



David S. Hoffman  
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Shearon Harris Nuclear Power Plant  
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10 CFR 50.73

July 22, 2024  
Serial: RA-24-0183

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 2024-001-00

Ladies and Gentlemen:

Duke Energy Progress, LLC, submits the enclosed Licensee Event Report 2024-001-00 in accordance with 10 CFR 50.73(a)(2)(iv)(A) for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). 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 Mike Hershkowitz at (984) 229-2828.

Sincerely,

A handwritten signature in black ink, appearing to read "DSH", written over a light gray circular background.

David S. Hoffman

Enclosure: Licensee Event Report 2024-001-00

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 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 [Infocollections.Resource@nrc.gov](mailto:Infocollections.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. 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	<input checked="" type="checkbox"/> 050	2. Docket Number 00400	3. Page 1 OF 3
	<input type="checkbox"/> 052		

4. Title Automatic Reactor Trip Due to Main Generator Lock-Out
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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	<input type="checkbox"/> 050	Docket Number
05	30	2024	2024	- 001 -	00	07	22	2024	Facility Name	<input type="checkbox"/> 052	Docket Number

9. Operating Mode 1	10. Power Level 100
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## 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 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"/> 73.1200(a)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<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"/> 73.1200(b)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<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"/> 73.1200(c)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<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"/> 73.1200(d)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input checked="" type="checkbox"/> 10 CFR Part 21	<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"/> 73.1200(e)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.77(a)(1)	<input type="checkbox"/> 73.1200(f)
<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(2)(i)	<input type="checkbox"/> 73.1200(g)
<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(ii)	<input type="checkbox"/> 73.1200(h)
<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)		

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

## 12. Licensee Contact for this LER

Licensee Contact Mike Hershkowitz, Regulatory Affairs	Phone Number (Include area code) (984) 229-2828
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## 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
B	EA	NSBU	H200	Y					

14. Supplemental Report Expected		15. Expected Submission Date		Month	Day	Year
<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)			10	24	2024

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

On May 30, 2024, at 19:49 Eastern Daylight Time, Shearon Harris Nuclear Power Plant, Unit 1, experienced an automatic reactor trip from 100 percent power due to lock-out of the main generator caused by an electrical fault in the non-segmented bus at the 6.9 kV bushing box of Unit Auxiliary Transformer (UAT) 1B. UAT-1B was replaced during the 2024 spring refueling outage. Following the reactor trip, the unit was stabilized in Mode 3 at normal operating temperature and pressure. The reactor trip was not complex, with all systems responding normally post-trip. Local observation identified damage to the UAT-1B Y-side non-segregated bus at the connection to the low side bushing box. The reactor trip was reported on May 30, 2024, under 10 CFR 50.72(b)(2)(iv)(B) as an event or condition that results in actuation of the reactor protection system when the reactor is critical. The event had no impact on the health and safety of the public. A root cause evaluation is in progress to determine the causal factors leading to the electrical fault. Once the evaluation is complete, a supplemental report will be issued containing the causal factors and corrective actions for this event.

**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	<input checked="" type="checkbox"/> 050 <input type="checkbox"/> 052	2. DOCKET NUMBER	3. LER NUMBER		
Shearon Harris Nuclear Power Plant, Unit 1		00400	YEAR 2024	SEQUENTIAL NUMBER 001	REV NO. 00

**NARRATIVE**

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

**A. Background**

Prior to the event, Shearon Harris Nuclear Power Plant, Unit 1 (HNP), was operating in Mode 1 at 100 percent power. No other structures, systems, or components were inoperable at the time that contributed to the event.

HNP is equipped with two emergency diesel generators (EDGs)[EK DGs], two start up transformers (SUTs)[EA XFMRs] and two unit auxiliary transformers (UATs)[EA XFMRs]. HNP Technical Specification (TS) 3.8.1.1 limiting condition for operation (LCO) requires two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and two separate and independent EDGs in Modes 1-4. TS 3.8.1.2 LCO requires one circuit between the offsite transmission network and the onsite Class 1E distribution system, and one EDG in Modes 5 and 6.

The onsite AC non-emergency electrical distribution system [EA] provides auxiliary power to buses [BUs] which are divided into trains 'A' and 'B'. Under normal operating conditions, train 'A' receives power through UAT-1A and train 'B' receives power through UAT-1B. During start-up and shutdown conditions, offsite power is supplied to trains 'A' and 'B' through SUT-1A and SUT-1B, respectively. The onsite non-emergency electrical distribution includes the 6.9 kV auxiliary buses 1A, 1B, 1C, 1D, 1E, 1-4A, 1-4AB. Power is carried by six individual bus bars (two per phase), all of which are contained within the same duct enclosure for each bus. This bus arrangement is referred to collectively as a nonsegregated bus [NSBU].

UAT-1B, SUT-1A, and their associated interface equipment were replaced during the spring 2024 refueling outage. UAT-1A and SUT-1B are original equipment.

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] Reactor Protection System [JC]...."

**B. Event Description**

On May 30, 2024, at 19:49 Eastern Daylight Time, HNP experienced an automatic reactor [RCT] trip due to a lock-out of the main generator [EL GEN](MG). The MG lock-out was caused by an electrical fault in the non-segmented bus at the 6.9 kV bushing box of UAT-1B. Multiple reports were received in the Main Control Room (MCR) of smoke coming from the transformer area. The fire deluge system [KF] activated for UAT-1B. Local observation identified damage to the UAT-1B Y-side non-segregated bus at the connection to the low side bushing box. The reactor trip was not complex, with all systems responding normally post-trip.

**C. Causal Factors**

Initial assessment of the fault condition indicates an issue with the potential transformer wiring supplying the load tap changing circuit. A root cause evaluation is in progress to determine the causal factors. Once the evaluation is complete, a supplemental report will be issued containing the causal factors for this event.

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				2024	- 001	- 00

**NARRATIVE****D. Corrective Actions**

UAT-1B has been isolated from the onsite electrical system. HNP was synhronized to the grid at 13:26 on June 1, 2024. Power is aligned to train 'B' electrical loads through SUT-1B. Additional actions will be determined as needed following completion of the root cause evaluation.

**E. Safety Analysis**

Following the reactor trip and loss of power from UAT-1B, the power supply was automatically fast transferred from UAT-1B to SUT-1B, maintaining the power supply to the associated safety bus. Loads from UAT-1A were also fast transferred to SUT-1A, in accordance with plant design. The automatic reactor trip was not complex, with all safety systems functioning as designed during and following the reactor trip. This reactor trip had no impact on the health and safety of the public.

**F. Additional Information**

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