May 1, 2000

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Mr. M. L. Marchi
Manager - Nuclear Business Group
Wisconsin Public Service Corporation
P.O. Box 19002
Green Bay, WI 54307-9002

SUBJECT: KEWAUNEE NUCLEAR POWER PLANT - ISSUANCE OF LICENSE AMENDMENT REGARDING REFUELING BORON CONCENTRATION AT KEWAUNEE (TAC NO. MA8412)

Dear Mr. Marchi:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No.147to Facility Operating License No. DPR-43 for the Kewaunee Nuclear Power Plant. This amendment revises the Technical Specifications (TSs) in response to your application dated March 2, 2000.

The amendment increases the minimum refueling boron concentration value of 2100 parts per million (ppm) specified in TS 3.8.a.5 to 2200 ppm. The boron concentration specified in TS 3.8.a.5 is required to ensure that adequate shutdown margin is maintained during refueling operations. Because of the increase in excess reactivity to support the extended 18-month operating cycles, WPSC determined that a refueling boron concentration of 2100 ppm would not be adequate to maintain a 5-percent $\Delta k/k$ shutdown margin for the Cycle 24 reload core.

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

Sincerely,

/RA/

Tae Kim, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-305

Enclosures: 1. Amendment No147 to License No. DPR-43
2. Safety Evaluation

cc w/encls: See next page

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NAME	TJKim		THarris		FAkstulewicz				CCraig DSH for
DATE	3/27/00		3/24/00		3/28/00		4/6/00		4/26/00

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 1, 2000

Mr. M. L. Marchi
Site Vice President-Kewaunee Plant
Wisconsin Public Service Corporation
P.O. Box 19002
Green Bay, WI 54307-9002

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cc w/encls: See next page

Kewaunee Nuclear Power Plant

cc:

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Harold Reckelberg, Chairman
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U.S. Nuclear Regulatory Commission
Resident Inspectors Office
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Regional Administrator - Region III
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610 N. Whitney Way
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

WISCONSIN PUBLIC SERVICE CORPORATION

WISCONSIN POWER AND LIGHT COMPANY

MADISON GAS AND ELECTRIC COMPANY

DOCKET NO. 50-305

KEWAUNEE NUCLEAR POWER PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.147
License No. DPR-43

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

   A. The application for amendment by Wisconsin Public Service Corporation, Wisconsin Power and Light Company, and Madison Gas and Electric Company (the licensees) dated March 2, 2000, 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.147, 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 shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Darl S. Hood for

Claudia M. Craig, 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: May 1, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 147

FACILITY OPERATING LICENSE NO. DPR-43

DOCKET NO. 50-305

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

REMOVE	INSERT
TS 3.8-2	TS 3.8-2

5. When there is fuel in the reactor, a minimum boron concentration of 2200 ppm and a shutdown margin of $\geq$5% $\Delta k/k$ shall be maintained in the Reactor Coolant System during reactor vessel head removal or while loading and unloading fuel from the reactor. The required boron concentration shall be verified by chemical analysis daily.

6. Direct communication between the control room and the operating floor of the containment shall be available whenever changes in core geometry are taking place.

7. Heavy loads, greater than the weight of a fuel assembly, will not be transported over or placed in either spent fuel pool when spent fuel is stored in that pool. Placement of additional fuel storage racks is permitted, however, these racks may not traverse directly above spent fuel stored in the pools.

8. The containment ventilation and purge system, including the capability to initiate automatic containment ventilation isolation, shall be tested and verified to be operable immediately prior to and daily during REFUELING OPERATIONS.

9. a. The spent fuel pool sweep system, including the charcoal adsorbers, shall be operating during fuel handling and when any load is carried over the pool if irradiated fuel in the pool has decayed less than 30 days. If the spent fuel pool sweep system, including the charcoal adsorber, is not operating when required, fuel movement shall not be started (any fuel assembly movement in progress may be completed).

   b. Performance Requirements

      1. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show $\geq$99% DOP removal and $\geq$99% halogenated hydrocarbon removal.

      2. The results of laboratory carbon sample analysis from spent fuel pool sweep system carbon shall show $\geq$90% radioactive methyl iodide removal at conditions of 66°C and 95% RH.

      3. Fans shall operate within $\pm$10% of design flow when tested.

10. The minimum water level above the vessel flange shall be maintained at 23 feet.

11. A dead-load test shall be successfully performed on both the fuel handling and manipulator cranes before fuel movement begins. The load assumed by the cranes for this test must be equal to or greater than the maximum load to be assumed by the cranes during the REFUELING OPERATIONS. A thorough visual inspection of the cranes shall be made after the dead-load test and prior to fuel handling.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO AMENDMENT NO.147 TO FACILITY OPERATING LICENSE NO. DPR-43

WISCONSIN PUBLIC SERVICE CORPORATION

WISCONSIN POWER AND LIGHT COMPANY

MADISON GAS AND ELECTRIC COMPANY

KEWAUNEE NUCLEAR POWER PLANT

DOCKET NO. 50-305

1.0 INTRODUCTION

By a letter dated March 2, 2000, Wisconsin Public Service Corporation (WPSC, or the licensee) submitted a proposed amendment to the Kewaunee technical specification (TS). This amendment would increase the minimum refueling boron concentration value of 2100 parts per million (ppm) given in TS 3.8.a.5 to 2200 ppm. The boron concentration specified in TS 3.8.a.5 is required to ensure a 5-percent $\Delta k/k$ shutdown margin during refueling operations. Because of the increase in excess reactivity to support the extended 18-month operating cycles, WPSC determined that a refueling boron concentration of 2100 ppm would not be adequate to maintain a 5-percent $\Delta k/k$ shutdown margin for the Cycle 24 reload core.

2.0 EVALUATION

WPSC has stated that calculations for the Kewaunee Nuclear Power Plant Cycle 24 reload core indicate that a boron concentration of 2200 ppm is required to maintain a 5-percent $\Delta k/k$ shutdown margin during refueling operations with all control rods inserted. The specification for refueling shutdown margin is based on a postulated boron dilution event during refueling. With an initial shutdown margin of 5-percent $\Delta k/k$, it will take longer than 30 minutes for the reactor to go critical during audible high count rate signal from the source range detectors located outside the reactor vessel, and isolate the reactor makeup water source before a complete loss of shutdown margin (and inadvertent criticality) can occur. Periodic sampling of refueling water boron concentration ensures that this minimum concentration is maintained. Therefore, a minimum boron concentration of 2200 ppm during refueling, as required by TS 3.8.a.5, is sufficient to ensure an adequate margin of safety in the event of an inadvertent boron dilution occurring during refueling.

Based on the above evaluation, the staff finds the proposed increase in minimum refueling boron concentration from 2100 ppm to 2200 ppm is acceptable. The proposed concentration

will maintain a 5-percent $\Delta k/k$ shutdown margin during refueling and allow ample time for operators to mitigate a postulate boron dilution event before inadvertent criticality could occur.

3.0 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.

4.0 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. 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 (65 FR 16969). 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.

5.0 CONCLUSION

The 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.

Principal Contributor: L. Kopp

Date: May 1, 2000