February 2, 2001

Mr. R. G. Lizotte
Master Process Owner - Assessment
c/o Mr. David A. Smith
Northeast Nuclear Energy Company
P. O. Box 128
Waterford, CT 06385-0128

SUBJECT: MILLSTONE NUCLEAR POWER STATION, UNIT NOS. 2 AND 3 - APPROVAL TO IMPLEMENT A CHECK VALVE INSERVICE TESTING PROGRAM USING ASME OM CODE-1995 EDITION, OMA-1996 ADDENDA (TAC NOS. MB0732 AND MB0767)

Dear Mr. Lizotte:

By letter dated December 12, 2000, you requested U.S. Nuclear Regulatory Commission (NRC) approval to implement the Appendix II, "Check Valve Condition Monitoring Program," of the OM Code-1995 Edition, OMa Code-1996 Addenda of the American Society of Mechanical Engineers (ASME) Code for the Operation and Maintenance of Nuclear Power Plants in advance of incorporating the OMa-1996 Code as the Code of Record for the Millstone Nuclear Power Station, Unit Nos. 2 and 3 inservice testing (IST) program, pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.55a(f)(4)(iv).

The staff has reviewed your request for approval and determined that you committed to comply with the Code and regulatory requirements. Therefore, your request for implementation of the IST check valve program as well as the implementation sequence at Millstone, Unit Nos. 2 and 3 is approved.

The staff's evaluation and conclusions are contained in the Enclosure. Contact the NRC Project Manager, Victor Nerses at (301) 415-1484 if you have any questions.

Sincerely,

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-336 and 50-423

Enclosures: Safety Evaluation

cc w/encls: See next page

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cc w/encls: See next page
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ACCESSION NO. ML01018

*SE dated 1/18/01; no major change made
**See previous concurrence

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Unit 3

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Unit 3

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM

NORTHEAST NUCLEAR ENERGY COMPANY

MILLSTONE NUCLEAR POWER STATION, UNIT NOS. 2 AND 3

DOCKET NUMBERS 50-336 AND 50-423

1.0 INTRODUCTION

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code applicable Edition and Addenda, except where relief has been requested and granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a(f)(6)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. In 10 CFR 50.55a(f)(4)(iv), the rule states that IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b), and subject to Commission approval. Portions of editions or addenda may be used in advance provided that all related requirements of the respective editions or addenda for the condition monitoring of the IST check valves are subsequently met.

Pursuant to 10 CFR 50.55a, the Commission may grant relief from, or authorize proposed alternatives to, the ASME Code requirements upon making the necessary findings. The U.S. Nuclear Regulatory Commission (NRC) staff's findings with respect to the licensee's request to implement a portion of the 1995 Edition, 1996 Addenda of the ASME Code for the Operation and Maintenance of Nuclear Power Plants (OMa-1996 Code) in advance of incorporating the OMa-1996 Code as the Code of Record for its IST check valve program pursuant to 10 CFR 50.55a(f)(4)(iv) for the Millstone Nuclear Power Station, Unit Nos. 2 and 3, are contained in this safety evaluation (SE).

2.0 LICENSEE'S APPROVAL REQUEST

By letter dated December 12, 2000, the Northeast Nuclear Energy Company (NNECO/licensee) requested NRC approval to implement the Appendix II, "Check Valve Condition Monitoring Program," of the OMa-1996 Code, in advance of incorporating the OMa-1996 Code as the Code of Record for the Millstone Unit Nos. 2 and 3 inservice testing (IST) program, pursuant to 10 CFR 50.55a(f)(4)(iv).

2.1 Licensee's Basis for Requested Approval of Appendix II Implementation

> The implementation of Appendix II of the 1995 Edition with the 1996 Addenda of the ASME OM Code, including Appendix II, will improve the performance of check valves and will optimize testing, examination, and preventive maintenance. Appendix II properly focuses testing, monitoring, or examination activities on problem valves, and away from valves that exhibit acceptable performance. Condition monitoring, as described in Appendix II, is a new Code approach with a promise of better detection of check valve degradation, improved valve performance, and maintaining reliable component capability over extended intervals, while adjusting test and examination intervals. The modifications to Appendix II contained in the rule provide for a safe and prudent progression of extending test and examination intervals consistent with historical experience and performance expectations. In addition, the modifications to Appendix II allow a licensee to conduct self-compliance inspections and minimize the expenditure of licensee and NRC resources.

2.2 Licensee's Proposed IST Program Implementation

The licensee commits to fully implement the ASME OMa-1996 Code, Appendix II, and the required modifications of 10 CFR 50.55a(b)(3)(iv) for the IST Program check valves at Millstone Unit Nos. 2 and 3 consistent with the requirements of the NRC statement of consideration in the rule amendment to 10 CFR 50.55a (64 FR 51388).

The licensee's implementation of the ASME OMa-1996 Code, Appendix II, and the required modifications will be phased in for all check valves in the IST Programs at Millstone Units 2 and 3. NNECO requests NRC approval to implement the check valve portion of the ASME OMa-1996 Code, Appendix II, and the required modifications to support timely implementation for the Millstone Unit 3 upcoming refueling outage scheduled for February 3, 2001. The licensee will complete the full implementation of the ASME OMa-1996 Code, Appendix II, and the required modifications by March 31, 2004, for both Millstone Units 2 and 3. The licensee needs this time for the extensive evaluation that a number of valves will require to ensure proper implementation of the new requirements.

3.0 EVALUATION

The NRC's amendment to 10 CFR 50.55a regulations, published in the *Federal Register* on September 22, 1999, incorporated by reference the 1995 Edition up to and including the 1996 Addenda to the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code) in 10 CFR 50.55a(b)(3), with certain modifications required when implementing Appendix II as stated in 10 CFR 50.55a(b)(3)(iv).

Two significant changes to IST of check valves were included in the ASME OMa Code-1996 Addenda to: (1) correct certain anomalies in the way exercising of check valves is currently being implemented, and (2) to codify a process for monitoring the valve's operating condition and performance. This integral two-part improvement to the Code provides interrelated requirements. The IST code Sections 4.5.2 "Exercising Requirements," and 4.5.4 "Valve Obturator Movement," were changed to require a bidirectional test to improve on the detection of valve degradation and failure. The related IST code Section 4.5.5 "Condition Monitoring Program" change, allowed for the use of a codified condition monitoring process as an alternative to the exercising and testing requirements of IST code Sections 4.5.1 through 4.5.4.

The condition monitoring process is defined in Appendix II, "Check Valve Condition Monitoring Program." The condition monitoring process allows the licensee certain IST flexibility in establishing the types of test, examination, and preventive maintenance activities and their associated intervals when justified based on the valve's performance and operating condition. These code changes were developed so licensees, who elect not to implement the IST code Sections 4.5.5 alternative Condition Monitoring Program in their IST Plan, would be required to use IST code Sections 4.5.1 through 4.5.4 as a default set of testing and examination requirements.

The NRC staff considers the Condition Monitoring Program approach of Appendix II, for check valve IST with the modifications in the amendment to the 10 CFR 50.55a regulations, to be a significant improvement over present Code requirements, and encourages licensees to implement Appendix II. The use of the IST code Sections 4.5.5 alternative IST program provides the licensee with knowledge of the valve's operating condition, informed and verified expectations of the valve's performance over extended intervals, and a process to reduce the burden of unnecessary IST.

Title 10 CFR 50.55a(f)(4)(iv) states, "Inservice tests of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in paragraph (b) of this section, and subject to Commission approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met."

In the statement of consideration of the amendment to 10 CFR 50.55a (64 FR 51388), the NRC stated it would favorably consider a request by a licensee under 10 CFR 50.55a(f)(4)(iv) to apply Appendix II, in advance of incorporating the 1995 Edition with 1996 Addenda of the ASME OM Code as its code of record, if the licensee's request justifies: (1) the modifications to Appendix II contained in the rule have been satisfied, and (2) all portions of the 1995 Edition with the 1996 Addenda of the OM Code that apply to check valves are implemented for the remaining check valves not included in the Appendix II program.

In their December 12, 2000, letter NNECO committed to comply with the required Code and regulatory requirements as previously described. NNECO's implementation of the ASME OMa-1996 Code, Appendix II, and the required modifications will be phased in for all check valves in the IST Programs at Millstone Unit Nos. 2 and 3. NNECO will complete the full implementation of the ASME OMa-1996 Code, Appendix II, and the required modifications by March 31, 2004, for both Millstone Unit Nos. 2 and 3.

4.0 CONCLUSION

The staff has reviewed NNECO's December 12, 2000, letter documenting their request for relief and associated commitment. The staff concludes that implementation of the check valve portion of the 1995 Edition, with 1996 Addenda of the ASME Code, Appendix II, and the required modifications in advance of incorporating the OMa-1996 Code as the Code of Record for the Millstone Nuclear Power Station, Unit Nos. 2 and 3 IST program is authorized pursuant to 10 CFR 50.55a(f)(4)(iv).

Principal Contributor: F. T. Grubelich

Date: February 2, 2001