



William Gunter
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10 CFR 50.73

December 19, 2022
Serial: RA-22-0340

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

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400/Renewed License No. NPF-63

Subject: Licensee Event Report 2022-008-00

Ladies and Gentlemen:

Duke Energy Progress, LLC, submits the enclosed Licensee Event Report 2022-008-00 in accordance with 10 CFR 50.73 for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). This report describes a condition associated with the automatic actuation of the auxiliary feedwater system following an attempt to start the 'B' main feedwater pump. This event had no significance with respect to the health and safety of the public.

There are no regulatory commitments contained within this report.

Please refer any questions regarding this submittal to Sarah McDaniel at (984) 229-2002.

Sincerely,

A handwritten signature in blue ink, appearing to read "William D. Gunter", with a stylized flourish at the end.

William Gunter

Enclosure: Licensee Event Report 2022-008-00

cc: P. Boguszewski, NRC Senior Resident Inspector, HNP
M. Mahoney, NRC Project Manager, HNP
NRC Regional Administrator, Region II



LICENSEE EVENT REPORT (LER)

(See Page 3 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 e-mail to Infocollections.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk all: oir_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

Shearon Harris Nuclear Power Plant, Unit 1

2. Docket Number

05000

400

3. Page

1 OF 3

4. Title

Automatic Actuation of Auxiliary Feedwater System

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	Docket Number
10	30	2022	2022	- 008 -	00	12	19	2022	Facility Name	Docket Number
										05000
									Facility Name	Docket Number
										05000

9. Operating Mode

3

10. Power Level

000

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

<input checked="" type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input checked="" type="checkbox"/> 10 CFR Part 73
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input checked="" type="checkbox"/> 10 CFR Part 21	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input checked="" type="checkbox"/> 10 CFR Part 50	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
<input type="checkbox"/> OTHER (Specify here, in abstract, or NRC 366A).				

12. Licensee Contact for this LER

Licensee Contact

Sarah McDaniel, Regulatory Affairs Engineer

Phone Number (Include area code)

(984) 229-2002

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
X	SJ	33	N007	Y					

14. Supplemental Report Expected



No



Yes (If yes, complete 15. Expected Submission Date)

15. Expected Submission Date

Month

Day

Year

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On October 30, 2022, at 20:57 Eastern Daylight Time, Shearon Harris Nuclear Power Plant, Unit 1 (HNP), was in Mode 3 at 0% power. An automatic actuation of the auxiliary feedwater (AFW) system occurred during an attempt to start the 'B' main feedwater pump (MFP). Prior to the event, the 'A' MFP was removed from service due to its power supply, the 'A' electrical auxiliary bus, being under clearance. The 'B' MFP switch was taken to start and the 'B' MFP breaker did not close, which resulted in a valid AFW system actuation signal for loss of the last running MFP. The 'A' and 'B' motor-driven AFW (MDAFW) pumps were in service for steam generator inventory control prior to the AFW system actuation and remained in service following the event. The MDAFW flow control valves (FCVs) automatically opened as designed when the AFW actuation signal was received. Operations took action to control the AFW flow rate by throttling the FCVs. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in an automatic actuation of the AFW system. The AFW system responded to plant conditions as designed. The cause of the 'B' MFP failure to start was an open limit switch alignment deficiency on the 'B' MFP recirculation line condenser isolation valve. Misalignment of the limit switch prevented meeting the start permissive for the 'B' MFP. The limit switch on the 'B' MFP recirculation line condenser isolation valve was adjusted to obtain proper alignment. Procedural guidance will be revised to require start permissive verification checks prior to starting a MFP. This event did not impact public health and safety.

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Shearon Harris Nuclear Power Plant, Unit 1	05000-400	2022	008	00

NARRATIVE

Note: Energy Industry Identification System (EIS) codes are identified in the text within brackets [].

A. Background

Prior to the event, Shearon Harris Nuclear Power Plant, Unit 1 (HNP), was in Mode 3 at 0% power following an automatic reactor [RCT] trip that occurred on October 30, 2022, at 06:53 Eastern Daylight Time (EDT). Following the reactor trip and prior to the event, the 'A' electrical auxiliary bus [BU], which is the power supply to the 'A' main feedwater pump (MFP) [SJ P], was under clearance that required the 'A' MFP to be removed from service. The 'A' and 'B' motor-driven auxiliary feedwater (MDAFW) pumps [BA Ps] were in service prior to the event. HNP remained in Mode 3 after the event.

This event is reportable per 10 CFR 50.73(a)(2)(iv)(A) as "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B)...[including] auxiliary or emergency feedwater (AFW) system [BA]..."

The AFW system serves as a backup system for supplying feedwater to the secondary side of the steam generators [SG] at times when the MFW system [SJ] is not available, thereby maintaining the heat sink capabilities of the steam generators. The system provides an alternate to the MFW system during start-up, hot standby, and cooldown and also functions as an engineered safety features actuation system [JE]. In the latter function, the AFW system is directly relied upon to prevent core damage in the event of transients such as loss of main feedwater or a secondary system pipe rupture.

B. Event Description

On October 30, 2022, at 20:57 EDT, HNP was in Mode 3 at 0% power. An automatic actuation of the AFW system occurred during an attempt to start the 'B' MFP. Prior to the event, the 'A' MFP was removed from service due to its power supply, the 'A' electrical auxiliary bus, being under clearance. The 'B' MFP switch was taken to start and the 'B' MFP breaker did not close, which resulted in a valid AFW system actuation signal for loss of the last running MFP. The 'A' and 'B' MDAFW pumps were in service for steam generator inventory control prior to the AFW system actuation and remained in service following the event. The MDAFW flow control valves (FCVs) [BA FCVs] automatically opened as designed when the AFW actuation signal was received. Operations took action to control the AFW flow rate by throttling the FCVs.

C. Causal Factors

The cause of the 'B' MFP failure to start was an open limit switch [33] alignment deficiency on the 'B' MFP recirculation line condenser [COND] isolation valve [ISV]. Misalignment of the limit switch prevented meeting the start permissive for the 'B' MFP. Start permissive verification checks were not required to be completed in accordance with procedural guidance prior to starting the 'B' MFP.

D. Corrective Actions

The deficient limit switch on the 'B' MFP recirculation line condenser isolation valve was adjusted to obtain proper alignment. Procedural guidance will be revised to require start permissive verification checks prior to starting a MFP.

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

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1. FACILITY NAME

Shearon Harris Nuclear Power Plant, Unit 1

2. DOCKET NUMBER**05000-**

400

3. LER NUMBER**YEAR**

2022

**SEQUENTIAL
NUMBER**

008

**REV
NO.**

00

NARRATIVE**E. Safety Analysis**

The actuation of the AFW system was valid and the system responded to plant conditions as designed. The condition did not result in a safety system functional failure and had no adverse impact on the health and safety of the public.

F. Additional Information

There have been no events similar to the event documented in this LER in the past three years.