



Regulatory File Cy.
Commonwealth Edison
 One First National Plaza, Chicago, Illinois
 Address Reply to: Post Office Box 767
 Chicago, Illinois 60690

BBS Ltr.#309-74

Dresden Nuclear Power Station
 R. R. #1
 Morris, Illinois 60450
 April 26, 1974

50-237



Mr. J. F. O'Leary, Director
 Directorate of Licensing
 U. S. Atomic Energy Commission
 Washington, D. C. 20545

SUBJECT: LICENSE DPR-19, DRESDEN NUCLEAR POWER STATION, UNIT #2, SUMMARY OF OPERABILITY TEST PERFORMED ON LOW PRESSURE COOLANT INJECTION VALVE 2-1501-3A.

References: 1) P & ID M-29

- 2) Letter to Mr. A. Giambusso from Mr. W. Worden dated April 14, 1973.
- 3) Letter to Mr. A. Giambusso from Mr. W. Worden dated March 23, 1973.
- 4) Letter to Mr. Giambusso from Mr. W. Worden dated September 21, 1973, WPW Ltr.#704-73.
- 5) Letter to Mr. Giambusso from Mr. W. Worden dated September 21, 1973, WPW Ltr.#705-73.
- 6) Letter to Mr. J. O'Leary from Mr. W. Worden dated November 21, 1973.

Dear Mr. O'Leary:

This letter is to inform you of the progress made in correcting the problems on Low Pressure Coolant Injection (LPCI) valve 2-1501-3A. The attached operability test indicates that the beveled gear problem as described in the letter of November 21, 1973 was most likely the cause of all previous malfunctions. Based on this finding, the proposed modification to re-design the feedback potentiometer, has been cancelled. However, the modification to add a fiber washer to the shaft of the existing feedback potentiometer was completed on valves 2-1501-3B, and 3-1501-A and B during April of 1974.



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1501-3A VALVE OPERABILITY TEST

The following is a summary of the operability test performed on Low Pressure Coolant Injection valve 1501-3A on Dresden Unit 2.

OBJECTIVE

Valve 1501-3A has had a history of operating failures. The object of the operability test was to cycle the valve on a daily basis for an indefinite period of time until consistent operation was achieved.

TEST DESCRIPTION

The valve was tested in the following manner:

1. A two pen chart recorder was connected to the valve circuit to monitor the valve position reference signal and the feedback potentiometer located on the valve.
2. The Nuclear Station Operator would start service water pump 1501-44A or 1501-44B.
3. The valve would immediately open to a preset position (about 60%).
4. The operator would then close and re-open the valve in 10% steps.
5. The input to the valve controller and the feedback from the valve positioner would be observed on the two pen recorder.

TEST RESULTS

The test uncovered several significant problems.

1. The torque switch on the valve operator was not set properly. This prevented valve closure below 60% with the pumps running. This problem was corrected by Electrical Maintenance by adjusting the torque switch. Total valve control was then possible.
2. On 10-25-73, the valve failed to open. The cause was determined to be improper feedback voltage due to jumping of teeth on the beveled gear assembly which drives the feedback potentiometer. This condition was corrected by Electrical Maintenance by adding a washer to the gear shaft, and removing the chain which drives the local valve position indicator. The effect was to improve considerably the mesh of the beveled gears. Inspection of a new spare gear assembly revealed that a spacer washer is normally installed on the beveled gear shaft. W.R. number 1795 was written

to inspect the gear assemblies on valves 2-1501-3B and 3-1501-3A and 3B to verify that the beveled gears are meshing properly, and that the required spacers are in place.

3. The valve was tested on a daily basis until March 2, 1974. Conditions such as equipment unavailability, weekends, and holidays, often prevented a test from being performed. A total number of 56 tests were made from October 1, 1973 to March 3, 1974.

After the correction of the space problem on October 25, 1974, no further difficulty was encountered. A total of 44 consecutive tests were performed without a failure. It was therefore concluded that the problem plaguing valve 2-1501-3A had been corrected and that further testing was unnecessary.

Sincerely,



B. B. Stephenson
Superintendent

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