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February 8, 1983

Docket No. 50-278

Mr. R. C. Haynes, Administrator
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19046

SUBJECT: Licensee Event Report Narrative Description

Dear Mr. Haynes:

The following occurrence was reported to Mr. A. R. Blough of Region I U.S. NRC on January 4, 1983:

Reference:	Docket No. 50-278
Report Number:	3-83-02/IT-0
Report Date:	February 8, 1983
Event Date:	January 26, 1983
Facility:	Peach Bottom Atomic Power Station RD 1, Delta, PA 17314

Technical Specification Reference:

Techncial Specification 3.7.D.2 states that "In the event any isolation valve specified on Table 3.7.1 becomes inoperable, reactor power operation may continue provided at least one valve in each line having an inoperable valve shall be in the mode corresponding to the isolated condition." The HPCI turbine exhaust vacuum breaker isolation valve is included in Table 3.7.1.

Specification 3.5.C.2 states that, "From and after the date that the HPCI subsystem is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless such subsystem is sooner made operable, providing that during such seven days all active components of the ADS subsystem, the RCIC system, the LPCI subsystem and both core spray subsystems are operable." If these requirements cannot be met, "an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown Condition within 24 hours," per Technical Specification 3.5.C.3.

IE22

Description of the Event:

During local leak rate testing of the HPCI turbine exhaust vacuum breaker isolation valve, with the unit operating at 860 MWe, the valve failed to fully close. A manual valve in the same line was closed and the HPCI system was declared inoperable. Surveillance testing of redundant backup systems was initiated per Technical Specificaition 3.5.C.2.

When the RCIC surveillance test was performed, the turbine throttle valve motor breaker tripped during the portion of the test that checks the turbine remote throttle valve reset capability. An orderly unit shutdown was immediately initiated per Technical Specification 3.5.C.3.

Following adjustment of the linkage on the RCIC turbine throttle valve motor breaker thermal reset switch, a successful surveillance test was completed on the valve and RCIC system. With RCIC operability re-established the shutdown was terminated and reactor power increased.

The resident NRC Inspector was promptly notified of the problems with the HPCI vacuum breaker isolation valve and the declaration of HPCI inoperable. However, the latter problem with the RCIC throttle valve was inadvertently not reported to the resident Inspector nor was the NRC Operations Center notified, because the RCIC throttle valve problem was corrected within 30 minutes.

Probable Consequences of the Event:

The motor operated HPCI vacuum breaker isolation valve is normally open to permit the vacuum breakers to break vacuum between the HPCI turbine exhaust line and the torus air space. It closes automatically if primary coolant pressure is less than 100 psig and drywell pressure is greater than 2 psig. This function isolates the torus air space from the HPCI turbine exhaust line during periods when HPCI operability is not required. It also permits torus water to seal the HPCI exhaust line check valve after HPCI operation is no longer required.

When the HPCI vacuum breaker isolation valve failed to fully close, an in-line manual isolation valve was closed to maintain containment integrity. The second isolation valve in this penetration is the HPCI exhaust line check valve, which was operable during this period. With the vacuum breaker line isolated, initial operation of the HPCI system would not be affected. However, in this configuration, if the HPCI system is cycled on and off, a potential exists for torus water to be drawn into the HPCI turbine exhaust line, creating a significant backpressure on the turbine on successive starts.

The safety significance of the vacuum breaker isolation valve to fully close is minimal because the in-line check valve was operable and in the closed positon. Continued operation of the unit with the HPCI manual isolation valve closed is conservative because the HPCI system was maintained in an operable condition.

The RCIC system was tested due to declaring the HPCI system inoperable. The RCIC turbine throttle valve is normally in the open position and was therefore capable of starting automatically and operating properly upon initiation prior to performance of the surveillance test. However, if the RCIC turbine had tripped during operation, it could not have been re-started from the control room. The RCIC throttle valve was inoperable for approximately 30 minutes during which time the mechanical linkage on the reset switch on the throttle valve motor breaker compartment was adjusted to reset the thermal overloads.

The HPCI system had initial operating capability and the ADS was operable. Since an orderly shutdown was immediately initiated, and the RCIC was only inoperable for a short time period, the safety significance of this event is considered minimal.

Cause of the Event:

Routine leak rate testing of the motor opearated HPCI vacuum breaker isolation valve indicated that the limitorque operator prevented the valve from closing fully. Inspection of operator internals indicated that the gear train lubricating grease had solidified preventing the operator from fully closing the valve.

During the surveillance test of the RCIC system, the throttle valve was tripped and reset. During relatching of the valve the thermal overloads on the valve motor tripped, due to motor overcurrent.

Corrective Action:

When the HPCI motor operated vacuum breaker isolation valve failed to close, immediate corrective action was taken by closing the in-line manual isolation valve and declaring HPCI inoperable. Surveillance testing of back-up ECCS systems was initiated immediately per the Technical Specifications. On January 27, 1983, the motor operator was repaired by removing the hardened lubricant and applying new lubricant to the operator gear train. At this time, the limit switches and torque switches were checked and realigned and a successful local leak rate test was performed late on January 27, 1983.

The RCIC system was returned to operable status within 30 minutes of the failure. Following adjustment of the reset linkage on the throttle valve motor thermal overloads, RCIC throttle valve and RCIC system operability was re-established and the unit shutdown was terminated. Further preventive maintenance was performed on the throttle valve on January 27, 1983 by lubricating the valve stem and additional stroking to preclude valve motor overcurrent.

Due to the failure to properly report the RCIC inoperability, a portion of the licensed operator requalification program will be dedicated to this subject during the second requalification lecture cycle.

Sincerely,

M. J. Cooney
Superintendent
Generation Divison-Nuclear

cc: Mr. Norman Haller, Director
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