

# Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 539-6111

January 25, 1972

Dr. Peter A. Morris, Director  
Division of Reactor Licensing  
United States Atomic Energy Commission  
Washington D.C. 20545



Dear Dr. Morris:

Subject: Oyster Creek Station  
Docket No. 50-219  
Control Rods Latching at Position 02

This will advise that two control rods (18-11 and 30-31) latched at position 02, six inches short of fully inserted position 00, when the reactor was manually tripped on November 16, 1971 in connection with an incident that involved the loss of the station air system. This incident was reported to you in my letter of December 17, 1971.

This phenomenon had been experienced previously and is attributed to increased leakage past the stop piston seals in the control rod drive mechanism. Buffer orifices, comprised of a series of graduated holes, allow water to flow from the area above the drive piston during a scram or normal rod insertion. During a scram, the rapid insertion of the drive piston closes off the larger of these orifices causing water to be trapped between the top of the drive piston and the bottom of the stop piston. This water is forced out of the smaller orifices in the piston tube thereby creating a buffer action to decrease the rate of travel of the drive piston as its upward travel closes off orifices one at a time. Due to increased leakage of reactor water past the stop piston seals into the vented region above the drive piston, the final orifice (1/16-inch hole) cannot pass enough water and the control rod decelerates and stops slightly below the 00 latch position. The drive then settles back into the next, or 02, latch position. Station procedures require the reactor operator to verify that all control rods are fully inserted following a reactor scram. Under these circumstances, and also in accordance with procedures, the control rods were promptly inserted to the 00 position by manual operator action.

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Our continuing program of control rod drive system surveillance includes the monitoring of scram time for 26 selected drives, monthly stall flow measurements, weekly exercising of all partially or fully withdrawn control rods, and the observation of control rod performance during the day-to-day control rod movements associated with power operation. The results of this surveillance program indicate normal control rod drive system performance. As previously reported to you in my letter of May 18, 1970, the reactivity worth of a control rod is very small between the "02" and "00" position, with the total worth of all 137 control rods between these two notches being only approximately 0.50%  $\Delta K$ . This may be compared to a value of  $k_{eff}$  of approximately 0.95 under cold shutdown conditions with all control rods fully inserted. In view of the foregoing, we conclude that the control rod drive system continues to be capable of performing its intended function.

We will continue to monitor the performance of the control rod drives and keep the Region I Compliance office advised of our observations. During the next refueling outage (presently scheduled for the spring of 1972), drives 18-11 and 30-31 will be replaced with rebuilt drives and they will be disassembled and inspected.

We are enclosing twenty-five copies of this letter.

Very truly yours,

*Ivan R. Finfrock, Jr.*

Ivan R. Finfrock, Jr.  
Manager, Nuclear Generating Stations

IRF/pk

Enclosures

cc: Mr. J. P. O'Reilly, Director  
Division of Compliance