

Dominion Energy Nuclear Connecticut, Inc.
Millstone Power Station
314 Rope Ferry Road, Waterford, CT 06385
DominionEnergy.com



U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Serial No.: 24-160
MPS Lic/JP R0
Docket No.: 50-423
License No.: NPF-49

MAY 02 2024

DOMINION ENERGY NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
LICENSEE EVENT REPORT 2023-006-00

PRESSURIZER POWER OPERATED RELIEF VALVE FAILED TO STROKE OPEN DURING
SURVEILLANCE TESTING RESULTING IN A CONDITION PROHIBITED BY TECHNICAL
SPECIFICATIONS

This letter forwards Licensee Event Report (LER) 2023-006-00, documenting a condition that was discovered at Millstone Power Station Unit 3 (MPS3) on October 20, 2023. This LER is being submitted pursuant to 10 CFR 50.73 (a)(2)(i)(B) as a condition prohibited by technical specifications.

There are no regulatory commitments contained in this letter or its enclosure.
Should you have any questions, please contact Mr. Dean E. Rowe at (860) 444-5292.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael J. O'Connor".

Michael J. O'Connor
Site Vice President – Millstone

Enclosure: LER 423/2023-006-00

cc: U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road, Suite 102,
King of Prussia, PA 19406-1415.

R. V. Guzman
NRC Project Manager Millstone Units 2 and 3
U.S. Nuclear Regulatory Commission
One White Flint North, Mail Stop 08 C2
11555 Rockville Pike
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Millstone Power Station

Serial No. 24-160
Docket No. 50-423
Licensee Event Report 2023-006-00

ATTACHMENT

LICENSEE EVENT REPORT 2023-006-00

**PRESSURIZER POWER OPERATED RELIEF VALVE FAILED TO STROKE OPEN
DURING SURVEILLANCE TESTING RESULTING IN A CONDITION PROHIBITED BY
TECHNICAL SPECIFICATIONS**

**MILLSTONE POWER STATION UNIT 3
DOMINION ENERGY NUCLEAR CONNECTICUT, INC.**



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 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. 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 Millstone Power Station - Unit 3	<input checked="" type="checkbox"/> 050 <input type="checkbox"/> 052	2. Docket Number 00423	3. Page 1 OF 4
---	---	----------------------------------	--------------------------

4. Title
 Pressurizer Power Operated Relief Valve Failed to Stroke Open During Surveillance Testing Resulting In a Condition Prohibited by Technical Specifications

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
10	20	2023	2023	006	00	05	02	2024		<input type="checkbox"/> 050
									Facility Name	<input type="checkbox"/> 052

9. Operating Mode 4	10. Power Level 000
-------------------------------	-------------------------------

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 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 checked="" 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 Dean E. Rowe, Manager Nuclear Station Emergency Preparedness and Licensing	Phone Number (Include area code) 860-444-5292
--	--

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	AB	PSV	CROSBY	Y					

14. 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)

On October 20, 2023 at 0240 hours, with Millstone Power Station Unit 3 at 0 percent reactor power in Mode 4, the "B" pressurizer power operated relief valve (PORV), 3RCS*PCV456, failed to stroke open upon demand during performance of surveillance testing. The failed PORV was replaced with a rebuilt PORV and new pilot solenoid operated valve and passed all required post maintenance tests. The direct cause of the 'B' PORV failure to stroke was a failed pilot solenoid operated valve (SOV). Although it could not be determined when 3RCS*PCV456 became inoperable, it was likely not capable of stroking open in Mode 1-3 for a period exceeding the 72-hour allowed outage time of Technical Specification. This report is being submitted pursuant to 10 CFR 50.73 (a)(2)(i)(B), as an operation or condition that was prohibited by the plant's Technical Specifications.



**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 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 Millstone Power Station - Unit 3	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER 423	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2023	SEQUENTIAL NUMBER 006	REV NO. 00

NARRATIVE

On October 20, 2023 at 0240 hours, with Millstone Power Station Unit 3 at 0 percent reactor power in Mode 4, the "B" pressurizer power operated relief valve (PORV), 3RCS*PCV456, failed to stroke open on demand during performance of surveillance testing per SP 3601B.2-006, "Train B Pressurizer Steam Space Vent Path and PORV stroke time operability". The PORV was declared inoperable to support both normal operating pressure overpressure protection function and its cold overpressure protection function in Modes 1-3. During plant cooldown, alternative means were utilized to satisfy the associated cold over pressure protection requirements.

The failed 3RCS*PCV456 PORV was installed during the 3R21 refueling outage in 2022 and had passed all the required surveillance activities to support plant startup. Plant heat-up commenced on May 18, 2022. On August 17, 2022, the 'B' PORV showed evidence of leakage. The leaking PORV was isolated by closing the upstream block valve, 3RCS*MV8000B. Following the isolation of the 'B' PORV block valve on August 19, 2022, temperatures downstream of the 'B' PORV continued to rise. The leakage continued throughout the operating cycle.

3RCS*PCV456 was replaced with a rebuilt main valve and new solenoid operated valve (SOV). The opposite train PORV, 3RCS*PCV455A was also replaced with a rebuilt main valve and new SOV. The spare PORV had its SOV replaced with a new SOV. Both trains successfully passed all required post maintenance testing to support plant operation.

The MP3 Pressurizer (PZR) PORV valve is a Crosby pilot solenoid operated relief valve that relies on a pilot solenoid operated valve lifting to vent main body valve pressure and provide the necessary differential pressure across the main disc to lift. Extensive troubleshooting and offsite testing validated that the failed 'B' PORV was unable to stroke at both high and low pressure conditions.

Technical Specification 3.4.4 requires that both power operated relief valves and their associated block valves shall be operable for modes 1, 2 and 3. Based upon no indication of the 'B' PORV stroking successfully on October 20, 2023 (changes in pressurizer relief tank pressure level, reactor coolant system pressure), the 'B' PORV was inoperable to support its TS 3.4.4 design function in Modes 1 through 3. In addition, the 'B' PORV was inoperable to meet its TS 3.4.9.3 design function in Mode 4 (when reactor coolant system less than or equal to 226 degrees F), 5, and 6 (when the reactor head is on the reactor vessel). TS 3.4.9.3 was satisfied using relief valves other than the 'B' PORV.

The Technical Specification action statement for an inoperable PORV due to excessive seat leakage allows continued operation with the associated block valve closed because manual operation of the PORV is still available. In contrast, the action statement for a PORV inoperable for reasons other than excessive seat leakage states: "restore the PORV to OPERABLE status or close the associated block valve and remove power from the block valve; within the following 72 hours restore the PORV to OPERABLE status...".

Although the date when 3RCS*PCV456 degraded to the point where it could not open on demand could not firmly be determined, it was likely not capable of stroking open in Modes 1 through 3 for a period exceeding the 72-hour allowed outage time of Technical Specification 3.4.4 Limiting Condition for Operations Action (b) for a PORV inoperable due to causes other than excessive seat leakage. This condition is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B) as any operation or condition prohibited by the plant's Technical Specifications.



**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 email 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. 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 Millstone Power Station - Unit 3	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER 423	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2023	SEQUENTIAL NUMBER 006	REV NO. 00

NARRATIVE

CAUSE

The direct cause of the 'B' PORV failure to stroke was determined to be a failed pilot solenoid operated valve (SOV).

ASSESSMENT OF SAFETY CONSEQUENCES

Pressurizer (PZR) Power Operated Relief Valves (PORVs) serve as a pressure relief for the pressurizer and can be operated from the control room and the "A" PORV can be operated from the auxiliary shutdown panel. During low temperature operation, protection against an over-pressurization event is provided using two PORVs, two residual heat removal (RHR) suction relief valves, or one PORV and one RHR suction relief valve to mitigate any potential pressure transients. The PORV control actuation logic ensures that an automatic and independent RCS pressure control backup feature is available during low temperature operations.

The PZR PORVs prevent actuation of the fixed reactor high pressure trip for all design transients up to and including the design step load decreases with steam dump. With a single PORV available, while a reactor trip may not be avoided in all instances, the events will remain bounded by the results of the similar Chapter 15 events that do not credit the action of the PORVs.

Chapter 15 of the Final Safety Analysis Report was reviewed for the extent to which the PORVs are credited in the safety analysis. It was determined that the ability of pressurizer PORVs to open are not credited to limit primary system peak pressure to below event acceptance criteria. For the evaluation of transient approach to departure from nucleate boiling (DNB), the PORVs are modeled if they make the event more adverse. A single, available pressurizer PORV is credited in the safety analyses to preclude the potential for the feedwater system pipe break, inadvertent operation of emergency core cooling system (IOECCS), and chemical and volume control system (CVCS) malfunction events to escalate to a higher classification due to liquid relief through unqualified pressurizer safety valves. Thus, having a single available PORV is sufficient to preclude core damage and event escalation.

CORRECTIVE ACTIONS

3RCS*PCV456 was replaced with a rebuilt main valve with a new solenoid operated valve (SOV) and successfully passed all required post maintenance testing to support plant operation. Additional corrective actions will be taken in accordance with the station's corrective actions program.



**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 email 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. 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 Millstone Power Station - Unit 3	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER 423	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2023	SEQUENTIAL NUMBER 006	REV NO. 00

NARRATIVE

PREVIOUS OCCURANCES

There have been no similar events or conditions related to PORVs being inoperable for a period longer than the technical specification action statement allowed outage time of 72 hours at Millstone Power Station over the last 3 years.

ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) CODES

- AB Reactor coolant system
- PSV Valve, Solenoid, Pressure