

THE CINCINNATI GAS & ELECTRIC COMPANY  
ZIMMER NUCLEAR POWER STATION, P.O. BOX 201, MOSCOW, OH. 45153



November 30, 1981  
QA-1540

U.S. Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road.  
Glen Ellyn, ILL 60137

Attention: Mr. James G. Keppler, Director

RE: WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1  
50.55(e), ITEM M-13 SERVICE WATER PUMP  
ACCELERATED WEAR, DOCKET NO. 50-358,  
CONSTRUCTION PERMIT CPPR-88, W.O. 57300,  
JOB E-5590, FILE NRC-8



Gentlemen:

This letter constitutes an interim report to the subject deficiency initially reported to Mr. Gaston Fiorelli of Region III on August 10, 1979 under 10CFR50.55(e).

Each Service Water Pump was designed to accommodate maximum service water flow of 12,500 gpm associated with the worst case LOCA conditions. The original design made no provision to assure that internal recirculation would not occur at flow rates less than maximum.

A test of flow measurement and pump vibration was conducted which pointed to internal recirculation as the cause of accelerated impeller cavitation. Programs have been implemented to modify the pump and service water system controls to accommodate a lower flow rate.

Pump modifications include the design of a new impeller inlet vane angle to reduce flow separation at lower flow conditions. This change allows a minimum flow rate of 7,500 gpm. At this time, new impellers have been installed in two of the four service water pumps. Machinery vibration signatures have been recorded for the refurbished pumps which indicate no random noise or vibration which is characteristic of internal recirculation, rather they are indicative of normal machine vibration.

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Mr. James G. Keppler, Director  
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Region III  
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Page 2

The Service Water system control modifications included the addition of two service water minimum flow bypass loops, one per service water loop. These bypass loops will maintain pump flows above the minimum flow condition at all times. Two control valves have been installed in each bypass loop. The control scheme for each pump is to modulate each pump's respective control valve, assuring low flow protection for each pump. The control panel is the last remaining item in the control modification, and is scheduled to be shipped January 1, 1982. It is anticipated that all corrective action will be complete by April 30, 1982, at which time a final report will be submitted.

We trust the above will be found acceptable as an interim report under 10CFR50.55(e).

Very truly yours,

THE CINCINNATI GAS & ELECTRIC COMPANY

By 

B. R. Sylvia  
VICE-PRESIDENT, NUCLEAR OPERATIONS

FKP/bjs  
cc: NRC Resident Inspector  
Attn: W. F. Christianson  
NRC Office of Inspector & Enforcement  
Washington, DC 20555