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Grand Gulf Nuclear Station

January 12, 1994

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
Reactor Core Isolation Cooling Steam Supply
Isolation Due to Invalid Temperature Signal
LER 93-018-00

GNRO-94/00011

Gentlemen:

Attached is Licensee Event Report (LER) 93-018-00 which is a final report.

Yours truly,

CRH/RR/
attachment
cc: Mr. R. H. Bernhard(w/a)
Mr. H. W. Keiser(w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)

Mr. Stewart D. Ebneter (w/a)
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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)
Reactor Core Isolation Cooling Steam Supply Isolation Due to an Invalid Temperature Signal

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	05000
12	13	93	93	018	00	01	12	94	N/A	05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)					
		20.402(b)	20.405(c)	X	50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)	100	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
		20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	(Specify in abstract below and in text, NRC Form 366A)	
		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 (Include Area Code)
Riley Ruffin / Licensing Specials	601-437-2167

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
X	IJ	TDS	R281	Y						

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 15 single-spaced typewritten lines) (16)

On December 13, 1993, an annunciator was received in the control room. The annunciator specified a high temperature in the Residual Heat Removal system equipment room. As a result of the invalid temperature signal, the outboard steam supply valve for the Reactor Core Isolation Cooling system isolated. The invalid temperature signal was generated due to the failure of an equipment room differential temperature switch. It appears that the failure of the Riley temperature switch generated an erroneous high temperature signal to the isolation logic. Switch connections were checked and no problems were identified. The faulty switch was replaced. GGNS is in the process of replacing failed temperature switches with a newer model. The health and safety of the public were not compromised at any time during this incident.

NRC FORM 366A (5-92) U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95
LICENSEE EVENT REPORT (LER) TEXT CONTINUATION	ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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

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TEXT *(If more space is required, use additional copies of NRC Form 366A) (17)*

A. Reportable Occurrence

On December 13, 1993, a Containment Isolation Valve isolated due to an invalid high temperature signal. The operation of this valve is an ESF actuation and is being reported pursuant to 10 CFR 50.73(a)(2)(iv).

B. Initial Conditions

The plant was in OPERATIONAL CONDITION 1 at 100 percent thermal power. Vessel level was approximately 36 inches as indicated by control room level instrumentation. The reactor temperature was approximately 531 degrees F at the time of occurrence.

C. Description of Occurrence

On December 13 at 0900 hours, operations personnel received control room annunciation which indicated a high temperature condition existed in the Residual Heat Removal [BO] Equipment Area. The erroneous high temperature signal resulted in the outboard steam supply valve for the Reactor Core Isolation Cooling [BN] (RCIC) system isolating.

Following the isolation plant personnel observed other control room temperature instrumentation to verify ambient temperatures in the subject area did not indicate adverse conditions. Based on the observed temperatures, no abnormal conditions existed in the area.

RCIC was declared inoperable as a result of the isolations. Plant personnel verified operability of the High Pressure Core Spray [BG] (HPCS) and ensured appropriate actions were taken as required by GGNS Technical Specifications.

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TEXT CONTINUATION

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

D. Apparent Cause

The failure of the Riley temperature switch generated an erroneous high temperature signal to the isolation logic. The leak detection logic configuration is designed with temperature switches in series. Therefore only one switch signal is necessary to generate the leak detection isolation signal.

E. Corrective Actions

Switch connections were checked and no problems were identified. The faulty switch was replaced and the system was retested satisfactorily.

GGNS is in the process of replacing failed temperature switches with the new model 86B switches. This change is in accordance with the recommendations specified in General Electric's SIL 443 and its supplement. However, the stability of the 86B's is questionable. Therefore GGNS will continue to monitor the reliability of the replacement switches. Failure analyses will be performed on the failed switch.

F. Safety Assessment

The closure of the isolation valve resulted in the inoperability of the RCIC system. Plant personnel verified HPCS was operable at the time of the occurrence. Therefore, the isolation did not degrade the ability of the plant to mitigate the consequences of an accident. The health and safety of the public was not compromised at any time during this occurrence.

G. Additional Information

There have been several isolations of major valves associated with ESF systems due to malfunctions of Riley Temperature Switches (RTS). Subsequent to these isolations, actions were taken to replace the obsolete RTS with a newer model on an as-needed basis. The switch which is suspected in this incident is one of the recently installed switches.

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