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Tel. (601) 437-6299

GNRO-2013/00006

March 15, 2013

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

SUBJECT: Licensee Event Report 2013-002-00 Reactor Protection System Actuation  
Due to a Turbine Trip  
Grand Gulf Nuclear Station, Unit 1  
Docket No. 50-416  
License No. NPF-29

Dear Sir or Madam:

Attached is Licensee Event Report 2013-002-00, which is a final report. This report is submitted in accordance with Title 10 *Code of Federal Regulations* 50.73(a)(2)(iv)(A).

This letter contains no new commitments. If you have any questions or require additional information, please contact Mr. Jeffery A. Seiter at (601) 437-2344.

Sincerely,

A handwritten signature in black ink, appearing to read "Christina L. Perino".

CLP/slw

Attachment: Licensee Event Report (LER) 2013-002-00

cc: (see next page)

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cc: U. S. Nuclear Regulatory Commission  
ATTN: Mr. Elmo E. Collins, Jr.  
Regional Administrator, Region IV  
1600 East Lamar Boulevard  
Arlington, TX 76011-4511

U. S. Nuclear Regulatory Commission  
ATTN: Mr. Alan Wang, NRR/DORL  
Mail Stop OWFN/8 B1  
11555 Rockville Pike  
Rockville, MD 20852-2378

NRC Senior Resident Inspector  
Grand Gulf Nuclear Station  
Port Gibson, MS 39150

**Attachment to**  
**GNRO-2013/00006**  
**Licensee Event Report (LER) 2013-002-00**

<b>NRC FORM 366</b> (10-2010)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			APPROVED BY OMB: NO. 3150-0104		EXPIRES: 10/31/2013												
<b>LICENSEE EVENT REPORT (LER)</b> (See reverse for required number of digits/characters for each block)										Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to <a href="mailto:infocollects_resource@nrc.gov">infocollects_resource@nrc.gov</a> , and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.									
1. FACILITY NAME Grand Gulf Nuclear Station, Unit 1					2. DOCKET NUMBER <b>05000 416</b>			3. PAGE 1 OF 3											
4. TITLE Reactor Protection System Actuation Due to a Turbine Trip																			
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED										
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME		N/A								
01	14	2013	2013-002-00			03	15	2013	N/A		N/A								
9. OPERATING MODE  1		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)																	
10. POWER LEVEL  100		<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)														
		<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)														
		<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)														
		<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)														
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)														
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)														
		<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)														
		<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER														
		<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A														
<b>12. LICENSEE CONTACT FOR THIS LER</b>																			
FACILITY NAME Jeffery A. Seiter / Acting Licensing Manager								TELEPHONE NUMBER (Include Area Code) (601) 437-2344											
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>																			
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX										
B	TB	IPBU	AZZ	Y	N/A	N/A	N/A	N/A	N/A										
14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO						15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR								
									N/A	N/A	N/A								
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)																			
<p>At 18:05 Central Standard Time on January 14, 2013, Grand Gulf Nuclear Station experienced an automatic Reactor SCRAM caused by a Turbine Trip due to a Main Generator lockout. The plant was operating in Mode 1 at 100 percent thermal power. All safety systems responded per design. Safety Relief Valves opened at the onset of the event to control reactor pressure and reseated properly. All control rods inserted when the signals generated by the Reactor Protection System were received. There were no Emergency Core Cooling System actuations. The shift immediately entered the appropriate procedures. The plant was stabilized with pressure control on the main turbine bypass valves and level control on the start-up level control valve, although high pressure feedwater heater start-up outlet valve 1N21F010B did not open when placing the start-up level control valve in service. There were no adverse effects on the health and safety of the public as a result of this event. The cause of the SCRAM was the Main Generator Isolated Phase Bus Cooling System experienced partial grounding due to design configuration of the horizontal bushing in an energized section of the bus, in close proximity to a degraded viewing port, which allowed water accumulation that created a ground condition. Additional portions of the isophase bus with seal off bushings were de-energized, and covers were installed over the viewing ports prior to plant restart.</p>																			

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV. NO.	
Grand Gulf Nuclear Station, Unit 1	05000 416				2 OF 3
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**NARRATIVE**

**A. REPORTABLE OCCURRENCE**

This Licensee Event Report (LER) is being submitted pursuant to Title 10 Code of Federal Regulations (10 CFR) 50.73(a)(2)(iv)(A) for an automatic actuation of the Reactor Protection System (EISS:JC) (RPS). Telephonic notification was made to the U.S. Nuclear Regulatory Commission (NRC) Emergency Notification System on January 14, 2013, within 4 hours of the event pursuant to 10 CFR 50.72(b)(3)(iv)(A).

**B. INITIAL CONDITIONS**

At the time of the event the reactor was in operational mode 1 with reactor power at 100 percent. There were no inoperable structures, systems, or components at the start of the event that contributed to this event.

**C. DESCRIPTION OF OCCURRENCE**

At 18:05 Central Standard Time on January 14, 2013, Grand Gulf Nuclear Station experienced an automatic Reactor SCRAM caused by a Turbine Trip due to Main Generator (EISS:TB) lockout. The plant was operating in Mode 1 at 100 percent thermal power. All safety systems responded per design. Safety Relief Valves (EISS:RV) (SRVs) opened at the onset of the event to control reactor pressure and reseated properly. All control rods (EISS:ROD) inserted when the signals generated by the RPS were received. There were no Emergency Core Cooling System actuations. The shift immediately entered the appropriate Off Normal Event Procedures and Emergency Procedures. The plant was stabilized with pressure control on the main turbine bypass valves (EISS:PCV) and level control on the start-up level control valve (EISS:LCV). High pressure feedwater heater start-up outlet valve (start-up outlet valve) 1N21F010B did not open when placing the start-up level control valve in service but did not prevent Operations from controlling the reactor water level. The plant responded to the trip as designed with the exception of the one start-up outlet valve noted above.

**D. CAUSE**

The cause of this event is a vulnerability in the design configuration of the horizontal bushing in an energized section of the isophase bus, in close proximity to a degraded top viewing port, that allowed water accumulation that created a ground condition. A contributing cause was weaknesses in the response to previous condition reports (CRs), where it was concluded that the water in the isophase bus duct system was the result of condensation. Corrective measures were focused on the water source from condensation and did not consider the possibility of rain water intrusion due to the system being pressurized when in operation. One corrective action was to inspect the viewing ports on top of the ductwork. However, visual inspections were not performed on the top due to documentation of objective evidence that no water was observed after heavy rains.

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**NARRATIVE**

**E. CORRECTIVE ACTIONS**

To correct the condition that caused this event, additional portions of the isophase bus with seal off bushings were de-energized. Covers were installed over the isophase bus duct viewing ports.

**F. SAFETY ASSESSMENT**

The event posed no threat to public health and safety as the RPS performed as designed. All safety systems responded as designed. The breaker thermal for the 1N21F010B start-up outlet valve was reset and returned to service and did not prevent Operations from controlling the reactor water level.

Immediate actions performed by the Operations staff were adequate and appropriate in placing and maintaining the reactor in a safe shutdown condition. The highest noted pressure was approximately 1110 pounds per square inch gauge (psig). The lowest noted pressure was approximately 930 psig. The lowest noted reactor water level was 0.89 inch on narrow range.

Although a reactor SCRAM is an initiator, nuclear safety was not compromised because safety related equipment necessary to safely shutdown the unit performed its safety function.

During the event, no Technical Specification defined Safety Limits were challenged.

Radiological Safety was not affected since there was no radiological release to the public during the event.

Response of the crew did not challenge established industrial safety protocol or requirements. There was no impact to the health and safety of the public, industrial safety or radiological safety as a result of this event.

**G. ADDITIONAL INFORMATION**

The isophase bus ducts were modified during the extended power uprate project in 2012. No previous SCRAMs at the site were caused by water leaking into an isophase bus.

The cause of start-up outlet valve 1N21F010B not opening was determined to be a thermal overload breaker trip. The breaker thermal was reset and the valve was returned to service. CR-GGN-2012-13297 documents this issue and the corrective actions that will be taken as part of a work order during the next refueling outage.