



CHARLES CENTER • P. O. BOX 1475 • BALTIMORE, MARYLAND 21203

March 14, 1984

ARTHUR E. LUNDVALL, JR.  
VICE PRESIDENT  
SUPPLY

Director of Nuclear Reactor Regulation  
Attention: Mr. J. R. Miller, Chief  
Operating Reactors Branch #3  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Calvert Cliffs Nuclear Power Plant  
Units Nos. 1 & 2; Dockets Nos. 50-317 and 50-318  
Request for Exemption from Fire Protection Requirements

- References:
1. BG&E letter from Mr. A. E. Lundvall, Jr. to Mr. J. R. Miller (NRC) dated November 21, 1983 (same subject).
  2. NRC letter from Mr. R. A. Clark to Mr. A. E. Lundvall, Jr. (BG&E) dated August 16, 1982: Request for Exemption to Allow the Use of Unrated Bulletproof and Watertight Doors and Water Curtains in Lieu of 3-hour Rated Fire Doors.

Gentlemen:

By Reference 1, the Baltimore Gas and Electric Company requested exemption from the requirements contained in 10 CFR 50, Appendix R to credit the use of two watertight doors and one water curtain as three-hour rated fire barriers per Section III.G criteria. A further review of the physical separation and fire protection provisions currently afforded to redundant trains of safe shutdown equipment has identified the probable need for an additional exemption under Section III.G.2.

During our February 8, 1984 pre-Appendix R inspection meeting, we were counselled by several NRC staff members to the extent that if compliance to Appendix R requirements was questionable in any area, either corrective actions should be taken or formal relief requested from the NRC. As a result of this advice and pursuant to 10 CFR 50.12, the Baltimore Gas and Electric Company hereby seeks an exemption providing relief from the specific requirements of Section III.G.2 of 10 CFR 50, Appendix R and approving equivalent separation as provided by existing facilities within the following areas:

Fire Area No. 39 - Unit One Service Water Pump Room (Room No. 226)  
Fire Area No. 40 - Unit Two Service Water Pump Room (Room No. 205)  
Fire Area No. 42 - Unit One Auxiliary Feedwater Pump Room (Room No. 603)  
Fire Area No. 43 - Unit Two Auxiliary Feedwater Pump Room (Room No. 605)

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Fire Areas 39 and 40 are located at opposite ends of the plant and both are equipped throughout with automatic fire detection and hydraulically designed automatic suppression systems. In addition, both areas are enclosed on all sides by rated fire barriers with the exception of the wall which separates each of these two fire areas from the turbine building at elevation 12'-0".

The wall which separates the service water pump room from the turbine building is constructed of poured reinforced concrete approximately three feet thick. Each service water pump room is equipped with two doors in this wall. One of these two doorways (Door No. 294 for Unit 1, Door No. 213 for Unit 2) measures 3'-0" by 7'-0" and is equipped with a watertight door identical in design and construction to the watertight door for which exemptions are pending under Reference 1 and approved for use under Reference 2. The other doorway (Door No. 214 for Unit 1 and Door No. 203 for Unit 2) measures 6'-0" x 7'-0" and is equipped with a watertight door which is similar in design and construction to the door discussed above with the exception that this is a double leaf door and utilizes a different locking mechanism.

The auxiliary feedwater pump rooms (Fire Area No. 42 - Room 603, Unit 1 and Fire Area No. 43 - Room 605, Unit 2) are located approximately 150 feet apart on elevation 12' of the turbine building. Both areas are equipped throughout with automatic fire detection and hydraulically designed automatic suppression systems.

The walls of the Auxiliary Feedwater Pump Rooms are constructed of reinforced poured concrete, 12" thick. Each area is equipped with three watertight doors. Other penetrations are sealed to maintain the integrity of the wall to serve as a 3-hour rated fire barrier. The first of these watertight doors is an emergency escape hatch (no numerical designations given) located approximately eight (8) feet above the floor. This door measures 2'-0" by 2'-0" and is identical to the watertight doors discussed in Reference 1. The second door (Door No. 625 for Unit 1 and Door No. 628 for Unit 2) measures 3'-0" by 7'-0". This door is identical to the watertight doors approved for use in fire barriers by Reference 2. The third door (Door No. 626 for Unit 1 and Door No. 627 for Unit 2) measures 6'-0" by 7'-0" and is similar in construction to the doors discussed above with the exception that this door is a double leaf door and utilizes a different locking mechanism.

Fire separation is provided between the Service Water Pump Room and Auxiliary Feedwater Pump Room (Rooms 226 and 603 for Unit 1, respectively, and Rooms 205 and 605 for Unit 2) by a combination of the walls and doors discussed previously and horizontal separation with very low combustible loading. A horizontal distance of twenty feet separates the double watertight doors of the two Service Water Pump Rooms (Doors Nos. 214 and 203) from the nearest doors of the Auxiliary Feedwater Pump Rooms (Doors Nos. 625 and 628). The combustible loading within this twenty feet consists of small amounts of cable insulation and Arm-a-Flex pipe insulation. The lowest point of these combustibles is well above the highest point of either of the watertight doors in question.

The closest unrated penetration of the Auxiliary Feedwater Pump Room to the double leaf watertight door of the Service Water Pump Room is a 3'-0" by 7'-0" watertight door identical to the doors previously approved for use in fire barriers by Reference 2. The distance between the double watertight doors of the Service Water Pump Rooms (Doors Nos. 214 and 203) and the double watertight doors of the Auxiliary Feedwater Pump Rooms (Doors Nos. 626 and 627) is in excess of 50 feet. Again, the combustible loading within this distance consists of small amounts of cable insulation, all of which is located well above the highest point of either door.

Separation is provided between Fire Area No. 39 and Fire Areas 40 and 43 to meet safe shutdown requirements. For a single fire to affect Fire Areas 39, 40, and 43 or Fire Areas 42, 40 and 43, the fire would have to propagate from Elevation 12' of the Turbine Building, up two floors to the turbine deck on Elevation 45'-0" (elevations 12'-0" and 27'-0" are separated by a three hour fire barrier between the Unit 1 and Unit 2 sides of the turbine building), across a horizontal distance in excess of 125 feet and then back down to Elevation 12'-0".

The turbine building is equipped with a hydraulically designed automatic fire suppression system in all areas with the exception of the Turbine Deck (Elevation 45'-0") and the heater bay area, which is adjacent to the rooms in question on Elevation 12'-0". As previously stated, the combustible loading of the heater bay is extremely low, consisting mainly of small amounts of cable insulation. A transient combustible load of approximately  $1.0 \times 10^8$  BTU (equivalent to over 125,000 lbs of ordinary combustibles or 6500 gallons of lubricating oil) would need to be added to the heater bay area to provide the fuel to support an equivalent ASTM E-119 fire of three hours. Administrative controls are in effect to carefully control transient combustible loading introduced into work areas.

There are negligible amounts of fixed combustibles on the Turbine Deck. Transient combustibles are also inconsequential and consist mainly of ordinary combustibles. During plant refueling outages, small office trailers are sometimes placed on the Turbine Deck. These trailers are equipped with automatic sprinkler systems supplied by hose stations. At times it becomes necessary to have trucks drive onto the Turbine Deck to deliver materials. The trucks remain on the Turbine Deck long enough to unload and then are removed. If the truck must remain on the Turbine Deck for an extended period of time, a fire watch is established. The driver is also near and can move the truck in the event of an emergency.

The total fixed fire loading in Fire Areas 39 and 40 is less than 1000 BTU/ft<sup>2</sup>. This represents an equivalent ASTM E-119 fire of less than one minute duration. A transient combustible load of  $5.7 \times 10^8$  BTU would need to be placed in either fire area to provide the required fuel to support an equivalent ASTM E-119 fire. This represents approximately 71,000 lbs of ordinary combustibles or 3700 gallons of lube oil.

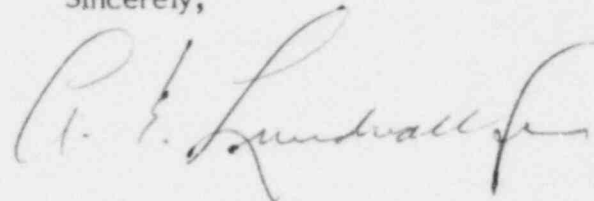
The fixed fire loading in Fire Areas 42 and 43 is less than 2500 BTU/ft<sup>2</sup>. This represents an equivalent ASTM E-119 fire of less than five minutes. A transient combustible load of  $1.4 \times 10^8$  BTU would need to be placed in either area to provide the required fuel to support an equivalent ASTM E-119 fire. This represents approximately 18,000 lbs of ordinary combustibles or 915 gallons of lube oil. As previously stated, administrative controls exist to strictly control the amount of transient combustibles allowed in work areas.

Based on the facts stated above, we feel that adequate separation currently exists between fire areas 39, 40, 42 and 43. Thus, granting the subject request under the provisions of 10 CFR 50.12 will not reduce the level of protection below that which is required by the Commission's regulations.

March 14, 1984

If you should have any questions concerning this request, please do not hesitate to contact us.

Sincerely,

A handwritten signature in cursive script, appearing to read "P. E. Lundvall".

AEL/BSM/DCM/vf

cc: J. A. Biddison, Jr., Esq.  
G. F. Trowbridge, Esq.  
Mr. D. H. Jaffe, NRC  
Mr. R. E. Architzel, NRC  
Mr. J. C. Ventura, Bechtel