Entergy

Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

Eric A. Larson
Site Vice President
Grand Gulf Nuclear Station
Tel. (601) 437-7500

10CFR50.73

GNRO-2019/00035

August 7, 2019

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

SUBJECT: Supplemental Licensee Event Report 2018-001-01, Reactor Manual Shutdown due to Turbine Pressure Control Valve Position Changes
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Attached is Supplemental Licensee Event Report 2018-001-01, Reactor Manual Shutdown due to Turbine Pressure Control Valve Changes. This report is being submitted in accordance with 10CFR50.73(a)(2)(iv)(A) for any event or condition that resulted in a manual or automatic actuation of any of the systems listed in 10CFR50.73(a)(2)(iv)(B).

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

Sincerely,

E. A. Larson

Eric A. Larson
EAL/rtw

Attachment: Supplemental Licensee Event Report 2018-001-01

cc:

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

GNRO-2019/00035

Attachment

Supplemental Licensee Event Report 2018-001-01

NRC FORM 366 (04-2018) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

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/)

1. Facility Name	2. Docket Number	3. Page
Grand Gulf Nuclear Station, Unit 1	05000416	1 OF 3

4. Title

Reactor Manual Shutdown Due to Turbine Pressure Control Valve Position Changes

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
									N/A	**05000** N/A
01	30	2018	2018	001	01	08	07	2019	Facility Name	Docket Number
									N/A	**05000** N/A

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*			
MODE 1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. Power Level	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
91%	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(ii)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(iii)
		☐ 50.73(a)(2)(i)(C)	☐ Other (Specify in Abstract below or in NRC Form 366A	

12. Licensee Contact for this LER

Licensee Contact	Telephone Number (Include Area Code)
Jim Shaw, Manager, Regulatory Assurance	(601) 437-2103

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
B	H13	1H13P825 JC05 C332	Siemens	Yes	N/A	N/A	N/A	N/A	N/A

14. Supplemental Report Expected	15. Expected Submission Date	Month	Day	Year
☐ **Yes** (If yes, complete 15. Expected Submission Date) ☒ No		N/A	N/A	N/A

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On January 30, 2018, Grand Gulf Nuclear Station (GGNS) was operating in Mode 1 at 91% power and was in the process of increasing power. At 1739 hours CST on January 30, 2018, GGNS experienced main turbine control valve (TCV) position changes of between 3 and 5 percent and main generator output load changes of approximately 20 megawatts with a periodicity of approximately 3 seconds.

At 1822 on January 30, 2018, operators performed a manual shut down of the reactor by moving the reactor mode switch from RUN to SHUTDOWN to place the unit in Mode 3. Upon reactor shutdown all systems performed as designed and no subsequent safety system actuations occurred. The TCV position changes were caused by an inappropriately high gain setting in one channel of the TCVs resonance compensator circuit. Corrective actions include adjustments to the control circuit, and revision of work task documents for adjustment of the control circuits.

There were no consequences to the general safety of the public, nuclear safety, industrial safety and radiological safety for this event.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Grand Gulf Nuclear Station, Unit 1	05000-416	2018	- 001	- 001

NARRATIVE

A. PLANT CONDITIONS PRIOR TO THE EVENT

Grand Gulf Nuclear Station (GGNS) Unit 1 was operating at 91% power in Mode 1 and increasing power. There were no Structures, Systems, or Components that were inoperable that contributed to the event.

B. DESCRIPTION

At 1739 hours CST on January 30, 2018, while the plant was operating at approximately 91% reactor power/1322 megawatts electric power (mwe), operators observed a 20 mwe electrical oscillation (peak to peak) with a periodicity of approximately 3 seconds. Concurrent oscillations of between 3 and 5% were noted on all four turbine control valves.

At 1822 hours on January 30, 2018, operators performed a manual shutdown of the reactor by moving the reactor mode switch from RUN to SHUTDOWN. Upon reactor shutdown all systems performed as designed and no subsequent safety system actuations occurred.

C. REPORTABILITY

This report is made pursuant to 10CFR50.73(a)(2)(iv)(A) for any event or condition that resulted in a manual or automatic actuation of any of the systems listed in 10CFR50.73(a)(2)(iv)(B).
This event was reported under 10CFR50.72(b)(3)(iv)(B)(1) in ENS notification 53115.

D. CAUSE

The cause of the reactor scram was a manual shutdown of the reactor due to operator concerns about main generator output variations, caused by unanticipated turbine pressure control valve (TCV) motion.

The turbine pressure control system controls turbine speed, operates the steam bypass system to keep reactor pressure within limits and avoid transients, and controls main turbine inlet pressure.

The unanticipated TCV motion was caused by an inappropriately high gain setting in the main steam line resonance compensator circuit. Investigation revealed that the high gain setting of the Resonance Compensator circuitry occurred because the work order steps used to calibrate the card when it was installed in June of 2016 were incorrect. The incorrect setting did not create an error of such magnitude as to be automatically excluded from the circuit internal diagnostics, but did create enough compensatory response from the TCV to be discernable by the operating crew.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
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Grand Gulf Nuclear Station, Unit 1	05000-416	2018	- 001	- 001

NARRATIVE

E. CORRECTIVE ACTIONS

The following corrective actions are completed or planned.

Completed:

- The main steam line resonance compensator circuit was recalibrated.
- Work instructions to setup steam line compensator were revised to provide corrected work steps.

F. SAFETY SIGNIFICANCE

The safety significance of this event is low because all systems operated as designed and the TCV changes did not challenge any safety parameters. The manual scram was performed as a conservative measure. There were no actual nuclear safety consequences or radiological consequences during the event.

G. PREVIOUS SIMILAR EVENTS

Entergy conducted a three-year review of the relevant licensee event reports and determined that there was one similar known event reported as GGNS Licensee Event Report 2016-05-00 "Automatic Reactor SCRAM." The failure in that event was a failed amplifier card, which is different from this event which was an incorrect potentiometer setting. Therefore, the corrective actions for the previous event would not have prevented this event.