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SUBJECT: Forwards relief request re ASME Section XI requirements for third interval ISI compliance at plant.

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NRC-95-057

WISCONSIN PUBLIC SERVICE CORPORATION

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May 10, 1995

10 CFR 50.55a(a)(3)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Inservice Inspection (ISI) Relief Request

References: (1) Letter from Gail H. Marcus (U.S. NRC) to Mark L. Marchi (WPSC) dated April 28, 1995

(2) Letter from Charles A. Schrock (WPSC) to Document Control Desk (NRC) dated December 16, 1993

10 CFR 50.55a(g)(4) requires that inservice inspections (ISI) performed at the Kewaunee Nuclear Power Plant (KNPP) for the 3rd Interval comply with Section XI of the ASME Boiler and Pressure Vessel Code, 1989 Edition. Wisconsin Public Service Corporation (WPSC) has determined that certain system pressure test requirements are a hardship and therefore requests approval pursuant to 10 CFR 50.55a(a)(3) for the use of these requirements as specified in the 1980 edition 1981 Winter Addenda of Section XI of the ASME Boiler and Pressure Vessel Code.

In accordance with 10 CFR 50.55a(a)(3), a description and basis for the relief request, as well as an alternative method of examination, are included in the attachment to this letter. Based on information contained in RR-G-1 (Rev. 1), WPSC has determined that the proposed alternative will provide an acceptable level of quality and safety and that complying with the 1989 Edition of the ASME Section XI requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

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The attached relief request encompasses the pressure test and inspection of the Reactor Coolant System required to be completed during hot shutdown conditions as part of the startup from the current KNPP refueling outage. Due to the short time period until this inspection (approximately 3-4 days), WPSC is not expecting staff review of this request to support the RCS inspection. However, unforeseen difficulties during the unit startup may require that this request receive an expedited review for application to specific components; WPSC will immediately contact the staff should this be necessary.

Sincerely,

RSBurke for

Mark L. Marchi
Manager - Nuclear Business Group

CAT/jj

Attach.

cc - US NRC Region III
US NRC Senior Resident Inspector

ATTACHMENT 1

Letter from M. L. Marchi (WPSC)

to

Document Control Desk (NRC)

Dated

May 10, 1995

Inservice Inspection (ISI) Relief Request

RR-G-1 (Rev. 1)

Relief Request No. RR-G-1 (Rev. 1)

1. Components Affected

Class 1, 2 and 3 pressure retaining fasteners, bolts, studs, nuts, bushings, and washers.

2. Section XI Requirements - 1989 edition

IWA-5250 Corrective Measures

a. The source of leakages detected during the conduct of a pressure test shall be located and evaluated by the Owner for corrective measures as follows:

   (1) buried components with leakage losses in excess of limits acceptable for continued service shall be repaired or replaced;

   (2) if leakage occurs at a bolted connection, the bolting shall be removed, VT-3 visually examined for corrosion, and evaluated in accordance with IWA-3100;

   (3) repairs or replacements of components shall be performed in accordance with IWA-4000 or IWA-7000, respectively.

b. If boric acid residues are detected on components, the leakage source and the areas of general corrosion shall be located. Components with local areas of corrosion that reduce the wall thickness by more than 10% shall be evaluated to determine whether the component may be acceptable for continued service, or whether repair or replacement is required.

3. Alternative Method of Examination

Implement the corrective actions specified in paragraph IWA-5250 of the 1980 Edition through the Winter 1981 Addenda of Section XI for the Third Inspection Interval (June 16,1994 through June 16, 2004) of the KNPP ISI Program. This addenda of the Code has been previously accepted by the NRC (48FR5532) and was the code of record for the Second Inspection Interval of the KNPP ISI Program.

4. Basis for Requesting Relief

Wisconsin Public Service Corporation has reviewed the requirements of IWA-5250 and has determined that the requirement of subparagraph (a)(2) is too restrictive in all situations for the following reasons:

a. In situations where new bolting is installed during the refueling outage as normal or corrective maintenance, the condition of the bolting and structural integrity of the closure is known with certainty.

b. The bolting near the leakage may be visually accessible without removal. Thus, the condition of the bolting and structural integrity of the closure is known with certainty.

c. At times the bolting is not easily removable and can only be removed by a drilling and extraction process thus destroying the bolt. This requirement constitutes a hardship in terms of unnecessary radiation exposure and cost when the integrity of the bolting and closure can be evaluated without the necessity of removing the bolting.

d. KNPP practice has been to stop the leakage if possible prior to going critical following a refueling outage. The requirement to remove the bolting or even a single bolt for the sole purpose of performing a VT-3 visual examination can create nonuniform loading and compression of the gasket thereby either creating leakage or making it easier for leakage to reinitiate at a later time.

e. This requirement does not recognize that a non-corrosive bolting material may be installed or give ample consideration to the chemistry of the fluid (e.g., the component cooling water system contains a chromate inhibitor to control corrosion). The requirement to remove a bolt fabricated of a non-corrosive material in a non-aggressive environment for the sole purpose of performing a VT-3 examination is counter productive since the integrity of the bolting is known with certainty with regard to its corrosion resistance.

f. Due to valve geometry and position and proximity of the bolting to the flange/gasket, leakage will not come in contact with pressure retaining bolting for many of the valve designs. The requirement to remove the bolting or even a single bolt for the sole purpose of performing a VT-3 visual examination constitutes a hardship in terms of radiation exposure and cost when the bolting and closure can be evaluated without the necessity of removing the bolting.

g. The Code does not provide flexibility regarding the amount of leakage that might be detected. The requirement to remove bolting does not consider the rate of leakage, e.g., one drop versus active leakage.

h. Removal of one bolt at-a-time to facilitate VT-3 visual examination is not a good maintenance practice since the gasket may loose its compression or the previously installed bolt(s) may loose some of its preload when removing and replacing subsequent bolting. This avenue of ensuring bolt integrity should be approached with caution and exercised on a case by case basis not as a preferred method.

i. Removal of bolting to facilitate VT-3 visual examination should be done with the valve isolated and depressurized. The Code requires that a system pressure test of the reactor coolant system be performed at operating conditions following the refueling outage. The plant is normally not in a operating mode to permit removal of bolting during the system pressure test of the reactor coolant system. Removal of the bolting to facilitate a VT-3 examination will require in many instances depressurization of the system resulting in additional fatigue cycles to plant equipment, additional radiation exposure from having to change valve lineup and fill and vent the system, and loss of revenue resulting from not producing electricity at that time. A cooldown and repressurization cycle increases the probability of introducing additional leaks causing further unnecessary hardship.

Wisconsin Public Service Corporation has been operating the Kewaunee Nuclear Power Plant since startup 21 years ago. During this time numerous procedures, practices, and programs have been instituted for the prevention, control and correction of boric acid leakage. These efforts have ensured bolting integrity and continue to be a significant contributor to the excellent housekeeping which has become a Kewaunee trademark. Historically, few significant boric acid leaks have been observed at Kewaunee; those few significant leaks were discovered, evaluated, and corrected by way of procedure enhancements, seal welding of the flange, and/or practices currently in place. A high level of cognizance has been established, and is maintained, by the performance of pre-startup piping walkdowns, at-power management tours, and pre-outage containment tours; the result is an intolerance to component leakage. Evaluations are performed on an as-needed basis and documented as appropriate under the control of any or all of the following: plant incident reports, plant work requests, design changes, contractor/vendor studies, etc. The operating staff has at times removed bolting closest to the source of a known gasket leak to evaluate continued plant operation, but this approach is the exception and not the general rule. Over the years WPSC has successfully accessed the integrity of bolted joints without the need to remove bolts each time leakage is detected.

Satisfying this 1989 Code requirement may require significant planning and scheduling due to existing Technical Specification requirements, operational concerns, and personnel safety without a corresponding or commensurate increase in safety. To allow for these considerations our intent is to utilize the corrective measures specified under paragraph IWA-5250 of the 1980 Edition through the Winter 1981 Addenda of Section XI for the Third Inspection Interval and repair the bolted connection at the next scheduled refueling outage if the joint can be shown acceptable for continued service for the next operating cycle. Evaluation for continued service involves the collective utilization of information from several sources to determine whether or not the joint can perform its function until the next scheduled refueling outage:

(1) Ultrasonic examination,
(2) Radiography,
(3) Observation and analysis of corrosion products,
(4) Assessment of affected area of joint,
(5) Analysis of number of fasteners needed to maintain closure,
(6) Consideration of corrosion resistance of bolting material,
(7) Tightening of joint to stop or reduce leakage,
(8) Inspection of other components in the immediate and surrounding vicinity to ensure no adverse conditions exists as a result of the leakage, and
(9) Monitoring.