

Wayne H. Jens
Vice President
Nuclear Operations



Fermi-2
5400 North Dixie Highway
Newport, Michigan 48166
(313) 586-4150

November 5, 1984
EF2-70037

Mr. James G. Keppler
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

- Reference:
- (1) Fermi 2
NRC Docket No. 50-341
 - (2) Letter, W. H. Jens to J. G. Keppler,
April 30, 1984, EF2-68535
 - (3) Letter, W. H. Jens to J. G. Keppler,
July 19, 1984, EF2-69288

Subject: Final Report of 10CFR50.55(e) Item 121
"Water Found in the HPCI Lube Oil Reservoir"

This is Detroit Edison's final report of 10CFR50.55(e), Item 121, "Water Found in the HPCI Lube Oil Reservoir." Item 121 was originally reported as a potential deficiency on March 30, 1984, and was subsequently documented in References (2) and (3).

Description of Deficiency

On March 27, 1984 and June 12, 1984, during routine inspection of the High Pressure Coolant Injection (HPCI) system, water was detected in the HPCI lube oil system reservoir. This oil reservoir serves the turbine control oil system and the bearings for the turbine, main pump and gear reducer; the HPCI booster pump has self lubricated bearings. The cause of the water contamination was suspected to be inadequate draining from the HPCI main pump bearing drain trough which allowed water to rise in the bearing drain troughs and enter the lube oil system at the HPCI main pump bearing.

Subsequent tests and inspections to determine the cause of the water intrusion did not reveal any leakage paths through the components of the HPCI lube oil system, except for the possibility of water mixing with the lube oil at the HPCI main pump bearings as described above.

Mr. James G. Keppler
November 5, 1984
EF2-70037
Page 2

Recently, the gland seal supply line on the main pump of the HPCI was determined to be connected to the wrong port. On the main pump, the gland seal supply port is located on the pump casing and both ports on the seal housing are drain ports. On the HPCI booster pump, a more common configuration, both the seal supply and drain ports are located on the seal housing. When the main pump was connected in accordance with Field Modification Request (FMR) 6337 in the common configuration, the seal water entered one drain port and exited from the other. This resulted in the seal water bypassing the seal which created the appearance of excessive flow through the seal. This volume of water exceeded the drain capacity of the trough which separates the pump seal from the bearing. Detroit Edison has concluded that the water in the HPCI lube oil entered via the main pump bearing drain lines because the trough remained flooded. This situation was aggravated by the closure of the trough drain line valves which have since been removed.

The seal piping was supplied with the HPCI main pump, and was manufactured by Byron-Jackson; however, the seal piping was removed for HPCI refurbishment early in the project. Seal supply piping was fabricated and installed in accordance with FMR 6337 in September of 1983. The error is attributed to the uncommon configuration of the seal supply and discharge ports on the seal housing. The unusual seal configuration was not clearly identified in the pump vendor's manual and the installed configuration was not recognized as improper by the vendor representative investigating the problem with excessive seal leakage.

Analysis of Safety Implications

If the water contamination in the oil reservoir had gone undetected this condition could have rendered the HPCI inoperative. The HPCI system is an emergency core cooling system, redundant to the automatic depressurization system, and is required to function to mitigate a small break loss of coolant accident.

Corrective Action

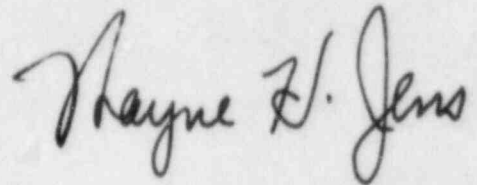
FMR 6337 has been revised to provide the proper piping configuration for the main pump seal. The field work is in progress. Proper operation of the seal will be verified using a static head pressure test.

Mr. James G. Keppler
November 5, 1984
EF2-70037
Page 3

The Byron-Jackson HPCI pump manual is being evaluated by Detroit Edison Engineering to determine if annotations to the manual are required.

This is Detroit Edison's final report on this item. If you have questions concerning this matter, please contact Mr. Lewis Bregni (313) 586-5083.

Sincerely,

A handwritten signature in cursive script that reads "Wayne H. Jens".

cc: P. M. Byron
R. C. DeYoung
R. C. Knop
USNRC, Document Control Desk