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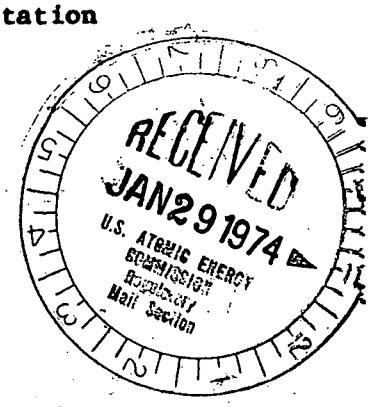
Regulatory File Cy.

WPW Ltr.#58-74

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

50-249



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

SUBJECT: LICENSE DPR-25, DRESDEN NUCLEAR POWER STATION, UNIT #3, REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.B.1.a OF THE TECHNICAL SPECIFICATIONS,
HPCI SYSTEM INOPERABLE.

References: 1) Notification of Region III of AEC Regulatory Operations
Telephone: Mr. F. Maura, 1415 hours on January 17, 1974
Telegraph: Mr. J. Keppler, 1520 hours on January 17, 1974

2) Drawings: P&ID M-374
G.E. Co. 509E253AR

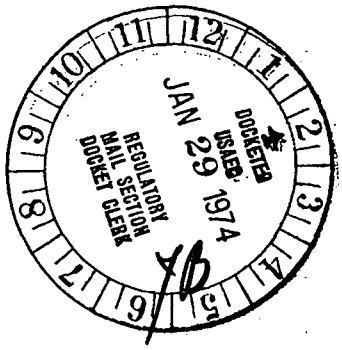
Dear Mr. O'Leary:

This letter is to report a condition relating to the operation of the unit at about 0300 hours on January 17, 1974. At this time an operability check on HPCI, required because an electromatic relief valve had earlier been found inoperable, revealed HPCI to be inoperable.

This malfunction is contrary to section 3.5.C of the Technical Specifications which requires that all active components of the Automatic Pressure Relief Subsystem, Core Spray, LPCI and Isolation Condenser be operable when HPCI is inoperable.

PROBLEM

With the reactor in "run" at 618 MWe, an operability test was conducted on HPCI. This was required because of an inoperable electromatic relief valve. It was discovered that the HPCI control valves would not open and HPCI was declared inoperable at 0330 hours on the 17th. An orderly shutdown was immediately commenced in accordance with Section 3.5.C.3 of the Technical Specifications.



The HPCI steam turbine failed to start when the Motor Speed Changer was operated and the control valves failed to open. The problem was determined to be in the hydraulic control system. No immediate action to effect repair to either HPCI or the electromatic relief was possible therefore shutdown of the reactor was commenced to bring plant status into compliance with the Technical Specifications. Reactor pressure was reduced below 90 psig by 1725 hours on the 17th of January.

INVESTIGATION

Investigation of the hydraulic system failure revealed the problem to be caused by a device called the "Interlocking Valve" which is a hydraulic cylinder with floating piston. This device prevents opening of the Turbine Stop Valve when the control valves are open and trips the control valves upon stop valve trip. Internal inspection of this valve revealed the presence of "burrs" on the cylinder wall and piston. These "burrs" were apparently present from initial installation and were aggravated with time and movement. They became sufficiently aggravated to cause interference with piston movement and thus prevented hydraulic fluid from entering the control valve actuating cylinder.

CORRECTIVE ACTION

The "burrs" were removed and all parts were thoroughly cleaned and inspected. The valve was reassembled and checked for free movement which was satisfactory. Repeated testing of the entire hydraulic system verified proper operation of the repaired valve and the remainder of the system. Repairs and testing were completed at 1300 hours on January 22, 1974.

No supplementary investigations or recommendations concerning Unit 3 are deemed necessary since the failure is concluded to be an isolated problem caused by an initial installation deficiency. To ensure that a similar situation does not occur on Unit #2 an inspection of the suspect valve will be made during the next extended maintenance outage.

EVALUATION

The relief valves of the automatic pressure relief subsystem are a back-up to the HPCI system. Redundancy has been provided in the automatic pressure relief function in that only 4 of the 5 electromatic relief valves are required to operate. Because of this single electromatic valve failure the system was capable of providing its backup function.

The two systems used concurrently serve as an alternate method of cooling the core upon isolation from the main condenser by using the relief valves and HPCI subsystem in a feed and bleed manner. Therefore, the high pressure relief function and the HPCI must be available together to cope with an anticipated transient so the LCO for HPCI and relief valves is set upon this function. However, because surveillance tests conducted on the isolation condenser proved it to be operable, the backup function was not required. Therefore, there were no safety implications to the plant or the general public.

Future failures of this type on HPCI are highly improbable in view of the type of failure. The problem was indigenous to this particular valve and cannot be considered generic in nature. Since this is so, other similar equipment need not be suspect. No cumulative experience regarding this type of failure exists nor is it expected to occur.

Sincerely,

W. P. Worden

W. P. Worden
Superintendent

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