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September 24, 1985

Docket Nos. 50-277
50-278

Mr. Hugh L. Thompson, Jr.
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: Peach Bottom Atomic Power Station
Fire Protection Modifications Progress Report

REFERENCES: (1) Letter, J. W. Gallagher to
D. G. Eisenhut, dated February 25, 1983
(2) Letter, V. S. Boyer to D. G. Eisenhut,
dated December 2, 1983
(3) Letter, V. S. Boyer to Hugh L. Thompson, Jr.
dated May 23, 1985 - Seventh Modifications
Progress Report
(4) Letter, V. S. Boyer to H. L. Thompson, Jr.,
dated June 6, 1985

Dear Mr. Thompson:

Philadelphia Electric Company, in the Reference (1) letter, proposed to submit Peach Bottom's Fire Protection Modifications Progress Report to the NRC every four months starting in May, 1983.

This letter includes: The eighth Modifications Progress Report (Attachment 1); (I) a progress report addressing safe shutdown modifications; (II) a progress report addressing alternative shutdown modifications; (III) an update of the penetration sealing program; (IV) an update of the fire damper program; (V) a progress report addressing structural steel fire protection; and (VI) a fire barrier exemption request.

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I. Safe Shutdown Modifications III.G.2

The attached modification progress report (Attachment 1) indicates that three modifications have been completed since the last report dated May, 1985. All other modifications, with the exception of the two modifications discussed below, are progressing on schedule.

1. The lack of availability of qualified thermal-magnetic type breakers necessary to replace several of the 480 volt motor control center magnetic trip-only circuit breakers continues to delay completion of the breaker replacement modifications 1029J, K, and L. Equipment qualification and delivery of these breakers is being expedited.
2. Two modifications that were scheduled to be completed by the end of the Unit 2 outage (1029G and N) were not completed, because the specific equipment outages needed to perform these modifications did not occur. These modifications involve revisions in the trip setpoints on several 4 KV and 480 volt circuit breakers and replacement of selected ground overcurrent relays. The modifications will be done at the next equipment outages during the Unit 2 mini-outage in the Fall of 1985 for Modification 1029G and the next diesel generator outages scheduled for the summer of 1986 for Modification 1029N.

II. Alternative Shutdown Modifications III.L

The attached modification status report indicates that progress is continuing on schedule for the Alternative Shutdown Modifications. The only modification where a schedule difficulty may arise is Mod 1353I: Emergency Lighting and Communications. This modification provides the lighting and communications needed for the local control stations associated with alternative shutdown capability. This mod has an expected completion date of 12/31/85. Engineering and design is in progress and completion of the mod by 12/31/85 is possible; however, completion of the mod could be delayed by unanticipated problems with the present Unit 3 outage or with equipment delivery. If a delay occurs, non-completion would not degrade Peach Bottom's fire protection capabilities since these emergency lighting and communication features are not needed until alternative shutdown capability is provided. Alternative shutdown

capability will be not be completed until the end of the 1986-87 Unit 2 refueling outage.

III. Penetration Seal Program III.M

A. A total of 6285 penetrations through 346 fire barriers which required sealing were identified. Approximately 64 of these penetrations still require sealing. The slight increase in reported figures of barriers and seals remaining to be upgraded relative to our last report is attributable to:

1. The unfavorable test results which were obtained when a seal detail using combustible material was tested to industry standards and failed. (See Reference 3, Section II.C) The test was performed to further substantiate an exemption request to utilize a seal design containing combustible material, polyurethane foam (See Reference 2, Section II.B.2.A).

Due to the test results, PECO hereby withdraws that exemption request. Fifty-four (54) seals of that particular detail are in the process of being replaced with an approved seal detail. A fire watch has been provided until work is complete.

2. The addition of several barriers due to continued refinement and implementation of safe and alternate shutdown modifications.

IV. HVAC Damper Program III.G.2

A. Installation

The installation of three-hour qualified dampers in ventilation ducts penetrating safe shutdown barriers is continuing. The following tabulation provides a status of the fire damper program:

	<u>Unit 3</u>	<u>Unit 2</u>	<u>Common</u>	<u>Total</u>
Qualified	11	8	15	34
Complete	12	13	11	36
Exemption	17	20	24	61
Requested				
To Do	4	5	10	19
Total	44	46	60	150

Twelve of the remaining nineteen dampers are in various stages of installation.

V. Structural Steel Fireproofing III.G.2

The structural steel survivability analysis was submitted via letter V. S. Boyer to H. L. Thompson, Jr., on March 29, 1985. The analysis indicated twenty-seven plant areas which had total area fire durations and temperature problems which exceeded structural steel survivability acceptance criteria. Sixteen additional plant areas were identified which did not have total area temperature problems but exhibited localized heating problems due to the location of cable trays in close proximity to exposed steel. Seven of these areas present localized problems to safe shutdown fire barriers.

The Reference (4) letter transmitted PECO's steel evaluations and delineated proposed fixes. We are awaiting NRC approval of this proposal prior to proceeding with any modifications.

VI. Fire Barriers III.G.2

Exemption Request

- A. In accordance with the provisions of 10 CFR 50.12, Philadelphia Electric Company (PECO) requests exemption from the specific requirements of 10 CFR 50, Appendix R, Section III.G.2, i.e., that automatic fire suppression systems shall be installed in both fire areas not separated by a three hour fire barrier.

Specifically, an exemption is requested from the requirement for a fixed suppression system in Fire

Areas 8 and 50. This exemption is justified because the combination of walls and spatial separation provided by the physical design of these areas is equivalent to the three-hour barrier separation requirement of Section III.G.2.

Redundant safe shutdown equipment is located on elevation 165' of the reactor building and elevation 116' of the turbine building. The wall between the reactor building and turbine building is fire rated at three hours with the exception of several penetrations at elevation 195'. Since this wall separates the reactor building from the turbine building, it is a natural location to separate the fire areas.

Essentially, due to a combination of design features and low combustible loadings as described below, this proposed exemption requests that the wall at elevation 195' be considered equivalent to a three hour barrier for purposes of separating two fire areas.

B. Area Description

Fire Area 50 is predominantly the entire turbine building. The other Fire Area under consideration is a combination of former Fire Areas 7 and 8 and the south half of Fire Area 6. For ease of discussion, it will be referred to as Fire Area 8. Fire Area 8 consists of the south half of elevation 135' of the Unit 2 reactor building, and elevations 165', 195' and 234' of the reactor building.

The only area of the three-hour barrier between these two areas which does not have three-hour rated seals in the penetrations is on elevation 195' of each Fire Area. Elevation 195' of Fire Area 8 is approximately 11,500 square ft. in area. There is a clear floor to ceiling height of 17 ft. and an open stairwell through this ceiling resulting in an effective ceiling height of 37 ft. and a volume of 425,500 cubic ft. The area contains the ventilation equipment for the reactor building and the Standby Liquid Control pumps and tanks. Fire Area 50 on elevation 195' is approximately 9,000 square ft. in area with a clear floor to ceiling height of 15 ft. and a volume of 132,000 cubic ft. The barrier between the two areas is penetrated by two ventilation duct penetrations without fire dampers and several small penetration

openings around tubing and conduit. The door in the barrier is a rated fire door.

C. Safe Shutdown Equipment

Fire Areas 8 and 50 on elevation 195' do not contain any Safe Shutdown Equipment. The lower elevations of Fire Area 8 (elevations 135' and 165') contain components/equipment of the following systems.

- (1) RHR System (Train A)
- (2) RCIC System
- (3) AC Emergency Power System

The lower elevations of Fire Area 50 (elevations 116 and below) contain power and control cables for the diesel generators, RHR pumps and the ESW pumps. Some of these cables have been encapsulated within three-hour rated enclosures. Fire Area 50 contains cables for the following:

- (1) RHR System (Trains B and D)
- (2) AC Power System (Trains B and D)
- (3) ESW System (Train B)

D. Fire Protection System

General area fire detection is provided in Fire Area 8 with 10 smoke detectors on elevation 195'. The detectors alarm both audibly and visually in the continuously staffed Main Control Room. There is no fire detection on elevation 195' of Fire Area 50 since there is no safety-related equipment in this area. Fire detection is provided on elevation 116' of Fire Area 50, where the safety related equipment is located. Automatic suppression capability is not provided in these areas. Three hose reels, eight portable dry chemical extinguishers and two portable CO2 extinguishers are located in Fire Area 8. Two portable dry chemical extinguishers and one portable CO2 extinguisher are located in Fire Area 50.

E. Fire Hazards Analysis

The fixed combustible loadings for Fire Areas 8 and 50, when distributed evenly throughout the fire areas, are 5,489 and 19,475 Btu/square ft. with resultant equivalent fire severities of 0.07 and 0.26 hours, respectively, based on the 1977 Fire Hazards Analysis combustible loading. The fire loadings for Fire Areas 8 and 50 on elevations 195' are 89 x 10 (6) and 70 x 10 (6) BTU, respectively. The fixed loads consist of cable insulation that is not in conduit and HVAC filter medium. There are no instances of combustible materials penetrating the wall between the two Fire Areas.

A fire on elevation 195' would have no affect on the capability to safely shutdown the plant. A fire would have to breach the wall at elevation 195', spread down to elevation 165' of the reactor building, and down to elevation 116' of the turbine building in order to jeopardize safe shutdown capability. In addition to breaching three elevations, the fire would also have to breach another non-rated wall before it encountered any safe shutdown equipment. This is a distance of approximately 350 feet. All of the areas containing safe shutdown equipment in both the reactor and turbine buildings are provided with smoke detectors.

F. Conclusions

Based on the previous analysis, an exemption is requested from the requirement that a fixed suppression system be installed in Fire Areas 8 and 50 and that a combination of walls and spatial separation should be considered equivalent to the three-hour separation requirement as prescribed in Section III.G.2 of 10 CFR 50, Appendix R. The bases which justify the exemption are summarized as follows:

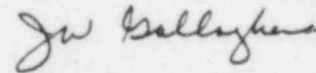
- (1) The minimum separation distance between redundant shutdown equipment is in excess of 100 ft. The safe shutdown equipment is located on the lower elevations of these two adjoining areas.
- (2) Automatic smoke detection systems are provided throughout the reactor building and in those

areas of the turbine building that contain the safety related and safe shutdown cables.

- (3) The combustible loadings in the areas are extremely low (a maximum of 16 minutes).
- (4) The areas on the 195' elevation are not normally travelled. There is little possibility of significant transients being brought into the areas.
- (5) Installing an automatic suppression system would not significantly enhance the level of protection provided by the current configuration.

If you have any questions regarding this matter, please do not hesitate to contact us.

Very truly yours,



Attachments

cc: T. P. Johnson, Resident Site Inspector
NRC Document Control Desk