



**Northeast  
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The Northeast Utilities System

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Docket No. 50-336  
B17972

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

**Millstone Nuclear Power Station, Unit No. 2  
Corrections to the Millstone Unit No. 2 Inservice Test Program  
for Pumps and Valves, Revision 7**

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) with a revision to the Millstone Unit No. 2 Inservice Test Program (IST) for Pumps and Valves, Revision 7, Change 3, Section VI, Alternate Test Justification (ATJ). Northeast Nuclear Energy Company (NNECO) submitted this Program to the NRC in a letter dated March 5, 1999.<sup>(1)</sup> A subsequent revision to this submittal, incorporating changes to Section VI, Alternate Test Justification was made on November 16, 1999.<sup>(2)</sup> The corrections contained in that letter affected ATJs 008, 009, 013, 035, 036, 038, 040, and 045.

During discussion with members of the Staff, it was determined that ATJ-40, as submitted on November 16, 1999, did not have an adequate basis to support disassembly, inspection and stroke testing of one check valve in the group during every other outage. As a result, this ATJ has been revised to identify that one valve from the group will be disassembled, inspected and stroke tested each refueling outage commencing with RFO14. In addition, ATJ-40 has been revised to identify that 2-SI-237 will not be disassembled, inspected and stroke tested within the normal six year period due to extreme hardship. Rather, a one-time extension, extending the

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<sup>(1)</sup> R. P. Necci to the Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2, A Change in the End Date for the Second Ten-Year Interval and the Start Date for the Third Ten-Year Interval of the Inservice Test Program and the Inservice Inspection Program," dated March 5, 1999.

<sup>(2)</sup> R. P. Necci to the Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2, Corrections to the Millstone Unit No. 2 Inservice Test Program for Pumps and Valves, Revision 7," dated November 16, 1999.

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Disassemble and Inspection period to eight (8) years will occur, after which the valve disassembly, inspection and stroke testing will be returned to the normal six (6) year frequency. Justification for this "one-time" extension is detailed in Attachment 1.

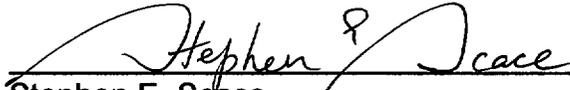
A corrected copy of ATJ-40 (Rev 3): 2-SI-217/227/237/247 to the Millstone Unit No. 2 IST Program for Pumps and Valves, Revision 7, Change 4, is enclosed as Attachment 1 to this letter and is provided to replace the corresponding pages in the Millstone Unit No. 2 IST for Pumps and Valves, Revision 7, Change 3, Section VI, submitted in our letter of November 16, 1999.

There are no regulatory commitments contained within this letter.

If there are any questions concerning this letter, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



Stephen E. Scace  
Director - Nuclear Oversight and  
Regulatory Affairs

Attachment 1: ATJ-040, (Rev 3); 2-SI-217/227/237/247

cc: H. J. Miller, Region I Administrator  
J. I. Zimmerman, NRC Project Manager, Millstone Unit No. 2  
D. P. Beaulieu, Senior Resident Inspector, Millstone Unit No. 2

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Attachment 1

Millstone Nuclear Power Station, Unit No. 2

ATJ-040, Rev 7, Change 4  
2-SI-217/227/237/247

January 2000

**ATJ Number: 040**

**Valve Id:** 2-SI-217 2SI-227 2-SI-237 2-SI-247

**Category:** C

**Class:** 1

**Open**

**Safety Function:** Open to provide Safety Injection Tank, High Pressure Safety Injection, and Low Pressure Safety Injection flow paths to the reactor vessel.

**Close**

**Safety Function:** Close to provide reactor coolant pressure boundary.

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**BASIS FOR DEFERRAL**

Valves cannot be full stroke or part stroke exercised during reactor operation since the large temperature difference between the Safety Injection System and the Reactor Coolant System (approximately 400F) would cause undue thermal stress of the safety injection nozzles.

During a unit shutdown, it is not practicable to establish adequate flow to exercise these valves to the full open position, thus require disassembly and inspection. Due to the scope of performing disassembly and inspection, the personnel hazards involved and the system operating restrictions, it is not practicable to perform this testing on a cold shutdown frequency.

- OM-10 permits deferral of testing to cold shutdown if it is not practicable to conduct testing quarterly during operation and to refueling if it is not practicable to conduct testing during cold shutdown.
- OM-10 permits verification of check valve operability by disassembly each refueling outage.
- Generic Letter 89-04 NRC Staff Position 2 authorizes sample disassembly of check valves when the Licensee determines that it is burdensome to disassemble and inspect all applicable valves each refueling.
- Generic Letter 89-04 NRC Staff Position 2 authorizes extension of the sample valve disassembly/inspection interval beyond each refueling outage in cases of extreme hardship where the extension is supported by actual in-plant data from previous testing. The Licensee should develop information to support the extension by:
  - a. Disassemble and inspect each valve in the valve grouping and document in detail the condition of each valve's capability to be full stroked.
  - b. A review of industry experience, for example, as documented in NPRDS, regarding the same type of valve used in similar service.
  - c. A review of the installation of each valve addressing the "EPRI Applications Guidelines for Check Valves in Nuclear Power Plants" for problematic locations.

### **ALTERNATE TEST**

The following alternate test plan avoids undue hardship and does not compromise component level of quality or safety:

A valve closure test will be performed during cold shutdowns and refueling outages IAW OM-10 by NIT or other positive method. Partial open test will be performed during cold shutdown and refueling outages IAW OM-10 and after any maintenance that could affect the full-stroke capability of the valve.

A selected valve in the group will be disassembled and inspected and manually full-stroked each refueling outage. All the valves in the group will be disassembled and inspected and manually full-stroked within 6 years except for 2-SI-237. On a one time only basis, 2-SI-237 will be tested within 8 years and will return to the 6 year frequency guidelines following the completion of the next scheduled disassembly and inspection. This proposed plan will become effective starting in RFO 14.

If the selected valve being disassembled and inspected and manually full-stroked is not capable of being full-stroke exercised or there is binding or failure of valve internals, the remaining valves in the group will be disassembled and inspected and manually full-stroke exercised during the same outage.

### **BASIS FOR DISASSEMBLY INTERVAL PLAN**

Extreme hardship exists for the valves in this group and extension warranted based on ALARA, in-plant historical data, industry experience and manufacturer information. The following details are provided justifying the extension plan:

- A different valve in both groups was D&I and manually full-stroked exercised each successive outage as described in NUREG 1482. (Refer to inspection summary).
- Each valve in the group was successfully D&I and manually full-stroked exercised each successive outage as described in NUREG 1482. Three out of the four valves in the group were successfully D&I during the recent mid-cycle 13 outage.
- A review of in-plant experience was performed and determined that the 12" Class 1, Atwood & Morrill, 1500#, non-return swing check valves in the reactor loop system valves have not experienced internal degradation since they were installed in 1972. Minor problems have been noted, limited to external leakage due to gasket degradation.
- A review of Industry Experience was performed using The INPO Web Site (EPIX and historical NPRDS) and no similar type valve failures were identified.
- A review of Manufacturers records was performed and there were no significant historical problems identified with the specific type valve. The vendor did identify a non applicable event that occurred at Beaver Valley. The boric acid service had degraded the nitrated stainless steel shaft bushing and a design change was necessary to prevent recurrence.

The vendor stated that this problem is not applicable to MP2 valves since our valves have chrome plated type 316 bushings.

- A review of the EPRI check valve program listed the valves as priority 2 valves that have flow velocity calculations outside the recommended range in one or more modes of operation, however, the valves only experience occasional flow (i.e., when shutdown cooling is in service). Based on the limited service the valves undergo and the historical experience, the disassembly extension plan is justified.
- The dose associated with performing the D&I and manual full-stroke exercise was assessed and was determined to be unduly burdensome. Safety Injection Check Valves 2-SI-217,227,237,247, each requires extensive scaffolding contributing 1000 mrem to access the valve to be inspected. The physical work to disassemble, inspect and reassemble each valve contributes to 1330 mrem with a shielded worksite. The total dose for each valve contributes to a total dose of approximately 2330 mrem. Shielding is provided (4 - 4' blankets) for each valve. The dose estimate does not fully account for shielding placed at the specific worksite or other shielding packages installed in the loops for other activities not associated with the valve inspection.
- The plant configuration to perform the D&I and manual full-stroke exercise was assessed and determined that the benefit of disassembling 2-SI-237 during RFO 13 did not outweigh the safety benefit. To disassemble the valve the plant has to operate at mid reactor coolant loops when there is fuel in the reactor core. The current RFO 13 outage schedule has planned to take out loop 1B for valve repairs while 2-SI-237 is in loop 2A which is not scheduled to be taken out of service.
- The weight of the valve cover is approximately 600 lb. requiring rigging and stud de-tensioners to remove the cover and due to repeated cover removal and installation the valve cover fit can degrade.

**INSPECTION SUMMARY**

Valve	Inspection Date	Inspection Results
2-SI-217	9/27/90	No worn or corroded internals and disk operated freely
	4/15/97	No worn or corroded internals and disk operated freely
2-SI-227	11/4/92	No worn or corroded internals and disk operated freely
	10/24/97	No worn or corroded internals and disk operated freely
2-SI-237	11/17/89	No worn or corroded internals and disk operated freely
	1/15/95	No worn or corroded internals and disk operated freely
2-SI-247	11/17/89	No worn or corroded internals and disk operated freely
	5/28/97	No worn or corroded internals and disk operated freely

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**Comments:** Valve is listed as Containment Isolation valve in FSAR table 5.2-11. Type C leak testing is not required.

<u>Required Tests</u>	<u>Frequency</u>	<u>Alternate Test</u>
Full Stroke (Open and Closed)	Quarterly	Part Stroke Test (Open) Cold Shutdown closure test - Cold Shutdown Full Stroke Test, Refueling by Disassembly, Inspection, and stroke one valve every refueling