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10 CFR 50.73

GNRO-2020/00024

June 15, 2020

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

SUBJECT: Grand Gulf Nuclear Station, Unit 1 Licensee Event Report 2020-001-00, Residual Heat Removal System Inadvertent Actuation Due To Human Error

Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
Renewed License No. NPF-29

Attached is Licensee Event Report 2020-001-00, Residual Heat Removal (RHR) System Actuation Due To Human Error. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(iv)(A), for an event or condition that resulted in manual or automatic system actuation.

This letter contains no new Regulatory Commitments. Should you have any questions concerning the content of this letter, please contact Jim Shaw, Manager Regulatory Assurance at 601-437-2103.

Sincerely,

Eric A. Larson
EAL/fas

Attachments: Licensee Event Report 2020-001-00

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

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

Attachment
Licensee Event Report 2020-001-00

NRC FORM 366 (04-2020) U.S. NUCLEAR REGULATORY COMMISSION

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/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 04/30/2020

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-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

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

4. Title

Residual Heat Removal System Inadvertent Actuation Due To Human Error

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
04	16	2020	2020	- 001	- 00	06	15	2020	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)*			
5	☐ 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)
0	☐ 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
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

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

On April 16, 2020, at 0158 CT, Grand Gulf Nuclear Station Unit 1 received a Division 2 level 1 (-150.3 inches Reactor Water Level) initiation signal. At the time of the event, Instrument and Control (I&C) Technicians were performing Anticipated Transient Without Scram (ATWS) Reactor Vessel Level Transmitter Calibration Channel D in accordance with plant procedures. I&C Technicians were in the process of applying the required input for transmitter calibration.

The cause was that the transmitter manifold passed high pressure to the common sensing line perturbating multiple trip units into gross fail. This led to an ECCS initiation signal and subsequent injection. Instrument and Control Technicians failed to apply adequate force to properly seat the manifold valve.

Corrective action will be to revise plant procedures to isolate the initiation logic prior to performance of this surveillance with a work order to remove the channel associated with the common sensing lines to prevent safety system initiation.

This report is made pursuant to 10 CFR 50.73(a)(2)(iv)(A) for an event or condition that resulted in manual or automatic actuation of an Emergency Core Cooling System as a result of a valid signal. This resulted in a discharge of Residual Heat Removal (RHR B), into the Reactor Coolant System. There were no consequences to the general safety of the public, nuclear safety, or radiological safety for this event.

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/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Grand Gulf Nuclear Station, Unit 1	05000-416	2020	- 001	- 00

NARRATIVE

Plant Conditions:

Grand Gulf Nuclear Station (GGNS) Unit 1 was in MODE 5 (Refueling), for refueling outage RF22. The plant was shutdown on February 22, 2020 at 2100 hours for RF22.

Description:

On April 16, 2020, at 0158 CT, Instrument and Control (I&C) Technicians were working on Anticipated Transient Without Scram (ATWS) Reactor Vessel Level Transmitter Calibration Channel D. The technicians were in the process of applying the required input for transmitter calibration. At this moment Grand Gulf Nuclear Station (GGNS) received a Division 2 level 1 (-150.3 inches Reactor Water Level) initiation signal.

Residual Heat Removal (RHR) [BO] B received an auto start signal along with an open signal to its associated Low Pressure Coolant Injection (LPCI) valve. This resulted in a discharge of RHR B, into the Reactor Coolant System.

RHR C also, received an auto start signal along with an open signal to its LPCI valve. The Division 2 Load Shedding and Sequencing (LSS) had been previously removed from service for Standby Service Water (SSW) B flow balancing. As a result, RHR C and Division 2 Diesel Generator were prevented from starting. Residual Heat Removal B was secured along with its injection valve. RHR C LPCI injection valve, which had opened as a result of the initiation was also closed. The Emergency Core Cooling System (ECCS) initiation signal was reset and all systems returned to standby readiness.

Reportability:

This event is reportable as any event or condition that resulted in manual or automatic actuation, which resulted in a discharge of the ECCS, low pressure injection function of the RHR system into the Reactor Coolant System as a result of a valid signal per 10 CFR 50.73(a)(2)(iv)(A).

Direct Cause:

The cause was that the transmitter manifold passed high pressure to the common sensing line perturbating multiple trip units into gross fail. This led to an ECCS initiation signal and subsequent injection.

Instrument and Control Technicians failed to apply adequate force to properly seat the manifold valve.

Causal Factors:

Instrument and Control Technicians were aware of the potential risk of perturbation in the common sensing lines and initiating ECCS, but failed to take additional mitigating actions.

Immediate Corrective Actions:

Instrument and Control shop conducted a stand-down to brief the event with I&C Technicians.

Provide Supervisory oversite for the remainder of RF22 during the manipulation of critical transmitters with shared sensing lines.

Corrective Actions:

Isolate the potential initiation logic prior to performance of this surveillance with a work order to remove channel associated with common sensing lines to prevent safety system initiation. This action is complete.

Reactor Vessel Level Transmitter valve manifold replacement. This action is complete.

Instrument and Control and Engineering to perform failure investigation on Reactor Vessel Level Transmitter valve manifold. This action is complete.

Procedures will be revised to include steps when calibrating Engineered Safety Features (ESF) transmitters that have shared sensing lines, to
ensure mitigating actions are in place to preclude impacting shared units that could result in ECCS initiation and injection. Due date November 1, 2021

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.

At the time of the event the reactor was in MODE 5 with the reactor head removed. All ECCS systems were available, if required, to maintain vessel inventory. The actuation of B RHR was inadvertent (not part of a preplanned sequence) and not to mitigate the consequences of an event. As a result, the overall safety significance of this event is low. Shutdown Cooling remained in operations throughout this event.

Previous Similar Event:

Entergy conducted a three-year review, as described in NUREG-1022, Rev 3, Event Reporting Guidelines, and one similar event was revealed. LER 2018-007-00, Potential Loss of Safety Function (Residual Heat Removal) and System Actuation Caused by Inadvertent Valve Opening. On May 1, 2018, Grand Gulf Nuclear Station Instrument & Control technicians started a Reactor Vessel Water Level Transmitter Calibration Surveillance. The technicians inadvertently opened the low pressure isolation valve instead of the equalization valve. This resulted in a decrease in sensing line pressure, which appeared as a low water level signal to the transmitters. As a result, Division 1 Emergency Core Cooling System initiated, and Shutdown Cooling was isolated.

There are no commitments associated with this LER.