

PHILADELPHIA ELECTRIC COMPANY

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December 20, 1973

Mr. A. Giambusso  
Deputy Director of Reactor Projects  
United States Atomic Energy Commission  
Directorate of Licensing  
Washington, D.C. 20545

Dear Mr. Giambusso:

Reference: Peach Bottom Atomic Power Station - Unit 2  
Facility Operating License DPR-44  
Docket No. 50-277

Subject: Abnormal Occurrence

The following two events were reported to Mr. Donald Cathton,  
A.E.C. Region I Regulatory Operations Office on December 13, 1973.

In accordance with Section 6.7.2.A of the Technical Specifications, Appendix A of DPR-44 for Unit #2 Peach Bottom Atomic Power Station, this failure is being reported to the Directorate of Licensing as an Abnormal Occurrence.

HPCI Oil Piping Failure

Late on December 12, 1973, with the reactor at full temperature and pressure and at approximately 5% power, a mechanical failure of an oil line in the HPCI turbine control system rendered the HPCI turbine inoperable. The failure occurred during startup testing of the HPCI at a turbine speed of about 3000 RPM. The HPCI system had been operated successfully several times earlier in the day to support startup testing on this system. The exact nature of the problem was immediately communicated from the test personnel at the turbine to the control room operator, who was already aware of an oil system problem due to the closure of the turbine stop valve and the auto-start of the auxiliary oil pump. The closure of the turbine stop valve caused turbine speed reduction and when the turbine shaft stopped, the auxiliary oil pump was stopped to terminate the oil spill to the skid. Surveillance Testing required by Technical Specification paragraph 4.5.C.2 was performed to ensure operability of other core cooling systems.

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## Investigation and Corrective Action

Visual observation revealed a full circumferential sheer failure of the threaded portion of a  $1\frac{1}{2}$  x  $1\frac{1}{4}$  inch pipe bushing, where the bushing enters a flange on the main turbine stop valve pilot piston. This bushing is at the upper end of the vertical run of an "L" shaped section of piping. The horizontal run of the "L" connects to adjacent oil piping through a flexible hose connector. The "L" piping was not supported so that any vibration induced or piping weight movements of the horizontal run would be carried by the bushing. This piping configuration was vendor supplied and skid mounted.

To preclude the possibility of a reoccurrence of this type of failure, the following steps were taken.

- a. A piping specialist from the architect-engineers visually checked the oil piping on the HPCI turbine skid for adequate support. There were no other oil piping-support deficiencies.
- b. The failed bushing was replaced and the horizontal run of piping was supported by a newly installed bracket and U-bolt arrangement, as per the architect-engineers' recommendation.
- c. The turbine vendor representative at the site concurred in the recommendation. The oil system was operated after the repair was made to ensure operability.

At the time of this writing, the reactor is depressurized for other reasons, so the HPCI turbine cannot be operationally tested until steam is available. An operability test shall be performed during the next startup.

## Safety Implications

At the time of the failure, reactor power was approximately 5 percent. The core power history is such that there is no perceptible decay heat. The redundant high pressure core cooling systems were tested satisfactorily, as were the low pressure core cooling systems. No safety implications are associated with this failure.

## dPIS-2-2-129A Setpoint Shift

During a routine functional test of differential pressure switch dPIS-2-2-129A on December 12, 1973, it was noted that the switch was tripping and resetting below the permissible operating range. The technical specification limit for switch actuation is 0.5 p 1.5 psig. This switch provides one of four inputs in a 1 of 2 twice logic on Jet Pump Riser Differential Pressure to the RHR Loop Selection Logic.

Investigation

Investigation revealed that the set point shift was caused by failure of the set point adjustment mechanism to lock the linkage in a permanent position. The manufacturer of these switches has recently modified these devices to provide a locking screw on the primary adjustment linkage arm.

Corrective Action

The manufacturer of the instruments was contacted in an effort to obtain modification kits for these instruments. These kits were not readily available. Temporary measures have been taken to provide a means to lock the set point primary linkage arm in a permanent position.

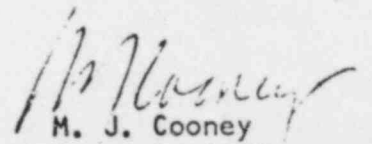
A survey was made on all similar devices in the reactor protection system, primary containment isolation system and emergency core cooling system. The temporary measures are being applied to those devices which lack the new manufacturer's modifications. Modification kits have been ordered for all these devices. These will be installed on a systematic basis when they become available.

The temporary method of locking the set point mechanism in place has been reviewed by the PORC and a representative of the Engineering and Research Department. The technicians performing this work have been specifically instructed as to how these changes are to be made. The instruments will be recalibrated and functionally tested after the set point mechanism has been locked in place.

Safety Implications

This switch is used in a one of two twice logic for LPCI loop selection and in its as found condition would have supplied one of the two signals needed to inject into the "A" recirculation loop. Since the other three switches in this logic have been performing properly, there is no reason to believe that an erroneous loop selection would have occurred. Therefore, there is no safety implication associated with this set point shift.

Very truly yours,

  
M. J. Cooney  
Asst. Genl. Supt.  
Generation Division

WBW:lpn

cc: J. P. O'Reilly, Director, Region I  
U. S. Atomic Energy Commission