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SHIELDS L. DALTROFF
VICE PRESIDENT
ELECTRIC PRODUCTION

February 21, 1980

Re: Docket Nos. 50-277
50-278

Mr. Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors
US Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Peach Bottom Fire Protection Program

References: 1) Letter dated December 20, 1978 S. L. Daltroff, Philadelphia Electric Company to T. A. Ippolito, NRC
2) Letter dated February 16, 1979 S. L. Daltroff, Philadelphia Electric Company to T. A. Ippolito, NRC
3) Letter dated May 23, 1979 T. A. Ippolito, NRC to E. G. Bauer, Philadelphia Electric Company

Dear Mr. Ippolito:

The implementation schedule in the Safety Evaluation Report (SER) transmitted in reference (3) above requires the submittal of design information to the NRC for selected fire protection modifications by February 23, 1980. This information is provided in Attachments 1 through 4. Installation of these fire protection systems described in Attachments 1 through 3 will be initiated after NRC approval of the design as specified in the SER implementation schedule. The control of combustible modifications described in Attachment 4 will be completed by November 23, 1980. Attachment 5 describes our proposal for additional fire protection in the Reactor Recirculation Pump M-G set rooms as requested in the SER, Section 3.2.4(2).

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The information provided is as follows.

Enclosures	Subject	SER Item
Attachment 1	Fire Protection Systems	3.1.1,(1)-(3) & (5)-(10)
Attachment 2	Water Suppression Systems	3.1.2A
Attachment 3	Mechanical Penetration Seals	3.1.7
Attachment 4	Control of Combustible	3.1.11(1)
Attachment 5	Fire Protection-MG Sets	3.2.4(2)

Also enclosed for your information are:

1. Fire Endurance and Hose Stream Tests (Designs WP 454 and WP 455) April 26, 1978

2. Fire Endurance Tests (Designs FC 258, FC 259 and FC 260) May 10, 1978.

3. Drawings A-25G, M-13G, M35G, M-572, M-1341-0, S-86G, S-46G, S-551G

In Section 3.1.5(2) of the SER you requested information regarding the corrective action planned to upgrade the doors to the condensate pump rooms at the Peach Bottom facility. As we advised you in a letter dated September 15, 1977 from S. L. Daltroff to George Lear, the louvers on the condensate pump room doors leading to the corridor on elev. 116' have been removed. the gap filled with kaowool insulation, and steel plates mounted on both sides of the door for support. This modification was completed on August 17, 1977. This corrective action should provide satisfactory resolution of this matter.

Please contact us if additional discussion of these matters is necessary.

Very truly yours,

Enclosure

ATTACHMENT 1

FIRE DETECTION DESIGN, UNIT 2 (UNIT 3 SIMILAR)

The number and location of smoke detectors are based on the following criteria:

1. Combustible loading - The type and quantity of combustible material was considered for each area. The typical combustibles were lube and/or fuel oil and cable jacketing.

2. Ventilation characteristics - Detector location was selected to take advantage of exhaust air flows. Air flow patterns and velocities were addressed to assure as nearly as practical early detector activation.

3. Room size and geometry - Room size and geometry were addressed, particularly ceiling construction. The location and depth of beam pockets were a primary concern in detector location.

4. Room congestion - The amount of cable tray, ductwork and piping was reviewed in order to properly locate the detectors.

The following fire areas have been evaluated per our SER commitments:

RHR Pump and HX Rooms, Areas 1, 2, 3 - Three ionization type smoke detectors will be added in each fire area. The combustible material in the areas includes cable jacketing and RHR pump motor lube oil. Two detectors will be added for general area protection and will be located in pockets formed by exposed structural members at the ceiling. The third detector will be located on the bottom flange of an exposed structural member to take advantage of the ventilation exhaust flow. See drawing S-466.

RHR Pump and HX Room, Zone 4A - Two ionization type smoke detectors will be added in this fire zone. The combustible material in the zone is cabling and pump motor lube oil. The detectors will be located to provide area protection. The ceiling construction in this area is smooth. See drawing M-411G.

RCIC pump Room, Area 60 - Same requirements and details as Zone 4A. See drawing M-13G.

Core Spray Pump Rooms, Zones 5A, 5B, 5D, 5E - The combustibles in the small rooms consist of pump motor lube oil and cable jacketing. A single ionization type smoke detector will be placed in each room. See drawing M-13G.

ATTACHMENT 2
WATER SUPPRESSION SYSTEMS DESIGN

A. Turbine Building - 116' Switchgear Area, Zone 78B

The Safety Evaluation Report issued by the N.R.C. on May 23; 1979 provides the option of either installing water suppression fire protection in this area, or permanently relocating the anti contamination clothing to an area separated from safeguard equipment by a 3 hour fire barrier. We have elected to remove the anti-contamination clothing from this area (rooms 126 and 186) in lieu of providing a water suppression system. This action was taken during the spring of 1979. Additionally, we propose to provide early warning detection in the area of the safety related cable as previously detailed in our February 16, 1979 response to Staff Position PF-37(a).

B. Cooling Water Equipment Rooms, Zones 4B, 12B, El. 116' (Reactor Recirculation Pump Motor Generator Set Lube Oil Pump Rooms).

The pumps are located inside a diked area sized to contain the entire oil quantity of one fluid drive and 20 minutes of sprinkler flow at .3 GPM/FT .

A preaction sprinkler system will be installed to protect each diked area. Flow control valve actuation will be by two smoke detectors located over each diked area. The smoke detectors will be tied into the existing plant fire alarm system.

A preliminary drawing, M-1341-0, is attached for information.

C. Radwaste Baling Area, area 72A

The radwaste baling and compacting area was provided with sprinkler protection prior to issuance of the Safety Evaluation Report. A wet-pipe system is installed providing coverage of approximately .2GPM/ft. A flow alarm valve is tied into the station fire alarm system. Details of the installing are shown on the attached drawing, M-572, M45-82-2.

Enclosed Rooms within the Control Room, Area 108 - Ionization type smoke detectors will be used in each of the enclosed rooms within the Control Room excluding the lavatory. Six detectors will be installed as shown on drawing A-256.

Diesel Generator Rooms, Areas 132, 133, 134, 135 - We have reevaluated the existing fire detection system and propose to leave the existing system in tact. No new smoke detectors will be added. Contrary to the Peach Bottom Fire Protection Program Report Dwg. A172, four heat detectors are located in each diesel generator room instead of two. The heat detectors are combination rate of rise and fixed temperature.

The significant combustible loading in the diesel rooms is fuel and lube oil. Any fire, will be a hot, fast developing fire. The rate of rise detection (15 /min) will detect a fast developing fire while the fixed temperature detection will alarm a slower developing fire. The addition of early warning smoke detectors to the diesel rooms would cause an unnecessary operation problem due to false alarms caused by the smoke generated during diesel start-up and operation.

Diesel Generator Auxiliary Room, Area 146
Three ionization type smoke detectors will be added.
The significant combustible in this area is fuel oil.
The auxiliary boiler fuel oil transfer pump is located in the area.
The detectors will be located as shown on drawing S-551G.

High Pressure Service Water Pump Room, Areas 143, 144 - The fire detectors in the HPSW pump area will be replaced with ionization type smoke detectors.

Battery Rooms, Areas 117, 118, 127, 128 - Two ionization type smoke detectors will be located in each battery room. The detectors will be located in available space per the criteria itemized as our basis for detector selection and location. Room conjestion necessitates a fit to suit installation in the field. The appropriate drawings will be revised after detector installation.

Cable Spreading Room, Zone 7bH - Twenty one ionization type smoke detectors will be added to the two existing detectors. The detectors are located in beam pockets at the ceiling per NFPA guidelines. See drawing S-866.

ATTACHMENT 3
MECHANICAL PENETRATION SEALS

A program has been established and initiated to identify all mechanical penetrations which are not sealed in safety related areas and areas containing significant combustibles. Data has been compiled identifying open pipe sleeves and/or unsealed ventilation duct penetrations. The unsealed penetrations will be evaluated to identify which ones require sealing. The criteria for evaluating if a penetration requires upgrading will be as follows:

a) Significant combustible material is present on both sides of the penetration.

b) The penetration separates areas with a heavy combustibles loading from safety-related areas.

c) The penetration is in a barrier isolating an area containing safe shutdown equipment (as detailed in our July 3, 1979 response to Staff Position PF-26) from areas containing combustibles in an amount and arrangement deemed hazardous.

Existing penetrations for which no test data is available will be reviewed and their suitability will be based on combustible loading, similarity of seals to "tested seals" and engineering judgement. Penetrations which require upgrading will be sealed using penetration details which have been tested in accordance with ASTM E-119 and have been accepted by American Nuclear Insurers.

To reiterate our comments in the 90 and 30 day responses, we stated that we would make use of the penetration seal being designed and tested by the Architect Engineer for our Limerick Station when it becomes available. The test program was established prior to the adoption of IEEE 634-1978-IEEE Standard Cable Penetration Fire Stop Qualification Test, and does not incorporate all of the requirements of the standard, nor all of the requirements of the Staff Position PF18. In their letter to Philadelphia Electric Company of June 17, 1977, the Architect Engineer stated that American Nuclear Insurers, Nuclear Mutual Limited and the NRC had all reviewed the test procedures and were satisfied with the testing program. The program met the standards existing at the time of its inception.

The significant difference between our testing program and the NRC guidelines concerns the requirement that the maximum expected pressure differential be applied to the penetration during the test. A pressure test is provided by the hose stream which is performed following the fire test. The hose stream test pressures are more severe than normal plant differential pressures which are less than 0.5" water.

Attached is a copy of the detailed procedures and test results, including test configurations and bills of material for the wall and floor tests. This information is presented in the following documents:

1. Fire Endurance Tests on Silicone Foam, Ceramic Fiber, Cellular concrete and Marinite XL Panel Penetration Seals in Masonry Floors (Designs FC258, FC259 and FC260) May 10, 1978.

2. Fire Endurance and Hose Stream Tests on Silicone Foam, Ceramic Fiber, Cellular Concrete and Marinite XL Panel Penetration Seals in Masonry Walls (Designs WP 454 and WP455) April 26, 1978

The test information gathered will form the basis for seal design at Peach Bottom. One item to note is that a hose stream test was not performed on the floor test assemblies. The absence of a hose stream test in our floor tests was discussed with and accepted by ANI prior to the tests. Their acceptance of this omission was based on successful hose stream tests against firestops of a similar configuration included in the preceeding wall tests. It was understood by ANI that the proportions and weight of the floor test assembly and the physical limitations of its handling equipment, restricted its orientation to the horizontal plane. Due to distance and angle requirements of the hose stream test criteria, such a test was considered by the testing organization to be unachievable and hazardous. In light of these arguments, ANI accepted the previous wall hose stream tests as adequate evidence of performance.

ATTACHMENT 4
CONTROL OF COMBUSTIBLES

Diesel Generator Rooms, Areas 132, 133, 134, 135

A curb will be provided in each room to prevent the flow of combustible liquids between the diesel generator rooms at elevation 127'.

The combustible fluids in the room are diesel fuel and diesel lube oil. The fuel oil is located in a 550 gallon day tank which is located inside its' own 3 hour rated enclosure within each room. The day tank enclosures are designed to hold 110% tank capacity should a line break or a tank rupture occurr. The lube oil is stored in a 240 gallon lube oil tank adjacent to the diesel.

There are six 2" oily waste drains located in the vicinity of each diesel. These feed a 4" drain line.

A conservative estimate of the amount of oil which would collect in the area is 990 gallons, the quantity of the day tank and the lube oil.

The curb will be placed in the room at a location which will contain the oil yet not provide a tripping hazard. The location is shown on the drawing M-35G, attached.

The preliminary design provides for installation of a 2" angle with appropriate caulking, for oil retention.

ATTACHMENT 5

Fire Protection - Reactor Recirculation Pump M-G Set Rooms, Areas 4c, 12c

The motor generator sets for both recirc. pumps are located in a single fire zone. The M-G set fluid drives contain approximately 1100 gallons of hydraulic fluid. Dikes will be placed around the fluid drives to contain any hydraulic fluid associated with a pipe rupture or leak.

A preaction water spray system will be installed with directional nozzles, to protect the diked area. The flow control valve for the system will be actuated by existing ionization type smoke detectors located above the M-G sets.