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June 29, 1990

Document Control Desk  
U.S. NUCLEAR REGULATORY COMMISSION  
Mail Stop P1-137  
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Gentlemen:

DOCKET NOS. 50-266 AND 50-301  
ADDITIONAL RESPONSE TO BULLETIN 88-08  
THERMAL STRESSES IN PIPING CONNECTED TO REACTOR COOLANT SYSTEMS  
POINT BEACH NUCLEAR PLANT UNITS 1 AND 2

- Reference 1) WE letter VPNPD-88-480/NRC-88-089 to NRC  
dated September 27, 1988
- 2) WE letter VPNPD-88-616/NRC-88-128 to NRC  
dated December 21, 1988
- 3) WE letter VPNPD-89-340/NRC-89-074 to NRC  
dated June 16, 1989
- 4) WE letter VPNPD-89-689/NRC-89-169 to NRC  
dated December 29, 1989

Reference 1 identified piping which had the potential to be subjected to stresses from temperature stratification or temperature oscillations which could be induced by leaking isolation or check valves. Wisconsin Electric (WE) evaluated the piping in accordance with the criteria presented in NRC Bulletin 88-08, "Thermal Stresses in Piping Connected to Reactor Coolant Systems." The lines identified were the two-inch diameter auxiliary charging piping and the two-inch diameter auxiliary spray piping for Point Beach Nuclear Plant (PBNP) Units 1 and 2.

Reference 2 provided results of the Unit 2 inspections and described the temperature monitoring equipment installed, data collection system, and preliminary information regarding temperature distributions in these lines.

Reference 3 provided results of inspections and actions taken on these two piping systems during the Unit 1 outage completed in April 1989. Further, the letter documented that WE had removed the auxiliary charging line from the monitoring program and provided a description of our plans and schedules regarding evaluations of the data being collected for the auxiliary spray piping.

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Reference 4 identified that inspection of the in-place thermocouples (TCs) on Unit 2 indicated that several TCs were not in contact with the pipe, and therefore the temperature data previously collected may not have been representative of the actual pipe temperatures. Therefore, the TCs were replaced with direct clamp-on thermocouples to insure contact with the pipe surface. The letter concluded by stating that WE intended to perform an engineering evaluation of the effects of the recorded thermal stratification on the spray line header piping by June 30, 1990.

This letter describes the engineering evaluations performed to assure code compliance due to the unanalyzed condition of thermal stratification in the spray line header piping for PBNP Units 1 and 2, and actions required to close out the reporting requirements of the bulletin.

WE evaluated the reactor coolant piping in accordance with the criteria presented in NRC Bulletin 88-08, Supplement 3. No piping was identified that would satisfy the conditions leading to thermal stratification or thermal cycling as stated in the supplement, and therefore no additional piping requires further evaluation or monitoring.

Sargent and Lundy Engineers was contracted to perform the evaluation for thermal stratification of the spray line header piping for PBNP Units 1 and 2. Since the piping configurations and operating characteristics for both units are similar, the thermocouple data collected for Unit 2 was deemed to be applicable for both units, and an individual analysis for each unit was performed. Each analysis includes the A-loop and B-loop spray lines, the spray line header, and sufficient portions of the auxiliary spray line to accurately predict pipe stresses and support loads in the vicinity of the spray line header where the stratification occurs.

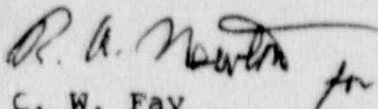
The analysis results show that the Cumulative Usage Factors (CUFs) determined for each line are all less than unity for the design life of the plant. The largest CUFs are 0.66 and 0.30 for Units 1 and 2 respectively. The results ensure that all the piping included in the model meets the applicable code requirements. All supports in the model meet code allowables with the exception of one support on the Unit 2 auxiliary spray line. The loads causing the support to exceed code allowables are not related to thermal stratification and are due to the normal design loads generated in the piping reanalysis. This support

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does, however, satisfy the operability criteria limits established for WE. We will modify the support to bring it into code compliance during the fall 1990 Unit 2 outage.

All necessary actions required by the bulletin are complete. Please contact us if you have any questions concerning our actions in this matter.

Very truly yours,



C. W. Fay  
Vice President  
Nuclear Power

Copies to NRC Regional Administrator, Region III  
NRC Resident Inspector