

JUN 01 1984

MEMORANDUM FOR: Richard C. DeYoung, Director  
Office of Inspection and Enforcement

FROM: C. J. Heltemes, Jr., Director  
Office for Analysis and Evaluation  
of Operational Data

SUBJECT: STUCK OPEN ISOLATION CHECK VALVE ON THE  
RESIDUAL HEAT REMOVAL SYSTEM AT HATCH UNIT 2

A recently completed Engineering Evaluation Report on the above subject is enclosed. Our evaluation determined that the stuck open isolation check valve on the low pressure coolant injection line at Hatch Unit 2 was caused by a series of human errors. They involved a maintenance error on the air actuator of the valve; inadequate post-maintenance testing; and inadequate surveillance of control room indications related to valve disk position and actuator travel. Our evaluation further concluded that the open check valve substantially degraded the isolation barriers between the high-pressure reactor coolant system and the low-pressure residual heat removal system. This in turn led to a significant increase in reactor accident risks at Hatch Unit 2 because the mispositioned valve significantly increased the probability of an interfacing loss-of-coolant accident. Such an accident which in this situation would be caused by a single failure of the normally closed motor-operated injection valve would involve the sudden discharge of high-pressure reactor coolant outside the primary containment and would also likely disable the low-pressure residual heat removal system. Thus the event is judged to have safety significance for Hatch Unit 2. The corrective actions taken by the licensee are judged to be adequate.

The event at Hatch Unit 2 appears to be unique because an isolation check valve on the low pressure coolant injection line being held open by its air actuator has not been reported at other plants in the past two years. However, a related event occurred at the Pilgrim plant involving the degradation of the isolation barriers between the reactor coolant system and the high pressure coolant injection system as a result of human errors. Both events point to the dominant contribution of human errors to the degradation of isolation barriers.

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Based on the findings stated above, we suggest that an information notice be prepared to discuss this event and the event at Pilgrim involving the degradation of high-pressure/low-pressure system boundaries due to human errors. By a separate memorandum, we are sending this report to the Office of Nuclear Reactor Regulation for review by the Integrated Maintenance Task Group.

If you have questions or comments, please contact Peter Lam (x24438) of my staff.

Original signed by:

C. J. Heltemes, Jr.

C. J. Heltemes, Jr., Director  
Office for Analysis and Evaluation  
of Operational Data

Enclosure:  
As stated

cc w/o enclosure:  
H. R. Denton, NRR  
W. T. Russell, NRR

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