

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Grand Gulf Nuclear Station - Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 1 6	PAGE (3) 1 OF 0 3
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TITLE (4)
Reactor Scram on Low Water Level

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)
1	2	18	4	8	4	0	5	7	0	0	0
1	2	18	4	8	4	0	5	7	0	0	0
									NA		0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 1 8	20.402(b)	20.406(c)	<input checked="" type="checkbox"/>	60.73(a)(2)(iv)	73.71(b)					
	20.406(a)(1)(i)	60.36(c)(1)	<input checked="" type="checkbox"/>	60.73(a)(2)(v)	73.71(e)					
	20.406(a)(1)(ii)	60.36(c)(2)	<input type="checkbox"/>	60.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
	20.406(a)(1)(iii)	60.73(a)(2)(i)	<input type="checkbox"/>	60.73(a)(2)(viii)(A)						
	20.406(a)(1)(iv)	60.73(a)(2)(ii)	<input type="checkbox"/>	60.73(a)(2)(viii)(B)						
20.406(a)(1)(v)	60.73(a)(2)(iii)	<input type="checkbox"/>	60.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)

NAME Ronald W. Byrd/License Engineer	TELEPHONE NUMBER AREA CODE: 6 0 1 4 3 7 1 - 2 1 4 9
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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
<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)

When a second condensate pump was started on December 21, 1984, all operating condensate pumps and condensate booster pumps tripped on low system flow due to (1) the inability of the number of precoat filters in service at the time to provide the required system flow for the second condensate pump and (2) the inability of the bypass valve to provide adequate flow. The reactor scrambled at the low water level trip point. RCIC was manually started just prior to the scram, however, the scram caused a sensed differential pressure in the steam line detection system isolating the RCIC turbine steam supply. Level was restored with the condensate feedwater system. Changes to the operating instructions now ensure total flow requirements are met prior to starting an additional condensate pump.

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

Description of Reportable Occurrence

On December 21, 1984, at 0448 hours the reactor scrambled on low water level when all operating condensate pumps and condensate booster pumps tripped.

Initial Conditions

The reactor power was approximately 18% with a generator output of 165 MWE. Condensate pump "B", condensate booster pump "A" and reactor feed pump "B" were maintaining the reactor vessel level.

Status of Redundant or Backup Systems

The Reactor Core Isolation Cooling System (RCIC) was available but isolated during the level transient. The ECCS systems were also available.

Nature of Occurrence

Condensate precoat filter bypass valve F502 of the Condensate Cleanup System is designed to automatically open on a filter system high differential pressure to prevent damage to filter elements. When a second condensate pump was started on December 21, the bypass valve was slow in opening resulting in all operating condensate pumps and condensate booster pumps tripping on low system flow. The bypass valve is not designed to maintain the flow requirement for the system. It is only designed to prevent damage to the precoats.

The precoat filters and the bypass valve are located on the discharge side of the condensate pumps. The slow opening of the bypass valve was not the primary cause of the loss of flow, but the insufficient number of precoats and demineralizers in service caused the total flow to be below the system minimum flow setpoint for two operating condensate pumps. The minimum flow monitor responded as designed to trip all condensate pumps. An insufficient number of deep bed demineralizers in service downstream of the precoat filters also contributed to the low flow conditions for the number of operating condensate pumps.

As the reactor vessel level decreased, the Reactor Core Isolation Cooling System (RCIC) was manually initiated and began injecting into the vessel. Approximately 15 seconds after the injection, the reactor scrambled on low water level. The RCIC turbine steam supply isolated immediately. Two attempts to restart RCIC failed. The isolation came from a Division 1 high steam flow signal. By 0449 hours the vessel level had stabilized at -30 inches (approximately 137 inches above the active fuel). At 0450 hours the condensate/feedwater system began restoring level.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

Immediate Corrective Actions Taken

The RCIC system was declared inoperable and Limiting Condition for Operation (LCO) was entered pursuant to Technical Specifications.

Apparent Cause and Supplemental Corrective Actions

The RCIC isolation was similar to that which occurred on December 19, 1984 reported in LER 84-056. When the reactor scrambled, the pressure dropped sharply causing a sensed oscillating differential pressure by the RCIC steam line leak detection instrumentation. The corrective actions described in LER 84-056 were not complete at the time of this event.

The Condensate System operating instructions were revised to ensure total flow requirements are met prior to starting an additional condensate pump. This includes fully opening the precoat filter bypass valve before the pump start and ensuring enough deep bed demineralizers are in service to accommodate total flow requirements. Also, the low flow setpoint was lowered for the condensate minimum flow requirements.

Safety Assessment

The Reactor Protection System functioned properly to scram the reactor at the low water level trip point. Although RCIC failed to maintain the level following the scram, the level stabilized prior to the RCIC/HPCS automatic initiation setpoint. HPCS was available if the level decreased to -41.6 inches.



MISSISSIPPI POWER & LIGHT COMPANY

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P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

January 18, 1985

NUCLEAR LICENSING & SAFETY DEPARTMENT

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

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
File: 0260/L-835.0
Reactor Scram on Low Water Level
LER 84-057-0
AECM-85/0016

Attached is Licensee Event Report (LER) 84-057-0 which is a final report.

Yours truly,

for
L. F. Dale
Director

EBS/SHH:vog
Attachment

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