugged.
2. As a precaution to prevent recurrence of this event, two similar valve assemblies were modified by adding pipe supports which limit vibration. The double isolation drain valve assembly involved in this event will be reinstalled and supports added during the Fall 1993 refueling outage.
3. Eight similar double isolation drain valve assemblies were selected, and nondestructive examination was performed to ensure that no similar cracked weld conditions existed. Following a failure analysis of the weldolet (expected to be complete by June 30, 1992), additional supports may be added to these, or other, assemblies as necessary to prevent future weld failures.

G. ADDITIONAL INFORMATION

1. Failed Components:

None

2. Previous Similar Events:

LER 50-424/1989-004, dated February 17, 1989.

Corrective actions to provide supports to a drain line manifold were not applicable to the prevention of the May 14, 1992, event.

3. Energy Industry Identification System Code:

Reactor Coolant System - AB

Safety Injection System - BQ

Radiation Monitoring System - IL

Containment Air Cooler Leak Detection System - IK

Containment Building - NH