

DLMS-018

Docket Nos. 50-317
and 50-318

MAR 15 1984

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Mr. A. E. Lundvall, Jr.
Vice President - Supply
Baltimore Gas & Electric Company
P. O. Box 1475
Baltimore, Maryland 21203

Dear Mr. Lundvall:

SUBJECT: CALVERT CLIFFS UNITS 1 AND 2 - FIRE PROTECTION EXEMPTION REQUEST

The Commission has issued the enclosed Exemption to 10 CFR Part 50, Section 50.48, and Appendix R to 10 CFR 50. This action is in response to your letter dated November 21, 1983 which requested an exemption from the requirements of Section III.G of Appendix R as these requirements related to (1) the use of 3-hour fire rated barriers to separate components of redundant systems required for safe shutdown and (2) automatic fixed fire suppression systems for areas containing equipment and cables necessary to achieve hot and cold shutdown following a postulated fire. In addition, your November 21, 1983 letter requested an exemption from the requirements of Section III.O of Appendix R as these requirements relate to the Calvert Cliffs reactor coolant pump lube oil collection system.

A copy of this Exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by

for E.G. Tourigny
James R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing

Enclosure:
Exemption

cc: See next page

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Baltimore Gas and Electric Company

cc:

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Regional Administrator
Nuclear Regulatory Commission, Region I
Office of Executive Director for Operations
631 Park Avenue
King of Prussia, Pennsylvania 19406

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)	
BALTIMORE GAS AND ELECTRIC)	Docket Nos. 50-317
COMPANY)	and 50-318
(Calvert Cliffs Nuclear Power)	
Plant Unit Nos. 1 and 2))	

EXEMPTION

I.

The Baltimore Gas and Electric Company (the licensee) is the holder of Facility Operating License Nos. DPR-53 and DPR-69 which authorize operation of the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These licenses provide, among other things, that they are subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

The facility comprises two pressurized water reactors at the licensee's site located in Calvert County, Maryland.

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Appendix R, Section III.G.2.a, requires that cables, equipment, and associated circuits of redundant systems and components important to safe shutdown be separated by 3-hour rated fire barriers.

By letter dated November 21, 1983, the licensee requested an exemption from Section III.G of Appendix R to 10 CFR 50 to the extent that it requires approved fire door assemblies for the protection of personnel access openings

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in 3-hour rated fire boundaries. As an alternative, the licensee has proposed the use of non-rated watertight doors and water curtains in specified plant areas.

The Unit 1 and Unit 2 service water pump rooms are located on the 5 foot elevation of the auxiliary building and are separated by greater than 400 feet. The watertight door in each pump room provides access to the adjacent penetration rooms, thus permitting a path for fire to spread from one service water pump room through the two adjacent penetration rooms to the second service water pump room.

By letter dated March 19, 1981, the licensee requested an exemption for similarly designed watertight doors. This exemption was granted on August 16, 1982 based upon our evaluation of test data which indicated that these watertight doors would perform adequately as three-hour rated fire doors (the ASTM E-119 test).

Although the doors referenced in the November 21, 1983 letter are approximately one-half the size of the doors tested per ASTM E-119, we conclude that the size difference would not appreciably affect the test results.

With regard to the water curtains, the licensee's November 21, 1983 letter proposes installation of a dedicated sprinkler head (water curtain) to provide three-hour protection for an unrated metal emergency hatch between Corridor No. 110 (Elev. - 10'-0") and Reactor Coolant Make-Up Pump Room No. 216A (Unit 2, Elev. 5'-0"). Room 216A is presently provided with sprinkler protection. This sprinkler system will supply a dedicated sprinkler head on the Room 216A side of the hatch. On the Corridor No. 110 side of the hatch, a dedicated sprinkler head will be supplied from the Room No. 116 sprinkler system.

In an Exemption dated August 6, 1982, the staff approved the use of water curtains for specific locations at Calvert Cliffs. This approval was based upon our evaluation of ASTM E-119 test results which indicated that the proposed fire curtain design provided an equivalent level of fire protection as the required 3-hour rated fire door assemblies, and will provide reasonable assurance that a postulated fire will not propagate to redundant trains. The hydraulic capacity of the sprinkler systems supplying the dedicated heads referenced in the licensee's November 21, 1983 letter is sufficient to ensure a water curtain density on both sides of the hatch consistent with that used in the ASTM E-119 tests and is therefore adequate.

Based upon the above, we conclude that the level of fire protection provided by the watertight doors and water curtains is equivalent to the level of protection required by the technical requirements of Appendix R to 10 CFR 50, and therefore, the licensee's request to be exempted from the requirement to provide 3-hour fire rated barriers for the areas described in Attachment 1, herein, should be granted.

An Exemption has also been requested from Section III.G of Appendix R to the extent it requires the installation of automatic suppression throughout a protected area.

Fire Area 10 is located on the minus 10 foot elevation of the auxiliary building and includes a corridor and a charging pump room. There are four additional rooms in Fire Area 10 that contain water processing equipment. Four rooms do not contain fixed fire suppression (sprinklers). The remainder of Fire Area 10 is provided with automatic suppression and detection. The combustible loading in the area is negligible.

Fire Area 11 is on the 5 foot through 69 foot elevations of the auxiliary building. Automatic fire suppression and detection are provided on the 5 foot elevation; however, the automatic sprinkler system does not extend to the 69 foot elevation. The floor/ceiling assembly between the 45 and 69 foot elevations is a 3-hour rated barrier except for a rolling steel fire door. The door is approved as a 3-hour rated barrier when installed vertically, but as installed in the floor, its fire resistance capability is uncertain. The ceiling height in both areas is greater than 20 feet. The combustibile loading is negligible. Cables for the diesel generators are located on the 45 foot elevation at the ceiling level; however, they are located greater than 20 feet above the floor and are adequately protected by automatic sprinklers.

Redundant cables are located in a corridor on the 69 foot elevation behind the spent fuel pools approximately 40 feet away. The corridor construction is unrated.

Fire Areas 10 and 11 consist of large areas containing negligible amounts of combustibile materials. Sprinklers are provided in portions of the areas where minor quantities of combustibles exist. Detection systems are provided throughout the areas. If a fire occurred in a non-sprinklered portion of either area, the early warning provided would alert the fire brigade. The configuration of the areas combined with the response of the fire brigade would prevent a fire from growing to a size which would overwhelm the partial sprinkler systems. The addition of more sprinkler coverage would not significantly enhance safety.

Based on our evaluation, we conclude that the protection provided for the Fire Areas 10 and 11 provide a level of fire protection equivalent to the technical requirements of Section III.G. The exemption should, therefore, be granted.

With regard to RCP oil collection, the licensee has requested an exemption from Appendix R Section III.0 to the extent that it requires an oil collection tank sized to hold the lube oil inventory of all four RCP motors.

Each Calvert Cliffs reactor coolant system has four reactor coolant pumps, with an oil collection system which drains to two vented closed collection tanks (two pumps per tank). The quantity of lubricating oil in each pump is 225 gallons. The capacity of each oil collection tank is 275 gallons. The components, except for the collection tanks, have been designed so that they are capable of withstanding a safe shutdown earthquake (SSE). The collection tanks are arranged such that, if a failure of more than one RCP motor lube system occurred, the oil collection tank would overflow onto the lower containment floor. The lubricating oil used in the RCP motors has a flash point greater than 400°F. There are no ignition sources at the floor level of the lower containment.

The RCP motor lube oil system does not comply with Section III.0 because the oil collection tank is not sized to contain the entire lube oil system inventory. The RCP motor lube oil system is capable of withstanding the safe shutdown earthquake. The oil collection tank is provided with sufficient capacity to hold the total lube oil inventory of one reactor coolant pump with margin and is designed so that any overflow will be drained to a safe location. This combination of features is acceptable.

Based on the above, the existing RCP motor lube oil collection system provides a level of safety equivalent to the technical requirements of Section III.0 and, therefore, the exemption should be granted.

III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest and hereby grants the following exemptions with respect to the requirements of Appendix R to 10 CFR Part 50:

° Section III.G - "Fire protection of safe shutdown capability"

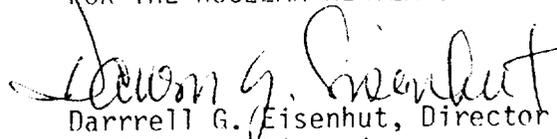
- (1) The licensee may utilize the proposed alternatives to the requirement for maintenance of 3-hour fire rated barriers. The proposed alternatives and locations of their use are contained in Attachment 1 hereto.
- (2) The licensee need not install fixed fire suppression systems in Fire Areas 10 and 11 in addition to that described in the the licensee's November 21, 1983 submittal.

° Section III.0 - "Oil collection system for reactor coolant pump"

The existing oil collection tank capacity for Calvert Cliffs Units 1 and 2 is adequate.

The NRC staff has determined that the granting of this Exemption will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 15th day of March, 1984.

Attachment:

1. Alternative Fire Barriers
Calvert Cliffs Units 1 and 2

ATTACHMENT 1

CALVERT CLIFFS UNITS 1 AND 2

ALTERNATIVE FIRE BARRIERS

<u>Unit No.</u>	<u>Door No.</u>	<u>Between Rooms</u>	<u>Type</u>
1	Emergency Hatch 3	226 & 227	Watertight
2	Emergency Hatch 4	205 & 206	Watertight
2	Escape Hatch	216A & 110	Water curtain