

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: SAFETY EVALUATION FOR RELIEF REQUEST ASSOCIATED WITH
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE
SECTION XI INSERVICE INSPECTION (ISI) REQUIREMENTS, MILLSTONE
NUCLEAR POWER STATION, UNIT NO. 3 (TAC NO. MA9399)

Dear Mr. Scace:

By letter dated June 28, 2000, and supplemented on November 16, 2000, Northeast Nuclear Energy Company (the licensee) submitted a request for relief from the ASME Code Section XI requirements. Pursuant to Title 10 of the *Code of Federal Regulations*, Section 50.55a(a)(3)(ii), you requested that the Millstone Nuclear Power Station, Unit No. 3 (MP3) ISI program (non-destructive, categories B-F and B-J) for the first period, second inspection interval, be suspended until the second period to permit the preparation, submittal, and U.S. Nuclear Regulatory Commission (NRC) review of an MP3 Risk-Informed ISI program for Class 1 piping.

We have evaluated your request against the requirements of the 1989 Edition of the ASME Code, Section XI for piping component welds, 10 CFR 50.55a(a)(3)(ii), and the guidelines provided in NRC Information Notice 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees That Intend to Implement Risk-Informed ISI of Piping." The staff concludes that performing Class 1 piping weld examinations during the next refueling outage (February 2001) as required by the ASME Code to meet the minimum percentage of examination would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), your proposed alternative is authorized for the second 10-year interval to allow a delay of 2 years from June 28, 2000, or through the remainder of the first period of the second 10-year ISI interval, whichever is sooner, for conforming to the piping and weld examination requirements of the 1989 Edition of the ASME Code, Section XI.

R. Lizotte

- 2 -

The NRC staff's safety evaluation authorizing the requested alternative is enclosed. Contact the NRC Project Manager, Victor Nerses at (301) 415-1484 if you have any questions. This completes the staff's effort on TAC No. MA9399.

Sincerely,

/RA/

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

Docket No. 50-423

Enclosure: Safety Evaluation

cc w/encl: See next page

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Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-423
Enclosure: Safety Evaluation
cc w/encl: See next page

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*SE input provided 12/8/00 no major changes made.

**See previous concurrence

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
ASSOCIATED WITH REQUEST FOR RELIEF FROM AMERICAN
SOCIETY OF MECHANICAL ENGINEERS CODE SECTION XI INSERVICE
INSPECTION (ISI) REQUIREMENTS
MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3
NORTHEAST NUCLEAR ENERGY COMPANY
DOCKET NUMBER 50-423

1.0 INTRODUCTION

By letter dated June 28, 2000, and supplemented on November 16, 2000, Northeast Nuclear Energy Company (the licensee) submitted a request for relief from the ASME Code Section XI requirements. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(ii), you requested that the Millstone Unit No. 3 (MP3) ISI program (Non-destructive, Categories B-F and B-J) for the first period, second inspection interval, be suspended until the second period to permit the preparation, submittal, and U.S. Nuclear Regulatory Commission (NRC) review of a MP3 Risk-Informed ISI program for Class 1 piping.

2.0 BACKGROUND

ISI of ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(6)(g)(i). Title 10 of the *Code of Federal Regulations* Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and

Enclosure

addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b), 12 months before the start of the 120-month interval, subject to the limitations and modifications listed therein. For MP3, the applicable edition of Section XI of the ASME Code for the second 10-year ISI interval, which began on April 23, 1999, is the 1989 Edition.

Currently, MP3 is in the middle of its first period of the second ISI interval. By letter dated June 28, 2000, the licensee stated that it plans to implement, in the second period of the second ISI interval, a risk-informed ISI (RI-ISI) program as an alternative to the current ISI program for Class 1 piping only, and submit a relief request regarding the requirements of the ASME Code, Section XI. Pursuant to 10 CFR 50.55a(a)(3)(ii), the request seeks relief for meeting the first period minimum percentage of examination required by the ASME Code. The licensee provided additional information in support of the relief request by letter dated November 16, 2000. As discussed below, the NRC staff has reviewed and evaluated the licensee's request for relief pursuant to 10 CFR 50.55a(a)(3)(ii).

3.0 EVALUATION

The licensee's request regards examination categories B-F and B-J welds pertaining to ASME Class 1 piping. The information provided by the licensee, and the NRC staff's disposition of that information, are presented below.

3.1 Code Requirement

The 1989 Edition of the ASME Code, Section XI requires that, for Class 1 piping, a minimum percentage of examinations in each category of welds be completed during each successive inspection period and inspection interval in accordance with Table IWB-2412-1. For the first period of an inspection interval, the minimum examination requirement is 16%.

3.2 Licensee's Request for Relief

The licensee is in the process of submitting an RI-ISI program as an alternative to the current ISI program for the Class 1 piping, examination category B-F and B-J welds. The licensee stated that there are two refueling outages within the first period of the second ISI interval. During the first refueling outage, the licensee had examined a large portion (60 welds) of a total of 96 Class 1 piping welds that would be needed to meet the ASME Code's required 16 percent sample for the first period. Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested that examination for the remaining 36 welds not be performed during the second or the last refueling outage (February 2001) in the first period to permit the preparation, submittal, and NRC review of the RI-ISI program. If approved, the licensee will implement the RI-ISI program in the second period of the second interval.

3.3 Licensee's Basis for the Relief Request (as stated)

Northeast Nuclear Energy Company (NNECO) has completed the development of a Class 1 Risk Informed Inservice Inspection (RI-ISI) Program for Millstone Nuclear Power Station, Unit No. 3, using Westinghouse Topical Report WCAP-14572 Revision 1-NP-A. Submission of the new program for the Nuclear Regulatory Commission (NRC) review is currently planned for July 2000. [Note

that the licensee made this submittal on July 25, 2000.] Millstone Unit No. 3 is presently in the first period, second interval, of the ASME Section XI (1989 Edition) Inservice Inspection Program.

The NRC previously published Information Notice (IN) 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees That Intend to Implement Risk-Informed ISI of Piping." This document states that, "... the Staff will consider authorizing a delay up to 2 years in implementation of the next 10-year ISI program for piping only to allow licensees to develop and obtain approval for their RI-ISI program at the next available opportunity using the Staff-approved topical reports." Although IN 98-44 does not address programs that may choose to implement a RI-ISI program at mid-interval, Millstone Unit No. 3 will be confronted with a hardship and difficulty since it will be submitting an ASME Class 1 RI-ISI Program mid-interval. This situation creates a condition whereby the provision in 10 CFR 50.55a(a)(3)(ii) is applicable, in that compliance with the requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

As noted above, Millstone Unit No. 3 is in the first period of its second ASME Section XI inspection interval. Millstone Unit No. 3 has one refueling outage remaining in the first period of the second interval currently scheduled for February 2001. Approximately 36 out of 328 welds are scheduled to be examined in accordance with the requirements for Category B-F and B-J of ASME Section XI (1989 Edition) during the currently scheduled outage in February 2001, under the current program. The inspection includes volumetric and surface examinations, as required by the Code at these locations. A total of approximately 96 Class 1 piping locations are required to be inspected to meet the first period requirements under the current program. In contrast, the RI-ISI program for Millstone Unit No. 3 would require only 83 Class 1 piping locations (volumetric, surface, visual VT-2) over the entire ten-year interval.

Based on the RI-ISI program, results previously implemented at North Anna, a similar Westinghouse designed plant, performing further examinations under the current ASME Section XI Category B-F and B-J requirements at Millstone Unit No. 3 during the Winter 2001 refueling outage, would result in unnecessary personnel exposure since the inspection sample already performed exceeds the sample that would likely be required by implementation of a RI-ISI program. Furthermore, the intent and provisions established in IN 98-44 allow for delays in performing currently required ISI inspections by recognizing that many inspections will be eliminated by implementing a RI-ISI program. Alternatively, it is proposed that the RI-ISI program that will be submitted for Millstone Unit No. 3 by July 31, 2000, be implemented in the second period of the second inspection interval with approximately one third of the interval examinations being scheduled in that period. The first RI-ISI examinations would be performed in the first refueling outage of the second period, which is currently scheduled for the Fall of 2002. Other Code requirements (e.g., Class 2 and 3 inspections, pressure testing, repairs and replacements, etc.) would remain unchanged from current requirements.

3.4 Staff Evaluation

The NRC staff has reviewed the information concerning the ISI program request for relief and the proposed alternative submitted in the licensee's letter dated June 28, 2000, as supplemented by the licensee's letter dated November 16, 2000, for the first period of the second 10-year ISI interval of MP3 pertaining to Examination Category B-F and B-J Class 1 piping welds. The Code requires that at least 16% in each category of the subject welds be examined during the first period of an inspection interval, which for MP3, means that the remainder of the 16% of welds not examined during the first outage should be examined in the next, and also the last outage (in February 2001), of the period.

NRC Information Notice 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees that Intend to Implement Risk-Informed ISI of Piping" states that for licensees that intend to implement an RI-ISI program for piping and follow the guidance provided in IN 98-44, the staff will consider authorizing a delay of up to 2 years in implementation of the ISI program for piping only. The MP3 current ISI program for the second 10-year interval started on April 23, 1999, and its first period will end on April 22, 2002. The MP3 RI-ISI program would be expected to use the same methodology described in Westinghouse Topical Report, WCAP-14572. The licensee submitted an RI-ISI program for MP3 by letter dated July 25, 2000, and it is currently under staff review.

The licensee performed a large portion of the Code required examination on Class 1 piping welds during the first outage of the first period. Thus, the proposal to suspend the current ISI program for Class 1 piping during the second refueling outage (February 2001) and to start implementation of the RI-ISI program in the second period (starting April 23, 2002) of the second interval is within the 2-year delay period discussed in IN 98-44 for implementing the alternative program using RI-ISI methodology. The licensee has committed that the RI-ISI program will meet the Code required percentage of inspection in each ISI period. The licensee further indicated that its request for relief and subsequent implementation of the alternative program is only for Class 1 piping welds in Categories B-F and B-J; and, other Code requirements, including Class 2 and 3 inspections, pressure testing, repairs and replacements, would remain unchanged from current requirements. The licensee's relief request excludes any existing augmented examination programs. As stated in IN 98-44, the performance of augmented examinations would be unaffected by staff-approved delays in updating the ISI program to accommodate development of a risk-informed ISI program.

It is anticipated that the RI-ISI program, which the licensee submitted to the NRC on July 25, 2000, will result in a substantial reduction in the required number of piping weld examinations. Examination of the reduced number of Class 1 piping welds will be spread over the refueling outages in the second and third periods of the second interval. Therefore, the staff concludes that examination of the remaining welds during the next refueling outage for meeting the Code required sample percentage for the first period would be unnecessary, and would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Furthermore, the RI-ISI program developed by the licensee will be reviewed by the NRC and will require NRC authorization prior to implementation.

4.0 CONCLUSION

Based on information provided in the licensee's request for relief, and timely submission of the alternative RI-ISI program, the staff has determined that performing Class 1 piping weld examinations during the next refueling outage (February 2001) as required by the ASME Code to meet the minimum percentage of examination would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the licensee's proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii). The staff authorizes a delay of 2 years from June 28, 2000, or through the remaining first period of the second ISI interval, whichever is sooner, for conforming to the Class 1 piping weld examination requirements of the 1989 Edition of the ASME Code, Section XI, for the second 10-year ISI interval at MP3. This authorization does not apply to any augmented examination requirements.

Principal Contributor: S. Hou

Date: February 2, 2001