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10 CFR 50.73

GNRO2024-00011

March 27, 2024

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

SUBJECT: Grand Gulf Nuclear Station, Unit 1 Licensee Event Report 2024-001-00, High Pressure Core Spray Inoperable due to Minimum Flow Valve Failure to Close

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

Attached is Licensee Event Report (LER) 2024-001-00, High Pressure Core Spray Inoperable due to Minimum Flow Valve Failure to Close. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(v)(D), any event or condition that could have prevented the fulfillment of the safety function of systems that are needed to mitigate the consequences of an accident.

This letter contains no new Regulatory Commitments. Should you have any questions concerning the content of this letter, please contact me at 802-380-5124.

Sincerely,

Jeff Hardy

Digitally signed by Jeff Hardy
DN: cn=Jeff Hardy, c=US, email=jhardy@entergy.com
Date: 2024.03.27 13:09:43 -05'00'

JAH/saw

Attachments: Licensee Event Report 2024-001-00

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 2024-001-00

NRC FORM 366 (10-01-2023) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 | EXPIRES: 03/31/2024

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/)

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, Library, and Information Collections Branch (T-6 A10M), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by email 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; email: 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	■ 050 ☐ 052	416	1 OF 2

4. Title
High Pressure Core Spray Inoperable due to Minimum Flow Valve Failure to Close

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved		
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	☐ 050	Docket Number
01	29	2024	2024	- 001 -	00	03	27	2024	N/A		
									Facility Name: N/A	☐ 052	Docket Number

9. Operating Mode	10. Power Level
1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.1200(a)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	☐ 73.1200(b)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	☐ 73.1200(c)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)	☐ 73.1200(d)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**	☐ 73.1200(e)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.77(a)(1)	☐ 73.1200(f)
☐ 20.2203(a)(2)(iii)		☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(2)(i)	☐ 73.1200(g)
☐ 20.2203(a)(2)(iv)		☐ 50.73(a)(2)(i)(B)	☑ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(ii)	☐ 73.1200(h)
☐ 20.2203(a)(2)(v)		☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)		

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Jeff Hardy	802-380-5124

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

16. Abstract (Limit to 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)

On January 29, 2024, Grand Gulf Nuclear Station was operating at 100 percent power, and all safety systems were operable. At 1005 CT, during surveillance testing of the High Pressure Core Spray (HPCS) system, the HPCS minimum flow valve went from full open indication to dual indication and failed to close as expected. The cause of the valve's failure to close was a sheared actuator motor pinion key. The actuator motor pinion key was replaced using updated work instructions.

Although HPCS was declared inoperable during the event, an engineering evaluation concluded that HPCS system remained able to perform its safety functions to maintain thermal limits and address pressurized and depressurized conditions in the reactor pressure vessel. Therefore, there were no actual safety consequences to the event.

This report is being made in accordance with 10 CFR 50.73(a)(2)(v)(D), for any event or condition that could have prevented the fulfillment of the safety function of systems that are needed to mitigate the consequences of an accident.

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/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2024

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1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
			YEAR	SEQUENTIAL NUMBER	REV NO.
Grand Gulf Nuclear Station, Unit 1	■ 050 ☐ 052	416	2024	- 001	- 00

NARRATIVE

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

DESCRIPTION

On January 29, 2024, Grand Gulf Nuclear Station (GGNS) was operating at 100 percent power, and all safety systems were operable. At 0950 CT, the site began Technical Specification 3.5.1, ECCS Operating surveillance testing on the High Pressure Core Spray (HPCS) [BG] system. At 1005 CT, during the surveillance, HPCS minimum flow valve went from full open indication to dual indication and failed to close as expected. At 1620 CT, the HPCS minimum flow valve was manually closed.

REPORTABILITY

The HPCS minimum flow valve failure to close was initially reported to the NRC as an 8-hour report per 10 CFR 50.72(b)(3)(v)(D) on January 29, 2024 (EN 56938). This report is made in accordance with 10 CFR 50.73(a)(2)(v)(D) for any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

Although HPCS was declared inoperable during the event, an engineering evaluation concluded that HPCS system remained able to perform its safety functions to maintain thermal limits and address pressurized and depressurized conditions in the reactor pressure vessel. Therefore, in accordance with NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Section 2.2, Mitigating Systems Cornerstone, Sub-Section, Safety System Functional Failures, this event will not be counted against the Reactor Oversight Process Safety System Functional Failure Performance Indicator.

CAUSE

Trouble shooting was initiated and it was determined that the actuator motor pinion key had sheared off preventing the valve from actuating. Further investigation determined that the pinion key had not been correctly staked due to inadequate procedure instructions when the actuator motor was replaced in 2010.

CORRECTIVE ACTIONS

Immediately following the event, the HPCS minimum flow valve was manually closed.
A new motor pinion key was installed using updated work instructions.
Extent of condition actions are being developed to inspect motor pinion keys on similar valves.

SAFETY SIGNIFICANCE

There were no actual safety consequences associated with the condition described in this report. The HPCS system provides and maintains an adequate coolant inventory inside the reactor vessel to limit the fuel cladding temperatures in the event of breaks in the reactor coolant pressure boundary. The system is initiated by either high pressure in the drywell or low water level in the reactor vessel. Though the as-found HPCS minimum flow valve position rendered the system inoperable throughout the time period, the HPCS system was able to perform its safety functions for maintaining thermal limits. The HPCS system was able to address pressurized as well as depressurized (LOCA) conditions in the reactor pressure vessel.

PREVIOUS SIMILAR EVENTS

None