February 4, 2005

NRC 2005-0016
10 CFR 50.55a

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

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
License Nos. DPR-24 and DPR-27

Relief Request from the Provisions of ASME Section XI, IWA-4422.2.2, "Defect Removal Followed by Welding or Brazing," Relief Request 16

In accordance with 10 CFR 50.55a(a)(3)(ii), Nuclear Management Company, LLC (NMC), licensee for Point Beach Nuclear Plant (PBNP), hereby requests relief from the requirements of the 1998 Edition with Addenda through 2000 of Section XI, IWA-4422.2.2, "Defect Removal Followed by Welding or Brazing," for PBNP Unit 1 and Unit 2. This request for relief is limited to three isolation valves in the Service Water (SW) system. The basis for the request is that compliance with the specified requirements is a hardship without a compensating increase in the level of quality and safety. Performing the specified examinations will require modification or removal of SW system valves.

During the NRC Safety System Design and Performance Capability Inspection conducted June 28 through July 16, 2004, the inspectors identified that 1SW-322, the HX-12A Component Cooling Water heat exchanger SW outlet isolation valve, was found to have cavitation pitting repaired by welding during a 1997 Repair/Replacement Activity. The review of this Repair/Replacement Activity showed that a magnetic particle or liquid penetrant examination required by Section XI was not performed prior to the weld repair of the pitting.

During the investigation of this incident, two additional SW valves were found to have the same issue: SW-315 and 2SW-307, the SW outlet isolation valves for Component Cooling Water heat exchangers HX-12C and HX-12D, respectively.

At the time of the Repair/Replacement Activities, PBNP was required to follow the 1986 Edition with no Addenda of Section XI. The current Inservice Inspection interval is being conducted in accordance with the 1998 Edition of ASME Section XI with Addenda through 2000.

A047

This letter contains no new commitments and no revisions to existing commitments.

for

Dennis L. Koehl
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
Mike Verhagen, Department of Commerce, State of Wisconsin

bcc:
A. Capristo
D. L. Koehl
M. J. Lorek
L. A. Schofield
G. R. Sherwood
File
D. E. Cooper
F. D. Kuester (P460)
J. H. McCarthy
J. G. Schweitzer
R. L. Turner
E. J. Weinkam III
H. J. Kocourek (OSRC)
K. M. Locke (2)
G. C. Packard
J. D. Shaw
D. A. Weaver (P346)

## ENCLOSURE 1

## RELIEF REQUEST 16
## REQUEST FOR RELIEF FROM THE PROVISIONS OF ASME SECTION XI, IWA-4422.2.2, "DEFECT REMOVAL FOLLOWED BY WELDING OR BRAZING"

Pursuant to 10 CFR 50.55a(a)(3)(ii), Nuclear Management Company, LLC (NMC), requests relief from the requirements of the 1998 Edition with Addenda through 2000 of Section XI, IWA-4422.2.2, "Defect Removal Followed by Welding or Brazing," for Point Beach Nuclear Plant (PBNP) Unit 1 and Unit 2. This request for relief is limited to three isolation valves in the Service Water (SW) system. The basis for the request is that compliance with the specified requirements is a hardship without a compensating increase in the level of quality and safety.

1. **ASME Code Components Affected**

   Service Water Valve 1SW-322, Component Cooling Water Heat Exchanger 1HX-12A SW Outlet Isolation Valve

   Service Water Valve SW-315, Component Cooling Water Heat Exchanger HX-12C SW Outlet Isolation Valve

   Service Water Valve 2SW-307, Component Cooling Water Heat Exchanger 2HX-12D SW Outlet Isolation Valve

2. **Applicable Code Edition and Addenda**

   1986 Edition of ASME Section XI, no Addenda, applied at the time of the initial repair (i.e., third ISI inspection interval).

   1998 Edition with Addenda through 2000 is the current applicable Code (i.e., fourth ISI inspection interval).

3. **Applicable Code Requirement**

   Initial repair was performed per the 1986 Section XI Code:

   IWD-4200, "Removal of Defects Including Preparations for Welding"
   (b)(1) After final grinding, the affected surfaces, including surfaces of cavities prepared for welding, shall be examined by the magnetic particle or liquid penetrant method to ensure that the indication has been reduced to an acceptable limit in accordance with IWA-3000...

Current repair rules under 1998 Edition with Addenda through 2000 require:

IWA-4422.2.2, "Defect Removal Followed by Welding or Brazing"
(a) *Surface* examination of the defect removal area is required prior to welding...
(b) The acceptance criteria of either the Construction Code or Section XI shall be used for the excavation.

4. **Reason for Request**

During the 1997 repair of SW system valve 1SW-322, weld repairs were performed on the inside surface to restore the wall thickness of the valve due to cavitation erosion. A magnetic particle or liquid penetrant (surface) examination was not performed on the areas where grinding occurred prior to the weld buildup. The lack of the surface examination was discovered during the NRC Safety System Design and Performance Capability Inspection conducted June 28 through July 16, 2004, and was documented in the PBNP Corrective Action Program under CAP057711 and CAP057799.

During the investigation of this incident, two additional SW valves were noted as having weld repairs performed in a similar manner: SW-315 and 2SW-307, the SW outlet isolation valves for Component Cooling Water heat exchangers HX-12C and HX-12D, respectively. The weld repairs performed on valves SW-315 and 2SW-307 were intended to build up eroded areas caused by cavitation.

The 12-inch Component Cooling Water heat exchanger SW outlet isolation valves, 1SW-322, SW-315, and 2SW-307, have experienced cavitation pitting. The pitting is localized and concentrated in the valve bodies downstream of the valve disks. A significant pressure drop occurs across the valve disk since the downstream SW return header operates at a vacuum. It is believed that a major portion of the existing pitting occurred in the first few years of plant operation when these large throttle valves were used for normal plant operations. After the first few years of plant operations, it was recognized there was potential for valve damage due to the long term, tight throttling application. Modification M-043 was implemented to install smaller bypass lines containing automatic Temperature Control Valves, bypassing the 12-inch throttle valves, for use during normal plant operation. Currently, the 12-inch valves are used only during RHR cooling operations, which are typically performed only during refueling outages.

The existing valves have been shown to be adequately performing their intended functions since 1997 as demonstrated by periodic ASME Section XI pressure tests. Performing the required examinations at this time will require additional repair or replacement of these SW system valves without a compensating increase in the level of quality and safety. To replace these valves, a full-core off-load is required.

Replacement would be selected over grinding out the currently untested weld buildup material in these valves since the accuracy of removing all weld material cannot be guaranteed.

Performing a repair or replacement activity when the valves are still adequately performing their pressure boundary function will not increase the safety margin of the plant.

5. **Proposed Alternative and Basis for Use**

NMC proposes to use the existing valves as-is. If future Repair/Replacement activities are performed on these valves, the applicable Repair/Replacement rules of Section XI will be followed.

The existing valves currently in place have been shown to perform adequately. There have been no through-wall leaks due to defects that may have been covered by the cavitation erosion welding repair or due to new or existing defects.

Ultrasonic wall thickness scans are taken on these valves per Preventive Maintenance Work Orders after each refueling outage. The inspection results are tracked under the SW Inservice Inspection Program, which contains acceptance criteria for allowed minimum wall thicknesses. Engineering reviews the inspection results against the acceptance criteria and initiates corrective actions (i.e. repair or replacement) for the valves prior to any minimum wall thickness criteria being exceeded.

The ultrasonic measurements performed under the SW Inservice Inspection Program to date have given reasonable assurance that the cavitation erosion has not resulted in the valve walls falling below the minimum required thicknesses. In addition, the required Section XI periodic pressure testing has shown no through-wall leakage has occurred.

Replacement of the valves is a significant effort that would require core offload or installation of Temporary Modifications for alternate SW return lines from each of the Component Cooling Heat Exchangers.

Complying with the specified requirements by replacing the valves is a hardship without a compensating increase in the level of quality and safety. Performing the specified examinations will require modification or removal of the SW system valves without a compensating increase in the level of quality and safety.

6. **Duration of Proposed Alternative**

The proposed duration of the relief request will be for the life of valves 1SW-322, SW-315, and 2SW-307. If the valves are found to be deteriorating such that minimum wall thicknesses are being approached, or a defect is found at any other time, repair or replacement will be completed in accordance with the applicable rules of ASME Section XI.