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KEPPLER,J.G. Region 3, Chicago, Office of the Director

SUBJECT: Responds to IE Bulletin 80-12 re decay heat removal sys operability.One loss of decay heat removal incident occured in Sept 1974.Operating procedures have been reviewed for safeguarding against loss of RHR capability.

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WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

June 20, 1980

Mr. James G. Keppler, Regional Director
Office of Inspection & Enforcement
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr. Keppler:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
IE Bulletin 80-12 - Decay Heat Removal System Operability

This letter is in response to IE Bulletin 80-12. By letter dated June 12, 1980, we informed your office that this response would be submitted on this date. The following item numbers are consistent with the numbering of the bulletin:

1. "Review the circumstances and sequence of events at Davis-Besse as described in Enclosure 1."

   RESPONSE: The circumstances and sequence of events at Davis-Besse as described in Information Notice 80-20 has been received by the Kewaunee Plant Staff and has been circulated to operations personnel for review.

2. "Review your facility(ies) for all DHR degradation events experienced, especially for events similar to the Davis-Besse incident."

   RESPONSE: The Kewaunee Plant records have been reviewed for incidents similar to the Davis-Besse loss of decay heat removal event. One loss of decay heat removal incident occurred in September of 1974. An instrument bus failure caused the interlocks associated with the residual heat removal (RHR) inlet valves to close the valves, isolating the RHR system from the reactor coolant system (RCS). Decay heat removal was lost for approximately 20 minutes; during that time the peak core exit temperature reached 214°F, as indicated by the core exit thermocouples.

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The interlock logic on the RHR inlet valves has been modified such that a single failure will not isolate the RHR system from the RCS by closing the RHR inlet valves, thereby precluding this sequence of events from occurring. The RHR system cannot be isolated from the RCS by a mechanistic single active failure event.

3. "Review the hardware capability of your facility(ies) to prevent DHR loss events, including equipment redundancy, diversity, power source reliability, the refueling and cold shutdown modes of operation."

RESPONSE: The Kewaunee Plant, by design, has redundant RHR trains which are normally available during cold shutdown conditions. The RHR system is powered from redundant safety grade power supplies. Further discussion of the RHR system can be found in Section 9.3 of the Kewaunee FSAR.

4. "Analyze your procedures for adequacy of safeguarding against loss of redundancy and diversity of DHR capability."

RESPONSE: The Kewaunee operating procedures have been reviewed for safeguarding against the loss of RHR capability. As a result of that review the cooldown procedures will be revised to instruct the operators to keep the plant above the cold shutdown condition unless two trains of RHR are available. In the event two trains of RHR are not available, plant management would be notified, and the specific circumstances would be reviewed to determine the proper course of action.

Plant directives provide assurance that maintenance activities are reviewed by responsible personnel prior to removal of equipment or systems from service. This prevents extensive maintenance activities from leading to the potential loss of RHR capability.

5. "Analyze your procedures for adequacy of responding to DHR loss events. Special emphasis should be placed upon responses when maintenance or refueling activities degrade the DHR capability."

RESPONSE: Operating procedures have been reviewed for responding to degraded DHR capability. Our procedure entitled, "Loss of Residual Heat Removal Cooling" is being revised to include several added precautions and options available to the operator. The procedure adequately responds to DHR loss events.

6. "Until further notice or until Technical Specifications are revised to resolve the issues of this Bulletin, you should:

a. Implement as soon as practicable administrative controls to assure that redundant or diverse DHR methods are available during all modes of plant operation. (Note: When in a refueling mode with water in the refueling cavity and the head removed, an acceptable means could include one DHR train and a readily accessible source of borated water to replenish any loss of inventory that might occur subsequent to the loss of the available DHR train.)"

b. "Implement administrative controls as soon as practicable, for those cases where single failures or other actions can result in only one DHR train being available, requiring an alternate means of DHR or expediting the restoration of the lost train or method."

RESPONSE: General Design Criteria 34, from Appendix A to 10 CFR 50 states that for the residual heat removal system:

> "Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electrical power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure."

As noted in item 3, the RHR system design at Kewaunee Nuclear Power Plant consists of two trains powered from redundant sources. Therefore, when the plant is in a cold shutdown condition, a single failure which would render one train of RHR inoperable would result in one train of RHR being available.

This design is acceptable as it meets the requirements of GDC 34 and has been approved by the staff.

In the event of a total loss of RHR capability, the low temperature and large volume of water in the RCS provide adequate time for plant personnel to respond and regain RHR capability. Plant personnel are aware of the importance of maintaining adequate heat removal from the RCS at all times.

The existing administrative controls at the Kewaunee Plant are adequate to respond to loss of RHR events; new administrative controls which deal explicitly with the loss of RHR are not necessary.

7. "Report to the NRC within 30 days of the date of this Bulletin the results of the above reviews and analyses, describing:

a. Changes to procedures (e.g., emergency, operational, administrative, maintenance, refueling) made or initiated as a result of your reviews and analyses, including the scheduled or actual dates of accomplishment; (Note: NRC suggests that you consider the following: (1) limiting maintenance activities to assure redundancy or diversity and integrity of DHR capability, and (2) bypassing or disabling, where applicable, automatic actuation of ECCS recirculation in addition to disabling High Pressure Injection and Containment Spray Preparatory to the cold shutdown or refueling mode.)"

RESPONSE: The procedure changes identified in item 4 and 5 will be completed by August 1, 1980.

b. "The safeguards at your facility(ies) against DHR degradation, including your assessment of their adequacy."

RESPONSE: We have concluded from our reviews that adequate safeguards exist at the Kewaunee Plant to protect against RHR degradation. In addition to the items noted above, it should be noted that the Kewaunee Plant does not have automatic actuation of ECCS recirculation, which apparently had a large impact on the incident at Davis-Besse.

As requested in the bulletin, this information is provided in accordance with 10 CFR 50.54 (f).

Very truly yours,

E. R. Mathews

E. R. Mathews, Vice President
Power Supply & Engineering

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cc - Dir, Div of Reactor Operations Inspection
Office of I & E, US NRC, Washington, D. C. 20555

US NRC, c/o Document Management Branch
Washington, D. C. 20555

Subscribed and Sworn to
Before Me This 20th Day
of June 1980

Notary Public, State of Wisconsin

My Commission Expires
12-29-83