

March 9, 2000

Mr. Michael B. Sellman
Senior Vice President and
Chief Nuclear Officer
Wisconsin Electric Power Company
231 West Michigan Street
Milwaukee, WI 53201

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - SAFETY EVALUATION
REGARDING RELIEF REQUEST ASSOCIATED WITH THE THIRD 10-YEAR
INSERVICE INSPECTION (ISI) INTERVAL (TAC NOS. MA7157 AND MA7158)

Dear Mr. Sellman:

By letter dated October 25, 1999, Wisconsin Electric Power Company (the licensee) submitted Request for Relief PTP-3-08 seeking relief from the requirements of the American Society for Mechanical Engineers, Boiler and Pressure Vessel Code, Section XI, for Point Beach Nuclear Plant (PBNP), Units 1 and 2, third 10-Year ISI interval.

The staff has completed its review of the information provided by the licensee and concludes that for Request for Relief PTP-3-08, imposing the Code requirements on the licensee would result in a burden without a compensating increase in the level of quality and safety. The proposed use of Code Case N-566-1 provides a reasonable approach for ensuring the integrity of bolted connections in Class 1, 2, and 3 systems. This approach meets the intent of IWA-5250(a)(2) and provides a reasonable assurance that structural integrity of bolted connections will be maintained. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the staff authorizes the licensee's alternative for the third interval for Class 1, 2, and 3 pressure-retaining bolted connections at PBNP, Units 1 and 2. The enclosure documents our evaluation.

Sincerely,

/RA by Darl S. Hood Acting for/

Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosure: Safety Evaluation

cc w/encl: See next page

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Point Beach Nuclear Plant, Units 1 and 2

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING RELIEF REQUEST FOR THE INSERVICE INSPECTION

THIRD 10-YEAR INTERVAL

WISCONSIN ELECTRIC POWER COMPANY

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

1.0 INTRODUCTION

Inservice inspection (ISI) of the American Society of Mechanical Engineers (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 (the 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(g)(6)(i). The regulation at 10 CFR 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 addenda of Section XI of the ASME Code, incorporated by reference in the 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for Point Beach Nuclear Plant (PBNP), Units 1 and 2, third 10-year ISI interval is the 1986 edition (no addenda) of Section XI of the ASME B&PV Code.

By letter dated January 28, 2000, Wisconsin Electric Power Company (the licensee) submitted Request for Relief PTP-3-08 seeking relief from the Code for PBNP, Units 1 and 2. This relief request, if approved by the NRC staff, would supersede Requests for Relief RR-1-15 and RR-2-16 approved by the staff on December 14, 1994.

ENCLOSURE

2.0 EVALUATION OF RELIEF REQUEST

Request for Relief PTP-3-08: This request for relief involves the use of a detailed Engineering Evaluation as an Alternative to ASME Code Section XI, Paragraph IWA-5250(a)(2), Corrective Measures For Bolted Connections, for Class 1, 2, and 3 Pressure-retaining Bolted Connections.

Code Requirement: In accordance with the ASME Code, 1986 edition, Section XI, Paragraph IWA-5250(a)(2) requires bolting to be removed if leakage occurs at the connection, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100.

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee has proposed the use of Code Case N-566-1 as an alternative to the requirements of IWA-5250(a)(2). The licensee stated:

As an alternative to the requirements of the 1986 Edition of the ASME Section XI Code, paragraph IWA 5250(a)(2), PBNP proposes that if leakage is detected at a bolted connection, other than gaseous systems, by VT-2 examination during a system pressure test, the corrective action guidelines provided in Code Case N-566-1 shall be followed for dispositioning of leakage.

If the evaluation, required by paragraph(c) of the Code Case concludes that the bolting is degraded, or is non-conclusive in determining degradation, the bolt closest to the source of leakage shall be removed, VT-1 examined and evaluated in accordance with IWA-3100(a). If the removed bolt shows evidence of unacceptable degradation, all affected bolting shall be removed and VT-1 examined and evaluated in accordance with IWA-3100(a) or the bolting shall be replaced. Leakage detected at pressure-retaining mechanical connections on gaseous systems does not require evaluation but will be addressed by PBNP's maintenance program.

Licensee's Basis for Proposed Alternative (as stated):

Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is being requested on the basis that compliance with the original examination requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Removal of any or all bolting where leakage is observed is not the most prudent course of action in some cases. This requirement does not take into consideration such factors as the corrosiveness of the fluid, the bolting or component material, the type and location of the leakage, the service age of the bolting and the physical configuration of the bolting. Additionally, in recognition of the burden associated with the removal and examination of all bolting, later editions of the Code require removal of only the bolt closest to the source of leakage. Furthermore, there are several problems associated with the current requirements of IWA-5250(a) as summarized below.

1. IWA-3100 does not provide an acceptance standard for VT-3 bolt inspection.

2. The requirement increases the radiological dose to maintenance personnel for leaks that are often not a challenge to operational or structural limits.
3. In some cases bolting cannot be removed without damaging the bolt, or removal is precluded due to component configuration.
4. It is not a requirement of the Code that the leakage must be stopped, and inspection of the bolting will not necessarily stop the leak.
5. Removing one bolt at a time, if allowed by system conditions and bolt pattern, may increase the leakage.
6. In many cases, implementation of the requirement would cause the plant an unnecessary transient, delay restart, or require a plant shutdown.

The Code requirement to remove, examine and evaluate bolting does not allow the Owner the option to consider other factors that may indicate the acceptability of the bolted connection. Point Beach Nuclear Plant (PBNP) considers this requirement to be unnecessarily prescriptive and restrictive. The proposed alternative will allow PBNP to utilize a systematic approach in the evaluation of leakage identified at bolted connections during the conduct of a system pressure test. The proposed alternate testing presents a sound engineering approach. In addition, if the initial evaluation indicates the need for a more detailed analysis, PBNP will remove the bolt closest to the source of leakage, perform a VT-1 visual examination, and evaluate the bolt in accordance with IWA-3100(a). The VT-1 examination criteria is more stringent than a simple corrosion evaluation as described in IWA-5250(a)(2). For these reasons, we believe that reasonable assurance of the operational readiness of the bolted connection will be provided. Leakage detected at pressure-retaining mechanical connections on gaseous systems is highly unlikely to result in bolting degradation. Therefore, a reasonable approach to correcting these conditions without performing an evaluation as defined in the proposed alternate testing, is via our maintenance program.

Staff Evaluation: The Code states that if leakage occurs at a bolted connection, the bolting must be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100. However, IWA-3100 does not provide acceptance standards for VT-3 visual examination. As a result, the licensee proposed to evaluate the bolting in accordance with Code Case N-566-1 to determine its susceptibility to corrosion. The alternative evaluation will examine fastener materials, the corrosive nature of the process fluid, the leakage location and history, components in the vicinity of the leakage that may be degraded, and visual evidence of corrosion at the assembled connection.

The proposed use of the detailed engineering evaluation under Code Case N-566-1 provides a reasonable approach for ensuring the integrity of bolted connections in Class 1, 2, and 3 systems. This approach meets the intent of IWA-5250(a)(2) and provides a reasonable assurance that structural integrity of bolted connections will be maintained. Authorizing the use of Code Case N-566-1 during the conduct of system pressure tests mitigates the safety hazard due to increased radiological exposure, potential damage from unnecessarily removing bolting, and avoidance of unnecessary plant shutdown as a result of leakage at bolted connections. Therefore, imposition of the requirements of IWA-5250(a)(2) may create an undue burden on the licensee without a compensating increase in the quality and safety given the alternative proposed.

3.0 CONCLUSION

The staff has completed its review of the information provided by the licensee and concludes that for Request for Relief PTP-3-08, imposing the Code requirements on the licensee would result in a burden without a compensating increase in the quality and safety. In addition, if initial evaluation indicates the necessity for detailed analysis, the bolt closest to the source of leakage will be removed, VT-1 visually examined, and evaluated in accordance with IWA-3142.4. The use of the code case and the VT-1 examination used to evaluate bolting that has been removed is more stringent than the corrosion evaluation described in IWA-5250(a)(2). Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the staff authorizes the licensee's alternative for the third interval for Class 1, 2, and 3 pressure-retaining bolted connections at PBNP, Units 1 and 2. This relief request supercedes Requests for Relief RR-1-15 and RR-2-16 approved by the NRC staff on December 14, 1994.

The authorizing of alternatives or granting of reliefs is based upon the fulfillment of any commitments made by the licensee in its basis for the relief requests and the alternatives proposed. The implementation of the ISI program and relief requests is subject to inspection by the NRC.

Principal Contributor: G. Hatchett

Date: March 9, 2000