

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Grand Gulf Nuclear Station - Unit 1 DOCKET NUMBER (2) 05000416 PAGE (3) 1 OF 03

TITLE (4) Reactor Scram on Low Water Level

EVENT DATE (5) 01/27/85 LER NUMBER (6) 004000 REPORT DATE (7) 02/26/85 OTHER FACILITIES INVOLVED (8) NA

OPERATING MODE (9) 1 POWER LEVEL (10) 0.169 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) 20.402(b), 20.405(a)(1)(i), 20.405(a)(1)(ii), 20.405(a)(1)(iii), 20.405(a)(1)(iv), 20.405(a)(1)(v), 20.406(c), 50.38(c)(1), 50.38(c)(2), 50.73(a)(2)(i), 50.73(a)(2)(ii), 50.73(a)(2)(iii), 50.73(a)(2)(iv), 50.73(a)(2)(v), 50.73(a)(2)(vi), 50.73(a)(2)(vii)(A), 50.73(a)(2)(vii)(B), 50.73(a)(2)(x), 73.71(b), 73.71(c), OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12) NAME: Ronald W. Byrd/Licensing Engineer TELEPHONE NUMBER: 610 413 7112 1149

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) YES (If yes, complete EXPECTED SUBMISSION DATE) NO X

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

During startup tuning on the reactor feedwater system, a feed pump flow imbalance caused a level transient resulting in a reactor scram. The tuning was performed during Startup Test Condition 3 to obtain calibration data for the feedwater pump controller. The calibration using the completed data should make the feed pumps more responsive to changing plant parameters. The required calibration data was obtained without further reliance on this tuning method.

8503060596 850226  
PDR ADOCK 05000416  
S PDR

IS22

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

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

Description of Reportable Occurrence

The reactor scrambled on a low reactor level signal at 1638 on January 27, 1985 during testing on the feedwater system.

Initial Conditions

The plant was operating in Test Condition 3 at 69 percent reactor power prior to the transient. All condensate booster pumps were operating. The "B" reactor feed pump was operating in automatic with the master level controller in three element control using reactor water level, steam flow, and feedwater flow signals to adjust feed pump speed. The "A" reactor feed pump was in manual for tuning. The two feed pumps were approximately balanced.

Status of Redundant or Backup Systems

All ECCS systems were available.

Nature of Occurrence

Tuning in progress on the "A" reactor feed pump required incremental negative step changes in the output of the pump's function generator to obtain calibration data. The step changes reduced the "A" pump's speed causing unbalanced flow between the "A" and "B" feed pumps. The higher discharge pressure of the "B" pump resulted in a rapid decrease in the "A" pump's discharge flow to the point of causing the "A" pump minimum flow valve to open. This valve allows flow to recirculate to the main condenser for protection of the pump. The open minimum flow valve reduced the feedwater flow to the vessel sufficient to cause a reactor low level condition.

Although the "B" feed pump master level controller responded to increase the "B" feed pump's flow, level continued to decrease until the reactor scrambled on low level approximately 15 seconds after the minimum flow valve opened. The operator increased the "A" feed pump's speed to restore vessel level but caused the "B" pump to trip on low suction flow or pressure (the pumps share a common suction header as well as a common discharge line). Reactor level was raised as reactor pressure decreased. The hi-level trip was reached approximately 1 minute following the scram, tripping the "A" reactor feed pump.

Immediate Corrective Action

Reactor level was restored successfully with the "A" feed pump in manual control. Reactor restart commenced at 2040 the same day. The required tuning data was obtained by an alternate method during the restart.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

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

Apparent Cause

The tuning was performed in accordance with written instructions. The consequences of the degree of flow imbalance encountered was not anticipated.

Supplemental Corrective Action

The calibration of the function generators using data obtained in Test Condition 3 should reduce the probability of recurrence by making the feed pumps more responsive to changing parameters. The use of cumulative step changes to obtain calibration data was discontinued.

Safety Assessment

The level transient was the result of startup test program tuning. Operators restored level using the reactor feed pump. ECCS systems were not required to mitigate the event. The reactor vessel minimum level reached was -12 inches (155 inches above the top of active fuel). All safety equipment performed as designed.



MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

February 26, 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-825.0  
Reactor Scram on Low Water Level  
LER 85-004-0  
AECM-85/0065

Attached is Licensee Event Report (LER) 85-004-0 which is a final report.

Yours truly,

L. F. Dale  
Director

EBS/JRH/SHH:rw  
Attachment

cc: Mr. J. B. Richard (w/a)  
Mr. R. B. McGehee (w/a)  
Mr. N. S. Reynolds (w/a)  
Mr. G. B. Taylor (w/o)

Mr. James M. Taylor, Director (w/a)  
Office of Inspection & Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dr. J. Nelson Grace, Regional Administrator (w/a)  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., N.W., Suite 2900  
Atlanta, Georgia 30323

Member Middle South Utilities System

IE22  
11