



Sequoyah Nuclear Plant, Post Office Box 2000, Soddy Daisy, Tennessee 37384

July 1, 2025

10 CFR 50.73

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

Sequoyah Nuclear Plant, Unit 2
Renewed Facility Operating License No. DPR-79
NRC Docket No. 50-328

Subject: **Licensee Event Report 50-328/2024-001-01, Reactor Trip due to an Electrical Trouble Turbine Trip**

- References:
1. TVA letter submitted to NRC dated September 25, 2024, "Licensee Event Report 50-328/2024-001-00, Reactor Trip due to an Electrical Trouble Turbine Trip."
 2. TVA letter submitted to NRC dated March 26, 2025, "Licensee Event Report 50-328/2024-001-01, Reactor Trip due to an Electrical Trouble Turbine Trip, Update Letter."
 3. TVA letter submitted to NRC dated April 30, 2025, "Licensee Event Report 50-328/2024-001-01, Reactor Trip due to Electrical Trouble Turbine Trip, Second Update Letter."

The enclosed licensee event report has been revised with supplemental information concerning an automatic reactor trip due to an electrical trouble turbine trip. This revised report reflects the results of the causal analysis and associated corrective actions. This event was previously reported in accordance with 10 CFR 50.73(a)(2)(iv), as an event that resulted in an automatic actuation of the reactor protection system and the auxiliary feedwater system. Changes to the Reference 1 report are indicated by revision bars on the right-side margin of the page.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact Mr. Rick Medina, Site Compliance Manager, at (423) 843-8129 or rmedina4@tva.gov.

Respectfully,

Michael, Kevin
Mckinley

Digitally signed by Michael, Kevin
Mckinley
Date: 2025.07.01 07:47:54 -04'00'

Kevin Michael
Site Vice President
Sequoyah Nuclear Plant


U.S. Nuclear Regulatory Commission

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Enclosure: Licensee Event Report 50-328/2024-001-01

cc: NRC Regional Administrator – Region II
NRC Senior Resident Inspector – Sequoyah Nuclear Plant

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/)				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 ail: pira_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 Sequoyah Nuclear Plant, Unit 2				<input checked="" type="checkbox"/> 050 <input type="checkbox"/> 052		52. Docket Number 00328		3. Page 1 OF 5		
4. Title Reactor Trip due to an Electrical Trouble Turbine Trip										
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
07	30	2024	2024	- 001	- 01	07	01	2025	N/A	05000N/A
									Facility Name	Docket Number
									N/A	05000N/A
9. Operating Mode 1						10. Power Level 94				
11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)										
10 CFR Part 20		<input type="checkbox"/> 20.2203(a)(2)(vi)		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)		10 CFR Part 21		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		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)				
<input type="checkbox"/> OTHER (Specify here, in abstract, or NRC 366A).										
12. Licensee Contact for this LER										
Licensee Contact Gerald Helton, Component Engineer								Phone Number (Include area code) 423.843.7608		
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	TB	GEN	W120	Y						
4. Supplemental Report Expected)					15. Expected Submission Date			Month	Day	Year
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date										
16. Abstract (Limit to 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)										
<p>On July 30, 2024, at 1640 eastern daylight time (EDT), SQN Unit 2 experienced an automatic reactor trip due to an electrical trouble turbine trip. The turbine tripped as a result of a generator neutral resistor overvoltage relay actuation.</p> <p>Operators performed the appropriate actions in response to the reactor trip. All plant safety systems responded as designed. This event did not adversely affect the health and safety of plant personnel or the general public.</p> <p>The event was caused by a hydrogen blower failure due to inadequate stationary blade screw staking. Corrective actions for the event include modifying the Main Generator hydrogen blower shroud to change the natural resonance frequency away from 120 Hertz, this will reduce cyclic loading on the screws; revising Main Generator preventive maintenance instructions to provide guidance for thread staking of stationary blade screws; and revising the maintenance procedure providing guidance regarding assembling and tensioning threaded connections to add detailed guidance for screw staking.</p>										

**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/>)

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 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 Sequoyah Nuclear Plant, Unit 2	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER 00328	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2024	SEQUENTIAL NUMBER - 001	REV NO. - 01

NARRATIVE**I. Plant Operating Conditions before the Event**

At the time of the event, Sequoyah Nuclear Plant (SQN) Unit 2 was in Mode 1 at approximately 94 percent rated thermal power and increasing after a forced outage.

II. Description of Event**A. Event Summary**

On July 30, 2024, at 1640 eastern daylight time (EDT), SQN Unit 2 experienced an automatic reactor [EIS: RCT] trip due to an electrical trouble turbine [EIS: TRB] trip. The turbine tripped as a result of a generator [EIS: GEN] neutral resistor overvoltage relay [EIS: 87] actuation.

Operators performed the appropriate actions in response to the reactor trip. All plant safety systems responded as designed.

The event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A), as an event that resulted in an automatic actuation of the Reactor Protection System [EIS: JC] and the Auxiliary Feedwater (AFW) System [EIS: BA].

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

No inoperable structures, components, or systems contributed to this event.

C. Dates and approximate times of occurrences

Date/Time (EDT)	Description
07/30/24, 1640	SQN Unit 2 experienced an automatic reactor trip due to an electrical trouble turbine trip. The unit entered Mode 3.

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

The Main Generator is a 4-pole generator with water cooled stator windings manufactured by Westinghouse Electric Corporation/Hagan, Model 1-S-77P0765.

E. Other systems or secondary functions affected

No other systems or secondary functions were affected.

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

Main control room (MCR) alarms and annunciators provided indication to the operators during the reactor trip.

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

The reactor trip and subsequent extended outage were caused by Main Generator stator core melting degrading Phase A Stator Coil Number TC10 resulting in a Phase A fault to ground.

Independent causal analysis identified that a hydrogen blower failure led to metallic debris bridging stator core laminations resulting in eddy currents that led to stator core melt.

Corrective actions included performing a full core replacement and re-wind, modifying the hydrogen blower shroud design to move the natural frequency away from the 120 Hertz of the end winding flux, and verifying stationary blade screw staking is sufficient to prevent screw loosening.

H. Operator actions

MCR operators responded to the reactor trip, as required, and then transitioned to post-trip response procedures.

I. Automatically and manually initiated safety system responses

The reactor protection system, including feedwater isolation and AFW start, responded to the trip, as designed.

III. Cause of the event**A. Cause of each component or system failure or personnel error**

The event was caused by a hydrogen blower failure due to inadequate stationary blade screw staking. Metallic debris consistent with hydrogen blower blades was found inside the main generator stator core, post failure. One of the first-row stationary blade sections was detached from the shroud and most rotating blades were found damaged. Inspection of the shroud at the detached stationary blade location identified that one of the three screws was missing. Screw staking marks for the missing screw were not made close enough to the screw hole to deform mating surfaces locking the screw in place. With one of three screws detached, the remaining two screws would fail from fatigue resulting in subsequent blower failure.



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NARRATIVE

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

There were no human performance related root causes for the event.

IV. Analysis of the event

The reactor trip was not complex with all plant safety systems responded as designed. This event did not adversely affect the health and safety of plant personnel or the general public.

V. Assessment of Safety Consequences

There were no actual safety consequences as a result of this event.

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

None.

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

The 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

There was no failure that rendered a train of a safety system inoperable.

VI. Corrective Actions

This event was entered into the Tennessee Valley Authority Corrective Action Program under condition report number 1947208.

A. Immediate Corrective Actions

A work order for troubleshooting the cause of the event was created.



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NARRATIVE

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

Corrective actions for the event include modifying the main generator hydrogen blower shroud to change the natural resonance frequency away from 120 Hertz, this will reduce cyclic loading on the screws; revising Main Generator preventive maintenance instructions to provide guidance for thread staking of stationary blade screws; and revising the maintenance procedure providing guidance regarding assembling and tensioning threaded connections to add detailed guidance for screw staking.

To aid in earlier detection the following actions have been taken: (1) seismic vibration limits and associated actions have been established, (2) Main Generator Shaft Voltage monitoring has been installed to allow trending, and (3) the generator core monitoring configuration has been changed to allow automatic sampling during verified alarms and to provide operator guidance to remove the unit from service.

VII. Previous Similar Events at the Same Site

There were no previous similar events at SQN occurring within the last three years.

VIII. Additional Information

There is no additional information.

IX. Commitments

There are no new commitments.