

NRC PDR



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

September 20, 1979

MEMORANDUM FOR: D. Notley, Engineering Methodology Branch, DES/OSD  
P. Matthew, Auxiliary Systems Branch, DSS  
C. Long, Technical Assistant, DSS  
G. Harrison, Auxiliary Systems Branch, DSS  
M. Williams, Technical Assistant, DPM  
T. Wambach, Operating Reactors Branch #2, DOR  
FROM: E. Sylvester, Plant Systems Branch, DOR  
SUBJECT: FIRE PROTECTION REVIEW GROUP MEETING

A meeting of the Fire Protection Review Group has been scheduled for Friday, September 21, 1979 at 9:00 a.m. in 6110 MNBB. The purpose of this meeting is to obtain clarification of the intent and/or basis for certain requirements of Appendix A to Branch Technical Position 9.5-1 and to discuss the current rulemaking effort for fire protection regulations.

The enclosure provides three staff positions from the Calvert Cliffs 1/2 fire review. The licensee may appeal these positions following a meeting scheduled for October 2, 1979. Clarification of the basis and/or intent of the Appendix A guidelines from which these positions are derived is desired prior to the licensee meeting. The specific subjects for review group discussion are:

1. Halon System Backup Power

Section E.1.(d) of Appendix A requires that fire suppression actuation systems be connected to the plant emergency power supply. The basis for this requirement should be clarified. Halon systems protecting safety-related rooms and electrical cabinets are usually contained completely within the protected space. A fire in the space could damage cables that supply emergency power to the Halon system actuation devices. The acceptability of individual batteries as a source of backup power to Halon systems should be discussed.

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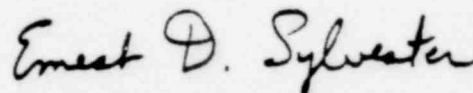
September 20, 1979

2. Emergency Lighting

Section D.5.(a) of Appendix A requires fixed emergency lighting units having individual 8-hour battery power supplies. The basis for the 8-hour minimum battery capability is not clear and the acceptability of a lower rating and the use of portable units should be discussed.

3. Fire Pump Separation

Section E.2.(c) of Appendix A does not clearly specify the requirements for separation between redundant fire pumps. This section requires that fire pumps be separated from the "remaining pumps" by three hour barriers while Regulatory Guide 1.120, in Section 5.b.(3), specifically requires that fire pumps be separated from the "remaining fire pumps" by 3 hour barriers. The DOR review teams have required fire protection for redundant fire pumps to preclude damage to both pumps from a single fire. However, because of the ambiguities in the Appendix A guidelines, 3 hour barriers have not always been required between redundant pumps. The intent of the Appendix A guidelines should be clarified.



Ernest D. Sylvester  
Plant Systems Branch  
Division of Operating Reactors

Enclosure:  
Staff Positions - Calvert  
Cliffs 1/2 Fire Review

cc w/enclosure:  
D. Eisenhut  
B. Grimes  
G. Lainas  
V. Benaroya  
R. Ferguson  
T. Lee  
P. Tam, ACRS  
G. Cunningham, OELD

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ENCLOSURE

STAFF POSITIONS

CALVERT CLIFFS 1/2 FIRE REVIEW

3.3.14 Halon System Backup Power

Staff Position:

Automatic Halon suppression systems should be provided with backup onsite power.

Basis:

Halon systems are provided in (a) the computer room and (b) relay cabinets in cable spreading rooms. The Halon suppression systems are powered by the 125-volt AC system that is not backed up by emergency AC power.

The NRC guidelines (A-31) states that the Halon system should, as a minimum comply with the requirements of NFPA 12A; NFPA 12A requires capability for emergency manual operation.

The subject systems require electric power for automatic or manual operation; therefore, the systems as presently designed do not detect or suppress fires when off-site power is not available.

The NRC guidelines (A-23) state that fire detection and actuation systems should be connected to the plant emergency power supply. The NRR Fire Protection Review Group has indicated that this is a minimum requirement to comply with GDC 3.

3.3.25 Emergency Lighting

Staff Position:

Fixed, sealed beam emergency lighting units with battery power rated at least 8 hours should be provided in safety-related areas and their access to facilitate fire fighting and emergency operation of equipment.

Basis:

The NRC guideline (A-22) states that suitable fixed and portable emergency lighting should be provided to facilitate safe shutdown and emergency responses in the event of fire. The guideline further provides that fixed emergency lighting should consist of sealed beam units with individual 8-hour minimum battery power supplies.

Besides the control room which has a fixed emergency lighting system supplied by station batteries, there are fixed emergency lighting units in many plant areas. However, the battery power rating for these lighting units are only 1-1/2 hours. Moreover, the licensee has not verified that the distribution of existing lighting units provides adequate lighting for safe shutdown and emergency responses.

The NRR Fire Protection Review Group has indicated that this is a minimum requirement to comply with GDC 3.

### 3.3.48 Fire Pump Separation

#### Staff Position:

A three-hour rated fire barrier should be provided to separate redundant fire water pumps to assure the availability of at least one fire water pump during the fire emergency.

#### Basis:

The NRC guidelines (A-25) state that the redundant fire pumps and drivers should be separated from each other and from other plant areas by a minimum 3-hour fire wall.

The Calvert Cliffs fire pumps (one electric and one diesel) are located in the same room together with the diesel oil day tank. The room is protected by an automatic sprinkler system. Fire water to this sprinkler can be provided by the 10,000 gallon pressure tank in case the pumps are not operable. However, when coupled with a possible fire water demand at other plant area the content of this pressure tank may only supply fire water for 3-5 minutes.

The NRC guidelines (A-2) state that a single failure in the fire suppression system should not impair both the primary and backup fire suppression capability.

One failure mode of the diesel fire pump could lead to a fire with a zone of influence that affects the electric fire pump. The licensee has not demonstrated that the installed sprinkler system provides equivalent protection to the 3-hour fire barrier in limiting the effects of such a fire on the electric pump.