

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



**Dominion™**

OCT 7 2002

Docket No. 50-336  
B18745

RE: 10 CFR 50.55a

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

Millstone Power Station, Unit No. 2  
10 CFR 50.55a Requests for the Third Ten Year  
Interval of the In-Service Testing Program

Pursuant to 10 CFR 50.55a(a)(3)(i), Dominion Nuclear Connecticut, Inc (DNC) hereby requests NRC approval of the following request for the third 10-year interval of the In-Service Testing (IST) Program at Millstone Unit No. 2, which began on April 1, 1999. DNC is submitting proposed 10 CFR 50.55a Requests V-6 and V-7 for the IST Program.

10 CFR 50.55a Request V-6 will provide an extension of the surveillance interval for seat-leakage testing of Category A valves located in the High Pressure Safety Injection System, Containment Spray System, and Refueling Water Storage Tank System. 10 CFR 50.55a Request V-7 will provide for an extension of the surveillance interval for those pressure relief valves whose only overpressure protection function is to protect isolated components from fluid expansion caused by changes in fluid temperature.

10 CFR 50.55a Requests V-6 and V-7 are provided as Attachments 1 and 2 of this letter, respectively. To assist in the timely review and approval of these requests, this submittal has been formatted consistent with the draft NEI white paper for 10 CFR 50.55a requests.<sup>(1)</sup>

DNC requests NRC approval and issuance of this 10 CFR 50.55a request by August 31, 2003 to support use of the new requirements during Refueling Outage 15, currently scheduled in October 2003.

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<sup>(1)</sup> NEI White Paper, "Standard Format for Requests Regarding the Use of Alternatives to, or Relief from, 10 CFR 50.55a ASME Code Requirements for Commercial Reactor Licensees," dated June 6, 2002.

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There are no regulatory commitments contained within this letter.

Should you have any questions regarding this matter, please contact Mr. Ravi G. Joshi at (860) 440-2080.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

  
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J. Alan Price  
Site Vice President - Millstone

Attachments (2): 10 CFR 50.55a Request V-6  
10 CFR 50.55a Request V-7

cc: H. J. Miller, Region I Administrator  
R. B. Ennis, NRC Senior Project Manager, Millstone Unit No. 2  
NRC Senior Resident Inspector, Millstone Unit No. 2

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Attachment 1

Millstone Power Station, Unit No. 2

10 CFR 50.55a Request V-6

## 10 CFR 50.55a Request V-6

### Proposed Alternative In Accordance with 10 CFR 50.55a(a)(3)(i)

1. ASME Code Component(s) Affected

Code Class 2, Category A valves located in the High Pressure Safety Injection System, Containment Spray System, and Refueling Water Storage Tank (RWST) System. Affected components include the following valves:

- 2-CS-14A/B,
- 2-CS-050,
- 2-CS-051,
- 2-SI-459,
- 2-SI-460,
- 2-SI-659, and
- 2-SI-660.

These valves close or remain closed to prevent back-leakage to the RWST during the recirculation phase of a Loss-of-Coolant Accident (LOCA).

2. Applicable Code Edition and Addenda

The Millstone Unit No. 2 In Service Testing (IST) Program follows the requirements of the 1989 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, ASME/American National Standards Institute (ANSI) OM-1987, and Addendum OMa-1988.

3. Applicable Code Requirement

OM-1987 Part 10, paragraph 4.2.2.3 requires that Category A valves, which perform a function other than containment isolation, be seat leakage tested to verify their leak-tight integrity. Tests shall be conducted at least once every two (2) years.

4. Proposed Alternative

10 CFR 50, Appendix J, has been amended to provide a performance-based option (Option B) for leakage rate testing of nuclear power plant containments and penetrations. Valves which perform a containment isolation function, and exhibit acceptable test results for two (2) consecutive Type C tests, can be extended to a 60-month frequency. Millstone Unit No. 2 has implemented 10 CFR 50, Appendix J, Option B for leakage rate testing of containment isolation valves. The subject Category A valves perform a similar function (isolation), with similar consequences of failure, and are subject to similar testing as are

containment isolation valves. Therefore, similar justification for extending the leak test frequency would apply to these valves as was determined in the extensive reviews of the 10 CFR 50, Appendix J, Option B rule change.

Using the performance-based leakage testing philosophy of Appendix J, Option B, 2-CS-14A and 2-CS-14B will be tested once every other refueling outage. Frequency will be reduced to once each refueling outage if the administrative leakage limit is exceeded, and will be maintained until two (2) successive passing tests are recorded. 2-CS-459 (or 2-CS-050 and 2-CS-051 as an alternative), 2-SI-460, 2-SI-659 and 2-SI-660 will be tested at least once every 60 months. Frequency will be reduced to once every 30 months upon any failure of administrative leakage limits, and will be maintained until two (2) successive passing tests are recorded.

5. Basis of Alternative for Providing Acceptable Level of Quality and Safety

Appendix J, Type C Leak Testing is performed by measuring the volumetric makeup of the medium of concern (air) while each valve is pressurized to the maximum postulated containment accident pressure. Administrative limits are established for each valve in order to minimize the total leakage and the consequence of leakage on site boundary dose rate.

The subject RWST back-leakage valve testing is performed by measuring volumetric makeup or leakage collection of the medium of concern (water), while each valve is pressurized to the maximum postulated accident pressure for each of the systems involved. An administrative leakage limit for each of these valves has been established to minimize total leakage and the consequence of leakage on site boundary dose rate.

An administrative leakage limit has been calculated for each affected valve. This calculation concludes that 2-CS-14A/B could leak at their administrative limits following an accident without contamination ever reaching the RWST. The remaining valves could leak at their administrative limits for 30 days post accident without exceeding 10 CFR 100 or GDC 19 limits. The administrative limits and actual leakage test results for the past three (3) tests are provided:

Valve	Admin Limit	1998 Leakage	2000 Leakage	2002 Leakage
2-CS-14A	7 gpm	.714 gpm	.6 gpm	.8 gpm
2-CS-14B	7 gpm	0	0	.1 gpm
2-CS-050	.01 gpm	.00007 gpm	.00005 gpm	*
2-CS-051	.01 gpm	.0001 gpm	.00012 gpm	*
2-SI-459	.02 gpm	*	*	.0017 gpm
2-SI-460	.05 gpm	0	.0008	0
2-SI-659	.12 gpm	.0016 gpm	.007 gpm	.024 gpm
2-SI-660	.12 gpm	.0035 gpm	.016 gpm	.027 gpm

- \* - 2-CS-050/051 are two parallel valves in series with 2-SI-459. Both valves were previously tested in lieu of testing of 2-SI-459. In the future, 2-SI-459 will be the normally tested valve in this path, with an alternative to test 2-CS-050 and 2-CS-051 maintained.

2-CS-14A/B are 18-inch swing check valves in the outlets of the RWST. Each valve is disassembled and inspected for IST exercising on a sampling frequency of one valve each refueling. No discrepancies have ever been noted in these inspections, dating back to 1992. 2-CS-050, 2-CS-051, 2-SI-459, and 2-SI-460 are manual valves which are locked closed during plant operation, and are not subject to most mechanisms causing concern for leakage. 2-SI-659 and 2-SI-660 are air-operated globe valves installed in series. Due to plant design, 2-SI-460 requires a freeze seal be installed on a 6" test header to enable leak testing. Historical leak test performance of these valves supports safely extending their test frequency. In conclusion, granting of the proposed alternative would continue to provide an acceptable level of quality and safety, and would not adversely impact the health and safety of the public.

6. Duration of Proposed Alternative

This relief is requested to be effective immediately upon its approval, and to remain in effect for the duration of the Millstone Unit No. 2 third 10-year interval, which began April 1, 1999.

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Attachment 2

Millstone Power Station, Unit No. 2

10 CFR 50.55a Request V-7

**10 CFR 50.55a Request V-7**

Proposed Alternative  
 In Accordance with 10 CFR 50.55a(a)(3)(i)

1. ASME Code Component(s) Affected

Code Class 2 and 3 thermal relief valves (pressure relief devices) which provide overpressure protection to protect isolated components from fluid expansion caused by changes in fluid temperature. Affected devices include:

Component ID	Component ID	Component ID	Component ID	Component ID	Component ID
2-SI-430	2-RB-303A	2-RB-309	2-RB-318	2-RB-328	2-RB-336
2-SI-431	2-RB-303B	2-RB-310	2-RB-320	2-RB-329	2-RB-337
2-SW-189	2-RB-303C	2-RB-311	2-RB-321	2-RB-330	2-RB-338
2-SW-190	2-RB-304	2-RB-312	2-RB-322	2-RB-331	2-RB-339
2-SW-191	2-RB-305	2-RB-313	2-RB-324	2-RB-332	2-RB-340
2-SW-92A	2-RB-306	2-RB-314	2-RB-325	2-RB-333	2-RB-341
2-SW-92B	2-RB-307	2-RB-315	2-RB-326	2-RB-334	2-RB-342
2-SW-92C	2-RB-308	2-RB-316	2-RB-327	2-RB-335	2-RB-343
					2-RB-344

2. Applicable Code Edition and Addenda

The Millstone Unit No. 2 In Service Testing (IST) Program follows the requirements of the 1989 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, ASME/American National Standards Institute (ANSI) OM-1987 and Addendum OMa-1988.

3. Applicable Code Requirement

OM-10, Paragraph 1.1, requires pressure relief devices which protect systems or portions of systems which perform a required function in shutting down a reactor to the cold shutdown condition, maintain the cold shutdown condition, or mitigate the consequences of an accident, to be included within the scope of the IST program. OM-10, Paragraph 4.3.1, specifies that safety and relief valve tests shall be conducted in accordance with OM-1. The requirements for the test frequency of Class 2 and 3 pressure relief devices are included in Paragraph 1.3.4.1. The requirements include: (1) Paragraph 1.3.4.1(a) which includes specific test frequency requirements for the initial 10-year period; (2) Paragraph



1.3.4.1(b) which specifies that all valves of each type shall be tested in each subsequent 10-year period with a minimum of 20 percent of the valves tested within any 48-month period which have not been previously tested, if such valves exist; (3) Paragraph 1.3.4.1(c) which specifies requirements with pretested valves; (4) Paragraph 1.3.4.1(d) which specifies acceptance criteria for the tested valves; and (5) Paragraph 1.3.4.1(e) which specifies the required sample expansion if the tested valves do not meet the acceptance criteria.

In summary, OM-1987 Part 1, paragraphs 1.3.4.1(a), (b), (c), (d), and (e) require that Class 2 and 3 pressure relief devices shall be tested once every ten (10) years with a minimum of 20% of the valves tested within any 48 month period. For valves not meeting the acceptance criteria, additional valves shall be tested.

4. Proposed Alternative

ASME OM Code-1995, Appendix I, Paragraph 1.3.5(a) requires that each Class 2 and 3 relief valve be tested every 10 years with a minimum of 20 percent of the valves tested within any 48-month period have not been previously tested. Paragraph 1.3.5(b) specifies requirements for replacing valves with pretested valves. Paragraph 1.3.5(c) establishes requirements for test acceptance criteria and requirements for testing additional valves.

Code Case OMN-2, "Thermal Relief Valve Code Case, OM Code-1995, Appendix I" would be implemented for the affected pressure relief devices. Thermal relief valves are defined in Code Case OMN-2 as relief valves whose only overpressure protection function is to protect isolated components from fluid expansion caused by changes in fluid temperature. In lieu of the testing requirements of ASME OM Code-1995, Appendix I, Paragraphs 1.3.5(a), 1.3.5(b), and 1.3.5(c), Code Case OMN-2 allows relief valves which are considered to be thermal relief valves to be replaced once every 10 years unless performance data indicates more frequent replacement is needed to assure device function.

In summary, testing of pressure relief valves whose only overpressure protection function is to protect isolated components from fluid expansion caused by changes in fluid temperature shall be performed once every ten (10) years on each device unless performance data indicates more frequent testing is needed to assure device function. In lieu of test, Millstone Unit No. 2 may replace these devices every ten (10) years unless performance data indicates more frequent replacement is needed to assure device function.

5. Basis of Alternative for Providing Acceptable Level of Quality and Safety

Thermal relief valves are potentially challenged during train or component shutdowns when the component is isolated. Since these trains or components are not providing a safety function while they are isolated, the thermal relief valves have limited safety significance during this condition. While these components or trains are in service, the thermal relief safety function is to remain

closed as part of the system pressure boundary. This function is periodically verified during normal operation or system flow testing.

Code case OMN-2 was published in the 1998 addenda of the Code. DNC's understanding is that the 1998 addenda is included in proposed rulemaking to 10 CFR 50.55a. Code Case OMN-2 was intended to be used at facilities where their inservice testing program was developed in accordance with ASME OM Code-1995. However, ASME OM Code-1995, Appendix I, includes relaxations of certain requirements in the OM-1 Standard. Thermal relief valves are not defined in either Appendix I or OM-1. No related requirements have been identified in either OM Code-1995 or OM-1 that would be related to thermal relief valves. Therefore, there is not a conflict in applying code case OMN-2 to OM-1.

A review of applicable Millstone Unit No. 2 relief valves was performed as part of the facility design basis verification project. Valves performing only a thermal relief function have been identified. Failure of these valves to relieve an overpressure condition has minimal safety significance. The proposed testing provides the same test frequency as the 1987 code which ensures that each of these valves will be adequately tested. In conclusion, granting of the proposed alternative would continue to provide an acceptable level of quality and safety, and would not adversely impact the health and safety of the public.

6. Duration of Proposed Alternative

This relief is requested to be effective immediately upon its approval, and to remain in effect for the duration of the Millstone Unit No. 2 third 10-year interval, which began April 1, 1999.

7. Precedence

On August 25, 2003, a similar relief was requested for Millstone Unit No. 3<sup>(1)</sup> which related to thermal relief valves (Relief Request R-5). This relief request was approved by the NRC on February 2, 2001.<sup>(2)</sup>

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<sup>(1)</sup> Stephen E. Scace, Northeast Nuclear Energy Co. to U.S. NRC, "Millstone Nuclear Power Station, Unit No. 3, Supplement to Previous Submittal Requesting Relief from ASME Section XI for the Inservice Test Program," dated August 25, 2000.

<sup>(2)</sup> James W. Clifford, U.S. NRC to R.G. Lizotte, "Safety Evaluation for Relief Requests Associated with Second 10-Year Pump and Valve Inservice Testing Program, Millstone Nuclear Power Station, Unit No. 3," TAC No. MA9336, dated February 2, 2001.