March 11, 2003

Mr. Thomas Coutu
Site Vice President and Interim Plant Manager
Kewaunee Nuclear Power Plant
Nuclear Management Company, LLC
N490 State Highway 42
Kewaunee, WI 54216

SUBJECT: KEWAUNEE NUCLEAR POWER PLANT - ISSUANCE OF AMENDMENT (TAC NO. MB5717)

Dear Mr. Coutu:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 165 to Facility Operating License No. DPR-43 for the Kewaunee Nuclear Power Plant. This amendment revises the technical specifications (TS) in response to your application dated July 26, 2002, as supplemented December 19, 2002.

The amendment revises TS 1.0, "Definitions," TS 2.1, "Safety Limits, Reactor Core," TS 2.3, "Limiting Safety System Settings, Protective Instrumentation," TS 3.1, "Reactor Coolant System," TS 3.8, "Refueling Operations," TS 3.10, "Control Rod and Power Distribution Limits," TS 6.9, "Reporting Requirements," and their associated Bases. These modifications allow the licensee to implement a Core Operating Limits Report (COLR) by relocating cycle-specific, reactor coolant system-related parameter limits from the TSs to the COLR. In addition, the amendment makes administrative changes to the above TSs.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

/RA/

John G. Lamb, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-305

Enclosures: 1. Amendment No. 165 to License No. DPR-43
2. Safety Evaluation

cc w/encls: See next page

March 11, 2003

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John G. Lamb, Project Manager, Section 1
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Docket No. 50-305
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2. Safety Evaluation
cc w/encls: See next page

ADAMS ACCESSION NOs:
Letter: ML030700456
TS pages: ML030720061
Attachment to SE: ML030720049
Package: ML030710424

*See memo F. Akstulewicz to J. Lamb, dated 01/31/03

OFFICE	PM:PD3-1	LA:PD3-1	SC:SRXB	OGC	SC:PD3-1
NAME	JLamb	THarris	FAkstulewicz*	RHoefing	LRaghavan
DATE	02/25/03	02/25/03	01/31/03	03/04/03	03/07/03

OFFICIAL RECORD COPY

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-305

KEWAUNEE NUCLEAR POWER PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 165
License No. DPR-43

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Nuclear Management Company, LLC (NMC or the licensee), dated July 26, 2002, as supplemented December 19, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-43 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 165, are hereby incorporated in the license. The licensees shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance, and is to be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

L. Raghavan, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 11, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 165

FACILITY OPERATING LICENSE NO. DPR-43

DOCKET NO. 50-305

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contains marginal lines indicating the areas of change.

REMOVE	INSERT
TS i	TS i
TS ii	TS ii
TS iv	TS iv
TS vi	TS vi
TS 1.0-4	TS 1.0-4
TS 1.0-6	TS 1.0-6
TS 2.1-1	TS 2.1-1
TS Figure 2.1-1	TS Figure 2.1-1
TS 2.3-2 through TS 2.3-3	TS 2.3-2 through TS 2.3-3
TS 3.1-1 through TS 3.1-2	TS 3.1-1 through TS 3.1-2
TS 3.1-4 through TS 3.1-10	TS 3.1-4 through TS 3.1-10
TS 3.8-1 through TS 3.8-2	TS 3.8-1 through TS 3.8-2
TS 3.10-1 through TS 3.10-7	TS 3.10-1 through TS 3.10-7
TS Figure 3.10-1 through TS Figure 3.10-6	TS Figure 3.10-1 through TS Figure 3.10-6
TS 6.9-3 through TS 6.9-5	TS 6.9-3 through TS 6.9-5
TS B 2.1-1	TS B 2.1-1
TS B 2.3-1	TS B 2.3-1
TS B 3.1-1 through TS B 3.1-3	TS B 3.1-1 through TS B 3.1-3
TS B 3.1-5	TS B 3.1-5
TS B 3.1-7	TS B 3.1-7
TS B 3.1-9 through TS B 3.1-13	TS B 3.1-9 through TS B 3.1-13
TS B 3.8-1 through TS B 3.8-2	TS B 3.8-1 through TS B 3.8-2
TS B 3.10-1 through TS B 3.10-7	TS B 3.10-1 through TS B 3.10-7

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO AMENDMENT NO. 165 TO FACILITY OPERATING LICENSE NO. DPR-43

NUCLEAR MANAGEMENT COMPANY, LLC

KEWAUNEE NUCLEAR POWER PLANT

DOCKET NO. 50-305

1.0 INTRODUCTION

In a letter dated July 26, 2002, as supplemented December 19, 2002 (Ref. 1 and 2), Nuclear Management Company, LLC (NMC or the licensse) requested a license amendment to revise Kewaunee Nuclear Power Plant (KNPP) Technical Specification (TSs). The proposed changes would revise TS 1.0, "Definitions," TS 2.1, "Safety Limits, Reactor Core," TS 2.3, "Limiting Safety System Settings, Protective Instrumentation," TS 3.1, "Reactor Coolant System," TS 3.8, "Refueling Operations," TS 3.10, "Control Rod and Power Distribution Limits," TS 6.9, "Reporting Requirements," and their associated Bases. These modifications would allow the licensee to implement a Core Operating Limits Report (COLR) by relocating cycle-specific, reactor coolant system-related parameter limits from the TSs to the COLR. Included in the submittal, the licensee also proposed administrative changes to the above TSs.

The supplemental information dated December 19, 2002, contained clarifying information and did not change the scope of the July 26, 2002, application nor the initial no significant hazards consideration determination and did not expand the scope of the original *Federal Register* notice.

2.0 REGULATORY EVALUATION

In an effort to limit cycle-specific TS changes, the Nuclear Regulatory Commission (NRC) introduced Generic Letter (GL) 88-16 (Ref. 3), which provides guidance for moving cycle-specific parameter limits from the TSs to the COLR. GL 88-16 allows for relocation of parameters including moderator temperature coefficient, shutdown bank insertion limits, control bank insertion limits, axial flux difference limits, nuclear heat flux hot channel factor limit, nuclear enthalpy rise hot channel factor limit, refueling boron concentration limit, and shutdown margin. Furthermore, the NRC approved WCAP 14483-A, "Generic Methodology for Expanded Core Operating Limits Report" (Ref. 4). This methodology also allows for the relocation of cycle specific, departure from nucleate boiling ratio (DNBR) related parameter limits, i.e. reactor coolant system flow, temperature, and pressure. However, to facilitate this relocation, the licensee must add the DNBR design limit and the fuel centerline melt temperature limit to the TSs. The licensee also must retain the minimum reactor coolant flow design limit in the TSs.

3.0 TECHNICAL EVALUATION

The licensee proposed the following TS changes:

1. TS 1.0.q, "Core Operating Limits Report," would be added to identify the formal report for relocation of cycle-specific parameter limits. This change follows the intent of GL 88-16; therefore, the NRC staff finds it acceptable.

2. The definition for shutdown margin is being moved from TS 3.10.a, "Shutdown Reactivity," to TS 1.0.r, "Shutdown Margin (SDM)." Placing SDM in the definitions section allows KNPP to more closely follow the industry standard in the NUREG 1431, Vol. 1, Rev. 2, "Standard Technical Specifications, Westinghouse Plants" (Ref. 5). Since this change is administrative in nature and has no effect on plant safety, the NRC staff finds it acceptable.

3. TS 2.1, "Safety Limits, Reactor Core," would be revised to state that during operating and hot standby modes, the DNBR limit shall be maintained greater than or equal to 1.14 and the peak fuel centerline temperature shall be maintained less than 4700 ^{o}F. Additionally, the licensee proposed deleting the cycle specific limits of TS Figure 2.1-1, "Safety Limits Reactor Core - Minimum Coolant System Flow," and moving them to the COLR. Therefore, the more specific requirements regarding the safety limits (DNBR and fuel centerline temperature) would replace the cycle-specific limits in accordance with WCAP-14483-A. Since the proposed changes comply with WCAP-14483-A, the NRC staff finds them acceptable.

4. TS 2.3, "Limiting Safety System Settings, Protective Instrumentation," would be revised to relocate the Overtemperature ΔT (delta temperature) (OTΔT) and Overpower ΔT (OPΔT) trip setpoint parameter values to the COLR. This change allows the setpoints to be based on cycle-specific, core design parameters, which are verified on a cycle-specific basis, thereby avoiding the necessity of overly conservative TS limits. NMC proposed adding the applicable NRC-approved setpoint methodology, WCAP-8745-P-A, "Design Bases for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions" (Ref. 6) to the list of approved analytical methods in TS 6.9.4.B. Because the proposed changes comply with WCAP-14483-A, the NRC staff finds them acceptable.

5. TS 3.1, "Reactor Coolant System," would be revised to relocate the MTC to the COLR. The licensee listed the approved methodologies for relocating the MTC in Ref. 2. Because the methodologies for calculating MTC are approved by the NRC, this relocation is consistent with the intent of GL 88-16. However, to be consistent with the Standard Technical Specifications, NMC proposed keeping the maximum upper limit for MTC in their TSs. The licensee also proposed numerous editorial changes to TS 3.1, which do not impact plant safety. Since the proposed changes comply with GL 88-16, the NRC staff finds them acceptable.

6. TS 3.8, “Refueling Operations,” would be modified to relocate the minimum boron concentration and shutdown margin (SDM) requirements to the COLR. The approved methodology for calculating SDM is listed in Ref. 2. Additionally, the licensee determines the minimum refueling boron concentration using approved methods. The licensee calculates this parameter to ensure that, at refueling conditions, the reactor core remains subcritical by at least 5 percent $\Delta k/k$ with all rods inserted (ARI). This boron concentration also maintains the core subcritical with all rods out (ARO), provides adequate time for operator action during refueling and start-up boron dilution accidents prior to the loss of core shutdown margin, and limits the consequences of fuel handling accidents.

   For each reload, a nodal core model based on the EPRI-NODE-P code is developed according to the methods described in the approved KNPP physics topical report (Ref. 7). The TS refueling boron concentration value is then input into the nodal model at refueling conditions and is used to calculate the amount by which the core is subcritical for both the ARI and ARO conditions. This calculation is a SDM calculation that is performed according to the method described in Section 5.2.1 of the physics topical (Ref. 7) with the exception that the stuck rod (N-1) condition is not incorporated since it is not applicable during refueling conditions. The applicable uncertainties used in the refueling boron concentration shutdown margin calculation conservatively bound those specified in Table 3.1 of the physics topical (Ref. 7). Given the calculations, the licensee subsequently verifies that the reload specific ARI and ARO refueling SDM meets the reactivity requirements. This process ensures that the TS refueling boron concentration meets the reactivity requirements and that the safety analyses remain applicable.

   Given that the licensee uses approved methods for calculating the criticality and the SDM to ensure that the refueling boron concentration is acceptable, the NRC staff finds that the relocation of this parameter to the COLR complies with the intent of GL 88-16. Therefore, the NRC staff finds this change acceptable. Also, NMC proposed several editorial corrections that do not affect plant safety. The NRC staff also finds these editorial changes acceptable.

7. TS 3.10, “Control Rod and Power Distribution Limits,” would be modified to move the SDM, nuclear heat flux hot channel factor, nuclear enthalpy rise hot channel factor, axial flux difference, control bank insertion, and shutdown bank insertion limits to the COLR. As part of this change, NMC relocated TS Figure 3.10-1, “Required Shutdown Reactivity vs. Reactor Boron Concentration,” Figure 3.10-2, “Hot Channel Factor Normalized Operating Envelope,” Figure 3.10-3, “Control Bank Insertion Limits,” and Figure 3.10-6, “V(Z) as a Function of Core Height” to the COLR. The licensee also deleted TS Figure 3.10-4, “Permissible Operating Band on Indicated Flux Difference as a Function of Burnup (Typical)” and Figure 3.10-5, “Target Band on Indicated Flux Difference as a Function of Operating Power Level (Typical).” In addition, the licensee proposed several editorial changes that do not affect plant safety. The above parameters are calculated by approved methodologies listed in Ref. 2; therefore, the relocation complies with GL 88-16. Since the above modifications comply with GL 88-16, the NRC staff finds them acceptable.

8. TS 6.9.4, “Core Operating Limits Report (COLR),” would be added to reflect the above relocation of cycle-specific parameters and to list the approved analytical methods used for determining the core operating limits. This change complies with GL 88-16 and WCAP-14483-A, and the format complies with NUREG-1431, Vol. 1, Rev. 2. Therefore, the NRC staff finds the modification acceptable.

The NRC staff has no objections to the proposed TS bases pages.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Wisconsin State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (67 FR 56322). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

6.0 CONCLUSION

The NRC staff has reviewed the proposed TS revisions for COLR implementation at KNPP and finds that they conform to GL 88-16 and WCAP-14483-A. Based on NRC staff review, the NRC staff finds that the proposed TS changes follow NRC-approved methodologies and do not invalidate the deterministic updated safety analysis report safety analyses. Therefore, the NRC staff concludes that the proposed TS changes are acceptable.

The NRC staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. Letter from Mark E. Warner, Site Vice President, Kewaunee Nuclear Power Plant to USNRC, “License Amendment Request 185 to the Kewaunee Nuclear Power Plant Technical Specifications, ‘Core Operating Limits Report Implementation’,” July 26, 2002.

2. Letter from Thomas Coutu, Site Vice President, Kewaunee Nuclear Power Plant to USNRC, “Response to Request for Additional Information Related to Proposed Revision to the Kewaunee Nuclear Power Plant Technical Specifications LAR 185, ‘Core Operating Limits Report’,” December 19, 2002.

3. US Nuclear Regulatory Commission Generic Communication, “Removal of Cycle Specific Parameter Limits From Technical Specifications (Generic Letter 88-16),” October 4, 1988.

4. WCAP-14483-A, “Generic Methodology for Expanded Core Operating Limits Report,” January 19, 1999.

5. NUREG-1431, Rev. 2, “Standard Technical Specifications, Westinghouse Plants,” June 2001.

6. WCAP-8745-P-A, “Design Bases for the Thermal Overpower DT and Thermal Over temperature DT Trip Functions,” September 1986.

7. Letter from A. Schwencer, USNRC to Eugene R. Mathews, Vice President, Power Supply and Engineering, Wisconsin Public Service Corporation, “Safety valuation by the Office of Nuclear Reactor Regulation on ‘Qualification of Reactor Physics Methods for Application to Kewaunee’ Report,” dated October 22, 1979, report dated September 29, 1978.

Attachment: Kewaunee Nuclear Power Plant COLR

Principal Contributor: S. Peters

Date: March 11, 2003

Kewaunee Nuclear Power Plant

cc:

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