

**Virginia Electric and Power Company
Surry Power Station
5570 Hog Island Road
Surry, Virginia 23883**

July 30, 2024

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

Serial No.: 24-230
SPS: MMT
Docket No.: 50-280
License No.: DPR-32

Dear Sir or Madam:

Pursuant to 10CFR50.73, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to Surry Power Station Unit 1.

Report No. 50-280 / 2024-001-00

This report has been reviewed by the Station Facility Safety Review Committee and will be forwarded to the Management Safety Review Committee.

Very truly yours,



David H. Wilson
Site Vice President
Surry Power Station

Enclosure

Commitment contained in this letter: None

cc: U.S. Nuclear Regulatory Commission, Region II
Marquis One Tower, Suite 1200
245 Peachtree Center Ave., NE
Atlanta, GA 30303-1257

NRC Senior Resident Inspector
Surry Power Station



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, 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 Surry Power Station, Unit 1	<input checked="" type="checkbox"/> 050	2. Docket Number 00280	3. Page 1 OF 3
	<input type="checkbox"/> 052		

4. Title
Troubleshooting Initiated Unknown Turbine Trip Feature in Control 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
06	02	2024	2024	001	00	07	30	2024	Facility Name	<input type="checkbox"/> 050
									Facility Name	<input type="checkbox"/> 052

9. Operating Mode: N 10. Power Level: 013

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

<input type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input 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 type="checkbox"/> 10 CFR Part 21	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input 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: David H. Wilson, Site Vice President Phone Number (Include area code): (757) 365-2001

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	JJ	DCC	E232	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 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)

On June 2, 2024, at 1708 hours with Unit 1 at 13% power, Unit 1 experienced an automatic reactor trip due to a turbine trip. Upon synchronizing Unit 1 turbine generator to the grid, the Turbine Control System (TCS) did not transition to load control as expected. TCS troubleshooting identified that the Breaker Cycling Test mode was active, inhibiting the control system response to breakers being closed. While disabling Breaker Cycling Test mode, the breaker status points were taken off scan. This action initiated an unexpected turbine trip and automatic reactor trip. The turbine trip initiation was caused by a flawed TCS trip logic design. The flawed trip logic rendered a Remote IO failure indication on the TCS Remote IO Failure Trip where no failure existed. The TCS was returned to a normal configuration for turbine startup, an extent of condition review of the Ovation System for additional unrecognized trips was performed, and TCS indicators and controls were updated in station operating procedures. The health and safety of the public were not affected by this event.

This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in the automatic actuation of the Reactor Protection System.



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

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1. FACILITY NAME Surry Power Station, Unit 1	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER 00280	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2024	SEQUENTIAL NUMBER 001	REV NO. 00

NARRATIVE

1.0 Description of the Event

On June 2, 2024, at 1708 hours, during Unit 1 startup following the completion of a scheduled refueling outage, Unit 1 automatically tripped from 13% power due to a Turbine trip greater than P-7 (10% power). Upon synchronizing Unit 1 turbine generator to the grid, the Turbine Control System (TCS) (EIS System JJ, Component DCC) did not transition to load control as expected. MWs slowly increased to 50 MWe with no other actions taken. TCS troubleshooting identified that the Breaker Cycling Test mode was active, inhibiting the control system response to breakers being closed. The operating crew remained diligent in monitoring the unit. All critical parameters such as reactor power, steam generator levels, pressurizer pressure, and pressurizer level remained relatively stable during this time. The operating crew was not challenged by the slow increase in load. Manually tripping the reactor was considered and determined to result in a more severe transient compared to the slow increase in electrical load. A value was established for manually tripping the reactor if the load increase continued. The unit stabilized at a level below this threshold.

A troubleshooting sheet was developed and tested on the simulator. The troubleshooting sheet would allow disabling Breaker Cycling Test mode and the TCS to be swapped to load control. While disabling the Breaker Cycling Test mode, the breaker status points were taken off scan. This action initiated an unexpected turbine trip and automatic reactor trip. The turbine trip initiation was caused by a flawed TCS trip logic design. The flawed trip logic rendered a Remote IO failure indication on the TCS Remote IO Failure Trip where no actual failure existed. The automatic reactor trip was uncomplicated and all control rods fully inserted into the core. There was no emergency core cooling system (ECCS) or auxiliary feedwater system actuation, and the operating crew responded as expected. There were no inoperable structures, systems or components that contributed to the event.

The TCS was returned to a normal configuration for turbine startup, an extent of condition review of the Ovation System for additional unrecognized trips was performed, and station operating procedures were updated. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in the automatic actuation of the Reactor Protection System.

2.0 Significant Safety Consequences and Implications

No significant safety consequences resulted from this event. The health and safety of the public were not affected by this event.

3.0 Cause of the Event

The cause of the event was a flawed TCS trip logic design resulting in a TCS Remote IO Failure Trip. The trip logic was flawed in that a Remote IO failure was indicated on the TCS Remote IO Failure Trip where no failure existed. The trip logic was made up with the flawed Remote IO failure indicated concurrent with 2/2 Output Circuit Breakers (OCBs) indicating Bad quality.

4.0 Immediate Corrective Action

The TCS was returned to a normal configuration for turbine startup including returning the OCB points to scan, turning off the Breaker Cycling Test Mode, and forcing input to the Primary Control Module to clear input to impacted "AND" gate. The Vendor and Dominion Engineering performed a review for additional unrecognized trips associated with the Ovation System and found no additional unrecognized trips. Procedures for Turbine-Generator Startup to 20%-25% Turbine Power were revised to include steps to perform TCS Alarm Screen and TCS Forced or Off Scan Point review in accordance with the procedure for TCS Ovation Operation, and added steps to check that the Bypass Sync Check Relay and the Breaker Cycling Test buttons are inactive. Additionally, the TCS Ovation Operation procedure was revised to enhance reviews of the TCS Alarm Screen and review TCS Forced or Off Scan Points.



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NARRATIVE

5.0 Additional Corrective Actions

Corrective Actions to Address Contributing Causes (CACC) were developed to address procedural review requirements (electronic and non-electronic), specific guidance requirements when developing digital design changes (to include software functionality), training analysis for troubleshooting procedure, revise guidance for Owner's Review tracking of open items to resolution, and adding supervisory review requirements for Owner's Review in guidance document.

6.0 Actions to Prevent Recurrence

Correct flawed identified TCS trip logic for both Unit 1 and Unit 2 Turbine Control Systems.

7.0 Similar Events

No similar events have been noted at Surry.

8.0 Additional Information

The health and safety of the public were not affected by this event. There was no impact to Unit 2.