

AUG 27 1987

Docket No. 50-325/324

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Mr. E. E. Utley, Senior Executive Vice President  
Power Supply and Engineering & Construction  
Carolina Power & Light Company  
Post Office Box 1551  
Raleigh, North Carolina 27602

Dear Mr. Utley:

SUBJECT: EXEMPTION FROM 10 CFR PART 50, APPENDIX R  
SECTION III.J - BRUNSWICK STEAM ELECTRIC PLANT,  
UNITS 1 and 2 (TAC NOS. 64182 and 64183)

By letter dated December 3, 1986, you requested an Exemption from the technical requirements of 10 CFR Part 50, Appendix R, Section III.J. This request involves the requirement for emergency lighting units with at least an 8-hour battery supply in all areas needed for operation of safe shutdown equipment.

The Nuclear Regulatory Commission has granted your Exemption request pursuant to 10 CFR Part 50.12. The bases for this Exemption are discussed in the enclosed Exemption and Safety Evaluation.

The Exemption permits substitution of the 8-hour battery lighting with:

- 1) the use of diesel generators to power lighting in the plant control room upon loss of offsite power.
- 2) the use of two-hour battery-powered lighting upon loss of diesel generators concurrent with loss of offsite power.
- 3) assurance that power sources are routed underground and are separated by at least a three-hour rated fire barrier.

The Exemption is being forwarded to the Office of the Federal Register for publication. This completes our action on your submittal.

Sincerely,

*/s/*

Ernest D. Sylvester, Project Manager  
Project Directorate II-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
Exemption  
Safety Evaluation

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Mr. E. E. Utley  
Carolina Power & Light Company

Brunswick Steam Electric Plant  
Units 1 and 2

cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of

CAROLINA POWER & LIGHT COMPANY, et al.

(Brunswick Steam Electric Plant,  
Units 1 and 2)

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Docket Nos. 50-325 and 50-324

EXEMPTION

I.

Carolina Power & Light Company (the licensee) is the holder of Facility Operating License Nos. DPR-71 and DPR-62, which authorize operation of the Brunswick Steam Electric Plant, Units 1 and 2, respectively (Brunswick or the facilities). The licenses provide, among other things, that the facilities are subject to all rules, regulations and Orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

The facilities are boiling water reactors located at the licensee's site in Brunswick County, North Carolina.

II.

Section 50.48 of 10 CFR Part 50 requires that licensed operating reactors be subject to the requirements of Appendix R of 10 CFR Part 50. Appendix R contains the general and specific requirements for fire protection programs at licensed nuclear facilities. On February 17, 1981, the fire protection rule for nuclear power plants, 10 CFR 50.48 and Appendix R, became effective. This rule required all licensees of plants licensed prior to January 1, 1979, to

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submit by March 19, 1981: (1) plans and schedules for meeting the applicable requirements of Appendix R, (2) a design description of any modifications proposed to provide alternative safe shutdown capabilities pursuant to Paragraph III.G.3 of Appendix R, and (3) exemption requests for which the tolling provisions of Section 50.48(c)(6) were to be invoked.

### III.

By letter dated December 3, 1986, the licensee requested an exemption from Section III.J of Appendix R to 10 CFR Part 50 for the lights in the control room common to both Units 1 and 2 of the Brunswick Steam Electric Plant. Section III.J requires emergency lighting units with at least an 8-hour battery power supply to be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.

The lights in the control room are designed to be powered by the emergency diesel generators in the event of the loss of offsite power and by the station batteries upon the additional loss of the emergency diesel generators. In addition, the power sources from the diesel generators are separated from each other by three-hour rated fire barriers in the diesel generator building and in separate underground ducts to the control building. The licensee notes that a single credible fire, exterior to the control building, will not cause a loss of control room lighting; and, thus, the licensee has requested an exemption. The acceptability of the exemption request is addressed below. More details are contained in the Commission's related Safety Evaluation issued concurrently with this exemption.

The licensee's exemption request involves the need for 8-hour battery-powered lighting units in areas having safe shutdown equipment. The reason for requiring 8-hour battery-powered emergency lighting is to ensure that at least minimum lighting is available for performance of manual actions necessary for safe shutdown after a fire. The licensee requested the exemption to allow the use of:

1. diesel generators to power lighting in case of loss of offsite power.
2. station batteries capable of supplying power for a minimum of 120 minutes if the diesel generators fail.

The Control Room area is common to both units and area lighting is provided equally by each unit. Every other light fixture in the area is fed from the opposite unit. The normal AC lighting power sources for the Control Room are physically separated by the length of the Control Building, since the cables enter the building at opposite ends. This arrangement will assure that adequate Control Room lighting will be provided for any fire where safe shutdown is accomplished from the Control Room.

The Control Room area is the only area where both sources of power come in close proximity. A Control Room fire significant enough to damage both lighting power sources would result in an evacuation of the area. For this condition, egress lighting (eight-hour battery units) from the area has been installed.

For a fire in any area outside the Control Room, adequate Control Room lighting will be provided by either the diesel generators or the station batteries. These provisions will assure that lighting is provided for a duration which would meet and, in fact, exceed the eight-hour requirement in paragraph III.J of Appendix R.

In addition, both trains of the emergency diesel generators are routed underground and separated by a 3-hour barrier in the Diesel Generator Building. Therefore, a single credible fire either in the building or in the yard will not result in a loss of both trains from both units. Therefore, a single credible fire exterior to the Control Building will not cause a loss of AC lighting.

#### IV.

The licensee provided a determination that special circumstances exist under 10 CFR 50.12(a). As discussed above, the underlying purposes of the requirement of Section III.J of Appendix R to 10 CFR Part 50 are to ensure that at least minimum lighting is available for the performance of actions necessary for safe shutdown after a fire. The application of the regulation in this case is not necessary to achieve its underlying purpose. The purpose can be met with the use of emergency diesel generators and station batteries.

Accordingly, the Commission has determined that pursuant to 10CFR 50.12(a), the Exemption, as described in Section III, is authorized by law and will not present an undue risk to the public health and safety and is consistent with common defense and security, and special circumstances are present for the Exemption, in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purposes of Appendix R to 10 CFR Part 50. Therefore, the Commission hereby grants the Exemption from paragraph III.J of Appendix R to 10 CFR Part 50 to allow the use of emergency lighting, powered initially by the emergency diesel generators, and then by station batteries.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this Exemption will have no significant impact on the environment (52 FR 29452). This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Steven A. Varga, Director  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland this 27th day of August 1987

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

AUG 27 1987

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
REGARDING A REQUEST FOR EXEMPTION FROM SECTION III.J OF APPENDIX R

CAROLINA POWER & LIGHT COMPANY, et al.

BRUNSWICK STEAM ELECTRIC PLANT

UNITS 1 and 2

DOCKET NOS. 50-325 and 50-324

I. Introduction

By letter dated December 3, 1986, Carolina Power & Light Company, the licensee, requested Exemption from the requirements of Section III.J of Appendix R to 10 CFR Part 50 for lighting in the plant control room. Section III.J of Appendix R requires emergency lighting units with at least an 8-hour battery power supply in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.

II. Discussion

The lights in the control room are designed to be powered by the emergency diesel generators in the event of the loss of offsite power. In response to questions from the staff, the licensee stated in a letter dated February 20, 1987, that the lights would be powered automatically by the station batteries upon both the loss of offsite power and failure of the emergency diesel generators. In addition, the batteries are capable of supplying the control room lights and other required emergency loads for a minimum of 120 minutes. Also, the emergency power sources from each unit are separated by at least a three-hour rated fire barrier within the diesel generator building and are routed underground to the control room.

III. Evaluation

The staff considers the underground routing of the emergency power sources and the three-hour barriers in the Diesel Generator Building to be adequate to assure that a fire outside of the control room will not result in a loss of emergency diesel power to the control building.

Also, the staff considers lighting powered initially by the emergency diesel generators, and by station batteries having emergency load capability of at least 120 minutes (in case of failure of the emergency diesel generators), to be equivalent to 8-hour battery powered lights. Lastly, the diesel generator, the station batteries, related control circuits, and cooling capabilities have been previously reviewed and accepted by NRC staff for compliance with Appendix R to 10 CFR Part 50.

#### IV. Conclusion

Based on the above evaluation, the staff has concluded that an Exemption from the requirements of Section III.J of Appendix R for the control room should be granted.

Principal Contributors: R. Wescott, D. Notley

Dated: August 27, 1987

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