

NRC Form 306  
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3-50-0104

EXPIRES: 8/31/85

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Grand Gulf Nuclear Station - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 6 1	PAGE (3) OF 0 3
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TITLE (4) Shutdown Cooling Isolation Due to Blown Fuse									
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EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (9)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)	
11	19	87	87	020	0	01	21	87	NA	0 5 0 0 0	
										0 5 0 0 0	

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)									
OPERATING MODE (8) 5		20.402(b)		20.406(c)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)		73.71(b)	
POWER LEVEL (10) 01010		20.406(a)(1)(i)		50.36(a)(1)		<input type="checkbox"/> 50.73(a)(2)(v)		73.71(c)	
		20.406(a)(1)(ii)		50.36(a)(2)		<input type="checkbox"/> 50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
		20.406(a)(1)(iii)		50.73(a)(2)(i)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)			
		20.406(a)(1)(iv)		50.73(a)(2)(ii)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)			
		20.406(a)(1)(v)		50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)			

LICENSEE CONTACT FOR THIS LER (12)									
NAME Ronald W. Byrd/Licensing Engineer							TELEPHONE NUMBER AREA CODE 610 1 4317 + 121 419		

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	
X	JIM	1 IFIU	X191919	N							

SUPPLEMENTAL REPORT EXPECTED (14)							EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO											

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

On November 19, 1987 during a plant refueling outage, a 5 amp fuse in the Residual Heat Removal (RHR) system isolation logic blew causing an isolation of containment isolation valve E12-F009 and a trip of the operating RHR Shutdown Cooling pump. Shutdown Cooling was out of operation for one hour and two minutes for investigation and the replacement of the fuse. The reactor recirculation system was operated as the alternate method of reactor coolant circulation. The lack of shutdown cooling operation caused no adverse safety consequences.

The cause for the blown fuse is indeterminate. The investigation could not determine whether the fuse blew at less than nominal design current or blew due to a power transient. Although a surveillance was in progress at the time of the event, no actions associated with its performance could be attributed to the blown fuse.

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NRC Form 365A  
(9-83)

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Grand Gulf Nuclear Station - Unit 1	0 5 0 0 0 4 1 6 8 7	—	0 2	0	—	0 1 0	0 2 OF 0 3

TEXT (If more space is required, use additional NRC Form 365A's) (17)

## A. REPORTABLE OCCURRENCE

On November 19, 1987 during a plant refueling outage, a fuse in the Residual Heat Removal (RHR) system isolation logic blew causing an isolation of containment isolation valve E12-F009. This ESF actuation is reported in accordance with 10CFR50.73(a)(2)(iv).

## B. INITIAL CONDITIONS

The plant was in a refueling outage with Shutdown Cooling loop "A" in operation. The reactor coolant temperature was approximately 91 degrees F with the water level greater than 22 feet 8 inches above the reactor pressure vessel flange.

## C. DESCRIPTION OF OCCURRENCE

On November 19, 1987 at 0253 containment isolation valve E12-F009, located in the common suction pipe of the RHR Shutdown Cooling loops, isolated causing a trip of the operating Shutdown Cooling pump. The reactor recirculation system was operating to provide the alternate means of reactor coolant circulation. An investigation revealed a blown 5 amp fuse which caused a loss of power to the isolation logic circuit. The fuse (EIIS code: GG-1JM-FU-F23B) was replaced and the Shutdown Cooling loop restored to operation at 0355 on November 19.

## D. APPARENT CAUSE

The cause of the blown fuse is indeterminate. The investigation could not determine whether the fuse blew at less than the nominal design current or blew due to a power transient. A surveillance was in progress at the time of the event. The surveillance tested the time response of the electronics for the reactor vessel steam dome high pressure RPS trip. Before the isolation, a jumper was installed in the circuit powered by fuse F23B to prevent a shutdown cooling isolation from the channel "C" steam dome high pressure trip which is actuated during the surveillance. The technicians continued the surveillance after installing the jumper. Four additional steps had been performed when the technicians were told of the isolation. The technicians stopped the surveillance and checked the jumper connections. No problems with the jumper or the connections were found. The connections are permanently installed banana jacks which minimize the potential for error or circuit disturbance. No other correlation between the surveillance steps or any other plant activities and the blown fuse could be identified.

J16AECM87121501 - 4

NRC Form 305A  
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/86

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Grand Gulf Nuclear Station - Unit 1	01500041687	—	020	—00	013	OF	013

TEXT (If more space is required, use additional NRC Form 305A's) (17)

A review of incident history showed that the F23B fuse blew on January 14, 1984, when first installing the banana jacks as permanent test connections (see LER 84-004). A temporary jumper connected under a screw that was loosened to install the jack leads apparently shorted the circuit causing the fuse to blow. The cause for these two occurrences are not related.

## E. SUPPLEMENTAL CORRECTIVE ACTIONS

The fuse was replaced and Shutdown Cooling was restored to operation. The surveillance was completed without further incident.

## F. SAFETY ASSESSMENT

The lack of the shutdown cooling loop operation for approximately one hour caused no adverse safety consequences. The reactor head was removed with the upper containment pool flooded. The reactor coolant temperature increased from approximately 91 degrees F to 100 degrees F. The reactor recirculation system was operated as an alternate method of reactor coolant circulation. The Shutdown Cooling system was capable of operation at any time by manually opening the isolated suction valve if it had been needed.

J16AECM87121501 - 5





OLIVER D. KINGSLEY, JR.  
Vice President  
Nuclear Operations

December 17, 1987

U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29  
Shutdown Cooling Isolation Due  
to Blown Fuse  
LER 87-020-00  
AECM-87/0243

Attached is Licensee Event Report (LER) 87-020-00 which is a final report.

Yours truly,

ODK:bms  
Attachment

cc: Mr. T. H. Cloninger (w/a)  
Mr. R. B. McGehee (w/a)  
Mr. N. S. Reynolds (w/a)  
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11