

July 27, 2004

Mr. D. L. Koehl
Site Vice President
Nuclear Management Company, LLC
6610 Nuclear Road
Point Beach Nuclear Plant
Two Rivers, WI 54241

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, LICENSE RENEWAL
APPLICATION (TAC. NOS. MC2099 and MC2100)

Dear Mr. Koehl:

By letter dated February 25, 2004, Nuclear Management Company, LLC (NMC or the applicant) submitted an application pursuant to 10 CFR Part 54, to renew the operating licenses for Point Beach Nuclear Plant, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC). The NRC staff is reviewing the information contained in the license renewal application (LRA) and has identified, in the enclosure, areas where additional information is needed to complete the review. Specifically, the enclosed requests for additional information (RAIs) are from Section 3.5, Aging Management of Containments, Structures, and Component Supports, and Section 4.5, Loss of Preload.

These RAIs, in a draft format, have been provided to Mr. Jim Knorr of your staff on June 10, 2004. The NRC staff has discussed draft versions of these RAIs, via a telephone conference call, to provide clarifications to the NMC staff on June 24, 2004. Your responses to these RAIs are requested within 30 days from the date of this letter. Mr. Knorr has agreed to this request. If needed, the NRC staff is willing to meet or discuss with NMC again prior to the submittal of the applicant's responses to provide clarifications to the staff's RAIs.

If you have any questions, please contact me at 301-415-2232 or e-mail mjm2@nrc.gov.

Sincerely,

/RA/

Michael J. Morgan, Project Manager
License Renewal Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266 and 50-301

Enclosure: As stated

cc w/enclosure: See next page

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License Renewal Section A
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**REQUEST FOR ADDITIONAL INFORMATION
POINT BEACH NUCLEAR PLANT, UNITS 1 & 2
LICENSE RENEWAL APPLICATION**

RAI 3.5-1

In discussing Item Number 3.5.1-3 (Table 3.5.1) of the LRA, the applicant asserts that the Point Beach Nuclear Plant (PBNP) aging management review (AMR) results are consistent with NUREG-1801. NUREG-1801 under Item A3.1 (Page II A3.6) recommends further evaluation regarding the stress corrosion cracking of containment bellows. The applicant is requested to provide additional information regarding the containment pressure boundary bellows at PBNP, relevant operating experience, and method(s) used to detect their age related degradation.

Note: In many cases, VT-3 examination of IWE, and Type B, Appendix J testing cannot detect such aging effects (See NRC Information Notice 92-20).

RAI 3.5-2

For seals and gaskets related to containment penetrations, in Item Number 3.5.1-6 of the LRA, containment ISI including containment leak rate testing have been stated as the aging management programs. For equipment hatches and air-locks at PBNP, the staff agrees with the applicant's assertion that the leak rate testing program will monitor aging degradation of seals and gaskets, as they are leak rate tested after each opening. For other penetrations (mechanical and electrical) with seals and gaskets, the applicant is requested to provide information regarding the adequacy of Type B leak rate testing frequency to monitor aging degradation of seals and gaskets at PBNP.

RAI 3.5-3

In Section 3.5.2.2.1.3, and in Item 9) of Table 3.5.0-1 (plant-specific response to WCAP-14756-A), the applicant asserts that the concrete temperatures around the high energy piping penetrations are well below the established threshold value of 200°F. However, PB OPR 000096 indicated that the concrete temperatures around the main steam and feed water lines were found to be about 380°F for an unknown period of time. Such sustained temperatures not only affect the concrete compressive strength and its elastic modulus, but they also accentuate the concrete creep and relaxation of prestressing tendons located in the vicinity of high temperature areas. The net effect could be lower tendon forces in these areas. The applicant is requested to provide information regarding the actions taken: (1) to control the concrete temperatures in this areas, (2) to assess the condition of the concrete in these areas, (3) to assess the condition of penetration liners, and (4) to monitor the prestressing forces in the affected tendons. Also, the applicant is requested to discuss the consequences of the sustained high temperatures on the concrete and the prestressing tendons during the extended period of operation.

RAI 3.5-4

In discussion of Item 3.5.1-12 in Section 3.5.2.2.1.4, the applicant notes that the liner corrosion has been found in both the PBNP Units due to borated water leakage, and that the applicant is performing Subsection IWE augmented inspections in this areas. The applicant is requested to

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provide a quantitative summary of extent of liner corrosion found in each unit, and the corrective actions taken. The applicant is requested to include a discussion of acceptable liner plate corrosion before it is reinstated to its nominal thickness.

RAI 3.5-5

The further evaluation in Section 3.5.2.2.1.3 associated with line Item 3.5.1-27 (Table 3.5.1) of the LRA indicates that the reactor cavity cooling sub-system maintains acceptable ambient temperature at the primary shield and reactor vessel support structure. The applicant is requested to provide the following information related to the concrete temperatures and monitoring activities in the primary shield and reactor vessel support areas for PBNP Units 1 and 2:

- a. The operating experience related to the functioning of the reactor cavity cooling sub-system including a range of temperatures maintained between the reactor vessel and the primary shield wall, and at the reactor vessel support, and means of monitoring these temperatures;
- b. If a separate cooling system is installed to cool the primary shield wall concrete, provide the operating experience related to the functioning of this system, and means used to monitor the primary shield concrete temperatures; and
- c. A summary of the results of the last inspection performed in these areas, such as concrete cracking, spalling, pop-outs, etc.

RAI 3.5-6

Section 3.5.2.2.2.1, "Aging of Structures Not Covered by Structures Monitoring Program," of the LRA (Page 3.5-385) states that since the embedded steel is not exposed to an environment which is considered aggressive, loss of material, cracking, and loss of bond due to corrosion of embedded steel are not probable aging effects at PBNP and have not been observed to date. Based on the staff's past review experience, many cases of corroded embedded steel (rebars and/or anchors) were identified even the reinforced concrete elements exposed to the environment which is not aggressive. The applicant is requested to provide basis for its statement.

RAI 3.5-7

Regarding the aging mechanism related to settlement, Section 3.5.2.2.2.1, "Aging of Structures Not Covered by Structures Monitoring Program," of the LRA (Page 3.5-386) states that all structures at PBNP are either founded on spread footings, basemats, or basemats with steel foundation piles that are driven to refusal. Settlement monitoring and structural inspections indicate no visible evidence of uneven or excessive settlement since construction of the station. Therefore, the applicant concludes that cracking, distortion, and an increase in component stress levels due to settlements are not probable aging effects at PBNP and have not been observed to date.

Based on the staff's experience, as long as the structural foundations are founded on soils, even with spread footings, basemats, or basemats with steel piles driven to the refusal, etc., it is expected that settlements will occur, especially for the sandy soil. These settlements, in most cases, cannot be detected by visual inspection. The applicant is requested to provide additional information and clarify that the statement, "settlement monitoring and structural inspections indicate no visible evidence of uneven or excessive settlement since construction of the station," is based on the measurement instead of visual observation or judgment. Otherwise, there is a need for the further evaluation of aging management as recommended by NUREG-1801.

RAI 3.5-8

Section 3.5.2.2.2.2, "Aging Management of Inaccessible Areas," of the LRA (Page 3-387) states that since the below-grade/lake water environment is non-aggressive and the structures monitoring program requires periodic monitoring of ground/lake water to verify chemistry remains non-aggressive, the loss of material and change in material properties due to aggressive chemical attack are not probable aging effects at PBNP. Also, since the embedded steel is not exposed to an environment which is considered aggressive, loss of material, cracking, and loss of bond due to corrosion of embedded steel are not probable aging effects at PBNP. The staff agrees with this statement only for the case of uncracked reinforced concrete elements. However, the inaccessible concrete components such as exterior walls below grade and embedded structural foundations may crack due to settlement and corrosion of reinforcing steel may be expected. The applicant is requested to provide additional information to justify the validity of the LRA statement.

RAI 3.5-9

Item 3.5.1-21 of LRA Table 3.5.1, "Summary of Aging Management Evaluations in Chapters II and III of NUREG-1801 for Structures and component Supports," states that the aging management program will be plant-specific, and the "Discussion" column of the table refers to LRA Section 3.5.2.2.2.2. However, there is no plant-specific aging management program described in this LRA section. Clarification is needed by the applicant.

RAI 3.5-10

In Section 3.5.2.2.2.1, "Aging of Structures Not Covered by Structures Monitoring Program," of the LRA (Page 3-385), the applicant stated that the Structures Monitoring Program requires periodic monitoring of ground/lake water to verify chemistry remains non-aggressive. However, our review of the Structures Monitoring Program (Item B2.1.20 of Appendix B to the LRA) found that there is no program commitment to monitor the ground/lake water chemistry. Therefore, the applicant is requested to clarify this inconsistency.

RAI 3.5-11

In LRA Table 3.5.2-2, the applicant indicates that aging effects (changing material properties and loss of material of all wood/door with the intended function of missile barrier are to be managed by Structures Monitoring Program. However, the staff's review of Item B2.1.20 of Appendix B to the LRA found that the scope of the Structures Monitoring Program does not

include wood components. The applicant is requested to clarify how these aging effects are to be managed.

RAI 4.5-1

The use of 10 CFR 54.21(c)(1)(ii) and (iii) is appropriate for concrete containment tendon prestress TLAA. However, the staff need to assess the plant specific operating experience regarding the residual prestressing forces in the containments and the methods used to arrive at the projected prestresses forces. Based on the analysis performed as per 10 CFR 54.21(c)(1)(ii), the applicant is requested to provide the following information:

- a. The estimated upper and lower bound lines, and the minimum required prestressing forces for each group of tendons for each containment.
- b. Trend lines of the projected prestressing forces for each group of tendons based on the regression analysis of the measured prestressing forces (see NRC Information Notice 99-10 for more information). Also, show the actual measured prestressing forces that were used to obtain the trend lines.
- c. Plots showing comparisons of prestressing forces projected to 40 years and 60 years with the minimum required prestress (or MRV) for each group of tendons for each containment.

RAI 4.5-2

In Section 15.3.1 of Appendix A of the LRA, the applicant notes the “Prestressed Concrete Containment Tendon Surveillance Program,” as an activity related to this TLAA. The applicant’s description is qualitative. For the summary to be meaningful, as a minimum, the applicant should provide a Table showing the minimum required prestressing forces and the projected (to 60 years) prestressing forces for each group of tendons which would demonstrate the validity of the program and the corresponding TLAA results. The applicant is requested to supplement this information in Section 15.3.1 of Appendix A of the UFSAR Supplement.