

Dominion Nuclear Connecticut, Inc.
Rope Ferry Rd., Waterford, CT 06385
Mailing Address: P.O. Box 128
Waterford, CT 06385
dom.com



MAR 23 2016

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

Serial No. 16-067
MPS Lic/AVM R0
Docket No. 50-423
License No. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
LICENSEE EVENT REPORT 2016-002-00
FEEDWATER ISOLATION SIGNAL DEFEATED DUE TO WIRING ERROR

This letter forwards Licensee Event Report (LER) 2016-002-00 documenting a condition discovered at Millstone Power Station Unit 3, on January 25, 2016. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) as any operation or condition that is prohibited by the plant's Technical Specifications.

If you have any questions or require additional information, please contact Mr. Thomas G. Cleary at (860) 444-4377.

Sincerely,


John R. Daugherty
Site Vice President – Millstone

Attachments: 1

Commitments made in this letter: None

IEZZ
NRR

cc: U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd.
Suite 100
King of Prussia, PA 19406-2713

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

NRC Senior Resident Inspector
Millstone Power Station

ATTACHMENT

LICENSEE EVENT REPORT 2016-002-00
FEEDWATER ISOLATION SIGNAL DEFEATED DUE TO WIRING ERROR

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



LICENSEE EVENT REPORT (LER)

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, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

| | | |
|---|-------------------------------------|--------------------------|
| 1. FACILITY NAME Millstone Power Station Unit 3 | 2. DOCKET NUMBER 05000423 | 3. PAGE 1 OF 3 |
|---|-------------------------------------|--------------------------|

4. TITLE
Feedwater Isolation Signal Defeated Due to Wiring Error

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---------------|-----|------|---------------|-------------------|---------|----------------|-----|------|------------------------------|---------------|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO. | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 01 | 25 | 2016 | 2016 | 002 | 00 | 03 | 23 | 2016 | | 05000 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |

| | | | | |
|-------------------------------|--|---|---|---|
| 9. OPERATING MODE 3 | 11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) | | | |
| | <input type="checkbox"/> 20.2201(b) | <input type="checkbox"/> 20.2203(a)(3)(i) | <input type="checkbox"/> 50.73(a)(2)(i)(C) | <input type="checkbox"/> 50.73(a)(2)(vii) |
| | <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) |
| | <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <input type="checkbox"/> 50.73(a)(2)(ii)(B) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) |
| | <input type="checkbox"/> 20.2203(a)(2)(i) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) |
| 10. POWER LEVEL 000 | <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 50.73(a)(2)(x) |
| | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(4) |
| | <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> 73.71(a)(5) |
| | <input type="checkbox"/> 20.2203(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(C) | <input type="checkbox"/> OTHER |
| | <input type="checkbox"/> 20.2203(a)(2)(vi) | <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | Specify in Abstract below or in NRC Form 366A |

12. LICENSEE CONTACT FOR THIS LER

| | |
|--|--|
| LICENSEE CONTACT Thomas Cleary, Manager Nuclear Station Licensing | TELEPHONE NUMBER (Include Area Code) (860) 444-4377 |
|--|--|

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

| CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX |
|-------|--------|-----------|---------------|--------------------|-------|--------|-----------|---------------|--------------------|
| | | | | | | | | | |

| | | | | |
|--|-------------------------------------|-------|-----|------|
| 14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO | 15. EXPECTED SUBMISSION DATE | MONTH | DAY | YEAR |
| | | | | |

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 25, 2016 an automatic reactor trip occurred on Millstone Power Station Unit 3 [LER 2016-001-00]. Following the Millstone Power Station Unit 3 reactor trip, (Mode 3, 0% power), while operators were performing feedwater isolation actuation verification steps, it was identified that the 'C' Feedwater Isolation Valve, 3FWS*CTV41C, did not auto-close as expected. Operators subsequently closed 3FWS*CTV41C from the control room.

Troubleshooting identified that a temporary jumper, associated with a maintenance activity completed in November 2014, was inadvertently left installed due to a human performance error. This jumper bypassed the input from the Solid State Protection System to isolate 3FWS*CTV41C upon receipt of an actuation signal. This input is required by Technical Specification 3.3.2 and Table 3.3-3, Engineered Safety Features Actuation System Instrumentation. The function to automatically isolate 3FWS*CTV41C was thus defeated. However, the safety function to isolate feedwater was met due to redundant valves in series that operated correctly via the 'C' feed regulating valve and the 'C' feed regulating bypass valves. Also, the containment isolation function was not lost as the valve, 3FWS*CTV41C, was capable of remote operation from the control room.

This condition is reportable in accordance with 10 CFR 50.73 (a)(2)(i)(B) as any operation or condition that is prohibited by the plant's Technical Specifications. The jumper was removed and the valve was verified to be OPERABLE.



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

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| 1. FACILITY NAME | 2. DOCKET | 6. LER NUMBER | | | 3. PAGE | |
|--------------------------------|-----------|---------------|-------------------|---------|---------|--|
| Millstone Power Station Unit 3 | 05000423 | YEAR | SEQUENTIAL NUMBER | REV NO. | 2 OF 3 | |
| | | 2016 | - 002 | - 00 | | |

NARRATIVE

1. EVENT DESCRIPTION:

On January 25, 2016 an automatic reactor trip occurred on Millstone Power Station Unit 3 (MPS3) [LER 2016-001-00]. Following the MPS3 reactor trip, (Mode 3, 0% power), while operators were performing feedwater isolation (FWI) actuation verification steps in ES-0.1 (Reactor Trip Response), it was identified that the 'C' feedwater isolation valve (FWIV), 3FWS*CTV41C, did not auto-close as expected. Operators subsequently closed 3FWS*CTV41C from the control room.

Troubleshooting on the 3FWS*CTV41C FWIV identified that a temporary jumper, associated with a maintenance activity completed in November 2014, was inadvertently left installed. Technical Specification (TS) 3.3.2 requires two independent channels of Solid State Protection System (SSPS) be available for FWI upon an actuation signal as a result of a safety injection signal or a reactor trip coincident with low average reactor coolant temperature, T_{AVE} . This jumper bypassed the Train 'B' of the SSPS input to isolate 3FWS*CTV41C upon receipt of an actuation signal, rendering the channel inoperable.

The safety function to isolate feedwater was met due to redundant valves in series ('C' feed regulating valve (FRV) and the 'C' feed regulating bypass valve (FRBV)) closing and the main feed pump tripping. These valves received their actuation signal from the Train 'A' of the SSPS. These components were not affected by the installed jumper. The operators remotely closed 3FWS*CTV41C from the control room, thus maintaining the containment isolation safety function.

This condition is reportable in accordance with 10 CFR 50.73 (a)(2)(i)(B) as any operation or condition that is prohibited by the plant's TS.

2. CAUSE:

This was a human performance error that occurred during refueling outage 3R16 as part of a plant modification (completed in November 2014) which replaced all four Unit 3 FWIV actuators. Site personnel failed to follow the requirements of the work control process and station procedures when installing and removing the temporary jumper in the feedwater control circuit for 3FWS*CTV41C.

3. ASSESSMENT OF SAFETY CONSEQUENCES:

The main feedwater isolation function prevents steam generator overfill following steam generator tube rupture and excess feedwater events and is also credited with mitigating excess cooldown following steam line break events. Isolation of main feedwater is also credited in containment response analyses, limiting mass and energy releases to the containment for inside containment secondary pipe breaks.

The feedwater isolation function can be accomplished by closing the FWIVs or the FRVs and FRBVs, which occurs automatically following a safety injection signal or reactor trip coincident with low



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

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| Millstone Power Station Unit 3 | 05000423 | YEAR | SEQUENTIAL NUMBER | REV NO. | 3 OF 3 | |
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NARRATIVE

average reactor coolant temperature, T_{AVE} . In addition, the main feedwater pumps are automatically tripped following a safety injection signal or a reactor trip.

While being able to fulfill the safety function, the diverse methods of isolating main feedwater would not act as rapidly as closure of the main feedwater isolation valves. There is margin between the safety analysis results Final Safety Analysis Report (FSAR Chapter 15) and containment analysis results (FSAR Chapter 6) and the ultimate event acceptance criteria of the events to accommodate the slightly longer isolation function.

With three redundant methods capable of isolating/stopping main feedwater flow, the unavailability of one individual method (i.e., the automatic closure of 'C' FWIV) results in an insignificant increase in the likelihood of failing the safety function. Consequently, the safety significance associated with exceeding the 'C' FWIV TS allowed outage time is very low.

4. CORRECTIVE ACTION:

The jumper was removed and the appropriate surveillance for FWIV 3FWS*CTV41C was performed and completed satisfactorily, verifying the valve is OPERABLE. Other feedwater system components were inspected and no additional installed jumpers were identified. Workers involved were coached concerning the need for compliance with work control procedures and standards. This event will be used as operating experience (OE) for activities associated with installation and removal of jumpers.

5. PREVIOUS OCCURRENCES:

There are no previous occurrences with the same underlying reason or consequences.

6. ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIS) CODES:

- Reactor Coolant System – AB
- Containment- NH
- Feedwater System – JB
- Isolation Valve – ISV
- Pump – P
- Solid State Protection System – JG
- Steam Generator- SG