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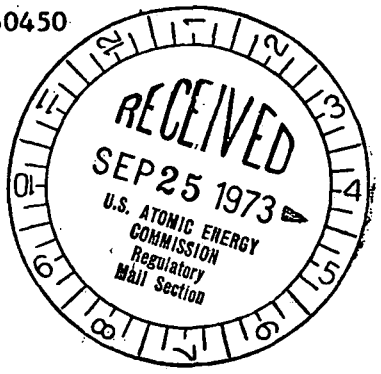
Regulatory File Cy.

50-237

WPW Ltr.#696-73

Dresden Nuclear Power Station
R. R. #1
Morris, Illinois 60450
September 19, 1973



Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

SUBJECT: LICENSE DPR-19, DRESDEN NUCLEAR POWER STATION, UNIT #2, SECTION 6.6.C.1 OF THE TECHNICAL SPECIFICATIONS. FAILURE OF LOW PRESSURE COOLANT INJECTION VALVES MO-2-1501-19A AND MO-2-1501-19B TO OPEN.

References: 1) S&L P&ID M-29
2) Section 5.2.1 of the Safety Analysis Report

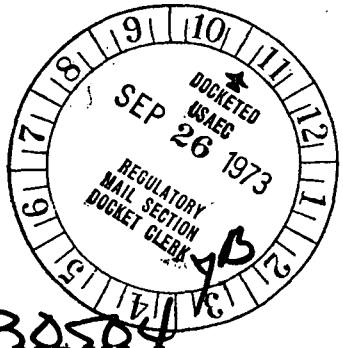
Dear Mr. Giambusso;

This letter is to report a condition relating to the operation of the unit at about 0200 hours on August 21, 1973. At this time, Low Pressure Coolant Injection (LPCI) Valve Operability Checks were in progress. During these checks, LPCI valves MO-2-1501-19A and MO-2-1501-19B (torus spray valves) failed to open. This malfunction is contrary to section 3.5.B.1 of the Technical Specifications which requires that the containment cooling systems be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.

PROBLEM

The unit was at 1568 MWt and 475 MWe with reactor pressure at 950 psig. The mode control switch was in the "run" position. LPCI Valve Operability Checks were being conducted as required prior to a routine Unit 2/3 diesel generator outage.

During these checks, it was discovered that both valves MO-2-1501-19A and MO-2-1501-19B would not open. Immediate investigation revealed that neither breaker tripped. The valves were then operated manually. Valve MO-2-1501-19A was then successfully cycled three times from the control room. During this operation, the valve motor felt unusually warm to the touch.



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MO-2-1501-19B was given an open signal but failed to operate. The valve then was manually operated a second time. Subsequent to this operation, the valve was successfully operated from the control room three times.

A work request was submitted for the purpose of conducting further investigation into the occurrence. The valve operability checks were completed by 0300 hours on August 21, 1973.

INVESTIGATION

Investigation, conducted on August 22, 1973, by the electrical maintenance department revealed that the torque switch (double torque switch SMB-000) for MO-2-1501-19A was damaged. The extension on the torque switch cam which comes in contact with the switch striker arms had broken off. This prevented the cam from turning and, consequently, the switch contacts from opening when torque was applied. The reason for the malfunction of MO-2-1501-19B could not be determined through the valve inspection.

It appears that the motors on the valves are unable to apply sufficient torque to open the valves. The valve manufacturer estimates that 93 ft.lbs. of torque are required to operate these valves. The motors on these valves are designed to generate a maximum of 119 ft.lbs. of torque. This margin is relatively small and apparently insufficient. The Station has initiated plant modifications (M12-2-73-183 and M12-3-73-183) to replace these motors with larger motors.

CORRECTIVE ACTION

Even though only MO-2-1501-19A had the damaged torque switch, both MO-2-1501-19A and MO-2-1501-19B had their torque switches replaced. The valves were successfully cycled after the new torque switches were installed. In addition, the present valve motor operators (SMB000) will be replaced with a larger type motor (SMB00) which will minimize the probability of future failures of these valves.

EVALUATIONS

This occurrence did not jeopardize the safety of plant personnel or the general public because the required volume of water was in the torus. This volume was established by allowing a maximum 50°F rise in the water temperature during a loss-of-coolant accident coincident with a loss of the suppression chamber cooling system (Ref. 2 above). The margin of safety was increased further by the fact that the torus water could have been cooled by using the LPCI flow test line.

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The investigation into motor operated valve malfunctions is progressing. An analysis of overload sizing has been completed and the results are being implemented. Plans to operate an instrumented breaker and determine actual current and voltage values during the next scheduled Unit 2 outage are being made.

The redundancy in these systems remove any questionable safety implications of a single valve failure. Therefore, continued operation is considered to be safe.

Sincerely,

Fred L. Morris
for W. P. Worden
Superintendent

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