



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

EXEMPTION AND REVOCATION OF 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 29, 1995, 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. The licensee also requested withdrawal of a previously approved exemption dated June 26, 1989, from 10 CFR Part 50, Appendix R, Section III.J, for the use of emergency ac lighting in the Torus area of the Reactor Building. The licensee stated that this exemption is no longer required because it has installed 8-hour battery powered lighting in the affected areas of the Reactor Building.

2.0 DISCUSSION

2.1 Exemption Request

2.1.1 Licensee's Basis for Requesting Exemption

The licensee has identified three actions which require an operator to proceed outdoors. One action involves the manual hookup of a portable fuel oil transfer pump. Portable fuel oil transfer is only required in the case of a Turbine Building fire which damages the control circuits for normal fuel oil transfer to the day tanks of the Emergency Diesel Generators, or for a fire within the fuel oil transfer pump building. The procedure to establish portable fuel oil transfer includes action outdoors, within the protected area of the plant. The area is well lit with existing security lighting.

Another outdoor action is at the Northwest Cooling Tower valve pit. Action in this area would be required if there were a fire in the Intake Structure which disables the Service Water pumps. The procedure to establish alternate

cooling involves valve manipulation in the valve pit. Normal, as well as 8-hour battery powered lighting has been provided at the valve pit to permit operators to perform the necessary actions. Since the valve pit is located at the cooling tower, however, operators would either drive the vehicle designated for their use, or walk to the location. Walking can be accomplished safely because of the illumination provided by the Security lighting along the perimeter of the protected area.

The third action requiring operators to proceed outdoors is for valve manipulation in the Intake Structure. This action may be required for a fire in the Control Room Building or certain areas of the Reactor Building which causes delayed restart of the Service Water System. The procedure to prevent water hammer in the Service Water System involves walking outdoors to get to the Intake Structure, and throttling the Service Water Pump discharge valves located within the Intake Structure. Eight-hour battery powered lighting has been provided for the actions within the Intake Structure. As above, walking to the Intake Structure can be safely accomplished because of the illumination provided by the security lighting within and 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 which 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 one outdoor task. 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 which 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.

2.2 Revocation of Exemption

In a safety evaluation dated June 26, 1989, the NRC staff approved an exemption from the requirements of 10 CFR Part 50, Appendix R, Section III.J, for 8-hour battery powered lighting in one location in the Torus area of the Reactor Building. The licensee stated that it has installed 8-hour battery powered lighting in the affected areas. The staff finds that the stated actions demonstrate conformance to the regulation such that the previously approved exemption is no longer required. Therefore the exemption is revoked.

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.

The exemption from emergency lighting requirements in the Torus area of the Reactor Building is revoked.

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Date: August 30, 1995