May 21, 2004

NRC 2004-0058
10 CFR 50.55a(a)(3)(ii)

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

Point Beach Nuclear Plant, Unit 1
Docket 50-266
License No. DPR-24
Supplement 3 to Reactor Vessel Closure Head Penetration Repair and Flaw Characterization Relief Requests MR 02-018-1, Revision 1 and MR 02-018-2, Revision 1

Reference:
(1) Letter from NMC to NRC dated May 13, 2004 (NRC 2004-0051)
(2) NRC Safety Evaluation dated September 10, 2003
(3) NRC Safety Evaluation dated September 24, 2003
(4) Letter from NMC to NRC dated May 15, 2004 (NRC 2004-0053)
(5) Letter from NMC to NRC dated May 20, 2004 (NRC 2004-0056)

In reference 1, Nuclear Management Company (NMC) LLC, licensee for Point Beach Nuclear Plant (PBNP), requested revision to the relief, granted in references 2 and 3, pertaining to reactor vessel closure head (RVCH) penetration repair and flaw characterization. References 4 and 5 provided supplemental information in support of the requested relief.

During a conference call between NRC staff and NMC personnel on May 20, 2004, the staff discussed examination requirements following removal of temporary weld attachments on Nozzle 26. Based on these discussions, NMC is hereby requesting relief, in accordance with 10 CFR 50.55a(a)(3)(ii), from certain requirements of the 1989 Edition of ASME Section III, No Addenda, pertaining to removal of temporary nonstructural attachments to the pressure retaining portion of a Class 1 component. Enclosure 1 to this letter contains the requested relief. As discussed in reference 1, NMC requests NRC review and approval of these relief requests on an exigent basis.

This submittal contains no new regulatory commitments.

/RA/

Gary D. Van Middlesworth
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

F-94

Enclosure: I - Request for Relief from ASME Section III – 1989, NB-4435

cc: Project Manager, Point Beach Nuclear Plant, USNRC
Regional Administrator, Region III, USNRC
NRC Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE I

SUPPLEMENT 3 TO REACTOR VESSEL CLOSURE HEAD PENETRATION REPAIR AND FLAW CHARACTERIZATION
RELIEF REQUESTS MR 02-018-1, REVISION 1 AND MR 02-018-2, REVISION 1

REQUEST FOR RELIEF FROM ASME SECTION III – 1989, NB-4435

POINT BEACH NUCLEAR PLANT, UNIT 1

Pursuant to 10 CFR 50.55a(a)(3)(ii), Nuclear Management Company, LLC (NMC), requests relief from the requirements of Paragraph NB-4435 of the 1989 Edition of ASME Section III, No Addenda, which applies to the removal of temporary nonstructural attachments to the pressure retaining portion of a Class 1 component. The intent of this requirement is to ensure that there are no flaws that remain in the Class 1 pressure boundary following installation and removal of the temporary attachment weld. A nozzle extension was temporarily attached to RVCH penetration 26 to support repairs. This extension was tack welded to the original J-groove weld, and the requirements of Paragraph NB-4435 would apply to the removal of this extension.

IDENTIFICATION

Point Beach Unit 1
ASME Class 1 component
Reactor Vessel Closure Head (RVCH) Penetration 26

CODE REQUIREMENT

The 1998 Edition of ASME Section XI, 2000 Addenda, Paragraph IWA-4221, stipulates the following:

(a) "An item to be used for repair/replacement activities shall meet the applicable Owner's Requirements..."
(b) "An item to be used for repair/replacement activities shall meet the Construction Code specified in accordance with (1), (2), or (3) below."
  (2) When adding a new item to an existing system, the Owner shall specify a Construction Code that is no earlier than the earliest Construction Code used for construction or any originally installed item in that system.
(c) "As an alternative to (b) above, the item may meet all or portions of the requirements of different Editions and Addenda of the Construction Code... All or portions of later different Construction Codes may be used..."

The Design Specification for Point Beach Unit 1 RVCH (Owner's Requirement) is Westinghouse equipment specification G-676243, dated May 5, 1966. The Original Construction Code for the Point Beach Unit 1 RVCH ASME Section III, 1965 Edition.

The repairs to the Unit 1 RVCH are being performed in accordance with the 1989 Edition of ASME Section III, No Addenda, and the 1998 Edition of ASME Section XI, 2000 Addenda.

Paragraph NB-4435 of the 1989 Edition of ASME Section III (as amended by 1992 Errata) states the following:

> (b) "Removal of nonstructural attachments, when temporary, shall be accomplished as follows."
>
> (2) "The temporary attachment is completely removed is accordance with the procedures of NB-4211."
>
> (3) "After the temporary attachment has been removed, the marked area is examined by the liquid penetrant or magnetic particle method in accordance with the requirements of NB-5110, and meets the acceptance standards of NB-5340 or NB-5350, whichever is applicable."

RELIEF REQUESTED

NMC requests relief from Paragraph NB-4435 of the 1989 Edition of ASME Section III, which requires that a Liquid Penetrant Test (PT) examination be performed following removal of temporary nonstructural attachments to the pressure retaining portion of a Class 1 component. This relief request is specific to performance of a PT examination following removal of a tack weld from the J-groove weld remnant on Unit 1 RVCH penetration 26.

BASIS FOR RELIEF

The temporary tack welds on the original J-groove weld on Unit 1 RVCH penetration 26 will be removed in accordance with Paragraph NB-4435(b)(2). Following removal of the temporary tack welds, Paragraph NB-4435(b)(3) would require that a PT examination be performed. Since the J-groove weld remnant on penetration 26 is not credited as having a pressure retaining function in the post repair configuration, no action would be required in response to any PT indications. Extensive flaw propagation analysis has been performed assuming a worst case flaw in the J-groove weld.

Performing the PT examination is a hardship due to the radiation dose that would be incurred by performing a PT that serves no useful purpose. A review of the dose received performing PT examinations on this nozzle to date show that dose accumulation has been as high as 522 millirem for one examination. Additionally, this PT is not warranted to assure integrity of the repair weld since performing the PT examination will only determine if a potential through-wall crack exists (which is assumed in the repair analysis). Since a through-wall crack in the weld remnant is

already postulated in the analysis of the weld repair, this examination will not provide an additional level of quality and safety.

ALTERNATIVE DOCUMENTATION AND REQUIREMENTS

NB-4435 requires a PT examination to be performed following removal of a temporary nonstructural tack weld. In lieu of this requirement, a conservative worst-case flaw has been assumed to exist in this weld that extends from the surface of the weld to the RVCH low alloy steel base material. Fatigue crack growth analysis was performed based on that flaw to establish the minimum remaining service life of the RVCH. This analysis has confirmed that the life of the repair is in excess of one cycle, and the postulated J-groove weld flaw is not the most limiting for repair life.

JUSTIFICATION OF RELIEF

The remaining portion of the original J-groove weld is no longer credited as part of the pressure retaining portion of the reactor vessel head; therefore, it is no longer subject to ASME Section III requirements. Consequently, the requirements of NB-4435 of ASME Section III – 1989, would not be considered to apply to the removal of the tack weld on Nozzle 26. Although the weld is physically attached to the pressure retaining portion, the weld does not perform a pressure retaining function.

Following the repair, the Alloy 52 partial penetration weld becomes the new pressure boundary weld. The remaining portion of the original J-groove weld is assumed, in the ASME Section XI flaw analysis, to contain a crack equal to the depth of the weld. This weld, with a crack assumed to extend from the weld surface to the low alloy steel (or to the new Alloy 52 weld in the case of an overlap), is assumed to no longer comply with Section III. This would apply equally to the situation where the new weld overlaps the original weld, since the subject tack weld will not be in the overlapped region of the J-groove weld. Since the J-groove weld is no longer considered a pressure retaining portion of the component, the requirements of NB-4435 should not be applied.

Performance of a PT examination on the J-groove weld remnant on Unit 1 RVCH penetration 26 would serve no purpose in this situation. If a PT examination were to be performed, flaw acceptance criteria would need to be developed. Indications in the J-groove weld extending to the low alloy RVCH base material would be acceptable since a crack equal to the depth of the weld has been postulated in the analysis. It would not be appropriate to apply ASME Section III acceptance criteria to the PT examination since the J-groove weld no longer meets ASME Section III applicability requirements. The information gained from performing the PT examination is deemed to be of no value and would not justify the personnel exposure associated with performing the exam. Therefore, there is no benefit to performing a PT examination and it is not appropriate to incur personnel dose to perform such a test.

In conclusion, the PT examination required by Paragraph NB-4435(b)(3) of the 1989 Edition of ASME Section III, No Addenda, is not necessary. PT examinations do not need to be performed on the locations of the penetration 26 original J-groove weld where temporary tack welds were removed. Based on the above, there is no technical basis requiring performance of a PT examination on the J-groove weld remnant on Unit 1 RVCH penetration 26.

IMPLEMENTATION SCHEDULE

This relief request is intended to cover removal of temporary nonstructural attachments associated with repair activities on RVCH penetration 26 during the Unit 1 spring refueling outage that began in April 2004.