Gerald R. Rainey
Vice President
Peach Bottom Atomic Power Station

PECO ENERGY

PECO Energy Company
RD 1, Box 208
Delta, PA 17314-9739
717 456 7014

February 28, 1996

Docket Nos. 50-277
50-278
License Nos. DPR-44
DPR-56

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

Subject: Peach Bottom Atomic Power Station Units 2 & 3
Response to Unresolved Item 95-27-02 (Combined Inspection Report No. 50-277/95-27 & 50-278/95-27)

Gentlemen:

In response to your letter dated January 30, 1996, which transmitted the Unresolved Item concerning the referenced inspection report, we submit the attached response. The subject report concerned a Routine Residents' Integrated Safety Inspection that was conducted November 26, 1995, through January 13, 1996.

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

GRRainey

Gerald R. Rainey
Vice President
Peach Bottom Atomic Power Station

Attachment

cc: B. W. Gorman, Public Service Electric & Gas
R. R. Janati, Commonwealth of Pennsylania
T. T. Martin, US NRC, Administrator, Region I
W. L. Schmidt, US NRC, Senior Resident Inspector
H. C. Schwemm, VP - Atlantic Electric
R. I. McLean, State of Maryland
A. F. Kirby III, DelMarVa Power

CCN #96-14022

IE01

RESPONSE TO UNRESOLVED ITEM 95-27-02

The standby gas treatment system (SBGTS) is an engineered safety system designed to filter and exhaust potentially contaminated air through an off-gas stack to minimize off-site dose rates following a design basis loss of coolant accident (LOCA) or refueling accident. The system is common to both units and consists of two parallel filter trains (A&B) connected to three exhaust fans (A,B & C). The A exhaust fan is dedicated to Unit 2, the C exhaust fan is dedicated to Unit 3, and the B fan is common. Thus, on a Unit 2 LOCA signal, the A and B fans start while on a Unit 3 LOCA signal the B and C fans start. During reactor water cleanup (RWCU) demineralizer regeneration, the SBGTS is utilized to draw suction on equipment cell (EC) exhaust areas (primarily Reactor Building 165') to provide enhanced filtering of air prior to release to the environs. Prior to January 1996, no procedural guidance existed to direct operators which fan to operate in this mode. It was determined that if a LOCA were to have occurred on the opposite unit and the B fan was being run in the EC mode and assuming the single active failure (SAF) of a fan, the one remaining fan would be left to drawdown both units. Based on this scenario, the following questions were posed to assess the safety significance of this scenario:

1. What would be the overall effect on reactor building negative pressure if the postulated single failure occurred?

   If a postulated LOCA and single fan failure occurred on one unit while in the EC exhaust mode with the B fan on the non-LOCA unit, the remaining single fan could have maintained the LOCA unit Reactor Building pressure negative at -0.13 in. water gauge (no external wind). This calculated value is based on worst case historical SBGTS flow values and conservative assumptions that the non-LOCA unit would be left in alignment to EC exhaust with equivalent flow from both units drawn by the SBGTS. Under windy conditions, at an indicated -0.13" water gauge, the entire Reactor Building would remain negative for wind speeds up to 23 mph. Based on UFSAR meteorological data, wind speeds >23 mph are experienced <0.5% of the time. The probability that the plant would have concurrently experienced winds >23 mph, with one unit on EC exhaust, and a LOCA in the opposite unit is less than 10E-08. Therefore, a scenario where the Reactor Building could not be kept negative is considered highly improbable.

2. How would operators respond to the postulated single failure condition and in what time frame?

Response: If the postulated LOCA and single failure of a SBGT fan occurred on one unit while in the EC exhaust mode with the B fan on the non-LOCA unit, the plant reactor operator would have identified the condition on verification of the Group II/III isolation response. The plant reactor operator would have identified the LOCA unit designated SBGT fan out of service or would have noticed low SBGT differential pressure on the reactor panel. The Operator would immediately secure the Equipment Cell Exhaust flow path or would attempt to restart the designated LOCA unit SBGT fan. This response would have occurred as plant reactor operators entered appropriate TRIP procedures immediately following a LOCA.

3. Based on the answers to questions 1 and 2, what would be the overall effect on offsite/onsite doses and operability of the SBGT filters?

Response: Given the scenario described in the response to question 1, existing design off-site and control room doses are unaffected. During windy conditions <23 mph, all areas of the LOCA unit would have remained negative and the SBGTS would have performed its design function. Even postulating the highly improbable condition where the EC exhaust mode would be in operation at the time of a LOCA, concurrent with occurrence of a SAF and wind speeds > 23 mph, operator response would have ensured timely restoration of the SBGTS to a normal alignment.

To further challenge and evaluate the SBGTS design function, two beyond-design basis scenarios were assessed. For both scenarios, the SBGTS was postulated to be totally unavailable for the first 10 minutes of a LOCA, and operator actions to restore the SBGTS were assumed to occur only after the initial 10 minute period had elapsed. For one of the scenarios, conservative assumptions included a design primary containment (PC) leakage of 0.635% per day, 5% (by volume) mixing of the release with secondary containment (SC) air volume, and use of the design source term. (The 5% mixing is conservative when considering that 0% equates to a concentrated effluent stream flowing directly from PC to the environs.) The other scenario considered the worst case PC leak rate based on Integrated Leak Rate Test (ILRT) results of 0.322% per day, 5% mixing, and the NUREG-1465 revised source term. (It is recognized that the NEI Framework Document regarding the use of the revised source term is currently under NRC review, but for the purpose of this scenario was utilized to further benchmark the safety significance of the issue). For both scenarios, calculated off-site and control room doses were found not to exceed 10 CFR dose limits.

The operability of the SBGT filters is unaffected by the postulated scenario. At no time would the maximum design flow through a filter train be exceeded. In addition to evaluating the effect of the scenario on the SBGT filters, the long term effects of using the system for RWCU demineralizer regeneration was assessed. Testing data revealed no increased trend in filter differential pressures. In addition, the filter trains are tested every 12 calendar months or 720 hours of operation and filter train run time is logged.

Conclusion:

The SBGTS could have performed its safety design basis function of maintaining secondary containment negative given the postulated scenario of drawing down EC exhaust areas on one unit while experiencing a design basis LOCA and single active failure on the other unit. The safety design basis of the SBGT system as stated in the PBAPS UFSAR, Section 5.3.3.2 would have been maintained. System operating and test procedures have been revised to preclude use of the B fan for the equipment cell exhaust mode. A change was also made to the PBAPS UFSAR and a 50.59 was prepared to properly document this mode of operation. In addition, an evaluation has been initiated to determine if use of the SBGTS during RWCU demineralizer regeneration can be discontinued. Results of this evaluation will be discussed with the NRC Senior Resident Inspector.