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BBS Ltr. #714-75

Dresden Nuclear Power Station
R. R. #1
Morris, Illinois
October 20, 1975

10-28-75

Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operation-Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

SUBJECT: REPORT OF UNUSUAL EVENT PER SECTION 6.6.C OF THE TECHNICAL SPECIFICATIONS
LPCI VALVE 3-1501-5D MOTOR TRIP

References: 1) Regulatory Guide 1.16 Rev. 1 Appendix A

2) Drawing Number M-360

Report Number: 50-249/75-42

Report Date: October 20, 1975

Occurrence Date: September 20, 1975

Facility: Dresden Nuclear Power Station, Morris, Illinois

IDENTIFICATION OF OCCURRENCE

Motor-operated LPCI suction valve 3-1501-5D failed to open twice during testing.

CONDITIONS PRIOR TO OCCURRENCE

Unit-3 was operating at a power level of 700 MWt and 200 MWe. The LPCI valve operability test was in progress.

DESCRIPTION OF OCCURRENCE

At 0330 hours on September 20, 1975, motor-operated valve 3-1501-5D was being cycled as specified by the LPCI system valve operability test procedure. Since LPCI pump suction valves are normally open, valve 1501-5D was first closed to begin the cycle. As the valve was being opened, thermal overload devices opened up in the power circuit of the valve motor, tripping the valve before it had fully opened. The overload devices reset automatically, and the valve was opened the remainder of travel without further difficulty.

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During a second attempt to open valve 1501-5D, the thermal overload devices opened once again. As before, the valve subsequently opened without incident once the overload devices had automatically reset.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE (Component Failure)

The apparent cause of the occurrence was a defective valve motor. The motor's thermal overload devices tripped because the motor was drawing a high, unbalanced current. The motor current rating is 2.95 amps, with a thermal overload trip setting of approximately 3.4 amps. The phase currents of the motor were found to vary between 4.0 and 4.6 amps during opening operation, and between 4.5 and 5.0 amps during valve closure. The valve manufacturer is presently inspecting another valve motor which demonstrated similar characteristics and was subsequently replaced.

ANALYSIS OF OCCURRENCE

The LPCI pump suction valves (1501-5A-D) remain in the open position during reactor operation and do not close in response to any group isolation signal. Had valve 1501-5D failed in the closed position concurrently with a loss of coolant accident, the remaining three LPCI pumps would have been capable of providing adequate emergency core cooling. Since valve 1501-5D was capable of being manually opened as well, this occurrence did not threaten the safety of plant personnel or the public.

CORRECTIVE ACTION

To prevent a recurrence of this nature, the valve motor will be replaced with a new, similar motor which is now on order. Further corrective action will be contingent upon the valve manufacturer's evaluation of the defective valve motor mentioned above.

FAILURE DATA

A similar valve motor failure occurred on valve 3-1501-5A on July 28, 1975 (see report no. 50-249/75-33).

The "1501-5" and "1402-4" valves, which are operated by this type of motor, have experienced several thermal trips on both Units 2 and 3. The motor is a 440 volt, 2.95 ampere, 15 foot-pound motor manufactured by Reliance Electric Co.

B. B. Stephenson
Superintendent

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