



PECO NUCLEAR

- A Unit of PECO Energy

PECO Energy Company
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January 23, 1998

Docket No. 50-278
License No. DPR-56

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

SUBJECT: Peach Bottom Atomic Power Station, Unit 3
Clarification of Safety Evaluation Related to Amendment No. 224 to
Facility Operating License No. DPR-56

Dear Sir:

In a letter dated September 30, 1997, you issued Amendment No. 224 to Facility Operating License No. DPR-56 for the Peach Bottom Atomic Power Station (PBAPS) Unit No. 3. This amendment revised the Technical Specifications to support PBAPS Modification P00271 which replaced the Source Range and Intermediate Range Monitors with the Wide Range Neutron Monitoring System.

Upon review of the completed amendment, we discovered areas in the related safety evaluation where clarification would be beneficial. Attachment 1 provides identification of areas of ambiguity and a discussion of each.

If you have any questions, please contact us.

Sincerely,

G. A. Hunger, Jr.,
Director - Licensing

JLP/bgr

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Enclosure, Attachment



cc: H. J. Miller, Administrator, Region I, USNRC
A. C. McMurtry, USNRC Senior Resident Inspector, PBAPS

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ATTACHMENT 1

Potential Ambiguities in WRNM SER

- There are three areas of potential ambiguity with regard to the wide range neutron monitoring (WRNM) licensing topical report NEDO 32368 prepared by PECO Energy and the Safety Evaluation Report (SER) issued by the NRC:

- Electrical separation and Regulatory Guide 1.75.
- Type of cable used under the vessel.
- Single failures in self-test features.

Each of these areas is discussed below.

I. Electrical Separation and Regulatory Guide 1.75

The words describing electrical separation in the NRC SER can be misinterpreted if taken out of context of the information submitted on the docket. In particular, the SER states:

"The eight WRNM channels are electrically isolated and physically separated from one another except immediately under the reactor vessel, where complete physical separation is not practical."

However, NEDO 32368 discusses compliance with the independence requirement of IEEE 279 as follows:

"The eight WRNM channels are electrically isolated and physically separated from one another **so as to comply with this requirement**, except immediately under the reactor vessel where complete physical separation is not practical."
[Emphasis added.]

Without reading the additional information on the docket, the SER could be misinterpreted to imply that the eight WRNM channels are mutually separated from one another instead of being separated in groups necessary to comply with the independence requirement of IEEE 279.

Additionally, the SER states that the design meets the guidelines of NRC Regulatory Guide 1.75. However, the PECO response to the request for additional information (refer to the letter from G. A. Hunger to the NRC dated March 30, 1995) states that no attempt was made by PECO to demonstrate compliance with Regulatory Guide 1.75 because it is not a requirement for Peach Bottom. The design meets the independence requirements of IEEE 279 by separating the redundant equipment as described in Peach Bottom UFSAR sections 7.1 and 8.4. Areas where alternate approaches to the guidance of Regulatory Guide 1.75 are used include:

- Separation of associated circuits.
- Different spatial separation distance between redundant cables under the reactor vessel.

Therefore, we recommend that the SER be revised to clearly state that electrical isolation and physical separation is provided to the extent necessary to comply with the independence requirement of IEEE 279.

II. Type of Cable Used Under the Vessel

Figure 2-2 of NEDO 32368 depicts the use of mineral insulated (MI) cable for the detector signal cable run directly under the vessel. However, PECO evaluated the installation constraints associated with the mineral insulated cable (i.e., rigidity, bend radius, and additional connectors) and determined that it would present additional complexity and worker exposure to install. Therefore, a triple-shielded, organic, coaxial cable qualified for the environment under the vessel was used.

III. Single Failures in Self-Test Feature

SER section 4.0, "Software" states,

"The WRNM software is also modularized such that a single failure in the self-test system or in the front display and keypad panel will not affect the essential measurement and trip functions."

The portion of this statement describing the effect of a self-test system single failure could be misinterpreted. A fatal failure identified during the self-test sequence will cause the channel to trip. A channel trip is a conservative effect that ensures operation of the trip function. Other, non-fatal failures will be alarmed without causing a channel trip.

In addition, it is noted that the self-test feature for each channel is independent. Therefore, a single failure will only affect one channel. A system-level trip can still be performed when required even if there is a failure of a single self-test module in the software.