Wisconsin Electric
POWER COMPANY

231 W Michigan, PO Box 2046, Milwaukee WI 53201

(414) 221-2345

VPNPD-93-051
NRC-93- 028

February 26, 1993

Document Control Desk
U.S. NUCLEAR REGULATORY COMMISSION
Mail Station P1-137
Washington, DC 20555

Gentlemen:

DOCKETS 50-266, 50-301
CLARIFICATION OF A COMMITMENT CONCERNING OPERATION
OF THE SAFETY INJECTION AND RESIDUAL HEAT REMOVAL PUMPS
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

NRC Bulletin 88-04, "Potential Safety-Related Pump Loss," describes the potential loss of function of safety-related pumps that may result from inadequate design of the pumps' mini-recirculation lines. Operation of pumps at the low flows inherent with mini-recirculation lines may cause flow instabilities that could result in premature failure of the packing, seals, and rotating elements of the pumps.

We responded to this bulletin in a letter dated June 28, 1988. In our response we committed to modify the Residual Heat Removal (RHR) and Safety Injection (SI) systems to install full flow test lines. These lines were installed to provide the capability to perform the required inservice testing at flows equal to, or greater than, the minimum flows recommended by the pump manufacturers. We also committed, once the system modifications were installed, to operate the SI and RHR pumps on mini-recirculation flow only upon receipt of a SI signal where primary system pressure remains above pump shut-off head. The purpose of this letter is to clarify the latter commitment.

The installation of the full flow test lines on the SI and RHR systems was completed during the Fall 1991 and Spring 1992, refueling and maintenance outages for Units 1 and 2 respectively. Point Beach Nuclear Plant (PBNP) Technical Specification (TS) 15.4.5.II.A.1 requires monthly inservice testing of the SI and RHR pumps. Technical Specification 15.4.5.II.A.2 states that acceptable levels of performance shall be that the pumps start, reach their required developed head at mini-recirculation flow, and operate for at least 15 minutes on the mini-recirculation line.

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However, it is the position of the PBNP Manager's Supervisory Staff (MSS), as documented in Technical Specification Interpretation DCS 3.1.14, dated April 8, 1992, that the inservice tests of the SI and RHR pumps using the full flow recirculation line meet the intent of Technical Specification 15.4.5.II.A.2. The full flow recirculation lines are now used for the monthly inservice test of the SI and RHR pumps, rather than the mini-recirculation lines.

The monthly test of the SI pumps is performed in accordance with Inservice Test Procedures IT-01 and 02, "High Head Safety Injection Pumps and Valves (Monthly)," for Units 1 and 2 respectively. The monthly test of the RHR pumps is performed in accordance with Inservice Test Procedures IT-03 and 04, "Low Head Safety Injection Pumps and Valves (Monthly)," for Units 1 and 2 respectively. These procedures require the Technical Specification required test be performed using the full flow recirculation line instead of the mini-recirculation line. A Technical Specification Change Request is being drafted which will include a proposed revision to Technical Specification 15.4.5.II.A.2 to state that the test will be performed using the full flow recirculation line rather than the mini-recirculation line.

However, there may be times, other than during accident conditions, when the SI and RHR pumps will be run on the mini-recirculation lines, such as post-modification or post-maintenance operability testing. In these cases it may not be necessary or desirable to align the system for full-flow recirculation. When the SI and RHR pumps are operated on the mini-recirculation line during non-accident conditions, the run time of the pump will be limited in accordance with the manufacturers recommendations to prevent pump damage.

The manufacturers of the SI and RHR pumps at PBNP were contacted to determine the maximum allowable run time of the pumps on the mini-recirculation lines. The manufacturer of the RHR pumps is Pacific Pumps. The orifices installed in the mini-recirculation line for the RHR pumps were also supplied by Pacific Pumps. The orifices are sized to provide a flow rate of 150 gpm. The flow rate in the RHR pump mini-recirculation lines was ultrasonically measured at approximately 160-165 gpm. At these flow rates, Pacific Pumps stated that the RHR pumps could be operated for approximately 30 minutes without incurring damage. They also recommended a minimum total flow rate of approximately 520 gpm for continuous operation of the RHR pumps.

The manufacturer of the SI pumps is Byron Jackson. The orifices installed in the mini-recirculation line for the SI pumps were also supplied by Byron Jackson. The orifices are sized to provide a flow rate of 70 gpm. The flow rate in the SI pump mini-

recirculation lines was ultrasonically measured at approximately 110 gpm. Byron Jackson stated that the SI pumps could be operated for approximately 15 minutes at 70 gpm, and for approximately 25 minutes at 110 gpm without incurring damage. They also recommended a minimum total flow rate of approximately 225 gpm for continuous operation of the SI pumps.

To ensure these time limits would be applied to all non-accident situations where the SI or RHR pumps are run on mini-recirculation flow, an Operations Standing Order has been issued. The standing order states that the maximum run time of the RHR pumps on mini-recirculation flow is 30 minutes, and the maximum run time of the SI pumps on mini-recirculation flow is 25 minutes. It also states that the minimum total flow for continuous operation of the SI pumps is 225 gpm, and 520 gpm for the RHR pumps. Lastly, it requires frequent visual inspections of the pump seals whenever the pumps are run on mini-recirculation flow.

IT-01 and 02 were also revised to include a precaution to limit the run time of the SI pumps to less than or equal to 25 minutes when solely on mini-recirculation flow and state that minimum total flow for continuous operation is 225 gpm. IT-03 and 04 were revised to include a precaution to limit the run time of the RHR pumps to less than or equal to 30 minutes when solely on mini-recirculation flow and state that minimum total flow for continuous operation is 520 gpm.

In summary, during non-accident conditions, the SI and RHR pumps will normally be operated using the full flow recirculation lines. However, in cases where the mini-recirculation lines are used, SI and RHR pump run time will not exceed the manufacturers recommended run times at the reduced flow. During accident conditions, the SI and RHR pumps will be run as long as procedurally required.

If you need further information, please contact us.

Sincerely,

Bob Link
Vice President
Nuclear Power

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cc: NRC Resident Inspector
NRC Regional Administrator