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December 16, 1999

U.S. Nuclear Regulatory Commission  
Mail Stop P1-37  
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station  
Docket No. 50-416  
License No. NPF-29  
ESF Actuation – Invalid Level One Signal  
LER 1999-007-00

GNRO-99/00096

Gentlemen:

Attached is Licensee Event Report (LER) 1999-007-00 which is a final report.

Yours truly,

WAE/RRJ  
attachment  
cc:

Ms. J. L. Dixon-Herrity, GGNS Senior Resident (w/a)  
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PPR ADDCA 05000414

NRC FORM 366 (6-1998)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001 Estimated burden per response to comply with this mandatory information collection request: 50.0 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.					
<b>LICENSEE EVENT REPORT (LER)</b>					DOCKET NUMBER (2) <b>05000-416</b>			PAGE (3) <b>1 of 3</b>		
FACILITY NAME (1) <b>Grand Gulf Nuclear Station, Unit 1</b>					TITLE (4) <b>ESF Actuation – Invalid Level 1 Signal</b>					
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 NAME	DOCKET NUMBER
<b>11</b>	<b>18</b>	<b>1999</b>	<b>1999</b>	<b>-- 007</b>	<b>-- 00</b>	<b>12</b>	<b>16</b>	<b>1999</b>	<b>N/A</b>	<b>05000</b>
OPERATING MODE (9)		5		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)						
POWER LEVEL (10)		0		20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)			50.73(a)(2)(viii)	
				20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)			50.73(a)(2)(x)	
				20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)			73.71	
				20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)			OTHER	
				20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)			Specify in Abstract below or in NRC Form 366A	
				20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)				
LICENSEE CONTACT FOR THIS LER (12)										
NAME <b>Rita R. Jackson / Senior Licensing Specialist</b>					TELEPHONE NUMBER (Include Area Code) <b>601-437-2149</b>					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
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)										
<p>On November 18, 1999, an invalid level 1 (-150.3 inches) signal was generated. Because the plant was in a refueling outage, the majority of Division 1 equipment was removed from service. The Division 1 Drywell Purge Compressor did actuate from the invalid signal. Additionally, the Division 1 Load Shedding and Sequencing actuated. The RHR A shutdown cooling pump and Standby Service Water A pump were shed and reloaded. The signal also caused the opening of the RHR A injection valve and started the Division 1 Diesel Generator, which is not considered an ESF system at GGNS. The RHR pump re-started after 5 seconds.</p> <p>The sequence of events for the Division 1 ECCS initiation has been reviewed, interviews were conducted and plots of key parameters were reviewed. No definite single cause could be found that would explain the initiation with certainty. Possible root causes include a radio frequency of unknown origin or the purge system isolation valve may have been leaking or partially open.</p> <p>This event is being reported pursuant to 10CFR50.73(a)(2)(iv).</p>										

NRC FORM 366A  
(6-1998)

U.S. NUCLEAR REGULATORY COMMISSION

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
<b>Grand Gulf Nuclear Station, Unit 1</b>	<b>05000-416</b>	<b>1999</b>	<b>007</b>	<b>00</b>	<b>2 OF 3</b>

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

**A. Reportable Occurrence**

An invalid level 1 signal (-150.3 inches) for Division 1 Engineered Safety Feature (ESF) [JE] was received when venting the Control Rod Drive System. Because the plant was in a refueling outage, some of the Division 1 ESF systems were removed from service. The Division 1 Drywell Purge System [BB] did actuate on this invalid signal. Additionally, the Division 1 Load Shedding and Sequencing actuated resulting in the shedding and sequencing of the Residual Heat Removal (RHR) [BO] A Shutdown Cooling pump and service water pump.

Therefore, because the event resulted in an actuation of an engineered safety feature it is being reported pursuant to 10CFR50.73(a)(2)(iv).

**B. Initial Conditions**

At the time of the event, the plant was OPERATIONAL CONDITION 5, Refueling. Reactor power was at 0 percent and reactor temperature was about 110 degrees.

**C. Description of Occurrence**

On November 18, 1999, during CRD system fill and vent, 1B21N091A and 1B21N091E level transmitters sensed an invalid low level of -150.3 inches and caused Division 1 initiation logic to activate. These two transmitters are connected to condensing pot B21-D004A which in turn is connected to the CRD system through isolation valve B21-F149A via the sensing line keep fill system. Venting of the CRD system was in progress.

Because the plant was in a refuel outage, a portion of the Division 1 ESF systems was removed from service. The division one Drywell Purge System did actuate on the invalid level 1 signal. Additionally, the Division 1 LSS actuated resulting in shedding and sequencing for RHR 'A' and SSW 'A'. The signal caused the opening of the RHR 'A' injection valve and started the Division 1 Diesel Generator which is not considered an ESF system at GGNS. The RHR pump re-started after 5 seconds.

As a result of this event, Condition Report GGCR 1999-1730 and a Root Cause Determination were initiated.

**D. Apparent Cause**

The sequence of events for the Division 1 actuation on November 18, 1999 was reviewed and available plots of key parameters were reviewed to identify possible causes for the initiation. No definite single cause could be found that would explain the initiation with certainty. Possible causal factors appear to be either a radio frequency source of unknown origin or that the purge system isolation valve experienced some anomaly causing a false level signal in the Division 1 reference level sensing line.

**E. Corrective Actions**Immediate Actions

1. Discontinued venting the purge line for condensing pots
2. Reset the LOCA signal
3. Reset LSS and realigned RHR 'A' injection valve

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

4. Secured Division 1 Diesel Generator
5. Made appropriate notifications of the event
6. Initiated Condition Report, CR-GGN-1999-1730.

Long Term Actions

1. Condition Report, CR-GGN-1999-1730, addresses the possible causal factors. The Corrective Action Process will be effectively used to track final resolution of causal factors as identified.
2. Revised CRD fill and vent procedure to verify B21F149(A,B,C,D) closed prior to fill and vent activities.
3. Added caution to "very slowly" start and stop venting these lines.

**F. Safety Assessment**

The plant was in Mode 5 and the majority of Division 1 equipment was removed from service. The Drywell Purge System was not required during Mode 5. The actuation of the Drywell Purge System did not pose any undue risk to the health and safety of the public. The actuation did not effect the ability of the operating system to perform their safety function.

**G. Additional Information**

Energy Industry Identification System (EIS) Codes are identified in the text within brackets [ ].