

March 23, 1997

Mr. Donald A. Reid  
Vice President, Operations  
Vermont Yankee Nuclear Power Corporation  
Ferry Road  
Brattleboro, VT 05301

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION (TAC NO. M95760)

Dear Mr. Reid:

The Commission has issued the enclosed exemption from the requirements of Section III.J of 10 CFR Part 50, Appendix R in response to your letter dated June 17, 1996. The exemption, which is being forwarded to the Office of the Federal Register for publication, pertains to certain requirements for emergency lighting in specified areas of the Vermont Yankee Nuclear Power Station.

The enclosed Safety Evaluation documents the NRC staff's review of these issues.

Sincerely,

(Original Signed By)

Vernon L. Rooney, Sr. Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures: 1. Exemption  
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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Vermont Yankee Nuclear Power Corporation  
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A handwritten signature in black ink, appearing to read "V. L. Rooney, Sr.", written over a horizontal line.

Vernon L. Rooney, Sr. Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-271

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )

VERMONT YANKEE NUCLEAR )  
POWER CORPORATION )

(Vermont Yankee Nuclear )  
Power Station) )

Docket No. 50-271

EXEMPTION

I.

The Vermont Yankee Nuclear Power Corporation (VYNPC, the licensee) is the holder of Facility Operating License No. DPR-28 which authorizes operation of the Vermont Yankee Nuclear Power Station (the facility) at power levels no greater than 1593 megawatts thermal. The facility is a single-unit boiling water reactor (BWR) located at the licensee's site in Windham County, Vermont.

The License provides, among other things, that the Vermont Yankee Nuclear Power Station is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR Part 50 regarding fire protection features of nuclear power plants. The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains 15 subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. Subsection III.J is the subject of the licensee's exemption request.

Section III.J of Appendix R requires that emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto.

### III.

By letter dated June 17, 1996, the licensee requested an exemption from Section III.J of Appendix R. In particular, the licensee stated that it cannot meet the requirements for emergency lighting units with at least an 8-hour battery power supply in the following areas:

- (1) A portion of general yard areas for access and egress to the nitrogen containment inerting tank area and the nitrogen storage bottle area, and
- (2) the nitrogen containment inerting tank area and the nitrogen storage tank area.

The licensee proposes to utilize the security perimeter lighting for outdoor egress routes and for tasks performed in either of two locations. Based on the staff's review of the information provided by the licensee, the staff has concluded, given that the security lighting is powered from a separate power source, the security lighting is not vulnerable to fire loss. The security lighting is inspected and maintained as part of the plant security requirements. The licensee has confirmed that the illumination levels in the affected areas of the plant are adequate to enable operators to implement the actions required for safe shutdown.

Therefore, the staff considers the licensee's alternative lighting configuration to be equivalent to that achieved by literal conformance with Appendix R to 10 CFR Part 50 and, therefore, meets the underlying purpose of Section III.J of Appendix R. Therefore, the licensee's request for exemption from the requirements of Section III.J in the subject locations should be granted.

#### IV.

Pursuant to 10 CFR 50.12(a)(2), the Commission will not consider granting an exemption unless special circumstances are present. Item (ii) of the subject regulation includes special circumstances where application of the subject regulation would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

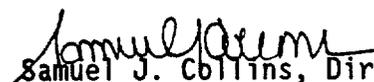
The underlying purpose of Section III.J of Appendix R is to provide adequate illumination to assure the capability of performing all necessary safe shutdown functions as well as provide illumination for required movements into and out of the plant. In lieu of the 8-hour battery powered units specified by Appendix R, the licensee has proposed using existing security lighting. The staff has reviewed the proposed alternative and has concluded, as described above, that the security lighting system would be a reliable alternative and would provide an adequate level of illumination to assure that all required safe shutdown functions and required personnel movements can be performed. Therefore, the staff concludes that special circumstances exist for the licensee's requested exemption in that imposition of the literal requirements of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of Appendix R to 10 CFR Part 50.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a)(2)(ii), special circumstances exist in that existing levels of emergency lighting satisfy the underlying purpose of Appendix R to 10 CFR Part 50. Further, the staff has concluded that the requested exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Therefore, the Commission hereby grants the exemption request from the requirements of Section III.J of Appendix R to 10 CFR Part 50 described in Section III above.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of this exemption will have no significant impact on the quality of the human environment (62 FR 12255).

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Samuel J. Collins, Director  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland this  
23rd day of March 1997

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a)(2)(ii), special circumstances exist in that existing levels of emergency lighting satisfy the underlying purpose of Appendix R to 10 CFR Part 50. Further, the staff has concluded that the requested exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Therefore, the Commission hereby grants the exemption request from the requirements of Section III.J of Appendix R to 10 CFR Part 50 described in Section III above.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of this exemption will have no significant impact on the quality of the human environment (62 FR 12255 ).

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Samuel J. Collins, Director  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland this  
day of

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UNITED STATES  
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
EXEMPTION RELATED TO 10 CFR PART 50, APPENDIX R, SECTION III.J

EMERGENCY LIGHTING

VERMONT YANKEE NUCLEAR POWER CORPORATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated June 17, 1996, Vermont Yankee Nuclear Power Corporation (the licensee) requested exemption from the requirements of 10 CFR Part 50, Appendix R, Section III.J, "Emergency Lighting." This section requires that "Emergency lighting units with at least an 8-hour battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access and egress routes thereto." The requested exemption would allow the use of existing security lighting in lieu of additional 8-hour battery powered lighting in specified outdoor areas of the plant.

2.0 DISCUSSION

2.1 Exemption Request

2.1.1 Licensee's Basis for Requesting Exemption

The licensee has identified a task which an operator may be required to perform outdoors in either of two areas. If this occurs the operator must also move outdoors to and from these areas. The action is the alignment of equipment to provide a long term source of nitrogen beyond the capacity of the safety relief valve (SRV) accumulators. The need for this action arises for certain Appendix R fire scenarios whose safe shutdown strategy does not immediately depressurize the reactor and uses low pressure injections systems, and the SRV's are actuated multiple times during cooldown. A long term source of nitrogen, beyond the capacity of the SRV accumulators, is required to provide multiple valve strokes. The nitrogen may be provided from either of two outdoor locations: 1) the 15,000 gallon liquid nitrogen containment inerting tank located east of the reactor building, or 2) nitrogen storage bottles located on the west wall of the reactor building equipment air lock. Both areas are well lit with existing security lighting. Walking to and from these areas can be accomplished safely because of the illumination provided by the security lighting along the perimeter of the protected area.

Plant security lighting is supplied from a backup power source. This power supply is not vulnerable to a fire that would necessitate the actions in the outdoor areas defined above. In addition, the security lighting is inspected and maintained as part of plant security requirements.

### 2.1.2 Evaluation

The licensee proposes to use the existing security lighting for a portion of outdoor access and egress routes and for tasks performed in either of two locations. The licensee has justified the requested exemption based on the adequacy of the alternative lighting to satisfy the underlying purpose of the regulation. The technical requirements of Section III.J are not met in the above-referenced locations because 8-hour battery powered emergency lighting units have not been provided where manual actions are required for safe shutdown and in routes of travel to and from these areas.

The licensee demonstrated that the fires that result in the need to take the described actions in the areas covered by the existing security lighting would not cause loss of that lighting. This lighting is powered from a separate power source and is not vulnerable to fire loss under the postulated fire scenarios.

The licensee confirmed the adequacy of the illumination levels in the affected areas by direct measurement using the criteria of 10 CFR 73.55(c)(5). This provides reasonable assurance that the safe shutdown function could be achieved. This lighting is inspected and maintained as part of the plant security requirements.

Based on the above evaluation, the staff considers the licensee's alternate lighting configuration to be equivalent to that achieved by conformance with Appendix R to 10 CFR Part 50. Application of the regulation in these circumstances is not necessary to achieve the underlying purpose of the rule.

### 3.0 CONCLUSION

The staff concludes that the requested exemption from the emergency lighting requirements of 10 CFR Part 50, Appendix R, Section III.J, is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Application of the regulation in these circumstances is not necessary to achieve the underlying purpose of the rule. Therefore the exemption is approved.

Principal Contributor: V. L. Rooney

Date: March 23, 1997