UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING RELIEF REQUEST RR-RI-ISI-1 FOR THE

SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION, UNIT NO. 2

DOCKET NO. 50-410

1.0 INTRODUCTION

Inservice inspection of Class 1, 2, and 3 components of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) shall be performed in accordance with Section XI of the ASME Code and applicable addenda as required by Title 10 of the Code of Federal Regulations, Part 50, Section 50.55a(g) (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). 10 CFR 50.55a(a)(3)(i) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the proposed alternatives would provide an acceptable 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 ten-year interval and subsequent intervals comply with the requirements in the latest edition and 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 Nine Mile Point Nuclear Station, Unit 2 (NMP2), the applicable edition of Section XI of the ASME Code for the second ten-year inservice inspection (ISI) interval, which began on April 4, 1998, is the 1989 edition.

By letter dated September 15, 1999, Niagara Mohawk Power Corporation (NMPC and licensee) stated that it plans to implement a risk-informed inservice inspection program (RI-ISI) as an alternative to the current ISI program, and submitted Relief Request RR-RI-ISI-1. RR-RI-ISI-1 regards the requirements of the ASME Code, Section XI, for Class 1 and 2 piping. It seeks relief for the current requirement that NMP2 perform piping weld examinations during RFO7 (i.e., during March-April 2000) which, in combination with the examinations performed in July 1998 during RFO6, would meet the first period minimum percentage requirements of the ASME Code. This request was made pursuant to 10 CFR 50.55a(a)(3)(i) for the first period of the second ten-year ISI interval. NMPC provided additional information in support of RR-RI-ISI-1 by letter dated December 3, 1999. As discussed below, the NRC staff has reviewed and evaluated NMPC's proposed alternative pursuant to 10 CFR 50.55a(a)(3)(i).

2.0 EVALUATION

NMPC's request for alternative, RR-RI-ISI-1, regards systems with components classified as examination category B-J, C-F-1, and C-F-2, with respect to Class 1 and 2 piping welds. The NRC staff has evaluated the information provided by NMPC in support of the proposed alternative contained in RR-RI-ISI-1. The information provided by NMPC, and the NRC staff's disposition of that information, are presented below.

2.1 ASME Code Requirement

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

2.2 Licensee's Proposed Code Alternative

Pursuant to 10 CFR 50.55a(a)(3)(i), NMPC requested that the NRC staff approve an alternative to the Code-required minimum examination percentage for the first period of the second inspection interval (April 4, 1998 to April 4, 2008) for Class 1 and 2 piping Examination Categories B-J, C-F-1, and C-F-2.

In Section XI of the ASME Code, Tables IWB-2412-1 and IWC-2412-1 require completion of at least 16 percent in the first inspection period for each category of weld. For NMP2, there are two refueling outages (RFO6 and RFO7) within the first period. During the first outage (RFO6) in July 1998, NMPC completed examinations of 10percent the Category B-J welds, none of the C-F-1 welds, and 6 percent of the C-F-2 piping welds. In RR-RI-ISI-1, NMPC requests not to perform the remaining examinations that would be needed to meet the ASME Code's required 16 percent during the next outage (RFO7) in March-April 2000, because NMPC intends to develop and implement an alternative ISI program using a risk-informed approach.

2.3 Licensee's Basis for Relief Request

NMPC states that:

> *... Nine Mile Point Unit 2 completed its first refueling outage of the First Period (RFO6) in July 1998. Those remaining piping examinations needed to meet the code required First Period percentage requirements are currently scheduled for the last refueling outage of the First Period (RFO7, March-April 2000). Nine Mile Point Unit 2 requests relief from the Class 1 & 2 piping examination percentage requirements stated in Tables IWB-2412-1 and IWC-2412-1 (i.e., 16% minimum examinations completed). This request excludes the augmented examination program of Generic Letter 88-01, NRC position on IGSCC [Intergranular Stress Corrosion Cracking] in BWR Austenitic Stainless Steel Piping, for Category D welds.*

This relief will eliminate performance of piping examinations that may no longer be required once the RI-ISI methodology is in place. NMPC has completed approximately ten (10) percent of the Category B-J, none of the 33 C-F-1, and six (6) percent of the C-F-2 piping weld exams.

NRC Information Notice 98-44 titled, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees that Intend to Implement Risk-Informed ISI of Piping," states that the probabilistic risk assessment technology in NRC regulatory activities should be increased to the extent supported by state of the art methods and data and in a manner that complements the NRC's deterministic approach. Basically, this information combined with risk-assessment techniques and associated data, can be used to develop a more effective approach to the ISI program, specifically the piping. This program is practical and provides an acceptable level of quality and safety, as required by paragraph (a)(3)(i) of 10 CFR 50.55a.

2.4 Licensee's Proposed Alternative Examination

In accordance with 10 CFR 50.55a(a)(3)(i), NMPC proposes an alternative to the ASME Code examination requirements for Class 1 and 2 piping welds. NMPC states that:

NMPC will develop and implement a Risk-Informed Inservice Inspection (RI-ISI) methodology following the guidance of ASME Section XI Code Case N-578 by Refueling Outage (RFO8)....

After the RI-ISI is established, all examinations required by the Risk-Informed methodology would be accomplished by the end of the Second Ten-Year Interval that is scheduled for completion on April 4, 2008.

2.5 NRC Staff Evaluation

The NRC staff has reviewed the information in NMPC's letters dated September 15 and December 3, 1999, concerning ISI relief request RR-RI-ISI-1, including NMPC's proposed alternative for the first period of NMP2's second ten-year ISI interval, pertaining to Class 1 and 2 piping welds. The ASME Code requires that at least 16 percent in each category of these welds be examined during the first period of an inspection interval. For NMP2, this means that the remaining welds not examined from the first outage (RFO6) should be examined in the next outage (RFO7) of the period.

In Information Notice (IN) 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees that Intend to Implement Risk-Informed ISI of Piping," the NRC states that, for licensees that intend to implement a risk-informed ISI program for piping and do not have a pilot plant application currently reviewed by the NRC staff, the NRC staff will consider authorizing a delay of up to 2 years in the implementation of the next ten-year ISI program for piping only. NMP2's current ISI program for the second ten-year interval began April 4, 1998. NMP2 does not have a pilot plant application reviewed by the NRC staff. NMPC indicated that it will submit a RI-ISI program by October 1, 2000. This proposal is within the 2 years delay period discussed in IN 98-44 for implementing the alternative program using RI-ISI methodology. NMPC further indicated that implementation of the RI-ISI will be completed by the end of the

second ISI interval (April 4, 2008) and that this proposed alternative excludes the augmented examination program of Generic Letter 88-01, "NRC Position on IGSCC in Boiling Water Reactor Austenitic Stainless Steel Piping," and Categories D, E, and F welds.

NMPC further indicated in its letter of December 3, 1999, that break exclusion region welds are also examined on an augmented basis. NMPC proposed not to do any break exclusion region examinations during the next refueling outage (RFO7). NMPC also stated it intends to include the break exclusion region examinations in the Electric Power Research Institute (EPRI) methodology. In IN 98-44, the NRC staff states that the performance of augmented examinations would be unaffected by NRC staff approved delays in updating ISI programs to accommodate development of risk-informed ISI programs. The NRC staff is not approving a change in NMPC's augmented examinations for the break exclusion region by this safety evaluation. NMPC may be able to defer these examinations from RFO7 and still complete all the required examinations for this interval in later refueling outages. However, the NRC staff has not previously reviewed and approved treatment of augmented programs, such as for the break exclusion region, under a risk-informed approach. If such examinations are being deferred, NMPC should not assume that this approach will be approved insofar as it may affect the ability to complete the currently required examinations in future outages during this interval.

The RI-ISI program that will be developed is expected to result in a substantial reduction in the required number of piping weld examinations. Examination of this reduced number of piping weld examinations will be spread over the remaining outages in the interval that began in April 1998. Deferral of the non-augmented examinations scheduled to be conducted in RFO7 will not have an impact upon NMPC's ability to complete the examinations determined to be necessary based upon the RI-ISI methodology. Furthermore, the RI-ISI program developed by NMPC will be reviewed by the NRC and will require NRC authorization before implementation. Therefore, the NRC staff finds that NMPC's proposed alternative in ISI-RI-ISI-1 provides an acceptable level of quality and safety.

3.0 CONCLUSION

On the basis of the information provided in NMPC's letters and relief request, and the target date established by NMPC to submit the alternative RI-ISI program, the NRC staff concludes that relief from performing Class 1 and 2 piping weld examinations during RFO7, as required by the ASME Code to meet the minimum percentage of examination, is acceptable. Accordingly, the NRC staff authorizes relief request RR-RI-ISI-1 pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the request provides an acceptable level of quality and safety. By this safety evaluation, the NRC staff authorizes a delay of 2 years from April 4, 1998, or through RFO7, whichever is later, for conforming to the piping weld examination requirements of the 1989 Edition of the ASME Code, Section XI, for the second ten-year ISI interval at NMP2. This authorization does not apply to any augmented examination.

Principal Contributors: S. Hou
D. Hood

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