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Department of Nuclear Energy

April 14, 1980

Mr. Robert L. Ferguson  
Plant Systems Branch  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

RE: Calvert Cliffs, Fire Protection Review, Item 3.2.2.

Dear Bob:

Attached is the Brookhaven National Laboratory input for Item 3.2.2,  
Emergency Lighting, for the Calvert Cliffs facility.

Respectfully yours,

Robert E. Hall, Group Leader  
Reactor Engineering Analysis

REH:EAM:sd  
attachment

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## CALVERT CLIFFS

### Fire Protection Review

#### Item 3.2.2 - Emergency Lighting

The SER states that "the licensee has not provided sufficient justification for not replacing the existing 1-1/2 hour rated batteries of the emergency lighting units with those of 8-hour rating. The distribution of existing emergency lighting units has not been demonstrated to provide adequate lighting for shutdown operation and fire emergency responses."

This item is still under evaluation by the licensee. They responded on November 13, 1979 as follows:

"The normal lighting throughout the plant is fed from the station auxiliary transformers. The normal/emergency lighting in the Control Room consists of normal AC/emergency AC and emergency DC. Upon loss of AC power, the emergency DC lighting in the Control Room is provided from the 125 volt station batteries. (DC Control Panel Bus 24). Also, the emergency AC is provided by the auxiliary busses which are fed by emergency diesel generators upon loss of offsite AC power.

The normal AC/emergency AC lighting is provided for Cable Spreading Room (elevation 27'-0") and Switchgear Rooms (elevation 27'-0" and 45'-0"). The emergency AC is provided by the auxiliary busses which are fed by the emergency diesel generator upon loss of AC power. For personnel safety and safe egress during the period of time it takes the diesel generator to pick up the lighting load, less than 5 minutes, battery-operated emergency lights have been provided. These battery-operated emergency lights actuate immediately upon loss of normal AC power.

All safety related areas of the plant contain fixed emergency lighting units, which have individual batteries and are presently rated for 1-1/2 hours. These units are automatically actuated upon loss of normal AC power. We will replace the existing 1-1/2 hour units with new 8 hour battery-operated units in the areas listed below. The new units will be Exide Model B-200, or equal."

This was accompanied by an attachment showing literature of the units that the licensee intends to purchase and a list of areas as follows in which they state that they will replace the 1-1/2 hour rated lighting units with 8 hour rated lighting units.

Corridors 100, 103, 104, and 120 (elevation -10' and -15')  
Corridors 200, 202, 203, 212, and 224 (elevation 5' and 10')  
Corridors 300, 308, 309, 315, 319, and 327 (elevation 27')  
Corridors 410 and 426 (elevation 45')  
Stairtowers AB-1, AB-2, AB-3, AB-4, AB-5, and T-3.  
Auxiliary Feed Water Pump Rooms 603 and 605 (including passageway in Heater Bay)  
Diesel Generator Rooms 416, 421, and 422, Room 419.  
Automatic Steam Dump Valve Rooms 408 and 428  
Auxiliary Feed Water Valve Rooms 310 and 316  
Fire Pump House

We have reviewed the submittals of the lighting units and find that the type of unit is satisfactory. We recommend that the staff accept this part of Item 3.3.2.

As to the areas where the licensee proposes to change from 1-1/2 hour units to 8 hour units we have the following recommendations:

- o Use fixed 8 hour emergency units on all stairways including stairway AB-B shown on print D-7.
- o Use fixed 8 hour emergency units on area 122 - containment recirculating pipe tunnel. Note, the similar tunnel #120 listed by the licensee as one they propose to change.
- o Provide fixed 8 hour rated emergency lighting units to corridor #328 which leads to emergency escape hatch or west wall.
- o Provide fixed 8 hour rated emergency lighting units to access to shutdown area U-1 and U-2 horizontal cable chases.
- o Provide fixed 8 hour rated emergency lighting to personnel access areas 525 and 527; these are shutdown areas providing access to the containments.

We recommend that the staff accept this part of item 3.3.2 subject to the installation of the additional units listed above.