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10 CFR 50.73

GNRO-2019/00030

July 11, 2019

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

SUBJECT: Supplemental Licensee Event Report 2018-010-01, Reactor Manual  
SCRAM Due To Main Steam Bypass Stop and Control Valve Drifting  
Open  
Grand Gulf Nuclear Station, Unit 1  
NRC Docket No. 50-416  
Renewed Facility Operating License No. NPF-29

Dear Sir or Madam:

Attached is Supplemental Licensee Event Report 2018-010-01, Reactor Manual SCRAM Due To Main Steam Bypass Stop and Control Valve Drifting Open. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(iv)(A) for any event or condition that resulted in a manual or automatic actuation of systems listed in 10 CFR 50.73(a)(2)(iv)(B).

This letter contains no new commitments. If you have any questions or require additional information, please contact James Shaw at 601-437-2103.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric A. Larson".

Eric A. Larson  
EAL/ram

Attachment: Licensee Event Report 2018-010-01

(See Next Page)

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cc: NRC Region IV - Regional Administrator  
NRC Senior Resident Inspector, Grand Gulf Nuclear Station  
NRR Project Manager

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Attachment  
Licensee Event Report 2018-010-01

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), 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.



**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

<b>1. Facility Name</b> Grand Gulf Nuclear Station, Unit 1	<b>2. Docket Number</b> 05000416	<b>3. Page</b> 1 OF 3
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**4. Title**  
Reactor Manual SCRAM Due To Main Steam Bypass Stop and Control Valve A Drifting Open

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	Docket Number
12	12	2018	2018	010	- 01	7	11	2019	N/A	05000N/A
									Facility Name	Docket Number
									N/A	05000N/A

<b>9. Operating Mode</b>  1	<b>11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)</b>													
	<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(viii)(A)				
	<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)			<input type="checkbox"/> 50.73(a)(2)(viii)(B)				
	<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(iii)			<input type="checkbox"/> 50.73(a)(2)(ix)(A)				
<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)			<input type="checkbox"/> 50.73(a)(2)(x)					
<b>10. Power Level</b>  100	<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(A)			<input type="checkbox"/> 73.71(a)(4)				
	<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(B)			<input type="checkbox"/> 73.71(a)(5)				
	<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(C)			<input type="checkbox"/> 73.77(a)(1)				
	<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)(D)			<input type="checkbox"/> 73.77(a)(2)(ii)				
	<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(vii)			<input type="checkbox"/> 73.77(a)(2)(iii)				
									<input type="checkbox"/> 50.73(a)(2)(i)(C)			<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)		

**12. Licensee Contact for this LER**

Licensee Contact James Shaw, Manager Regulatory Assurance	Telephone Number (Include Area Code) (601) 437-2103
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**13. Complete One Line for each Component Failure Described in this Report**

Cause	System	Component	Manufacturer	Reportable To ICES	Cause	System	Component	Manufacturer	Reportable To ICES
X	N37	33	Collins	Yes	N/A	N/A	N/A	N/A	N/A

<b>14. Supplemental Report Expected</b> <input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No	<b>15. Expected Submission Date</b>	Month N/A	Day N/A	Year N/A
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Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

At approximately 1351 hours on Wednesday, December 12, 2018, while operating in MODE 1 at approximately 100 percent power, the Grand Gulf Nuclear Station was manually shutdown in response to Main Steam Bypass Stop and Control Valve A drifting open. The Main Steam Line Isolation Valves were manually closed as a mitigating action to control reactor pressure vessel rate of depressurization and cooldown. During the scram recovery, the Reactor Core Isolation Cooling (RCIC) System injection was delayed. During preparation to initiate High Pressure Core Spray (HPCS) System the operator noted that RCIC had started to inject but due to the water level and the rate of change the operator started HPCS. HPCS was secured once water level was trending higher. RCIC was utilized for reactor water level control until RCIC was placed in standby at 1645 hours. There were no consequences to the general safety of the public, nuclear safety, industrial safety and radiological safety for this event.

The direct cause of the condition is a failed linear variable differential transformer (LVDT) in the actuator for the Main Steam Bypass Stop and Control Valve A. The cause of the event was the existing operating guidance for the turbine electro hydraulic control (EHC) did not provide procedural steps to manually swap from a faulty controller to an auxiliary controller, which would have allowed the operators to close the valve. Corrective actions included swapping wiring from the failed LVDT to an installed spare LVDT and enhancement of the procedural guidance to ensure operators have the tools to manually swap from a faulty controller to an auxiliary controller. This report is made pursuant to 10 CFR 50.73(a)(2)(iv)(A) for any event or condition that resulted in manual or automatic actuation of systems as listed in 10 CFR 50.73(a)(2)(iv)(B), specifically the Reactor Protection System, HPCS, and RCIC systems were actuated.



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

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), 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	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Grand Gulf Nuclear Station, Unit 1	05000-416	2018	- 010	- 01

**A. PLANT CONDITIONS PRIOR TO THE EVENT**

Grand Gulf Nuclear Station (GGNS) Unit 1 was operating at approximately 100 percent power in Mode 1. There were no Structures, Systems, or Components that were inoperable that contributed to this event.

**B. DESCRIPTION**

At approximately 1200 hours CDT on Wednesday, December 12, 2018 while operating in MODE 1 at approximately 100 percent power the GGNS Main Steam Bypass Stop and Control Valve A [JI] began drifting open. The valve began to modulate between 0-10 percent open over the course of 90 minutes. After 90 minutes, the valve began to open at an increased rate, reaching approximately 50 percent open. The reactor was manually scrammed at 1351 hours. The Main Steam Line Isolation Valves [SB] were manually closed as a mitigating action to control reactor pressure vessel rate of depressurization and cooldown. Reactor pressure was controlled through the use of the Safety/Relief Valves [SB] and ultimately the Reactor Core Isolation Cooling (RCIC) System [BN].

During the scram recovery, at 1358 hours the operator proceeded into the steps for a controlled start of RCIC. The expected RCIC injection response was delayed due to discharge pressure indication and governor valve light indications were not as expected. Therefore, the operator prepared to initiate the High Pressure Core Spray (HPCS) System [BG] based on current reactor water level and its trend.

During preparation to initiate HPCS, the operator noted that RCIC had started to inject but reactor level was in the low end of the desired control band at -24.8 inches Wide Range (WR) with a downward trend and current RCIC injection was not arresting the decreasing trend in a timely manner. After evaluating the reactor water level and rate of change, the operator completed manually starting HPCS injection at 1408 hours. At 1409 hours, the HPCS injection was secured with reactor water level at 7.4 inches WR and trending higher and RCIC still injecting. RCIC and Safety/Relief Valves were utilized for reactor water level control until RCIC was placed in standby at 1645 hours.

**C. REPORTABILITY**

This event was reported under 10CFR50.72(b)(2)(iv)(A) and 10CFR50.72(b)(2)(iv)(B) for any event that results in the Emergency Core Cooling System discharge to the Reactor Coolant System, actuation of the Reactor Protection System while the reactor is critical, and under 10CFR50.72(b)(3)(iv)(A) for any specified system actuation (HPCS and RCIC) in Emergency Notification System (ENS) Notification 53788.

This report is made pursuant to 10CFR50.73(a)(2)(iv)(A) for any event or condition that resulted in manual or automatic actuation of systems as listed in 10CFR50.73(a)(2)(iv)(B), specifically the reactor protection system, HPCS, and RCIC systems were actuated.

**D. CAUSE**

The direct cause of the condition is a failed linear variable differential transformer (LVDT) in the actuator for the Main Steam Bypass Stop and Control Valve A.



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

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Grand Gulf Nuclear Station, Unit 1	05000-416	2018	- 010	- 01

The Root Cause of the event is the existing operating guidance for Turbine EHC did not provide procedural steps to manually swap from a faulty controller to an auxiliary controller, which would have allowed the operators to close the Main Steam Bypass Stop and Control Valve A.

**E. CORRECTIVE ACTIONS**

The following corrective actions are completed.

Completed:

- The wiring from the failed LVDT on the Main Steam Bypass Stop and Control Valve A was removed and reconnected to an installed spare LVDT, valve control was retested, and the valve returned to service.
- Operating instruction (ONEP-05-1-02-V-1) was updated with guidance to manually swap bypass control valve control to the auxiliary controller which will drive the valve to its proper position should a similar issue occur and the automatic transfer to the auxiliary controller not occur.

**F. SAFETY SIGNIFICANCE**

The manual Reactor SCRAM and manual closure of the MSIVs did not result in actual consequences to safety of the general public, nuclear safety, industrial safety or radiological safety.

If manual operation of the Safety/Relief Valves (SRVs) was not performed following this event, the potential consequence to safety of the general public, nuclear safety, industrial safety and radiological safety would have been mitigated by automatic operation of the SRVs to control Reactor pressure.

Based on the above, the safety significance of this event is determined to be low. The response to the manual scram was performed in accordance with plant procedures. Plant parameters (reactor level, pressure) were maintained within procedure and safety limits. There were no actual nuclear safety consequences or radiological consequences during the event.

**G. PREVIOUSLY SIMILAR EVENTS**

Entergy conducted a three-year review of the relevant licensee event reports and determined that there were no similar events.