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July 25, 1991

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
RWCU Isolation Due To Lightning Strike To 500 KV
Transmission Line
LER 91-006-00

GNRO-91/00132

Gentlemen:

Attached is Licensee Event Report (LER) 91-006 which is a final report.

Yours truly,

for

WTC/BAB/cg
attachment
cc: Mr. D. C. Hintz (w/a)
Mr. J. L. Mathis (w/a)
Mr. R. B. McGehee (w/a)
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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)

RWCU Isolation Due To Lightning Strike To 500 kV Transmission Line

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)
									NA	0 5 0 0 0
0 6	2 5	9 1	9 1	— 0 0 6	— 0 0	0 7	2 5	9 1		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)									
	1		20.402(b)		20.405(c)	X	50.73(a)(2)(iv)		73.71(b)		
POWER LEVEL (10)	1 0 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
Bruce A. Burke / Licensing Engineer	6 0 1 4 3 7 - 6 3 3 3

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)

Automatic actuation of the reactor water cleanup (RWCU) system Division 2 containment isolation valves occurred during a storm on June 25, 1991 at approximately 1719 hours. The 500 kV electrical transmission line between GGNS and the fossil fueled Baxter Wilson generating facility sustained a lightning strike. Feeder breakers at both stations tripped open due to the resultant voltage spike. The 500 kV distribution system features shielding wires.

The RWCU leak detection system consists of sensitive Riley Panalarm temperature switches. The RWCU leak detection logic actuates on a single channel trip signal. The voltage spike probably affected the operation of a Riley temperature switch and caused the RWCU isolation.

The actuation of the RWCU isolation system did not compromise the safe operation of GGNS. All safety related equipment operated as designed. The safety and health of the general public was not affected by this event. No corrective actions are warranted for this event.

NRC Form 366
(9-83)

NRC Form 366A
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U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

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

A. Reportable Occurrence

An automatic actuation of the reactor water cleanup (RWCU) system [CE] Division 2 containment isolation valves [NH] occurred on June 25, 1991. Automatic actuation of these RWCU system valves by a leak detection system [JM] signal is an engineered safety feature (ESF) [JE] actuation. This event is reportable per 10 CFR 50.73(a)(2)(iv).

B. Initial Conditions

The plant was in Operational Condition 1 at full power with reactor water at approximately 531 degrees F and 1031 psig.

C. Description of Occurrence

Numerous alarms occurred nearly simultaneously in the Grand Gulf Nuclear Station (GGNS) control room during a storm on June 25, 1991 at approximately 1719 hours. The only actuation of safety related equipment was the automatic closing of outboard RWCU system containment isolation valves. Both RWCU pumps A and B tripped due to low suction pressure following closure of the RWCU outboard isolation valves.

Communication with the load dispatcher indicated that the 500 kV electrical transmission line between GGNS and the fossil fueled Baxter Wilson generating facility had sustained a lightning strike. Feeder breakers at both stations tripped open due to the resultant voltage spike.

GGNS feeder breakers J5220 and J5224 [FK] were reset and the RWCU system was restored to the normal operating configuration. Other alarms cleared upon resetting.

D. Apparent Cause

It is believed that the event was caused by a lightning strike to the 500 kV electrical transmission line. The RWCU isolation apparently was due to the resultant voltage spike which actuated numerous alarms. The RWCU leak detection system consists of sensitive Riley Panalarm temperature switches. The voltage spike apparently affected the operation of a Riley temperature switch in the RWCU leak detection system and caused the RWCU isolation.

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*U.S.GPO 1986-0-624-538/455

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

The RWCU leak detection logic actuates on a single channel (i.e., non-coincident) trip signal. The GGNS RWCU system has experienced numerous isolations due to spurious temperature switch operation. Previous corrective actions to the RWCU leak detection system have reduced such type occurrences.

LER 84-027 discussed a RWCU isolation which occurred on May 3, 1984 due to an electrical storm. LER 85-023-01 discussed RWCU isolations which apparently were caused by a failed relay in a Riley Panalarm temperature switch and possibly faulty wiring installations.

The 500 kV distribution system features shielding wires at two high points. The shielding wires are approximately 30 feet above conductors at the towers and higher between towers. Distance between the two stations is approximately 22 miles. Aerial survey of the transmission system did not detect the point of contact. No additional corrective actions are warranted for this event.

E. Safety Assessment

The actuation of the RWCU isolation system did not compromise the safe operation of GGNS. All safety related equipment operated as designed. The safety and health of the general public was not affected by this event.

F. Additional Information

Energy Industry Identification System (EIIS) codes are identified in the text within brackets [ ].