TENNESSEE VALLEY AUTHORITY

Post Office Box 2000, Decatur, Alabama 35609-2000

July 10, 2025

10 CFR 50.73

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

Browns Ferry Nuclear Plant, Unit 2
Renewed Facility Operating License No. DPR-52
NRC Docket No. 50-260

Subject: **Licensee Event Report 50-260/2025-001-00 – Reactor SCRAM due to Low Electro-Hydraulic Control Pressure**

The enclosed Licensee Event Report provides details of a SCRAM due to low electro-hydraulic control pressure on Browns Ferry Nuclear Plant, Unit 2, followed by a second automatic Reactor Protection System actuation due to a low reactor water level transient caused by manually opening and closing a main steam relief valve. The Tennessee Valley Authority is submitting this report in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.73(a)(2)(iv)(A), as any event or condition that resulted in a manual or automatic actuation of the Reactor Protection System and Primary Containment Isolation System. A supplement to this Licensee Event Report is planned to allow additional time to complete the cause evaluation.
.

There are no new regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact David J. Renn, Site Compliance Manager, at (256) 729-2636.

Respectfully,

Quinn Leonard by Delegation for SVP
Daniel A. Komm
Site Vice President

Enclosure: Licensee Event Report 50-260/2025-001-00 – Reactor SCRAM due to Low Electro-Hydraulic Control Pressure

cc (w/ Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant
NRC Project Manager - Browns Ferry Nuclear Plant

ENCLOSURE

Browns Ferry Nuclear Plant
Unit 2

Licensee Event Report 50-260/2025-001-00

Reactor SCRAM due to Low Electro-Hydraulic Control Pressure

See Enclosed

NRC FORM 366 (04-02-2024) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 04/30/2027

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		52. Docket Number	3. Page
Browns Ferry Nuclear Plant, Unit 2	☒ 050 ☐ 052	00260	1 OF 6

4. Title

Reactor SCRAM due to Low Electro-Hydraulic Control Pressure

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
05	12	2025	2025	- 001 -	00	07	10	2025	N/A	05000XXX
									Facility Name	Docket Number
									N/A	05000XXX

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)
Justin Garner, Site Compliance Engineer	256-729-7955

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

4. Supplemental Report Expected)		15. Expected Submission Date	Month	Day	Year
☐ No	☒ Yes (If yes, complete 15. Expected Submission Date		09	09	2025

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

On May 12, 2025, at 1353 Central Standard Time (CST), Browns Ferry Nuclear Plant, Unit 2, experienced a significant electro-hydraulic control (EHC) leak, resulting in a turbine trip and automatic reactor SCRAM on low EHC pressure. The trip was not complex with all systems responding normally post trip except for the turbine bypass valves, which subsequently failed closed due to loss of EHC pressure. At 1407 CST, with Unit 2 in Mode 3, there was a second automatic RPS actuation due to a low reactor water level transient caused by manually opening and closing a main steam relief valve. Event Notification 57705 was made to the NRC Operations Center on May 12, 2025, at 1731 CST.

The Tennessee Valley Authority is submitting this report in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.73(a)(2)(iv)(A), as any event or condition that resulted in manual or automatic actuation of the Reactor Protection System and the Primary Containment Isolation System.

There will be a supplement to this Licensee Event Report once the cause evaluation is completed.

1. FACILITY NAME		2. DOCKET NUMBER	3. LER NUMBER		
	☒ 050		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 2	☐ 052	00260	2025	- 001	- 00

NARRATIVE

I. Plant Operating Conditions before the Event

At the time of discovery, Browns Ferry Nuclear Plant (BFN), Unit 2, was in Mode 1 at 100 percent power.

II. Description of Event

A. Event Summary

On May 12, 2025, at 1353 Central Standard Time (CST), BFN Unit 2, experienced a significant electro-hydraulic control (EHC)[JA] leak resulting in a turbine trip and automatic reactor SCRAM on low EHC pressure. The trip was not complex with all systems responding normally post trip except for the turbine bypass valves [V], which subsequently failed closed due to loss of EHC pressure. Operations responded and stabilized the plant. At 1407, with Unit 2 in Mode 3, there was second automatic RPS actuation due to a low reactor water level transient caused by manually opening and closing a main steam relief valve. Event Notification 57705 was made to the Nuclear Regulatory Commission (NRC) Operations Center.

The Tennessee Valley Authority (TVA) is submitting this report in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.73(a)(2)(iv)(A), as any event or condition that resulted in manual or automatic actuation of the Reactor Protection System and the Primary Containment Isolation System (PCIS).

B. Status of structures, components, or systems that were inoperable at the start of the event and that contributed to the event

There were no structures, systems, or components (SSCs) whose inoperability contributed to this event.

NARRATIVE

C. Dates and approximate times of occurrences

DATE AND APPROXIMATE TIMES	OCCURRENCE
April 10, 2025, at 2237	Unit 2 mode switch moved to RUN following 2R23 refueling outage
May 12, 2025, at 1353	Turbine Trip on Low EHC Pressure/SCRAM. (Event Notification 57705 was reported to the NRC for this event.)
May 12, 2025, at 1407	RPS actuation due to a low reactor water level transient
May 12, 2025	Walkdown following SCRAM identified two broken mounting bolts on 2-FCV-47-154C. It was later identified that three bolts were broken during the event.
May 17, 2025	Following repairs to the valve, the unit was synced to the grid.

D. Manufacturer and model number of each component that failed during the event

Non-safety related bolting for the EHC shutoff valve, QA0 component.

E. Other systems or secondary functions affected

No other systems or secondary functions were affected.

F. Method of discovery of each component or system failure or procedural error

BFN, Unit 2, experienced a significant EHC leak resulting in a turbine trip and automatic reactor SCRAM on low EHC pressure. Walkdown following SCRAM identified two broken mounting bolts on 2-FCV-47-154C. It was later identified that three bolts were broken during the event.

G. The failure mode, mechanism, and effect of each failed component

There will be a supplement to this Licensee Event Report once the cause evaluation is completed.

NARRATIVE

H. Operator actions

Operations responded and stabilized the plant following the reactor scram and subsequently initiated a plant cooldown to Mode 4.

I. Automatically and manually initiated safety system responses

The trip was not complex with all systems responding normally post trip except for the turbine bypass valves [V], which subsequently failed closed due to loss of EHC pressure. Operations responded and stabilized the plant. At 1407, with Unit 2 in Mode 3, there was second automatic RPS actuation due to a low reactor water level transient caused by manually opening and closing a main steam relief valve. PCIS Groups 2, 3, 6, and 8 isolation signals were received. Upon receipt of these signals, components actuated as required.

III. Cause of the event

A. Cause of each component or system failure or personnel error

There will be a supplement to this Licensee Event Report once the cause evaluation is completed.

B. Cause(s) and circumstances for each human performance related root cause

There will be a supplement to this Licensee Event Report once the cause evaluation is completed.

IV. Analysis of the event

At 13:52 CST, approximately 1 minute prior to the SCRAM, BFN Operations personnel placed the alternate EHC pump (B) into service for testing. Initial EHC system pressure was approximately 1564 PSIG and increased approximately 54 PSIG (~3.5%) to 1618 PSIG when the B pump was placed in service. A plot of EHC pressure versus time indicates that the leak began when the B pump was placed in service. The EHC control system attempted to recover system pressure via the A and B pumps and accumulators but ultimately failed, and a turbine trip was generated. Although this pressure surge was within EHC operating pressure limits, the pressure surge was the most likely initiating event for the bolt failures and subsequent SCRAM. Post event walkdowns identified three sheared mounting bolts on 2-FCV-047-0154C, breaching the EHC

pressure boundary and draining the Unit 2 EHC tank.

Operations responded and stabilized the plant. At 1407 CST with Unit 2 in Mode 3, there was a second automatic RPS actuation due to a low reactor water level transient caused by manually opening and closing a main steam relief valve. Reactor water level was maintained via feed water pump. Decay heat was removed by discharging steam (via main steam line drains) to the main condenser. Units 1 and 3 were not affected.

V. Assessment of Safety Consequences

The plant responded as designed, while maintaining defense-in-depth for nuclear safety. All nuclear safety systems functioned as designed. This event was of very low nuclear safety significance. At no time was the health and safety of the public at risk.

A. Availability of systems or components that could have performed the same function as the components and systems that failed during the event

N/A

B. For events that occurred when the reactor was shut down, availability of systems or components needed to shutdown the reactor and maintain safe shutdown conditions, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident

This event did not occur when the reactor was shut down.

C. For failure that rendered a train of a safety system inoperable, estimate of the elapsed time from discovery of the failure until the train was returned to service

This event did not render a train of a safety system inoperable.

VI. Corrective Actions

Corrective Actions are being managed by the TVA's Corrective Action Program (CAP) under Condition Report (CR) 2012739.

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		
	☒ 050		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 2	☐ 052	00260	2025	- 001	- 00

NARRATIVE

A. Immediate Corrective Actions

Shutoff valve and mounting bolts were replaced.

B. Corrective Actions to Prevent Recurrence or to reduce the probability of similar events occurring in the future

There will be a supplement to this Licensee Event Report once the cause evaluation is completed.

VII. Previous Similar Events at the Same Site

There were no previous similar events found at the site.

VIII. Additional Information

There is no additional information.

IX. Commitments

There are no new commitments.

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