

Dominion Nuclear Connecticut, Inc.  
Millstone Power Station  
Rope Ferry Road, Waterford, CT 06385



MAY 3 0 2008

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

Serial No. 08-0266  
MPS Lic/GWJ R0  
Docket No. 50-336  
License No. DPR-65

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 2**  
**LICENSEE EVENT REPORT 2008-001-00**  
**FAILURE OF EIGHT MAIN STEAM SAFETY VALVES**  
**TO LIFT WITHIN THE ACCEPTANCE CRITERIA**

This letter forwards Licensee Event Report (LER) 2008-001-00 documenting a condition discovered at Millstone Power Station (MPS) Unit 2, on April 3 and 4, 2008. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B), as a condition prohibited by technical specifications.

If you have any questions or require additional information, please contact Mr. William D. Bartron at (860) 444-4301.

Sincerely,

  
J. Alan Price  
Site Vice President - Millstone

Attachments: 1

Commitments made in this letter: None

*JE22*  
*NPR*

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

Mr. J. D. Hughey  
Project Manager Millstone Units 2 and 3  
U.S. Nuclear Regulatory Commission, Mail Stop 08 B3  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738

NRC Senior Resident Inspector  
Millstone Power Station

**ATTACHMENT**

**LICENSEE EVENT REPORT MP2-2008-001-00**  
**FAILURE OF EIGHT MAIN STEAM SAFETY VALVES**  
**TO LIFT WITHIN THE ACCEPTANCE CRITERIA**

**MILLSTONE POWER STATION UNIT 2**  
**DOMINION NUCLEAR CONNECTICUT, INC.**

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 Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE0B-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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 2  
 2. DOCKET NUMBER: 05000336  
 3. PAGE: 1 OF 3

4. TITLE: Failure of Eight Main Steam Safety Valves to Lift Within the Acceptance Criteria

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	03	2008	2008-001-00			05	30	2008	FACILITY NAME	DOCKET NUMBER
										05000
										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)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME: William D. Bartron, Supervisor Nuclear Station Licensing  
 TELEPHONE NUMBER (Include Area Code): 860-447-1791 x4301

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
Micro Bonding	MSS	MSSV	Dresser	Y	Test Method	MSS	1566 Hydroset System	Dresser	Y

14. SUPPLEMENTAL REPORT EXPECTED  
 YES (If yes, complete EXPECTED SUBMISSION DATE).  NO

15. EXPECTED SUBMISSION DATE: MONTH, DAY, YEAR

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

With the plant in MODE 1 at 100% power on April 3 and 4, 2008, set pressure "simmer" testing of Millstone Power Station Unit 2 (MPS2) main steam safety valves (MSSVs) was conducted per plant procedures. During the testing, eight MSSVs failed to lift within the (+/- 3%) acceptance criteria of Technical Specification (TS) 3.7.1.1.

The failure of two MSSVs to lift within the required set pressure range is attributed to a corrosive oxide locking action between surface layer materials of the disc-seat interface, sometimes referred to as "oxide locking" or "micro bonding".

The failure of the other six MSSVs to lift within the required set pressure is the result of differences between two Appendix B approved test methods. A Crosby Set Pressure Verification Device (SPVD) was being used for the first time at MPS2 for MSSV testing. Prior testing and "as-left" settings utilized a Dresser Hydroset system. Although both methods are Appendix B approved, there are key differences between the tests, primarily involving repeatability of results using the Hydroset System at MPS2 in determining when a valve lifts. The Crosby SPVD was used for the current as-left settings and will be used in future tests to provide consistent valve lift data. Following testing, as-left settings were within +/- 1% of set pressure to account for future drift.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Millstone Power Station - Unit 2	05000336	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2008	-- 001 --	00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

1. Event Description

With the plant in MODE 1 at 100% power on April 3 and 4, 2008, set pressure "simmer" testing of Millstone Power Station Unit 2 (MPS2) main steam safety valves (MSSVs) [SB, RV] was conducted per plant procedures. Eight valves did not meet acceptance criteria. The failures were consistent in that all eight valves lifted high.

Plant Technical Specification (TS) 3.7.1.1 requires that all MSSVs be OPERABLE with lift settings as specified on Table 4.7-1. OPERABILITY of the MSSVs is the ability to open within the setpoint tolerances, relieve steam generator overpressure, and reset when pressure has been reduced. Table 4.7-1 allows a +/- 3% setpoint tolerance (allowable value) on the lift setting for OPERABILITY to account for drift over an operating cycle. During this testing, the MSSVs are OPERABLE provided that the actual as-found lift settings are within +/- 3% of the required lift setting. A footnote to Table 4.7-1 requires that the lift setting shall be within +/- 1% of the required lift setting following testing (as-left). Since the as-found lift pressures for the eight valves exceeded the +/- 3% TS allowable values, these valves were not OPERABLE. In accordance with TS Action Statement 3.7.1.1.a.1, each valve was adjusted to a lift pressure +/-1% of set pressure within four hours and declared operable before the next valve was tested. The valves that exceeded their TS set pressure are 2-MS-252, 2-MS-242, 2-MS-248, 2-MS-249, 2-MS-239, 2-MS-241, 2-MS-245 and 2-MS-246.

Since multiple MSSVs exceeded the allowable TS limits and the cause indicates this occurred during operation, this condition is reportable under 10 CFR 50.73(a)(2)(i)(B), "any operation or condition prohibited by the plant's technical specifications". This is consistent with the guidance provided in NUREG 1022 Rev. 2 Section 3.2.2 Operation or Condition Prohibited by Technical Specifications regarding multiple test failures. The actual time the valves were inoperable is not known as this condition has arisen over the period of time the valves have been installed.

2. Cause

Two failures (2-MS-252 and 2-MS-242) were attributed to micro bonding, as evidenced by greater than or equal to 2% difference between the first and second lift, with the first lift being higher and the second satisfactory. Electric Power Research Institute (EPRI) Report TR-113560, (Investigation of MSSV High First Lift Phenomenon in Dresser 3700 Series Steam Relief Valves, dated September 2000) suggests that a bonding mechanism exists between two stainless steel (SS) materials. MPS2 MSSVs have 422 SS discs and 316 SS nozzle seats, which creates the potential for micro bonding occurrences in a MSSV static controlled in-situ test environment.

Six failures (2-MS-248, 2-MS-249, 2-MS-239, 2-MS-241, 2-MS-245 and 2-MS-246) are attributed to differences between test methods. A Crosby Set Pressure Verification Device (SPVD) was being used for the first time at MPS2 for MSSV testing. Prior testing and "as-left" settings utilized a Dresser Hydroset system. Although both methods are Appendix B approved, there are key differences between the test methods. The primary difference between the Hydroset and the SPVD test methods involves determining when a valve's "simmer" (lift) point is reached. Using the Hydroset at MPS2, operators rely on a number of visual and auditory cues in a hot, noisy environment to determine valve lift. The use of a manual hand pump with the Hydroset system at MPS2 also introduces inconsistency in the rate of pressurization (ramp rate) up to the valve lift point. The SPVD measures the spindle movement and the force that was applied to achieve this movement and is not subject to the environmental conditions at MPS2. Testing with the SPVD test method found the lift point of these valves to be at a higher pressure than the lift point established with the Hydroset system.

3. Assessment of Safety Consequences

This event is of low safety significance. The Final Safety Analysis Report (FSAR) Chapter 14 limit on main steam system pressurization is 110% of the design pressure or 1100 psia. No actual event has occurred at MPS2 that challenged this pressure limit. From the as-found testing results with deviations up to 5.38%, the MSSV 2-MS-248 failure is the most significant. Valve 2-MS-248 would have opened at 1103 psia, which is above the FSAR Chapter 14

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Millstone Power Station - Unit 2	05000336	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		2008	-- 001 --	00	

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

design limit. The FSAR Chapter 14 single main steam isolation valve (MSIV) closure event reports a maximum main steam pressure of 1093 psia, which is 7 psi less than 110% of design pressure limit. This event relies on the opening of all eight MSSVs on the steam generator with the isolated MSIV to limit the main steam pressurization. Since valve 2-MS-248 would not have opened until the main steam system pressure exceeded 110% of design, the FSAR Chapter 14 acceptance criterion would have been exceeded for this event. Using the as-found MSSV settings, should the single MSIV closure event have occurred, it is expected that the maximum main steam system pressurization would have exceeded the 1100 psia design limit by less than 2% or 20 psi. Based on an engineering evaluation, DNC concludes that the integrity of the steam generator secondary side and main steam system would have been maintained.

4. Corrective Action

The current as-left settings of the valves were performed using the Crosby SPVD method. Consistent use of the Crosby SPVD going forward, will eliminate the subjectivity associated with identifying the correct MSSV lift points.

After testing, all MSSVs were left within +/- 1% of TS acceptance criteria to account for future drift. Additional corrective actions to address micro bonding and the in-situ testing process will be evaluated in accordance with the station's Corrective Action Program.

5. Previous Occurrences

Micro bonding has occurred previously during simmer testing at MPS2. Valve 2-MS-241 failed high (3.4%) during 2R16 simmer testing on April 07, 2005.

No previous similar events were identified related to test methodology, as this was the first time the Crosby SPVD has been used at MPS2.

Energy Industry Identification System (EIIIS) codes are identified in the text as [XX].