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FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
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SUBJECT: Forwards request for exemption from 10CFR50,App R,Section III.G.3 re automatically actuating fixed suppression under raised floor to be installed in CR at facility.Area under floor will be provided w/cross-zoned smoke detection sys.

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Vice President
Nuclear Services Department

United States Nuclear Regulatory Commission
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Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

APPENDIX R EXEMPTION REQUEST - CONTROL ROOM FLOOR

Gentlemen:

Carolina Power & Light Company (CP&L) requests an exemption from 10 CFR 50, Appendix R, Section III.G.3 regarding automatically actuated fixed suppression under a raised floor to be installed in the Control Room at H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). The enclosure to this letter provides details of the request.

The exemption is requested pursuant to the provisions of 10 CFR 50.12(a)(2)(ii) in that the application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule. The proposed raised floor in the Control Room will conceal certain combustibles. However, to provide adequate fire protection in the Control Room, the area under the raised floor will be provided with a cross-zoned smoke detection system and a manually actuated Halon 1301 suppression system as discussed in the enclosure to this letter. Measures discussed in the enclosure to this letter will continue to provide adequate fire protection in the Control Room.

Questions regarding this matter may be referred to Mr. R. W. Prunty at (919) 546-7318.

Yours very truly,

R. B. Starkey, Jr.

RES/jbw

Enclosure

cc: Mr. S. D. Ebneter
Mr. L. W. Garner
Ms. B. L. Mozafari

R. B. Starkey, Jr., having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Eleanor C. Chappell
Notary (Seal)

ELEANOR C. CHAPPELL NOTARY PUBLIC WAKE COUNTY, N.C.

My commission expires: 2/6/96

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(1761RNP)

H. B. ROBINSON UNIT NO. 2
CONTROL ROOM
EXEMPTION REQUEST

1.0 EXEMPTION REQUEST

An exemption from the requirements of 10 CFR 50, Appendix R, Section III.G.3 is requested for the Control Room. Specifically, Carolina Power & Light Company (CP&L) requests a revision of the basis of the existing exemption from the requirements for automatic fixed fire suppression throughout the area. The requested exemption would allow the presence of concealed combustibles underneath a false floor, as well as an increase in the overall combustible loading in the area. The resulting equivalent fire severity for the Control Room will not exceed two hours.

2.0 INTRODUCTION

The Control Room is exempted from Section III.G.3 of 10 CFR Part 50, Appendix R by NRC letter dated November 13, 1981, to the extent that area-wide automatic fire suppression is not installed. The Safety Evaluation Report (SER), which granted the exemption, was based primarily on the following:

- An auxiliary shutdown system is available, independent of the Control Room, and is capable of achieving and maintaining post-fire hot shutdown.
- A complete area-wide fire detection system is provided, consisting of both heat and smoke detectors.
- The Control Room is separated from high-risk areas by three-hour-rated fire barriers.
- The combustible loading in the Control Room is low.
- The area is constantly manned, ensuring rapid response of the fire brigade.

Ongoing safety-related modifications have established the need for installation of new cables in the Control Room. The existing cable raceways cannot accommodate the additional new cable loading, and the routing of the new cables in dedicated conduits would not be practicable due to space limitations. Therefore, CP&L plans the installation of a raised floor in the Control Room, with the volume under the raised floor used as an electrical raceway (see Figure 1). The installation of the raised floor in the Control Room would constitute a change in the previously approved physical configuration by introducing additional cable combustibles, concealed beneath the raised floor.

An automatically actuated Halon system could be installed, but this is not desirable since spurious actuation could disrupt Control Room activities. Manual actuation would allow the operators to prepare for actuation by donning respirators as necessary.

This letter summarizes the existing configuration, previously approved by the NRC, and details the new planned arrangement and fire protection features for the Control Room.

3.0 EXISTING CONFIGURATION

3.1 Safe Shutdown Components

The Control Room is within the boundary of fire Area A and contains primarily active safe-shutdown Alternate B (normal shutdown) cables and components. For a fire in Area A, safe-shutdown Alternate method A (dedicated/alternate shutdown) is credited to achieve post-fire safe-shutdown. While several Alternate A safe-shutdown cables are located in Fire Area A, as addressed in the Safe-Shutdown Separation Analysis, these circuits are not required to remain electrically active to support the credited Alternate A post-fire safe-shutdown capability due to pre-fire or post-fire mitigating methods. Consequently, a fire can at most affect one credited train of safe-shutdown components. The Alternate A train of safe-shutdown equipment would remain undamaged by fire and available for achieving and maintaining post-fire safe shutdown.

3.2 Fire Protection

3.2.1 Combustible Loading

The Control Room is 1760 ft^2 in area and is separated from adjacent areas by three-hour-rated concrete walls, floor, and ceiling. The existing combustible loading in the area consists primarily of electrical cables, paper, and carpet. Those cables not inside conduits are primarily PVC insulated; cables installed in recent modifications are IEEE-383 qualified.

The total combustible loading in the Control Room is approximately 70,600 Btu/ft^2, which is equivalent to low fire severity (approximately 53 minutes).

Since transient combustibles are controlled by procedure, the potential for transient combustibles accumulating to form a hazard is insignificant.

3.2.2 Existing Active and Passive Fire Protection Features

A cross-zoned smoke and heat detection system is installed in the area. The smoke detection system also extends above the ceiling and into the control board.

Portable fire extinguishers are available in addition to fire extinguishers and fire hose stations located in adjacent areas.

4.0 PROPOSED CONFIGURATION CHANGES

4.1 Combustible Loading

As shown in Figure 1, CP&L plans to install a seismically designed raised floor within the Control Room. Cables installed under this floor will be qualified to IEEE-383, Vertical Flame Test. The maximum combustible loading anticipated to be installed under the raised floor is approximately 39,200 Btu/ft^2, which is equivalent to an additional fire severity of approximately 29 minutes.

4.2 Fire Protection

A cross-zoned smoke detection system connected to the plant fire detection system will be installed under the raised floor to provide early warning fire detection.

Utilizing the guidance of NFPA 12A, a manually actuated Halon 1301 suppression system will be installed to suppress fire underneath the raised floor. A concentration of 6 percent by volume and discharge time based on total flooding application rates will be used. Actuation of the system will be accomplished manually at the discretion of the operators/fire brigade. The system will be designed for a single usage, with no reserve supply. This system will not have any direct discharge above the raised floor in the occupied area of the Control Room. Leakage of Halon through the raised floor into occupied areas is possible.

Automatic actuation of the Halon system is not desirable for several reasons, which include:

1. Potential for environmental impact from spurious actuation due to mal-operation of the fire detection system.

2. Continuity of operations in the Control Room, which should not be abandoned. Manual actuation would allow the operators to prepare for operation by donning respirators as necessary.

Manual actuation is justified due to the slow-burning nature of the hazard and rapid fire brigade response, which makes the system necessary only to control the fire until extinguishment can be completed by the fire brigade.

5.0 POTENTIAL ENVIRONMENTAL IMPACT

The proposed exemption will provide a degree of fire protection that is consistent with that required by Appendix R for other areas of the plant such that there is no significant increase in the risk of fires at the facility. Likewise, the post-accident radiological releases will not be greater than previously determined; nor does the proposed exemption otherwise affect plant radiological effluents. Therefore, CP&L believes that there are no significant radiological environmental impacts associated with this proposed exemption.

With regard to potential non-radiological impacts, the proposed exemption involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, CP&L believes that there are no significant non-radiological environmental impacts associated with the proposed exemption.

6.0 SUMMARY

A cross-zoned smoke and heat detection system is presently installed in the general area and within the Control Board. An additional cross-zoned smoke detection system will be installed underneath a seismically mounted raised floor.

A manually actuated Halon 1301 suppression system will be installed to suppress a fire underneath the raised floor. Actuation of the system will be at the discretion of the plant operators. The system will be designed for single usage, with no reserve supply. This system will not have any direct discharge above the raised floor in the occupied area of the Control Room.

Portable fire extinguishers and manual fire hose stations are available in adjacent areas and would also be deployed if needed.

The total combustible loading in the Control Room will increase to a moderate fire severity (approximately 82 minutes).

CONTROL ROOM
SUMMARY PARAMETER EVALUATION TABLE

A. Area Description

1. Construction:

Walls, floors, and ceiling - reinforced concrete.

B. Safe-Shutdown Equipment

1. Normal shutdown cables and controls are within the fire zone.

2. A dedicated/alternative shutdown system exists which will bring the plant to a safe shutdown in the event of a fire in the Control Room.

C. Fire Hazards

1. Type of combustibles in area:

a. PVC cable insulation

b. Paper

c. Carpet

2. Combustible loading will increase to 109,800 Btu/ft^2; moderate fire severity (approximately 82 minutes).

D. Existing Fire Protection Features

1. Fire detection systems - redundant cross-zoned smoke and heat detectors throughout area; smoke detectors extend into Control Board.

2. Fire suppression systems:

a. Portable fire extinguishers

b. Fire hose stations

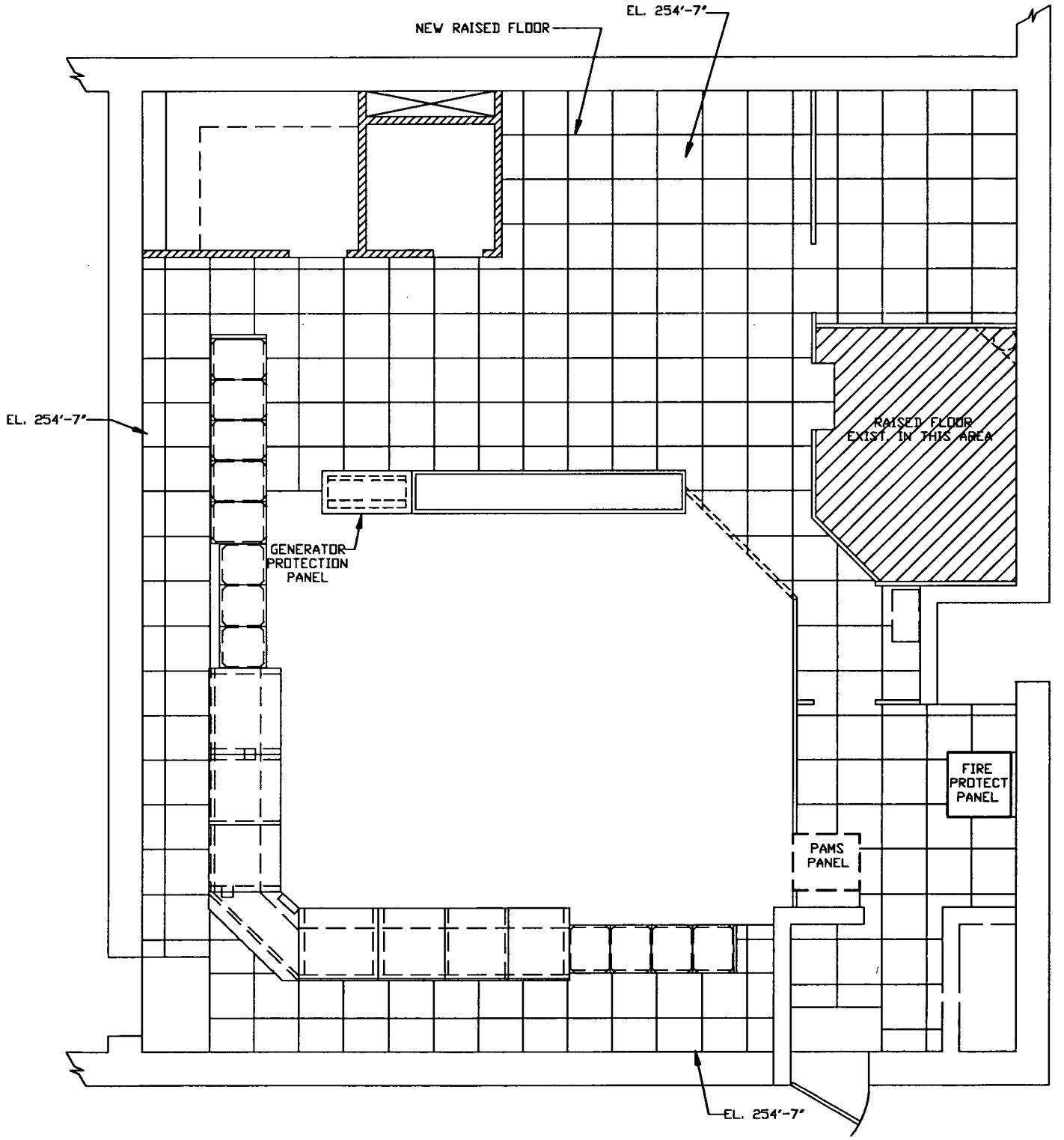
E. Proposed Additional Fire Protection Features

1. Fire detection system - redundant cross-zoned smoke detectors underneath the raised floor.

2. Fire suppression systems:

Single-usage, manually actuated Halon 1301 local application system discharging under raised floor only; no direct discharge above floor in occupied space.

FIGURE 1



PLAN @ ELEV. 254'-0"

H.B. ROBINSON UNIT 2
CONTROL ROOM