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WPW Ltr.#57-74

Dresden Nuclear Power Station  
R. R. #1  
Morris, Illinois 60450  
January 25, 1974



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

50-249

SUBJECT: LICENSE DPR-25, DRESDEN NUCLEAR POWER STATION, UNIT #3, REPORT OF  
ABNORMAL OCCURRENCE PER SECTION 6.6.B.1 OF THE TECHNICAL SPECIFICATIONS.  
ELECTROMATIC 3-203-3A RELIEF VALVE FAILURE.

- References: 1) Notification of Region III of AEC Regulatory Operations  
Telephone: F. Maura, 1415 hours on January 17, 1974  
Telegram: J. Keppler, 1520 hours on January 17, 1974
- 2) Dwgs: P & ID M-345

Dear Mr. O'Leary:

This letter is to report a condition relating to the operation of the unit at about 2300 hours on January 16, 1974. At this time, electromatic relief valve 3-203-3A failed to operate. This malfunction is contrary to Section 3.5.C.1 of the Technical Specifications which requires that the HPCI subsystem shall be operable whenever the reactor pressure is greater than 90 psig and irradiated fuel is in the reactor vessel.

PROBLEM

At 2300 hours on January 16, 1974, the reactor mode switch was in run and the unit was at a power level of 2124 MWt and 622 MWe. Electromatic relief valve surveillance was being performed so that the HPCI system could be taken out of service for maintenance. Electromatic relief valve 3-203-3A failed to open. The down stream temperature element indicated that the pilot valve operated, but the valve failed to open. The other four electromatics operated satisfactorily.

HPCI surveillance was then run to verify operability, but HPCI proved to be inoperable. A unit shutdown was then commenced and the unit was placed in shutdown at 1817 hours on January 17, 1974.

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INVESTIGATION

Electromatic 3-203-3A was removed from the drywell and disassembled. The disc retainer, see Part 6 of Figure 1, was found cocked and could not be unthreaded. Upon inspection, it was found that the threads were gone and the disc could be pulled out. It is thought that the threads were destroyed due to vibration as the disc retainer is made of a softer material than the valve body. Then when the pilot valve was opened, the steam leaking past the destroyed threads was sufficient to keep the valve closed.

CORRECTIVE ACTIONS

The threads in the valve body were cleaned and a new disc retainer installed. The valve was then returned to service. The other four valves were checked for a similar failure. The disc on valve 3-203-3B could be moved approximately 1/8 to 1/4 turn. The disc was removed and the threads were found in good condition. The other three valves were found with the disc retainer securely in place.

EVALUATION

The relief valves of the automatic pressure relief subsystem are a back-up to the HPCI subsystem. They enable the core spray or LPCI to provide protection against the small pipe break in the event of HPCI failure, by depressurizing the reactor vessel rapidly enough to actuate the core sprays or LPCI. The core spray and/or LPCI provide sufficient flow of coolant to limit fuel clad temperatures to well below clad melt and to assure that core geometry remains intact.

Redundancy has been provided in the automatic pressure relief function in that only 4 of the 5 valves are required to operate. Because of this single valve failure there were no safety implications to plant personnel or the general public.

This type of valve failure has not been experienced at the plant before. It is not considered a generic problem and no cumulative experience regarding this type of failure exists. Therefore, the failure is not expected to recur. However, during the next refueling outage on Unit #2 an inspection will be made on its electromatic relief valves to perform an already scheduled modification and also to examine for characteristics similar to what was found on Unit #3.

Sincerely,

*W. P. Worden*  
W. P. Worden  
Superintendent

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