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V. S. BOYER
SR. VICE PRESIDENT
NUCLEAR POWER

August 16, 1984

Docket Nos. 50-277
50-278

Mr. Darrell G. Eisenhut
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station
Alternative Shutdown

REF:
1) Letter from S. L. Daltroff to D. G. Eisenhut, dated June 28, 1982
2) Letter from V. S. Boyer to D. G. Eisenhut, dated September 16, 1983
3) Letter from J. F. Stolz to E. G. Bauer, Jr., dated January 26, 1984
4) Letter from J. F. Stolz to E. G. Bauer, Jr., dated May 4, 1984
5) Letter from V. S. Boyer to D. G. Eisenhut, dated May 16, 1984

Dear Mr. Eisenhut:

The purpose of this letter is to provide clarification and changes to the submittal included with Reference 2. These changes have become necessary as a result of evolution of our final detailed design.

The first issue to be addressed is the location of the alternative control stations. Philadelphia Electric Company, in item 15 of the Errata attached to the submittal in Reference 2, stated that clarifications would be transmitted for the locations of alternative control stations (ACS). The following new locations have been determined to be the best available when considering required space for each ACS, circuit reroute convenience, and ease of operator access and egress.

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	Panel	Location
1.	Unit 2 - HPCI ACS	1. Radwaste Building, Elevation 135'-0", Unit 2 Recirculation M-G Set Room, South wall.
2.	Unit 3 - HPCI ACS	2. Radwaste Building, Elevation 135'-0", Unit 3 Recirculation M-G Set Room, North wall.
3.	DC Power Distribution Panels	3. Turbine Building, Elevation 135'-0", Emergency Switchgear Rooms 2B & 2D.
4.	Diesel Generators ACS	4. Turbine Building, Elevation 135'-0", Emergency Switchgear Rooms 2B & 2D.
5.	AC Power Distribution Panel	5. Turbine Building, Elevation 135'-0", Emergency Switchgear Rooms 2B, 2D, 3B & 3D on respective switchgear cubicle doors.
6.	Unit 2 - SRV ACS	6. Unit 2 HPCI ACS, see #1 above.
7.	Unit 3 - SRV ACS	7. Unit 3 HPCI ACS, see #2 above.

The above locations should be considered as an addendum to the Errata in Reference 2. In addition, these locations need to be incorporated into Section 2.5 of the Safety Evaluation Report (SER) transmitted via Reference 4.

Secondly, Philadelphia Electric Company wants to clarify the implications of the extensive circuit isolation being performed at the HPCI ACS for alternative safe shutdown. In order to cut away circuits that are subject to fire damage from a fire in the main control room, cable spreading room, or emergency shutdown panel area, HPCI system automatic logic and interlocks including primary containment isolation system (PCIS) operations are defeated and are not reestablished during an alternative shutdown. PECo believes this is acceptable from a licensing standpoint since Appendix R and Generic Letter 81-12 state that the fire scenario need not consider any effect to the fission product boundary integrity. However, there is a concern as to how this issue should be addressed in licensing documents such as the Technical Specifications and the Updated Final Safety Analysis Report. The Philadelphia Electric Company is requesting clarification on whether or not each mention of PCIS and HPCI automatic initiation responses in the

licensing documents must address the fact that these automatic operations would be defeated during an actual alternative shutdown.

The third issue to be addressed is the concept of "fire safe relays" discussed in Section 5 of the submittal included with Reference 2. The concept of the fire safe relay involved inserting contacts from an interposing relay in series with the control circuits of vital shutdown equipment such that a spurious operation would only result if both the interposing relay and the control circuit malfunctioned as a result of the same fire. This concept is being abandoned or replaced as identified below for each component in question.

1. A fire safe relay will not be necessary for the Emergency Service Water discharge to river valve, MO-0498, since the electrical feed to the motor-operator will be disconnected at the MCC. Administrative controls will be developed to maintain the disconnected feed and subsequent open valve condition.

2. A fire safe relay will not be provided for the HPCI inboard isolation valve, MO-2(3)-23-015, for each unit. A spurious closure of this valve would disable HPCI system operation. The specific series of failures required to disable the HPCI system are listed below:

   a) First, the spurious closure of the HPCI valve must occur. A closure signal would result from a failure in the HPCI system logic, a conductor to conductor short in the valve's control cable (all of the valve's control cables are in dedicated conduit), or a hot short on one specific conductor of the control cable.

   b) Both off-site power supplies to the A channel 4kV emergency busses must be lost after the spurious closure of the valve.

   c) On the loss of both off-site sources, the A channel diesel-generator must not start or must not re-energize the A channel 4kV emergency buses after spurious closure of the valve.

   The spurious closure of the valve must occur prior to the loss of power because if the loss of power occurred first, the valve could not move from its correct open position. It has been assumed that the HPCI ACS's will be manned within ten minutes from the start of the shutdown scenario (see Figure 5-8 in the submittal with Reference 2). The HPCI ACS's will have switches to isolate the control circuits for the valves' motor-operators to prevent any spurious signals after the ACS is manned. This leaves a maximum period of ten minutes for all of the specific failures identified above to

result from a fire in the main control room, the cable spreading room, or the emergency shutdown panel area. The fire safe relays only provide one more level of protection to equipment that already requires several specific failures to spuriously operate. Also, since this motor-operated-valve has automatic ECCS functions, the interposing relay would require its own duplicate, independent logic to permit ECCS operation. Consequently, the fire safe relay is not warranted due to the costs of the redundant logic and the lack of a significant decrease in the probability that the HPCI system could be disabled.

3. Fire safe relays will not be necessary for the RHR shutdown cooling isolation valves, outboard and inboard, MO-2(2)-10-017 and MO-2(3)-10-018, respectively. Instead of the fire safe relays for these valves we are installing a modification to provide isolation of one of the valve control circuits, per unit, between that valve's motor control center and the three fire areas requiring alternative shutdown. For this valve, control from conventional locations will normally be disabled. When it becomes necessary to have control of the isolated valves, the isolation switch will have to be locally operated to enable conventional control. This modification will eliminate the possibility of an undesirable spurious operation.

The fourth issue to be addressed is the location of alternative controls and required transfer/isolation switches for control of three safety relief valves (SRV) for each unit. Section 5 of the submittal included with Reference 2 identified SRV control for alternative shutdown at two locations: 1- the main control room for a fire in the emergency shutdown panel area and 2- the emergency shutdown panel for fires in the main control room and the cable spreading room. As indicated in the previous discussion on ACS locations, the ACS for the three SRV's to be utilized for alternative shutdown, including the appropriate transfer/isolation and control switches, will be established at the HPCI ACS for each unit. This is a change to the Errata in Reference 2. References to an ACS at the emergency shutdown panel should be deleted in all documents.

The June 1982 submittal transmitted via Reference 1 provided design criteria to protect instrumentation cables for the process parameters. When the decision was made to install an alternative shutdown system, the work on the instrumentation reroute was deferred due to different readout locations required for alternative shutdown. The work has now been reinitiated to provide sufficient information at both the alternative control stations and the Main Control Room to safely shutdown the plant. We are presently planning to include the applicable process parameters as defined in Attachment 1 to Information Notice 84-09. Our definition of "diagnostic instrumentation for shutdown systems" is consistent with the approach taken for compliance

with Regulatory Guide 1.97. For that response, we have used system pump flow or pressure indication as sufficient indication for system diagnostics.

Process parameter and system diagnostic information which is applicable for Peach Bottom APS is as follows:

Process Parameter
Reactor Water Level
Reactor Pressure
Containment Pressure
Torus Temperature
Torus Water Level
Condensate Storage Tank Level
System Diagnostic (Shutdown Method A, B, & C)
Reactor Core Isolation Cooling System Flow (Method A)
High Pressure Coolant Injection System Flow (Method B)
Core Spray System Flow (Method C)
Residual Heat Removal System Flow - (All Methods)
High Pressure Service Water System Flow (All Methods)
Emergency Service Water Discharge System Pressure (All Methods)

The identification of system diagnostic and process parameter instrument loops and the locations of the associated cables have been determined for the control room indication. Field verification and reroute/encapsulate determinations will be complete by October 1, 1984. A schedule for the implementation of the required changes will then be prepared.

Instrumentation required for alternative shutdown will be designed and installed in accordance with the schedule outlined for installation of alternative shutdown. The alternative shutdown modification schedule was submitted in Reference 5.

If you have any questions, please do not hesitate to call.

Very truly yours,

V. S. Boyer

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Copy to: A. R. Blough, Site Inspector