



Nuclear Management Company, LLC  
Point Beach Nuclear Plant  
6610 Nuclear Road  
Two Rivers, WI 54241

NPL 2000-0556

10 CFR 50.55a

January 8, 2001

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U.S. Nuclear Regulatory Commission  
Mail Station P1-17  
Washington, DC 20555-0001

Ladies/Gentlemen:

DOCKETS 50-266 AND 50-301  
ASME SECTION XI RELIEF REQUESTS  
UNITS 1 AND 2, RELIEF REQUEST PTP-3-10  
UNIT 2 RELIEF REQUEST RR-2-32  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

In accordance with the Point Beach Nuclear Plant (PBNP) Pressure Test Program, VT-2 visual examinations are performed on Class 1, 2 and 3 piping systems. The 1986 Edition of ASME XI requires systems borated for the purpose of controlling reactivity to have the insulation removed from pressure retaining bolted connections during VT-2 visual examinations. This has the potential to create a hazardous situation for personnel who handle the insulation and the examiners who perform the visual examinations. The 1986 Edition of ASME Section XI also requires a surface examination to be performed on reactor pressure vessel closure head nuts. This has the potential for creating additional damage to the nuts.

In accordance with 10 CFR 50.55(a)(3)(ii), PBNP requests as an alternative to the Section XI IWA-5242(a) Code requirement to use the requirements of ASME Code Case N-533-1, "Alternative Requirements for VT-2 Visual Examination of Class 1, 2 and 3 Insulated Pressure-Retaining Bolted Connections." Relief Request PTP3-10 (attached) provides detailed information.

In accordance with 10 CFR 50.55a(a)(3)(i.), PBNP requests an alternative to the Section XI Table IWB-2500-1 Code Category B-G-1, Item No. B6.10 surface examination requirement for reactor pressure vessel nuts by using the requirements of ASME Code Case N-627, "Visual Examination in Lieu of Surface Examination for RPV Closure Nuts Section XI, Division 1." Relief Request RR2-32 (attached) provides detailed information.

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Please contact us if there are any questions regarding these relief requests.

Sincerely,

A handwritten signature in black ink that reads "A.J. Cayia". The signature is written in a cursive style with a large, looping initial "A".

A.J. Cayia  
Plant Manager

FAF/jlk

Attachments (2)

Cc: NRC Resident Inspector  
NRC Regional Administrator  
NRC Project Manager  
PSCW

ATTACHMENT 1  
RELIEF REQUEST PTP-3-10

Components for Which Relief is Requested:

Class 1, 2 and 3 systems borated for the purpose of controlling reactivity.

ASME Section XI Requirements:

ASME Section XI, 1986 Edition

Article IWA-5242(a) – For systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for visual examination VT-2.

Relief Requested:

Relief is being requested from performing VT-2 examinations on bolted connections on systems borated for controlling reactivity during system pressure tests as required by 1986 Edition of ASME Section XI, Article IWA-5242(a).

Basis for Relief:

The ambient conditions during the installation of insulation on the Reactor Coolant System after VT-2 examinations at normal operating pressure and temperature (NOP/NOT) require heat stress work restrictions. Containment entries at NOP/NOT are physically demanding on personnel because of the adverse heat environment. Stay times for personnel in many areas are limited due to heat stress considerations and may require multiple containment entries to complete the reinstallation of insulation and removal of scaffolding. Ambient temperatures range up to 100°F in containment. Personnel are unnecessarily exposed to an adverse work environment without a compensating increase in the level of quality and safety. Performing the VT-2 visual examination using Code Case N-533-1 will detect evidence of leakage while maintaining personnel safety and examination quality at an appropriate level.

Historical data indicates personnel contamination increases with increasing environmental temperatures due to the profuse sweating caused by the elevated temperatures. Reinstalling contaminated insulating material under adverse conditions (e.g.; to piping that is up to 2235 psig and T avg. of 570°F) would negatively impact total personnel contamination events and expose personnel to unnecessary safety risk. Additionally, increased dose would be accumulated due to reduced examination efficiency as a result of the possibility of having to wear special protective equipment (e.g.; ice vest).

When performing the VT-2 visual examination of Class 2 and 3 systems, insulation removal would not normally be in areas where heat is a concern. However, the detection of leakage

would be noticed earlier in an outage if the insulation was removed for bolting examination. Correcting the problem would be on a more timely basis, lessening the impact on the outage.  
Alternate Requirement:

PBNP will use the alternative requirements of ASME Code Case N-533-1, "Alternative Requirements for VT-2 visual Examination of Class 1, 2 and 3 Insulated Pressure-Retaining Bolted Connections."

For Class 1 systems, the insulation shall be removed from the bolted connections and a VT-2 visual examination performed in accordance with the Code Case each refueling outage. For Borated Class 2 and 3 systems, insulation shall be removed from the bolted connections and a VT-2 visual examination performed in accordance with the Code Case each period. The connections will not be pressurized during the examination and any evidence of leakage will be evaluated in accordance with IWA-5250 or applicable relief requests.

Justification of Relief:

Code Case N-533-1 was approved for use by ASME on February 26, 1999, as an alternative to the Code requirements of IWA-5242(a). Performing the VT-2 examinations during a time when the system is at ambient temperatures enhances personnel safety. Use of this Code Case provides an acceptable level of quality and safety by the use of an alternate method of performing VT-2 examinations. This code Case meets the intent of Section XI requirements by requiring PBNP to examine bolted connections for evidence of leakage.

Implementation Schedule:

The alternative requirements of ASME Code Case N-533-1 will be used for the remainder of the Third 10-year ISI interval. PBNP will examine bolted connections on systems borated for the purpose of controlling reactivity in accordance with the requirements of Code Case N-533-1.

Attachment:

ASME Code Case N-533-1

ASME Code Case N-533-1

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: February 26, 1999

See Numeric Index for expiration and any reaffirmation dates.

Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure-Retaining Bolted Connections

Section XI, Division 1

Inquiry:

“What alternative requirements may be used in lieu of those of IWA-5242(a) to remove insulation from Class 1, 2, and 3 pressure-retaining bolted connections to perform a VT-2 visual examination?”

Reply:

“It is the opinion of the Committee that, as an alternative to the requirements of IWA-5242(a) to remove insulation from Class 1, 2, and 3 pressure-retaining bolted connections to perform a VT-2 visual examination, the following requirements shall be met.

- (a) A system pressure test and VT-2 visual examination shall be performed each refueling outage for Class 1 connections and each period for Class 2 and 3 connections without removal of insulation.
- (b) The insulation shall be removed from the bolted connection, each refueling outage for Class 1 connections and each period for Classes 2 and 3 connections, and a VT-2 visual examination shall be performed. The connection is not required to be pressurized. Any evidence of leakage shall be evaluated in accordance with IWA-5250.”

ATTACHMENT 2  
UNIT 2 RELIEF REQUEST RR-2-32

Components for Which Relief is Requested:

Class 1  
Reactor Pressure Vessel Closure Head Nuts

ASME Section XI Requirements:

ASME Section XI, 1986 Edition, Rules for Inservice Inspection of Nuclear Power Plant Components Table IWB-2500-1, Examination Category B-G-1  
Reactor Vessel, Item No. B6.10, Closure Head Nuts, surface examination method required

Relief Requested:

Relief is being requested from performing the surface examinations of Reactor Pressure Vessel (RPV) nuts as required by the 1986 Edition of ASME Section XI, Table IWB-2500-1 Code Category B-G-1, Item No. B6.10.

Basis for Relief:

The reactor pressure vessel closure head nut configuration is such that only the outside surface is readily available for surface examination. The threaded area on the inside of the nuts is very difficult to adequately clean for both liquid penetrant and magnetic particle examination. The cleaning and preparation of the nuts for surface preparation could result in additional damage due to their weight and the difficulty of moving them. Pooling of penetrant and magnetic particle material at the bottom of the nut (which must be placed on its side for examination) could mean additional cleaning time for proper examination of this area. Handling the nuts for additional examination may further damage them.

The 1986 Edition of Section XI does not provide acceptance criteria for Examination Category B-G-1 surface flaws found during the examinations. PBNP uses engineering evaluations on indications to determine a nut is acceptable for continued service. This results in additional handling (with the possibility of more damage) of the nuts as the engineers determine whether an indication is acceptable.

Beginning in the 1989 Addenda of ASME Section XI, the examination requirement for RPV closure head nuts was changed from surface to visual VT-1. In addition, the acceptance standards of IWB-3517 were adopted, which is the same standard as for Examination Category B-G-02 bolting. A review of later Codes and Addenda shows this examination technique and acceptance standard has not changed.

Conditions requiring corrective measures prior to placing the RPV closure head nuts back in service would include corrosion, damaged threads, or deformation. Surface examinations are qualified for the detection of linear indications, and surface examination acceptance criteria mentions only rejectable linear flaw lengths. The 1986 code does not provide acceptance criteria for linear indications found during surface examination of RPV closure head nuts, because the acceptance criteria were still being developed at the time the Code edition was published.

By using the IWB-3517 acceptance criteria, PBNP would have definite rules to follow for evaluation of indications found during examinations. The indications would be compared against published standards.

Footnote 3 of IWB-3517 clearly states what relevant conditions must be evaluated. This would preclude scratches, fabrication marks, roughness, etc. from being recorded (except as a general condition). These types of indications are often seen during surface examination, and may be considered non-relevant, which may require unnecessary repair and reexamination.

#### Alternate Requirement:

PBNP will use the alternative requirements of ASME Code Case N-627, "Visual Examination in Lieu of Surface Examination for RPV Closure Nuts Section XI, Division 1."

The acceptance criteria of the 1995 Edition of Section XI with Addenda through 1996, IWB-3517 will be used for the evaluation of indications noted during examinations.

#### Justification of Relief:

ASME approved Code Case N-627 for use on May 7, 1999, as an alternative to the requirements of Table IWB-2500-1, Code Category B-G-1, Item No. B6.10. The VT-1 visual examination acceptance criteria of IWB-3517 includes the requirements for evaluation of crack-like indications and other relevant conditions requiring corrective action, such as deformed or sheared threads, localized corrosion, deformation of part, and other degradation mechanisms.

The 1995 Edition of ASME Section XI with Addenda through 1996 includes a requirement to perform a VT-1 on RPV nuts instead of a surface examination. This Code Edition and Addenda have been approved for use in the latest revision to 10 CFR 50.55a.

The VT-1 visual examination provides a more comprehensive assessment of the condition of the closure head nut than a surface examination. By performing a VT-1 visual examination of the RPV closure head nuts in accordance with the Code Case that has the same requirements as the latest approved Section XI, an acceptable level of quality and safety is provided.

#### Implementation Schedule:

The alternative requirements of ASME Code Case N-627 and the acceptance criteria of IWB-3517 of the 1995 Section XI with Addenda through 1996 will be used for the remainder of the third 10-year ISI inspection interval.

Attachment:

ASME Code Case N-627

ATTACHMENT 2 (continued)  
ASME CODE CASE N-627

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: May 7, 1999

See Numeric Index for expiration and any reaffirmation dates.

Case N-627 Visual examination in Lieu of Surface Examination for RPV Closure Nuts Section XI, Division 1.

Inquiry:

“What alternative examination method may be used to examine RPV closure head nuts in lieu of the surface examination required by Table IWB-2500-1, Examination Category Item B6.10?”

Reply:

“It is the opinion of the Committee that a VT-1 visual examination may be used as an alternative to the surface examination required by Table IWB-2500-1, Examination Category B-G-1, Item B6.10.”