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10 CFR 50.73

GNRO-2019/00046

October 24, 2019

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

SUBJECT: Grand Gulf Nuclear Station, Unit 1 Licensee Event Report 2019-004-00, Loss of High Pressure Core Spray Due to Instrument Inverter Failure

NRC Docket No. 50-416
Renewed Facility Operating License No. NPF-29

Attached is Licensee Event Report 2019-004-00, Loss of High Pressure Core Spray due to instrument inverter failure. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(v)(D) for an event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

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/fas

Attachment: Licensee Event Report 2019-004-00

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

GNRO-2019/00046

Attachment
Licensee Event Report 2019-004-00

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

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

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, 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/)

1. Facility Name	2. Docket Number	3. Page
Grand Gulf Nuclear Station, Unit 1	05000 416	1 OF 3

4. Title

Loss of High Pressure Core Spray Due to Instrument Inverter Failure

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
08	28	2019	2019	- 004	- 00	10	24	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)*			
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)
100	☐ 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	BG	IPWSUP	Topaz	Y					

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

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

On August 28, 2019, at 13:16, the Grand Gulf Nuclear Station Unit 1, Control Room received High Pressure Core Spray (HPCS) Out-of-Service annunciator, HPCS SYS OOSVC. HPCS was declared INOPERABLE and the following Technical Specification (TS) Action statements were entered: ECCS TS 3.5.1 Action B.1 and Primary Containment Isolation Valves TS 3.6.1.3 Action A.1.

The Direct Cause for the event is that the HPCS system instrument inverter lost inverter output that resulted in the inability to automatically initiate HPCS. Immediate corrective actions were taken to replace the instrument inverter restoring HPCS to an operable condition on August 28, 2019, at 23:15.

This report is made pursuant to 10 CFR 50.73(a)(2)(v)(D) for an event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

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	2019	- 004	- 00

NARRATIVE

Plant Conditions:

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 the event.

Description:

On August 28, 2019, at 13:16 CDT, the Control Room received the following High Pressure Core Spray (HPCS)[BG] annunciator, HPCS SYS OOSVC. In addition to the HPCS Out-of-Service alarm, the TRIP UNIT OOFile/PWRLOSS and HPCS LOGIC POWER FAILURE status lights were illuminated.

The Control Room operators responded to the alarm and declared HPCS (a single train system) INOPERABLE and entered Emergency Core Cooling Systems Technical Specification (TS) 3.5.1 Action statements for Condition B.

Additionally, the HPCS suction minimum flow valve opened as designed due to loss of instrument inverter power and Primary Containment Isolation Valves (PCIV) TS 3.6.1.3 Action statement for Condition A was entered for the affected isolation valve. The associated breaker was opened, and the minimum flow valve was manually closed per the required action as stated in TS 3.6.1.3 Condition A.1.

Instrument and Control Maintenance was contacted to investigate the event and the cause was determined to be an issue with the HPCS instrument inverter. The instrument inverter converts 125 VDC to 120 VAC. The investigation identified that inverter output was approximately 0 VAC.

Technical Specification LCO 3.5.1 was met with the replacement of the instrument inverter. TS LCO 3.6.1.3 was met when the HPCS minimum flow valve was restored to normal configuration. HPCS was declared operable on August 28, 2019, at 23:15.

Reportability:

This event was reported as an event or condition that, at the time of discovery, could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident per 10 CFR 50.72(b)(3)(v)(D). The event notification is EN 54244.

This event is also reportable per 10 CFR 50.73(a)(2)(v)(D).

Direct Cause:

The lost of instrument inverter VAC output power resulted in the inability to automatically initiate HPCS, resulting in a loss of safety function.

Immediate Corrective Actions:

The inverter was replaced and functionally tested satisfactory.

Safety Significance:

There were no actual consequences for this event. There was no radiological release from the Secondary Containment as a result of this event. There were no other actual consequences to safety of the general public, nuclear safety, industrial safety and

radiological safety.

Previous Similar Event:

A five-year review of similar events was conducted, and no similar events were revealed.