

**LICENSEE EVENT REPORT (LER)**

(See Page 3 for required number of digits/characters for each block)
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1. Facility Name

Calvert Cliffs Nuclear Power Plant, Unit 2

2. Docket Number

05000318

3. Page

1 OF 4

4. Title

Unit 2 Automatic Reactor Trip Due to High Reactor Coolant System Pressure

5. Event Date

Month	Day	Year
01	03	2022

6. LER Number

Year	Sequential Number	Revision No.
2022	- 001 -	00

7. Report Date

Month	Day	Year
03	03	2022

8. Other Facilities Involved

Facility Name	Docket Number
	05000
Facility Name	Docket Number
	05000

9. Operating Mode

1

10. Power Level

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)☐ 50.36(c)(2)☒ 50.73(a)(2)(iv)(A)☐ 50.73(a)(2)(x)☐ 20.2201(b)☐ 20.2203(a)(3)(i)☐ 50.46(a)(3)(ii)☐ 50.73(a)(2)(v)(A)**10 CFR Part 73**☐ 20.2201(d)☐ 20.2203(a)(3)(ii)☐ 50.69(g)☐ 50.73(a)(2)(v)(B)☐ 73.71(a)(4)☐ 20.2203(a)(1)☐ 20.2203(a)(4)☐ 50.73(a)(2)(i)(A)☐ 50.73(a)(2)(v)(C)☐ 73.71(a)(5)☐ 20.2203(a)(2)(i)**10 CFR Part 21**☐ 50.73(a)(2)(i)(B)☐ 50.73(a)(2)(v)(D)☐ 73.77(a)(1)(i)☐ 20.2203(a)(2)(ii)☐ 21.2(c)☐ 50.73(a)(2)(i)(C)☐ 50.73(a)(2)(vii)☐ 73.77(a)(2)(i)☐ 20.2203(a)(2)(iii)**10 CFR Part 50**☐ 50.73(a)(2)(ii)(A)☐ 50.73(a)(2)(viii)(A)☐ 73.77(a)(2)(ii)☐ 20.2203(a)(2)(iv)☐ 50.36(c)(1)(i)(A)☐ 50.73(a)(2)(ii)(B)☐ 50.73(a)(2)(viii)(B)☐ 20.2203(a)(2)(v)☐ 50.36(c)(1)(ii)(A)☐ 50.73(a)(2)(iii)☐ 50.73(a)(2)(ix)(A)☐ OTHER (Specify here, in abstract, or NRC 366A).**12. Licensee Contact for this LER****Licensee Contact**

Art Simpson, Principal Regulatory Engineer

Phone Number (Include area code)

410 495-6913

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	TG	TD	W120	N					

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 January 3, 2022, with the Unit 2 reactor operating at 100 percent power, a severe weather induced phase-to-ground fault occurred on a transformer feeder breaker from a 500 kilovolt switchyard bus, causing an electrical transient that affected frequency of the bus and Unit 2 main turbine speed. Main turbine speed increased above the setpoint for the Load Drop Anticipator function of the turbine control system, resulting in closure of the turbine control and intercept valves. With the valves travelling closed, reactor coolant pressure increased, and the Unit 2 reactor automatically tripped on high reactor coolant pressure. The cause was the configuration of the megawatt transducer circuit for the Unit 2 main turbine control system would activate the Load Drop Anticipator function of the system at turbine speeds for zero percent power instead of full power. Corrective action included a tuning change to the main turbine control system to activate the LDA function at the intended full power value of 1854 revolutions per minute while at full reactor power. Currently, plans are in place to replace the megawatt transducers in a future outage.

NRC FORM 366A (04-2018)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104		EXPIRES: 03/31/2020	
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1. FACILITY NAME Calvert Cliffs Nuclear Power Plant, Unit 2		2. DOCKET NUMBER 05000318		3. LER NUMBER			
				YEAR	SEQUENTIAL NUMBER	REV NO.	
				2022	- 001	- 00	
NARRATIVE							

PLANT AND SYSTEM IDENTIFICATION

Calvert Cliffs Nuclear Power Plant, Unit 2, is a Combustion Engineering Pressurized Water Reactor with a licensed maximum power level of 2737 megawatts thermal. The Energy Industry Identification System code used in the text is identified as [TG].

A. CONDITION PRIOR TO EVENT

Unit: 2

Date: January 3, 2022

Power level: 100

Mode: 1

The megawatt transducer circuit [TD] for the Unit 2 main turbine control system [TG] was out-of-service and contributed to this event.

B. DESCRIPTION OF EVENT

On January 3, 2022, with the Unit 2 reactor operating at 100 percent power, a severe weather induced phase-to-ground fault occurred on a transformer feeder breaker [BKR] from the 500-kilovolt switchyard Red Bus [BU] "B" phase, causing an electrical transient that affected frequency of the bus and Unit 2 main turbine speed. At that time, the megawatt transducers installed in the megawatt transducer circuit for the Unit 2 main turbine Ovation control system were configured to activate the Load Drop Anticipator (LDA) function of the system if main turbine speed reached 1809 revolutions per minute (RPM) with the reactor at 100 percent power. The correct configuration of the megawatt transducer circuit should activate the LDA function of the system if main turbine speed reaches 1809 RPM at zero percent reactor power and if main turbine speed reaches 1854 RPM at 100 percent reactor power. As a result of the transient on January 3, 2022, Unit 2 main turbine speed increased above 1809 RPM to 1810 RPM and initiated the Load Drop Anticipator (LDA) function in the main turbine Ovation controls. Once the LDA was latched, the turbine control valves [FCV] and intercept valves [V] were forced shut to prevent a possible turbine overspeed condition. With the valves traveling closed, reactor coolant system (RCS) [AB] pressure began to rise, resulting in an automatic Unit 2 reactor trip on high RCS pressure.

C. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES

January 3, 2022

12:23:45 - Weather induced fault on switchyard breakers causes spike on turbine speed.

12:23:46 - Load Drop Anticipator actuated on turbine speed at 1809 RPM setpoint. Speed reached 1810 RPM.

12:23:52 - Unit 2 automatic reactor trip on high RCS pressure.

12:24:18 - Main turbine generator breakers 61 and 63 open automatically.

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January 5, 2022

16:29 – Unit 2 entered Mode 2.

19:44 – Unit 2 entered Mode 1.

January 6, 2022

01:40 - Tuning change to main turbine Ovation controls system completed.

20:47 - Unit 2 reactor restored to full power.

D. CAUSE OF EVENT

The method of discovery for this event was self-revealing and is documented in the site's Corrective Action Program under IR 04469662. The cause of the event was the configuration of the megawatt transducer circuit was not corrected prior to the January 3, 2022 transient. Prior to start-up following the automatic trip, actions were taken to prevent the LDA from actuating during fluctuations like those experienced on January 3, 2022, with the reactor operating at full power. Specifically, a tuning change to the main turbine control system was performed to activate the LDA function at the intended full power value of 1854 revolutions per minute while at full reactor power.

E. SAFETY ANALYSIS

The subject event satisfies the criteria in NUREG-1022, Revision 3, for any event or condition that resulted in manual or automatic actuation of any of the systems listed in 10 CFR 50.73 (a)(2)(iv)(B). The systems to which the requirements of 10 CFR 50.73 (a)(2)(iv)(A) apply includes the reactor protection system (RPS) including, reactor trip. The subject event resulted in valid actuation of the RPS, and the actuation did not result from a pre-planned sequence during testing or reactor operation. Therefore, this event is reportable pursuant to 10CFR 50.73(a)(2)(iv)(A).

This event did not result in any actual nuclear safety consequences.

F. CORRECTIVE ACTIONS

Required corrective actions have been completed. To prevent the LDA from actuating during fluctuations like those experienced on January 3, 2022, a tuning change to the system was performed to activate the LDA function at the intended full power value of 1854 revolutions per minute while at full reactor power. Plans are in place to replace the megawatt transducers in a future outage such that the circuit will operate as originally designed.

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G. PREVIOUS OCCURRENCES

No previous similar events have occurred at the site within the last five years.

H. COMPONENT FAILURE DATA

Component	IEEE 803 FUNCTION ID	IEEE805 SYSTEM ID
Main Turbine Controls Megawatt Transducer Circuit	TD	TG

The Unit 2 main turbine control system manufacturer is Westinghouse.