

January 28, 2005

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10 CFR 54

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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Point Beach Nuclear Plant, Units 1 and 2  
Dockets 50-266 and 50-301  
License Nos. DPR-24 and DPR-27

Response to Request for Additional Information  
Regarding the Point Beach Nuclear Plant License Renewal Application  
(TAC Nos. MC2099 and MC2100)

By letter dated February 25, 2004, Nuclear Management Company, LLC (NMC), submitted the Point Beach Nuclear Plant (PBNP) Units 1 and 2 License Renewal Application (LRA). On January 12, 2005, the Nuclear Regulatory Commission (NRC) requested additional information regarding the Pre-Stressed Concrete Containment Tendon Surveillance Program (LRA Section B3.3). Enclosure 1 to this letter contains NMC's response to the staff's questions.

Should you have any questions concerning this submittal, please contact Mr. James E. Knorr at (920) 755-6863.

Summary of Commitments

This letter makes the following new commitments:

1. The title of the "Pre-stressed Concrete Containment Tendon Surveillance Program" will be changed as part of the LRA annual update to the "Pre-Stressed Concrete Containment Tendon Force Monitoring Program."
2. The "Corrective Actions" element of the "Pre-Stressed Concrete Containment Tendon Force Monitoring Program" will be revised as part of the LRA annual update to include a requirement that corrective actions will include systematic retensioning of the tendons or a reanalysis of the containment, if warranted, to ensure the design adequacy of the containment.

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I declare under penalty of perjury that the forgoing is true and correct. Executed on  
January 28, 2005.

A handwritten signature in black ink, appearing to read "Dennis L. Koehl". The signature is fluid and cursive, with the first name "Dennis" written in a larger, more prominent script than the last name "Koehl".

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  
PSCW

## ENCLOSURE

### RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 LICENSE RENEWAL APPLICATION

The following information is provided in response to the Nuclear Regulatory Commission (NRC) staff's request for additional information (RAI) regarding the Point Beach Nuclear Plant (PBNP) License Renewal Application (LRA).

The NRC staff's questions are restated below, with the Nuclear Management Company (NMC) response following.

#### **Appendix B3.3 Pre-Stressed Concrete Containment Tendon Surveillance Program**

##### **NRC Question RAI B3.3-1**

Scope of Program: The title of the program is "Prestressed Concrete Containment Tendon Surveillance Program," that includes inspection of tendon wires, tendon corrosion protection medium, tendon anchorages, and monitoring of tendon prestressing forces. The "scope" element only includes monitoring of tendon prestressing forces part of the tendon surveillance. For the sake of consistency with the scope, the title of the program should be "Pre-stressed Concrete Containment Tendon Force Monitoring Program." The applicant is requested to discuss this inconsistency.

##### **NMC Response**

The overall surveillance program for pre-stressed concrete containment tendons does include inspection of tendon wires, tendon corrosion protection medium, tendon anchorages, and monitoring of tendon pre-stressing forces. All of these elements are included in the ASME Section XI, Subsections IWE and IWL, Inservice Inspection Program, as described in LRA Section B2.1.2. The Pre-Stressed Concrete Containment Tendon Surveillance Program (LRA Section B3.3) is a confirmatory program that monitors the loss of containment pre-stressing forces in containment tendons throughout the plant life, including the period of extended operation, by performing an assessment of the results of the tendon pre-stressing force measurements in accordance with ASME Section XI, Subsection IWL. Therefore, the title of this program will be changed as part of the LRA annual update to the "Pre-Stressed Concrete Containment Tendon Force Monitoring Program" to be consistent with the intent and scope of this program.

##### **NRC Question RAI B3.3-2**

Preventive Actions: In order to ensure that the tendon prestressing forces are not affected by age related degradation, it is essential that the tendons and their

anchorages are not prone to corrosion. Ensuring the coverage of the tendons by qualified corrosion protection medium and preventing ingress of water from the anchorage areas are the preventive measures. The staff recognizes that these aspects are covered under IWL inspections, the preventive measures need be identified in this program, may be through referencing Sections of B2.1.2 Program. The applicant is requested to justify the lack of this discussion in this program element.

### **NMC Response**

As discussed in the previous NMC Response to RAI B3.3-1, the ASME Section XI, Subsections IWE and IWL, Inservice Inspection Program (as described in LRA Section B2.1.2) includes the inspection of tendon wires, tendon corrosion protection medium, tendon anchorages, and monitoring of tendon pre-stressing forces. The renamed Pre-Stressed Concrete Containment Tendon Force Monitoring Program (LRA Section B3.3) is a confirmatory program that monitors the loss of pre-stressing forces in containment tendons throughout the plant life, including the period of extended operation, by performing an assessment of the results of the tendon pre-stressing force measurements in accordance with ASME Section XI, Subsection IWL. Maintaining the pre-stressing force above the minimum required value will ensure that the structural and functional adequacy of the containment is maintained, which is consistent with the "Preventive Actions" statement in NUREG-1801, Section X.S1.

The Pre-Stressed Concrete Containment Tendon Force Monitoring Program does not ensure the coverage of the tendons by a qualified corrosion protection medium or prevent ingress of water from the anchorage areas. However, these preventive actions are already part of the ASME Section XI, Subsections IWE and IWL, Inservice Inspection Program and therefore no preventive actions associated with the Pre-Stressed Concrete Containment Tendon Force Monitoring Program are deemed to be necessary.

### **NRC Question RAI B3.3-3**

The staff finds a reference to 10 CFR 50, Appendix B, and Section 1.4 of the PBNP FSAR acceptable as corrective action process and documentation requirements for "Corrective Actions" program element. However, Section X.S1 of NUREG-1801, which has been quoted as reference for this program, recommends the corrective actions to be taken as follows: "If acceptance criteria are not met, then either systematic retensioning of tendons, or a reanalysis of the containment is warranted to ensure the design adequacy of the containment." The applicant is requested to provide information to justify why the program specific corrective actions should not be added to this element description.

## **NMC Response**

As included in the LRA the "Acceptance Criteria" element of the Pre-Stressed Concrete Containment Tendon Force Monitoring Program (LRA Section B3.3) is described as follows:

### **Acceptance Criteria**

An evaluation is required if the acceptance criteria of ASME Section XI, Subsection IWL is not met, or if the trend indicates that tendon force(s) would be less than the MRV before the next scheduled inspection, as required by 10 CFR 50.55a(b)(2)(viii)(B).

This element is consistent with the corresponding NUREG-1801 aging management program element.

The description of the "Corrective Actions" element of the Pre-Stressed Concrete Containment Tendon Force Monitoring Program will be revised as part of the annual update as follows:

### **Corrective Actions**

Corrective actions are implemented in accordance with the requirements of 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and ANSI N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," as committed in Section 1.4 of the PBNP Final Safety Analysis Report (FSAR).

Corrective actions will include systematic retensioning of the tendons or a reanalysis of the containment, if warranted, to ensure the design adequacy of the containment.

This element is consistent with the corresponding NUREG-1801 aging management program element.

This revised "Corrective Actions" element is consistent with the "Corrective Actions" element of Section X.S1 of NUREG-1801.

## **NRC Question RAI B3.3-4**

In Section 15.3.1 of Appendix A of the LRA, the applicant summarizes the program, together with the relevant time limited aging analysis (Section 4.5 of the LRA). 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 the UFSAR Supplement.

**NMC Response**

On July 27, 2004, the NRC staff requested additional information regarding Sections 3.5 and 4.5 of the LRA for PBNP. Specifically, NRC Question RAI 4.5-2 is essentially the same as RAI B3.3-4. NMC responded to RAI 4.5-2 by letter NRC 2004-0086 dated August 26, 2004, which is restated below with the addition of the Unit-Stress Basis values projected to the end of the period of extended operation in accordance with 10 CFR 54.21(c)(1)(ii).

The minimum required pre-stressing forces are interpreted to mean the "final effective stress" at 60 years as discussed in the FSAR. The final effective stress was chosen to be the same value for 40 or 60 years. Tabulated below are the final effective stress requirements and the projected pre-stressing forces (at 40 and 60 years) for each group of tendons. Note this 40 and 60 year information is based upon a draft calculation. If the final approved calculation comes to a different conclusion, NMC will provide that information.

**Unit 1**

Tendon Type	Projected Pre-stressing Force Trend Line Values for Unit 1						Final Effective Stress (kips/in <sup>2</sup> ) (c)
	40 Years			60 Years			
	Per Wire Basis (kips) <sup>(a)</sup>	Per Tendon Basis (kips) <sup>(b)</sup>	Unit-Stress Basis (kips/in <sup>2</sup> )	Per Wire Basis (kips) <sup>(a)</sup>	Per Tendon Basis (kips) <sup>(b)</sup>	Unit-Stress Basis (kips/in <sup>2</sup> )	
Dome	7.05	634.3	143.6	6.99	629.4	142.5	137.4
Hoop	7.09	637.9	144.4	7.04	634.1	143.5	134.5
Vertical	7.35	661.6	149.7	7.31	658.0	148.9	140.6

**Unit 2**

Tendon Type	Projected Pre-stressing Force Trend Line Values for Unit 2						Final Effective Stress (kips/in <sup>2</sup> ) (c)
	40 Years			60 Years			
	Per Wire Basis (kips) <sup>(a)</sup>	Per Tendon Basis (kips) <sup>(b)</sup>	Unit-Stress Basis (kips/in <sup>2</sup> )	Per Wire Basis (kips) <sup>(a)</sup>	Per Tendon Basis (kips) <sup>(b)</sup>	Unit-Stress Basis (kips/in <sup>2</sup> )	
Dome	6.91	620.5	140.4	6.81	612.0	138.5	137.4
Hoop	6.96	624.3	141.3	6.86	615.0	139.2	134.5
Vertical	7.12	640.9	145.1	7.05	634.3	143.6	140.6

(a) The area per wire is  $A_w = 0.0490874$  sq-in.

(b) Each tendon has a nominal 90 wires per tendon.

(c) Reference, FSAR, Section 5.1.2.4, page 5.1-61.

The final effective stress values presented are the values found on page 5.1-61 of the FSAR, Section 5.1.2.4, therefore Section 15.3.1 of Appendix A of the LRA does not require revision.