

THE CINCINNATI GAS & ELECTRIC COMPANY



April 29, 1982  
QA-1723

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

Attention: Mr. J. G. Keppler  
Regional Administrator

RE: WM. H. ZIMMER NUCLEAR POWER STATION UNIT I  
10CFR50.55(E) - ITEM M-13, SERVICE WATER  
PUMP MODIFICATION DOCKET NO. 50-358,  
CONSTRUCTION PERMIT NO. CPPR-88, W.O. 57300,  
JOB E-5590, FILE NRC-8, M-13



Gentlemen:

This letter constitutes a final report concerning the subject design deficiency initially reported to Mr. G. Fiorelli of the NRC on August 10, 1979, under the requirements of 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 modification includes 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 three of the four pumps. Machinery vibration signatures have been recorded for the refurbished pumps which indicates no random noise or vibration characteristic of internal recirculation. The fourth pump has been dismantled and is being examined for necessary repairs.

The Service Water System Control Modifications include the addition of a minimum flow valve for each service water pump. These valves modulate to assure that each pump operates above the minimum flow required.

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In light of the repairs required for the fourth pump, all modifications are now expected to be complete by December 30, 1982.

We trust the above will be found acceptable as a final report under the requirements of 10CFR50.55(e).

Very truly yours,

THE CINCINNATI GAS & ELECTRIC COMPANY



By

E. A. BORGMANN  
SENIOR VICE PRESIDENT

FKP:ec

cc: NRC Resident Inspector  
Attn: W. F. Christianson  
NRC Office of Inspection and Enforcement  
Washington, D. C. 20555