

PHILADELPHIA ELECTRIC COMPANY

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September 20, 1979

Mr. Boyce H. Grier, Director  
Office of Inspection and Enforcement  
Region I  
United States Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Dear Mr. Grier:

SUBJECT: Licensee Event Report Narrative Description

The following occurrence was reported to Mr. Greenman, Region I, Office of Inspection and Enforcement on September 6, 1979.

Reference: Docket Number 50-277  
50-278

Report No: LER 2-79-42/1T  
Report Date: September 20, 1979  
Occurrence Date: September 6, 1979  
Facility: Peach Bottom Atomic Power Station  
R.D. 1, Delta, PA 17314

Technical Specification Reference:

Technical Specification 3.7.A.6 states in part "whenever either reactor is in power operation, the Post-LOCA Containment Atmospheric Dilution System must be operable and capable of supplying nitrogen to either Unit 2 or Unit 3 containment for atmosphere dilution..."

Description of the Event:

During an engineering review, the Containment Atmosphere Dilution (CAD) system was discovered to have seismic and redundancy deficiencies when compared with the description in the PSAR. The single 24 vdc power supply which powers CAD flow and containment pressure instrumentation is not seismically qualified. Further, CAD is not single failure proof in regard to

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the 24 vdc power supply. Additionally, the CAD 1-inch vent isolation valves are not single failure proof because failure of either the inboard or outboard valve power supplies disables venting capability from both the torus and the drywell. For these reasons, and based on the recommendations of the Peach Bottom Operation and Safety Review Committee, the CAD system was declared inoperable on September 6, 1979.

Also, system redundancy is not guaranteed due to lack of safeguard cable routing for the following:

1. CAD 2" vent control valve control wiring.
2. Signal wiring for CAD flow and containment pressure indication.
3. Nitrogen injection control valve control wiring.
4. CAD panel C484A and B power wiring which powers CAD hydrogen and oxygen analyzers, injection solenoid isolation valves and sample solenoid isolation valves.
5. Hydrogen and oxygen analyzer control room indication signal wiring.
6. Nitrogen electric vaporizer power wiring.
7. CAD analyzer sample isolation solenoid valve power wiring.

Consequences of Event:

The safety significance associated with this occurrence is minimized by the following circumstances and alternate methods.

1. The CAD system is not required immediately upon a LOCA and procedures are being developed to mitigate the effects of failures caused by the above deficiencies.
2. The non-seismic power supply is readily accessible following a LOCA which makes repair or temporary replacement feasible. Similarly, the single failure which would have prevented containment venting can be easily repaired or temporarily replaced.
3. Item 1 under lack of safeguard cable routing can be mitigated by manual positioning of the control valve with a handjack.
4. Items 2 and 3 are not a problem for nitrogen injection due to accessibility of injection control valves and flow elements. For venting consideration, the offgas stack radiation monitor would be used as a guide for venting instead of vent flow.
5. Item 4 can be taken care of by a temporary power jumper to C484 from RPS power supply.

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6. Items 5 and 7 have backup oxygen analyzers from Primary Containment Atmosphere Control to provide guidance for nitrogen injection because oxygen concentration must be controlled if hydrogen concentration is not known.
7. Item 6 is being alleviated by a procedure to provide temporary feed to the CAD vaporizers through the boiler house 48CV load center or portable generator if necessary.

Cause of Event:

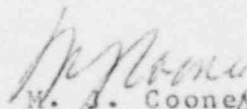
The cause of this occurrence was inadequate system design by the Architect-Engineer.

Corrective Action:

The immediate corrective actions to be taken in order to return the CAD system to an operable status are the relocation and separation of CAD pressure and flow instrumentation power supplies to Division 1 and Division 2 ECCS power supplies, installation of redundant safeguard cables to each torus and drywell vent isolation valve and permanent installation of CAD vent control valve safeguard control cables. The safeguard cables to the vent isolation valves will terminate at a terminal board to be used with emergency jumpers if the need arises. These actions have been completed on Unit 2, and will be implemented on Unit 3 during the refueling outage presently in progress, with the exception that the permanent safeguard cables to the Unit 3 vent isolation valves will be installed.

The repairs involving the safeguard routing deficiencies are expected to be completed within 2 months on Unit 3, and within 5 months on Unit 2.

Yours truly,

  
M. J. Cooney  
Superintendent  
Generation Division-Nuclear

Attachment

cc: Director, NRC - Office of Inspection and Enforcement  
Mr. Norman M. Haller, NRC - Office of Management &  
Program Analysis

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