

PHILADELPHIA ELECTRIC COMPANY

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May 11, 1988

JOSEPH W. GALLAGHER  
VICE PRESIDENT  
NUCLEAR SERVICES

Docket Nos. 50-277  
50-278

Mr. W. R. Butler, Director  
Project Directorate I-2  
Division of Reactor Projects I/II  
ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Peach Bottom Atomic Power Station  
Fire Protection Open Items

Reference: NRC Inspection Report Nos. 50-277/87-30  
and 50-278/87-30, dated December 4, 1987

Dear Mr. Butler:

The purpose of this letter is to transmit information on the open items from the Combined Inspection Report Nos. 50-277/87-30 and 50-278/87-30 for your review and concurrence. There are three open items identified by the inspection report which, according to our discussions with the lead inspector, Mr. A. Krasopoulos, require NRR review for closure: (1) manual operations versus hot shutdown repairs, (2) high impedance faults, and (3) high/low pressure boundary interfaces. Mr. Krasopoulos requested that PECO set up a meeting with the NRR staff to obtain their interpretation of the NRC regulations regarding these open items. Following several conversations between W. C. Birely, PECO and R. E. Martin, NRC Peach Bottom Project Manager, it was agreed that a formal response would be necessary to facilitate a meaningful discussion of these issues at a future PECO-NRC meeting.

Detailed information on two of the three issues is presented herein. Information on the third issue (high impedance faults) will be submitted in June 1988. In addition, a status summary of the other open items identified in the inspection report is included for your information. Below is a list of open items from the inspection report, action requested of the NRC by this letter, and a reference to the detailed information.

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<u>Open Items</u>	<u>Action Requested</u>	<u>Detailed Information</u>
1. Manual Operations (versus Hot Shutdown Repairs) 87-30-02	NRR Concurrence	Attachment 1
2. High/Low Pressure Boundary Interface 87-30-04	NRR Concurrence	Attachment 2
3. High Impedance Faults 87-30-03	NRR Concurrence	June, 1988 Submittal
4. Fire Damper Operability (page 4 in Inspection Report)	Status Information Only	Attachment 3
5. NRC Comments on Procedures (page 11 in Inspection Report)	Status Information Only	Attachment 3
6. Accessibility of HPCI Panel (page 11 in Inspection Report)	Status Information Only	Attachment 3
7. Fuse Replacement Controls (page 13 in Inspection Report)	Status Information Only	Attachment 3

1. Open Items 87-30-02 (Hot Shutdown Repairs)

NRC Comment:

Open item 87-30-02 was identified during the walkdown of the alternative shutdown procedure. The inspectors identified that some actions in the procedure were, by their interpretation of NRC guidance, hot shutdown repairs. Repairs are not permitted by the NRC guidance.

Response:

Philadelphia Electric Company (PECo) believes these actions are manual operations and should not be considered hot shutdown repairs. Attachment 1 provides a description of the actions in question and a justification for considering them to be manual operations.

## 2. Open Item 87-30-04 (High/Low Pressure Interface Concerns)

NRC Comments:

The high/low pressure interface analysis performed by the licensee has determined that spurious opening of the RHR Shutdown Cooling Suction Line Isolation Valves (MO-10-17 & 18) will not result in failure of the RHR Low Pressure Shutdown Cooling Piping. This determination is based on information contained in General Electric Co. Report NEDC-31339 "BWR Owners Group Assessment of Emergency Core Cooling System Pressurization In Boiling Water Reactors." By letter dated December 10, 1986, the licensee has submitted this report to the NRC for review. Pending final NRC review of the BWR Owners Group Report, this item will remain unresolved (87-30-04).

Response:

PECo's position is based on information contained in General Electric Company Report NEDC-31339, "BWR Owners' Group Assessment of Emergency Core Cooling System Pressurization in Boiling Water Reactors". This report has been submitted to the NRC (Letter, T. A. Pickens, BWROG; C. J. Hetemes, Jr., NRC, dated December 10, 1986). It identifies the inherent pressurization margin in low pressure ECCS piping and cites various instances where such piping has been overpressurized without failure. The report has been reviewed and determined to be applicable to Peach Bottom. Therefore, the RHR low pressure shutdown cooling piping is not expected to fail as a result of a spurious operation of the isolation valves. Attachment 2 is a copy of the General Electric Company report.

## 3. Open Items 87-30-03 (High Impedance Faults)

NRC Comment:

In lieu of performing a complete plant specific analysis of this concern, the licensee submitted for review test data which was obtained from a cable fault test. The objective of the test was to support the licensee's position that the occurrence of multiple high impedance faults due to fire will not have an adverse effect on the circuit coordination. Based on the results of this test, the licensee concluded the the occurrence of multiple high impedance faults will not affect the safe shutdown capability of the plant. The licensee committed to submit the test procedure and results to the NRC for review. Pending review of the test data by NRC, this item will remain unresolved (87-30-03).

Response:

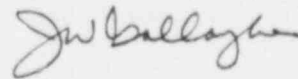
PECo believes the occurrence of multiple high impedance faults due to fire damage will not have an adverse impact on circuit coordination since a test has been performed to support this position. The test report is being revised

to clearly identify its application to the Peach Bottom design. The test procedure and results will be submitted to the NRC in June 1988.

Attachment 3 provides a summary status for the other open items 4 through 7 identified in the inspection report.

Following your review of the enclosed material, please identify a schedule for a meeting to assist in resolution of these issues. Should you have any questions regarding this matter, please do not hesitate to contact us.

Very truly yours,



cc: Addressee  
W. T. Russell, Administrator, Region I, USNRC  
T. P. Johnson, Senior Resident Inspector  
T. E. Magette, State of Maryland

## ATTACHMENT 1

### Manual Operations

Appendix R, Section III.G.1.a requires that "one train of systems necessary to achieve and maintain hot shutdown conditions from either the Control Room or Emergency Control Station(s) is free of fire damage". The NRC staff interpretation of this requirement is provided in a July 2, 1982 memorandum from R. J. Mattson, Director, Division of Systems Integration, to R. H. Vollmer, Director, Division of Engineering.

Below are discussions of three types of manual actions that are part of the safe and alternative shutdown procedures for Peach Bottom. The discussions identify why PECO believes these actions are manual operations and should not be considered hot shutdown repairs. Two of the issues involve fuse removals and one issue involves the manual operation of motor operated valves at their MCC breakers.

#### Fuse Removal - 4 kV Breakers

Procedure SE-10, Plant Shutdown from the Alternative Shutdown Panel, involves a manual operation which removes fuse blocks from the 4 kV switchgear and manually trips circuit breakers. The circuit breakers that are being tripped supply power to components that are not required to support alternative shutdown. In this procedure, the fuse removal is not a pre-emptive action to preclude the spurious closure of these circuit breakers that supply non-alternative shutdown loads, but is instead an action to allow the operator to take positive control of the load on the bus by shedding non-required loads. The fuses in question are contained in pull-apart blocks, a stab-equipped insulated enclosure with a handle. These blocks perform similarly to fuse disconnect switches in that the conductors are open circuited when the block is removed. No tools are needed for the equipment operation. During the NRC inspection, the ease and practicality of this operation was verified by the inspectors. The removal of these fuse blocks is safe, practical, and can be accomplished within the time constraints of the shutdown analysis and should be considered a manual operation. We are prepared to present photographs and the equipment to illustrate its operation at an NRC-PECO meeting.

#### Fuse Removal - MOVs

Attachments to Procedure SE-10 and other safe shutdown procedures (Fire Guides and Basis, T300 series of the TRIP procedures) involve a manual operation which removes control fuses from MCCs during the positioning of motor-operated valves (MOVs) from the MCC. The MOVs may require positioning due to fire damage to control cables that results in loss of MOV control in the Main Plant Control Room. If power to the MOV is not subject to fire damage, the MOV can be positioned at the MCC through the use of the auxiliary or main contactors. As part of positioning the MOV at the MCC, the control power fuse may be removed as a good operating practice, i.e. operator protection from an electrical hazard. The fuse removal is not a requirement, is not a pre-emptive action to preclude the spurious operation of the MOV due to fire damage, and does not provide an

isolation function to prevent future spurious operations of the MOV after the MOV is initially positioned. The isolation from a spurious operation is accomplished by opening the circuit breaker after the MOV has been positioned. Therefore, the removal of these fuses should be considered a manual operation.

#### Manual Operation of MOVs from MCCs

In addition, the attachments to safe and alternative shutdown procedures that describe how to position MOVs from MCCs identify equipment required to position these MOVs. If fire damage to the control circuits results in blowing control power fuse for the MOV, the main contactor must be used to position the MOV. The operator would require a pencil or screwdriver with which to operate the main contactor. In addition, a stopwatch is used to monitor valve stroke time, or an amprobe is used to monitor running current of the valve operator as a means to inform the operator when the valve has reached its fully open or fully closed position. This equipment is commonly used by plant operators and could be expected to be available without the assurance of controls. However, to further enhance the safe shutdown procedures, the equipment is stored and administratively controlled in three locations. The equipment is not used to repair fire damage, but is instead an aid to the operator during the positioning of MOVs from MCCs. This method of positioning MOVs should be considered a manual operation. Attached is a typical procedure attachment (T-302 Attachment 2) for the positioning of an MOV from its MCC.

The operations and the equipment prescribed to accomplish these operations are commonly used and routinely performed. Fuse blocks are repositioned as part of blocking and restoring 4 kV and 13 kV equipment to service. MOV currents are routinely monitored at the MCC during selected surveillance tests, and valve stroke timing is commonly performed during selected surveillance tests. These operations do not fix, replace, restore, or in any way repair damaged equipment. Fuses are removed for personnel safety or to allow an operator to take positive control. Any equipment maloperations prior to taking these actions will not cause an unrecoverable plant condition. Considering the information provided herein, these operator actions should be considered manual operations and not hot shutdown repairs.



T-302 ATTACHMENT 2 (U/2 ONLY)  
Page 1 of 2, Rev. 1  
CNS/JMM:fek

*J. Smith*  
12/24/87

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM UNIT 2

T-302 ATTACHMENT 2 OPERATION OF MO-2486 FROM THE MCC (U/2 ONLY)

PURPOSE:

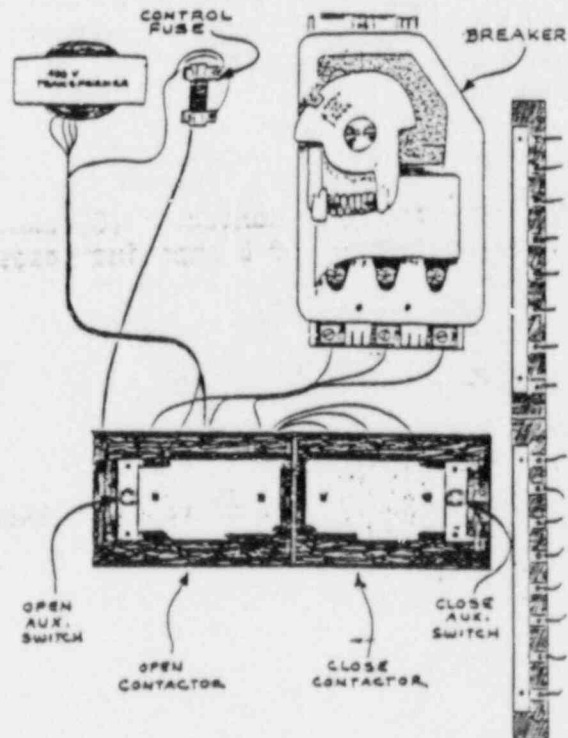
The purpose of this procedure is to open valve MO-2486 from its Motor Control Center (MCC). This procedure will be used in the event that a fire had damaged the ability to control the valve from the Control Room and operation from the MCC is required as directed by Fire Guide T-302.

EQUIPMENT REQUIRED:

1. Amprobe
2. Stopwatch
3. Fuse Pullers
4. Screw Driver
5. Pencil

PROCEDURE:

1. Go to MCC # E-234-DA.  
(AREA: E2 Diesel Compartment)
2. Open breaker for Valve MO-2486.
3. Open the compartment door.
4. Close breaker for Valve MO-2486.
5. Place an amprobe on lead T1, T2, or T3.
6. Momentarily depress seal in circuit open aux. switch.
  - A. IF seal in circuit open aux. switch does not seal in, THEN go to Step 7.



- B. IF seal in circuit open aux. switch seals in, THEN perform the following steps:
- 1) Open Breaker when seal in circuit open aux. switch drops out or nominal running current of 8 amps increases.
  - 2) Remove the amprobe.
  - 3) Close the compartment door.
  - 4) Notify control room of Valve MO-2486 status.
  - 5) Exit procedure

7. Remove control fuse for valve MO-2486.

<p><u>NOTE:</u> Opening the MO-2486 valve in the next step shall be based on:</p> <p>A. Stroke Time: 52 seconds B. Nominal Running Current: 8 AMPS</p>
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8. Simultaneously push in open contactor (O) contacts with a pencil and start the stopwatch.
9. Release the open contactor (O) contacts after 52 seconds or when nominal running current of 8 amps increases.
10. Open the breaker for valve MO-2486.
11. Remove the amprobe.
12. Close the compartment door.
13. Notify control room of valve MO-2486 status.



ATTACHMENT 2

Response to NRC Inspection Report Nos. 50-277/87-30 and 50-278/87-30,  
dated December 4, 1987

Peach Bottom Atomic Power Station  
Docket Nos. 50-277  
50-278