REGULTIRY DOCKET THE COPY August 1 '8 1980

Docket No. 50-305

Mr. Eugene R. Mathews, Vice President Power Supply and Engineering Wisconsin Public Service Corporation Post Office Box 1200 Green Bay, Wisconsin 54305

DISTRIBUTION Docket File 50-305 NRC PDR Local PDR ORB Reading NRR Reading D. Eisenhut R. Purple T. Novak R. Tedesco G. Lainas J. Olshinski **OELD** OI&E(3)S. Varga R. Licciardo

K. Parrish NSIC TERA ACRS (16) J. Heltemes, AEOD

Dear Mr. Mathews:

SUBJECT: KEWAUNEE NUCLEAR POWER PLANT: ADDITIONAL INFORMATION REQUIREMENTS FOR AUXILIARY FEEDWATER SYSTEMS

Enclosed is our request for requirements resulting from our review of Wisconsin Public Service Corporation's response dated October 30, 1979, to NRC Requirements for Auxiliary Feedwater Systems at the Kewaunee Nulcear Plant dated September 21, 1979. The items are numbered to correspond with the recommendation numbering of NRC Requirements for Auxiliary Feedwater Systems at Kewaunee Nuclear Plant and Wisconsin Public Service Corporation's responses.

The open items in the enclosure must be resolved in a manner acceptable to the staff before the Auxiliary Feedwater System Safety Evaluation Report can be issued. Please respond within 45 days of receipt of this letter.

> Sincerely, Original signed by: S. A. Varga

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979-289-369

Steven A. Varga, Chief Operating Reactors Branch #1 Division of Licensing

Enclosure: Request for Additional Information

cc: w/enclosure: See next page

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OI&E(3)

SVarga

Dear Mr. Mathews:

Subject: Kewaunee Nuclear Power Plant: Additional Information Requirements for Auxiliary Feedwater Systems

Enclosed is our request for requirements resulting from our review of Wisconsin Public Service Corporation's response dated October 30, 1979, to NRC Requirements for Auxiliary Feedwater Systems at the Kewaunee Nuclear Plant dated September 21, 1979. The items are numbered to correspond with the recommendation numbering of NRC Requirements for Auxiliary Feedwater Systems at Kewaunee Nuclear Plant and Wisconsin Public Service Corporation's responses.

The open items in the enclosure must be resolved in a manner acceptable to the staff before the Auxiliary Feedwater System Safety Evaluation Report can be issued. Please respond within 30 days of receipt of this letter.

Sincerely,

Thomas M. Novak, Assistant Director for Operating Reactors Division of Licensing

Enclosure: Request for Additional Information

cc w/enclosure: See next page

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ORB # 1

SVarga

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Docket No. 50-305

Mr. Eugene R. Mathews, Vice President Power Supply and Engineering Wisconsin Public Service Corporation Post Office Box 1200 Green Bay, Wisconsin 54305

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OI&E (3) Steven A. Varga Licciardo KParrish NSIC TERA ACRS (16)

OELD

JHeltemes, AEOD

Dear Mr. Mathews:

Subject: Kewaunee Nuclear Power Plant: Additional Information Requirements for Auxiliary Feedwater Systems

Attached is our request for requirements resulting from our review of Wisconsin Public Service Corporation's response dated October 30, 1979, to NRC Requirements for Auxiliary Feedwater Systems at the Kewaunee Nuclear Plant dated September 21, 1979. The items are numbered to correspond with the recommendation numbering of NRC Requirements for Auxiliary Feedwater Systems at Kewaunee Nuclear Plant and Wisconsin Public Service Corporation's responses.

Be informed that the open items in the enclosure must be resolved in a manner acceptable to the staff before the Auxiliary Feedwater System Safety Evaluation Report can be issued. Please respond within 30 days.

Sincerely,

Thomas M. Novak, Assistant Director for Operating Reactors Division of Licensing

Enclosure: Request for Additional Information

cc w/enclosure: See next page

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ORB #1



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

August 18, 1980

Docket No. 50-305

Mr. Eugene R. Mathews, Vice President Power Supply and Engineering Wisconsin Public Service Corporation Post Office Box 1200 Green Bay, Wisconsin 54305

Dear Mr. Mathews:

SUBJECT: KEWAUNEE NUCLEAR POWER PLANT: ADDITIONAL INFORMATION REQUIREMENTS FOR AUXILIARY FEEDWATER SYSTEMS

Enclosed is our request for requirements resulting from our review of Wisconsin Public Service Corporation's response dated October 30, 1979, to NRC Requirements for Auxiliary Feedwater Systems at the Kewaunee Nulcear Plant dated September 21, 1979. The items are numbered to correspond with the recommendation numbering of NRC Requirements for Auxiliary Feedwater Systems at Kewaunee Nuclear Plant and Wisconsin Public Service Corporation's responses.

The open items in the enclosure must be resolved in a manner acceptable to the staff before the Auxiliary Feedwater System Safety Evaluation Report can be issued. Please respond within 45 days of receipt of this letter.

Sincerely, LUA Ven A .Varda. Chief

Operating Reactors Branch #1 Division of Licensing

Enclosure: Request for Additional Information

cc: w/enclosure: See next pade Mr. Eugene R. Mathews Wisconsin Public Service Corporation - 2 -

August 18, 1980

- cc: Steven E. Keane, Esquire
 Foley and Lardner
 777 East Wisconsin Avenue
 Milwaukee, Wisconsin 53202
 - Kewaunee Public Library 822 Juneau Street Kewaunee, Wisconsin 54216

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Stanley LaCrosse, Chairman Town of Carlton Route 1 Kewaunee, Wisconsin 54216

U. S. Nuclear Regulatory Commission Resident Inspectors Office Route #1, Box 999 Kewaunee, Wisconsin 54216 Auxiliary Systems Branch Kewaunee Nuclear Plant Auxiliary Feedwater System Requirements

A. Short Term Recommendations

1. Recommendation GS-1

Your response to this recommendation is unacceptable. Your present specification requires action after 48 hours based on less than two train availability. It is our position that you propose a Technical Specification change to limit the time that one AFW system pump and its associated flow train and essential instrumentation can be inoperable. The outage time and subsequent action time should be as required in current Westinghouse Standard Technical Specifications for three pump systems (72 hours and 12 hours respectively). This will require three AFW pumps to be available whenever the reactor coolant system temperature is greater than 350°F.

2. Recommendation GS-2

Your response to this recommendation is not acceptable. Your design has two series isolation values between the AFW pump suction and the primary water supply. If one of these values were closed on auto start of the pumps, it could cause damage to all three pumps. It is our position that you meet our original recommendation GS-2 for the short term. For the long term resolution you should meet recommendation GL-2. As an alternate to GL-2 you may provide automatic pump trip on low suction pressure (Safety Grade), automatic switchover to the service water system or redundant value position indicated and alarm for these values. If you chose valve position indication the following is required:

-2-

- Redundant position indication and alarm in the control room that meet the requirements equivalent to what you have in your present engineered safety features system.
- Specification or procedure that requires the AFW system to be placed in manual if either valve indicates closed.
- 3. Technical Specifications such that the valve should be opened within one hour and the system back in auto or the alternate water supply valves opened and the system back in auto. If neither water source can be made available within one hour, bring the plant to a condition that is not dependent on steam generators for heat removal at the safest possible rate.

Also lock these values open and verify that monthly inspections will be performed to verify value position either by procedure or technical specifications. Please identify which method you propose to utilize to meet recommendation GL-2.

3. Recommendation GS-4

It appears that your existing procedures for transferring to an alternate water supply are not sufficient. They should not allow the condensate storage tank to be emptied causing a loss of suction pressure since the pumps could be damaged. Revise your procedures to instruct the operator to transfer to the alternate water supply sometime between the low level alarm and a loss of NPSH at the pumps.

4. Recommendation.GS-6

Your response to the first part of this recommendation is not acceptable. We require that a second operator independently verify proper valve position for the auxiliary feedwater system following testing or maintenance. Please revise your response to include the independent verification.

-3-

5. Recommendation GS-7

We have not completed our review of your response to this recommendation.

B. Additional Short Term Recommendations

1. In order to take credit (for the long term) for redundant level indication by having two tanks with one level indicator each, verify the following:

a. Both tanks will normally be lined up to the pump suctions,

- b. Each level indication circuit is powered by separate busses, and
- c. At least one of the indications has a battery backed power supply.

Otherwise revise your design such that the above is met before January 1, 1981.

2. Your response to this recommendation is not acceptable unless you can verify that continued pump operation has occurred for each pump that approaches a 48 hour period. The enclosed revised Additional Short Term Recommendation No. 2 changes the required test from 72 hours to 48 hours. Perform the required tests and submit the requested information in the enclosure. If you can document that sufficient continued pump operation has occurred, provide, to the extent practicable, the requested information.

- 3. This recommendation will be covered by the Lessons Learned Implementation Task Force.
- 4. Your response to this recommendation is acceptable.

C. Long Term Recommendations

1. Recommendation GL-2

You did not respond to this recommendation. See GS-2 for our position regarding this recommendation.

2. Recommendation GL-4

We will review your response to this recommendation at a later date following your reevaluation of a loss of normal water supply.

3. Recommendation GL-5

Your response to this recommendation (same as GS-7 for your plant) is currently under review.

D. Basis for Auxiliary Feedwater System Flow Requirements

You did not respond to enclosure 2 of our September 21, 1979 letter regarding Auxiliary Feedwater System Flow Requirements. Provide a commitment date for responding to this recommendation.

Enclosure

Revision to Recommendation No. 2 of "Additional Short Term Recommendations" Regarding Auxiliary Feedwater Pump Endurance Test

The licensee should perform an endurance test on all AFW system pumps. The test should continue for at least 48 hours after achieving the following test conditions:

- Pump/driver operating at rated speed

and

 Pump developing rated discharge pressure and flow or some higher pressure at a reduced flow but not exceeding the pump vendor's maximum permitted discharge pressure value for a 48-hour test

- For turbine drivers, steam temperature should be as close to normal operating steam temperature as practicable but in no case should the temperature be less than 400°F.

Following the 48-hour pump run, the pumps should be shut down and allowed to cool down until pump temperatures reduce to within 20°F of their values at the start of the 48-hour test and at least 8 hours have elapsed. Following the cool down, the pumps should be restarted and run for one hour. Test acceptance criteria should include demonstrating that the pumps remain within design limits with respect to bearing/bearing oil temperatures and vibration and that ambient pump room conditions (temperature, humidity) do not exceed environmental qualification limits for safetyrelated equipment in the room.

The licensee should provide a summary of the conditions and results of the tests. The summary should include the following: 1) A brief description of the test method (including flow schematic diagram) and how the test

was instrumented (i.e., where and how bearing temperatures were measured). 2) A discussion of how the test conditions (pump flow, head, speed and steam temperature) compare to design operating conditions. 3) Plots of tearing/bearing oil temperature vs. time for each bearing of each AFW pump/driver demonstrating that temperature design limits were not exceeded. 4) A plot of pump room ambient temperature and humidity vs. time demonstrating that the pump room ambient conditions do not exceed environmental qualification limits for safety-related equipment in the room. 5) A statement confirming that the pump vibration did not exceed allowable limits during tests.

- 2