



PEACH BOTTOM—THE POWER OF EXCELLENCE

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

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D. B. Miller, Jr.
Vice President

July 22, 1991

10 CFR 2.201

Docket Nos. 50-277
50-278

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station - Units 2 & 3
Response to Notice of Violation 91-16-01/01
(Combined Inspection Report Nos. 50-277/91-16;
50-278/91-16)

Dear Sir:

In response to your letter dated June 19, 1991, which transmitted the Notice of Violation in the referenced Inspection Report, we submit the attached response. The subject Inspection Report concerns a routine resident safety inspection during the period April 23 through June 8, 1991.

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

cc: R. A. Burricelli, Public Service Electric & Gas
T. M. Gerusky, Commonwealth of Pennsylvania

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Response to Notice of Violation 91-16-01/01

Restatement of Violation

10CFR Part 50, Criterion XVI, Corrective Action, and the Philadelphia Electric Company Quality Assurance Plan require that measures be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of a significant condition adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, as of May 21, 1991, the licensee had not implemented corrective action to resolve carbon dioxide fire suppression system design deficiencies which could impact the ability of the high pressure coolant injection (HPCI) system to perform its intended function. Specifically, failure or spurious actuation of non-qualified fire suppression system components would result in loss of the safety-related HPCI compartment coolers. In 1988 the same deficiencies with non-qualified fire suppression system components were identified by the licensee and corrected relative to the emergency diesel generators. However, actions were not taken to correct the same deficient conditions relative to the Unit 2 and Unit 3 HPCI systems until identified by the inspector.

This is a Severity Level IV Violation (Supplement I).

Reason for Violation

The identification of deficiencies in the Peach Bottom diesel Cardox circuitry in 1987 were the result of a deficiency identified at Limerick Generating Station where non-qualified devices were found to trip the diesels on initiation of the fire suppression system. The investigation and evaluation of this deficiency and associated corrected actions were reported in Licensee Event Report (LER) 2-87-28. At that time the deficiencies were thought to be design specific to the diesel generators. The review and evaluation focused on diesel operability, and not on fire system interlocks with other safety systems.

Fire suppression system components were also inadvertently missed during the HPCI System EQ upgrade in April of 1990 and were again not realized in a subsequent HPCI EQ review which began in January 1991. The HPCI Equipment Operability Report (EOR) was used as the basis for the list of HPCI equipment to be qualified. The EOR was reviewed to identify equipment not already included in the environmental qualification (EQ) program. Equipment not already included was then walked down to identify the make, model, and installed configuration. Documentation was then gathered and reviewed which resulted in the performance of maintenance activities, some equipment replacement, and qualification of equipment. In this case, the area unit coolers and its control station were found to be previously included in the EQ program; therefore, no detailed review of HPCI drawings was performed.

During development of the component Q-list in 1987-1988, each component in the HPCI system and its auxiliary supporting features were to be identified and classified. HPCI relay 86-PE2 however, was not classified. Although HPCI relay 86-PE2 did not have a safety function it should have been classified as non-safety related with special requirements because the failure of the relay could prevent the HPCI system from performing its safety function. The failure to classify and identify these components with respect to environmental qualification prevented identification of the problem during these reviews.

Corrective Steps Taken and Results Achieved

A non-conformance report (NCR) was initiated to evaluate hardware problems regarding this incident. An interim disposition of the NCR was to remove the non-qualified relay from the circuit. Temporary Plant Alterations (TPAs) were installed to bypass the affected component relay that trips the HPCI room cooler fans from an initiation signal of the carbon dioxide fire suppression system. An evaluation was performed which determined that the effectiveness of the HPCI Cardox fire suppression system would not be reduced by continued operation of the HPCI room coolers.

An investigation into why HPCI relay 86-PE2 was not classified during the development of the component Q-list has been completed. The individuals involved in the component Q-list development have been interviewed for additional insight into what factors and methods were used for the Q-list classification process. This review revealed that the HPCI room cooler schematic diagram was reviewed and that the fire suppression relay should have been classified. It appears that the omission was an oversight on the part of the reviewer and not due to a programmatic concern. This review was expanded to include a critical evaluation of the component classification program. A weakness was identified with the timely resolution of open items that were generated during the classification process and with controls placed on the resultant list of components. Actions to correct these weaknesses are currently underway.

A task force was formed to review the HPCI system and verify that there were no other components that were inadvertently excluded from the environmental qualification program. This review included a document search and a walkdown performed in accordance with a preplanned checklist. This review has been completed and no other components have been identified as being omitted in the HPCI system.

A review of other fire suppression interlocks in similar, auxiliary supporting systems has been completed. This review determined that there were no non-qualified fire suppression interlocks that could affect the operation of any safety related equipment. In addition, a review for non-qualified interlocks in auxiliary supporting systems was also completed. These systems included Emergency

Service Water Room Coolers, Emergency Core Cooling System Room Coolers, Diesel Cardox System, Standby Gas Treatment and Control Room HVAC System. This review identified potential Q-list discrepancies in the Control Room HVAC System that are currently under investigation. There were no problems identified in the other systems.

Additionally, a review of the effect of spurious fire suppression system actuation on safety-related systems is in progress. A potential concern with the operation of the Standby Gas Treatment System has been identified and is under investigation.

Corrective Steps that Will Be Taken to Avoid Future Violations

The need to fully address generic implications has been emphasized to engineering personnel through training and self-assessment. Engineering reviews are also more thorough and encompassing than they were during this incident in 1987-1988. Disposition of non-compliance reports now address generic concerns.

The correction of weaknesses identified during the resolution of open items generated from the component classification process review will reduce the potential for future error. Corrective actions concerning the controls placed on the qualified list of components and associated special requirement component list (ie. seismic or environmental) will also enhance the component classification process. The additional reviews and associated ongoing corrective actions will also reduce recurrence of this event on other systems.

Date When Full Compliance Was Achieved

Full compliance was achieved May 22, 1991, when the HPCI Room Coolers were returned to an operable status.