

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



DEC 05 2008

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

Serial No. 08-0653
MPS Lic/ELA R0
Docket No. 50-423
License No. NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
LICENSEE EVENT REPORT 2008-002-00
FAILURE OF FOUR MAIN STEAM SAFETY VALVES
TO LIFT WITHIN THE ACCEPTANCE CRITERIA

This letter forwards Licensee Event Report (LER) 2008-002-00 documenting a condition discovered at Millstone Power Station Unit 3, on October 10, 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,

A. J. Jordan
Site Vice President - Millstone

Attachments: 1

Commitments made in this letter: None

IE22
NPR

cc: U.S. Nuclear Regulatory Commission
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King of Prussia, PA 19406-1415

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NRC Senior Resident Inspector
Millstone Power Station

ATTACHMENT

LICENSEE EVENT REPORT 2008-002-00
FAILURE OF FOUR MAIN STEAM SAFETY VALVES
TO LIFT WITHIN THE ACCEPTANCE CRITERIA

MILLSTONE POWER STATION UNIT 3
DOMINION NUCLEAR CONNECTICUT, INC.

(6-2004)

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 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, NEOB-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 3	2. DOCKET NUMBER 05000423	3. PAGE 1 OF 3
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4. TITLE
Failure of Four 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
10	10	2008	2008-002-00			12	05	2008	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1	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)
10. POWER LEVEL	100	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
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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	SB	RV	Dresser	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	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 October 9 and 10, 2008, set pressure "simmer" testing of Millstone Power Station Unit 3 (MPS3) Main Steam Safety Valves (MSSVs) was conducted per plant procedures. During the testing, four MSSVs (3MSS*RV22C, 3MSS*RV22D, 3MSS*RV24A, and 3MSS*RV25C) failed to lift within the (+/- 3%) acceptance criteria of Technical Specification (TS) 3.7.1.1.

The failure of four 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".

After testing, all twenty MSSVs were left within +/- 1% of TS acceptance criteria to account for potential future drift.

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Millstone Power Station - Unit 3	05000423	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF	3
		2008	- 002	- 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 October 9 and 10, 2008 set pressure "simmer" testing of MPS3 MSSVs [SB, RV] was conducted per plant procedures. During the conduct of testing, four MSSVs failed to lift within the (+/- 3%) acceptance criteria.

Plant TS 3.7.1.1 requires all MSSVs be OPERABLE with lift settings as specified on Table 3.7-3. Table 3.7-3 "Steam Line Safety Valves Per Loop" provides the valve numbers and lift settings. TS 3/4.7.1.1 BASES includes (in part):

"The OPERABILITY of the MSSVs is defined as the ability to open upon demand within the setpoint tolerances, relieve steam generator overpressure, and reset when pressure has been reduced." Table 3.7-3 "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 lift settings are within +/- 3% of the required lift setting. A footnote to Table 3.7-3 requires that the lift setting be restored to within +/- 1% of the required lift setting following testing to allow for drift during the next operating cycle."

Since the as-found lift pressures for 3MSS*RV22C, 3MSS*RV22D, 3MSS*RV24A, and 3MSS*RV25C exceeded the +/- 3% TS allowable values these valves were declared INOPERABLE.

As multiple MSSVs (four) exceeded the allowable TS limits and the cause evaluation indicates this condition 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," Example (3) regarding multiple test failures. The actual time the valves were inoperable is not known as this condition occurred over the period of time the valves were installed or since they were last tested.

2. Cause:

The four failures (3MSS*RV22C, 3MSS*RV22D, 3MSS*RV24A, and 3MSS*RV25C) 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.

The MSSVs installed on MPS3 are Dresser 3707R Safety Relief Valves equipped with stainless steel materials for discs and nozzle seats. Based on an evaluation, Dominion Nuclear Connecticut Engineering concluded these valves were subject to the known phenomenon of micro bonding.

3. Assessment of Safety Consequences:

This condition is judged to be of very low safety significance. Five steam line safety valves are installed on each of the unit's four main steam lines with nominal lift settings increasing in 10 psi increments from 1185

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

to 1225 psig. The safety valves protect the SG and portions of the main steam [SB] and feedwater systems [SJ] from overpressure conditions. The valves also serve as a heat sink for the reactor coolant system if the main condenser [COND] is unavailable and the atmospheric steam dump valves cannot relieve pressure following a reactor trip or secondary system accident. The limiting FSAR events with respect to main steam and reactor coolant overpressurization are those presented in FSAR Section 15.2, which involve a decrease in heat removal by the secondary system. The accidents presented in FSAR Section 15.2 assume all MSSVs open at a lift setting 3% higher than their nominal set pressure. An additional conservatism is added to this value for accumulation plus a conservative estimate of the pressure drop to the relief valve. For the limiting Section 15.2 event, all the safety relief valves are assumed open at the time of peak secondary pressure. Since the relief valves all opened during the simmer testing, the same relief capacity would exist with all the relief valves open for the event. Therefore, it is concluded the overall MSSV response of the as-found MSSV condition is equivalent to the MSSV response assumed in the FSAR Section 15.2 Safety Analyses.

Additionally, the micro bonding phenomenon has been limited to static, in-situ testing. The EPRI report indicates that under actual transient high pressure conditions, disk movement/flexure breaks the micro bonding allowing the MSSVs to lift uninfluenced by this phenomenon. Additionally, the EPRI Report indicates that, within the limits of detectability, no history of the seat sticking phenomena had been identified during actual plant transients resulting in MSSV lifts.

4. Corrective Action:

All twenty MSSVs were left within +/- 1% of TS acceptance criteria to account for potential future drift.

Additional corrective actions to address micro bonding will be evaluated in accordance with the station's Corrective Action Program.

5. Previous Occurrences:

LER MPS3 2007-001-00.

On September 30, 2005, during the performance of set pressure "simmer" testing of MSSVs, valve 3MSS*RV25C failed to lift within the +/- 3% acceptance criteria. The allowable as-found set pressure range is 1179-1251 psig. The valve lifted at 1252.9 psig. The valve was lifted two additional times with results within the required as-left criteria of +/- 1% with no adjustments required. Two additional MSSVs were set pressure tested, to meet the American Society of Mechanical Engineers/Operation and Maintenance code requirement for test expansion. These valves (3MSS*RV23C and 3MSS*RV24C) were satisfactorily tested. The as-left "simmer" tests for both valves were within the required as-left criteria of +/- 1%.

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