NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

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

TITLE (4) Emergency Core Cooling Systems Delta Pressure Instrumentation Not Calibrated In Accordance with Technical Specifications

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)
0 1	0 9	8 8	8 8	0 0 3	0 0	0 2	0 8	8 8	NA	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 1

POWER LEVEL (10): 0 8 4

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

[ ] 20.402(b)	[ ] 20.405(c)	[ ] 50.73(a)(2)(iv)	[ ] 73.71(b)
[ ] 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)	[X] 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)
Paul M. Different/Plant Licensing Engineer	6 0 1 4 3 7 - 2 1 6 7

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

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

EXPECTED SUBMISSION DATE (15): MONTH 0 3 DAY 3 1 YEAR 8 8

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

On January 6, 1988 Grand Gulf Nuclear Station Unit 1 resumed power operations following the second refueling outage. On January 9, 1988 the line break instrumentation for Residual Heat Removal (RHR) "A" high differential pressure (dp) alarmed and sealed in. An investigation of the instrumentation revealed that it was working as designed and sensing the actual dp between the RHR "A" and LPCS injection lines. It was concluded that no actual line break had occurred in either RHR "A" or Low Pressure Core Spray (LPCS) piping in the reactor downcomer annulus. The cause of the alarm was determined to be a change in the normal indicated dp between these two Emergency Core Cooling System injection lines. The instrument had not been calibrated to actual pressures experienced at 100 percent power following the second refueling outage. An analysis is being performed to determine normal indicated dp at nominal full power. This will support corrections, if necessary, to the instrument setpoints to be made. This analysis will be complete by February 18, 1988.

J16AECM88020402 - 3

IE22
1/1

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

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

A. REPORTABLE OCCURRENCE

On January 9, 1988 the line break instrumentation for Residual Heat Removal (RHR) "A" high differential pressure (dp) alarmed and sealed in and the plant entered the associated Limiting Condition for Operation action statement. Upon further investigation it was determined that the RHR "A" and Low Pressure Core Spray (LPCS) line break instrumentation was not calibrated to normal indicated pressures experienced at 100 percent power conditions. This condition is reportable pursuant to 10CFR50.73(a)(2)(i)(B).

B. INITIAL CONDITION

On January 9, 1988 when the alarm occurred, the plant was in Operational Condition 1 at 84 percent of rated thermal power.

C. DESCRIPTION OF OCCURRENCE

On January 6, 1988 Grand Gulf Nuclear Station Unit 1 resumed power operations following the second refueling outage. On January 9, 1988 at 0630 the line break instrumentation for RHR "A" high dp alarmed and sealed in. The instrumentation involved is transmitter 1E31-N080A (EIIS code GG-1IJ-PDT-N080A) and associated trip unit 1E31-N680E (EIIS code GG-1IJ-PDIS-N680E). The indicated high dp was 1.7 psid at 84 percent power. As power was increased to 100 percent at 104 percent core flow, the indicated dp increased to 2.1 psid. An unrelated scram caused by main transformer failure occurred on January 10, 1988, and the dp dropped to 1.7 psid five minutes after the scram. The dp gradually decreased over the next day and a half to 0.65 psid as reactor pressure decreased to 140 psig.

The RHR "A"/LPCS line break leak detection circuit monitors dp between the two injection lines. Normal dp is expected to be small, since both lines penetrate the vessel and the core shroud. Should one of the headers break between the vessel wall and the shroud, the dp will change since the line that is broken will be exposed to the lower pressure existing in the vessel downcomer region. An alarm would alert control room personnel to this abnormal condition.

Prior to the scram, an investigation was performed to determine the cause and validity of the alarm and to determine if the instrumentation was working as designed. The investigation showed the instrumentation was working as designed and accurately measuring dp.

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

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

It was concluded from the magnitude of the dp drop after the scram that no RHR "A" line break had occurred. The actual observed drop was 0.4 psid. Had a line break occurred, the dp would have changed significantly more than 0.4 psid. After a scram, reactor recirculation pumps shift to slow speed greatly reducing core flow and steam production which causes the dp across the shroud to decrease to near zero. However, the measured header dp only dropped 0.4 psid indicative of a change in core flow and density effects on the measured dp rather than a break in the header.

D. APPARENT CAUSE

Technical Specification 4.5.1.c.2.b requires that the header dp instrumentation setpoint be within 1.2 $\pm$0.1 psid of the normal indicated dp. Upon initial plant startup, a calculated value was used instead because no data on normal indication was available. SERI failed to change the setpoint to explicitly use the normal indicated information. Prior to the second refueling outage, this did not result in alarm conditions. There were pressure changes following the second refueling outage which caused the line break alarm.

E. SUPPLEMENTAL CORRECTIVE ACTION

Extensive testing and troubleshooting were performed by Instrumentation and Control (I&C) personnel. These efforts demonstrated that the line break instrumentation is performing its design function for the specified parameter. Additional data was needed to determine if the observed dp increase is temporary or if a new normal indicated dp value is required. The data required included the pressure indicated by each of the dp instrument sensing lines with the corresponding reactor power and core flow rate. The data was recorded in hourly intervals during startup and reactor power increases to nominal full power following the January 10, 1988 scram.

This data was collected by Plant Staff and is being analyzed by Engineering. The analyzed data will then be used to determine the normal indicated dp. If necessary, new setpoints will be calculated and the trip units recalibrated. It may be necessary to establish new setpoints for this instrumentation to satisfy the requirements of Technical Specification 4.5.1.c.2.(b). This action plan is expected to be completed by February 18, 1988.

Additionally, a review of Technical Specification Surveillance Requirements was performed to ensure there were no other incidences where normal indicated values were required but not used.

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

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

Also, after each future refueling outage the normal indicated dp will be verified at 100 percent power conditions and the setpoints re-adjusted if necessary.

A supplemental report will be submitted by March 31, 1988 detailing the results of the analysis and corrective actions taken.

F. SAFETY ASSESSMENT

There are no safety consequences since it was demonstrated that no piping failures in either RHR "A" or LPCS had occurred. In-service inspections were performed during the recent refueling outage for the LPCS piping inside the reactor vessel. No breaks or problems with the piping integrity were found. The line break instrumentation is not safety related and has only an alarm function which does not actuate any safety related equipment. Investigation concluded that the line break instrumentation is working as designed. Final analysis by engineering will determine any changes necessary to the process setpoints.

SYSTEM ENERGY RESOURCES, INC.

OLIVER D. KINGSLEY, JR.
Vice President
Nuclear Operations

February 8, 1988

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
Emergency Core Cooling Systems
Delta Pressure Instrumentation
Not Calibrated In Accordance
with Technical Specifications
LER 88-003-00
AECM-88/0034

Attached is Licensee Event Report (LER) 88-003-00 which is an interim report.

Yours truly,

J. G. Cesare
FOR
O D Kingsley, Jr

ODK:bms
Attachment

cc: Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. R. C. Butcher (w/a)

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

Mr. L. L. Kintner, Project Manager (w/a)
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 14B20
Washington, D.C. 20555

IE22
1/1