AUG 27 1976

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VStello
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ECase
BRusche

DISTRIBUTION
Docket
NRC PDR
Local PDR
ORB#1 Reading
KRGoller/TJCarter
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MFletcher
DEisenhut
OELD
OI&E(5)
BJones(4)
BScharf(10)
JMcGough
ACRS(16)
TBAbernathy

Docket No. 50-305

Wisconsin Public Service Corporation
ATTN: Mr. E. W. James
Senior Vice President
Post Office Box 1200
Green Bay, Wisconsin 54305

Gentlemen:

Enclosed is a signed original of an Order for Modification of License, dated August 27, 1976, issued by the Commission for the Kewaunee Nuclear Power Plant. This Order amends Facility Operating License DPR-43 by modifying the Technical Specification limit for the total nuclear peaking factor (F_Q) to 2.11. This Order also requires submittal of a corrected ECCS analysis as soon as possible.

A copy of the Order is being filed with the Office of the Federal Register for publication.

Sincerely,

/s/

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosure:
Order for Modification
of License

cc: See next page

Form OK pending for IP3
JB 8/27/76

ORB#2
MFletcher
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Kewaunee, Wisconsin 54216

Mr. Lester Huber
Chairman, Town of Carlton
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Mr. Norman M. Clapp, Chairman
Public Service Commission of
Wisconsin
Hill Farms State Office Building
Madison, Wisconsin 53702

developed by the Westinghouse Electric Corporation (Westinghouse), the designer of the facility, to conform with the requirements of the Commission's ECCS Acceptance Criteria, 10 CFR Part 50, §50.46 and Appendix K. The evaluation indicated that with a total nuclear peaking factor limited as set forth above, and with the other limits set forth in the facility's Technical Specifications, the ECCS cooling performance for the facility would conform with the criteria contained in 10 CFR §50.46(b) which govern calculated peak clad temperature, maximum cladding oxidation, maximum hydrogen generation, coolable geometry and long term cooling.

Due to the configuration of the Westinghouse reactor vessel design, a small portion of reactor inlet water which is cooler than outlet water is directed through several nozzles located on the periphery of the vessel to cool the upper portion of the vessl head. Accordingly, upper head temperatures used in evaluating ECCS performance were assumed to be equal to the reactor inlet water temperature. However, recent operating data gathered at the Connecticut Yankee facility has indicated that, contrary to this expectation, the temperature of the water in the upper head is higher than the reactor inlet water temperature, by about 60% of the difference between reactor inlet and reactor outlet temperature. This increase in upper head water temperature over that used in ECCS performance calculations would have the effect of increasing the calculated peak clad temperature in the event of a loss of coolant accident.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
Wisconsin Public Service Corporation	)	Docket No. 50-305
Kewaunee Nuclear Power Plant	)	

ORDER FOR MODIFICATION OF LICENSE

I.

The Wisconsin Public Service Corporation (the licensee), is the holder of Facility Operating License No. DPR-43 which authorized the operation of a nuclear power reactor known as the Kewaunee Nuclear Power Plant (the facility) at steady state reactor power levels not in excess of 1650 thermal megawatts (rated power). The facility is a pressurized water reactor (PWR) located at the Licensee's site in Kewaunee County, Wisconsin.

II.

In conformance with evaluations of the performance of the Emergency Core Cooling System (ECCS) of the facility submitted by the Licensee on September 4, 1974, as supplemented December 2, 1974; December 23, 1974; April 1, 1975; April 18, 1975; April 22, 1975; July 8, 1975; January 22, 1976; February 10, 1976; and February 20, 1976, the Technical Specifications issued March 22, 1976 for the facility limit the reactor total nuclear peaking factor (F_Q) to 2.15. The ECCS performance evaluation submitted by the Licensee was based upon a previously approved ECCS evaluation model

In a meeting with the staff on August 9, 1976, Westinghouse presented generic evaluations of the effect on calculated peak clad temperature for the worst break identified in previous calculations for each type of Westinghouse reactor and fuel design using an upper head water temperature exceeding reactor inlet water temperature by an amount equal to 75% of the reactor inlet - reactor outlet differential. On August 12, 1976, the staff directed the licensee to submit an analysis similar to the Westinghouse evaluation with the clearly conservative assumption of upper head water temperature equal to reactor outlet temperature (100% of the reactor inlet - reactor outlet differential) and to operate the facility in accordance with the results of this analysis. The results of the evaluation submitted for the Kewaunee reactor indicated that with this modification of the upper head water temperature the calculated peak clad temperature for the worst case break would exceed the Commission's ECCS performance criteria by about 40°F.

Extensive sensitivity studies, provided with previous calculations submitted in connection with assessment of Westinghouse evaluation models, have established a relationship between the reactor total nuclear peaking factor (F_Q) and calculated peak clad temperature such that if F_Q is reduced by 0.04, the calculated peak clad temperature for the Kewaunee reactor would not exceed 2200°F.

As directed by the NRC staff, the Licensee agreed to operate the facility with the total nuclear peaking factor reduced by 0.04 to 2.11. The staff believes that the Licensee's action, under the circumstances, is appropriate and that this action should be confirmed by NRC Order.

The staff expects that, when revised calculations for the facility are submitted using an approved evaluation model with correct input for upper head water temperature, or assuming that the upper head water temperature equals reactor vessel outlet water temperature, such calculations will demonstrate that operation with the total nuclear peaking factor would conform to the criteria of 10 CFR §50.46(b). Such revised calculations fully conforming to the requirements of 10 CFR §50.46 are to be provided for the facility as soon as possible. The additional limitations set forth in this Order will provide reasonable assurance that the public health and safety will not be endangered.

Copies of the following documents are available for public inspection in the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., 20555 and at the Kewaunee Public Library, 314 Milwaukee Street, Kewaunee, Wisconsin, 54216, (1) Wisconsin Public Service Corporation letters dated September 4, 1974, as supplemented December 2, 1974; December 23, 1974; April 1, 1975; April 18, 1975; April 22, 1975; July 8, 1975; January 22, 1976; February 10, 1976; and February 20, 1976, (2) NRC letter dated March 22, 1976, (3) Wisconsin Public Service Corporation letter dated August 18, 1976, and (4) This Order for Modification of License, In the Matter of the Kewaunee Nuclear Power Plant, Docket No. 50-305.

III.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Rules and Regulations in 10 CFR Parts 2 and 50, IT IS ORDERED THAT Facility Operating License No. DPR-43 is hereby amended by adding the following new provisions:

1. As soon as possible, the Licensee shall submit a re-evaluation of ECCS cooling performance calculated in accordance with an approved Westinghouse Evaluation Model, with appropriate correction for upper head water temperature.

2. Until further authorization by the Commission, the Technical Specification limit for total nuclear peaking factor (F_Q) shall be reduced to 2.11.

FOR THE NUCLEAR REGULATORY COMMISSION

Ben C. Rusche, Director
Office of Nuclear Reactor Regulation

Dated in Bethesda, Maryland
this AUG 27 1976