50-237

Commonwealth Edison Company

72 WEST ADAMS STREET ★ CHICAGO, ILLINOIS

Address Reply to:
POST OFFICE BOX 767 ★ CHICAGO, ILLINOIS 60690

Dresden Nuclear Power Station
R. R. #1
Morris, Illinois 60450
April 14, 1973

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

Subject: License DRP-19 Dresden Nuclear Power Station, Unit #2, Section 6.6.C.1 of the Technical Specifications.

Dear Mr. Giambusso:

This is to report a condition relating to the operation of the unit in which on March 30, 1973, the containment cooling heat exchanger service water outlet valve, MO-2-1501-3A, failed to open during surveillance testing.

Problem and Investigation

On March 30, 1973, at 0430 hours while conducting a surveillance test on the containment cooling service water system, it was found that valve MO-2-1501-3A failed to open with a signal from the controller dPIC-2-1540-3A.

The subject valve is the outlet of the service water side of the 2A-1503 heat exchanger and is used to control the differential pressure between the service water side of the heat exchanger and the low pressure coolant injection, LPCI, water side. The valve is normally closed when both service water pumps are shutdown. It is throttled to maintain the service water pressure 20 psig above LPCI system pressure whenever a service water pump is running. The valve throttling is controlled by a position modulator which receives inputs from a differential pressure transmitter and valve position sensor. The position modulator compares the differential pressure signal with the valve position signal and actuates a relay in the valve opening and closing control circuit to maintain 20 psig differential pressure.

The valve position signal is generated by a slide wire assembly located on the valve. The center tap of the slide wire is rotated by a geared shaft on the valve operator. The slide wire assembly

50-237 inquiry

is held in a position by a lock nut securing it to a mounting bracket.

When it was discovered that the valve would not operate from the control room, the valve was operated from the local manual station. After operating the valve manually, the system was again tested and found to operate satisfactorily from the control room. The "B" containment cooling system was also tested satisfactorily.

The manual operation of the valve changed the conditions of the valve and thus hampered the determination of the exact cause of the failure. The investigation found the feedback resistor which feeds the position modulator tight and in the correct position. The valve limits were also checked and found to be correct.

A further investigation was conducted on April 5, 1973. A simulated pump "on" and differential pressure signal to the transmitter were established. The valve operated satisfactorily on four subsequent openings and closings. At no time was there an indication that the slider arm had left the slide wire portion of the feedback resistor.

Although it cannot be conclusively determined, it is believed that the slide wire center tap rotated off the feedback resistor resulting in the input of a faulty signal to the controller and subsequent valve failure.

The failure of this valve to open would cause a partial loss of cooling to the LPCI injection water, but would have no effect on the injection of low pressure coolant into the vessel. Failing closed would have no effect on the LPCI side and would insure high pressure on the service water side. Since the valve was manually operable and the required backup systems were available, the failure was not considered to present any increased hazard to the public safety.

Corrective Action

A similar failure occurred on the same valve on February 23, reported in our letter dated March 23, 1973, and as a result an evaluation of the design was initiated and will be completed by June 1, 1973. The valve position feedback system will be modified as dictated by the evaluation.

Fred S. Morris
for W. P. Worden
Superintendent
Dresden Nuclear Power System

WPW:CES:mlb