



WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

November 11, 1986

Mr. J. G. Keppler, Regional Administrator
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 Compliance Bulletin No. 86-03: Potential Failure of Multiple ECCS Pumps Due to Single Failure of Air-Operated Valve in Minimum Flow Recirculation Line

The subject bulletin required that actions be taken to determine whether the miniflow lines of the ECCS pumps have a single failure vulnerability that could cause failure of more than one ECCS train. The attachment to this letter provides a summary of our evaluation and actions taken.

Very truly yours,

D. C. Hintz
Vice President - Nuclear Power

DSN/jms

Attach.

cc - Mr. Robert L. Nelson, US NRC
Mr. G. E. Lear, US NRC
Director, Office of I&E, US NRC

Subscribed and Sworn to
Before Me This 11th Day
of November 1986

Notary Public, State of Wisconsin

My Commission Expires:
June 28, 1987

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Attachment I

Mr. D. C. Hintz to Mr. J. G. Keppler

November 12, 1986

Response to IE Compliance Bulletin No. 86-03

Response to IE Compliance Bulletin No. 86-03

Response: The Kewaunee Plant design utilizes two active systems, residual heat removal (RHR) and safety injection (SI), to provide emergency core cooling. Both the residual heat removal system (low pressure) and the safety injection system (high pressure) use redundant centrifugal pumps to deliver borated cooling water to the reactor core in the event of a LOCA.

The minimum flow requirement for each RHR pump is satisfied by returning a small quantity of the pump's discharge flow to the pump suction in a two inch recirculation line. Independent minimum flow bypass lines are provided for each pump at the discharge of the RHR heat exchangers. Because of the line independence, even with the unlikely failure of a recirculation line, a RHR pump would be available to perform the ECCS function. The RHR system is not vulnerable to the problem identified in the bulletin.

Each SI pump is provided with a two inch minimum flow bypass line on the pump's discharge that recirculates a small amount of flow (47 gpm @ 5000 Ft. Head) to the Refueling Water Storage Tank (RWST). Prior to emptying into the RWST the bypass lines feed a common two inch return header which has two in series motor operated isolation valves. During normal operation these valves are administratively maintained in the open position. Two independent indications of each valve's position are provided in the plant Control Room to alert the operator if the valves are not open as required. Upon loss of control or

motive power these motor operated valves fail as is. Thus during normal plant operation the valves would fail in the open position ensuring a path for SI minimum flow. With normal system alignment the SI system is not vulnerable to a single failure in the minimum flow bypass line that would disable the system function.

One potential concern was identified during the evaluation of the bulletin. The plant inservice testing program for valves currently requires that the isolation valves in the SI minimum flow bypass line be cycled quarterly. With either of these valves in a closed position during this testing, a single failure could result in loss of the minimum flow bypass line. This concern was evaluated and not deemed a safety issue since: 1) the SI pump shutoff head at 2165 psig is above the setpoint for SI initiation on low reactor coolant system pressure (1815 psig) and, 2) each valve is in the closed position for only a very short time period during valve stroke testing.

In conclusion, the emergency core cooling systems at Kewaunee are not vulnerable to a single failure in the pump minimum flow recirculation lines that could cause failure of redundant ECCS trains. No further action is anticipated in addressing the concerns identified in the bulletin.